SEEING COLOR *in* CLASSICAL ART

Theory, Practice, and Reception, from Antiquity to the Present

Jennifer M. S. Stager

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Seeing Color in Classical Art offers a new critical account of color as material in ancient Mediterranean art and architecture. Traversing sites from Athens to Antioch, Stager traces color across a variety of media, including handheld panel paintings, painted monumental reliefs, alloyed bronzes, and mosaic floors. This book explores the materiality of color from the ground up through analysis of the pigments, dyes, stones, soils, and metals that artists crafted into polychrome forms. Artistic practices also shaped a literary and philosophical landscape encompassing Sapphic lyric, Presocratic atomism, and Theophrastan natural history and produced a discourse on color by ancient Greek writers that reverberates in the present. Despite these abundant traces of color, ancient Mediterranean art has long been reduced to the white marble of its ruins to stage an idealized, monochrome picture of the past. Stager examines the process by which this reception tradition has elevated whiteness and feminized and racialized color. In response, this book illuminates the construction of the category of the classical in modernity and challenges its claims to order and exceptionalism. Ultimately, Stager harnesses ancient ideas of materiality, care, landscape, visual exchange, and artistic atomism to theorize color in the ancient Mediterranean and its afterlives.

Jennifer M. S. Stager is an assistant professor in the Department of History of Art at Johns Hopkins University. Her research has been supported by the Center for Advanced Study in the Visual Arts, National Gallery of Art, Washington, DC, the Getty Research Institute, and the Harvard Center for Hellenic Studies. She is coauthor, with Leila Easa, of *Public Feminism in Times of Crisis: From Sappho's Fragments to Viral Hashtags* (2022).

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Johns Hopkins University

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For Astrid, Felix, and Soren in all of your vibrant colors

CONTENTS

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A book about the phenomenon of color engages of necessity with brilliance across many fields of study, an intellectual variegation aligned with its subject. That the research and writing of this book trace much of the arc of my adult life makes the prospect of giving appropriate thanks to all who have guided my thinking both daunting and exhilarating. Foremost and in the spirit of Griselda Pollock's example to put them first, I thank my family, who have lived with this work—Peter uprooted himself to travel with me in search of colors, for fellowships and jobs, and more recently has sustained our home in Baltimore filled with its assemblage of children, plants, and animals. Our three children, Soren, Felix, and Astrid have grown up with this project, journeying to archaeological sites, research centers, and museums, first carried and later alongside me by ferry, car, foot, and even on horseback. I am grateful to dedicate this book to them.

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INTRODUCTION

For the opening ceremony of the 2004 Olympic Games in Athens, thousands of volunteers painted their faces and costumed their bodies into embodiments of iconic ancient Greek art objects, capturing their vivid colors and patterns (Figures 1 and 2).[1] Staged by director Dimitris Papaioannou, Hourglass (*Klepsydra*) performed a story of ancient Greek art in vividly polychrome living pictures (*tableaux vivants*). [2] Unlike the bright colors of those portraying objects from earlier and later epochs, however, volunteers portraying the idealized nude male statues and richly clothed female counterparts produced as dedications in the sixth to fifth centuries BCE as well as those playing the figures on the reliefs of the Parthenon wore thick white face and body paint, white muscle suits, or white dresses (Figures 3 and 4).[3] The construction of these monochrome white sculptural bodies required significant preparation and stood out dramatically on stage in contrast with the colors of earlier and later art

1 Papaioannou's choice to invite living people to perform ancient sculptures staged a narrative of unbroken autochthony, or earthbornness, between ancient and modern Greece at the opening of the twenty-fifth modern Olympiad in Athens, an event which affirmed the Greek origin of the games in antiquity and their modern revival in Athens in 1896.

2 The performance had two parts, *Allegory* and *Klepsydra* and is alternatively identified as *Birthplace*. See Dimitris Papaioannou, *Birthplace*, filmed in 2004, in Athens, Greece, www.dimitrispapaioannou.com/gr/recent/birthplace-2004. For an analysis situating this performance within the geopolitics of the modern Greek nation-state, see Johanna Hanink, *The Classical Debt: Greek Antiquity in an Era of Austerity* (Cambridge, MA: Harvard University Press, 2017), 191–193.

3 These costumes literalize Larissa Bonfante's argument for "nudity as a costume," in ancient Greek art, on which see Larissa Bonfante, "Nudity as a Costume in Classical Art," *American Journal of Archaeology* 93, no. 4 (1989): 543–570.

Figure 1 Performance of Minoan fresco paintings for *Klepsydra* at the Opening Ceremony of the 2004 Olympic Games in Athens, Greece. Designed by Dimitris Papaioannou. Source: www.youtube.com/watch?v=YYvnvr8Cpzo

bodies.[4] This costume of monochrome whiteness thus visually bracketed the living statues portraying the art of the late sixth, fifth century, and early fourth centuries BCE from the actors portraying the rest of ancient Greek art.

Yet, as Johanna Hanink argues, Papaioannou's performance ran counter to centuries of research on the lost colors of these ancient statues as well as the extant pigments still visible on them, many of which are on view in the Acropolis Museum, Athens (Figures 5 and 6).[5] More recently, a series of exhibitions and articles have emphasized the stark contrast between seemingly monochrome marble and bronze sculptures from which pigments, alloys, and inlays have been stripped or lost and those on which extant pigments and materials remain or have been reconstituted.[6] Sculpture has

4 On the elaborate costuming of these bodies, see the film about staging the performance *Birthplace/Memory*, https://vimeo.com/72146418.

5 Hanink, *Classical Debt*, 191.

6 Curatorial practice and conservation science have played a significant role in shaping a resurgence of engagement with color in ancient Mediterranean antiquity. Documents of recent international exhibitions and conferences and related essays and books on the subject of polychromy include: the landmark exhibition *Bunte Götter* that opened in 2004 in the same summer as *Klepsydra*, as well as its ongoing iterations across the globe, Vinzenz Brinkmann and Raimond Wünsche, eds., *Bunte Götter: die Farbigkeit antiker Skulptur* (Munich: Biering und Brinkmann, 2004): additional venues, some with associated catalogues, include Athens, Berlin, Cambridge, MA, Copenhagen, Frankfurt, Hamburg, Istanbul, Los Angeles, Madrid, Mexico City, Munich, New York, San Francisco, Stockholm, Vienna, Vatican City, http://www.stiftung-archaeologie.de/publicationsen.html; A selection of recent publications include: David Wharton, ed. *A Cultural History of Color in Antiquity* (London: Bloomsbury, 2021); Felix Henke, *Die Farbigkeit Der Antiken Skulptur: Die Griechischen und Lateinischen Schriftquellen zur Polychromie*, (Wiesbaden: Reichert Verlag, 2020); Amalie Skovmøller, *Facing the Colours of Roman Portraiture: Exploring the Materiality of Ancient Polychrome Forms* (Berlin: Walter de Gruyter GmbH, 2020); Samantha Bee, "White at the Museum," clip from *Full Frontal with Samantha Bee*, April 3, 2019, www.Tbs.Com/Shows/Full-Frontal-With-Samantha-Bee/Clips/White-At-The-Museum; Philippe Jockey, ed., *Les Arts de la couleur en Grèce ancienne . . . et ailleurs: approches interdisciplinaires*, BCH supplement 56 (Athens: École française d'Athènes, 2018); Margaret Talbot "The Myth of Whiteness on Classical Sculpture," *New Yorker*, October 22, 2018; Jan Stubbe Østergaard, "Colour Shifts: On Methodologies in Research on the Polychromy of Greek and Roman Sculpture," *Proceeding of the Danish Institute at Athens*, vol. VIII (2017): 149–176; Sarah E. Bond, "Why We Need to Start Seeing the Classical World in Color," *Hyperallergic*, June 7, 2017; Bente Kiilerich, "Towards a 'Polychrome History' of

Figure 2 Performance of painted terracotta Tanagra figurines for *Klepsydra* at the Opening Ceremony of the 2004 Olympic Games in Athens, Greece. Designed by Dimitris Papaioannou. Source: www.youtube.com/watch?v=YYvnvr8Cpzo

Greek and Roman Sculpture," *Journal of Art Historiography* 15 (2016): 1–18. Cynthia Haven, "Stanford's Painted Ladies: Cantor Exhibition Shows How the Ancient World Used Color – and How Science Reveals the Faded Past," *Stanford Report,* March 17, 2011; Vinzenz Brinkmann, Oliver Primavesi, and Max Hollein, eds. Circumlitio: *The Polychromy of Antique and Mediaeval Sculpture* (Munich: Himer Verlag, 2010); Mark Bradley, *Colour and Meaning in Ancient Rome* (Cambridge: Cambridge University Press, 2009); Roberta Panzanelli, ed., *The Color of Life* (Los Angeles: J. Paul Getty Museum, 2008); Agnès Rouveret, Sandrine Dubel, and Valérie Naas, eds., *Couleurs et matières dans l'antiquité: textes, techniques et pratiques* (Paris: Editions Rue d'Ulm, 2006); Liza Cleland and Karen Stears, eds., *Colour in the Ancient Mediterranean World* (Oxford: Hedges, 2004); Michalēs Tiverios and D. S. Tsiaphakē, eds., *Color in Ancient Greece: The Role of Color in Ancient Greek Art and Architecture (700–31 B.C.): Proceedings of the Conference Held in Thessaloniki, 12th–16th April 2000, Organized by the J. Paul Getty Museum and Aristotle University of Thessaloniki* (Thessaloniki: Aristotelio Panepistēmio Thessalonikēs, Hidryma Meletōn Lamprakē, 2002); Simone Beta and Maria Michela Sassi, eds., *I colori nel mondo antico: esperienze linguistiche e quadri simbolici: atti della giornata di studio, Siena, 28 marzo 2001* (Fiesole: Cadmo, 2003); Annie Caubet, ed., *Cornaline et pierres précieuses: la Méditerranée, de l'Antiquité àl'Islam: actes du colloque organisé au musée du Louvre par le Service culturel les 24 et 25 novembre 1995* (Paris: La Documentation française, 1999).

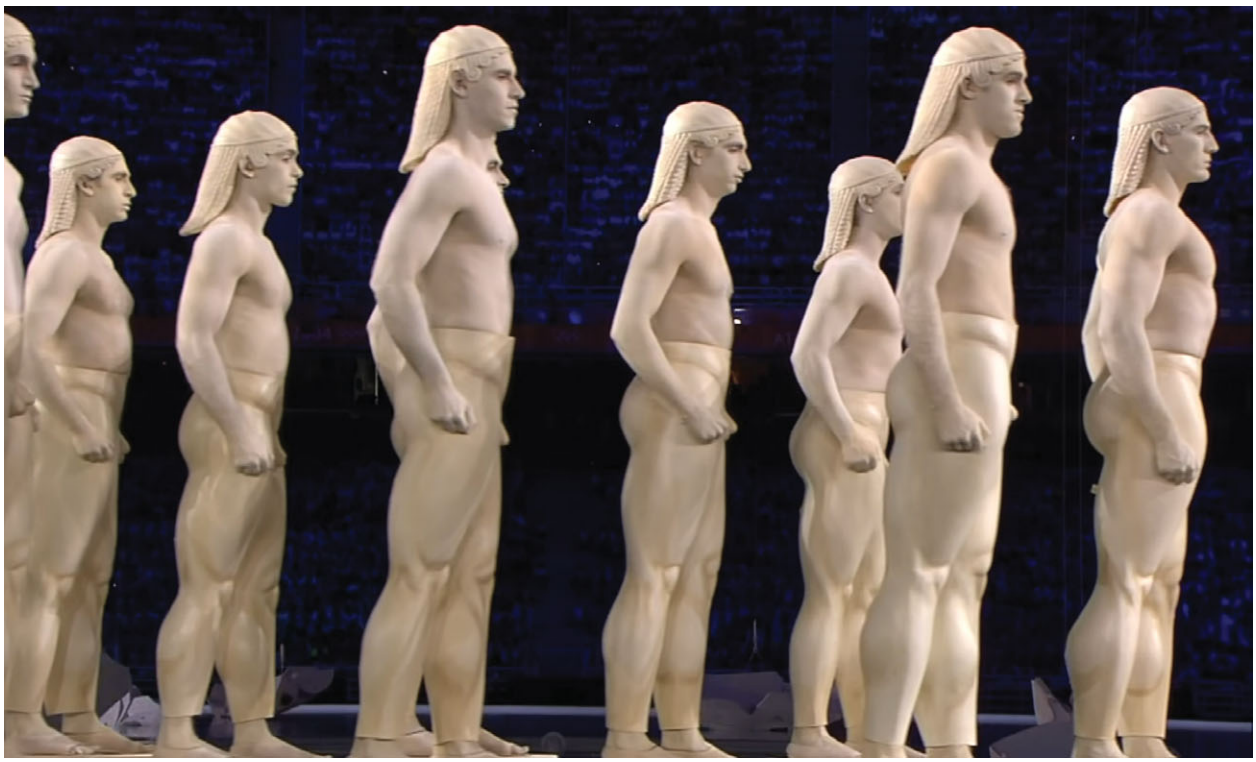


Figure 3 Performance of naked statues of young men (*kouroi*) for *Klepsydra* at the Opening Ceremony of the 2004 Olympic Games in Athens, Greece. Designed by Dimitris Papaioannou. Source: www.youtube.com/watch?v=YYvnvr8Cpzo

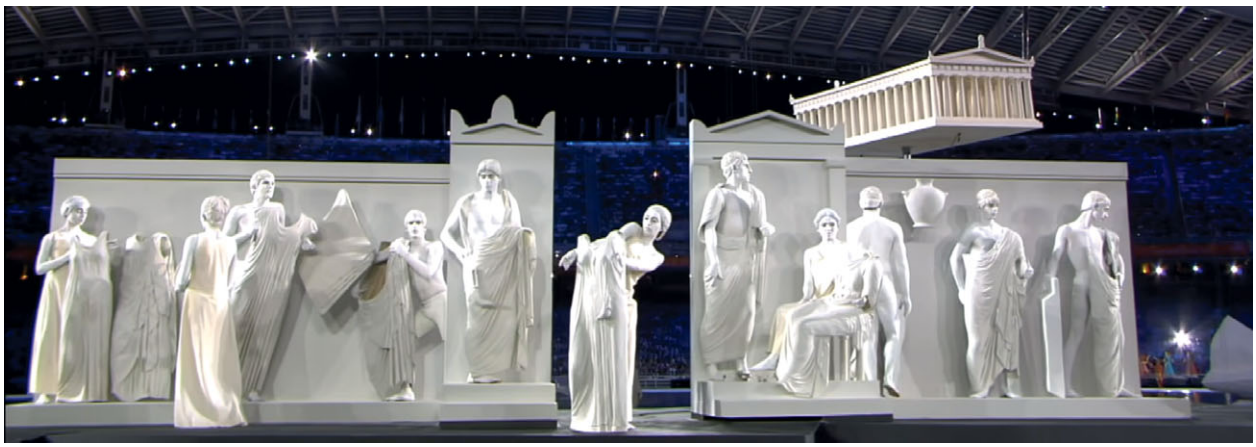


Figure 4 Performance of blocks of the frieze of the Parthenon and grave stelai, with the Parthenon floating above for *Klepsydra* at the Opening Ceremony of the 2004 Olympic Games in Athens, Greece. Designed by Dimitris Papaioannou. Source: www.youtube.com/watch?v=YYvnvr8Cpzo

long been the priority medium in the reception of the art of the ancient Mediterranean and it has remained so in the work to reconstitute colors. Even so, although the evidence for colors from every period and across different media of ancient Mediterranean art continues to accumulate, scholars have often excluded sculpture produced during the fifth through fourth centuries BCE from polychrome reconstruction.[7] Even among

7 The first iteration of *Bunte Götter*, in 2004, primarily focused on additive pigments on archaic sculptures,

Figure 5 Statue of a woman (*korē*, detail of profile), marble from Paros with pigments, ca. 490–480 BCE, H: 1.19 m, Acropolis Museum, Athens, Acr. 684. © Acropolis Museum. Photo Yiannis Koulelis

Figure 6 Statue of a woman (*korē*, frontal detail), marble from Paros with pigments, ca. 490–480 BCE, H: 1.19 m, Acropolis Museum, Athens, Acr. 684. © Acropolis Museum. Photo Yiannis Koulelis

although this focus has expanded with subsequent iterations. Notably, the iteration of the exhibition that traveled to the Harvard Art Museums (Gods in Color: Painted Sculpture of Classical Antiquity, September 22, 2007–January 8, 2008) included the additional reconstruction of a relief from Persepolis executed by Susanne Ebbinghaus and Judith Lerner as well as objects from the ancient Near East and Egypt in museum's collection. These additions were not included in the English-language version of the exhibition catalogue, although subsequent venues have modified the catalogue to include each museum's additional contributions. See also, Vinzenz Brinkmann and Oliver Primavesi, *Die Polychromie der archaischen und frühklassischen Skulptur* (Studien zur antiken Malerei und Farbgebung 5), (Munich: Biering & Brinkmann, (2003). The exhibition *Archaic Colors* at the Acropolis Museum, Athens had a similar emphasis, see Dimitrios Pandermalis, ed., *Archaic Colors* (Athens: Acropolis Museum, 2012). Researchers in Athens, at the British Museum, London, and ongoing work by the Stiftung Archälogie team have continued to recover traces of pigments on the Parthenon marbles and other objects that date to the fifth to fourth centuries BCE, undermining earlier commitments to a radical break in color practices, and affirming the observations of antiquarians. On architectural images of the Parthenon recording or recovering colors, see Brinkmann, Dreyfus, and Koch-Brinkmann, *Gods in Color*, 14–19; 82–83; 110–114; Ian Jenkins, and A. P. Middleton, "Paint on the Parthenon Sculptures," *The Annual of the British School at Athens* 83 (1988): 183–207; Amerimni Galanos and Yanna Doganis, "The Remnants of the Epidermis on the Parthenon: A Valuable Analytical Tool for Assessing

researchers of polychromy, the idea that there were colors in and on art produced during the rise and height of the Athenian democracy and Periklean building project on the Acropolis in Athens has often generated the most resistance. Analyzing different positions taken by antiquarians in the eighteenth and nineteenth centuries on the extent of paint on ancient Greek marble sculpture – full coverage, limited coverage, or none – Andreas Prater writes "especially long-lived is a group clinging to the old explanation, that painting of sculpture was characteristic of Archaic times or of the later decline of Greek art. . ."[8] This position sought to maintain the monochrome white purity of sculpture associated with the classical period, preceded by colorful primitivism of earlier Archaic art and followed by polychrome decadence of the Hellenistic period. Ongoing study, however, has continued to demonstrate what locals and antiquarian travelers observed in the eighteenth and nineteenth centuries – that colors were an integral part of ancient Greek artistic production, including on the Parthenon and its artistic program.[9]

A centerpiece of *Klepsydra* was the actress portraying the famous statue of Athena Parthenos, which was housed within the Parthenon on the Acropolis (Figure 7). She wore the appropriate iconographic identifiers: a helmet adorned with a sphinx and griffins and a protective aegis with Medusa's decapitated head strapped across her chest. She also held a statue of Nike, the goddess of victory, in her open palm. Costumed in white paint and cloth, however, she played the role of a colossal statue famed in antiquity for its vivid, material polychromy. While the ancient colossal statue has long since disappeared, the main fact that we know about the original is that it was built up from vibrant materials and brilliant colors.[10] Accounts carved

Condition," *Studies in Conservation* 48, no. 1 (2003): 3–16; "A Parthenon Metope: History and Reconstruction," virtual reconstruction, British Museum, June 23, 2014, https://youtu.be/EW5DMs1gOE; "Egyptian Blue on the Parthenon Sculptures," *British Museum and Kahn Academy*, www.khanacademy.org/humanities/ancient-art-civilizations/greek-art/classical/v/egyptian-blueparthenon; E. Aggelakopoulou, Sophia Sotiropoulou, and Giorgios Karagiannis A. Bakolas, "Architectural Polychromy on the Athenian Acropolis: An In Situ Non-Invasive Analytical Investigation of the Colour Remains" *Heritage* 5 (2022): 756–787.

8 A. Prater, "The Rediscovery of Colour in Greek Architecture and Sculpture," in Tiverios and Tsiaphakē, *Color in Ancient Greece*, 31.

9 Francis Cranmer Penrose, *An Investigation of the Principles of Athenian Architecture, or The Results of a Recent Survey Conducted Chiefly with Reference to the Optical Refinements Exhibited in The Construction of The Ancient Buildings at Athens* (London: The Society of Dilettanti, 1851). Kasia Weglowska, "Paint and the Parthenon: Conservation of Ancient Greek Sculpture," https://blog.britishmuseum.org/paint-and-the-parthenon-conservation-of-ancient-greek-sculpture/2018; Natalie Haynes, "When the Parthenon Had Dazzling Colors," *BBC*, January 22, 2018; Trevor Timpson, "Fear and Fury among the Marbles" *BBC* (September 12, 2007): http://news.bbc.co.uk/2/hi/uk_news/6986756.stm; Joan Breton Connelly, *The Parthenon Enigma* (New York: Knopf, 2013), 296–302; C. Vlassopoulou, "New Investigations into the Polychromy of the Parthenon," in *Circumlitio: The Polychromy of Antique and Mediaeval Sculpture*, ed. Vinzenz Brinkmann, Oliver Primavesi, and Max Hollein (Munich: Himer Verlag, 2010), 218–223. Ian Jenkins and A. Middleton, "Paint on the Parthenon Sculptures," *The Annual of the British School of Archaeology at Athens* 83 (1988): 183–207; Amerimni Galanos and Yanna Doganis, "The Remnants of the Epidermis on the Parthenon," *Studies in Conservation* 48, no. 1 (2003): 3–13.

10 Thucydides (II, 13), Diodorus (XII, 40), Plutarch (*Life of Pericles* 12–13; 31), and Pausanias (*Description of Greece* 1.24.5–7); Aristophanes *Birds* 670 likens the gold feathers of a bird to the gold of the Parthenos. For a current summary of the evidence to produce reconstructions, see Olga Palagia, "The Gold and Ivory Cult Statues of Pheidias in Athens and Olympia," *Handbook of Greek Sculpture* (Berlin: De Gruyter, 2019), 328–346; on the timber set into the Parthenon floor, ibid., 331. On the inlaid eyes of the Parthenos, see Olga Palagia, "Classical Athens," in *Greek Sculpture: Function, Materials and Techniques,* Olga Palagia, ed. (Cambridge: Cambridge University Press, 2008), 123; Kenneth Lapatin, *Chryselephantine Statuary in the Ancient Mediterranean World* (Oxford: Oxford University Press, 2001), 69. On inlaid eyes in chryselephantine cult statues, see Andrew Stewart, *Greek Sculpture: An Exploration* (New Haven: Yale University Press, 1990), 40. On the possibility of cypress wood for the statue's core, see Lapatin, *Chryselephantine Statuary*, 70–71. On the shaped gold plates, see ibid., 74. On stories about the removability of the plates as comedic slander, see ibid., 66n55 and 89. See also Neda

Figure 7 Performance of the Athena Parthenos for *Klepsydra* at the Opening Ceremony of the 2004 Olympic Games in Athens, Greece. Designed by Dimitris Papaioannou. Source: www.youtube.com/watch?v=YYvnvr8Cpzo

into marble stelai documented annual expenditures for the gold and ivory materials and labor necessary to produce both the statue and the building that housed it (Figure 8).[11] Working in the mid-fifth century BCE, artists in the workshop of the lead artist and designer Pheidias fitted plates of gold and ivory onto a core of wood (possibly cypress), laid in precious stones such as chalcedony, lapis lazuli, and obsidian, and layered on bright pigments, in order to form the colossal statue of Athena in her guise as Parthenos, or young virgin. The two-meter statue of Nike that the colossal Athena held in her outstretched palm was also crafted from gold. By creating the statue from many different materials, these artists forged a vibrant, polychrome wonder.

From the statue's public dedication on the Acropolis in 438 BCE, the Athena Parthenos presided over the interior of the Parthenon.[12]

Leipen, *Athena Parthenos: A Reconstruction* (Toronto: Royal Ontario Museum, 1971).

11 Separate managers (*epistatai*) oversaw the building of the Parthenon, its doors, and the statue. See *IG* 3.449, *IG* 3.458; *IG* 3.459 (unfinished), *IG* 3.460. Lack of weathering suggests that these accounts might have been set up inside the Parthenon itself or otherwise covered, on which see Stephen Lambert and Robin Osborne, translators, *Attic Inscriptions Online*: https://atticinscriptions.com/inscription/IGI3/458, footnote 1. The account includes quantities in the far-left column, with a list of expenditures, including for both gold and ivory, in the body of the inscription. See Konstantinos Arvanitakis, "Athena Parthenos: Inscriptions": https://www.theacropolismuseum.gr/en/athena-parthenos-inscriptions.

12 On the Parthenon as a temple-like structure named after the statue housed within it, see Jeffrey Hurwit, *The Acropolis in the Age of Pericles* (Cambridge: Cambridge University Press, 2004). On the reworking of the materials of the older Parthenon into the newer building, see Rachel Kousser, *The Afterlives of Greek Sculpture: Interaction, Transformation, and Destruction.* (New York: Cambridge University Press, 2017), 113. The Parthenon stood adjacent

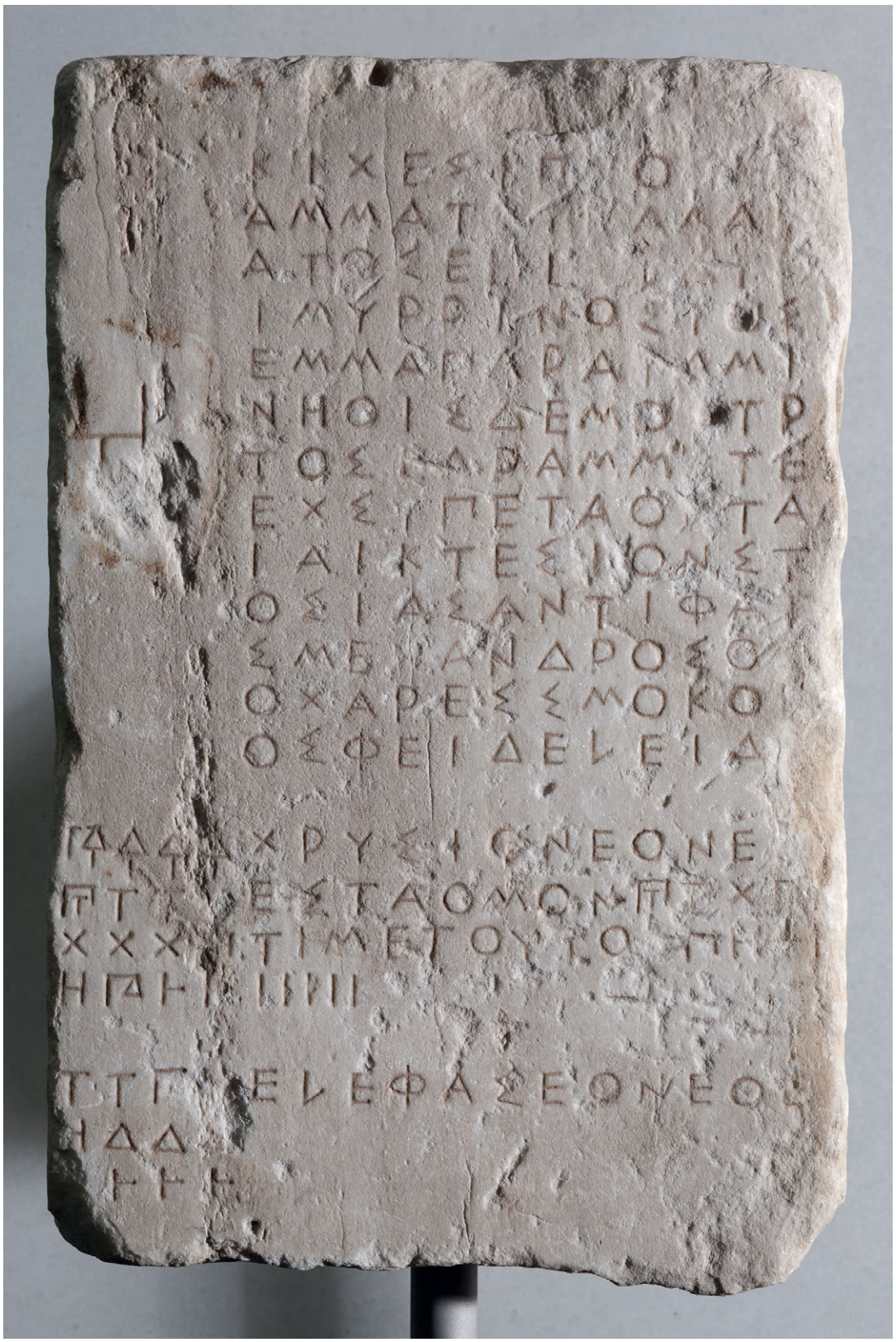


Figure 8 Financial accounts for the construction of the gold and ivory statue, 440/439 BCE, marble from Penteli; H. 0.44 m L. 0.29 m, W. 0.105 m; Acropolis Museum, Athens EM6738. @ Acropolis Museum, Athens. Photo: Nikos Daniilidis

Installed in the heart of the Acropolis and produced in the wake of victory over the Persians at a moment of celebrated democratic and imperial power for Athens, "the gold statue" was already famous in antiquity and remains central to accounts of ancient Mediterranean art.[13] The Parthenos, however, did not conform to the sort of monolithic, monochrome, white form that later beholders have come to seek from the classical past. Instead, the statue showcased and was valued for its pieced-together polychrome material splendor.

Such splendor was never static, but mutable and protean like color itself. Over the centuries, the goddess's presence-as-polychrome statue kept changing, demanding maintenance and repair. Officials might even have lent her expensive gold plates to fund the economic demands of the Athenian state.[14] Finally, historical texts suggest that a fire on the Acropolis in the third century CE likely consumed what remained.[15] Physically absent and described in texts, the Athena Parthenos statue circulated in countless reproductions in different materials, media, and scales.[16] For instance, the scaled-down statue of Athena Parthenos set up at Pergamon about 170 BCE does not retain any added pigments and substitutes white marble for the earlier statue's fitted-together material colors.[17] The second-century CE "Varvakeion" statuette of the Athena Parthenos preserves small traces of yellow and red pigments layered onto pentelic marble, indicating that some ancient iterations included additive colors. And yet because these colors only remain as small traces, the statuette presents as a miniature white marble copy, as does the "Lenormant" statuette produced in Pentelic marble in the first century CE.[18] A marble Roman statuette of the Athena Parthenos now in the collection of the Museo del Prado in Madrid, Spain (E000047), has empty sockets where its eyes would once have been inlaid with colorful materials. Other images of the Athena Parthenos on coins and plaques

to the much-older temple to Athena Polias, subsequently rebuilt as the Erechtheion, and the venerated *xoanon* (wooden cult image) of the goddess in her guise as patroness of the city of Athens.

13 On the epithets of Pheidias's statue, see Palagia, "Gold and Ivory," 330. The gold of the statue resonated not only with myths about the golden age of the Olympian gods, but also with the transition from an economy of gift exchange practiced during the centuries of the Athenian oligarchy to the circulation of coinage, on which, see Leslie Kurke, *Coins, Bodies, Games and Gold: The Politics of Meaning in Archaic Greece* (Princeton: Princeton University Press, 1999), 16–23. Athenian coins, such as the iconic tetradrachms, were predominantly struck in silver that had been mined from the Athenian-controlled Laurion mines by the grueling work of enslaved laborers. Deborah Kamen, *Status in Classical Athens* (Princeton: Princeton University Press, 2013), 8–11, 15. The iconicity of the statue of the Parthenos grew to the extent that in the second century BCE an image of the form of the statue marked the New Athenian Tetradrachms struck from Laurion silver.

14 Plutarch (*Life of Pericles* 12.5.12.1), writing centuries after its construction, suggested that Pericles commissioned the Parthenon and the statue of Athena Parthenos in part to generate work for non-military Athenians in the wake of the Persian wars, in something like the American New Deal era Works Projects Administration (1935–1943) for the fifth century BCE.

15 William Bell Dinsmoor, "The Repair of the Athena Parthenos: A Story of Five Dowels," *American Journal of Archaeology* 38, no. 1 (1934): 93–106. The removability of the gold plates pieced together on the Athena Parthenos purportedly allowed for repeated checks against embezzlement, but also for the city's possible use of the stored wealth. The fact of their removability was publicly emphasized, although Lapatin, *Chryselephantine Statuary*, 89, argues that these are comedy not historical fact. Both Pausanias (1.25.7) and Plutarch (*De Iside et Osiride* 71) recount the potentially slanderous claim that in 265 BCE, under Lachares the Athenians stripped the gold plates from the statue to draw upon its credit, leaving the wooden core momentarily exposed and the goddess naked.

16 On replications of the Athena Parthenos, see Milette Gaifman, "Statue, Cult and Reproduction," *Art History* 29, no. 2 (2006): 258–279.

17 Antikensammlung, Staatliche Museen zu Berlin, L.2016.33. Recently on loan to the Metropolitan Museum of Art, New York. Per Dr. Sarah Lepinski at the Metropolitan Museum of Art, close visual inspection of the statue does not reveal any pigment traces, but XRF analysis has not been carried out.

18 The statuette was discovered in 1880 on the site of the Varvakeio public school, from which its name derives.

translated the polychrome colossus into different media and materials.[19] Through these material and textual citations, the idea of the statue continues to preside over the cultural imaginary of ancient Mediterranean art, which prioritizes the statue's formal specifics of shape and iconography rather than the material colors that constituted the statue in the fifth century BCE. The story of the Athena Parthenos, just like the story of color, is one of erasure and substitution.

MATERIAL COLOR

I selected the Athena Parthenos as a motif to introduce this book and its aims in order to connect my larger account of color across the ancient Mediterranean with the practices of Periklean Athens. Artists forged the statue through the assemblage of gold, lapis lazuli, bronze, wood, ivory, and pigments. Although colors have been the subject of contention at many different times in the history of ancient Mediterranean art, this geotemporal, political, and cultural moment – Athens in the mid-fifth century BCE – has been particularly subject to historical whitewashing, despite the evidence of color practices aligned with those of artists working across the broader Mediterranean, Egypt, and the ancient Near East. Examining even familiar objects and texts through a materialist lens reveals colors that have been there all along, often enhanced by the added visibility that conservation analysis affords. Rather than focusing on color within a specific corpus, this book focuses on color as a phenomenon. *Seeing Color in Classical Art* recovers a period understanding of ancient Mediterranean color and analyzes the cultural, philosophical, and political shifts that this recovery engenders.

Color was often understood in the ancient Mediterranean, I argue, to inhere in materials or be produced through the assemblage of materials, what I call material color (Figures 9 and 10).[20] In its materiality, color (*khrōma*) encompasses hues (*khrōmata*), brilliance (*lamprotēs*), and variegation (*poikilia*).[21] Although scholars have explored each of these terms in relation to Greek art, brilliance and variegation are often taken as alternative priorities to hue rather than recognized as components of material color (*khrōma*).[22] Maintaining

19 Gaifman, "Statue, Cult and Reproduction," 262–269, with images.

20 See also Jennifer Stager, "The Materiality of Color in Ancient Mediterranean Art" in Rachael Goldman ed. *Essays in Global Color History: Interpreting the Ancient Spectrum* (Piscataway, NJ: Gorgias Press, 2016): 97–119.

21 On the distinctions between singularity and plurality in color language, see David Batchelor, *Chromophobia* (London: Reaktion Books, 2000), 13. Taking *khrōmata* in the plural as "hues," in this context, emphasizes this plurality and distinguishes it from the umbrella, singular term *khrōma*, which encompasses *lamprotēs*, *poikilia*, and what we would now call hues. On *lampros*, see Eleanor Irwin, *Colour Terms in Greek Poetry* (Toronto: Hakkert, 1974), 24–25, 79–80. For its parallel in Latin, see Pliny *NH* 37.58, who uses "splendor." J. J. Pollitt suggests the related term *augē*, as the appropriate ancient Greek translation, but *lamprotēs* appears in ancient Greek philosophical descriptions of colors, especially in Plato's *Timaeus*. Pollitt, "*Peri Chrōmatōn*," 6. This difference is rooted in Pollitt's separation of philosophical texts from those addressing the craft of painting. "With the possible exception of Demokritos, who wrote about colors and about painting and was one of Pliny's sources, Greek philosophers seem to have said little on the subject of color that was relevant to the practice or criticism of art," ibid., 1. This book brings together philosophical texts and texts related to artistic craft to argue that these mutually informed each other in the ancient Mediterranean and it is only through reading them together that we can access a period understanding of color.

22 Adeline Grand-Clément, "Poikilia," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Hoboken: Wiley–Blackwell, 2015), 406–407. Richard Neer, *The Emergence of the Classical Style in Greek Sculpture* (Chicago: University of Chicago Press, 2010), 113, 128. J.-P. Vernant, "Dim Body, Dazzling Body," in *Fragments for a History of the Human Body*, ed. Michel Feher (New York: Zone Books, 1989) 37–38; Marcel Detienne and Jean-Pierre Vernant, *Cunning Intelligence in Greek Culture and Society* (Hassocks: Harvester Press, 1978), 18–19. Deborah Steiner, *Images in Mind: Statues in*

Figure 9 Viewing pigments in the Art Study Center, Harvard Art Museums/Straus Center for Conservation and Technical Studies, Forbes Pigment Collection. Courtesy of Harvard University Art Museums. Photo by author

these separations accords with a reception tradition that has prioritized the luster of monochrome forms, particularly of white marble sculpture, or the dappled effects of bichrome patterns, such as on vase painting, without connecting these effects of brilliance and variegation to hues and to material color, as they would have been connected in the ancient Mediterranean. Bringing these three concepts together – hue, brilliance, and variegation – as aspects of material color captures

Archaic and Classical Greek Literature and Thought (Princeton: Princeton University Press, 2001), 21, 284; for an exception to this separation, see, on variegation and the rainbow, Bradley, *Colour and Meaning*, 39–48.

Figure 10 Six pigments in terracotta bowls, fired silt-clay, Egyptian blue, jarosite, madder, minium, gypsum, hematite, first century CE, Hawara, Egypt, H: 2.5–3.5 in., D: 4 in. British Museum, London 1888,0920.24. © The Trustees of the British Museum

the haptic, spatial, and kinetic properties of color, in addition to color's more expected and certainly significant relationship to optics.

In its materiality, color traverses artistic media. At the beginning of this project, I had imagined the objects on which extant color visible to the naked eye remained as a small and fixed corpus. Once I began looking for colors, however, like so many researchers before me, I found colors everywhere. In order to get at the ways in which the materiality of color makes up, traverses, and connects objects across media, I analyze the material colors found throughout the wider Mediterranean and used in different media. Material color maps networks of transmedial connections that separations between artistic media have effaced.[23] Recovering color thus recovers connections across texts, objects, different places and contexts, and across different artistic media. In selecting objects around which to organize the present study, I have chosen examples of material color from various media: painted freestanding and relief sculpture in marble, limestone, and terracotta, dyed textiles, fired and painted ceramics, wooden panel paintings, painted architecture, variegated bronze statues with fitted-together inlaid eyes, and mosaic floors pieced together from colorful stones and glass. I do not intend these case studies to be exhaustive, but to produce an assemblage of exempla that recover material colors across different media and contexts.

Analyzing different polychrome media together expands the field of color to a wider range of objects than merely pigments added on top of marble sculpture. In this book, therefore,

23 See, for example, Thomas Katsaros, "Pigments – Composition and Origin," in *Archaic Colors*, 22–23, who maps the pigments found on the Acropolis monuments. More pigment and material mapping, where possible, will make visible the breadth of connections forged by colors. On the pigment trade, I anticipate Hilary Becker's forthcoming monograph *Commerce in Color: The Mechanics of the Roman Pigment Trade*. On the Roman pigment workshop from the agora on Kos, see Ariadne Kostomitsopoulou Marketou, "The Pigment Production Site of the Ancient Agora of Kos (Greece): Revisiting the Material Evidence," *Thiasos: rivista di archeologia e architettura antica* 2019.8.1, 61–80.

I consider two basic categories of material color, assembled and additive. Assembled color produces forms through fitting together parts of material color to form wholes. Additive color is another way of thinking about painting, which is to say material colors layered onto a surface. Easily recognizable on acrolithic sculpture and in mosaic, assembled color has come to be associated with categories of objects that have not been celebrated as representative of idealized ancient Greek sculpture and so this sort of color has often hidden in plain sight.[24] Additive color on sculpture, in contrast, has been the type of color that has met with the most resistance in receptions of ancient Mediterranean art. Among the reasons for this resistance are the physical loss of significant numbers of panel paintings from antiquity combined with their description in texts, the later alignment of painting with the dematerialized idea, and divisions between and hierarchies of artistic media that additive color, which moves across media, belies. Painting or additive color is always layered upon a support, but in the ancient Mediterranean that support ranged from wooden panels and ceramic vessels to architectural relief and freestanding sculptures in terracotta, limestone, marble, or bronze. As matter, additive color itself also takes up space and has depth, making it not only surface, but also a part of the whole artistic form. The ubiquity of additive color on sculpture undermines the iconic status accorded to white marble because in being painted white marble joins other materials, such as limestone and terracotta. While additive color seems to operate differently from assembled color, the materiality of pigments renders additive color a subset of assemblage, or a part that also forms its outer surface.[25] The ancient Greek term *poluchroia* means both "many colors" and "many skins."[26] Particles of pigments form painted marks and artists join these marks together to form surfaces, which, like skin, are layers with depth that function as part of the polychrome whole.

Writing on the means by which artists produced chromatic assemblages, Aristotle outlines three possible modes of producing and working with colors in *On the Senses* (3.440b12–23): juxtaposition (whereby colored matter is laid next to other colored matter), superimposition (whereby one color is laid atop another), and mixing (whereby the particles of each color are blended together until they are no longer functionally separable).[27] Central to these three modes is the understanding of material color as existing in separate particles that move through space. These three terms – juxtaposition, superimposition, and mixing – describe the means by which material color-parts comprise forms.

Examining texts with this understanding of color as material allows us to recover an expansive color language in ancient Greek. All genres of ancient Greek literature, from poetry, philosophy, and epigraphy to ekphrasis and political theory, are shot through with material color

24 For an example of acrolithic sculpture, see, Laura Maniscalco, "Terracotta Figurines and the Acrolithic Statues of Demeter and Kore from Morgantina," *Les Carnets de l'ASCoST* 17 (2018): https://doi.org/10.4000/acost.1101; mosaic will be the subject of Chapter 5.

25 On modern use of assemblage, see also Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), 23–24; The Postclassicisms Collective, *Postclassicisms* (Chicago: University of Chicago Press, 2019), 53. Theorizing form and matter through assemblage, see Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 338–350; See also "The Whole and its Parts" in Gilles Deleuze and Félix Guattari, Anti-Oedipus: Capitalism and Schizophrenia (New York: Penguin, 2009), 42–44.

26 Irwin, *Colour Terms,* 114–115.

27 See Sassi, "Perceiving Colors," 271. Aristotle argues that these colors can be produced from different combinations of black and white, which at times he considers the two primary colors. See Alain E. Shapiro, "Artists' Colors and Newton's Colors," *Isis* 85, no. 4 (1994): 602–604.

words.[28] Modern readers of ancient texts have come to expect and to seek dematerialized hue-words for colors, rather than the material terms that broadcast colors and the broader color-space that material colors make up, enclose, and act within. This interpretive gap between ancient and modern understandings of the phenomenon of color, combined with the excision of colors from works of art, has shaped translation choices.[29] In turn, this modern interpretive frame crafted a period discourse about artistic practice that has elided material color and overlooked color terms in ancient Greek and Latin texts. Without this textual armature, antiquarians, archaeologists, and art historians did not prioritize extant material colors in and on ancient Mediterranean art.[30]

Ancient Greek thinkers took the phenomenon of color as an index of the visible world and debates about the nature of color were integral to philosophical explorations of that world. Artists practicing in the ancient Mediterranean wrote treatises about their color practices, although none remain extant. One such example is the lost treatise *On Colors (Peri khrōmatōn)*, written by the fourth-century BCE painter and sculptor Euphranor.[31] In addition to material colors in art, a concurrent materialist philosophical tradition runs from the fragmentary Greek texts of the Presocratic philosophers such as Empedocles and Democritus, to the Epicureans and the Latin author Lucretius, and lays the groundwork for more contemporary scholars of New Materialism.[32] Although dispersed across many fragmentary texts and preserved in quotations by later doxographers, as well as advancing heterogenous philosophical positions, the Presocratic and atomist philosophers invest in exploring the nature of the universe, the relationships between parts and wholes, the kinesis of matter, and the role of the sensorium in perception.[33] Fragments of Presocratic and atomist philosophers reveal a set of thinkers who understood material color to both comprise the visible world and to make that world visible to beholders in and through its colors.[34]

28 On color and emotion across genre in ancient Greek see Michele Asuni, *Pathos Visible: Color, Emotion, and Affect in Ancient Greece from Homer to Heliodorus*, Johns Hopkins University PhD thesis, 2022.

29 For example, the term "dark" is routinely substituted for the blue-black of lapis lazuli in translations from ancient Greek to English.

30 On the situatedness of translation, see Emily Wilson and Tyler Cowan, "Emily Wilson on Translations and Language," March 27, 2019, in *Conversations with Tyler,* ep. 63, podcast, https://conversationswithtyler.com/episodes/emily-wilson, and on the translation priorities of classics, see Johanna Hanink, "The Twists and Turns of Translation," *Eidolon*, February 4, 2019.

31 J. J. Pollitt, "Peri Chrōmatōn," 1–8. Pollitt offers excellent analysis of what traces of these lost treatises might remain in later sources. I disagree, however, with the opening premise of this essay in which Pollitt argues that philosophical writing about the nature of color, aside from Democritus, who does talk specifically about painting, have no bearing on how ancient artists thought about color. As subsequent chapters will model, philosophical and artistic inquiries and practices mutually inflect each other and color is central to both. For artist's treatises cited by later authors, see Pollitt, "Peri Khrōmatōn," 2n5.

32 On materialism and ancient Mediterranean art, see Verity Platt, "The Matter of Classical Art History," *Daedalus* 145 (2016): 69–78, and Verity Platt and Milette Gaifman, "Introduction: From Grecian Urn to Embodied Object," *Art History* 41, no. 3 (2018): 402–419. On Thales and his view on matter as water, see Kirk et al., *Presocratic Philosophers*, 88–98; on Anaximander's the indefinite (*to apeiron*), see Kirk et al., *Presocratic Philosophers*, 105. On Lucretius, see Lucretius, translated by A. E. Stallings, *The Nature of Things* (London: Penguin, 2007). Daniel Miller, *Materiality* (Durham, NC: Duke University Press, 2005). Bennett, *Vibrant Matter*. For an analysis of New Materialism in Classics, see Sarah Nooter, "Review of Mario Telò, Melissa Mueller, *The Materialities of Greek Tragedy: Objects and Affect in Aeschylus, Sophocles, and Euripides* (London: Bloomsbury, 2018), *Bryn Mawr Classical Review* 2019.11.03. Reviewing the recent material turn, see Lilah Grece Canevaro, "Materiality and Classics: (Re) Turning to the Material," *The Journal of Hellenic Studies* 139 (2019): 222–232.

33 For a recent analysis of the atomists as they relate to theories of materialism, see The Postclassicisms Collective, *Postclassicisms*, 128–143.

34 Katerina Ierodiakonou, "Empedocles on Colour and Colour Vision," *Oxford Studies in Ancient Philosophy* 29 (2005): 1–37. Kirk et al., *Presocratic Philosophers*. James

Empedocles of Acragas (ca. 495–435 BCE) uses the metaphor of a painter covering objects with variegated additive pigments to describe the mixing of matter.[35] I will paraphrase the passage here: Just as painters mix many colored pigments by hand (*poluchroia pharmaka khersin*) and create from these mixed pigments whole forms (*eidea pasin*), so do material substances craft the forms of the universe (DK 31 B23). Empedocles makes the particulate aspect of matter understandable through the metaphor of granular pigments. Material colors are assembled into forms, both in the space of representation (on and as objects) and also the spaces of the visible world and cosmos (rendered as "round about the forms of the cosmos," *peri tēs tou kosmou ideas*; DK 31 B29).[36]

Leucippus and Democritus build on these concerns to advance an atomist philosophy of kinesis and assemblage.[37] Citing the formation of bodies from atoms in Democritus, Aristotle writes: "As they [the atoms] move they collide and become entangled in such a way as to cling in close contact with one another . . . they cling to each other and stay together until such time as some stronger necessity comes from the surroundings and shakes and scatters them apart."[38] Simplicius (*in Cael.* 242.21) records that Leucippus and Democritus argue that these entanglements of atoms "stay together and so effect the coming into being of compound bodies."[39] These early materialist debates lay the groundwork for future modern materialisms.

In a reorientation of ancient Greek aesthetics, James Porter has demonstrated that the elevation of Plato and Aristotle in the reception tradition masks the active ancient Greek materialist tradition from which they emerged and with which they both continued to engage.[40] Kantean and Hegelian aesthetics, responding to paradigms that they located in Platonic and Aristotelian receptions, have shaped the foundations of the discipline of art history.[41] Modern concepts of form and formalism derive some authority from a selective application of ancient Greek terms, but their definitions differ significantly from those of ancient Greek thinkers.[42] "Modern formalists," writes Porter, "might seek an ally in Aristotle, but if so they won't have looked hard enough at his treatise. Aristotle's logic of the poetic whole has to do with a synthetic unity, a compound that is made up of parts."[43] The legacy of these Presocratic materialisms invites us to rethink even seemingly well understood statements ascribed to

I. Porter, *The Origins of Aesthetic Thought in Ancient Greece: Matter, Sensation, and Experience* (Cambridge: Cambridge University Press, 2010), 147–148, 153–155, 211–212; see also H. B. Gottschalk, "The de Coloribus and Its Author." *Hermes* 92, no. 1 (1964): 59–85.

35 Kirk et al., *Presocratic Philosophers*, 293–294. Katerina Ierodiakonou, "Empedocles and the Ancient Painters," in *Colour in the Ancient Mediterranean World*, ed. Liza. Cleland and Karen Stears (Oxford: Hedges, 2004), 91, who translates the passage as follows: "As when painters adorn votive offerings, men well taught by wisdom in their art, and so when they take in their hands pigments of various colors, mixing them in harmony, more of some, and less of others, from them they prepare forms resembling all things, making trees and men and women and beasts and birds and water-nourished fish and long-lived gods, first in their prerogatives." Rachana Kamtekar, "Knowledge by Likeness in Empedocles," *Phronesis* 54, no. 3 (2009): 233–234. Kelli Rudolph, "Sight and the Presocratics: Approaches to Visual Perception in Early Greek philosophy," in *Sight and the Ancient Senses*, ed. Michael Squire (Abingdon: Routledge, 2016), 47. Porter, *Origins of Aesthetic Thought*, 152–153.

36 Kirk et al., *Presocratic Philosophers*, 294.

37 Ibid., 402–433.

38 Aristotle, *On Democritus* 295, 11; trans. Kirk et al., *Presocratic Philosophers*, 425.

39 Kirk et al., *Presocratic Philosophers*, 425, no. 584; 426, no. 584.

40 Porter, *Origins of Aesthetic Thought*, 7; The Postclassicisms Collective, *Postclassicisms,* 140.

41 Kant S43–49, On the universality of the classical ideal, Hegel and Knox II, pp. 476–501. Jason Gaiger, "Hegel's Contested Legacy: Rethinking the Relation Between Art History and Philosophy," *The Art Bulletin* 93, no. 2 (June 2011): 179–185; Arthur Danto, *What Art Is* (New Haven: Yale University Press, 2013), 116–126; Christopher S. Wood, *A History of Art History* (Princeton: Princeton University Press, 2019), 193, 215–220.

42 Porter, *Origins of Aesthetic Thought*, 83–102.

43 Ibid., 118.

artists working in the ancient Mediterranean world. The adage attributed to the sculptor Polykleitos from his lost treatise the *Canon* – "perfection comes about little by little through many numbers" – for example, has historically been understood to emphasize the mathematical precision underlying a system of proportion governing forms.[44] These many numbers, however, as easily accord with the fitting together and ordering of polychrome matter. Important for this study and demonstrable through the material evidence from the ancient Mediterranean is the understanding that material color has parts and that assemblages of these material color-parts craft forms that scale into infinity (*eis apeiron*).[45]

MATTER AND FORM

Material color engages a philosophical discourse around matter and form that has not regularly been integrated into art historical work recovering and reconstituting materials and pigments. A robust ancient philosophical engagement with matter and form distinguished between these two aspects of an object, and this set the stage for hostility to color on the grounds of its materiality. For early Greek philosophers, as Aristotle summarizes (*Metaph.* A 3.983b6), the principles of all things were the principles of form and matter (*tas en ulēs eidei monas ōēthēsan archas*).[46] This matter/form binary runs through Aristotle's philosophical works. For example, in *On the Soul* II.1b, Aristotle writes "matter (*hulē*) is potentiality (*dunamis*), while form (*eidos*), is actuality (*entelekheia*)."[47] His distinction in the *Metaphysics* between the bronze material of a statue and its status as form (*eidos*) separates an object's materiality from its dematerialized form, which becomes something like the idea of the object.[48]

Aristotle also genders this matter/form binary. In a passage from *On the Generation of Animals* (730a), which abounds with metaphors of artistic craft, Aristotle argues that "the male contributes the movement (*kinēsis*) while the female the matter (*hulē*)."[49] On the one hand, for Aristotle, a body or an object requires both matter and form in equal measure to come into being; on the other hand, through pulling apart the materiality of the object and the idea of it, and gendering each, he sets up binaries that develop into hierarchies elevating male/form beyond female/matter.[50] These build on Plato's Theory of Forms, itself a hierarchy descending from the dematerialized idea, to the material object, and finally to the artistic representation of that material object.[51] Although the Theory of Forms is dispersed across a number of texts,

44 Philo *Mechanicus* 4.1, 49.20; Galen, *De plac. Hippoc. et Plat.* 5, 3.16. Andrew Stewart, "Polyclitus (2), Argive Sculptor," in *Oxford Classical Dictionary*, December 1, 2015.

45 Porter, *Origins of Aesthetic Thought*, 144.

46 James I. Porter, *The Origins of Aesthetic Thought in Ancient Greece*, 147n71; *Metaph.* A 3.983b6–8; G. S. Kirk, J. E. Raven, and Malcolm Schofield, *The Presocratic Philosophers: A Critical History with a Selection of Texts.* 2nd ed. (Cambridge: Cambridge University Press, 1983), 88–89, 98–99, who notes Aristotle's reference to Thales deeper into the passage and Aristotle's claim that for Thales water is the "persisting substrate" (*arkhē*).

47 Arist. *De Anima* I.1b. Just a few lines earlier Aristotle had linked shape (*morphē*), and form (*eidos*), two distinct, but related terms.

48 *Metaph.* Z 10.1035a6–7; Porter, *Origins of Aesthetic Thought*, 113–114. Of Aristotle, Porter writes "His biases are evident enough – and, it needs to be underscored again, they fly in the face of both Greek tragedy and Greek culture generally."

49 Arist. *GA* 730a.

50 Brooke Holmes, *Gender: Antiquity and Its Legacy* (London: I. B. Tauris, 2012), 41. See also Arist. *GA* 738b20–7.

51 On the tension between Plato's theory of forms and ancient Greek art practice, see Jeremy Tanner, *The Invention of Art History in Ancient Greece: Religion, Society and Artistic Rationalisation.* (Cambridge, UK: Cambridge University Press, 2006), 193–196. Elizabeth Asmis, "Art and Morality," in *A Companion to Ancient Aesthetics*, ed. P. Destrée and P. Murray (Malden: Wiley Blackwell, 2015), 489–490. On the forms "blanched" of their color, see Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of

Plato's exploration of the *khōra* (space, void, or vessel) in the *Timaeus* offers a significant part of this theory. In his description of the formation of the universe, Plato describes a void into which pre-primordial forms enter and from which material copies disperse to make up the visible world (49a5–52d3).[52] Under this rubric, all that we are and encounter in the world are formal citations of these pre-primordial forms, blurring distinctions between material objects and their representations.

To traverse the vast gap between ancient color practices and modern receptions this book engages with ancient and modern philosophical discourses on form and matter. Artists and beholders in the ancient Mediterranean valued materials, but, as this book argues, they prized not wholes produced from a single monochrome material, but variegated forms fitted together from material color-parts. The later acceptance of the monochrome fragment or copy in place of the variegated, polychrome original depends on the elevation of form over matter, as the example of the disjunction between later visual citations of the Athena Parthenos and the vibrant material colors that comprised the statue's form in the fifth century BCE makes clear. While this prioritization of shape and form over material color develops with Plato's Theory of Forms and Aristotle's distinction between form and matter, the reception of these principles effaces the adjacent and earlier history of materialist philosophers (Presocratic and atomist) whose ontology was conditioned by contemporary artistic practices.

This ancient philosophical discourse on the relationship between matter and form eventually gives rise to the nineteenth-century neologism *hylomorph*, which combines matter (*hulē*) and shape (*morphē*).[53] This neologism would suggest parity between the two terms – matter and form – that it combines. The rise of formalism within the history of art, however, depends on the prioritization of shared formal properties over material specifics.[54] Given how foundational Plato and Aristotle have been to the disciplines of philosophy and political theory, their simultaneous gendering and deprioritization of matter (*hulē*) has made engagement with their work a site of significant interventions by feminist philosophers and political theorists, from Julia Kristeva and Luce Irigaray to Judith Butler and Elizabeth Grosz.[55] These engagements have drawn attention to the form/matter binary and its gendered hierarchy. Reconstituting material color in ancient Mediterranean art, however, disrupts this established binary. Material color makes visible the ways in which forms are fitted together from material color and so shape and form emerge as features of, rather than alternatives to, material color. The connection between this philosophical discourse on matter and gender and the question of color only reveals itself through the recognition of color's material

California Press, 1993), 26, and Batchelor, *Chromophobia*, 17.

52 Pl. *Tim.* 49a5–52d3.

53 Gideon Manning, "The History of 'Hylomorphism,'" *Journal of the History of Ideas* 74, no. 2 (2013): 173. Building on an early-nineteenth century use of hylomorphismus in German, the compound English word hylomorph seems to have emerged in the late nineteenth century in the work of Unitarian philosopher James Martineau, who writes that "No biomorphic or hylomorphic doctrine can raise its head against the decree of Kant." Gideon Manning, "Three Biased Reminders about Hylomorphosm in Early Modern Science and Philosophy," in *Matter and Form in Early Modern Science and Philosophy* (Leiden: Brill, 2012), i–ii. See also Bennett, *Vibrant Matter*, 46–50.

54 Christopher Wood, *A History of Art History*, 327.

55 Luce Irigaray, *Speculum of the Other Woman* (Ithaca: Cornell University Press, 1985), 143–144. Julia Kristeva, *La Révolution du langage poétique: L'avant-garde à la fin du XIXe siècle, Lautréamont et Mallarmé* (Paris: Éditions du Seuil, 1974). Elizabeth Grosz, "Women, Chora, Dwelling," *ANY: Architecture New York* 4 (January/February 1994): 22–27; Judith Butler, *Bodies That Matter: On the Discursive Limits of "Sex"* (New York: Routledge, 1993).

status in the ancient Mediterranean, which this book seeks to recover. Color's materiality shows material color-parts to constitute forms, or hylomorphs. The gendered history of material colors has contributed to their relative suppression within the historiography of art. It also intersects with the excision of color as matter from the constructed boundaries of the Western tradition, for which ancient Greek art has served as a touchstone. Writing in the context of modern Indian painting, Sonal Khullar writes: "in art historical terms, these categories [East and West] yielded yet another set of associations whereby the West was the site of art, naturalism, line, and masculinity and the East was the site of crafts, decoration, color, and femininity."[56] To fit ancient Greek and Roman art and architecture into a constructed category of the classical as a foundation for an equally constructed story of Western art, its material colors had to be excised and its monochrome forms prioritized.

The excision of color from classical sculpture served the construction of an idealized European genealogy of the image that co-opted ancient Greek artistic practices for its origin story. Recent scholarship has tackled the renewed appropriation of classical art's constructed whiteness by fascists and white supremacists, who mobilize images of Graeco-Roman antiquity as symbols of their movement.[57]Art, like text, is always mediated and this politically urgent work cannot draw only on narratives of naturalism and mimesis endemic to classical art histories which present art objects as documentary of ancient Mediterranean people.[58] Simply adding colors back onto the skin of ancient Greek and Roman figural art intervenes within the narrow terms set by those seeking to uphold whiteness, but material color reconfigures the terms by which to analyze ancient Mediterranean art and architecture beyond the confines of naturalism. Colors connect ancient Mediterranean artists and their work with artists working across the ancient Near East and Egypt and map even wider geographic trade networks. Material color is one source of connection across difference. Such cultural and material connections refute arguments for ancient Greek and Roman exceptionalism, idealizing tropes of naturalism, and fictions of realism. Reconstituting colors in ancient Mediterranean art, thus, undermines the claims to exceptionalism on which the embrace of whiteness and monochrome rests.

DEMATERIALIZED IDEAS

The ancient Mediterranean concept of material color differs significantly from the modern explanation of the phenomenon of color as a property of light. Disentangling these differences is important because modern responses to the polychromy of the ancient Mediterranean world are conditioned by explanations of color that fundamentally contrast with those active in the ancient Mediterranean where these works

56 Sonal Khullar, *Worldly Affiliations: Artistic Practice, National Identity, and Modernism in India, 1930–1990* (Oakland, CA: University of California Press, 2015), 43.

57 Bond, "Why We Need to Start Seeing the Classical World in Color"; Bee, "White at the Museum." A site documenting appropriations of Greek and Roman texts and images by white supremacists is Pharos Classics, http://pages.vassar.edu/pharos/white-nationalism-white-supremacy.

58 "They look white now, but actually it was a very diverse world. The skin tones on the statues would have been reflective of what was on the streets," says Dr. Marco Leona of lost sculptural polychromy of sculptures in the Metropolitan Museum of Art, New York, in Bee, "White at the Museum." On symbolic use of color, including for skin, see Pandermalis, *Archaic Colors*, 4–5. See Jennifer Stager, "The Unbearable Whiteness of Whiteness" *Art Practical* (2018).

were created.[59] Although debates about the precise nature of the phenomenon of color persist, a watershed development in modern ideas about color came in the late seventeenth century. In 1665, Isaac Newton, building on prism experiments of mathematician and natural scientist René Descartes and comparative approaches to color laid out by natural philosopher and scientist Robert Boyle, conducted a series of experiments at home. Using prisms to bend white light, he produced a spectrum of colors visible to the human eye ranging from the least bent rays of light (red) to the most bent (violet).[60] Newton's notebooks, two pages of which are pictured here, document these experiments with prismatic color, which he elaborated in several public talks and published most substantively in his treatise *Opticks* of 1704 (Figures 11 and 12).[61] Notably, Newton seems to have settled on seven hues in order to relate the spectrum to the seven notes of the musical octave, a structural relationship that required him to stage a division between blue and indigo, and an interpretive flexibility that belied the universalism of Newton's claim.[62] This research contradicted the long-held idea that colors could be the property of material objects and produced through mixtures of lightness and darkness and indeed presented all colors as produced through our perception of light.[63]

Newton's explanation of the prismatic spectrum ascribed hues to the subjective perception of the beholder in response to light. Because light seems to have no tangible, material presence and since in everyday life we cannot touch or contain a photon, Newton's discovery situated color as a property of light, which is to say Newtonian color comes to be understood as outside of matter. This association of dematerialized color with sensory perception also relegated it to the secondary status accorded by the sensorium in modernity. Modern beholders have approached the art produced by ancient Mediterranean artists with a post-Newtonian understanding of colors as dematerialized hues.[64] While artists and philosophers in the sixth through fourth century BCE also engaged with questions of light and color, they approached these instead from a primarily materialist perspective, thus engaging a range of senses in the experience and perception of material colors.

Although Newton's work was widely accepted, he also faced a number of detractors who

59 Isaac Newton, *Opticks* (Amherst: Prometheus Books, 2003). Eugène Chevreul and Henri Chevreul, *De la loi du contraste simultané des couleurs: et de l'assortiment des objets colorés* (Paris: BnF-P, 2016). John Gage, *Color and Culture: Practice and Meaning from Antiquity to Abstraction* (Boston: Little, Brown and Company, 1993), 168–169; John Gage, *Color and Meaning: Art, Science, and Symbolism* (Berkeley: University of California Press, 1999), 24–26, 134–143. M. Michela Sassi, "Perceiving Colors," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Hoboken: Wiley-Blackwell, 2015), 263. Bradley, *Colour and Meaning in Ancient Rome*, 25, 52–53.

60 Isaac Newton, "Laboratory Notebooks" (Cambridge University Library, ca. 1669–ca. 1693), MS Add. 3970.3, ff.460–466; MS Add. 3975, 1–2. On the range of Newton's optical experiments gathered under the subject "colors," see Dennis L. Sepper, *Newton's Optical Writings: A Guided Study* (New Brunswick: Rutgers University Press, 1994), 16. On whiteness and blackness in Boyle, who merges ancient Greek environmental determinism with modern racecraft, citing Democritus and Aristotle see Robert Boyle, *Experiments and Considerations Touching Colours: First Occasionally Written, Among Some Other Essays to a Friend, and Now Suffer'd to Come Abroad as the Beginning of an Experimental History of Colours*. (London: Printed for Henry Herringman . . ., 1664), 28.

61 Newton, *Opticks*. On the impact of Newton, see Gage, *Color and Culture*, 153–176. On the reception of Newton's *Opticks*, see Sepper, *Newton's Optical Writings*. On Newton's conflict with Goethe, see Dennis Sepper, *Goethe Contra Newton: Polemics and the Project for a New Science of Color* (Cambridge: Cambridge University Press, 1988); and Deanne B. Judd's introduction to Johann Wolfgang von Goethe, *Theory of Colors*, with notes and translation by Charles Lock Eastlake (Cambridge, MA: MIT Press, 1970), v–viii.

62 Gage, *Color and Meaning*, 26, with an extended analysis of color and sound in Gage, *Color and Culture*, 227–246.

63 Ibid., v; Eleanor Irwin also notes the materiality of color described in ancient Greek language, Eleanor Irwin, *Color Terms in Greek Poetry* (Toronto: A. M. Hakkert Limited, 1974), 25.

64 On Newton's inversion of prior notions of color, see Sepper, *Newton's Optical Writings*, 46.

continued to embrace as materialist understanding of color.[65] Critiquing Newton's argument that darkness was merely the absence of light, Johann Wolfgang von Goethe aligned himself more with ancient Mediterranean ideas that included black and white among material colors. Despite publishing a lengthy treatise responding to Newton's work (*Zur Farbenlehre* 1810; translated into English as *Theory of Colors* 1840), Goethe did not straightforwardly celebrate color. For example, he thought yellow-red colors were popular among "the savage nations" and children, linking Indigenous people and children through their shared enjoyment of certain colors.[66] Earlier in the text he briefly discusses differences in skin and hair colors, which he claims have "relation with the differences of character."[67] Although aligned with a more materialist understanding of color, Goethe also expresses longstanding prejudices against color within a treatise devoted to the subject.

In addition to a post-Newtonian understanding of the spectrum as perceptual, the role of white as a symbolic color of light in Christianity and its use to represent materially the idea of dematerialized transcendence came together with Newton's rational explanation of light containing the spectrum of colors. In both religious and secular contexts, white remained the color of dematerialization and marked the contours of equally dematerialized ideas. Although neither Christian symbolism nor seventeenth- and early-eighteenth European physicists explicitly concerned themselves with ancient Greek art, their engagement with whiteness as light shaped the reception of the crystalline whites of ancient Greek marbles.

Enlightenment thinking built from and rationalized Christian notions of dematerialization. These merge in the late-Enlightenment philosophical project of Immanuel Kant, whose *Critique of the Power of Judgment* (1790) accords a universality to the idea of the beautiful.[68] Philosophy, especially German idealism and aesthetics, has played a foundational role in the emergence of the discipline of art history. To focus specifically on the Third Critique instead of recognizing Kant's work on aesthetics as only one component within his wide-ranging moral philosophy limits our understanding of Kant's work and its implications for art history. This extraction matters for art history for several reasons. First, the Third Critique's universalizing ideals contributed to a universalizing project of art history. Second, separating the Third Critique insulates a foundational text for the discipline of art history from the challenges that Kant's racism in other writing presents. Third, Kant contributed to the modern construction of race as biological difference marked by epidermal signifiers, dividing the world's population into four skin colors (white, yellow, red, black) and ascribing these colors to what he called four different races.[69]

The four colors that Kant selects to mark his constructions of race align with the four colors that the Roman natural historian Pliny the Elder ascribed to the restricted palette of ancient Greek

65 Johann Wolfgang von Goethe, *Goethe's Theory of Colours*, tr. with notes by Charles Lock Eastlake (London: John Murray, 1840), xi, xxxviii. For Goethe's direct critique, see 286–289, #722–729.

66 Goethe, *Theory of Colours*, 310 #775.

67 Ibid., 265, #671.

68 Immanuel Kant, *Critique of Judgment*, translated by Werner S. Pluhar. (Indianapolis: Hackett Publishing, 1987), SS8, 57–60.

69 Kant first laid out his division of the humans into four races in *Of the Different Races of Human Beings* (1775) and followed this with *Determination of the Concept of a Human Race* (Bestimmung des Begriffs einer Menschenrace) *Berlinische Monatsschrift* no. 11 (November 1775), 390–417. See Immanuel Kant, and Holly Wilson and Günter Zöller trans. "Of the different races of human beings" (1775) in Robert B. Louden and Günter Zöller, eds. and trans. *The Cambridge Edition of the Works of Immanuel Kant*, (Cambridge: Cambridge University Press, 2013), 82–97 and see Immanuel Kant, and Holly Wilson and Günter Zöller trans. "Determination of the concept of a human race (1785)" in Robert B. Louden and Günter Zöller, eds. and trans. *The Cambridge Edition of the Works of Immanuel Kant*, (Cambridge: Cambridge University Press, 2013), 143–159.

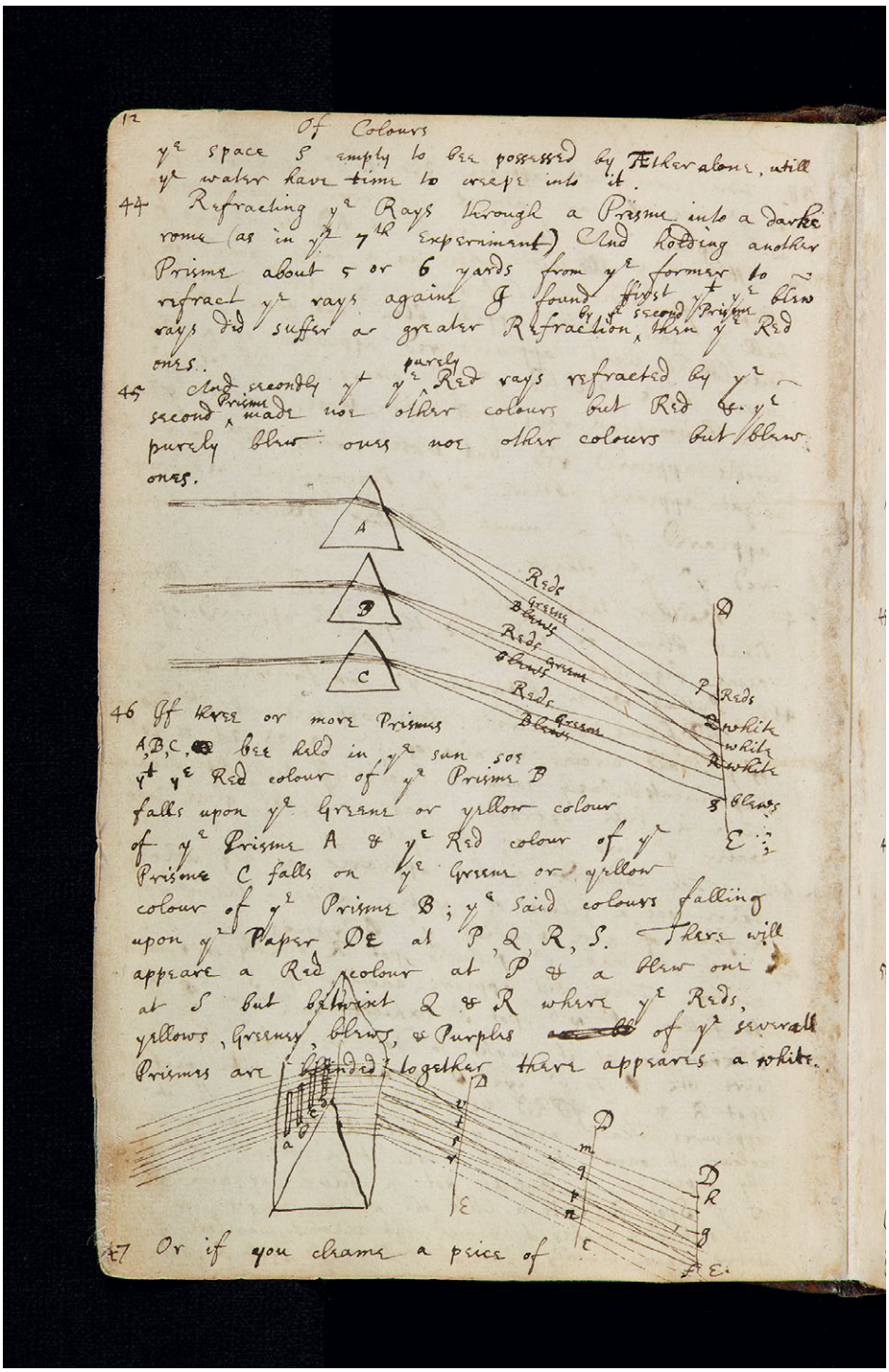
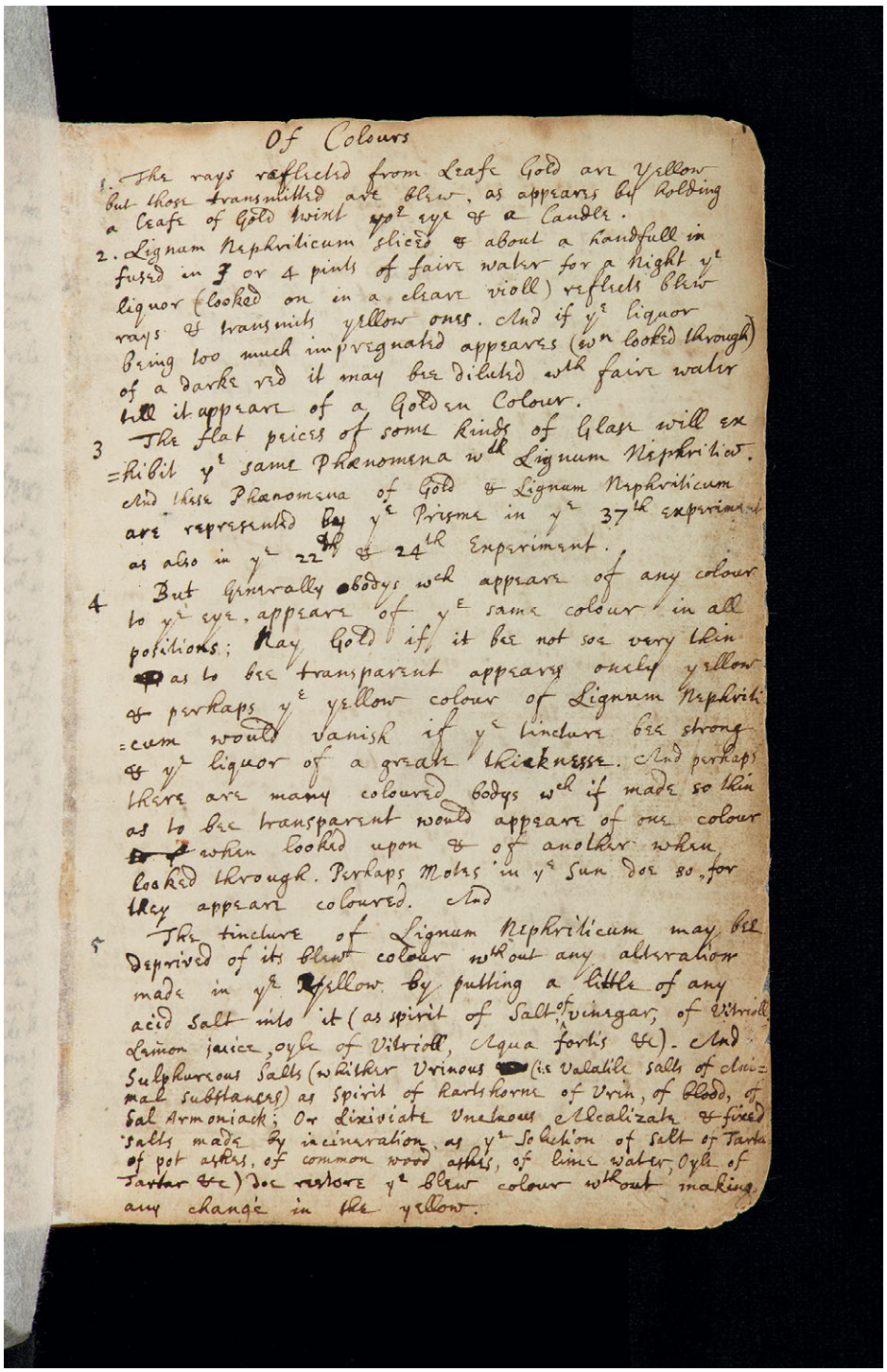


Figure 11 Newton's journal notes on bending light through a prism to produce a spectrum of hues, 1690s. MS Add. 3975 (page 12). Reproduced by kind permission of the Syndics of Cambridge University Library


Of Colours

1. The rays reflected from Leafe Gold are Yellow but those transmitted are blew, as appears by holding a Leafe of Gold betwixt ye eye & a Candle.

2. Lignum Nephriticum sliced & about a handfull in fussed in 3 or 4 pints of faire water for a night ye liquor (looked on in a clear viall) reflects blew rays & transmits yellow ones. And if ye liquor Bring too much impregnated appears (wn looked through) of a darke red it may be diluted with faire water till it appear of a Golden Colour.

3 The flat peices of some kinds of Glass will exhibit ye same Phænomena wth Lignum Nephriticum. And these Phænomena of Gold & Lignum Nephriticum are represented by ye Prisme in ye 37th experiment as also in ye 22nd & 24th Experiment.

4 But Generally bodys wch appear of any colour to ye eye, appear of ye same colour in all positions; May Gold if it be not soe very thin as to bee transparent appears onely yellow & perhaps ye yellow colour of Lignum Nephriticum would vanish if ye tincture bee strong & ye liquor of a greate thicknesse. And perhaps there are many coloured bodys wch if made so thin as to bee transparent would appear of one colour when looked upon & of another when looked through. Perhaps Moles in ye Sun doe so, for they appear coloured. And

5 The tincture of Lignum Nephriticum may bee Deprived of its blew colour wthout any alteration made in ye Yellow by putting a little of any acid Salt into it (as spirit of Salt, of vinegar, of Vitriol, Lemon juice, oyle of Vitriol, Aqua fortis &c). And Sulphureous Salls (wthout Vrinous (ie Volatile salls of animal substances) as Spirit of Harts horne of Vrin, of Blood, of Sal Armoniack; Or Lixiviate Vnctuous Alcalizate & fixed Salls made by incineration, as ye Solution of Salt of Tartar of pot ashes, of common wood ashes, of lime water, Oyle of Tartar &c) doe restore ye blew colour wthout making any change in the yellow.

Figure 12 Newton's journal notes on bending light through a prism to produce a spectrum of hues, 1690s. MS Add. 3975 (page 1). Reproduced by kind permission of the Syndics of Cambridge University Library

painters of the fifth and fourth centuries BCE, discussed in greater depth in Chapter One.[70]

70 On Kant's contact with Greek and Latin writers filtered through religious education see Manfred Kuehn, *Kant: A Biography*, (Cambridge: Cambridge University Press, 2001), 48. On geographic structures in Pliny and Kant, see Werner Stark, translated by Olaf Reinhardt, "Kant's Lectures on 'Physical Geography': A Brief Outline of its Origins, Transmission, and Development" in *Reading*

Although Kant does not explicitly engage with Pliny or with theories of color as a phenomenon in his work, he mobilizes colors in the service of his racecraft.[71] In "Kant's Untermenschen," Charles Mills demonstrates both Kant's racism and the limitations his racism placed on his purportedly universal theory of personhood, arguing: "While it is, of course, always possible to reconstruct a theory in which personhood has no racial or gender restrictions, the question at issue is what Kant thought. And if Kant himself did not think of nonwhites and women as full persons, then this cannot really be said to be Kant's theory."[72] Feminist critiques have recognized Kant's denial of full personhood to women and Mills links the gendered contingency and racialized contingency of Kant's notion of personhood.[73] Not only is Kant's racism, especially anti-Black and anti-Indigenous, demonstrable, as both Mills and Lucy Allais, in a separate essay, argue, but Kant's racism cannot be bracketed from his central ethical focus on human freedom.[74] Similarly, Kant's racism also cannot be bracketed from his universalizing aesthetic theories.

The incommensurability of Kant's racism and his theories of universal human freedom pose challenges both for art history and for philosophy that some thinkers have taken up directly. Fred Moten contrasts the limited universalism proposed in Kant's Third Critique with "a gestural critique of judgment as an alternative to the illogic of white supremacy." The unruliness of gesture produces an aesthetics of abolition, while the rigidity of universalism remains both anti-aesthetic and anti-abolition. For example, Moten invokes improvisation as the means by which Black radical politics can rethink, in apposition, universalizing enlightenment.[75] Moten notes the resistance to improvisation in philosophy as a Eurocentric "wariness."[76] This theorization of improvisation also informs the study of the phenomenon of color, which always exceeds universalizing paradigms precisely because of its changeableness.[77] If Newton proposed a spectrum of hues ordered by the musical octave, Moten proposes

Kant's Geography, in Stuart Elden and Eduardo Mendieta. *Reading Kant's Geography.* (Albany: State University of New York Press, 2011), 76. For a discussion of Kant's text of Pliny the Younger's letters, see Jack Visnjic, *The Invention of Duty: Stoicism as Deontology.* (Leiden: Brill, 2021), 106, n30. Although Pliny ascribes these four colors to ancient Greek painters specifically, he is likely drawing on an emphasis on four colors in Presocratic philosophy, discussed further on page 61.

71 Allais, "Kant's Racism," 11. Karen Fields and Barbara J. Fields, *Racecraft: The Soul of Inequality in American Life.* (New York: Verso, 2012). On the application of Fields and Fields's theory of racecraft to Greek and Roman antiquity see, Sarah Derbew, *Untangling Blackness in Greek Antiquity*, (Cambridge: Cambridge University Press, 2022), 19; 34. For an exploration of the legacy race in the study of Mediterranean antiquity, see Denise Eileen McCroskey, *Race: Antiquity & Its Legacies* (New York: Oxford University Press, 2012) and Nell Irvin Painter, *The History of White People* (New York: W.W. Norton, 2010), 13–29. For a connection between Kant's construction of race and theories of color, see Sally Hatch Gray, "Kant's Race Theory, Forster's Counter, and the Metaphysics of Color," *The Eighteenth Century* (2012), 396–400.

72 Charles W. Mills, *Black Rights/White Wrongs: The Critique of Racial Liberalism,* (New York: Oxford University Press, 2017), 102. "Kant's Untermenschen" first appeared in *Race and Racism in Modern Philosophy* (2005).

73 Mills, *Black Rights/White Wrongs*, 106, citing Pauline Kleingeld, "The Problematic Status of Gender-Neutral Language in the History of Philosophy: The Case of Kant," Philosophical Forum 25, no. 2 (June 1993): 134–150; Hannelore Schröder, "Kant's Patriarchal Order," trans. Rita Gircour, in Robin May Schott, ed., *Feminist Interpretations of Immanuel Kant* (University Park: Pennsylvania State University Press, 1997).

74 Lucy Allais, "Kant's Racism," *Philosophical Papers* (2016): 1–36. Allais concurs with Mills about the inextricability of Kant's racism from Kant's philosophy but argues against Mills's position that Kant's notion of personhood must therefore be understood as partial. In contrast, Allais claims, instead, that Kant's racism and his philosophy cannot be made consistent, Allais, "Kant's Racism," 2. Allais disagrees with Pauline Kleingeld's view that Kant changed his views on race over time, Allais, "Kant's Racism," 6.

75 Fred Moten, "Knowledge of Freedom," *CR: The New Centennial Review*, 4.2 (2004): 275–286.

76 Ibid., 275.

77 Fred Moten, *Stolen Lives*, (Durham, NC: Duke University Press, 2018), 97.

improvisational soundscapes that build from notes, but escape universalizing order and containment.

In Hegel's lectures on aesthetics of the 1820s, he substitutes artistic beauty for natural beauty as an ideal, distancing himself from the sort of Kantean universalism that Moten later reworks. In this context, ancient Greek anthropomorphic polytheism and anthropomorphic artistic forms serve as both foil and paradigm against which modern art and theology compare unfavorably.[78] In writing art's biography, Hegel reworks the ancient evidence as follows, "It is true that there do occur even in Greek sculpture, to which we must confine ourselves in the main, examples of polychrome statues, but in this matter we must distinguish art as it begins and ends from what it has achieved at its real summit."[79] Faced with incontrovertible evidence of color on Greek sculpture, Hegel sought to confine the practice to a time before Greek sculpture's "summit." Hegel also argued that despite the prevalence of bronze sculpture in antiquity, "marble in its soft purity, whiteness, absence of colour, and the delicacy of its sheen harmonizes in the most direct way with the aim of sculpture," and on these grounds, marble must be the most appropriate material for sculpture.[80] The reception tradition has more regularly preserved fragments of ancient marble reproductions of bronze statues and also equally white plaster cast replications of statues.[81] Hegel aligns this greater preservation and circulation of white marble examples with what he considers "the aim of sculpture," which is to say its form and its whiteness.

Connecting Hegel's embrace of white marble with Newton's work on color and light, Prater writes: "The white neo-classical form is a rationalistic result of the late Enlightenment, which, as shown by its name, proves its affinity to the Newtonian analysis of sunlight. No wonder terms like line, contour, outline, silhouette as synonyms of form are important for the aesthetics of idealism."[82] Such universalizing paradigms shaped prevailing approaches to the arts of the ancient Mediterranean and classical art, retroactively conceived, was made to fit a modern construction to which it had contributed, but whose confines it always exceeded. Reworking Enlightenment Man (the default white, male, Christian subject) to craft an expansive global history of humanism, Sylvia Wynter pursues what David Scott names an "embattled humanism," a project that decenters universalizing teleologies through praxis.[83] In the misalignment of disciplinary structures shaped by Enlightenment men for the preservation of an idea of Man and the heterogenous, variegated art practices that humans have bodied forth we might locate the current work of art history; recovering color is necessary to that work.

78 G. W. F. Hegel, *Introductory Lectures on Aesthetics*, edited by Michael Inwood and translated by Bernard Bosanquet (New York: Penguin Books, 1993), On this distinction between Kantean and Hegelian ideals, see Christopher Wood, *A History of Art History*, 215. As with Kant, Jason Gaiger has shown, philosophers and art historians study Hegel differently from one another. Gaiger, "Hegel's Contested Legacy," 178–194. In addition, even as nineteenth- and twentieth-century art historians resisted aspects of Hegelian humanism, they often embraced similar epochal stories of art sprung from ancient Greek art. Ernst Gombrich, for example, critiqued Hegel's "totalitarian habits of mind" and yet his own *The Story of Art* constructed a history of art from Egyptian to Greek through the Middle Ages to early modern Italy and into Anglo-American modernism. Ernst Gombrich, *The Story of Art* (Oxford: Phaidon, 1978).

79 G. W. F. Hegel and T. M. Knox, *Hegel's Aesthetics: Lectures on Fine Art*, vol. 2 (Oxford: Oxford University Press, 2015), 706. Wood, *History of Art History*, 219. See also Michael Squire, "Hegel, Classical Art and the Reformation of Art History," in *The Art of Hegel's Aesthetics: Hegelian Perspectives and the Perspectives of Art History,* ed. Paul A. Kottman and Michael Squire (Paderborn: Wilhelm Fink Verlag, 2018), 132–133 and Prater, "The Rediscovery of Colour in Greek Architecture and Sculpture," 27n11. Wood, *History of Art History*, 219.

80 Hegel and Knox, *Hegel's Aesthetics,* 776.

81 Stewart, *Greek Sculpture*, 315–316.

82 Prater, "The Rediscovery of Colour in Greek Architecture and Sculpture," 26.

83 Sylvia Wynter and David Scott, "The Re-enchantment of Humanism," *small axe* 08 (09.2000): 153.

As with the interactions of ancient philosophers and artists, philosophical and antiquarian discourse in the seventeenth and eighteenth centuries laid the groundwork for ongoing color debates taking center stage in the visual arts in the nineteenth century, both in new work that artists and architects produced, and also through the circulation of reproductions and replications of ancient objects without additive or assembled colors.[84] For the Great Exhibition of 1851, for example, the architect Owen Jones, who had joined Gottfried Semper and Jacques-Ignace Hittorf in public debates concerning ancient Greek architectural polychromy, designed a polychrome Greek Court.[85] Jones took casts of parts of the Parthenon frieze, by then on display in the British Museum, London, "for the express purpose of showing how it might possibly have been coloured."[86] This practice of painting colors on to plaster casts of ancient sculpture continues in contemporary reconstruction work, where it also continues to evoke strong responses from a public conditioned by monochrome white sculpture and architecture. Already by the mid-nineteenth century the bias towards monochrome white marble ran so deep that Jones' experiments met with outrage and distaste. In the face of an overwhelmingly negative public reaction to his vibrantly painted reproductions of ancient Greek sculpture, Jones issued a public apology. In the opening of *An Apology for the Colouring of the Greek Court in the Crystal Palace* (1854), Jones explained his rationale for painting the casts of the frieze, writing: "I felt that to colour a Greek monument would be one of the most interesting problems I could undertake; not indeed in the hope that I might be able completely to solve it, but that I might, at least, by the experiment remove the prejudices of many."[87] This spirit of experimentation and iteration also infuses contemporary color reconstruction work.

Eight years later, Jones courted controversy again with his polychrome installation at the Universal Exhibition of 1862. He exhibited John Gibson's *Tinted Venus* (1854) in a polychrome temple-like structure (Figure 13). The statue evokes the Aphrodite of Knidos (fourth century BCE), a marble statue by the Greek sculptor Praxiteles that depicted the goddess naked. Although Praxiteles's version has not survived, many ancient Greek and Roman artists reproduced it. Drawing on these replications Gibson produced a painted statue that became a touchstone in the color debates, blurring distinctions between what ancient artists had done and what nineteenth-century artists should do.[88] Many critics and members of the public rejected what

84 On the entanglement of color on nineteenth-century sculpture and the question of whether ancient Greek and Roman artists painted their sculpture, see Prater, "The Rediscovery of Colour in Greek Architecture and Sculpture," 25.

85 Wolfgang Drost, "Colour, Sculpture, Mimesis: A 19th-Century Debate," in *The Colour of Sculpture, 1840–1910*, ed. A. Blühm (Zwolle: Waanders, 1996), 65.

86 Owen Jones, *An Apology for the Colouring of the Greek Court* (London: Crystal Palace Library and Bradbury & Evans, 1854); A decade later the painter Lawrence Alma-Tadema drew on the vivid colors of Jones's court in his painting *Pheidias and the Frieze of the Parthenon* (1868–1869), for which he painted the marble frieze layered with additive pigments. See Gage, *Colour and Culture*, 11, who suggests that Alma-Tadema may have drawn on the excavation reports of 1862 for the Mausoleum of Halicarnassos, which documented a strong blue background and red fleshtones on the monument.

87 Jones, *An Apology for the Colouring of the Greek Court*, 5. Despite, naming his text an apology and publishing it in response to these criticisms, Jones devotes much of the pamphlet to laying out the evidence for pigments, not only on the Parthenon, but on ancient Greek sculpture more generally. Jones included Semper's "On the Origin of Polychromy in Architecture," as an appendix in the same publication.

88 On the ancient statue, see Kristen Seaman, "Retrieving the Original Aphrodite of Knidos" *Atti della Accademia Nazionale dei Lincei* 9.15.3 (2004): 531–594. For the conservative attitude towards "John Gibson's still mildly embarrassing 'Tinted Venus," see Elizabeth Moignard, *The Journal of Hellenic Studies* 117 (1997): 262, reviewing John Boardman, *Greek Sculpture: The Late Classical Period and Sculpture in Colonies and Overseas, a Handbook* (London:

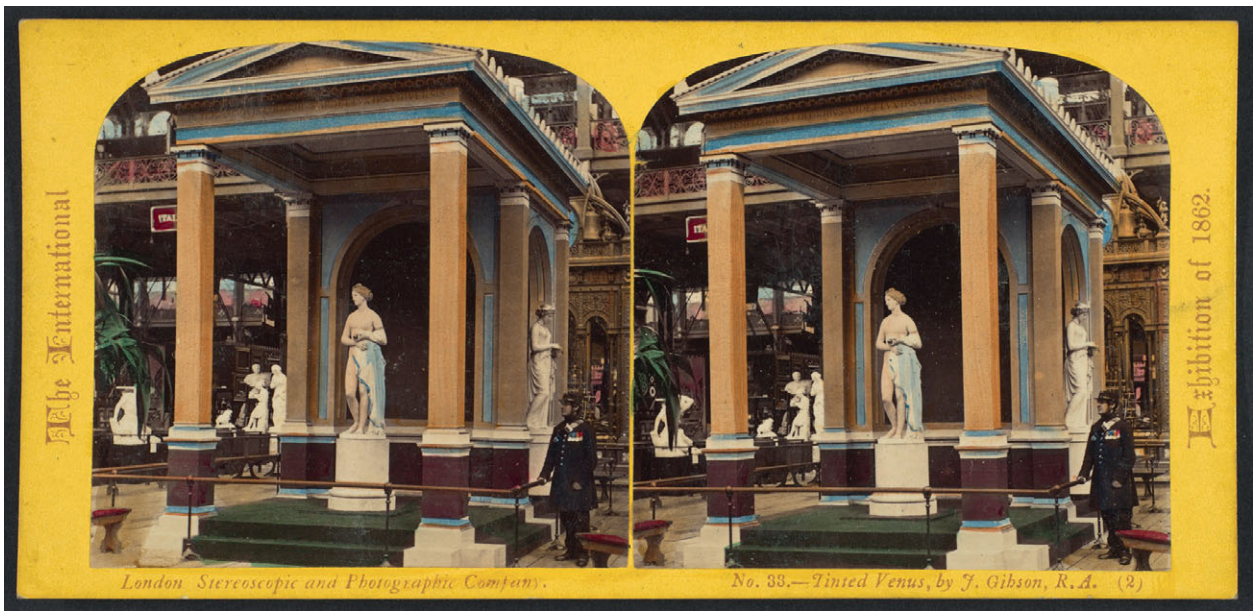


Figure 13 William England, stereoscopic view of the International Exhibition of 1862, including an image of John Gibson's *Tinted Venus*, London Stereoscopic and Photographic Company, albumen silver prints from glass negatives with applied color. Metropolitan Museum of Art, New York 2005.100.1066.23, Gilman Collection, Museum Purchase, 2005

they considered Gibson's tarted-up Venus, because the addition of pigments dissolved the idealizing distance that allowed artists to produce and beholders and collectors to consume naked statues.[89] An anonymous critic for *Art Journal* argued that Gibson's "attempt at too palpable flesh not only destroys the very essence of the sculptor's art, but violates the delicacy that attaches to pure material."[90] With echoes of Hegel's invocation of white marble's alliance with sculpture as an artistic medium, this critic specified Gibson's addition of pigments as antithetical to the work of sculpture. As this response to the work of Jones and Gibson exemplifies, when artists, architects, and scholars have attempted to recover the contested colors of ancient Greek and Roman art, these attempts have consistently met with intense resistance in order to preserve the entrenched ideal of monochrome white form.

These monochrome forms are often fragments that have lost their material color-parts. While this is a book about parts and wholes, it is not a book about fragments. By necessity, however, many of its material examples are fragmentary. In her exploration of the idea of the fragment, Jacqueline Lichtenstein proposed five related conditions for a part to count as a fragment: a fragment has physical, material presence; it has broken off from a preceding whole; that whole was once a

Thames & Hudson, 1995), which addresses Gibson in the final chapter in the context of presenting the impact of the Classical period on later art practice. Gibson himself wrote "polychromy was the link connecting the forms of matter with the airy fairies in which genius is rife," T. Matthews, *The Biography of John Gibson, R.A. Sculptor, Rome* (London: William Heinemann, 1911), 181; Drost, "Colour, Sculpture, Mimesis," 65–66; Elizabeth S. Darby, "John Gibson, Queen Victoria, and the Idea of Sculptural Polychromy," *Art History* 4, no. 1 (1981): 37–53, 51n82, with bibliography. Although *Tinted Venus* is not a copy, Gibson's surface treatment of the sculpture offered an argument for how Greek and Roman sculptures might have been painted.

89 Ibid., 65–66.

90 Ibid., 65–66; On the aesthetics of white marble in relation to racecraft, see Charmaine Nelson, *The Color of Stone: Sculpting the Black Female Subject in Nineteenth-Century America.* (Minneapolis: University of Minnesota Press, 2007), 60.

specific object; that broken piece has survived; and some other parts of that past whole have not.[91] The modern discipline of art history's origin-text pictures Johann Joachim Winckelmann's rapturous loss of self before the fragmented Belvedere torso in which he inserts himself as artist and crafts an ekphrastic body from the fragment (Figure 14).[92] In his homage to Winckelmann and the fragmented past, Rainer Maria Rilke writes in "Archaic Torso of Apollo," of the fragmented torso, that despite its missing head and eyes, still sees.[93] Rilke recuperates the fragment's missing parts, not as Winckelmann does by sculpting them himself in his ekphrasis, but by ascribing the powers of the missing systems to the fragment or idea which remains. Although Rilke's recuperation of the torso's capacity to see otherwise aligns with the multisensory ways of knowing that ancient Mediterranean color-parts bodied forth, through this modern logic, individual monochrome fragments have come to stand in for their past forms, which were fitted-together from material colors.

In this substitution, we lose much of the material color that ancient artists and beholders valued and the important labor in the ancient Mediterranean of adorning, maintaining, and caring for polychrome art and architecture. Colors change and disappear over time, lending material support for the elevation of form in a model of aesthetics that elevates that which survives. The rotation and renewal of textiles and the reapplication of

91 Jacqueline Lichtenstein, "Fragment: Elements of a Definition," in *The Fragment: An Incomplete History*, ed. William Tronzo (Los Angeles: J. Paul Getty Museum 2009), 115–121; on, for example, the emergence of the cult of fragments in association with the discovery and restorations of the Laocöon see Brigitte Bourgeois, "Fragments of a Revolution: The Laocöon in Paris, 1798–1815," in *The Fragment: An Incomplete History*, ed. William Tronzo (Los Angeles: J. Paul Getty Museum, 2009), 61–82. Michelangelo famously admired the Belvedere torso, as Winckelmann notes in the opening of his 1759 essay "*Beschreibung des Torso im Belvedere zu Rom,*" or "Description of the Torso of the Belvedere in Rome," in *Essays on the Philosophy and History of Art*, ed. Curtis Bowman (London: Continuum, 2005), xiii. The torso, housed in the Vatican, left Rome for the first time in 1998 to be the centerpiece of the exhibit *Der Torso: Ruhm und Rätsel* at the Glyptothek in Munich. Raimond Wünsche et al., *Der Torso: Ruhm und Rätsel* (Munich: Statliche Antikensammlungen, 1998). The exhibition contextualizes the torso and traces the history of representations based on it from Michelangelo to Picasso. On Winckelmann's essay, see Alex Potts, *Flesh and the Ideal: Winckelmann and the Origins of Art History* (New Haven: Yale University Press, 2000), 59–60, 65, and The Postclassicisms Collective, *Postclassicisms*, 11–12. Johann Joachim Winckelmann, *Geschichte Der Kunst Des Alterthums* (Dresden: In der Waltherischen Hof-Buchhandlung, 1764), which built on many of the ideas laid out in the "Description of the Torso of the Belvedere," included sections on the art of the Egyptians, Etruscans, Phoenicians, Persians and Greeks, In it he sought to systematize the study of ancient art and to examine the essential qualities of Greek art, which he divided into four categories: early, high (Pheidias), beautiful (Praxiteles) and decline. *Geschichte der Kunst des Alterthums*, 285. On Winckelmann's distinction between the high and the beautiful, see Potts, *Flesh and the Ideal*, 15. Despite emphasizing the superiority of Greek art, he never traveled to Greece and instead viewed fragmentary Roman copies that he himself deemed inferior. On how the cast tradition structured art historical knowledge, see Francis Haskell and Nicholas Penny, *Taste and the Antique: The Lure of Classical Sculpture 1500–1900* (New Haven: Yale University Press, 1981): 105–107.

92 "One muscle flows into the other, and a third, which raises itself between them and seems to strengthen their motion, loses itself in the latter, and our glance is, as it were, likewise swallowed," Winckelmann, "Description of the Belvedere Torso," xv. On Winckelman in the context of Romanticism, see Katherine Harloe, "Winckelmania: Hellenomania between ideal and experience" in *Hellenomania*, Katherine Harloe, N. Momiligano, and A. Farnoux eds. (London: Routledge, 2018) 40–55. For an analysis of Winckelmann's ekphrasis and its relationship to later art history, see Verity Platt, "Re-membering the Belvedere Torso: Ekphastic Restoration and the Teeth of Time," *Critical Inquiry*, Autumn (2020): 49–75. On, for example, the emergence of the cult of fragments in association with the discovery and restorations of the Laocöon, see Bourgeois, "Fragments of a Revolution." Michelangelo famously admired the Belvedere torso, as Winckelmann notes in the opening of "Description of the Belvedere Torso," xiii. Wünsche et al., *Der Torso*. See also Potts, *Flesh and the Ideal*, 59–60.

93 Rainer Maria Rilke, "Archaic Torso of Apollo," in *Ahead of All Parting: Selected Poetry and Prose of Rainer Maria Rilke*, trans. Stephen Mitchell (New York: Modern Library, 1995).

Figure 14 Belvedere Torso, marble, mid-first century BCE, Museo Pio-Clementino (Vatican City) 1192.
Photo: Scala/ Art Resource

pigments, inlay, and surface treatments often barely registers in the archaeological record.[94] Taking fragments for wholes effaces the important care labor (*kosmēsis*) that formed and maintained art objects in the ancient Mediterranean.

Rather than focusing on parts that can stand in for wholes, ancient Mediterranean artists and beholders concerned themselves with piecing together parts to form chromatic assemblages. A part (*meros*) can be scaled down, through division, to the level of the atom (*atomos*, literally "indivisible") or up, through assemblage, to form larger parts or forms (*eidē*), which are always parts of the visible world too. In this way, material color indexes not only a world of polychrome forms pieced together from parts, but also the fitted-togetherness of the matter of living bodies.[95] Artistic atomism represents the world as kinetic, recombinant, vibrantly colored matter, and thus indexes the pieced-together polychrome assemblages of beholding bodies and art objects alike.

Reconstituting material color not only reimagines the art of the ancient Mediterranean, but also opens up a series of connected theoretical frameworks that run through this book. Locating the materiality of color in the practices of ancient Mediterranean artists, Chapter 1 allows us to track an associated period vocabulary of material color and both language and practice demonstrate the ways in which material color-parts form polychrome wholes. Understanding the constitutive role of material color in producing forms in turn invites us to reevaluate the status of adornment (*kosmēsis*) and the related care, labor, and maintenance that material color demands in Chapter 2. Reimagining landscape (*khōra*) as a space of polychrome material generation in Chapter 3 counters a Platonic version of *khōra* as feminized void and also engages twentieth-century feminist resistance to Plato's dematerialized version while fitting color back into those interventions. Considering fitted-together inlaid eyes produced for bronze statues in connection with contemporary theories of vision as material exchange, Chapter 4 demonstrates the ways in which artistic and philosophical inquiries mutually inflected each other. Finally, Chapter 5 deals with the medium of mosaic emerging as a paradigm that makes material color visible and knowable as the artistic atomism.

94 On textile, see Sheramy Bundrick, "The Fabric of the City: Imaging Textile Production in Classical Athens," *Hesperia* 77, no. 2 (2008): 283–334.

95 On matter within living bodies, see Mel Y. Chen, *Animacies: Biopolitics, Racial Mattering, and Queer Affect* (Durham: Duke University Press, 2012): 23–56, 159–188; Bennett, *Vibrant Matter*, 116–119.

Chapter 1

MATERIAL COLOR, LANGUAGE, AND *KHRŌMA*

An artist painted the scene of a painter and a workshop assistant adding colors to a statue of Herakles on the outer surface of a large terracotta bowl used for mixing wine and water.[1] Found in Apulia (in southern Italy) in the fourth century BCE, the scene included an image of the living Herakles approaching the painter and his assistant in the middle of painting his statue. (Figures 15 and 16).[2] In the scene, the statue stands on a plinth and the painter works on the statue's body *in situ*, while his assistant warms several implements on a brazier for applying pigments blended with beeswax known as the encaustic technique. This depiction is regularly cited as evidence that ancient Greek sculptures were painted.[3]

1 Terracotta column-krater, Metropolitan Museum of Art, New York, 50.11.

2 See Verity Platt, "Colour in Religion and Ritual," in *A Cultural History of Color in Antiquity*, ed. David Wharton (London: Bloomsbury, 2021), 63–80, and Verity Platt, *Facing the Gods: Epiphany and Representation in Graeco-Roman Art, and Religion* (Cambridge: Cambridge University Press, 2011); Clemente Marconi, "The Birth of an Image: The Painting of a Statue of Herakles and Theories Literature of Representation in Ancient Greek Culture," *RES: Anthropology and Aesthetics* 59/60 (2011): 145–167; Katerina Ierodiakonou, "Empedocles and the Ancient Painters," in *Colour in the Ancient Mediterranean World,* ed. Liza Cleland and Karen Stears (Oxford: Hedges, 2004), 91–95; Michael Duigan, "Pretending to Be What They Are Not: Colour and the Deceptive Gift," in *Colour in the Ancient Mediterranean World*, 78, figs. 1–2.

3 Vinzenz Brinkman, R. Wünsche, and U. Wurnig, *Bunte Götter: Die Farbigkeit antiker Skulptur* (Munich: Glyptothek Munich, 2004); Jan Stubbe Østergaard, "Colour Shifts: On Methodologies in Research on the Polychromy of Greek and Roman Sculpture," *Proceeding of the Danish Institute in Athens,* 8 (2017): 149–171; Dimitris Plantzos, *The Art of Painting in Ancient Greece* (Athens: Kapon Editions, 2018), 31, figs. 6–7.

Figure 15 Artist and assistant painting a statue of Herakles as the demigod Herakles approaches, obverse of terracotta column-krater (bowl for mixing wine and water), attributed to the Group of Boston 00.348, ca. 360–350 BCE, fired terracotta with added pigments, H. 20 1/4 in. (51.5 cm). The Metropolitan Museum of Art, New York, 50.11.4

Figure 16 Detail, artist and assistant painting a statue of Herakles as the demigod Herakles approaches, obverse of terracotta column-krater (bowl for mixing wine and water), attributed to the Group of Boston 00.348, ca. 360–350 BCE, fired terracotta with added pigments, H. 20 1/4 in. (51.5 cm). The Metropolitan Museum of Art, New York, 50.11.4

Artists crafted scenes of artistic production, such as bronze casting, stoneworking, weaving, potting, and painting, on ceramic vessels and votive plaques. These were also carved onto jewelry or appear on statuettes. Although not strictly documentary, these depictions offer glimpses of practices not often preserved in archaeological and textual records.[4] The Herakles scene would be produced either by a sole artist or a group of artists working together to make and paint the mixing vessel. Images would then be painted onto its surface with clay, slips, and additional pigments added after firing.[5] All the materials used in assembling the mixing vessel and painting the Herakles scene, have their own colors. A painter of ceramics collaborating with a potter, or

4 On potters and painters and self-representation, see Richard Neer, *Style and Politics in Athenian Vase-Painting: The Craft of Democracy, ca. 530–460 B.C.E.* (Cambridge: Cambridge University Press, 2002). On artists in the ancient Mediterranean more broadly, see Kristen Seaman, "Introduction," in *Artists and Artistic Production in Ancient Greece*, ed. Kristen Seaman and Peter Schultz (Cambridge: Cambridge University Press, 2017), 1–8; Sarah Bolmarcich and Georgina Muskett, "Artists' Signatures on Archaic Vases from Athens," in Greece, ed. Kristen Seaman and Peter Schultz (Cambridge: Cambridge University Press, 2017), 1–8; Sarah Bolmarcich and Georgina Muskett, "Artists' Signatures on Archaic Vases from Athens," in *'Artists Signatures'*, 154–176; on plaques from Pentheskouphia (Corinth), see Bruno d'Agostino and Maria Grazia Palmieri, "Potters, Hippeis and Gods at Penteskouphia (Corinth), Seventh to Sixth Centuries BC," in *The Archaeology of Greece and Rome: Studies in Honour of Anthony Snodgrass*, ed. J. L. Bintliff and N. K. Rutter (Edinburgh: Edinburgh University Press, 2016), 155–182; Sanchita Balachandran, "Uncovering Ancient Preparatory Drawings on Greek Ceramics," *Getty Iris*, September 2018.

5 On color processes see Beth Cohen, *The Colors of Clay: Special Techniques in Athenian Vases* (Los Angeles: J. Paul Getty Museum, 2006), 2–7.

a single artist performing both roles, built up this image of the painter and his assistant painting a statue on an object which had its own use history. In this way, the imagery offers some insight into the artistic practices and collaboration involved in painting a statue, while the choice of an artist to paint a statue on a fired ceramic vessel focuses our attention on the transmedial complexities of material color. The Herakles mixing vessel foregrounds a distinction within the broader category of material colors (*khrōma*) between assemblage (i.e. fitted together color-parts) and additive color (i.e. material colors on a surface).

Additive color, especially the material colors added to the surface of a marble sculpture, is a subset of colors that has been most contested in the reception of ancient Mediterranean art. Marble sculpture has been the priority medium and material, drawing more attention and analysis than other artistic media. At least in (2019), http://asapjournal.com/asli-cavusoglu-theplace-of-stone-jennifer-stager the public antiquarian debates in the eighteenth and nineteenth centuries CE white marble has also been the primary surface and site on which battles over ancient Mediterranean color have been fought. Despite the range of colors of marbles and an art and archaeological record replete with objects and surfaces produced in many other materials, including limestone, terracotta, wood, bronze, gold, and ivory, the question of paint on marble has been the primary focus of debate and research. [6] This narrowly framed debate, however, substitutes the presence or absence of paint on marble for the presence or absence of all color in the ancient Mediterranean, in different artistic media, in texts, and of bodies. Expanding to include other materials, this chapter concentrates on the broad category of material color (*khrōma*) and the distinction within material color between additive color and assemblage evident on the Herakles mixing vessel. Foregrounding color's materiality allows the recovery of an associated language of materials across different textual genres that names and describes colors, maps their connections, and traces the part-to-whole relationships that material colors build up.

Material colors bear a deep connection to the earth from which they are sourced. While modern synthetic color production allows for additional colors as well as those provided by the earth, contemporary artists continue to work with earthborn colors often in conjunction with synthetic pigments.[7] In the ancient Mediterranean, colors regularly bore a connection to the earth or were the soil itself, such as different ochres. Even when artists modified earthborn matter in the workshop, for example, in processing the oldest synthetic pigment Egyptian blue (a calcium copper silicate), the earth still provided the components.[8] This connection of colors to the earth grounded the premodern understanding of colors as material rather than perceptual. Newton's discovery, in the late seventeenth century, that light could be bent through a prism to produce a spectrum of

6 On the range of colors in marble, see John Nicholas Napoli and William Tronzo, eds., *Radical Marble: Architectural Innovation from Antiquity to the Present* (Abingdon: Routledge, 2018), 2; M. Waelkens, P. De Paepe, and L. Moens, "Quarries and the Marble Trade in Antiquity," in *Classical Marble: Geochemistry, Technology, Trade*, ed. N. Herz, and M. Waelkens, NATO ASI Series, Series E: Applied Sciences, vol. 153 (Dordrecht: Springer, 1988), 11–28.

7 See, for example, Kremer pigments, which stocks a vast range of historical, earthborn pigments and chemically produced pigments. On the rise of synthetic pigment production in nineteenth-century France, see Laura Kalba, *Color in the Age of Impressionism: Commerce, Technology, Art* (University Park, Pennsylvania: Pennsylvania State University Press, 2017).

8 G. D. Hatton, "Production of Egyptian Blue and Green Frits," in *Production Technology of Faience and Related Early Vitreous Materials*, ed. M. S. Tite and Andrew J. Shortland (Oxford: Oxford University School of Archaeology, 2008), 150–185. See also Michèle Casanova, "Lapis Lazuli," in *Beyond Babylon: Art, Trade, and Diplomacy in the Second Millenium B.C.*, ed. Joan Aruz, Kim Benzel, and Jean M. Evans (New York: Metropolitan Museum of Art, 2008), 68. On the reception history of "lapis lazuli," see Jennifer Stager, "Asli Çavusoglu: The Place of Stone," *ASAP Journal* (2019), http://asapjournal.com/asli-cavusoglu-the-place-of-stone-jennifer-stager.

seven visible colors (red, orange, yellow, green, blue, indigo, violet), disconnected color from the earth and from matter.[9] Newton's prism experiments produced an argument that colors are produced by our perception of light and their existence is perceived by the mind. Newton's construction of a spectrum of seven colors to align with the seven notes of the musical scale necessitated his division of blue and indigo a fancy that belies the scientism of the seven-color spectrum. Nonetheless, his interpretations of his experiments have dominated modern explanations for the phenomenon of color.[10] Ancient Greek writers also wrestled with questions of color and optics, perhaps shaped by the many colors used by artists and the vivid polychromy of the natural world, and they approached the phenomenon of color as primarily material. This ancient understanding of color's materiality inflected and was inflected by artistic practices, philosophical engagement, and a language of materials.

These divergent approaches to color—one modern and perceptual, the other ancient and material—have contributed to difficulty in tracing color in the ancient Mediterranean. In addition to the problems caused by these vastly different understandings of the phenomenon of color, academic divisions between philology and material culture have diminished our ability to see material colors in both texts and objects of the ancient Mediterranean. Those mining texts for color-words rarely explored art and archaeological records. Even epigraphy has been studied historically as words isolated from their archaeological contexts and separated from the objects on which they were written.[11] Excavating color-terms in conjunction with the many colors preserved in the art and archaeological record makes visible a language of material color that accords with the material colors of art and architecture. In the ancient Mediterranean, colors were understood in material terms and thus registered volume, depth, and space in ways that modern understandings of color do not account for. Scholars searching texts for hue-words often overlooked ancient Greek material colors because they disregarded words that marked the relationship between materials (stones, metals, flowers, soils) and their colors. Attention to this language of color indicates places where we do not expect color or where a word names a material, and we need to understand and picture its color. Seeing colors on and in objects invites us to recognize more color-words in texts, recognizing a robust period language. This chapter explores this language of material color so that we can understand more thoroughly not only what objects might thus be understood in color-terms, but also the visual and cultural resonances that colors held for viewers.

MATERIAL COLOR

Ancient Mediterranean color (*khrōma*) was understood to comprise hues (*khrōmata*), variegation (*poikilia*), and brilliance (*lamprotēs*).[12]

9 For an accessible summary of Newton's rainbow, see "Color in a New Light," *Smithsonian Institute*, https://library.si.edu/exhibition/color-in-a-new-light/science.

10 Gage, Color and Culture, 26, with bibliography.

11 On epigraphy in the discipline, see The Postclassicisms Collective, *Postclassicisms* (Chicago: University of Chicago Press, 2019), 69–73. On bringing the study of ancient Greek literature and epigraphy together, see Athena Kirk, *Ancient Greek Lists: Catalogue and Inventory across Genres.* Cambridge: Cambridge University Press, 2021, 1–16.

12 T. R. Price, "The Color System of Vergil," *The American Journal of Philology* 4, no. 1 (1883): 6. Mark Bradley, *Colour and Meaning in Ancient Rome* (Cambridge: Cambridge University Press, 2009), 68–69, 131–132, 144–150. On Munsell and an expansive notion of *khrōma* in ancient Greek, see M. Michela Sassi, "Perceiving Colors," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Hoboken: Wiley-Blackwell, 2015), 263. Liz James, *Light and Colour in Byzantine Art* (Oxford: Clarendon Press, 1996), 11–12. From the 1930s, Munsell's color system was adopted by the American agricultural association for soil research and it remains in active use today. Color purity is sometimes called "chroma" in Munsell's system, but in the English rather than the ancient

I am translating *khrōma* as "material color" to distinguish this earlier conception from the post-Newtonian understanding of color as dematerialized hues. Distinguishing color (singular *khrōma*) from hues (plural *khrōmata*) also marks the difference between the umbrella term *khrōma*, which captures the material, spatial, and kinetic components of material color, and one of its components (plural *khrōmata*), hues.

To develop a fuller understanding of ancient Mediterranean concepts of color, we need to look at a broader range of terms and across a range of genres, where we find material color conveyed by a nexus of words that connote not only hues but also sheen, affect, and animation. Rather than a language of hues, the language of color in ancient Greek is the language of materiality. Ancient artists produced objects in different media from material colors and ancient philosophers debated the precise nature of this materiality. Among the questions that philosophers debated was whether color was attached to individual atoms or whether it was the result of various assemblages of atoms.[13] Preserved in these debates about color is the importance of fitting together parts into larger forms, or assemblages.

When material colors or color-parts are added to various surfaces, such as wooden panels, plaques, statues, buildings, or other objects, they act as a skin. As scholars have often noted, ancient Greek nouns for color, *khrōma* and *khroia*, are etymologically related to *khroia*'s cognate *khrōs* ("skin," but also "surface").[14] *Khrōs* itself can refer to the outer layer of the human body, or to the entire body and its limbs, as well as more generally to "color."[15] Skin, a multilayered organ, possesses solid substance, and *khrōma* retains this synthesis of surface and depth. Unlike its synonym *derma*, which can refer to the hide of a dead animal, *khrōs* describes the living system of skin as the outermost layer integrated into the body, more similar to "flesh" (*sarx*), but with a greater emphasis on the surface-part-layer. The relationship in ancient Greek between material color and skin, the largest organ in the human body, retains the idea of an integrated system or assemblage of connected parts. In this sense, just as *khrōs* connects the surface layers to the interior parts and systems of the body, so do material colors on the surface of an object connect to its interior color-parts and systems.

Through its relationship to skin (*khrōs*), color (*khrōma*) integrates surfaces and depths. And yet, over time color (*khrōma*) seems to lose some sense of this integrated materiality of surface (*khrōs*).[16] The etymology of the English word

Greek sense. See Edward R. Landa and Mark D. Fairchild, "Charting Color from the Eye of the Beholder: A Century Ago, Artist Albert Henry Munsell Quantified Colors Based on How They Appear to People; Specializations of His System Are Still in Wide Scientific Use," *American Scientist* 93, no. 5 (2005): 436–443. Marcel Detienne and Jean-Pierre Vernant, *Cunning Intelligence in Greek Culture and Society* (Hassocks: Harvester Press, 1978), 18–19. Deborah Steiner, *Images in Mind: Statues in Archaic and Classical Greek Literature and Thought* (Princeton: Princeton University Press, 2001), 21, 284. On surface and interior relations see Richard Neer, *The Emergence of the Classical Style in Greek Sculpture* (Chicago: University of Chicago Press, 2010), 143–181.

13 See Katerina Ierodiakonou, "Philosophy and Science," in *A Cultural History of Color in Antiquity*, ed. David Wharton (London: Bloomsbury, 2021), 2–3; Empedocles B71, B96, which both use the words "fitting together."

14 Pierre Chantraine, *Dictionnaire étymologique de la langue grecque: histoire des mots*, ed. J. Taillardat, O. Masson, and Jean-Louis Perpillou (Paris, Klincksieck, 1899–2009), 1233; Bradley, *Colour and Meaning*, 69, 83, 132; and Mark Bradley, "Colour as Synaesthetic Experience in Antiquity," in *Synaesthesia and the Ancient Senses*, ed. Shane Butler and Alex Purves (Hoboken: Taylor and Francis, 2014), 132; Price, "The Color System of Vergil," 6. Vinzenz Brinkmann, "The Polychromy of Ancient Greek Sculpture," in *The Color of Life*, ed. Roberta Panzanelli (Los Angeles: J. Paul Getty Museum, 2008), 32. Jacqueline Lichtenstein, *The Eloquence of Color: Rhetoric and Painting in the French Classical Age* (Berkeley: University of California Press, 1993), 52. James, *Light and Colour in Byzantine Art*, 49–52.

15 Chantraine, *Dictionnaire étymologique*, 1233.

16 The Latin word *color* might not retain the same dimensional and spatial sense. Both Rachael Goldman and Mark Bradley

"color" from the Latin *celare* (to hide), *occulere* (to cover), and *clam* (secretly) perpetuates the idea that surface color might deceive and also emphasizes the notion of surface as a separate rather than an integrated part of the whole form or assemblage.[17] This detachment eventually converges with the modern dematerialization of color. After Newton, the English word "color" refers most typically to dematerialized hues rather than retaining the material, spatial, and bodily dimensions of color that were active in the ancient Greek language and ancient Mediterranean artistic practices.[18]

Over time, this dematerialization of color impacts its status. As color grows less materially solid than its underlying form, it is eventually understood as *less than* its underlying form. Writing in the seventeenth century, John Locke distinguished between primary, or true, qualities of the body, such as shape or movement, and secondary, or subjective, qualities of the body such as the sensory perception of colors, sounds, and smells to reinforce a hierarchy with shape and form (*morphē* and *eidos*) at the top and color (*khrōma*) below.[19] Locke argues that these secondary characteristics are dependent on the empirically true primary characteristics.[20] For example, he addresses the light-dependence of color perception in Idea 19:

> Let us consider the red and white colours of porphyry: hinder light but from striking on it, and its colours vanish; it no longer produces any such ideas in us. Upon the return of the light, it produces these appearances on us again. Can anyone think any real alterations are made in the porphyry by the presence or absence of light, and that *those ideas of whiteness and redness* are really in porphyry in the light, when it is plain it has no colour in the dark?[21]

Because light impacts a viewer's ability to see the red or white color of porphyry, Locke argues that this light-dependence renders colors secondary to the material of porphyry itself. While Newton's prismatic color had extracted color from the material object, he allowed for color's material presence at the level of the photon.[22] In contrast, Locke centered the question of

analyze a debate staged by the Latin grammarian Aulus Gellius (125–180 CE), in *Attic Nights* 2.26, over whether Greek or Latin languages have better color words, in which (male) poets "the best" terms are preserved, and what phenomena these might describe. Bradley, *Colour and Meaning*, 229–233; Rachael Goldman, *Color-Terms in Social and Cultural Context in Ancient Rome* (Piscataway, NJ: Gorgias Press, 2013), 9–24. On additive colors and flesh, see Adeline Grand-Clément, "L'Épiderme des statues grecques: quand le marbre se fait claire," *Images Re-vues* 13 (2016): http://journals.openedition.org/imagesrevues/3932.

17 See Duigan, "Colour and the Deceptive Gift," 81–82. On the reception tradition linking color and deception, see Lichtenstein, *Eloquence of Color*, 38–42 and David Batchelor, *Chromophobia* (London: Reaktion Books, 2000), 52–64.

18 See Ronald Casson, "Color Shift: Evolution of English Color Terms from Brightness to Hue," in *Color Categories in Thought and Language*, ed. C. L. Hardin and Luisa Maffi (New York: Cambridge University Press, 1997), 224–239.

19 John Locke, *An Essay Concerning Human Understanding* (New York: Dover Publications, 1959). This modern distinction drew on Aristotle, on which see the Introduction to Alex Purves and Shane Butler, eds., *Synaesthesia and the Ancient Senses* (London: Routledge, 2014), 2, n3. James, *Light and Colour in Byzantine Art*, 53 interprets Democritus (DK 68B9) as a "subjective and secondary" quality, reading "by convention" in this way. However, Democritus's distinction between qualities of convention and the realness of atoms, differs significantly from the later hierarchy elevating shape and form above color; for Democritus assemblages of atoms craft all objects and their qualities. On which see Holmes, Symptom and the Subject, 100–101; For Kant's rejection of Democritean assemblage, *Critique of Judgement*, S72.391.1 In a recent analysis Rudolph argues that color perception exceeds atomistic assemblage in Democritus's theory, see Kelli Rudolph, "Democritus' Theory of Colour" *Rhizomata* 7.2 (2020): 269–305.

20 John Locke, *An Essay Concerning Human Understanding*, chapter 8, especially 9–10, 23; On the ancient senses, see Mark Bradley and Shane Butler, eds., *The Senses in Antiquity Series* (London: Routledge, 2014–2018).

21 John Locke, *An Essay Concerning Human Understanding*, 176.

22 On the materiality of light in Newton's thinking, see John Gage, *Color and Culture: Practice and Meaning from Antiquity to Abstraction* (Boston: Little, Brown and Company, 1993), 168–172.

porphyry's redness or whiteness in human perception. In his conception, the stone had no intrinsic color and so he relegated color to a secondary status, in contrast to the stone's empirically true characteristics such as form or shape. These scientific and humanist developments in the intellectual tradition of the late seventeenth and early eighteenth centuries have shaped subsequent approaches to color with the general result that today color becomes a secondary quality of the object, while form, or shape, remains primary.

Although neither Newton nor Locke seem explicitly invested in the issue of color and gender, the terms matter (*hulē*) and form (*morphē*) have a gendered history going back to ancient Greek philosophical explorations in Plato and Aristotle, which will be taken up in more depth in subsequent chapters. In short, Aristotle's engagement with Plato's *Timaeus* genders form masculine and matter feminine, and color's materiality retains that gendering in antiquity. By the seventeenth century, a dematerialized understanding of color as hue dominates, but this historical gendering clings to color on the grounds of its materiality, with the result that the hierarchy of form as primary and color (and the senses) as secondary in Locke effectively elevates (masculinized) form over (feminized) color.

Seeing ancient Mediterranean art and architecture through the lens of modern dematerialized color and its associated hierarchies filters out the constitutive role of material color in Mediterranean antiquity. As antiquarians encountered and debated additive colors on architecture and sculpture throughout the Mediterranean in the eighteenth century, this different notion of both the nature and status of colors shaped how they understood what they saw. In the late eighteenth century, for example, the German philosopher Johann Herder blithely argued that additive colors make sculpture ugly because color is not form ("Farbe nicht Form ist") and remains either undetectable or disruptive to haptic encounters, which is to say, dematerialized color counted less for Herder because it could not be touched.[23] Intersecting questions of gender and racialized constructions of Western exceptionalism swirled in the background of such pronouncements.

Following Newton's extraction of the hues of the spectrum from their material substrates, modern scholars, including British prime minister and classicist W. E. Gladstone, sought and failed to find color-words that straightforwardly named hues independently of their materiality and many color-terms were lost in translation.[24] Efforts to revise this nineteenth-century erasure and expand the lexicon of ancient Greek and Latin color-terms continue, although these have often been carried out independently of material analysis.[25] Color, however, has always encompassed more than hue. Corresponding to Munsell's twentieth-century description of color-space made up of hue, saturation, and brilliance, in the ancient Mediterranean, hues, brilliance, and variegation made up material colors.[26]

Brilliance, or the shining, reflective capacity of different hues, is an important aspect of material color's animacy. Ancient Greek accounts of color regularly emphasize the importance of luster, shimmer, and brilliance – of *lamprotēs* – in

23 Johann Herder, *Skulptur* (Riga: Johann Friedrich Hartknoch, 1778), 43. Oliver Primavesi, "Artemis, Her Shrine, and Her Smile: Winckelmann's Discovery of Ancient Greek Polychromy," in *Circumlitio: The Polychromy of Antique and Mediaeval Sculpture*, ed. Vinzenz Brinkmann, Max Hollein, and Oliver Primavesi (Frankfurt: Hirmer, 2010), 68n6.

24 W. E. Gladstone. "The Colour-Sense," *Nineteenth Century* 2 (1877): 366–388.

25 E. Irwin, *Color Terms in Greek Poetry* (Toronto: A. M. Hakkert Limited, 1974); P. G. Maxwell-Stuart, *Studies in Greek Colour Terminology I* (Leiden: Brill, 1981).

26 For Munsell's system, see discussion in footnote 12 and "Munsell Color": https://munsell.com/

Greek art.[27] Ancient authors including Plato, Plutarch, and Pliny, discussed brilliance as a component of making colors and objects. For example, in an excursus on the production of material color in the *Timaeus*, which will be discussed Chapter 3, Plato names the component parts of the color *kuaneos* (derived from *kuanos*, see below), a mixture of shining (*to lampron*), white (*leukos*), and black (*melas*).[28] White and black might register as hue-words to a modern reader, although they are admittedly outside of the modern rainbow spectrum. Plato adds a third part to these hues, shining (*to lampron*), which might register as color-adjacent to today's reader. The terminology in this recipe for *kuaneos* produces a particular color through the combination of hues and brilliance, indicating that brilliance was not an effect independent of color, but a component of it.

Brilliance (*lamprotēs*) is significant for Greek aesthetics and has historically been separated from color. The prevalence of words for brilliance in ancient Greek texts and the seeming dearth of words for particular hues in these same texts have been marshaled as evidence for an ancient Greek preference for brilliance over hue.[29] This elevation of brilliance, severed from material color, fits comfortably with narratives of dematerialized shining white or light. In a circular turn, these texts seem to suggest the centrality of the shiny effects of unadorned white marble. If Greek writers appeared not to name dematerialized hues and Greek artists not to paint sculptures (with marble as the default material), both ancient Greek text and image could retain the "noble simplicity" celebrated by Winckelmann and foundational to modern aesthetics.[30] Such a rubric celebrates brilliance instead of, rather than as a part of, material colors, and it retains an idealized image of sparkling monochrome white marble antiquity. Brilliance, however, is a part of ancient Greek color vocabulary and a part of what makes up material color.

This materiality also extended to black and white, hues excluded from the modern spectrum (Figure 17). No longer a part of the Newtonian dematerialized spectrum of hues, black and white have come to be understood as binary notions outside of color onto which ideas about purity, spiritual transcendence, void, and excess have been mapped.[31] Indeed, these conventions seep into even modern scientific description. Analyzing how scientists inscribe whiteness into naming and labeling, physicist Chanda Prescod-Weinstein writes of naming conventions in quantum chromodynamics,

> "Color" and "white as neutral" are here not as reflections of how the universe works, but rather how a homogeneous, white scientific community comes up with new names for stuff. Part of science,

27 Among the ancient sources on luminosity and brilliance as a component of color, see Pl. *Ti.* 68c, and on the addition of wax to increase it, Pliny *NH* 35.36.97. Scholars who have recently analyzed *to lampron* include Neer, *Classical Style*; Duigan, "Color and the Deceptive Gift," 80; Andrew Stewart, *Greek Sculpture: An Exploration* (Cambridge: Cambridge University Press, 1990), 36–42 and Irwin, *Color Terms in Greek Poetry*, 24–25, 79–80.

28 Pl. *Ti.* 68c 5–6.

29 In a discussion of the many colors painted on sculptural surfaces, E. Walter-Karydi, "The Emergence of Polychromy in Ancient Greek Art in the 7th century BC," in *Les Arts de la couleur en Grèce ancienne . . . et ailleurs*, ed. Philippe Jockey (Athens: École Française d'Athènes, 2018), 95–114, argued that ancient Greek artists and writers prioritized darkness and lightness and characterized Homer as uninterested in hue. On dark/light contrasts see Irwin, *Color Terms in Greek Poetry*, 111–200; for the replication of this narrative outside of ancient Mediterranean art and classics, see Alan E. Shapiro, "Artists' Colors and Newton's Colors," *Isis* 85, no. 4 (1994): 603.

30 Winckelmann made his oft-quoted assessment of Greek art's possession of *"eine edle Einfalt und eine stille GröÍe"* in *Gedanken über die Nachahmung der griechischen Werke in der Malerei und Bildhauerkunst* (Dresden and Leipzig: Im Verlag der Waltherischen Handlung, 1756), 24. On the connotations of *stille*, see Alex Potts, *Flesh and the Ideal: Winckelmann and the Origins of Art History* (New Haven: Yale University Press, 2000), 2–3.

31 Philip Ball, *Bright Earth: Art and the Invention of Colour* (Chicago: University of Chicago Press, 2001), 46–47.

> therefore, involves writing a dominant group's social politics into the building blocks of a universe that exists far beyond and with little reference to our small planet . . . our educations socialize us into the "color+color+color=white" paradigm.[32]

In contrast with this post-Newtonian construction of dematerialized hues, some ancient philosophers in the ancient Mediterranean understood black and white to be not only among the material colors, but even the two primary colors.[33] While reconciling the many competing fragmentary ancient philosophical arguments about the nature of color as a phenomenon is beyond the scope of this book, these fragments center a materialist understanding of color that includes black and white and their collective engagement with color emerged in relation to the vibrant material color – of buildings, statues, textiles, and bodies – of the world from which philosophers thought and wrote.[34]

The philosopher Empedocles of Acragas attributed black to water and white to fire, two of the four elements (along with air and earth) that for him comprised the forms of the visible world.[35] His work remains fragmentary and it is unclear whether he attributed colors to the other two elements, but within his cosmology, he argues that particles of black and white, or water and fire, combine to make up the other colors of the visible world.[36] Aristotle also includes black and white among material colors that can be mixed together to produce other colors (*De Sensu* 4.442a20–25), although he explores a range of possible primary colors across his extant texts and does not consistently commit to black and white as the two primary colors.[37]

In addition, many extant objects also include black or white materials among the many colors used by artists. Examples include a black-glazed water jar depicting the poet Sappho and her lyre, the black tiles described by Pausanias making up the olive-oil reflecting pool in front of the gold and ivory statue of Zeus at Olympia (5.11), obsidian pupils of inlaid eyes, ivory or bone eye-whites of inlaid eyes, the ivory parts of the statue of Athena Parthenos, and white paint on the statue of Herakles on the mixing vessel. Rather than including black and white within a broader spectrum of material colors and approaching ancient Mediterranean art with this in mind, however, modern researchers have brought a misaligned and idealizing understanding of dematerialized black and white to their search for color in the ancient Mediterranean. A reception tradition that has reproduced the forms of ancient Mediterranean art and architecture almost exclusively in black-and-white technologies has only increased our distance from the very different ancient thinking about black and white as material colors. Most significantly, scholars have emphasized a tonal binary of white/black or bright/dark (*lampron/melas*), what Jean-Pierre

32 Chanda Prescod-Weinstein, *The Disordered Cosmos* (2021), 22–23. Prescod-Weinstein's analysis in the field of physics dovetails with Richard J. Powell's argument in connection with color and modern painting that color is always both scientific and sociological. Richard J. Powell, "1. Colorstruck! Painting, Pigment, Affect" The 71st A. W. Mellon Lectures in the Fine Arts (March 20, 2022).

33 Kelli Rudolph, "Sight and the Presocratics," in *Sight and the Ancient Senses*, ed. Michael Squire (Abingdon: Routledge, 2016), 46; Ierodiakonou "Empedocles on Colour and Colour Vision," 8–10; Democritus DK 78. On whiteness as a color in Empedocles, see Porter, *The Origins of Aesthetic Thought in Ancient Greece*, 155, B96.

34 For technical differences at the level of the atom across different philosophical theories, see Ierodiakonou, "Philosophy and Science," and Sassi, "Perceiving Colors."

35 Empedocles, *Testimonia, Doctrine* 2, D56, D218 & D223 (< A86 * A69a) Theophrastus, *On Sensations*, D219 (<A91 Aristotle, *On the Generation of Animals*) in André Laks and Glenn Most, eds. *Early Greek Philosophy V* (Cambridge: Harvard University Press, 2016).

36 Katerina Ierodiakonou, "Philosophy and Science," in *A Cultural History of Colour in Antiquity*, ed. David Wharton (London: Bloomsbury, 2021), 17–34.

37 *De Sensu* 4.442a20–25; Sassi "Perceiving Colors," 271. Katerina Ierodiakonou, "Philosophy and Science" in David Warburton, ed. *A Cultural History of Color in Antiquity* (London: Bloomsbury, 2021), 17–34.

Figure 17 Color wheel including black and white to mark their status as colors and to indicate an ancient Greek argument for their potential to generate all other colors. Illustration by Mali Skotheim

Vernant described as "opposite poles of luminosity and darkness" as the priority in ancient Mediterranean color theory and practices.[38] Emphasizing a black/white or brilliance/darkness binary as something different from or beyond material color conforms to the familiar black-and-white aesthetics produced by the history of reproductions and replications.[39] Instead, artists and philosophers in the ancient Mediterranean

38 Jean-Pierre Vernant, "Dim Body, Dazzling Body," in *Fragments for a History of the Human Body: Part One*, trans. Anne M. Wilson (Paris: Gallimard,1986), 32; Bradley, *Colour and Meaning*, 15, n67–68.

39 Eleanor Irwin, *Colour Terms in Greek Poetry* (Toronto: Hakkert, 1974), 111–200; Walter-Karydi, "The Emergence of Polychromy in Ancient Greek Art," 95–114.

worked with and valued black and white as part of the range of material colors through which objects, buildings, and bodies were formed.

In addition to reproductive technologies selecting for black and white forms, loss and excision of additive colors over time has often left us with only the material support extant – the statue, relief, or plaque. As a component of material color beyond hue, brilliance influences the appearances of material colors and this becomes particularly relevant in connection with the different material supports on which artists layered additive colors, as pictured in the scene on the Herakles mixing vessel. When additive colors are layered onto marble supports, for example, the crystalline structure of marble interacted with these pigments, working together to construct the object's material color (variegation, brilliance, and hues). Different material supports, such as terracotta or limestone, each interact differently with additive pigments that have their own materiality. Traces of pigments that remain extant on marble surfaces, such as the pigments on various marble statues of women or korai, hint at the way in which pigment layers might work together with their crystalline substructure, but much of the effect has been lost over time. Most physical reconstructions of color on ancient sculpture are carried out on white plaster casts, which afford a white support, but one without the crystalline structure of marble and its associated brilliance. Selected reconstructions executed on marble supports demonstrate the ways in which a marble substructure joins together with surface colors.[40] Additive colors produce brilliant assemblages of which the surface pigments and the material substructures are both parts fitting together a polychrome whole.

In addition to brilliance, variegation was an equally important component of material color that also produced animacy. Adeline Grand-Clement analyzes both textual and polychrome material manifestations of variegation (*poikilia*), a practice and concept that includes the "effect produced by the assemblage of different colors and materials on an object," also encompassing notions of intricacy and animacy.[41] This analysis connects variegation and material color, capturing the part-to-whole relationship produced by fitting together color-parts into assemblages and also the ways in which artistic variegation expands to modes of thinking. Other scholars

40 Brinkmann, *Bunte Götter,* 148–155. In addition to amplifying the brilliance of the stele's colors, a marble substructure absorbs less pigment than plaster and so the more expensive substrait requires less pigment to cover its surface with colors. The author had the opportunity to experiment with layering historical pigments onto both marble and plaster substructures in the Materials Lab of the Harvard Art Museums and discovered firsthand that plaster absorbs pigment, producing a far more matte finish, while the marble surface soaked in less pigment, increasing its refraction even without additional surface treatments, "Materials Lab Workshop: Investigating Color in Art," Harvard Art Museums, December 3, 2019. One example of a painted reconstruction on a marble support, the funerary stele of Paramythion, offers a glimpse of the ways in which pigments and marble would have worked together to combine hue and brilliance. Building from both traces visible to the naked eye and under ultraviolet light, the Stiftun Archaeologie team has proposed two reconstructions. Both have a red background and blue details (although different shades) and one includes additional and more speculative details in gold, pink, and green. Building from both traces visible to the naked eye and under ultraviolet light, the Stiftun Archaeologie team has proposed two reconstructions. Both have a red background and blue details (although different shades) and one includes additional and more speculative details in gold, pink, and green. Stiftung Archaeologie, Variant A: www.stiftung-archaeologie.de/Paramythion_A_fullsize.html and Stiftung Archaeologie, Variant B: www.stiftung-archaeologie.de/Paramythion_B_fullsize.html; Giovanni Verri, "Broad-Band, Photo-Induced, Steady-State Luminescence Imaging in Practice," in *UV-Vis Luminescence Imaging Techniques* (Valencia, Spain: Editorial Universitat Politècnica de València, 2020): 61–102.

41 Adeline Grand-Clémant, "Poikilia," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Chichester: Wiley Blackwell, 2015), 406; Adeline Grand-Clémant, *La Fabrique des couleurs: histoire du paysage sensible des grecs anciens: Viiie–Début Du Ve S. Av. N. È.* (Paris: De Boccard, 2011).

have also identified the significance of variegation for ancient Greek aesthetics. For example, Andrew Stewart attends to the variegation of different materials such as gold, ivory, silver, bronze, copper, wood, representations of embroidery, inlaid eyes, crystalline marbles, clays, glass, enamel, and pigments.[42] Marcel Detienne and Jean-Pierre Vernant analyze variegation in ancient Greek texts to establish a connection between dappled things and intricate thinking.[43] Building on this analysis in his study of painted ceramics, Richard Neer emphasizes the ways in which variegation encompasses changeableness, adaptability, and nimble thought and speech, concepts that shot through painter's patterns.[44] Building on this framework in the context of sculpture, Neer examines the ways in which artists produced variegation in the carving of statues, especially drapery.[45] Through these examples of painted ceramics and carved statues, Neer argues that "*poikilia* names the complexity of pictorial depiction itself, the uncanny way in which images are twofold . . . *Poikilia* is the Greek word for this doubleness of seeing."[46] Such complexity extends to the shifting perceptions of material colors and the animacy that polychrome assemblages enact. Amy Lather argues that the shared variegation of objects, bodies, and ideas demonstrates that these seemingly distinct categories were understood relationally and that the term *poikilia* bridges humans and things.[47] Each of these vital engagements with variegation considers it as an overarching concept, whereas my focus in this book is on how variegation along with brilliance and hues (*khrōmata*) worked as aspects of material color.

ADDITIVE COLOR AND ASSEMBLAGE

Analysis of bodies in classical art has long been at the center of art historical engagement. That engagement, however, has most often focused on the idealized form of the nude body, an idealization that has traded in the homogeneous, monochrome surface. In their visible plurality, material colors undermine such idealizations. In "Whitescapes," the opening chapter to his book *Chromophobia*, David Batchelor writes, "but it is one thing not to know that Greek statues were once brilliantly painted; it is another thing not to see colour when it is still there."[48] Batchelor goes on to draw an important distinction between singular white and plural whites: "in being plural, they are therefore not 'pure.' Here is the problem: not white; not whites, but *generalized* white, because generalized white – whiteness – is abstract, detached, and open to contamination by terms like 'pure.'"[49] The intellectual tradition undergirding art history is shot through with discourse on purity – pure language (Adamic, or before its fragmentation into languages with the tower of Babel), pure reason (unconditional, as in Kant's Third Critique), or pure form (from Plato to Riegl). The material contingency of colors has been among the casualties of maintaining such fictions of purity. The erasure of colors from ancient Mediterranean art and in particular ancient Greek sculpture has served to craft a myth of

42 Stewart, *Greek Sculpture*, 37–40.

43 J.-P. Vernant, "*Figuration de l'invisible et catégorie psychologique du double: le colossus,*" in *Mythe et pensée chez les Grecs* (Paris, Éditions La Découverte, 1965, rééd. 1990), 325–338.

44 Neer, *Style and Politics*, 14–23; "The Lion's Eye," 121, 128–129.

45 Neer, *The Emergence of the Classical Style in Greek Sculpture*, 113.

46 Ibid., 138.

47 Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry*, 4.

48 David Batchelor, *Chromophobia* (London: Reaktion, 2000), 12.

49 Ibid., 12–13.

classical art's singular whiteness, where whiteness serves as a cipher for being whole and pure. Colors become, under this rubric, plural and impure. In contrast with this construction of whiteness, the recovery of material colors in ancient Mediterranean art shows us, instead, artistic practices that prioritized plurality, fitted-togetherness, and variegation.

For hundreds of years, debates over the presence or absence of color in ancient Mediterranean art have centered around the application of paint on white marble sculpture and architecture. Although reduced to these narrow terms, this debate has been framed as about the presence or absence of *all colors* in the ancient Mediterranean – on art, in language, and of living and material bodies. Marbles have different colors. Not all surfaces are marble, not all colors are applied paint, and not all material colors appear on an object's surface. Although we need to continue to push against the reinscription of whiteness in experimental reconstructions themselves, Aimee Hinds argues persuasively that the specificity of additive colors on sculpture disrupts the invisibility of whiteness as a construct.[50] Recovering material colors thus recovers a broader plurality in the art that they form.

That plurality is also not always added in the service of mimesis or naturalism. The painter of the Herakles mixing vessel, for example, used colors to distinguish between the living bodies – the painter, his assistant, the divine audience of Zeus and Nike, and Herakles encountering his own image in the making – and the statue. Human and divine bodies are rendered in the fired terracotta of the red-figure technique.[51] The sculpture of Herakles, in contrast, has been painted white. This division – fired red for living bodies, added white for sculpture – does not mimetically represent either, but highlights their different categories, living and non-living, in the scene.

Although the reds and blacks of the scene have been fired into the vessel's form in the kiln, the painter added whites, yellows, and oranges after firing. In the depiction of the brazier, orange and white flames flicker up around the circumference of its wide opening and lick around its edge. These oranges and whites depict the means by which the assistant heats tools for painting the statue in the scene, and these flames are also made up of additive colors painted onto the surface of the mixing vessel. The painter of the mixing vessel pictures the practice shared across the production of ceramics and sculptures of adding colors through painting a surface. Recovering ancient material colors also recovers these sorts of coloristic relationships across media that have historically been studied separately.

In addition to these transmedial relationships, the colors of the brazier also summon a host of connected sensory experiences, what Grand-Clément describes as the polysensory dimension of *poikilia*.[52] The brazier brings to mind the low heat used to warm the beeswax mixed with pigments, as well as the scorching heat of the kiln in

50 Aimee Hinds, "Hercules in White: Classical Reception and Myth," *The Jugaad Project*, June 23, 2020, www.thejugaadproject.pub/home/hercules-in-white-classical-reception-art-and-myth.

51 Verity Platt, "Likeness and Likelihood," in *Probabilities, Hypotheticals, and Counterfactuals in Ancient Greek Thought*, ed. Victoria Wohl (Cambridge: Cambridge University Press, 2014), 204–208. On the complexity of the red-figure technique, see Sanchita Balachandran, "Bringing Back the (Ancient) Bodies: The Potters' Sensory Experiences and the Firing of Red, Black and Purple Greek Vases," *Arts 8* (2019): 70. On representations of potters, see Dyfri Williams, "Picturing Potters and Painters," in *Athenian Potters and Painters II*, ed. and John Oakley and Olga Palagia (Oxford: Oxbow Books, 2009), 306–317. On continued uncertainty concerning sources for Attic clay, see Dominique Fillieres, Garman Harbottle, and Edward V. Sayre, "Neutron-Activation Study of Figurines, Pottery, and Workshop Materials from the Athenian Agora, Greece," *Journal of Field Archaeology* 10, no. 1 (1983): 55–69.

52 Adeline Grand-Clément, "Poikilia," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Chichester: Wiley Blackwell, 2015), 406–422.

which the main colors and the form of the mixing vessel were fired and fixed[53] Heat from a flame melts the wax with which pigments are blended, heats the kiln in which ceramics are fired, and also affords one of the means by which material colors change. Some Greek philosophers, including Empedocles and Plato, also conceptualized flame as a space within which the materiality of color and vision emerges, a subject I will return to in Chapter 4.[54] The scene painted on the mixing vessel also brings forth the sounds of wheel, kiln, and fire, and the smell of beeswax, smoke, and each individual powdered pigment mixed with the wax.[55] Encaustic pigments must be applied when the wax is warm, pliant, and unfixed. As beeswax cools, it hardens into the polychrome skin of a sculpture or vessel and on the skin of the artists who work with it. Beeswax's hydrophobia, malleability, and antibacterial preservation among other celebrated properties made it an important material in the ancient Mediterranean.[56] Wax was regularly used as a binder for pigments, as both the scene on the mixing vessel and recent evidence from the Parthenon in Athens demonstrate.[57] Encaustic pigments (additive colors) thus act as both a surface layer and a kind of skin, enclosing and connecting with the object they cover and of which they are part.

As integrated, polychrome surface, additive colors offer a distinct subset of assemblage that the Herakles mixing vessel foregrounds. Additive color is the practice of layering polychrome materials onto surfaces, while assemblage is the practice of fitting together polychrome wholes from smaller material color-parts. A surface layer is both built up from pigment-parts and is also one part of the polychrome whole. In the example of the mixing vessel, clay is the material substracuture, while its additive colors include the slip that fires black and red, as well as the added whites and oranges. The potter and painter fit together clay, slip, and pigments to form the mixing vessel as well as to represent a scene that foregrounds a similar relationship between additive and assembled colors in the depiction of the painter adding colors to the surface of the statue of Herakles. This object makes visible the ways in which additive colors operate as a distinct subset of assemblage and the relationship of these additive colors to their material support produces a kind of assemblage. Despite this connection between additive and assembled color, the reception of these color practices has unfolded very differently: additive color, especially paint on a marble surface, has generated deep resistance for the ways in which it disrupts an ideal of pure form, while objects of assemblage have been sidelined as craft or remade through black-and-white reproductions into monolithic or monochrome forms. Drawing out this relationship between additive colors and assemblage opens up a robust period language of material color relevant to both modes of making polychrome.

53 See Sanchita Balachandran, "Mysteries of the Kyliz," video, 2015, http://archaeologicalmuseum.jhu.edu/the-collection/object-stories/recreating-ancient-greek-ceramics/film-mysteries-of-the-kylix.

54 See especially Katerina Ierodiakonou, "Empedocles on Colour and Colour Vision," *Oxford Studies in Ancient Philosophy,* 29 (2005): 25; Katerina Ierodiakonou, "Plato's Theory of Colours in the Timaeus," *Rhizai* 2 (2005): 220–221.

55 Notable among recent attention to the sensorium in antiquity, see Shane Butler and Mark Bradley, eds., *The Ancient Senses*, 6 vols. (London: Routledge, 2013–2019); Jerry Toner, *A Cultural History of the Senses in Antiquity* (London: Bloomsbury, 2014). A. Alvar, J. Ezquerra Alvar, and G. Woolf, eds., *Sensorium: The Senses in Roman Polytheism* (New York: Brill, 2021).

56 Verity Platt, "Beeswax: The Natural History of an Archetypal Medium," in A. Anguissola and A. Grüner (eds.), *The Nature of Art: Pliny the Elder on Materials* (Leiden: Brepols 2021), 51–64.

57 See E. Aggelakopoulou, S. Sotiropoulou, and G. Karagiannis, "Architectural Polychromy on the Athenian Acropolis: An In Situ Non-Invasive Analytical Investigation of the Colour Remains." *Heritage* 2022, 5, 756–787. https://doi.org/10.3390/heritage5020042

A LANGUAGE OF MATERIALS

The language of material color deployed in ancient Greek texts emphasizes joining, fitting together, and part-to-whole relationships of material colors. As the following selection of examples from philosophy, epic and lyric poetry, and epigraphy demonstrate, this language of materials traverses genres just as material colors traverse artistic media.[58] Encompassing hue, brilliance, and variegation, the language of material color often describes objects produced through assemblage. In their materiality, additive and assembled color converge and as a subset of assemblage, additive practices, such as painting, slipping, gilding, and burnishing surfaces, can also be described by this language of material assemblage. Both modes of making polychrome – additive and assemblage – build up forms by connecting material color-parts and the language of material color encompasses fitted-together materials (assemblage) and also colors layered onto a surface (additive color).

Poetic descriptions forge a period language of material color already visible in Homeric epic and into later periods and genres. The phrase "language of metals" describes the symbolic metals of the different mythical ages in the Hesiodic development of the world (gold, silver, bronze, iron), but does not explicitly emphasize the material colors of these metals.[59] Metal alloys and their material effects are, however, an important part of material color and we can expand this notion of a "language of metals" to a broader language of materials, which also includes stones, glass, botanics, and earths. Color-words often preserve their material referents and could signal various aspects of material color – hues, variegation, and brilliance – all of which a language of materials registers.[60]

Many ancient poets worked with this expanded sense of material color and Sappho's poetic fragments, for example, preserve a vibrant language of color. The unevenness of her reception has resulted in an equally uneven attention to her language of color and despite her focus on crafting vibrant material worlds, her poetry is rarely brought to bear on discussions of ancient Mediterranean polychromy. Suppression of Sappho's work – she was not read or recorded in the Middle Ages, likely due to her gender and the world of feminine intimacy that she crafts in her poetry – reduced attention to a significant queer woman poet from ancient Greek literature, one whose craft was cited by Longinus in *On the Sublime* in the second century CE.[61] When her poems disappeared, so did the world of material colors that she describes, and so, her work and the color worlds that they craft were inaccessible in significant historical moments for the reception of ancient Greek and Roman art.[62] The

58 For a wide-ranging exploration of references to artistic colors on sculptures in Greek and Latin texts, see Felix Henke, *Die Farbigkeit der antiken Skulptur Die griechischen und lateinischen Schriftquellen zur Polychromie* (Reichert Verlag, 2020).

59 On the relationship of this language of materials and aristocratic gift-exchange in contrast to democratic coinage, see Leslie Kurke, "Inventing the Hetaira," *Classical Antiquity* 16, no. 1 (1997): 126–128.

60 On this relationship between material-effects and color, see Bradley, *Colour and Meaning,* 233.

61 On Sappho's reception, Margaret Reynolds and Sappho, *The Sappho Companion.* (New York: Palgrave for St. Martin's Press, 2001). In *On Famous Women* (1374), Boccaccio constructs a version of Sappho's biography with no access to her poetic fragments; in illustrated versions of the text, such as this woodcut series from 1487, the ancient Greek poet is represented in contemporary (for the Middle Ages) dress and playing a different kind of lyre from the one she is pictured with antiquity (Louvain: Aegidius van der Heerstraten, 1487): https://digital.bodleian.ox.ac.uk/objects/f2c3455a-496b-4616-97dc-44a5470b78f4/).

62 While her work itself was inaccessible, the construction of Sappho as a historical figure persisted with the result that she appears in Boccaccio. Also notable is a passage in Vasari in which he suggests that Sappho might have been a man, Giorgio Vasari, "The Life of Madonna Properzia de' Rossi, Sculptress of Bologna [c. 1490–1530]" *The Lives of the Artists,* Julia Conway Bondadella and Peter

gendering of the phenomenon of color and Sappho's feminine gender suggest that these erasures are connected.

Parts of Sappho's oeuvre were preserved in the citations of later male authors, and other parts have been recovered from papyrus fragments (woven reed paper) excavated from a trash dump at Oxyrhynchus, Egypt. On one of them (P.Oxy 2076, third century c. CE), a scribe has written "Sappho" in the lower right, as well as parts of Sappho's Fragment 44, a poem about the wedding of Andromache and Hector that describes gold bracelets, purple robes, silver cups, ivory, as well as fragrant materials such as myrrh, cassia, and frankincense (Figure 18).[63] Between the citations of Sappho by other authors and the papyrus fragments, we can piece together nearly 190 fragments, and many of these poetic fragments preserve Sappho's rich language of material color.

Sappho's poetry captures material color's variegation. Indeed, variations on the word *poikilia* run through her poetry (1, 39, 44, 98b, 168c). One fragment reads simply, "mingled with all kinds of colors" (152).[64] Gold is another celebrated material and metaphor. Sappho speaks of Aphrodite's golden temple (1) and golden crown (33), Apollo's golden hair (44a), and also of golden arms (6), gold bracelets (44), gold cups (192), golden sandals (103, 123), gold (96, 127), and the state of being golder than gold (156). Fragments also describe silver cups and ivory (44) and the state of being whiter than an egg (167). Purple dye, produced from murex shells and traded throughout the Mediterranean and ancient Near East, features throughout: clothes dyed purple (44), a purple cloak (54), a saffron and purple peplos (92), purple rugs (92), purple hair-ties (98a), purple handcloths (101). Several poems mention hair, notably yellow-haired Helen (23), hair yellower than a pine torch (98a), black hair whitened in old age (58), as well as the decoration of hair with ribbons and headpieces worked through with colors (98a) or crowns woven of flowers. The fragments speak regularly of the colors and the sensory world of flowers, plants, animals, and soil: crowns woven from stems of anise (81), crowns woven from violets and roses (94), necklaces of flowers (94), fields of flowers, trampling hyacinth (105b), hyacinth-colored (166), gathering flowers (122), violets gathered in someone's lap (21, 30, 103), arms like or of roses (53, 58), myrrh, cassia, and frankincense (44), golden flowers (132), gold chickpeas (143), a ripening apple (105a), an apple grove (1), celery (189), honey and honeybees (146), a white goat (40), and the black earth (16, 20). Sappho also speaks of sources of darkness and light: black sleep (151) the silvery, shining full moon (34), the bright light of the sun (56, 58), the rosy-fingered moon (96), light on Anaktoria's face (16), and of shining and staining (4, 34).[65] Throughout these poetic fragments, her color language moves between shining, variegated materials, changing colors on and of the earth, and the subjective changes of color on and in the body with changes in emotion (fire, greener than grass, 31, burning, 38, 48). Sappho's colors range from the abiding metal of a gold cup to fleeting flower-crowns. Such a long and varied list pictures Sappho's material colors, from the enduring to the ephemeral.

Bondadella, translation (New York: Oxford University Press, 1991), 339.

63 A second papyrus fragment (1232) preserves additional lines and in combination the two fragments preserve a significant part of Sappho's ancient poem.

64 Anne Carson, *If Not, Winter: Fragments of Sappho* (New York: Knopf, 2002).

65 On Sappho's inversion of the Homeric epithet conventionally translated "rosy-fingered dawn" (and translated in various ways by Wilson 2018), see also J. J. Winkler, *The Constraints of Desire: The Anthropology of Sex and Gender in Ancient Greece* (New York: Routledge, 1990), 162–176, who reads Fragment 1 alongside *Iliad* 5.

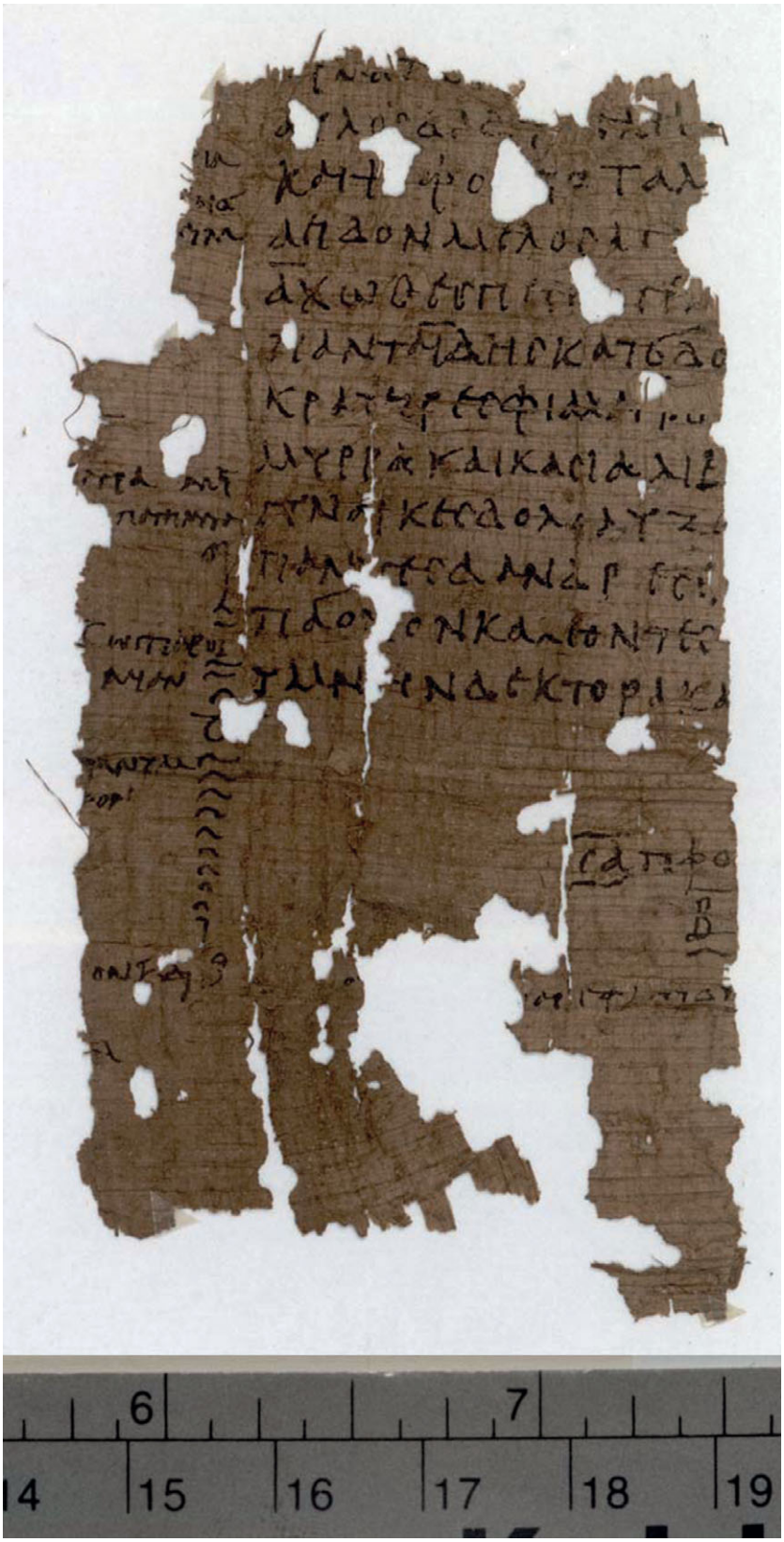


Figure 18 Papyrus fragment with part of Sappho Fragment 44 written on it. Woven reed paper with ink. P.Oxy 2076 (Sappho 44). Courtesy of The Egypt Exploration Society and the University of Oxford Imaging Papyri Project

Despite Sappho's rich language of material color, her color-words did not register in the face of claims that ancient Greek texts (or really Homeric epic) do not record color-words.[66] Bracketed by her gender, Aeolic Greek dialect, eastern Mediterranean birth, and "lyric I," the singular historical position of her work (fragments of other female authors do survive, but none as celebrated) contributed to its invisibility as a source of ancient Greek color. For example, the rhetorical debate over the comparative richness of Greek and Latin color-words written by the second-century CE Latin grammarian Aulus Gellius in *Attic Nights* (2.6) excluded Sappho from the poets under discussion.[67] Even in antiquity, Sappho's colors were sidelined, while the complexity of her meter (the "Sapphic stanza") was widely celebrated and imitated.[68] Another way to say this would be that people imitated the form of Sappho's poetry without hearing or registering her variegated words.

Too female, too queer, too Eastern, too distant from the Athenian democracy around which so many questions of color and its absence have been built up: Sappho's seeming singularity always risks marginalizing her contribution. And yet, Sappho records a world of material colors that aligns closely with those colors listed on inventories of textiles dedicated in the sanctuary of Artemis Brauronia on the southwestern section of the Athenian Acropolis in the fourth century BCE. Each list is also an object of stone, as in this example (EM 7932) cut into a stele of Hymmetian marble, a blue-gray marble quarried from Mount Hymettos near Athens (Figure 19).[69] As Athena Kirk demonstrates, this object-list functions as an apodeictic monument that collects and displays its inventory of polychrome garments.[70] Kirk argues that the list's specificity about individual garments works "to materialize objects in the imaginations of those who cannot see them."[71] The list describes some of these garments as adorning wooden statues within the sanctuary, for example "a spotted mantle around the old statue."[72] In this way, the list makes visible not only the variegated colors of different textiles, but also the a practice of adorning statues in the sanctuary, as a practice of *kosmēsis* and care which will be discussed in Chapter 2. In addition to displaying a collection of colorful textiles, the inventory preserves many color-terms, as analyzed by Liza Cleland and Lloyd Llewellyn-Jones.[73] Not only does this list document material colors that do not regularly survive in the archaeological record, but because 90 of the 158 garments recorded are listed by their material color, the inventory records an incredible list of color-terms. These include more familiar words such as purple, saffron, and

66 See Leslie Kurke, "Archaic Lyric Poetry," in *The Cambridge Companion to Archaic Greece*, ed. H. A. Shapiro (Cambridge: Cambridge University Press, 2007), 158–168.

67 Goldman, *Color-Terms*, 10. Mark Bradley, "Envoi: Aulus Gellius, Attic Nights 2.26," in *Colour and Meaning in Ancient Rome* (Cambridge: Cambridge University Press, 2009), 229–233.

68 On the Sapphic stanza, see Gretchen Schultz and Anne Atik, "Sur le rythme sapphique," in *An Anthology of Nineteenth-Century Women's Poetry from France: in English Translation, with French Text*, ed. G. Schultz and A. Atik (New York: Modern Language Association of America, 2008), 354–355.

69 H. W. Pleket and R. S. Stroud, "SEG 40–150. Athens. Inventories of Dedications to Artemis Brauronia, 355/4–334/3 B.C.," in *Supplementum Epigraphicum Graecum*, ed. A. T. E. N. Chaniotis Corsten Stavrianopolou Papazarkadas. *SEG* 40=αρ.κατ. 150, *SEG* 37=αρ.κατ. 108, *IG* II2, αρ.κατ. 1524. See also Tullia Linders, *Studies in the Treasure Records of Artemis Brauronia Found in Athens* (Stockholm: Svenska Institutet I Athen, 1972).

70 Kirk, *Ancient Greek Lists,* 40; 136–137. *IG* II2.1514.

71 Ibid., 138. 72 Ibid., 136.

73 *IG* II^2 1514–1530; Kirk, *Ancient Greek Lists*, 45–46, 125, "This chapter suggests rather that inventories' meticulous character, their so-called 'quiddity,' in fact reinforces and validates fiscal interests," 114; Liza Cleland, "The Semiosis of Description: Some Reflections on Fabric and Colour in the Brauron Inventories," in *The Clothed Body in the Ancient World*, ed. Liza Cleland, Mary Harlow, and Lloyd Llewellyn-Jones (Oxford: Oxbow Books, 2005): 87–95.

Figure 19 Stele inscribed with inventory list from the Sanctuary of Artemis Brauronia, Athens, marble from Mount Hymettos, 353–334 BCE, H: 0.4 m x L: 0.51 m x W: 0.125 m. @ Acropolis Museum, Athens (EM 7932). Photo: Vangelis Tsiamis

sea-green, but also "frog-colored" and "quince-colored," terms that communicate the relationship between objects and color-concepts that material color encompasses (Figure 20).

While the list invites its readers to picture these colors, the stele does not depict them and the sort of textiles they record only survive as the occasional extant fibers in the archaeological record. Nor were the sorts of colors described by the inventory lists fixed and unchanging. Llewellyn-Jones describes the intense labor that went into dyeing and re-dyeing fabrics, practices that track changes in a garment's colors over time.[74] Dyes and fibers bond, entangling colors and textiles, but these colors, like applied additive pigments, demand maintenance and care, which could include mending and re-dyeing. While depictions of textiles in other media, such as on fired ceramic vessels, often depict textile patterns, they less frequently record the colors that crafted these patterns. This partial inventory list both showcases the many colors that would have been visible in ancient textiles worn by living women and adorning statues, and also draws attention to the additive colors that might once have been painted onto representations of textiles in other media.

Neither these epigraphic color-words nor Sappho's variegated lyric counted in W. E. Gladstone's pronouncement in the nineteenth century that the ancient Greeks did not see and use a full range of colors.[75] As his primary

74 Llewellyn-Jones, "Body and Clothing," in David Warburton ed., *A Cultural History of Color in Antiquity* (London: Bloomsbury, 2021), 83; Liza Cleland, *The Brauron Clothing Catalogues: Text, Analysis, Glossary and Translation* (Oxford: British Archaeological Reports, 2005), 30–35.

75 W. E. Gladstone, *Studies in Homer and the Homeric Age* (Oxford: Oxford University Press, 1858), 2: 491. "The

Figure 20 Rendition of colorful textiles described on the inventory list from the Sanctuary of Artemis Brauronia, Athens. Illustration by Mali Skotheim

evidence for the optical deficiency of the ancient Greeks, Gladstone offered up the supposed absence of color-terms in Homeric poetry, arguing that they did not name colors because they could not perceive them. In Gladstone's post-Newtonian world of perceptual optics, materials did not count as a palette. Because Gladstone mined Homer for words clearly denoting specific hues, as he might expect in modern English, he failed to account for the material nature of Homer's color-terms, in which hue and material are bound together. This allowed Gladstone to argue on a textual level for the lack of importance of color-words in Homer specifically and in ancient Greek more broadly and then to postulate a physiological deficiency structured by environmental determinism by way of explanation. Gladstone attributed this deficiency to the comparative westernness of the Greek-speaking Mediterranean, situating color to the east; in addition, his text-driven account countered the growing material evidence for the many colors of ancient Mediterranean art and architecture that had accumulated by the nineteenth century.[76]

Colour-Sense" (1877). See also Elizabeth Henry Bellmer, "The Statesman and the Ophthalmologist: Gladstone and Magnus on the Evolution of Human Colour Vision, One Small Episode of the Nineteenth-century Darwinian Debate," *Annals of Science* 56, no. 1 (1999): 25–45; Laurence Villard, *Couleurs et vision dans l'antiquité classique* (Rouen: Publications de l'Université de Rouen, 2002), 5; additionally, see Mark Bradley, "Review of Laurence Villard, *Couleurs et vision dans l'antiquité Classique* (2002)," *Bryn Mawr Classical Review* 2006.08.47.

76 Gladstone writes, "But in examining the question from the works of Homer we must bear in mind, first, their very early date, and, secondly, the likelihood that heroic Greece may probably have been far behind some countries in the east in the use and the idea of colour, which has always had a privileged home there," W. E. Gladstone, *Studies in Homer and the Homeric Age* (Oxford: Oxford University Press, 1858), 2: 491; Gage, *Colour and Culture*, 7; Charlotte Ribeyrol, "The Changing Colours of Nineteenth-Century Art and Literature," *Word & Image* 36, no. 1 (2020): 1–6.

While the physiognomic explanation has been dismissed as nineteenth-century fancy, Gladstone's claim that Homeric poetry does not mark colors and his related attribution of colors to the East have both remained remarkably tenacious. Since his pronouncement, textual scholars have worked to counter it, building up lexica of color-terms.[77] Like Sappho's fragments and the Artemis Brauronia temple inventories, Homeric epic offers rich testimony of material color.

The term *kuanos*, for example, names the material stone lapis lazuli, but also could include a range of material effects that the blue micaceous stone might produce.[78] Tracking *kuanos* in Homer along with other material colors with which *kuanos* was fitted together demonstrates some of the ways in which material color language operates. Among the colors for which Plato later offers color-recipes in the *Timaeus*, *kuanos* describes both lapis lazuli and the color blue and demonstrates the polyvalence of material color-words in action. The Greek word *kuanos* has a range of possible meanings, including: lapis lazuli, blue copper carbonate, dark blue enamel, a cornflower, a bluebird, and water. The term can denote the deep blue material, hue, and shimmering effects of lapis lazuli, the variegation of its golden micaceous inclusions, or all of these material effects at once.[79] In the ekphrastic narration of the shield of Achilles in the *Iliad*, for example, *kuanos* names the blue enamel laid by the metalsmith god Hephaestus into the variegated alloys of the shield that he forges as armor for Achilles. A popular translation of this vivid description of the mythical shield of Achilles into English by Robert Fagles captures the particulars of how this language of material color pictures polychrome variegation:[80]

> And he forged a thriving vineyard loaded with clusters,
> bunches of lustrous (*kalēn*)[81] grapes in gold (*khruseiēn*), ripening deep purple (*melanes*)
> and climbing vines shot up on silver (*argureēsin*) vine-poles.
> And round it he cut a ditch in dark blue (*kuaneēn*) enamel
> and round the ditch he staked a fence in tin (*kassiterou*).[82]

Material color-terms capture the virtuosity of the world created on the shield – gold ripening into purple, dark purple vines climbing silver poles, and saturation of the ditch forged from lapis lazuli and cut in striking contrast to the bright tin fence that surrounds it.[83] The choice to render *melas* in its relation to the grapes as "deep purple" rather than the more common rendering of "dark," which translator Richmond Lattimore chose, describes the progressive darkening of the ripening purple grape.[84]

77 Bradley, *Colour and Meaning*, 1–20; Goldman, *Color-Terms*, 3–7.

78 Irwin, *Color Terms in Greek Poetry*, 80–81.

79 Ibid., 28–29, 79–110. On different translations of the term, see Deschamps-Lequime, "La polychromie des bronzes grecs et romans," 91–92. See also R. Griffith, "God's Blue Hair in Homer and in Eighteenth-Dynasty Egypt," *The Classical Quarterly* 55, no. 2 (2005): 329–334.

80 Sandrine Dubel organizes her analyses of what I would call polychrome assemblage around the ekphrasis of the Shield of Achilles in her essay, "Quand la matière est couleur: du bouclier d'Achille aux 'tableaux de Bronze' de Taxila," in *Couleurs et matières dans l'antiquité: texts, techniques et pratiques*, ed. Agnès Rouveret, Sandrine Dubel, and Valérie Nass (Paris: Éditions Rue d'Ulm/Presses de l'École normale supérieure, 2006), 161–184.

81 In the Greek, *kalēn* and *chruseiēn* are two adjectives describing the vineyard, but Fagles incorporates the property of lustrousness (what elsewhere may be called *to lampron*) into the definition of beauty. That which is beautiful is lustrous, hence "lustrous grapes in gold" rather than "he set up a vineyard heavy with grapes, beautiful and gold." *Il.* 18.561–2; Homer, *The Iliad*, trans. Robert Fagles (New York: Viking, 1990).

82 *Il.* 654–658; *Il.* 654–658, trans. Robert Fagles.

83 This infusion of color contrasts sharply with descriptions of the Homeric world as one that favored value (light/dark) and disregarded hue, on which, see Walter-Karydi, "Emergence of Polychromy in Ancient Greek Art," and Irwin, *Color Terms in Greek Poetry*, 111–200. Lightness and darkness do not replace hue but work in tandem with hues as part of material color (khrōma).

84 Lattimore translates: "He made on it a great vineyard heavy with clusters, lovely and in gold, but the grapes upon it were darkened and the vines themselves stood

Similarly, Fagles renders the ditch in "dark blue enamel" for the adjective *kuaneos*, where Lattimore chose "a field ditch of dark metal."[85] Lattimore's choice of "dark" for both *melas* and *kuaneos* substitutes tonal difference for hue. In the case of the grapes, Fagles's rendering captures the way in which the material relationships of chromatic words can shift their meaning, while the description of dark blue enamel names the material that the poem juxtaposes with the fence of tin. The metals and stone of each individual color-word shimmer, and their careful juxtaposition in the text crafts dazzling variegation to animate the ekphrastic object.[86]

Another ekphrasis of mythical armor, the swords and breastplate that Agamemnon dons for battle in the *Iliad* (11.17–30), also exemplifies the language of material colors that describe the armor's assemblage of material color-parts. In addition to greaves, swords, and sheaths of gold and silver, his body armor is worked through with concentric circles of lapis lazuli (ten) in concert with circles of other bright and valuable materials, such as gold (twelve), and tin (twenty).[87] Serpents of shimmering lapis lazuli "writhe toward the throat," an animacy described as "like rainbows" and wrought from their material color. Agamemnon carries a shield made up of ten circles of bronze studded with twenty bosses of tin and a central boss of lapis lazuli set with an image of the severed head of Medusa. Her snakey hair carved in lapis lazuli must writhe as surely as those on his armor, both animated by the micaceous variegation for which lapis lazuli was so prized. The fitted-together bands of lapis lazuli, gold, and tin on Agamemnon's shield also produce variegation through their juxtaposition. Materials with contrasting hues (browns, yellows, grays, deep blues, and oranges) and varied capacities to refract light create an assemblage of material color that acts in the poem as a kind of armor, a physical barrier designed to entrance and repel beholders.[88] In the poem, the language

out through poles of silver. About them he made a field-ditch of dark metal and drove all around this a fence of tin; and there was only one path to the vineyard, and along it ran the grape-bearers for the vineyard's stripping." Richard Lattimore and Richard R. Martin, *The Iliad of Homer* (Chicago: University of Chicago Press, 2011), 411–412.

85 Homer, Lattimore and Martin, *The Iliad of Homer*, 390.

86 On mobility as a feature of the image of the Shield of Achilles, see Guy Hedreen, *The Image of the Artist in Archaic and Classical Greece: Art, Poetry, and Subjectivity* (New York: Cambridge University Press, 2016), 129–131, 135–138. Notably, while the shield exists only through its poetic ekphrasis, Alexander Pope attempted to depict and diagram the world of the shield in pen and ink to accompany his English rendition of the poem in 1720: "Part of the final lines of Achilles' lament for his friend Patroclus in Book XIX of the Iliad; with Pope's attempt to envisage the shield forged by Hephaestus for Achilles," 1712–1724, Add MS 4808, British Library. This diagram both materializes the shield and also renders its material colors in monochrome ink, a transference that elides the vivid polychromy of the Greek.

87 Lattimore uses "cobalt" instead of lapis lazuli, which at least captures the blue hue, but perhaps misses the high value of the material itself in connection with the rich metals of the shield: "Now there were ten circles of deep cobalt upon it, 25 and twelve of gold and twenty of tin. And toward the opening at the throat there were rearing up three serpents of cobalt on either side, like rainbows, which the son of Kronos has marked upon the clouds, to be a portent to mortals." Homer, Lattimore and Martin, *The Iliad of Homer*, 253–254. Agamemnon received his breastplate as, we are told, a guest-gift from the mythical King Cinyras, a son of Apollo. His armor thus bears some direct connection to divinity, although unlike the armor commissioned for Achilles, it was not forged by a divine hand. It is worth noting that Hephaestus willingly forges the arms for Achilles in reciprocation for Thetis having saved him when he was thrown out of Olympos. In this respect the shield he fashions for Achilles adheres to the reciprocal demands of aristocratic gift-exchange, albeit in slightly altered terms. On aristocratic gift-exchange, see Leslie Kurke, *Coins, Bodies, Games, and Gold: The Politics of Meaning in Archaic Greece* (Princeton: Princeton University Press, 1999), 71–73, 103–111, 121–129, 143–147.

88 Lapis lazuli is often joined with other materials in this way, e.g. the cornice above the bronze walls of Alkinoos's palace is formed from lapis lazuli (*Od.* 7.87), or the frequent juxtaposition of lapis lazuli and gold in Mesopotamian and Egyptian art, on which see P. R. S. Moorey, "Blue Stones in the Ancient Near East: Turquoise and Lapis-Lazuli," in *Cornaline et pierres précieuses: La Méditerranée, de l'Antiquité àl'Islam: actes du colloque organisé au musée du Louvre par le Service culturel les 24 et 25 novembre 1995*, ed. Annie Caubet (Paris: La Documentation française, 1999), 177. Irene Winter, "The Aesthetic Value of Lapis Lazuli," in ibid., 49. For the lengthiest discussion of the rainbow in

of material color animates the polychrome armor to delight and awe listeners and readers.

Homeric texts offer other possible meanings for the term *kuaneos*, each linked to magic, divinity, and mourning. Thetis covers herself in a dark mourning veil and *kuaneos* describes that darkness of hue and saturation (*Il.* 24.94).[89] Demeter wears a similar cloak when mourning Persephone in the *Homeric Hymn to Demeter* (43.319). *Kuaneos* also describes the following: the magical cloud in which Apollo hides the Trojan Aeneas (*Il.* 5.345), the cloud that envelopes Polydorus after Achilles has killed him (*Il.* 20.418), the permanent darkness surrounding the mountain housing Scylla's cave (*Od.* 12.75), as well as the loamy earth at the bottom of Charybdis (*Od.* 12.243). *Kuaneos* can also characterize divine or heroic hair: Poseidon's dark locks (*Il.* 13.563; 14.390; 20.144; Hes. *Theog.* 278), Hector's hair as Achilles drags the corpse behind his chariot (*Il.* 22.401–402),[90] and the brilliance of Zeus's eyebrows as he renders judgment (*Il.* 1.528).[91]

When Athena boosts Odysseos's appearance before he reveals himself to Telemakhos, she makes his skin darker and his hair *kuaneos* (*Od.* 16.176), giving his hair the deep shimmer associated with *kuanos*, and with immortality and divinity. She makes him something *more* than mortal Odysseos. Telemakhos, upon seeing his father changed, wonders if he is a god, and remarks "even your skin (*khrōs*) has changed." This passage in the *Odyssey* highlights both the wondrousness and the changeableness of the polychrome surface.[92] The changes that Athena has wrought in Odysseos manifest on the surface of his body through his changed *khrōs*, but these effects suggest changes throughout his whole body that become visible in and through his skin. Sappho marked a similar operation of changes within the body registering as color changes when she described her speaking subject as "greener than grass / I am and dead – or almost / I seem to me" (31). Being green shows as proximity to death. Change in both of these textual examples manifests on the surface of a body, but indicates changes that are of the whole body. Carrying this logic into the realm of material objects and bronze in particular, Sanchita Balachandran writes of the ways in which changing surfaces record histories: "The stories we tell come from the surface."[93] Living and material bodies make make interior changes visible on their surfaces through their changing colors.

These examples of material color language in poetry and epigraphy show us the ways in which material colors could build up forms – Achilles's shield, Agamemnon's breastplate, a blue *peplos* dedicated to Artemis Brauronia, Sappho's crowns of flowers – from material color-parts. These selected passages register a language of material colors that can apply to assemblage and additive colors (surface layers), provided that we recognize additive color as a subset of assemblage with

ancient Greek, see Arist. *Mete.* 3.2–5. Aristotle describes the bands of individual colors of the rainbow as made up of tiny fragments of cloud that reflect each particular color. These cloud fragments cohere to form the band of that color. See also Empedocles B50 and Katerina Ierodiakonou, "Empedocles on Colour and Colour Vision," *Oxford Studies in Ancient Philosophy* 29 (2005): 21.

89 Other examples include *kuanostolos* in Bion 4–5, and *kuaneon de kalumma* in Hom. *Hymn to Demeter* 43.

90 While neither Hector nor Odysseus are divine, Odysseus receives his *kuaneos* appearance from the goddess Athena, and Hector his only after death, and it has the effect of both likening him to the gods and distinguishing him from those who still live.

91 Poseidon's epithet "lapis-haired" (often rendered "dark-haired") aligns with the descriptions of the hair of other divine and divine-adjacent beings.

92 Sappho mobilizes a similar poetics of *khrōs*, especially in Fragment 31. On Sappho's double-consciousness, see John J. Winkler, *The Constraints of Desire: The Anthropology of Sex and Gender in Ancient Greece* (New York: Routledge, 1990), 162–176, who reads Fragment 1 alongside *Iliad* 5.

93 Sanchita Balachandran, "Malignant Patina: A Love Story," *West 86th* 27, no. 1 (Spring–Summer 2020): 1.

a shared vocabulary. These examples further make visible the ways in which a language of material color could describe both material objects and living bodies, their aggregate, fitted-together color-parts, and the changeableness of these colors on the body's surface.

FITTING TOGETHER

Some parts of objects are produced through assemblage – the weave of a cloth, the inlaid eyes of a bronze sculpture, or the cut stones of a mosaic. The ancient Greek verb *arariskō*, "to join," or in the intransitive "to be fitted together," describes an important practice of piecing and fitting together parts to form wholes.[94] In the context of style and sculpture, Richard Neer analyzes this verb and the related poetic emphasis on synapses and joints.[95] "Fitting together" thematizes two important aspects of artistic practice: the significance of parts, and the assemblage that fitting together these parts produces. Philosophers also engaged with these part-to-whole relationships. Additive colors layered onto a surface produce forms through fitting together surface-parts (layers). Material colors emphasize the parts that fit together to form wholes, although at times these same colors can mask other joins.

The notion of assemblage operates both as a materialized artistic practice and as a counter-history of image-making. This practice consists of polychrome parts fitted together to form polychrome wholes.[96] Sculptures, buildings, ceramic vessels, mosaics, and paintings are all assemblages of material color-parts. Even the process of producing marble sculpture involved piecing together a substructure and layering on colors, inlays, and attachments. Each polychrome assemblage maps a set of practices that gave rise to each part and to each artist's act of fitting them together. To produce a painted marble statue, for example, first required the artists to source their materials and that supply-chain connected them to many other people. Laborers, often enslaved, first quarried the stones.[97] Sculptors often used local marble, but also imported marble from other places for aesthetic or ideological reasons. Different marbles have their own distinct colors and their use corresponded with distinct supply-chains and labor practices.[98] The movement of marbles from both local and distant quarries to the building site or the workshop activated networks of enslaved miners, traders, transporters, salespeople, and recordkeepers, all before the material reached its workshop. An artist might carve parts of the marble in pieces and then fit these parts together using metal claps and pins, creating an assemblage to which they added

94 On joining and the classical tradition, see Neer, *The Emergence of the Classical Style in Greek,* 40–46.

95 Ibid., 40–46.

96 Scholars of the ancient world have mobilized theories of assemblage, as Amy Lather does in her analysis of warriors and their armor and goddesses and their adornment and dress. Amy Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry* (Edinburgh: Edinburgh University Press, 2021), 83–91, 246–251. Lather also draws on Yannis Hamilakis, "Sensorial Assemblages: Affect, Memory and Temporality in Assemblage Thinking," *Cambridge Archaeological Journal* 27, no. 1 (2017): 169–182.

97 Deborah Kamen, *Status in Classical Athens* (Princeton: Princeton University Press, 2013), 8–18.

98 In complex building structures, marble could be used in conjunction with other substructure materials, like limestone and terracotta, and marble from different quarries could also be brought together, for example in the juxtaposition of local Elean limestone and imported Parian marble in the temple of Zeus at Olympia, or the juxtaposition of four different types of marble in the Siphnian treasury at Delphi, considered in Chapter 2. On this use of multiple marbles or materials to make buildings, see András Patay-Horváth, *New Approaches to the Temple of Zeus at Olympia* (Newcastle-upon-Tyne: Cambridge Scholars Publishing, 2015); Richard Neer, "Framing the Gift: The Politics of the Siphnian Treasury at Delphi," *Classical Antiquity* 20, no. 2 (2001): 279.

metal attachments, such as weapons, jewelry, or headgear, produced via different techniques, and on which they also layered on pigments mixed with a binder.

In addition to traces on objects, excavation has yielded examples of raw pigments, including those found in a pigment production workshop in the agora on the island of Kos, pigment shops in Pompeii and Rome, and raw pigments excavated on the island of Delos.[99] While these examples are slightly later than the corpus of materials and objects that are the focus of this book, they make visible the range of materials involved in producing polychrome objects and the wide geographic footprints that these materials map.[100] Once mined or manufactured, pigments could be stored in pellets and in ceramic containers, examples of which are preserved in the evidence from both Kos and Delos.[101] The spectrum of such raw colors includes blues (various tones of Egyptian blue), whites (lead, bone, chalk clay), greens (malachite and verdigris), reds (hematite, ochres, madder lake), yellows (ochres and jarosite), blacks (charcoal, carbon, and bone), purple (Tyrian purple dye), and gilding with gold and electrum.[102] The Koan pigment production workshop was established in an artisan quarter in the agora near the city's port and also yielded structures for fire set into a terracotta tile floor, pieces of lead and litharge rods, and a number of earth pigments and pellets of Egyptian blue, all of which offer evidence of pigment production in combination with metallurgy.[103] Egyptian blue, one of the earliest artificial pigments, is a calcium-sodium bisilicate of copper and is technically ceramic or glass.[104] Pellets of Egyptian blue as well as discarded misfires were excavated from the workshop, suggesting that the color was manufactured on site.[105] Other local production sites for Egyptian blue have been identified in Memphis, Egypt, and Cumae, Liternum, and Puteoli in Italy, as well as possibly on Delos, bringing these production centers into a community of sources for the synthetic pigment, which was in widespread use across the ancient Mediterranean, Egypt, and the ancient Near East.[106]

99 Marketou, Kouzeli, and Facorellis, "Colourful earth: Iron-containing pigments from the Hellenistic pigment production site of the ancient agora of Kos (Greece)." Hilary Becker, "Technology and Trade" in David Warburton, ed. *A Cultural History of Color in Antiquity* (London: Bloomsbury, 2021), 35–48.

100 Ioanna Kakoulli, for example, draws on evidence from extant pigments on objects, pigment production workshops, and vendors from Vergina in northern Greece to Jericho and Alexandria in the eastern Mediterranean and Pompeii in the western Mediterranean, recognizing trade connections and shared artistic practices. Ioanna Kakoulli, *Greek Painting Techniques and Materials: From the Fourth to the First Century BC* (London: Archetype Publications, 2009), 2 fig. 1.1. Brinkman and Wünsche, *Bunte Götter*, 238, fig. 390.

101 Karydas, Brecoulaki, Bourgeois, and Jockey, "In-situ X-ray Fluorescence Analysis of Raw Pigments and Traces of Polychromy on Hellenistic Sculpture at the Archaeological Museum of Delos," *ASMOSIA* 2003, 811–829.

102 For an expansive analysis of these material colors see Kakoulli, *Greek Painting Techniques and Materials*, 37–60.

103 For a full analysis of the pigment workshop, Ariadne Kostomitsopoulou Marketou, "The Pigment Production Site of the Ancient Agora of Kos (Greece): Revisiting the Material Evidence," *Thiasos: rivista di archeologia e architettura antica* 2019.8.1, 61–80. For chemical analysis of the earth pigments and the ways in which artisans adjusted the colors through metallurgy, see Ariadne Kostomitsopoulou Marketou, Kelly Kouzeli, and Yorgos Facorellis, "Colourful Earth: Iron-containing Pigments from the Hellenistic Pigment Production Site of the Ancient Agora of Kos (Greece)," *Journal of Archaeological Science: Reports* 26 (2019): 1–13.

104 Vitruvius offers an extended description of the manufacture of Egyptian blue (*De Arch.* 7.11.1). On this, see F. Davidovits, "Notes on the Nature of Creta Anularia and Vitruvius' Recipe for Egyptian Blue," in Cleland and Stears, *Colour in the Ancient Mediterranean World*, 16–21.

105 Marketou, "The Pigment Production Site of the Ancient Agora of Kos (Greece)," 63.

106 See Marketou "The Pigment Production Site of the Ancient Agora of Kos (Greece)," 63 fn 8, citing L. Cavassa *La Production du bleu égyptien durant l'époque hellenistique et l'empire romain (III s. av. J.-C.–I s. apr. J.-C.)*, in P. Jockey (ed.), *Les Arts de la couleur en Grèce ancienne... et ailleurs, BCH, Suppl. 56*, (Athens 2018)

Analysis of pigments excavated throughout the island on Delos conducted in conjunction with analysis of pigment traces on Delian marble statues from the Hellenistic period documents a range of raw and applied materials, including yellow orpiments, red-orange realgar, celadonite, a green earth of potentially local origin, a violet-pink, various blues ranging from light to dark, and lead white as both a surface and a substrate pigment, as well as surface gilding.[107] This analysis of the Delian material colors reveals a complex production and modification of colors.

Hilary Becker's work on the pigment shop discovered during the excavations of the Sant'Omobono church in Rome will expand this picture of the robust commerce that built up around pigments.[108] While lime (processed limestone) was the most popular ground for pigments in the Mediterranean, artists mixed it with fillers to reduce contraction as it dried and these could include fibers, straw, hair, and bodily fluids (blood or urine) and could also include crushed marble, like plasters found on Delos.[109] Such less visible materials also make up the assemblage of materials producing polychrome objects. Binders for pigments could include wax, oil, gum arabic, and egg tempera.[110] Finishing treatments to protect and shine the surface layer of an object, both sealing and often increasing the brilliance of assembled colors can be found among the materials of polychrome production.[111] To produce polychrome objects, artists mobilized various materials in addition to pigments or dyes with distinct hues and these combinations impacted the appearance and endurance of different material colors. In short, material colors and the varied objects that artists created with them involved a variety of different people, materials, techniques, and skills. Taken together, these layers of colors, attachments, finishing treatments, inlays, and material substructure produce polychrome assemblages from material color-parts.

The example of the Herakles mixing vessel depicts some of these artistic processes. Having sourced the needed clay, a potter (possibly working with a painter) built up the column-krater from coils and added slip before firing. Once the bowl had been fired, a painter (possibly the potter, or possibly a collaborator) painted white, orange, and purple marks onto its surface. These additive colors are parts of the whole polychrome assemblage that makes up the object. While the base on which the statue of Herakles stands in the image retains the red of the fired clay, sketched in with slip-fired black, the bowl's painter added white pigment to the image of the sculpted body of Herakles.[112] Yellow lines sketch in the modeling on top of the white

13–34, and on the possibility of local production of Egyptian blue on Delos see, B. Bourgeois and P. Jockey, "Polychrome Hellenistic Sculpture in Delos: Part I," 502.

107 Notably, while each of the blues included Egyptian blue, some were also mixed with a crushed leaded glass, altering the shade produced. For a detailed technical analysis of these colors, see Karydas, Brecoulaki, Bourgeois, and Jockey, "In-situ X-ray Fluorescence Analysis of Raw Pigments and Traces of Polychromy on Hellenistic Sculpture at the Archaeological Museum of Delos," *ASMOSIA* 2003, 811–829. On local production of Egyptian blue on Delos, see B. Bourgeois and P. Jockey, "Polychrome Hellenistic Sculpture in Delos: Part I," 502.

108 Hilary Becker, *Commerce in Color: The Mechanics of the Roman Pigment Trade* (Cambridge: Cambridge University Press, forthcoming) and Hilary Becker, "Technology and Trade," in David Warburton, ed. *A Cultural History of Color in Antiquity* (London: Bloomsbury, 2021), 35–48.

109 Kakoulli, *Greek Painting Techniques and Materials,* 7, 29.

110 Ibid., 35.

111 On the finishing of statues, see Clarissa Blume-Jung, "Ganosis and Kosmesis: On the Polishing of Marble Statues with Wax," in Anna Anguissola and Andreas Grüner eds., *The Nature of Art: Pliny the Elder on Materials* (Turhout: Brepols, 2021). Stewart, *Greek Sculpture*, 40–42. Bradley, *Colour and Meaning in Ancient Rome* 18. Valentina Manzelli, *La policromia nella statuaria greca arcaica* (Rome: "L'Erma" di Bretschneider, 1994), 101–102, 107–109, 115.

112 On Laurion lead waste, see Thilo Rehren, Doris Vanhove, Herman Mussche, and Mary Oikonomakou, "Litharge from Laurion: A Medical and Metallurgical Commodity

paint. The painter in the scene is depicted applying material colors to the lionskin draped over the sculpture's right shoulder. The colors that this painter is shown painting are in fact rendered in the fired red terracotta and black lines. On the body of the statue, traces of the underlying fired terracotta show through the white paint, highlighting one of the most acute problems in ancient Mediterranean color, its comparative impermanence. Here, in an inversion of what takes place on marble sculpture when polychrome pigments wear off to leave the white surface, the resilient red of the underlying fired terracotta peeks through the added white representing marble.

The composition shows Herakles watching his own image undergoing completion, a state realized through the application of colors. This image is the visual analog to the conservative Roman natural historian Pliny the Elder's claim that the Greek painter Nikias painted sculptures by the Greek sculptor Praxiteles: "It is this Nikias, of whom Praxiteles said when asked which among his sculptural works he most preferred, 'the one to which Nicias has laid his hand'; so great was his esteem for [Nikias]" (*NH* 35.133).[113] The practice of painting sculpture required no defense or justification; indeed, Praxiteles would have considered his work incomplete or flawed without the addition of pigments and surface treatments. Praxiteles and Nikias coproduce the statue, which is made up of material color – marble and pigments. The scene on this Herakles bowl shows both the kind of collaboration between painter and sculptor described in Pliny and also the addition of material colors to a statue in process. Recognizing this collaboration undermines the lone genius biographical system of art history, even as it is this same biographical tradition that gives us the two names of both collaborators.[114]

This description of a collaboration between a sculptor and a painter highlights not only the quotidian fact that sculptures were painted, but also the manner in which sculptural and painterly practices fitted forms together.[115] The

from South Attika," *L'Antiquité Classique* 68 (1999): 299–308.

113 J. J. Pollitt, *The Art of Greece: Sources and Documents* (Cambridge: Cambridge University Press, 1990), 170. The word *circumlitio, -onis* (f) is unusual, with few known occurrences. It occurs twice in Pliny's *Natural History* (24.40 and here at 35.133). The *OLD* offers two definitions: 1. "anointing round about," for which it cites *NH* 24.40 and 2. "coating or covering (with paint or similar substance)," for which it cites *NH* 35.133 as well as Sen. *Ep.* 86.6. The *TLL* also cites the two passages from Pliny and the one from Seneca but considers *circumlitio* to be more of a technical term for painting. In a commentary on Pliny's art historical texts, Eugénie Sellers Strong argues that *circumlitio* refers specifically to highlighting the hair, lips, and accessories, like a technical term for the type of restrained polychromy that John Gibson applied to his *Tinted Venus.* Eugénie Sellers Strong, *The Elder Pliny's Chapters on the History of Art*, 2nd ed. (Chicago: Ares Publishers, 1976), 158. This definition owes more to the nineteenth-century debates about polychromy and a long-standing preference among scholars for a light touch with color than to some truth to etymology. On restrained color, see Vinzenz Brinkman, *Gods in Color* (Munich: Stiftung Archäologie, 2007), 21. On the straightforwardness of painted sculpture implied by this anecdote, see Duigan, "Colour and the Deceptive Gift," 78, citing Stewart, *Greek Sculpture*, 41.

114 On the biographical from Pliny through Vasari and disrupted by Winckelman, see Christopher Wood, *A History of Art History*. (Princeton: Princeton University Press, 2019) 60–61, 87–90, and throughout.

115 On the importance of painting for completing partially sculpted forms, see Brigitte Bourgeois and Philippe Jockey, "Polychrome Hellenistic Sculpture in Delos Part I," in *ASMOSIA 6, Interdisciplinary Studies on Ancient Stone: Proceedings of the Sixth International Conference of the Association for the Study of Marble and Other Stones in Antiquity, Venice, June 15–18, 2000*, ed. L. Lazzarini (Padua: Bottega d'Erasmo, 2002), 497–506 and Brigitte Bourgeois and Philippe Jockey, "New Researches on the Polychromy of Hellenistic Sculptures in Delos, III: The Gilding," in *Leukos lithos: marbres et autres roches de la Méditerranée antique: études,* ed. P. Jockey (Paris: Maison méditerranéenne des sciences de l'homme, 2009), 645–662. On paint used to create or emphasize the modeling or shadows of a sculpture, see Vinzenz Brinkmann and R. Wünsche, *Polychromoi Theoi* (Athens: National Archaeological Museum, 2007), 38–39. See also Ian Jenkins, C. Gratziu, and A. Middleton, "The Polychromy of the Mausoleum," in *Sculptors and Sculpture of Caria and*

constitutive role of material color in producing forms transforms the hierarchy of form over color. For painting, we accept colors as an expected and necessary material tool, but rarely as the intellectual basis of the practice. Instead, we treat the forms made up from marks of pigments – the shapes of painting or drawing – as a material proxy for the mental image or form (*eidos*).[116] Sculpture, on the other hand, can be constructed "without" color by rejecting surface pigments and reducing the variegation of its marble to a singular and symbolic white form. This has elevated white marble as a base material while also devaluing sculpture produced in materials like limestone and terracotta on which more extant ancient pigments remain visible. Non-marble sculptures were understood to need these added pigments because of their inferior material substructure.[117] In order to preserve this hierarchy of material production, marble had to be kept free of additive colors.

By studying different artistic media separately, we miss the kind of transmedial work that material color does, as well as the collaborative practices that additive color in particular demands. Ancient Greek painting has primarily been studied through secondary visual citations in other artistic media or verbal descriptions of famous paintings in later texts.[118] After decades of focus on sculpture, recent scholarship has returned to painting, bringing together new archaeological discoveries and conservation science with older but dormant examples, such as the wooden panel paintings from Ano Pitsa, to which we will turn to Chapter 2.[119] This reinvigoration of the study of ancient Mediterranean painting, however, continues to treat it as a practice distinct from that of making and painting sculpture. Material color, especially additive color, moves across and connects different media, undermining conventional boundaries and making visible a set of intersecting artistic practices and artistic collaborations.

While potters and painters registered their coproduction of the signed surfaces of ceramic vessels, scholars have often also treated the

the Dodecanese, ed. Ian Jenkins and Geoffrey B Waywell (London: British Museum, 1997), 35–40.

116 Certainly, there are notable exceptions, among which see Wassily Kandinsky, *Concerning the Spiritual in Art* (New York: Dover Publications, 1977) and Wassily Kandinsky, Helmut Friedel, and Boris P Chichlo, *Wassily Kandinsky: Gesammelte Schriften 1889–1916: Farbensprache, Kompositionslehre und Andere Unveröffentlichte Texte* (Munich: Prestel, 2007). Joseph Albers, *Interaction of Color* (New Haven: Yale University Press, 2006 [1963]). For a discussion of painting through colors, see Mario Brusatin, *Histoire des Couleurs*, trans. Louis Marin (Paris: Flammarion, 1986 [1983]), 1–17. Brusatin dedicates his book on colors to the return of painting. For collected thoughts on color by artists, see David Batchelor, ed., *Colour* (London: Whitechapel, 2008).

117 On singular white and purity, see Batchelor, *Chromophobia*, 13.

118 Given the importance of painting within the hierarchy of media, several major studies have gathered the extant evidence of painting on surfaces other than vases, but also depend on examples from painted ceramics to fill in the corpus of lost panel paintings. Each study gathers examples from the wider Mediterranean under the umbrella of Greek or Graeco-Roman panel painting and isolates the colors of painting from the colors of other media. "Classical painting other than that which appears on vases must be one of the strangest and least tractable of all the manifold artistic genres bequeathed to us by antiquity," wrote Andrew Stewart, "Review of Plato and Greek Painting by Eva C. Keuls," *The Art Bulletin* 62, no. 4 (1980): 648–650. On Greek painting beyond vases, see Vincent J. Bruno, *Form and Color in Greek Painting* (New York: W. W. Norton, 1977); Eva C. Keuls, *Plato and Greek Painting* (Leiden: Brill, 1978); Agnés Rouveret, *Histoire et imaginaire de la peinture ancienne: ve Siècle Av. J.C.-Ier Siècle Ap. J.C.* (Rome: Ecole française de Rome, 1989); Hariclia Brecoulaki, *La Peinture funéraire de Macédoine: emplois et fonctions de la couleur Ive-Iie S. Av. J.-C.* (Athens: Centre de recherches de l'antiquité grecque et romaine, Fondation nationale de la recherche scientifique, 2006). In recent years ongoing finds from excavations at Macedonian sites continue to increase examples of preserved painting, although the bracketing of Hellenistic art allows these examples to stand outside of narratives central to the reception history and mainland Greece of the sixth to fourth centuries BCE.

119 J. J. Pollitt, *The Cambridge History of Painting in the Classical World* (New York: Cambridge University Press, 2014). Dimitris Plantzos, *The Art of Painting in Ancient Greece* (Atlanta, GA: Lockwood Press, 2018).

ceramic painters as proxies for panel painters whose names are recorded in Greek and Roman literature, but whose works are not extant. Collaborations between potters and painters produced polychrome ceramic vessels just as collaborations between sculptors and painters produced polychrome sculptures. For its representational effects, the painter who crafted this Herakles scene drew on the practices of painters working across other media as well as the relationships between collaborating artists. We might understand these material objects as assemblages, and the collaborative practices that produce them as a kind of social assemblage.

MATERIAL CONNECTIONS

The use of material colors, like the ancient Greek language of materials, connected the ancient Mediterranean to linguistic and artistic practices across Egypt, Mesopotamia, and the Near East, building up what one might call a material color *koinē* (common language) across regions, politics, and artistic practices.[120] Excising color from classical art crafts a story of exceptionalism that the reconstitution of material color undercuts. Rather than showing Greek and Roman art to be radically different from the art produced by cultures in its contact zones, material colors forge connections across these different cultures, particularly with Egypt and the ancient Near East. These contact zones have long been acknowledged as sources of influence on ancient Greek forms, but the excision of color from Greek art made it seem as though Greek artists had moved in a very different direction, especially in the art and architecture produced in the fifth and fourth centuries BCE leading up to and during the Athenian democracy. In a passage that scholars often cite as a factual account of color practices in ancient Greece, rather than conservative Roman nostalgia for a Greek past that never existed, Pliny the Elder, in his *Natural History* (35.50), wrote about the restrained color palette used by Greek painters working in the fifth century BCE:

> It was with four colours only that Apelles, Echion, Melanthius, and Nicomachus, those most illustrious painters, executed their immortal works; melinum for the white, Attic sil for the yellow, Pontic sinopis for the red, and atramentum for the black, and yet a single picture of theirs has sold before now for the treasures of whole cities. But at the present day, when purple is employed for colouring walls even, and when *India* sends to us the slime of her rivers, and the *corrupt blood of her dragons and her elephants*, there is no such thing as a picture of high quality produced.[121]

Pliny looked back to earlier Greek painters said to have worked with colors sourced from the Attic earth (white, yellow, red, black) and grouped these through the label "four-colour palette." In Pliny's wake, scholars dutifully sought examples of this restrained palette from the limited extant material record of fifth-century BCE Greece.[122] The material record does not

120 On bronze age koinē, see Marian Feldman, *Diplomacy by Design: Luxury Arts and an "International Style" in the Ancient Near East, 1400–1200 BCE* (Chicago: University of Chicago Press, 2006), 30. On the language of materials and the materiality of color in the ancient Near East, see Astrid Nunn and Heinrich Piening, *Mesopotamian Sculpture in Colour* (Gladbeck: PeWe Verlag, 2020), 2–6; Shiyanthi Thavapalan, "Speaking Colours" in ibid., 194–199.

121 Pliny, *Natural History, Volume I: Books 1–2.* Translated by H. Rackham. Loeb Classical Library 330 (Cambridge, MA: Harvard University Press, 1938), 35.50, Emphasis mine.

122 See Pliny *NH* 35.50. Ingeborg Scheibler, "Die 'Vier Farben' der Griechischen Malerei," *Antike Kunst* 17 (1974): 92–102. Marion True, "Introduction and Overview of the Conference," in Tiverios and Tsiaphakē, *Color in Ancient Greece*, xiii. For an analysis for how the "four-color palette" was received in later periods, see James, *Light and Colour in Byzantine Art*,

confirm the regular use of this highly restrictive palette, despite efforts to fit material evidence into it. The four-color formula likely draws on the earlier four elements from which philosophers such as Empedocles described the fitting together of the forms of the visible world.

Pliny's focus, however, is not actually the ancient Greek painter, but the expansive palette of the Roman artist during the empire.[123] He connects material colors with geographic locations, so that the palette maps connections. Pliny's reference to the corrupt blood of dragons and elephants, for example, gives rise to the naming convention for the red pigment known as dragon's blood (*Dracaena cinnabaris*) produced from the resin of the subtropical Socotra tree that grows in the Socotra archipelago in the northwest Indian Ocean (Figures 21 to 22).[124] In order to praise the local footprint of the fifth- and fourth-century BCE Greek painters he is elevating, Pliny constructs a limited, indigenous palette for these artists. In contrast, he emphasizes that Roman painters use a wider range of material colors sourced from more places so that their palettes include the physical traces of distant geographies, bodily fluids from fantastic creatures, and the base world of matter. Although here Pliny is discussing painters, not sculptors, the later ideological extension of the limited palette that Pliny constructs is the idealized whiteness of ancient Greek art in contrast to the polychrome materials of art produced by other cultures. The visibility of color on the art of other cultures has fueled a commitment to erasing color from ancient Mediterranean art in the service of a genealogy of Western exceptionalism.[125] Material colors were sourced locally and traded widely so that the use of colors mapped wider social relations through material connections. Reconstituting material colors, especially additive color, brings ancient Greek artistic practice into alignment with practices across the wider Mediterranean, the ancient Near East, and Egypt, affirming connections rather than essentializing difference.

The earlier example of *kuanos* and lapis lazuli tracks this kind of transcultural and translinguistic connection. The term *kuanos* in Greek encompasses the many affordances of lapis lazuli: blue hue, micaceous variegation and sparkle, and high economic value (Figures 23 and 24). Introduced by the anthropologist John J. Gibson in 1975 in the context of ecology and perception, the word "affordance" captures the qualities of an object or environment as well as experiences of that object or environment by beholders.[126] Gibson writes, "color and shape are oversimplified qualities, for texture merges with color and yet is a kind of shape at the level of the small-scale layout."[127] Although he uses

66–68. Keuls, *Plato and Greek Painting*, 1978; Gage, *Color and Culture*, 29–30; Hariclia Brecoulaki, "Considerations sur les peintres tetrachromatistes et les *colores austeri* et *floridi*: l'economie des moyens picturaux contre l'emploi de materiaux onereux dans la peinture ancienne," in *Couleurs et matières dans l'antiquité: texts, techniques et pratiques*, ed. Agnès Rouveret, Sandrine Dubel, and Valérie Naas (Paris: Éditions Rue d'Ulm/Presses de l'École normale supérieure, 2006), 29–42. Brecoulaki, *La peinture funéraire de Macédoine*, 98, 413; Vincent J. Bruno, *Form and Color in Greek Painting* (New York: W. W. Norton, 1977), 58–59, 73–87; Agnès Rouveret, *Histoire et imaginaire de la peinture ancienne*, 54, 235. Hilary Becker, "Grading for Colour: Pliny's Hierarchy of Pigment Quality," in Anna Anguissola and Andreas Grüner, eds. *The Nature of Art: Pliny the Elder on Materials*, (Turnhout: Brepols, 2021), 194.

123 On pigments in Roman art, see especially Hilary Becker, *Commerce in Color: The Mechanics of the Roman Pigment Trade* (forthcoming).

124 Jean Trinquier, "Cinnabaris et 'sang-dragon': le 'cinabre' des Anciens entre minéral, végétal et animal," *Revue archéologique* 56 (2013): 305–346. Norman E. Land, "Blood as Paint: Rubens, Guido Reni, and Parrhasius," *Notes in the History of Art* 31, no. 2 (Winter 2012): 22–23.

125 On the construction of the idea of Western civilization, see Kwame Anthony Appiah, "There Is No Such Thing as Western Civilization," *The Guardian*, November 9, 2016.

126 James J. Gibson, *The Ecological Approach to Visual Perception*, (Boston: Houghton-Mifflin, 1979), 141.

127 Ibid., 97.

Figure 21 An old dragon tree (*Dracaena draco*) with a gash in its stem releasing its "dragon's blood" resin and a door in its trunk. Aquatint with etching by R. G. Reeve after J. J. Williams, ca. 1819. Wellcome Collection, London

Figure 22 Dragon's blood resin. Courtesy of University of Pennsylvania Fisher Fine Arts Library Material Collection

different language, in his engagement with colors and soil changes in the environment, Gibson briefly touches on spatiality of material color and its integration of surface and depth. Thinking about the term *kuanos* in terms of its affordances captures both characteristics that the term describes as well as the sensory experiences of *kuanos* in the world. *Kuanos* seems to encompass not only objects formed from the stone (as in the textual construction of the inlay on the shield of Achilles), but also bodies imbued with the *khrōma* or *khrōs* of lapis lazuli, and additive pigments that were produced either from the ground-up stone (later called ultramarine), or from the ubiquitous pigment Egyptian blue.[128] Similar objects of and words for lapis lazuli appear across the wider Mediterranean, Egypt, Mesopotamia, and the ancient Near East. Excavating this period color language in the ancient Mediterranean reveals material

128 Ann Brysbaert, "Lapis Lazuli in an Enigmatic 'Purple' Pigment from a Thirteenth-Century BC Greek Wall Painting," *Studies in Conservation* 51, no. 4 (2006): 252–266. On ultramarine in fifteenth-century Italian painting, the classic text remains Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy: A Primer in the Social History of Pictorial Style* (Oxford; New York: Oxford University Press, 1974), 11, 83.

Figure 23 Ultramarine #4 (Lapis Lazuli) Genuine, Harvard Art Museums/Straus Center for Conservation and Technical Studies, Forbes Pigment Collection. © President and Fellows of Harvard College, Straus, 80

connections across wider contact cultures, connections that the whitewashing of ancient Greek and Roman art and text covered up.

Sumerian, Akkadian, and Greek texts all deploy the word for lapis lazuli (Sum., *za-gin*$_3$, Akk. *uqnû*, Gr. *kuanos*) at times to mean the material itself (e.g. this object or palace was formed from the stone lapis lazuli) and at other times to mean possessing the deep blue of lapis lazuli or shining or shimmering in the manner of the stone lapis lazuli.[129] Lapis lazuli accrued high

129 Winter, "The Aesthetic Value of Lapis Lazuli," 46–47. Nunn and Pienning, *Mesopotamian Sculpture in Colour*,

Figure 24 Lapis lazuli, unground. Courtesy of Harvard Art Museums/Straus Center for Conservation and Technical Studies, Forbes Pigment Collection. © President and Fellows of Harvard College, Straus, 718

value not only from its blue hue, but also from its bright shimmer, what would be called its *lamprotēs* in ancient Greek. A line from the Sumerian epic *Enmerkar and the Lord of Aratta* captures this when Enmerkar implores the goddess Inana to "let them cut the pure lapis lazuli from the lumps, the brightness of pure lapis lazuli" (39) and later describes the "bright mountain of lapis lazuli."[130] In addition to numerous textual references to lapis lazuli in Sumerian, Akkadian, and ancient Greek texts, the material record documents extensive use of the stone.

Lapis lazuli is found primarily in the Badakhshan region of modern Afghanistan.[131] From as early as the seventh millennium BCE, it was exported throughout the Indus valley, Mesopotamia, and Egypt.[132] The dark blue stone is composed of multiple minerals and often

72, and Thavapalan, "Speaking of Colours," 194; Becker, "Pigment Nomenclature," 4–5, 12–16.

130 S. Kramer, *Enmerkar and the Lord of Aratta: A Sumerian Epic Tale of Iraq and Iran* (Philadelphia: University Museum, University of Pennsylvania, 1952), ln 39. The fragmentary text mentions lapis lazuli eleven times. On adjacent terminology in North-West Semitics, especially *tekelet*, see Rosanne Liebermann, "Feeling Blue: Israel, Assyria, and the History of a Color," Color and Identity in the Ancient World, Society of Design Arts, Baltimore, MD (June 03, 2020): www.sodabaltimore.com/past-programs/color-amp-identity-in-the-ancient-world.

131 On the extensive lapis lazuli trade see Moorey, "Blue Stones in the Ancient Near East," and Feldman, *Diplomacy by Design*, 16.

132 Casanova, "Lapis Lazuli," 68; B. Aston, J. Harrell, and I. Shaw, "Stone," in *Ancient Egyptian Materials and Technology*, ed. P. T. Nicholson and I. Shaw (Cambridge: Cambridge University Press, 2000), 39–40; A. Lucas, J. Harris, and J. R. Harris, *Ancient Egyptian Materials and Industries*, 4th ed., rev. J. R. Harris (London: E. Arnold, 1962), 398–340; Michèle Casanova, "Le Lapis-Lazuli dans l'orient ancient," in Caubet, *Cornaline et pierres précieuses*, 191–193. A. Skovmøller, C. Brøns, and M. Sargent, "Egyptian Blue: Modern Myths, Ancient Realities," *Journal of Roman Archaeology* 29 (2016): 371–387; on the cultural affordances of lapis lazuli in contemporary art, see Stager, "Aslı Cavuşoğlu: the Place of Stone."

flecked with shimmering metallic pyrites.[133] It held significant monetary, social, and affective value.[134] Its closest modern equivalent, suggests Roger Moorey, would be the status accorded to diamonds.[135] Objects, sculpture, tablets and inlay, portable seals, beads, and charms made with lapis lazuli have been found throughout excavations in the ancient Near East, especially in tomb contexts and in raw form as foundation deposits.[136] A cache of cylinder seals from Thebes (Boeotia) included many formed from lapis lazuli, where the color and value of the stone were among the reasons for their pride of place within the hoard.[137] Stashes of the unworked stone were buried with elite persons, used as offerings to deities, and buried along boundary lines. The highest-quality stones were often kept in treasuries, changing hands only through elite gift exchange, as war booty, or as tribute.[138]

Although the stone circulated widely, evidence for lapis lazuli ground into ultramarine, a pigment prized for its deep, vibrant color and the difficulty and expense of its production, is rare before the sixth and seventh centuries CE.[139] Artists regularly used Egyptian blue instead to produce a deep lapis lazuli-like blue hue.[140] The substitution of synthetic for earthborn pigment exchanged the process of producing color for the process of extracting and grinding the stone without significant loss of status in that transition. After the third millennium, sources for lapis lazuli seem to have grown scarcer and fewer objects crafted from the stone appear in second- and first-millennium contexts.[141] Egyptian blue gained popularity as a means of giving objects the blue-black hue associated with lapis lazuli "from the mountain."[142] A discussion of lapis lazuli "from the kiln" emerges in the textual record in the middle of the second millennium BCE as do references to lapis lazuli adjusted by boiling and lapis lazuli mixed with glass.[143] This suggests a certain amount of preoccupation with the possibility of substituting something human-made and artificial for a natural resource, a tension that runs through the history of color, but is not always considered negative.[144]

In the material record of the ancient Near East, hair and beards are among the objects that could be either sculpted from lapis lazuli or painted blue. Among the earliest examples are the so-called lyres buried in the Royal Cemetery at Ur (2650–2500 BCE) (Figures 25 and 26).[145]

133 Casanova, "Le Lapis-Lazuli dans l'orient ancient," 63.
134 Winter, "The Aesthetic Value of Lapis Lazuli," 45.
135 Moorey, "Blue Stones in the Ancient Near East," 178.
136 Ibid., 177. 137 Feldman, *Diplomacy by Design*, 215n7.
138 Moorey, "Blue Stones in the Ancient Near East," 181.
139 On examples of lapis lazuli ground into a pigment in antiquity, see Hariclia Brecoulaki, "'Precious Colours' in Ancient Greek Polychromy and Painting, Aspects and Symbolic Values," *Revue Archéologique* 1 (2014): 19–22.
140 Panzanelli, *Color of Life*, 136, no. 20. On the long, laborious process of extracting ultramarine from lapis lazuli, see Joyce Plesters, "Ultramarine Blue, Natural and Artificial," *Studies in Conservation* 11, no. 2 (1966): 64. Artificial ultramarine was first introduced in 1828, ibid., 74. On the technical production of Egyptian blue, see Kakouilli, *Greek Painting Techniques and Materials*, 61–66. On Egyptian blue in Greek painting, see M. Calamiotou et al. "X-Ray Analysis of Pigments from Pella, Greece," *Studies in Conservation* 28, no. 3 (1983): 117–121. On Egyptian blue on Egyptian bronzes, see S. La Niece, F. Shearman, J. Taylor, and A. Simpson, "Polychromy and Egyptian Bronze: New Evidence for Artificial Coloration," *Studies in Conservation* 47, no. 2 (2002): 95–108. For lapis lazuli used as eye makeup in Persia, see Farmanfarmaian "Haft Qalam Ārāyish: Cosmetics in the Iranian World," *Iranian Studies* 33 (2000): 285–326. On ultramarine and its substitutes in the Middle Ages, see A. Raft, "About Theophilus' Blue Colour, 'Lazur,'" *Studies in Conservation* 13, no. 2 (1968): 1–6.
141 Feldman, *Diplomacy by Design*, 117. 142 Ibid.
143 Ibid.; Moorey, "Blue Stones in the Ancient Near East," 182.
144 Indeed, turquoise, which enjoyed esteem almost on par with that accorded lapis lazuli in the fourth millennium BCE, fell increasingly out of favor, in part because of the ease with which it could be counterfeited, and because of its potential for losing its color when oiled. Ibid., 179.
145 British Museum, London, 121198a; Leonard Woolley and Leon Legrain, *Ur Excavations* (London: Oxford University Press, 1927), 121198a; Harriet Crawford, *Ur: The City of the Moon God* (London: Bloomsbury Academic, 2015), 66–67.

Although often reconstructed and pictured fitted onto a modern wooden body (the ancient wood does not survive), these images show two pieces of the lyre, the head and the panel of inlay, as separate pieces that would have been attached to the wood. The lyres were buried along with many portable objects and the site yielded numerous objects formed from lapis lazuli. The body of each lyre is a dazzling object of assembled color, crafted from wood that has been inlaid with various precious material colors, such as ivory, gold, carnelian, and lapis lazuli. A bull's head of gold, silver, and lapis lazuli tops the wooden body. The head of one such object consists of a gold sheet with openings for attached hair, beard, ears, horns, and eyes. A sheet of gold hammered over a wooden core formed the base of each horn, with attached lapis lazuli tips. The eyes were assembled from lapis lazuli for the lid and iris and shell for the white of the eye. Each eye was then fitted into the opening in the gold head and attached with copper wire. Over seventy tesserae of lapis lazuli carved into curls were attached to the head core using bitumen. Additional tesserae of lapis lazuli were carved into beard locks and arranged into a pattern of longer and shorter pieces. The beard pieces were attached to the head using copper alloy wire and backed with silver.[146] The form and color of both hair and beards are crafted from pieces of lapis lazuli.

Building on this tradition, but with additive pigments, artists working in the Persian Empire during the first millennium often used Egyptian blue pigment to paint beards and hair.[147] On the tomb of Artaxerxes III above the terrace at Persepolis, for example, excavators found Egyptian blue pigment on the hair and beards of Persian soldiers.[148], Excavators also found many fragments of painted blue beards among many other vibrant colors throughout the site.[149] In addition, archaeologists excavated ceramic pigment bowls at various locations throughout

146 Virginia Greene, "Conservation of a Lyre from Ur: A Treatment Review," *Journal of the American Institute for Conservation* 42, no. 2 (2003): 261–278.

147 Alexander Nagel, "Preserving the Achaemenid Persian Legacy: Aspects of Conservation, Technology, Polychromy, and Material Culture in Persepolis," in *The Art of Empire in Achaemenid Persia: Festschrift in Honor of Margaret Cool Root*, ed. E. Dusinberre, M. Garrison, W. Henkelman (Leiden: NINO, 2020), 113–136. Alexander Nagel, "Painters' Workshops in the Ancient Near East: A Reassessment," in *L'Orient est son jardin. Hommage à Rémy Boucharlat*, ed. Sebastien Gondet and Ernie Haerinck (Leuven: Peeters, 2018), 377–386. Nunn and Pienning, *Mesopotamian Sculpture in Colour*, 5, 180.

148 A. B. Tillia, *Studies and Restorations at Persepolis and Other Sites of Fars II* (Rome: IsMEO, 1978), 39. Alexander Nagel, "Colour in Ancient Near Eastern and Egyptian Sculpture," in *Transformations: Classical Sculpture in Colour*, ed. Jan Østergaard et al. (Copenhagen: Ny Carlsberg Glyptotek, 2014), 130–145.

149 Ernst Herzfeld, *Iran in the Ancient East* (New York and London: Oxford University Press, 1941), 267, fig. 372; Herzfeld 1931, nos. 189–193. Lumps of green, red, and blue are now in the Persepolis Museum; Alexander Nagel, "Colors, Gilding and Painted Motifs in Persepolis: Approaching the Polychromy of Achaemenid Persian Architectural Sculpture, c. 550–330 BCE" (PhD diss., University of Michigan, 2010). The 2009 version of the *Bunte Götter* exhibition, *Gods in Color*, at the Sackler Museum at Harvard University, included the unpublished reconstruction of a fragment from Persepolis depicting Ahuramazda in the winged disk with blue beard and hair. Judith Lerner published an earlier reconstruction of the fragment but has since revised those conclusions and anticipates publishing this version jointly with Susanne Ebbinghaus, in the future. Judith Lerner, "A Painted Relief from Persepolis," *Archaeology* 26, no. 2 (1973): 116–122; L Stodulski, E. Farrell, and R. Newman, "Identification of Ancient Persian Pigments from Persepolis and Pasargadae," *Studies in Conservation* 29, no. 3 (1984): 143–154; Initial reports suggest that several different blue pigments, and not only Egyptian blue, were used on beards depicted at Persepolis. The 2014 iteration of the exhibition *Bunte Götter* in Copenhagen included an account of color in the Ancient Near East. See Alexander Nagel, "Colour in Ancient Near Eastern and Egyptian Sculpture." The 2017 version at the Legion of Honor also included examples of Persian polychromy, on which, see Vinzenz Brinkmann, Renée Dreyfus, and Ulrike Koch-Brinkmann, *Gods in Color: Polychromy in the Ancient World* (San Francisco: Fine Arts Museums of San Francisco, Legion of Honor, 2017), 53–67, 161–175.

Figure 25 Bull's head and attachment, ca. 2550–2400 BCE, wood, lapis lazuli, gold, silver, bitumen, shell, from Ur, PG 789, King's Grave, U.10556, L: 40 cm x W: 25 cm x H: 19 cm. University of Pennsylvania, Museum of Archaeology and Anthropology, Philadelphia

Figure 26 Inlaid front panel, ca. 2550–2400 BCE, shell and bitumen, from Ur, PG 789, King's Grave, U.10556, L: 31.5 cm x W: 11 cm x D: 1.5 cm. University of Pennsylvania, Museum of Archaeology and Anthropology, Philadelphia

Persepolis, including bowls containing green, red, and blue pigments deposited along the Apadana, perhaps dedicated by the painters themselves.[150] Antiquarian travelers and early archaeologists also observed evidence of painting, painted sculpture, gilding and silvering, at Susa and the Tomb of Darius I at Naqsh-e Rustam.[151] The combined evidence suggests that painters, sculptors, gilders, and other artists worked together at Achaemenid sites to produce vibrant assemblages of color.[152] These examples from Mesopotamia align with the artistic practices of additive and assembled colors in the Greek-speaking world.[153]

MEDITERRANEAN EXEMPLA

Examples of additive color on sculpture produced in a range of media across the ancient Mediterranean affirm the transmedial work of material color. Like the artists working at Persepolis, ancient Greek artists also used Egyptian blue as an additive color on sculpture for beards and hair that might be described textually as *kuanos*. Examples include the painted limestone "Bluebeard" sculpture from the Athenian Acropolis, a painted terracotta head of Hades from a sanctuary to Persephone and Demeter at Morgantina, and a painted terracotta acroterion of Zeus and Ganymede from Olympia. These examples of blue beards not only intersect with the Greek textual tradition, but also connect to the ancient Near Eastern artistic and textual examples, as the next section will explore. In each sculpture, additive colors remain visible to the naked eye and artists layered these pigments onto each sculpted material support. Just as artists pieced together many different pieces of lapis lazuli and other materials to form the lyres from Ur through assemblage, so did artists working with blue pigments piece together the substructure and pigments to form these blue beards through additive color.

Bluebeard(s)

A trio of hybrid serpentine creatures sculpted from limestone and covered with a layer of stucco and then layers of colorful pigments comprise part of the pedimental sculptures from the Archaic temple, or "Hekatompedon", on the Acropolis (ca. 560 BCE) in a scene that also included the figure of Herakles wrestling a sea-creature. This polychrome sculpture group has been restored and installed as a centerpiece of the Acropolis Museum, Athens, where blues, greens, blacks, browns, and reds remain visible (Figures 27 and 28).[154] In addition, the Metropolitan Museum of

150 Alexander Nagel, "Color and Gilding in Achaemenid Architecture and Sculpture," *The Oxford Handbook of Ancient Iran* (Oxford: Oxford University Press, 2013), 610–611.

151 Nagel, "Color and Gilding in Achaemenid Architecture and Sculpture," 607–610.

152 Ibid., 596–600.

153 Nunn and Piening, *Mesopotamian Sculpture in Colour*, 1–5.

154 A number of colors remain visible on the statue group exhibited in the Acropolis Museum, Athens. In addition, an early-twentieth century watercolor first published by Theodor Weigand, *Die Archaische Poros Architektur der Akropolis zu Athen* (Kassel: T. G. Fisher & Co., 1904) has long circulated a facsimile of these colors to wider audiences although the medium of watercolor, reproduction technologies of that watercolor, and the deterioration of the sculpture's colors already underway by the early twentieth century all muted these colors. See Brinkmann, *Bünte Götter*, 26, fig. 23a–b. The most frequently reproduced nineteenth-century watercolors of antiquities were produced by the family Gilliéron, who was the subject of a recent exhibition at the Metropolitan Museum of Art, New York: *Historic Images of the Greek Bronze Age*, May 17, 2011–June 17, 2012. Most recently on Gilliéron, see Joan R. Mertens and Lisa Conte, "Watercolors of the Acropolis: Émile Gilliéron in Athens," *The Metropolitan Museum of Art Bulletin* 76, no. 4 (Spring 2019): 5–46. Other limestone and Hymettian marble architectural fragments painted with pigments and some attached with lead pins likley belong to the same structure: cornice (limestone with green, yellow, red pigments, Acr 4572), Doric capital (Acr 20790), East pediment (red, green pigments, Acr. 4, 37, 40), horses (Hymettian marble with black and other pigments, Acr. 575), Medusa acroterion (Hymettian marble, Acr. 701), owl (limestone with black, white, red

Art, New York, has recently published watercolors of these pedimental sculptures produced in the early twentieth century and sold to the museum by the Gilliérons, father-son painters of archaeological objects. The watercolors offer a new look at how the extant colors were recorded in 1919 (Figure 29).[155] A significant amount of the original material colors remain visible on the objects themselves, including the blue of their namesake beards.[156] The label in the Acropolis Museum describes these figures as "alive with color," a turn of phrase that emphasizes the animation enacted by material color.

Three blue-haired heads and beards are shown in three-quarter view and three overlapping torsos display their reddish-brown painted flesh and well-muscled arms. Their eyebrows have been painted brown and their eyes deeply incised and black-lined, framed by incised lash-lines, with the pupils punched and painted black. Each figure's head gazes out at a slightly different angle, covering a wide swath among them. The different angles of each head offer a sequential narrative. In returning the gaze of each figure, a beholder must mimic the statue's rotation or animation.[157]

The blue color of the figures' hair and beards operates relationally, as pigment (actual material), as lapis lazuli (the material referent), and as the Greek color-word *kuaneos*. The surface of the sculpted hair and beards, though painted with a three-dimensional layer of Egyptian blue pigment, evokes hair sculpted from blue material or lapis lazuli.[158] Pigment performs a number of functions here, as its 'true' material state (inexpensive components of Egyptian blue), as a simulacrum of sculpted lapis lazuli (the high-value and high-status stone), and as a representation of blue beards, replete with divine associations. The image oscillates between different states: *kuanos*, pigment, beard, body.[159]

HADES

A terracotta head from the second half of the fourth century BCE, returned to the site of Morgantina on Sicily from the J. Paul Getty Museum, Los Angeles, offers another example of additive color used to produce a blue beard (Figures 30 and 31). The head was sculpted of terracotta, fired, and painted. Hand-shaped curls that match this head in material, color, style, and size, were found among other terracotta fragments at the Thesmophorion sanctuary in Morgantina, site of the cult of Demeter.[160] On the basis of this evidence the head has been repatriated and identified as depicting Hades, Zeus's brother and ruler of the underworld. This head belonged to a sculpture that stood next to one of Persephone, Demeter's daughter, whom Hades abducted. A short material description of the object in the online catalog reads:

pigments, Acr. 56), panther (patterns from pigments, traces of metal clamps, Hymettian marble, Acr. 552), snakes (limestone with red, black, green, Acr. 41), bird (limestone with red and blue pigments, Acr. 22, 22a, b, c), roof gutter (Hymettian marble with red and blue pigments, Acr. 3949, 3958, 3902, 3965, 126, 5915).

155 Ibid, 30 on a repainted cast of the Bluebeard group.

156 For a summary of the various suggested identifications of Bluebeard(s), see Jeremy M. Hurwit, *The Athenian Acropolis: History, Mythology, and Archaeology from the Neolithic era to the Present* (Cambridge: Cambridge University Press, 1999), 108. See also Dimitris Pandermalis, ed., *Archaic Colors* (Athens: Acropolis Museum, 2012), 62–63.

157 Each figure holds an attribute – a bird, water, and possibly a sheaf of wheat, respectively. These distinct attributes are not present in paintings published by Wiegand in 1904, cited in Brinkmann et al., *Bunte Götter*, 26. Compare with Mertens and Conte, "Watercolors of the Acropolis," 22–29, who point to the difference across several watercolors and prints in recording the attributes.

158 On planar versus virtual images and their operations in "real space," see David Summers, *Real Spaces: World Art History and the Rise of Western Modernism* (London: Phaidon, 2003), 1.9, esp. 83. On the real space of the *tâche*, see Kathryn A. Tuma, "Cézanne and Lucretius at the Red Rock," *Representations* 78 (2002): 56–85.

159 On oscillation, see discussion in Neer, *Style and Politics in Athenian Vase-Painting*, 65.

160 Maria Lucia Ferruzza, *Ancient Terracottas from South Italy and Sicily in the J. Paul Getty Museum* (Los Angeles: J. Paul Getty Museum, 2016), no. 60.

Figure 27 Installation view of three entwined snake-bodied figures from the West pediment of Archaic Temple to Athena, or "Hekatompedon," Acropolis, Athens, ca. 570 BCE, limestone with stucco, applied pigments, lead, H: 0.76 x W: 3.23 m, Acropolis Museum, Athens, Acr. 3. @ Acropolis Museum. Photo: Sokratis Mavrommatis

Figure 28 Installation view of three entwined snake-bodied figures from the West pediment of Archaic Temple to Athena, or "Hekatompedon," Acropolis, Athens, ca. 570 BCE, limestone with stucco, applied pigments, lead, H: 0.76 x W: 3.23 m, Acropolis Museum, Athens, Acr. 3. @ Acropolis Museum. Photo: Sokratis Mavrommatis

Figure 29 Émile Gilliéron père, *Winged Three-Bodied Creature, commonly known as "Bluebeard,"* 1919, watercolor, graphite, and crayon on paper, L: 133 in./337.8 cm x H: 39 7/8 in./101.3 cm. Courtesy of The Metropolitan Museum of Art, New York; Dodge Fund, 1919 (19.195.1)

> Pinkish in color (Munsell 5 yr 7/4); in the back, the clay is a lighter hue (5 yr 8/2), with a friable, porous consistency. The surface is coated with a layer of greenish diluted clay and a layer of whitish slip (calcite?). Polychromy: light blue (beard), pink (neck, face, lips), and reddish brown (curls of hair). The added pigments would have been applied after the firing process.[161]

Unlike the Acropolis Bluebeards, the hair of Hades was painted red, while the beard was painted blue. A painter covered the thick curly hair, locks of which were worked separately and then attached, with a reddish-brown hematite.

Called the bloodstone, hematite (Gr. *haimatites*) derives from the ancient Greek word *haima* (blood).[162] One of the most common minerals on the earth's surface, iron oxide (Fe_2O_3), has been used as a pigment from at least as early as the paleolithic period and is found in various places, including recent traces of hematite found on Mars.[163] As a solid, hematite takes many varied hues and can be carved for glyptic arts, but its mineral trace produces a shade of red (Figure 32).[164] The use of hematite pigment for the hair of this statue contrasts dramatically with the Egyptian blue pigment used on its beard (Figure 33).

While this pairing of hematite for the hair and Egyptian blue for the beard is anomalous, a well-known fresco from the Tomb of Persephone at Vergina depicts Hades with flaming hair and beard, abducting Persephone in a chariot (Figure 34). The pigments used on this and other spectacular tomb paintings from Macedonia have been extensively analyzed by Hariclia Brecoulaki.[165] The wall paintings, the painted tomb architecture, and the painted and inlaid grave goods preserve both additive and assembled colors, as Brecoulaki's in-depth analysis demonstrates.[166] The Vergina tomb paintings emphasize Hades's reign over the underworld and Persephone's imprisonment therein, as well as the impact of their marriage on the colors on

161 Ibid.; Panzanelli, *Color of Life*, 136–137, no. 20; Claire Lyons, Michael J. Bennett, and Clemente Marconi, *Sicily: Art and Invention Between Greece and Rome* (Los Angeles: J. Paul Getty Museum, 2013), 53, 192, fig. 133.

162 S. E. Filippakis, B. Perdikatsis, and K. Assimenos, "X-Ray Analysis of Pigments from Vergina, Greece (Second Tomb)," *Studies in Conservation* 24, no. 2 (1979): 54.

163 Bibring et al., "Coupled Ferric Oxides and Sulfates on the Martian Surface," *Science*, August 31, 2007, 1206–1210.

164 S. Profi, B. Perdikatsis, and S. E. Filippakis, "X-Ray Analysis of Greek Bronze Age Pigments from Thera (Santorini)," *Studies in Conservation* 22, no. 3 (1977): 107–115. In the Olmec context, see Clarus J. Backes, David Cheetham, and Hector Neff, "The Color of Influence: A Provenance Study of Hematite-Based Paints on Early Olmec Carved Pottery," *Latin American Antiquity* 23, no. 1 (2012): 70–92.

165 Brecoulaki, *La peinture funéraire de Macédoine*, 77–99, and for the materials of individual pigments, 157.

166 Ibid., 49–97.

Figure 30 Head of Hades, Terracotta with pigments, 400–300 BCE, H: 26.7 cm x W: 20.4 cm. Museo regionale di Aidone, Morgantina, Sicily

the surface of the earth. Produced under the Macedonian monarchy, the vibrant colors of this painted tomb architecture, wall frescos, and polychrome objects placed in the tombs were first excavated in the 1970s and analyzed by Brecoulaki in the early 2000s (published in two volumes in 2006).[167] These many colors both captured preserved rare examples of free painting and also remained sidelined from larger

167 Manolēs Andronikos, *The Royal Graves at Vergina,* (Athens: Archaeological Receipts Fund, 1980).

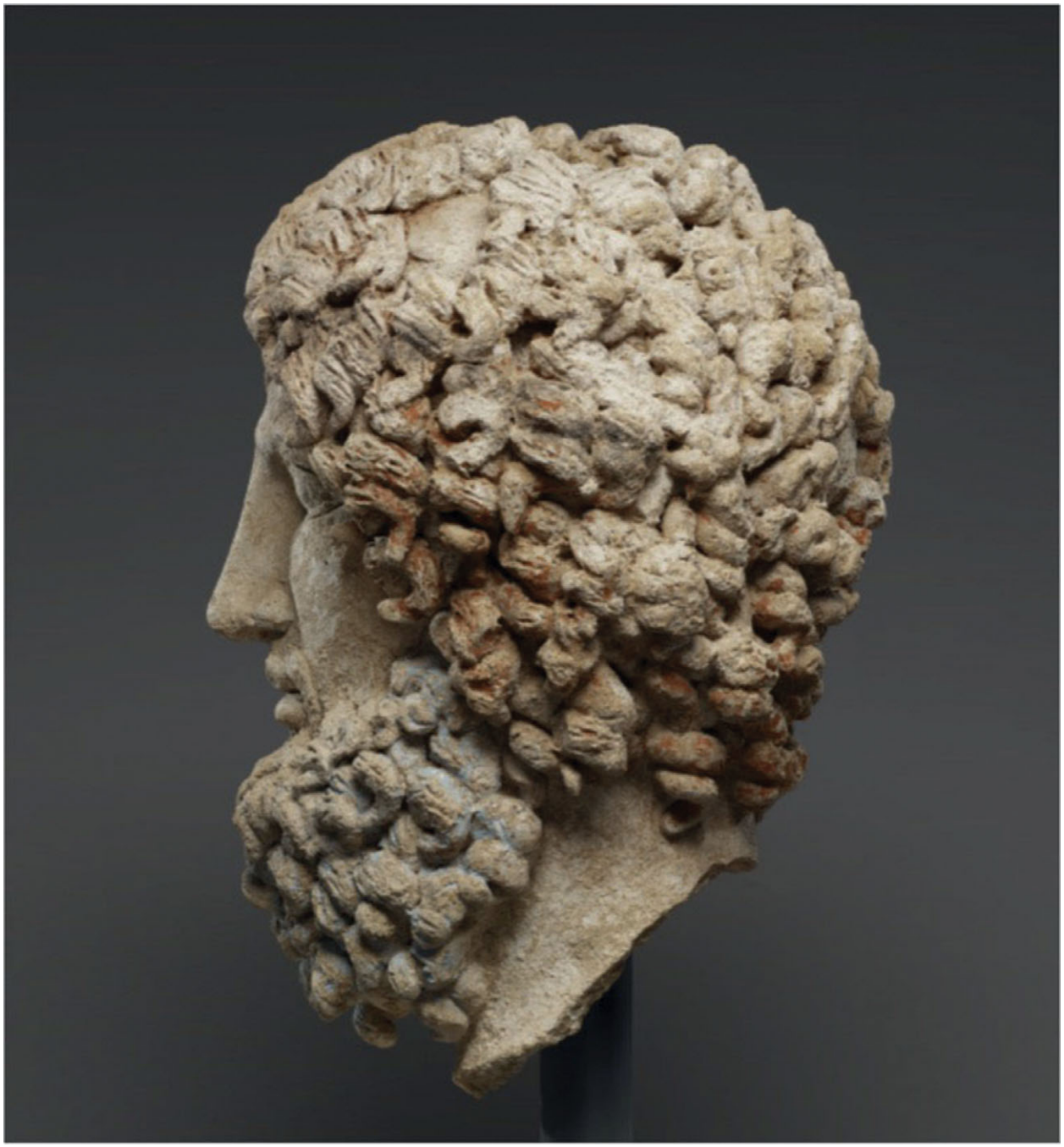


Figure 31 Head of Hades, profile, Terracotta with pigments, 400–300 BCE, H: 26.7 cm x W: 20.4 cm. Museo regionale di Aidone, Morgantina, Sicily

conversations about color in and on ancient Mediterranean art, likely because of persistent Winckelmannian narratives of Hellenistic art's decline and decadence.

The myth of Persephone's abduction by Hades and her mother, Demeter's response, also describes the changing colors of the natural world. While her daughter is trapped in the underworld, Demeter refuses to allow plants or flowers to grow and her refusal forces Persephone's partial return to earth in a myth that explains changes in the seasons through

Figure 32 Hematite pigment. Courtesy of Harvard Art Museums/Straus Center for Conservation and Technical Studies, Forbes Pigment Collection. © President and Fellows of Harvard College, Straus, 1445

Persephone's proximity to her mother.[168] When Persephone is trapped with Hades in the underworld, it is winter; when she is above ground, the earth experiences the riot of material color associated with growing things.[169] She moves between surface and depth, bringing colors to the earth's surface, dictating the growing seasons and the possibilities of pigments derived from plants. Her movement tracks the sort of connection between surface and depth that additive color always negotiates. Both Hades and Persephone from Morgantina are formed from earthborn terracotta and pigments, even as they narrate the story of colors returning to and retreating from the earth's surface.

The ancient painter added Egyptian blue for Hades's beard and mustache. It was on the basis of the head's thick blue beard and the divine associations with *kuanos* that curators initially labeled this object the "head of a god, probably Zeus."[170] In light of its archaeological context, this identification has changed and the pairing of hematite and Egyptian blue for Hades takes on a different divine resonance. Pigment layers form the divine beard, rendering it *kuanos*.

168 On the possibility of feminist refusal, Bonnie Honig writes: "A women's refusal is rendered unimaginable but it nonetheless haunts the very present that denies its possibility. It may even seed a future," Bonnie Honig, *A Feminist Theory of Refusal* (Cambridge, MA: Harvard University Press, 2021), 5.

169 *The Homeric Hymns: A Translation with Introduction and Notes,* trans. Diane J. Rayor (Berkeley: University of California Press, 2014), 17–33.

170 This was the exhibition text associated with this head prior to its identification as Hades.

Figure 33 Egyptian blue, blue copper silicate, < 120 μ. Kremer Pigments, New York, #10060

Zeus and Ganymede

Vibrantly painted terracotta sculptures found at Olympia and currently on display in the archaeological museum at the site include part of a statue of a naked male warrior with a painted chlamys, a head of Athena crowned with a painted garland and wearing disc earrings, and a statue of Zeus abducting the boy Ganymede (Figures 35 to 38).[171] Extant white, black, and red pigments remain visible on the Athena fragment as do white, red, blue, black, brown pigments on the warrior fragment and brown, red, and blue-black

171 On the head of Athena and fragments that might be associated with it, see Alika Moustaka, *Grossplastik aus Ton in Olympia* (Berlin: de Gruyter, 1993), 10–25; on the warrior 26–41; on the Zeus and Ganymede pair 42–45, and analysis of additional painted terracotta fragments. Assembled from parts discovered at different times between 1878–1941, see Moustaka, *Grossplastik aus Ton in Olympia* (Berlin: de Gruyter, 1993), 42, pl. 36 and 38, with bibliography. For the narrative of Zeus and Ganymede, see Hom. *Hymn to Aphrodite* 200–216; *Il.* 5.265–279, 20.231–235, and Pindar *Ol.* 1, esp. 44–45. The story of Ganymede is a popular myth, first appearing in the *Iliad* (5.265) and common in visual representations dating from the first half of the fifth century, with a hiatus in the latter half of the fifth century, to a resurgence in the mid-fourth century BCE that stretched into a curious embrace by Christianity in the Middle Ages, and then steadfast popularity in the Renaissance and beyond. See James N. Davidson, *The Greeks and Greek Love: A Bold New Exploration of the Ancient World* (New York: Random House, 2007), 184. On the absence of all manner of abduction scenes in the visual arts of the second half of the fifth century BCE, see Stewart, *Greek Sculpture*, 84–85; For a careful description of the additive colors on the statue group see ibid., 147.

Figure 34 Painting of Hades abducting Persephone, North wall of tomb at Vergina, pigments in fresco technique, Tomb I ("Tomb of Persephone"), c.350 BC, Museum of Royal Tombs of Aigai. The rights to the depicted monument belong to the Ministry of Culture and Sports. Grave I (Tomb of Persephone) falls under the jurisdiction of the Ephorate of Antiquities of Imathia, Ministry of Culture and Sports - Organization for the Management and Development of Cultural Resources. © Hellenic Ministry of Culture and Sports/Hellenic Organization of Cultural Resources Development. Photo: Courtesy Hariclia Brécoulaki.

on the Zeus and Ganymede pair.[172] All of these were excavated from fill layers but would have stood on the site in the fifth century BCE. The head of Zeus was found in a fill layer near the stadium in 1878, the base in 1938, the remaining pieces of the statue to which it fits in 1939, and the head of Ganymede was discovered in 1940.[173] Zeus's hair and full beard are painted the rich blue-black described in Greek texts as *kuanos*. His eyebrows, lashes, and irises are painted the same blue-black color, while his pupils are slightly darker. His flesh is painted deep reddish-brown,

172 On Athena's colors see Moustaka, *Grossplastik aus Ton in Olympia*, 20; on the warrior's colors see, Moustaka, *Grossplastik aus Ton in Olympia*, 34.

173 Blegen, *New Items from Athens,"* 478–479. Scientific analysis of the pigments has not yet been published, leaving the specific materials of the colors unidentified.

Figure 34 Detail, Painting of Hades abducting Persephone, North wall of tomb at Vergina, pigments in fresco technique, Tomb I ("Tomb of Persephone"), c.350 BC, Museum of Royal Tombs of Aigai. The rights to the depicted monument belong to the Ministry of Culture and Sports. Grave I (Tomb of Persephone) falls under the jurisdiction of the Ephorate of Antiquities of Imathia, Ministry of Culture and Sports - Organization for the Management and Development of Cultural Resources. © Hellenic Ministry of Culture and Sports/Hellenic Organization of Cultural Resources Development. Photo: Courtesy Hariclia Brécoulaki.

and he wears a darker red garment painted to look as if it has been embroidered with repeated images of Pegasus along its border. In his left hand, Zeus carries a staff. Under his right arm he carries the boy Ganymede, whose own bare flesh carries the slightly lighter tones of an *ephebe* (but not the pale pigment associated with female flesh). Ganymede's hair and eyes are reddish-brown and he carries a rooster painted red, presumably a gift from Zeus, in his left hand.

The site of Olympia evokes most readily its marble pediments depicting the chariot race of Pelops (east) and centaurs abducting Lapiths (west); the (lost) chryselephantine cult statue of Zeus, designed, like the Athena Parthenos in Athens, by Pheidias and identified as one of the seven wonders of the ancient world; or the Olympic Games hosted from eighth century BCE to the fourth century CE. But the site itself was richly variegated, housing bronze and

Figure 35 Zeus with Ganymede, terracotta with pigments, ca. 470 BCE, H: 1.10 m, Archaeological Museum, Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author.

Figure 36 Zeus with Ganymede (back view), terracotta with pigments, ca. 470 BCE, H: 1.10 m, Archaeological Museum, Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author.

Figure 37 Zeus with Ganymede (detail of heads and torsos), terracotta with pigments, ca. 470 BCE, H: 1.10 m, Archaeological Museum, Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author.

Figure 38 Zeus with Ganymede (detail of legs and base, with hem of repeating pegasi), terracotta with pigments, ca. 470 BCE, H: 1.10 m, Archaeological Museum, Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author.

terracotta workshops, as well as Pheidias's studio and objects and buildings produced in a range of materials.[174] For example, the architect Libon designed the structure of the temple of Zeus from local Elean limestone as well as marble from Paros and Penteli (Figure 39). Builders pieced together the structure from these three different materials – local limestone for the body, marble quarried on the island of Paros for the pedimental sculptures, and marble from the Pentele quarries in Attica for the rooftiles. The white stucco that once covered the limestone has traditionally been described as an addition to imitate marble and to create the false impression of a unified, monochrome white exterior. That stucco, however, served as part of the fitted-together polychrome surface of the building's *khrōs* and as the ground for added pigments, just as stucco is used as a ground for additive colors in other examples in this chapter.

Zeus' divinity shines forth from within his body through his painted hair and eyes.[175] Color in this context does not merely qualify the hair, beard, and eyes, but makes these features into the hair, beard, and eyes *of Zeus*. The beholder witnesses the shining color on the surface of the figure, produced through the application of pigment and a buffing agent, yet the figure appears to generate this shimmer from within. Color unifies surface and substrate by producing the effect of power and animation generated in the body itself and manifested on and through its surface.[176]

Zeus without *kuanos* is simply another man offering love gifts to a boy. *Kuanos* reveals Zeus's divinity to his audience, while simultaneously reinforcing the narrative that the image depicts. As the Homeric Hymn to Aphrodite narrates: "Wise Zeus seized Ganymede for his blond (*xanthon*) beauty. Now he lives among the immortal gods and pours wine for them in Zeus' house – amazing, a man honored by all the immortals, drawing the red nectar (*nectar eruthron*) from a gold mixing bowl."[177] Zeus abducts Ganymede to keep him on Mount Olympus to serve the gods the red (*eruthros*) nectar that keeps him and the other gods *kuaneoi*.[178]

Color choices on the sculptural group emphasize Ganymede's mortality in contrast to Zeus's immortality.[179] Ganymede's hair is the more

174 For an early reference to the seven wonders, see Diodorus Siculus *The Library of History*. II.1.2. On bronze production at Olympia, see Peter Bol, *Grossplastik Aus Bronze in Olympia.* (Berlin: De Gruyter, 1978). On excavation and conservation of this terracotta statue group and the terracotta warrior see Emil Kunze, *Neue Meisterwerke Griechischer Kunst aus Olympia.* Munich: Filser-Verlag, 1948 and Elizabeth Pierce Blegen, "New Items from Athens," *American Journal of Archaeology* 46 (1942): 477–484. Blegen describes Ganymede as "an attribute of the over-powering form of Zeus" (481). For an analysis synthesizing decades of excavation, see Moustaka, *Grossplastik aus Ton in Olympia*, 42–45, Figures 33–39. For the site and archaeological museum, see Nikolaos Gialourēs, *Olympia: Altis and Museum*, 7th ed. (Athens: Art Editions Meletzis & Papadakis, 1985), which reproduces the terracottas in color and the marble in black and white. On the holistic analysis of Olympia, see Judith Barringer, "Olympia: More than Meets the Eye," *Classics Ireland* 19–20 (2012): 26–49.

175 For a discussion of luster and image-animation, see Rebecca Zorach, *Blood, Milk, Ink, Gold: Abundance and Excess in the French Renaissance* (Chicago: University of Chicago Press, 2005), 195. In the Mesopotamian context, see Irene J. Winter, "Gold! Light and Lustre in Ancient Mesopotamia," in *Proceedings of the 7th International Congress on the Archaeology of the Ancient Near East*, ed. R. Matthews and J. Curtis (Wiesbaden, Harrassowitz Verlag, 2012), 153–171. Casanova, "Le Lapis-Lazuli, joyau de l'orient ancien," 169–190. Aruz, Benzel, and Evans, *Beyond Babylon*, 191–193. Winter, "The Aesthetic Value of Lapis Lazuli," 43–58.

176 On absence and presence in Greek sculpture, see Neer, *The Emergence of the Classical Style in Greek Sculpture*, 28.

177 Rayor, *The Homeric Hymns*, 81–82.

178 Hom. *Hymn to Aphrodite* 207. Although contemporary notions of consent were not active in the ancient Mediterranean, especially with respect to the gods and others in power, the consistent gloss of abduction obscures the subsequent rapes that the abduction precedes and our sanitizing reception of this tradition normalizes this violence. On this, see Diane J. Rayor, *The Homeric Hymns* (Berkeley: University of California Press, 2004), 10–11; Ella Gonzalez and Cynthia Coburn, "How to Teach Ancient Art in the Age of #metoo," *Hyperallergic*, September 5, 2018; Rebecca Levitan, "A 'Rape' by Any Other Name: Against teaching Abductions in Ancient Art," *Journal of the History of Ideas Blog*, May 6, 2019, https://jhiblog.org/2019/05/06/a-rape-by-any-other-name-against-teaching-abductions-in-greek-art-2.

179 Davidson, *The Greeks and Greek Love*, 170–200, has argued that the popularity of Ganymede's story derives primarily from his role serving red nectar to the gods,

Figure 39 Limestone column drums from the Temple of Zeus, Olympia, 470–457 BCE © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo: Samuel Magal/ HIP / Art Resource, NY

common light reddish-brown. In some accounts and depictions, as in a red-figure bell krater now in the Louvre, he is depicted as *xanthos* (yellow-orange-haired), as described in the Homeric Hymn which further emphasizes his lack of *kuanos* (Figure 40).[180] The different hair colors and skin tones used on the Zeus and Ganymede sculpture mark, in much the same way as their different sizes, their distinct ages, and statuses.[181]

which sets him apart, both physically and experientially, from other mortals.

180 Musée du Louvre, Paris, G175; Hom. *Hymn to Aphrodite* 202. In both the statue from Olympia and on the krater now in the Louvre, Ganymede's hair is painted a lighter shade than Zeus's hair and full beard to mark his difference from the god.

181 Whitney Davis, "Winckelmann's 'Homosexual' Teleologies," in *Sexuality in Ancient Art*, ed. Natilie B. Kampen (Cambridge: Cambridge University Press, 1996), 262–276.

Here again, color as *khrōs* does not mimetically represent the flesh of the boy Ganymede or the unseeable god Zeus, but it marks out distinctions between bodies in codified ways.

In addition to the Zeus and Ganymede statue, archaeologists found fragments of other terracotta statues, indicating that the site once teemed with many different materials and colors. Artists painted a statue of a warrior with white, red, yellow, and black pigments (Figures 41 to 43), and a head of Athena with black eyes, brows and hair, red lips, and disc earrings and a painted flower-crown of the sort Sappho's poetry invites us to picture. Excavated in the late nineteenth and early twentieth centuries, these material colors have been visible since the statue's discovery and reassembly but once again, the terracotta base material has meant that these additive

Figure 40 Berlin painter, Attic red-figure bell krater depicting Zeus and Ganymede, Side B. Ganymede, 490–480 BCE, Fired terracotta with yellow-orange pigment, H: 33.7 cm; D: 39 cm, Louvre Museum, Paris, Inv. G175 © RMN-Grand Palais / Art Resource, NY. Photo: Stephane Marechalle

colors did not alter dominant art historical narratives of unpainted, monochrome, marble sculpture. The Bluebeards have also been known since the nineteenth century. And yet all this *khrōma* has not shifted the emphasis on form and iconography in teaching and studying sculpture. Despite the additive colors of their surfaces, these sculptures have not countered the story of white monochrome forms, because of their non-marble substrates. Ongoing scientific research, however, continues to demonstrate repeatedly that marble sculpture was also painted, even in the most canonical spaces, such as the Parthenon. In addition, both the Bluebeards and the Zeus and Ganymede are from sites that have been central to the story of the whiteness of the ancient Mediterranean – Athens and Olympia. The material colors of the Bluebeards could be bracketed not only because of their limestone material support, but also because they predate the fifth-century Acropolis buildings, so the whiteness of the short-lived Greek democracy

Figure 41 Male figure (front view), early fifth century BCE, Terracotta with pigments, H: 1.05 m, Archaeological Museum of Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author

Figure 42 Male figure (back view), early fifth century BCE, Terracotta with pigments, H: 1.05 m, Archaeological Museum of Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author

Figure 43 Male figure (detail, back of legs), early fifth century BCE, Terracotta with pigments, H: 1.05 m, Archaeological Museum of Olympia. © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo by author

could be held up against the vibrant colors of earlier aristocratic control. At Olympia, the many pigments that remain on the terracotta statues suggest that the iconic marble pediment sculptures would also have been painted. The local Elean limestone of the temple itself (in comparison to the Parian marble of the sculptures) is regularly noted as an assertion of local political presence, so that even without taking into account the building's additive pigments and metal attachments, its different materials fitted together to form a substructure with variegated colors. Attention to different materials and color-parts makes visible a vibrant world of material colors.

When we trace the story of material colors, both of substrates and surfaces, we find endless variegation (*poikilia*), even in the most canonical spaces. The Bluebeards, Hades, and the Zeus and Ganymede pair each demonstrate the widespread practice of adding material colors to the surface of statues. The additive colors joined with the material colors of the substructure to form each object, building surfaces and joining together material color-parts to form polychrome assemblages.

Chapter 2

ADDITIVE COLORS, *KOSMĒSIS*, AND CARE

On sunday, september 2, 1934, the *New York Times* announced the discovery of a stack of wooden panels painted with vibrant colors (Figures 44 and 45). Anastassios Orlandos had found these small panel paintings deep inside a cavern lined with stalactites, at Ano Pitsa, near Corinth, in the Peloponnese. The headline read "Plaques Found at Pitsa: Blue, Yellow and Green Shown on Painted Wood."[1] Its emphasis on the colors painted onto the wooden panels positioned the discovery within ongoing debates about the presence or absence of colors in ancient Mediterranean art and language. Orlandos's discovery of material colors on partly intact paintings merited column inches in a newspaper across the Atlantic for several reasons. First, antiquarian debates as well as academic research about colors in ancient Mediterranean art had continued unabated into the early decades of the twentieth century.[2] Second, despite the celebration of ancient Greek painting by ancient authors writing in Greek and Latin, comparatively little material painting survives in the archaeological record. In 1934, that corpus was even smaller than it is

1 Special Correspondence, *New York Times*, September 2, 1934. Publication of recent conservation of the paintings from Ano Pitsa by Hariclia Brecoulaki and others is forthcoming in 2023. For detailed images and initial conservation findings from this research, see Hariclia Brécoulaki, Giovanni Verri, Brigitte Bourgeois, Francesco Paulo Romano, Andreas G. Karydas, Claudia Caliri, Elena Martín González, and Giorgos Kavvadias, "The "lost art" of Archaic Greek painting: revealing new evidence on the Pitsa *pinakes* through MA-XRF and imaging techniques" *Techne* 48 (2019): 34–54.

2 On the impact of the world wars on polychromy studies, see Vinzenz Brinkmann et al., *Gods in Color: Painted Sculpture of Classical Antiquity* (Cambridge, MA: Harvard Art Museums, 2008), 23 and Raimond Wünsche, "Vorwort," in *Bunte Götter*, ed. Vinzenz Brinkmann, Ulriche Koch-Brinkman, Heinrich Piening (Munich: Biering and Brinkman, 2003), 18–19.

Figure 44 Painted panel from Ano Pitsa, wood, gypsum plaster, pigments, L: 32.3 cm x W: 15 cm, National Archaeological Museum, Athens Inv.14646. © Hellenic Ministry of Culture and Sports– Archaeological Receipts Fund. Photo: AK-G

today.[3] Third, Euro-American nation-states had long claimed and constructed an intellectual, structural, and material genealogy back to ancient Greece, and this faraway discovery of ancient Greek colors – blues, yellows, and greens – undermined the dominant impression of monochrome edifices.[4]

The painted panels remained in storage in the National Archaeological Museum in Athens until recent conservation work enabled their display. The additive colors of these wooden panels offer a material example of ancient Greek painting, including at least eight different colors. These additive colors alone did not form the painting. Ancient painters layered on white gypsum plaster (calcium sulfate dihydrate) mixed with an organic binder on top of the wood, possibly pine, which had been cut into small rectangular panels.[5]

3 On the state of research on ancient Greek painting, see Dimitris Plantzos, *The Art of Painting in Ancient Greece,* (Athens, Greece: Lockwood Press, Kapon Editions, 2018), 19–41 and on the panels from Ano Pitsa specifically, 87–89.

4 Hanink, *The Classical Debt*, 14–15. A. G. Woodhead, "SEG 23–264. Pitsà. Dedicationes Nymphis, c. a. 540/25a.", in *Supplementum Epigraphicum Graecum*, A. T. E. N. Chaniotis Corsten Stavrianopolou Papazarkadas, eds. Consulted online at http://dx.doi.org/10.1163/1874-6772_seg_a23_264.

5 Brecoulaki et al., "The 'Lost Art' of Archaic Greek Painting, 19; Technical analysis of the panel took place in 2009–2010; NAM numbers: Panel A: 16464; Panel B: 16465; Panel C:

Figure 45 Panel painting from Ano Pitsa, wood, gypsum plaster, pigments, National Archaeological Museum, Athens, Inv. 16466 © Hellenic Ministry of Culture and Sports– Archaeological Receipts Fund. Photo: AK-G

On top of the plaster, the artists applied black and red contour lines and superimposed the different pigments. Some of the materials composing the pigments have been identified, black (charcoal), blue (Egyptian blue), red (hematite, cinnabar, realgar), green (yellow ochre and carbon black), yellow (yellow ochre), while some of the colors – white, purple, and brown – await additional published chemical analysis, a testimony to the meticulous labor of analyzing colors and the resources that it demands. The additive colors of these paintings demonstrate not only the abundance of pigments in use in the sixth century BCE, but also the materiality of those pigments – their role in making up the forms of each painting, in combination with the wood and gypsum.

By layering and juxtaposing pigments and materials, the painter depicted scenes of procession, sacrifice, and dancing in connection with a rural cult of the nymphs.[6] After the wood was cut for the panel, an artist added gypsum to build up the support, and finally added colors to form its images. Within this example and the other panels, the painter used gendered color conventions, scaled age conventions, and Corinthian letters to label different figures in the scene. At the far left, a single bearded adult man holding a branch of myrtle can be observed under conservation imaging.[7] Women dressed in blue garments edged with embroidery and red mantles wear headpieces or laurel crowns and carry bundles of wheat. The painter used a gendered convention, rooted in ancient Egyptian painting, of white for female skin and dark orange (hematite mixed with gypsum) for male skin.[8] The painter also used scale to differentiate adults from boys. Above the procession, they painted Corinthian letters in a Doric dialect across the top and around the right edge of the scene. On the basis of these letterforms, the group of paintings has been dated to the mid-sixth century BCE.[9]

The procession seems to depict a scene of ritual practice, so that the painting and the embodied experiences of those dedicating it may have aligned and inflected each other, not as a document of those practices, but as an interplay of sensory experiences.[10] The lead woman balances a tray with two oil flasks on her head with one hand and with the other hand pours from a jug (*oinoichoe*) onto the altar. Red daubs of paint run down the altar, signifying another liquid – blood – suggesting traces of previous sacrifices and regular use of the altar. Ancient Mediterranean artists regularly depicted blood in additive pigments, mosaic stones, and inlays and alloys.[11] A boy wearing a laurel crown

16466; Panel D: 16467. On wooden panels for painting, see Theophrastus *Hist. Plant.* 2.9.7; 5.7.4; Pliny *NH* 35.118, *NH* 35.77, cited in Brecoulaki "The 'Lost Art' of Archaic Greek Painting," 18, pending scientific analysis of the wood.

6 Theodora Kopestonsky, "The Greek Cult of the Nymphs at Corinth," *Hesperia* 85 (2016): 711–777.

7 Brecoulaki et al., "The 'Lost Art' of Archaic Greek Painting," 47.

8 Ibid., 39.

9 Brecoulaki et al., "The 'Lost Art' of Archaic Greek Painting," 15. On the epigraphy, see A. G. Woodhead, "SEG 23–264. Pitsà. Dedicationes Nymphis, c. a. 540/25a," in *Supplementum Epigraphicum Graecum,* ed. A. T. E. N. Chaniotis Corsten Stavrianopolou Papazarkadas; On conservation analysis of the letters, see Brécoulaki et al., "The 'Lost Art' of Archaic Greek Paintings," 13–14; A. D. Rizakēs, *Achaïe III: Les Cités achéennes: épigraphie et histoire* (Athens: Centre de Recherches de l'Antiquité Grecque et Romaine, Fondation Nationale de la Recherche Scientifique, 2008), 248–254. Historically, texts and their material supports and associated images have been studied and published separately, although recent research has begun to correct that division between text and image – attending to the importance of the texts in the images themselves, and the materiality of texts. See Dimitris Plantzos, "Beyond Mimesis: Reflections on the Early Greek Technologies of Looking," *AURA* 3 (2020): 73–99; Deborah Steiner, *Images in Mind: Statues in Archaic and Classical Greek Literature and Thought* (Princeton: Princeton University Press, 2001), 258–259.

10 Verity Platt and Milette Gaifman, "Introduction: From Grecian Urn to Embodied Object," *Art History* 41, no. 3 (June 2018): 403–419.

11 For example, see the experimental reconstruction (bronze re-cast) of the statue of a boxer from the Quirinal hill in Rome, in cooperation with the National Museum of Rome and the University Tor Vergata, Liebieghaus

leads a sheep on a red leash towards the altar. After painting the woolly sheep, the painter layered the red leash around its neck. Following a sacrifice, the wool from a sheep might be shorn, spun, and woven into cloth ready to be dyed, like the red mantles across the women's shoulders. Two young boys hold musical instruments – one in red plays a double flute, and a red headpiece attachment helps to keep the long instrument near his mouth; the other in blue carries a lyre with a handle painted in the same arsenic-based pigments used for the embroidered borders of the women's garments.[12] His fingers show through between the strings of the lyre. The other three panels, which are less well preserved, also include many bright garments edged in embroidery and colorful beads and depict a world of colorful material adornment.[13] Each of these panels is fitted together from wood, gypsum, and vivid material colors.

Despite the headline-worthy preservation of these pigments, the discovery of the painted panels did not write colors back into the history of ancient Mediterranean art. These vivid colors failed to revise old tropes of monochrome white Greek art partly because these panel paintings did not conform to received notions about what ancient Greek painting should be since they are small, their artists are not recorded in classical texts, and they depict women and boys engaged in personal ritual, rather than scenes of well-known myths or historical battles. Examples of ancient Mediterranean painting remain comparatively rare and are identified more often through dematerialized textual accounts of physically absent paintings, in rhetorical feats that mobilize paintings as vivid description (ekphrasis), or as citations of panel paintings by vase-painters working on fired ceramic with a more limited palette. These texts and visual citations do not capture or describe the range of vivid additive colors preserved on the wooden panels found at Ano Pitsa.

After the transfer of the panels to the National Archaeological Museum, the best-preserved plaque was copied and that version put on display. The originals were placed in the museum's storage for more than seventy years, a location which preserved their material colors. With the renovation of the National Archaeological Museum in 2007, and amid a renewed engagement with the material colors of ancient Mediterranean art, researchers have resumed work on the four panels. Scientific analysis (2009–2010), led by Hariclia Brecoulaki and a team of conservation scientists in Athens, used non-invasive imaging techniques to discover new information about the materials that the ancient painters used to produce these panel paintings. The survival of these panel paintings, newly documented with digital photography, affords us the opportunity to recognize the additive colors that compose them. .[14]

Although we tend to describe painting as two-dimensional, these panels show the material depth of each layer – the wood, the gypsum, and each mark of pigment – all of which take up space. In particular, the paintings show the additive colors through which their shapes and forms have been built up. We can understand additive color-layers not as mere surface, but as

Polychromy Research Project, www.stiftung-archaeologie.de/reconstructionsen.html. On archeometric investigations of the boxer, especially of the missing inlaid eyes, see Olimpia Colacicchi Alessandri, Marco Ferreti, and Edilberto Formigli, "Locchio pesto del pugile: Indagini archeometriche sulla statua in bronzo del Museo Nazionale Romano" in Formigli ed. *Colore e luce*, 25–31.

12 Brecoulaki et al., "The 'Lost Art' of Archaic Greek Painting," 41, fig. 6b.

13 Ibid., 18–19. While the other paintings stacked together with this one in the cave are considerably less well preserved, conservation analysis by Hariclia Brécoulaki and team has recovered some important details. For example, the single preserved figure from panel 16466 wears a blue peplos with detailed and layered embroidered borders, as well as a necklace of blue and yellow beads.

14 Ibid., 36–37.

constitutive parts of the painting. While additive colors are acknowledged as necessary to painting, they have not been understood as equally essential to what makes up a sculpture. Just as additive colors constitute surface and depth in the context of painting, they also constitute parts of the forms of painted sculpture. These additive colors on panels and sculptures require care and maintenance to survive and this has contributed to their absence from the visual record. This chapter takes up the entwined relationship between color and care.

Once we understand material color to constitute forms, we can connect the additive pigments of the panels from Ano Pitsa with other objects and media that are made up of material color and similarly demand care.[15] In the best-preserved panel, the women wear red mantles over blue dresses, layered with pigments to show the embroidered patterns and borders of their clothing. The representation of the mantles in polychrome pigments gestures to another medium in which artists produced material colors, the dyed, stitched, and woven textiles themselves. These pigments depict the sort of variegated borders listed on the sanctuary dedications to Artemis Brauronia: "Nausis, a woman's himation, broad-purple bordered, wave-patterned. Kleo, a shawl. Phile, a bordered garment."[16] Whereas the list names and marks dedications, different dyes, their fabric supports, and adornments threaded into the textiles, the panel painter depicts the deep colors of cloth and fine borderwork through additive colors. Both the paintings and the list of dedications reproduce the material colors and variegation of textile production by different means and materials.

The material colors of both panel paintings and textiles were widespread in antiquity, but both media are poorly preserved in the archaeological record and now must be reconstructed from patches, traces, and threads. Polychrome textiles adorned living bodies and also statues and buildings, as in the examples of the list of textile dedications to Artemis Brauronia in Athens, of paintings of ribbons tied onto *gravestelai*, or the annual renewal of the *peplos* woven to adorn the ancient wooden statue (*xoanon*) of the goddess Athena at the Panathenaiac festival in Athens. A painted terracotta oil flask (*white-ground lekythos*), for example, depicts family members preparing to visit the grave of a loved one with a basket filled with red ribbons, a wreath, and small oil vessels (*aruballoi*), objects that comprised part of the ongoing care that graves received from the living (Figure 46).[17] Loss of colors over time excises the history of adornment (*kosmēsis*) and care that were essential to the maintenance of material colors.

The word *kosmēsis* (adornment) derives from the verb *kosmeō*, which has an array of related meanings. The prototypical meaning is "to order or arrange," and is often used to describe ordering an army.[18] It can also be used more generally to mean arranging or preparing. In other contexts it can mean "to rule" or "to hold office" (*ta kosmoumena* means "orderly institutions [of government]"). *Kosmeō* can also mean "to adorn, equip,

15 See Jennifer Stager, "Toward an Archaeology of Care" in Carl Knappett and Christopher Watts eds., *Ancient Art Revisited: Global Perspectives from Archaeology and Art History* (London: Routledge, forthcoming 2023), 243–276.

16 Athena Kirk, *Ancient Greek Lists* (Cambridge: Cambridge University Press, 2021), 148–149.

17 Metropolitan Museum of Art, New York, 1989.281.72. On the practice of painting ribbons on uncarved *gravestelai* (as if tied around the stone), see Seth Estrin, "Objects of Pity: Art and Emotion in Archaic and Classical Greece," ProQuest Dissertations Publishing (2016): 88–89. Richard Posamentir, *Chersonesan Studies 1: The Polychrome Grave Stelai from the Early Hellenistic Necropolis* (Austin: University of Texas Press, 2011), 15, 20, 23–25, 28, 34–36, 40–41, 49, 59, 73–74, 78–82, 92., nos. 2, 7, 10, 11, 12, 15, 23, 24, 25, 29, 31, 40, 51, 64a, 65, 66, 70, 71–75, C11, C21, C44.

18 Chantraine, *Dictionaire*, 549, s.v. *kosmeo*; Henry George Liddell and Robert Scott, *An Intermediate Greek–English Lexicon* (Oxford: Clarendon Press, 1994), 984–985, s.v. "kosmeo."

Figure 46 Attributed to the Timokrates Painter, *White-Ground Lekythos*, 470–460 BCE, Terracotta with pigments, 35.6 × 12.1 cm (14 × 4 3/4 in.), 84.AE.745, The J. Paul Getty Museum, Villa Collection, Malibu, California

or dress."[19] Each definition inflects the others. Although *kosmein* gives rise to the modern English term cosmetics, in antiquity it is also connected with ideas of military strategy and order. This relationship between *kosmēsis* and order appears in Aristotle's discussion of literary structure in the *Poetics* (the same text in which he describes black and white as primary colors), where he deploys the metaphor of painting to advance his argument: If a person were to pour onto a canvas the most beautiful colors, but without order, it would not please as much as an image painted in white.

Although Aristotle's primary concern is language and plot, not pigments and paintings, modern interpreters in search of texts about ancient Mediterranean color generally take Aristotle's description of painting with a white mark (*leukographia*) to indicate that the philosopher favored form over colors. James Porter demonstrates a through-line from this passage to Kant's much later dismissal of color as charm, which, Kant argues, might damage the judgment of taste by distracting from pure form.[20] Porter has also demonstrated the outsized role that Aristotle and his teacher Plato have played in the reception tradition of aesthetics. This reception history of Plato and Aristotle, coupled with Kant's own foundational position for the discipline of art history, suggests that an interpretation of Aristotle's metaphor as establishing a form/color hierarchy has been retroactively applied to ancient Mediterranean art.

Once again, a post-Newtonian understanding of the spectrum informs this emphasis on the material color of the white line as distinct from the material colors to which Aristotle compares it. Considered material colors, white and black were at times also considered the primary colors (see discussion in Chapter 1).[21] In Aristotle's metaphor, an unidentified artist covers a canvas in two possible ways: the first, less pleasing method involves pouring out (or smearing) various beautiful colors without order (*khudēn*); the second, more pleasing method involves painting with white

19 *Kosmein* can also mean to perform funeral rites, specifically to sprinkle the tomb with dust and pour libations to adorn the space of the dead and also describes men arranged for battle, institutions and persons arranged to govern effectively, women arrayed for view, tombs adorned for the dead and the gods, as well as the dead buried in their tombs.

20 "Aristotle's interest in color is secondary and negligible, as at *Poet* 4.1448b19." Porter, *The Origins of Aesthetic Thought in Ancient Greece*, 95 and n88. Porter adds additional texture to this analysis on 250n254. John Gage also interprets this passage as expressing a preference for white line over colors, on which see John Gage, *Color and Culture: Practice and Meaning from Antiquity to Abstraction* (Berkeley: University of California Press, 1993), 15. For his critique of color as charm, see Immanuel Kant, *Critique of Judgment*, translated and with an introduction by Werner S. Pluhar, (Indiannapolis: Hackett, 1987), 14. Gage, *Color and Culture,* 30. Bradley understands Aristotle's analogy to inform the precedence that Pliny gives to form. Bradley, *Colour and Meaning,* 94. On the significance of Plato and Aristotle to later theories of color, see Liz James, *Light and Colour in Byzantine Art* (Oxford: Clarendon Press, 1996), 53–61. Aristotle's passage constitutes an initial call to arms for what would later become battles over *disegno* and *colore* in the fifteenth century CE. Among the champions of *disegno* were Florentine painters, while Venetian painters who advocated *colore* were aligned with the production of matter and flesh. See Rebecca Zorach, *The Passionate Triangle* (Chicago; London: University of Chicago Press, 2011), 137. In her penetrating exploration of the conflict between *disegno* and *colore* in fifteenth-century Italy and seventeenth-century France, Jacqueline Lichtenstein writes "color has the same relation to drawing that the body had to discourse in rhetoric: the same uncomfortable place that Platonic metaphysics assigned to the visible and its images," Lichtenstein, *The Eloquence of Color: Rhetoric and Painting in the French Classical Age* (Berkeley: University of California Press, 1993), 6. In the chapter "The Aristotelian Shield," Lichtenstein reiterates the hierarchy of plot/characters and form/colors, writing: "[Aristotle] illustrates this hierarchy by a comparison with painting on the theme of *ut pictura poesis* that he frequently develops in the *Poetics*," before she quotes 1450B and continues, "drawing's preeminence is a legitimating example that Aristotle uses constantly to justify plot structure's primacy in the story. The comparison operates only in one direction, relating poetry to painting, plot structure to drawing, characters to color, as if the essence of pictorial representation goes without saying and is an ultimate reference that, itself, needs no legitimation." Lichtenstein, *Eloquence of Color*, 59.

21 *De Sensu*, 4.442a 20–25; Sassi, "Perceiving Colors," 271.

(*leukographere*) against a contrasting color.[22] Aristotle's analogy records a preference for order, both visual and textual (his main concern). The contrast is in *how* colors are placed on the canvas, not *whether* colors are or should be used.

The qualifier that Aristotle uses to describe disorderly colors, *khudēn*, is an uncommon word meaning "in floods or heaps" and interpreted as "without order, at random, promiscuously"; "in flowing language" (i.e. in prose); and "abundantly, wholly, utterly."[23] Built into these definitions is a set of assumptions about abundance and (lack of) order. Heaps of beautiful color offer less pleasure than a white mark. Aristotle's priority is not to elevate the color white above other pigments, but to emphasize the importance of artistic structure. His preference for ordered colors fits well within a broader materialist tradition in which artists produce paintings, buildings, and sculptures through assemblage. Layering, mixing, and piecing together material colors with structure, as Empedocles argues, creates forms.[24]

Care labor maintains the pleasing order of fitted-together material colors. While not the exclusive purview of women, both adornment and care labor have been feminized, and their erasure contributes to the erasures of feminized bodies and practices from the material record of the ancient Mediterranean. The additive colors on the small wooden panel paintings from Ano Pitsa survive because of their original placement deep inside the cave, their decades in closed storage, and finally their recent conservation anaylsis. Each of these moments of care, ancient and modern, can be considered acts of *kosmēsis*. Recovering material colors not only recovers the pigments, dyes, metals, and stones themselves, but also a set of practices in and around their use and care.

KOSMĒSIS

A polychrome marble container, or pyxis, one of several now in the collection of the National Archaeological Museum in Athens, encapsulates enduring characterizations of additive colors as cosmetic and matter as feminized (Figure 47).[25] Dating to the fifth century BCE, this object was used to store jewelry or small objects of adornment. Traces of the pigments that the ancient artist added to the outside of the marble container remain visible today, crafting images of a four-horse chariot and driver on either side. Conservation scientists have identified a variety of material colors: carbon, hematite, cinnabar, goethite, orpiment, lead white, gold leaf, and lapis lazuli; deep red (hematite and cinnabar) forms three horses, while lapis lazuli forms the fourth and white marks their harnesses where gold leaf might once have been layered.[26] The vessel was

22 Although the unusual verb implies a contrasting ground, the verb does not, as the Fyfe translation suggests, insist on a contrast between black and white. Aristotle, *Aristotle in 23 Volumes*, vol. 23, trans. W. H. Fyfe (Cambridge, MA: Harvard University Press; London: William Heinemann Ltd., 1932); LSJ, s.v. "leukographeō.".

23 LSJ, s.v. "khudēn."

24 Empedocles B3; Ierodiakonou, "Empedocles on Colour and Colour Vision," 4; Porter, *The Origins of Aesthetic Thought*, 152–157, who emphasizes the importance of mixing to Empedoclean cosmology and Lucretian reception of Empedocles.

25 Hariclia Brecoulaki, George Kavvadis, and Giovanni Verri, "Colour and Luxury: Three Classical Painted Marble Pyxides from the Collection of the National Archaeological Museum, Athens," in *Transformations*, Jan Østergaard and Anne Marie Nielsen, eds. (Copenhagen: Ny Carlsberg Glyptotek, 2014), 155; Colors identified by conservators include carbon, hematite, cinnabar, goethite, orpiment, gold leaf, and lapis lazuli. National Archaeological Museum, Athens, A 11372. On the pyxis as a shape, see https://www.beazley.ox.ac.uk/tools/pottery/shapes/pyxis.htm.

26 On class and high value material colors, see Hariclia Brecoulaki, "Greek Polychromy and Painting: Material Aspects and Symbolic Values," *Revue Archaeologique* 1 (2014): 1–35.

Figure 47 Marble pyxis with added pigments, depicting four horses pulling a chariot and driver. (Face A), National Archaeological Museum, Athens. inv. A11363 © Hellenic Ministry of Culture and Sports– Archaeological Receipts Fund. Photo: Michele Asuni

Figure 48 Painted marble pyxis containing pieces of lead white. Archaeological Museum of Ancient Corinth MK 10866. © Archaeological Museum of Ancient Corinth—Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Corinth—Archaeological Receipts Fund. Photo courtesy of Vassilios Tasinos

designed to hold small objects for personal use. Contrasting hues and bright adornments form the horses, echoing polychrome horses on monumental architecture (e.g. Acr. 575). Encircling another marble pyxis, artists painted purple flowers with yellow-brown stems as well as two seated figures (poorly preserved) on its lid. The pigments on the exterior evoke the brilliant colors of the jewelry that the pyxis was designed to hold. The fact that the jewelry it might have contained would have been worn against the skin of the woman who owned it accentuates the polychrome movement between surface and depth, interior and exterior. Another painted marble pyxis excavated from a tomb context at Corinth preserves fewer pigments on its exterior, but contained chunks of lead white, a byproduct of silver mining that could be used as both an artist's pigment and as a cosmetic (Figure 48).[27] Personal lidded containers (*puxides*), are both objects of living women's *kosmēsis*, or adornment, and objects that received artistic *kosmēsis*.[28]

27 V. Tasinos and P. Kassimi, "Ancient Corinth, Anapnoa (Anaploga) A. Papathanassopoulos Plot, Exacavation of an Ancient Cemetery," in K. Kissas and W. D. Niemeier eds., *The Corinthia and the Northeast Peloponnese, Topography and History from Prehistoric Times until the End of Antiquity", ATHENAIA* 4, (Havertown, PA: Oxbow Books, 2013), 125–133. Dr. Tasinos kindly informs me that recent conservation analysis has determined that the pyxis is made of marble rather than of alabaster, as previously thought (pers. comm, October 13, 2021).

28 On pyxides see Sue Blundell and Nancy Sorkin Rabinowitz, "Women's Bonds, Women's Pots: Adornment Scenes in Attic Vase-Painting," *Phoenix* 62, no. 1/2 (2008): 115–144; Carl Knappett, "Lifting the Lid on the Materiality of Containing and Retrieving" in (Olivier Nieuwenhuyse †), Reinhard Bernbeck, Koen Berghuijs, eds. *The Development of Container Cultures in Southwest Asia* (forthcoming); Jennifer M. S. Stager, "Toward an Archaeology of Care," in Carl Knappett and

Additive colors are most easily lost to time, through lack of maintenance or proactive excision.[29] In Euripides's *Helen* (ln 262), the title character laments her cursed beauty and wishes to wipe it off (from *ex-aleiphō*) just as one wipes off the colors of a statue or painting. Analysis of this passage has often focused on the question of how to translate the word *agalma* (delight, statue, image), the object from which these colors are to be wiped off.[30] Some translators assumed that additive colors belonged to the world of paintings and not sculptures and so translated *agalma* as "painting".[31] More recent translators have rendered *agalma* as "sculpture" and this definition supports polychromy research focused on pigments added to sculptures.[32] Additive colors, that is those that can be added on and also wiped off, make up the outermost layers of an object. As this chapter argues, material colors were added to both paintings and sculptures and in this sense *agalma* is not the critical term in the passage. Instead, as conservation scientist Brigitte Bourgeois emphasizes, the critical term is the verb *ex-aleiphō* (plaster over, wipe off, destroy) which points to the adding on, wiping off, and potential for replacing colors on both paintings and statues.[33] Helen's metaphor highlights changes to colors over time and their emphemerality. Bourgeois names this the status of "duration" in the study of colors.[34]

Regular maintenance and care was and is a part of maintaining polychrome surfaces. Material evidence for ongoing care work can be particularly challenging to trace out. Mobilizing the ancient Greek term "care" (*therapeia*), Bourgeois has marshalled the scattered literary, epigraphical, and conservation evidence for ancient conservation and maintenance.[35] This evidence includes textual references, such as when Pausanias (5.14.5) describes the polishers (*phaidruntai*) who maintained the brilliant gleam of the gold and ivory cult statue of Zeus and the repair artists, such as Damophon of Messene, who fixed the ivory plates of the statue a century after its initial phase of completion. Administrative accounts for the Temple of Apollo at Delos (*Inscr. Délos* 400.44, *Inscr. Délos* 442B89, *Inscr. Délos* 442 B96) record the measurements of metal parts (fragments, shavings, particles) that had fallen from various statues.[36] The temple staff account for even small parts of these high-value metals in order to recycle and reuse them.

Although ancient repair and repainting can be particularly challenging to isolate, Bourgeois has identified two phases of color in a terracotta sculpture of Eros made in the second-century BCE and found in Priene, a preparatory layer of white topped by a layer of yellow, covered once again with a preparatory layer of white and a second phase of color in pink.[37] This stratigraphy of the surface shows not only different layers acting as part of the surface, but also the temporality of changes and repairs.[38] Although not focused on polychrome materials specifically, Rachel Kousser has also triangulated depictions of ritual activity on vases, epigraphic records, and

Christopher Watts, eds. *Ancient Art Revisited* (New York: Routledge, forthcoming 2023), 243–276.

29 In the context of color on the modern sculpture of David Smith, for example, Rosalind Krauss argued that Clement Greenburg not only excised pigments from some of Smith's sculptures, but also allowed pigments to weather without replacing them. Rosalind Krauss, "Changing the Work of David Smith" *Art in America* 62.5 (1974): 30–34. See an extensive analysis in Sarah Hamill, *David Smith in Two Dimensions: Photography and the Matter of Sculpture* (Oakland, CA: University of California Press, 2015), 127–128.

30 Oliver Primavesi, "Colourful Sculpture in Greek Tragedy," in *Transformations*, 72.

31 For example, Loeb edition "I wish I had been wiped clean like a painting and made plain instead of beautiful". On statue terms in ancient Greek see Catharine M. Keesling, "Greek Statue Terms Revisited: What does νδριάς mean?" *Greek, Roman, and Byzantine Studies* 57 (2017): 837–861.

32 Oliver Primavesi, "Colourful Sculpture in Greek Tragedy," in *Transformations*, 72.

33 Bourgeois "Thérapéia: Taking Care of Colour in Hellenistic Greece," in Østergaard and Nielsen eds., *Transformations*, 190–207, especially 203.

34 Ibid., 193. 35 Ibid. 36 Ibid. 37 Ibid., 197.

38 Ibid., 192–193, figs. 1–2.

associated artifacts to trace the dressing, bathing, and feeding of sculptures, as part of a larger study of the afterlives of Greek statues.[39] Both of these recent studies document the intersection of evidence for ongoing care and maintenance for works of ancient art, and the related (intentional or accidental) damage and reuse of artworks and their constituent material parts. Both attend to the complex stories of what follows an object's initial production, tracing the loss and adding back of polychrome materials over time, as well as activities related to maintenance and care. Often, the most transformative losses appear on the surface layer of an art object, its polychrome skin (*khrōs*). In recovering colors, we also recover ancient practices of *kosmēsis* (adornment) and the related care labor that maintaining colors demands.

Such *kosmēsis* extends to the painted statues representing young men and women that were dedicated by individuals who could afford to commission them throughout the ancient Mediterranean, including a number that stood on the Acropolis in the sixth to fifth centuries BCE.[40] While artists individuated each dedication within type, statues representing young men (*kouroi*) were usually naked, while those of young women (*korai*) were represented dressed in beautiful textiles and jewelry carved from marble or added as attachments (Figures 49, 50, 51, 52, 55, and 56).[41] Additive colors fully covered these sculptures, which were produced primarily from marble or at times from limestone. Ancient artists added colors and also inlaid or attached pieces of clothing, fibulas, buttons, belts, painted or attached jewelry, and headbands.[42] These carved, painted, and attached details offer some insight into the additional colors that would have circulated on textiles and jewelry in antiquity. The eyes of most statues were painted by artists, but a few had hand-crafted inlaid eyes (discussed in Chapter 4). Artists also painted the long, styled hair of the statues representing both men and women, and for the naked men these painted and carved styles extended not only to the hair on their heads, but also to their painted and carved stylized pubic hair patterns. Although the colors of the kouroi have only recently been reconstructed from traces, black-and-white photography made the individualized pubic hair patterns of male statues visible even prior to color reconstructions. In a recent reconstruction of the Tenea kouros, for example, Vinzenz Brinkmann and Ulrike Koch-Brinkmann have rendered the statue's skin a deeper orange-brown, his hair and eyes brown, his nipples decorated with copper sunbursts, and his star-shaped pubic hair in blue.[43] In short, these statues, many of which have been known since the nineteenth century, retain a significant number of paint traces, as well as evidence of added colors in metal, exemplifying the value of variegation (*poikilia*).[44]

One example of a statue representing a woman (Akr 681) stood on the Acropolis as a dedication in the late sixth century BCE (525–520 BCE). Artists painted her tightly curled hair with

39 Rachel Kousser, *The Afterlives of Greek Sculpture* (New York: Cambridge University Press, 2017), 49–53.

40 For a thorough review of the many sources, see Elena Karakasi, *Archaic Korai* (Los Angeles: J. Paul Getty Museum, 2004), as well as on the subject of recent study of the Lyon kore's polychromy, Brigitte Bourgeois, Giovanni Verri, Constantinos Vasiliadis, Ioanna Farmaki, "Scientific Investigation of the Polychromy of the Lyon Kore (ca. 540 BC)," in *Polychromy in Ancient Sculpture and Architecture*, ed. Susanna Bracci, Gianna Giachi, Paolo Liverani, Pasquino Pallecchi, Fabrizio Paolucci (Livorno: Sillabe, 2018), 59–73.

41 On individuation within type for the statues representing men, see Stewart, *Greek Sculpture,* Vol. 2, Figs. 42 and 43, and for statues representing women, see Karakasi, *Archaic Korai*.

42 Dimitris Pandermalis, *Archaic Colors* (Athens: Acropolis Museum, 2012), 1–16. Mary Stieber, *The Poetics of Appearance in the Attic Korai* (Austin: University of Texas Press, 2004), 42–82.

43 Vinzenz Brinkmann, Renée Dreyfus, and Ulrike Koch-Brinkmann, *Gods in Color: Polychromy in the Ancient World* (San Francisco: Fine Arts Museums of San Francisco, Legion of Honor, 2017) p. 29, Fig. 2.3, p. 120, Fig. 28.

44 Amy Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry* (Edinburgh: University Press, 2021), 36–49.

red pigments and patterns onto her carved disc earrings. They the lined the statue's eyes in black and inlaid them with a brilliant micaceous substance that still glimmers partially preserved in her sockets today. Artists painted the figure's dress with brightly colored patterns, like the painted garments of the woman on the panel paintings from Ano Pitsa. These traces of pigment and inlay make visible parts of the vibrant polychrome whole that the ancient statue would have presented, a whole that would have required not only elaborate initial preparation by artists (sculptors and painters working together), but also ongoing maintenance and care. Because the statues representing men are naked, they do not preserve as many extant pigment traces as the vivid textiles and jewelry adorning the statues of women, making this polychromy seem as though it could be more easily confined to women's *kosmēsis* and associated representations of women.

The parts of this statue of a woman were discovered over the course of the nineteenth century (the calves and left hand in 1882–1883 to the east of the Parthenon, the rest of her body and plinth in a pit northwest of the Erechtheion in 1886). Fourteen other statues were also discovered in the same pit as this statue. Most of them were similar but individuated marble figures of women dressed in richly patterned and brightly colored textiles and jewelry, with elaborately styled hair, painted skin, and makeup.[45] Along with these polychrome korai, the pit (colloquially called the "korai pit") contained objects of many different vibrant materials: marble plinths separated from their statues, bronze figurines, silver coins, and terracotta figurines, all of which were damaged in the sack of the Acropolis by the Persians in 480 BCE, and then buried during the rapid rebuilding on the site that followed.[46] This shallow burial offers another example of the care given to objects beyond the moment of their making and use and their burial allowed more of their ancient colors to endure.

Many of the other statues reassembled from parts found in the same burial pit and in surrounding excavation also preserve parts of their ancient colors. An example is the statue known as the "Peplos kore" (Akr 679, ca 530 BCE) on account of the elaborate garment she wears belted over a thinner chiton. Artists carved the statue from marble quarried and imported from the island of Paros, painted it with various pigments, some still extant, and added metal attachments, bringing stone carving, painting, and metalwork together to produce the statue. Holes at the shoulder mark where artists would have inserted bronze pins, as if gathering the fabric of the peplos together. The belt preserves traces of blue and green pigments, while the chiton beneath is blue with a green band at the neck, all visible using tools of spectrographic analysis.[47] Patterns of animals, rosettes, spirals, and flowers covered the peplos, traces of which remain visible to the eye today. A ribbon holds back her long curls and a circlet of holes would have allowed for a metal headpiece or crown and a central metal rod might once have held up a small covering or *meniskos*.[48] Metal earrings would have been placed in the holes in her ears. The statue retains traces of red pigment on her hair, eyes, and lips, while a darker pigment lines her eyes, brows, and pupils. The statue's right hand would have held something along her side, while her left arm would have been attached separately at the elbow, and is now missing, a reminder that many statues are built up from pieces even before pigment and metal color-parts are added. Different reconstructions presented by the Acropolis Museum in Athens, two variations

45 Ulrike Koch-Brinkmann, Heinrich Piening, and Vinzenz Brinkmann, "On the Rendering of Human Skin in Ancient Marble Sculpture," Østergaard and Nielsen, eds. *Transformations*, 141.

46 Kousser, *The Afterlives of Greek*, 104–105.

47 Pandermalis, *Archaic Colors*, 28–29.

48 For a textual reference to *meniskoi* in comedy, see Aristophanes *Birds*, 114–117.

Figure 49 Statue of a woman (*korē*), side view, 525–500 BCE, marble from Paros and Penteli with blue, black, and red pigments, bronze, glass, H: 2.05 m, Acropolis Museum, Athens, Akr 681, © Acropolis Museum. Photo Yiannis Koulelis

Figure 49 (*cont.*)

Figure 50 Statue of a woman (*korē*), upper front view, called "Peplos kore", ca. 530 BCE, marble from Paros with pigments and holes for metal attachments, H: 1.2 m. Acropolis Museum, Athens, Akr. 679, © Acropolis Museum. Photo: Sokratis Mavrommatis

Figure 51 Statue of a woman (*korē*), detail of face and head. Akr. 679, called "Peplos kore". ca. 530 BCE. Marble with pigments and holes for lost metal attachments. © Acropolis Museum. Photo: Sokratis Mavrommatis

Figure 52 Statue of a woman (*korē*), frontal view, marble from Paros with pigments, ca. 490–480 BCE, H: 1.19 m, Acropolis Museum, Athens, Acr. 684. © Acropolis Museum. Photo Yiannis Koulelis

Figure 53 Iris (West pediment N) from the Parthenon, marble from Penteli with traces of Egyptian blue at belt, 438 BCE–432 BCE, H: 135 cm, British Museum, London 1816,0610.96 © The Trustees of the British Museum

Figure 54 Iris (West pediment N) from the Parthenon, marble from Penteli with traces of Egyptian blue at belt fluorescing under UV light, 438 BCE–432 BCE, H: 135 cm, British Museum, London 1816,0610.96 © The Trustees of the British Museum

offered by the Stiftung Archaeologie team, and an older reconstruction proposed by Cambridge, suggest a range of possibilities for how the statue's vibrant colors might have looked in antiquity.[49]

49 Ulrike Koch-Brinkmann and Vinzenz Brinkmann propose a more specific identification of Artemis, reconstructing a painted vertical frieze of animals down the skirt of her garment (identified by them as an *ependytes*), a gold headpiece, and a bow in her left hand and arrows in her right. Brinkman, Dreyfus, and Koch-Brinkman, *Gods in Color*, 123. For several proposed reconstructions, see "Statue of a Kore: The 'Peplos' kore": www.theacropolismuseum.gr/en/statue-kore-peplos-kore; "Ex-Peploskore, Acropolis Museum Athens (Variant B)": www.stiftung-archaeologie.de/Expeploskore_B_fullsize.html; "Ex-Peploskore, Acropolis Museum Athens

Figure 55 Metope (South IV) from the Parthenon depicting a centaur striking a Lapith with a hydria, marble from Penteli with pigments and holes for missing metal attachments, 447 BCE–438 BCE, H: 126 cm, British Museum, London 1816.0610.3 © The Trustees of the British Museum

Many korai excavated in the nineteenth century have retained pigments visible to the naked eye – reds, blues, blacks, greens, yellows, gilding – as well as holes to attach gold, silver, and bronze jewelry.[50] Additive colors cached themselves in the carved folds of garments, the creases of flesh, and the twisting curls of their long hair. Burial of the Athenian korai further

(Variant C)": www.stiftung-archaeologie.de/Expeploskore_c_fullsize.html; "Peplos kore restored": https://museum.classics.cam.ac.uk/collections/casts/peplos-kore-restored

50 On the historiography of the korai, see Katerina Karakasi, *Archaic Korai* (Los Angeles: The J. Paul Getty Museum, 2003), 11–12, and Stieber, *Poetics of Appearance*, 13–41.

Figure 56 William Pars, Metope (South IV) from the Parthenon depicting a centaur striking a Lapith with a hydria, Drawing in brown ink on paper with red-brown wash, 1765–1766, British Museum, London 2013,5005.1.45 © The Trustees of the British Museum

protected their polychromy. That these marble statues were painted has never been in doubt. Because the statues represent women, and because color itself is associated with feminized matter and surface cosmetics, the additive colors on these statues were simultaneously highly visible and ignored. Their traces remain visible on the statues and have been studied since their discovery. Despite this visibility, the additive colors on these statues not shape a story of ancient Greek art that focused on the idealized male body and its politics. These additive colors have, instead, hidden in plain sight for more than a century.

In addition, both the freestanding korai and the caryatids holding up the roofed porch of the Erechtheion present female subjects. If colors and adornment could be confined to the domain of politically impotent women, *kosmēsis* and its material colors need not contaminate aesthetics. Research has shown that ancient artists also painted and gilded kouroi (frontal-facing, nude male statues) and their civic counterparts on, for example, the frieze and metopes of the Parthenon.[51]

As the Postclassicisms Collective has argued, "Our anxiety about matter, then, is also a particular anxiety about the feminine and the value system that we construct around matter reflects

51 Brinkman, *Bunte Götter*, 40–41, 66–69, 117–119, 121–125; Weglowska, "Paint and the Parthenon Marbles."

and perpetuates gendered hierarchies, arguably even the validity of gender itself."[52] The additive pigments of the korai were dismissed as too early and affluent (Archaic, aristocratic and thus subject to Eastern influence) and too feminized (images of women fully adorned). Although the personal dedication of korai ended by 500 BCE, the female figure of the *korē* found her civic instantiation holding up the porch of the Erechtheion, a fifth-century BCE temple associated with Athena Polias on the Athenian Acropolis. These caryatids, too, were likely to have been elaborately polychrome. Architects, sculptors, and painters, far from abandoning images of women and their vibrant material colors, created them as part of the public building programs of the fifth century BCE.

This raises the question of why the discovery in nineteenth century of the vibrant colors of these sculptures did not radically rewrite the history of ancient Mediterranean art. We can account for the intellectual erasure of their visible additive colors in several ways. First, the sculptures appear primarily in the context of private dedications by elite individuals, and their dedicators were often men for whom the statue might stand in as a sign, or *sēma*, but did not portray the dedicator in the sense of a portrait.[53] Their additive colors could be dismissed as the sort of Eastern luxury consumed by aristocrats prior to the production of what were understood as the monochrome white civic statues of the Athenian democracy. In this way the fifth century continued to be held apart, not just politically, but also aesthetically, from the choices of earlier elites. Ongoing research on the material colors used throughout the architecture of the Periklean Acropolis, however, soundly rejects the exclusive association of material colors with earlier and later art-making.[54] Evidence of the material colors that made up the colossal statue of Athena Parthenos, and the discovery of pigments and beeswax binder on the Parthenon that housed this polychrome statue demonstrate the *kosmēsis* of the entire Acropolis complex, which was once vibrantly polychrome.

Non-invasive conservation analysis performed at the British Museum has revealed traces of Egyptian blue on the statues of three reclining goddesses (K, L, and M) from the East pediment, as well as from the belt of the fragmentary figure representing Iris, the embodiment of the rainbow, and the winged messenger goddess, on the West pediment of the Parthenon (Figures 53 and 54).[55] In addition to pigments, holes for metal attachments also expanded the assemblage of colors on the Parthenon, shown in the reconstruction of colors on one of the metopes (Figures 55 to 57). The metope from the south side depicts one-on-one combat between a Lapith and a centaur, a mythological theme that artists also used as a visual metaphor for conflict between Greeks and non-Greeks.[56] Drilled holes indicate

52 The Postclassicisms Collective, *Postclassicisms* (Chicago: University of Chicago Press, 2019), 132.

53 Stewart, *Greek Sculpture*, 109–110; Richard Neer, *The Emergence of the Classical Style in Greek Sculpture*, 118–140; Karakasi, *Archaic Colors*, suggests that these statues are historical portraits, which does not seem likely.

54 Olga Palagia, "Architectural Sculpture," in *A Companion to Greek Art*, ed. Tyler Jo Smith and Dimitris Plantzos (London: John Wiley and Sons, 2012), 156–157; Kasia Weglowska, "Paint and the Parthenon Marbles: Conservation of Ancient Greek Sculpture," May 23, 2018, https://blog.britishmuseum.org/paint-and-the-parthenon-conservation-of-ancient-greek-sculpture.

55 A non-invasive luminescence technique developed by conservation scientist Giovanni Verri has revealed these traces, which are not visible to the naked eye. On the statue of Iris, see Giovanni Verri, "The Spatially Resolved Characterisation of Egyptian Blue, Han Blue and Han Purple by Photo-induced Luminescence Digital Imaging," *Anal. Bioanal. Chem.* 394, 1011–1021 (2009): https://doi.org/10.1007/s00216-009-2693-0; on the three goddesses on the East pediment, see Weglowska, "Paint and the Parthenon Marbles."

56 Most of the remaining parts of the metope are now in the British Museum, but the heads of both the Lapith and the centaur were removed from Athens and taken to Copenhagen where they remain in the collection of the

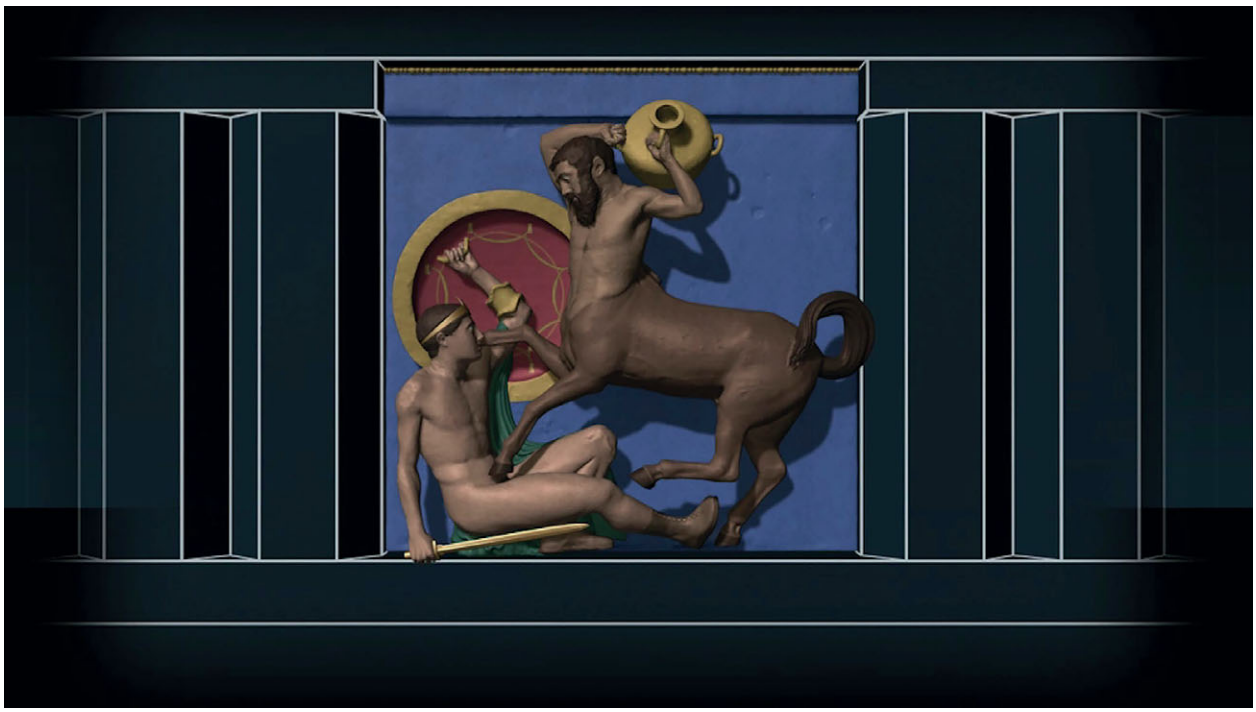


Figure 57 Color digital reconstruction of painted marble metope (South IV) from the Parthenon depicting a centaur striking a Lapith with a hydria, 447 BCE–438 BCE. © The Trustees of the British Museum

where metal was attached in antiquity and non-invasive imaging techniques indicate where pigments might have been added.[57] A digital reconstruction of the possible additive colors and metal attachments on the metope offers a corrective to the monochrome white form visible today.[58] The background of the scene is now painted blue. In the reconstruction, both Lapith man and centaur have medium brown hair and fur contrasting with lighter brown skin tones. The Lapith is naked expect for the brown boots he wears and the green chlamys over his left shoulder, a small part of which is sculpted, but the majority of which is rendered entirely in pigments. The centaur raises a water jar (hydria) over his head to bash against the fallen Lapith, now painted yellow, like the egg and reel pattern at the top of the frame. The interior of the Lapith's shield is painted. Finally, the headpiece and sword of the Lapith are attached in metal. This reconstruction recovers additive color in the form of pigments and metals on a single metope, allowing us to extrapolate across the whole structure.

Copenhagen National Museum, Denmark. Additional parts of the scene visible in a line drawing from 1684 were destroyed in the bombing of the Parthenon by Venetian forces in 1687.

57 For the two heads in the National Museum of Denmark, Copenhagem, see "Antiksamlingens historie": https://natmus.dk/organisation/forskning-samling-og-bevaring/danmarks-og-middelhavslandenes-oldtid/antiksamlingen/antiksamlingens-historie/.

58 A version of this digital reconstruction has been on display in the British Museum, while another is linked to in the following essay: "The British Museum, 'A Parthenon Metope: History and Reconstruction.'" *World History Encyclopedia*. Last modified February 7, 2016: www.worldhistory.org/video/679/a-parthenon-metope-history–reconstruction/.

SKIN

As a layer-part that joins together with other material color-parts to form assemblages,

additive color mobilizes the metaphorics of skin (*khrōs*) and surface, as discussed in Chapter 1, in combination with *kosmēsis* and care. Recovering additive colors and assemblage has, of necessity, emphasized the essential work of collecting empirical evidence for material colors, but this has often extended to interpreting these colors as a realistic rather than artistic representations of what they depict. In the context of Greek tragedy, Nancy Worman notes a related tension. She writes, "readers of Greek tragedy have tended to think about embodiment (when they think about it at all) as essentially naturalizing, which involves attempts to assimilate the ways in which the tragedies depict physicality and the senses to familiar understandings of human inhabitations, orientations, and feelings."[59] Instead, these dramatic bodies produce alternatives to naturalism for their embodied audiences. In much the same way, material colors extracted from the earth and worked by embodied artists for embodied beholders do not straightforwardly mirror their surroundings, but mediate the forms that they represent.

Examples of hammered bronze (*sphurelata*) statues make visible the essential role of surface-layers to the production of whole forms. In the seventh and sixth centuries BCE, artists working in the ancient Mediterranean produced statues by hammering sheets of bronze onto a sculpted wooden core (Figures 58 and 59).[60] Analogous to additive pigments on the surfaces of sculpture, ceramics, and panel paintings, this technique produces the surface (*khrōs*) of the statues through its outer layer of bronze.

Archaeologists at Olympia excavated bronze fragments of three korai (ca. 600–570 BCE) produced using the *sphyrelaton* technique from one of the two hundred wells installed around the athletic stadium to hydrate participants in the Olympic Games.[61] Reminiscent of the "korai pit" in Athens, the wells were reused by 475 BCE as burial places for objects no longer in use at the site.[62] Disassembled into parts, the bronze fragments of the korai were buried along with many different materials and objects. Although quite fragmentary, three korai have been reconstructed from the pieces of bronze hammered sheets which formed the outermost surface of each female figure.[63]

These female statues are particularly interesting not only because extant examples of this hammered bronze technique are rare, but also because the artists produced the korai using repurposed Near Eastern bronze friezes in combination with hammered and incised bronze sheets designed locally. Greek artists working at Olympia likely acquired these bronze sheets following the collapse of the Assyrian Empire in 612/609 BCE.[64] Artists working within the Assyrian Empire hammered and tooled images into the bronze sheets.[65] After the sheets were dismantled and transported to Olympia, artists cut parts of this Assyrian imagery out of the

59 Nancy Worman, *Tragic Bodies: Edges of the Human in Greek Drama* (London: Bloomsbury Press, 2020), 8.

60 Richard Neudecker, "Sphyrelaton," in Hubert Cancik and Helmuth Schneider eds., *Brill's New Pauly, Encyclopaedia of the Ancient World* (Leiden; Boston: Brill, 2002). Described in Pausanias, *Description of Greece* 3.17.6.

61 On this technique, see Carol Mattusch, *Greek Bronze Statuary: From the Beginnings through the Fifth Century B.C.* (Ithaca, NY: Cornell University Press, 1996), 41–42. On the bronze korai from Olympia, see Brigitte Borell and Dessa Rittig, *Orientalische und Griechische Bronzereliefs aus Olympia: Der Fundcomplex aus Brunnen 17* (Berlin: W. de Gruyter, 1998), 1; Eleanor Guralnick "A Group of Near Eastern Bronzes from Olympia," *American Journal of Archaeology* 108 (2004): 187–222, and Marian Feldman, *Communities of Style, Communities of Style* (Chicago: University of Chicago Press, 2014), 141–146.

62 Feldman, *Communities of Style*, 144.

63 I follow Guralnick's dating, established in "A Group of Near Eastern Bronzes from Olympia," 215–218.

64 On the date by which the bronze friezes left their Near Eastern context, see ibid., 218–220, and Feldman, *Communities of Style*, 145.

65 Borell and Rittig, *Orientalische und Griechische Bronzereliefs aus Olympia*, 19.

Figure 58 Fragments of bronze reliefs held together by visible rivets including registers of animals, winged genies and Assur, and a procession of animals repurposed into sphyrelata korai at Olympia, ca 610–570 BCE © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo: Paul Feldman

bronze in order to reuse it in the korai. Marian Feldman describes this transfer of the bronze sheets as an "opportunistic distribution of Levantine artworks."[66] In their original context, these sheets might, as Eleanor Guralnick has argued, have wrapped wooden posts framing a doorway.[67] If so, the sheets first built up the form and surface of part of a building before they were repurposed at Olympia to build up the form and surface of female bodies, continuing the practice of piecing and fitting together material parts from one type of body to the next.

The extant fragments preserve primarily the lower portions and dress of each figure, but a few small fragments of bronze faces, hair, and arms remain. Another *sphyrelaton* excavated from Olympia, a winged figure, preserves its inlaid bone eyes, suggesting that these korai also once had inlaid eyes produced from materials that were fitted together.[68] The fragment of an arm with a wide chain bracelet indicates that the statues wore jewelry. For their dresses, bronze sheets were joined both vertically and horizontally to produce patterns that evoke the rich variegation of textiles.

To produce the textiles worn by the korai, the artists at Olympia cut some parts of the Near Eastern sheets and then they melted down the rest of the bronze to hammer it out again and

66 Feldman, *Communities of Style*, 142.

67 Guralnick, "A Group of Near Eastern Bronzes from Olympia," 204–209; and Feldman, *Communities of Style*, 142.

68 Raphaël Jacobs, "Piecing, Attachments, Repairs," in *Handbook of Greek Sculpture*, ed. Olga Palagia (Berlin: de Gruyter, 2019), 663.

Figure 59 Fragments of bronze reliefs held together by visible rivets including registers of seated figures, standing figures wearing fish-scales or wool, and cavalry repurposed into sphyrelata korai at Olympia, ca 610–570 BCE © Archaeological Museum of Olympia-Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Ilia – Archaeological Receipts Fund. Photo: Paul Feldman

incise images in a different style. The bronze sheets produced a skin and surface for the architecture of their original context and at Olympia they have been repurposed into a skin and surface for the figural bodies of the sphyrelata. This surface maintains some of the Near Eastern images tooled into the bronze in combination with new forms incised and tooled into the recycled surface. Although the bronze came from the same (unidentified) source, the repurposed

Near Eastern sheets are stylistically and technically distinct from the Greek sheets to which they have been joined together.[69] Some of the extant fragments preserve these joins, fastened with rivets, between the Near Eastern and Greek bronze sheets.[70] This assemblage of bronze pieces also produces the additive color-layer that was pressed and hammered over the (no longer extant) wooden core of each figure of a young woman. The bronze sheets form the surface, or *khrōs* of the statue.

These bronze sheets moved from one cultural context and form to another. Recovering color therefore recovers connections between artists working in the ancient Mediterranean and artists working in the ancient Near East, Egypt, and other contact cultures. In the bronze statues of young women, that contact is fitted together on each surface itself, both in the stitched-together friezes produced by Near Eastern artists and by Greek artists repurposing parts of the Assyrian bronze. This stitching together visualizes the cross-cultural connections that material colors can mark.

Additive colors like these bronze sheets or the pigments of the Acropolis korai act as an object's skin and surface. The bronze sheets would have dazzled with a brilliant, shining patina. This shining and variegated bronze skin and surface for figural statues of women differs from the white paint of the skin of the women in the panel paintings from Ano Pitsa, for which the ancient Greek artists deployed a gendered color convention often also seen in Egytpian art. In that convention, artists used white paint to mark the skin of women and babies, as well as the hair of old men, in contrast with the brown skin used to mark figures as adult men who are not yet considered old. While not universally deployed, such gendered color-coding appears as early as the third millennium BCE in Egyptian art, in paintings from Bronze Age Greece, and often painted on ancient Greek ceramics [71] Artists mobilized this convention selectively, as one among many possibilities. As a color-system to mark gender differences and hierarchies, these skin color differences are not meant to convey naturalism.

This color-coding in paint of light women and darker men visually constructs a gender binary that has shaped the reception of such images. To fit this constructed color-system together with ideals of representational mimesis, scholars have argued that this color-binary represented women's and men's lived experiences in both ancient Egypt and the ancient Mediterranean. By that logic, artists painted men with dark skin to capture their greater exposure to the sun and the outdoors, while they painted women with white skin to capture their confinement to the home and indoor spaces.[72] This argument mistakes artistic representation for unmediated documentation of past people and constructs the ancient Greek female subject as both white and confined to domestic space.[73] In the specific

69 Ibid., 61–62.

70 Guralnick, "A Group of Near Eastern Bronzes from Olympia," 209; Borell and Rittig, *Orientalische und Griechische Bronzereliefs aus Olympia*, 111.

71 Mary Ann Eaverly, *Tan Men/Pale Women: Color and Gender in Archaic Greece and Egypt, A Comparative Approach* (Ann Arbor: University of Michigan Press, 2013), 6–10.

72 Eaverly, *Tan Men/Pale Women*, 2013, 6. Greek and Roman texts document persistent environmental determinism as an explanation for differences in skin and hair color of people from far away locations, such as Germanic tribes or Aithiopians. The material record more regularly records representational choices in color and scale designed to mark differences across categories. On environmental determinism, see Rebecca F. Kennedy, C. Sydnor Roy, and Max L. Goldman, *Race and Ethnicity in the Classical World: An Anthology of Primary Sources in Translation* (Indianapolis: Hackett, 2013), xii–xv, 35–51.

73 For this division in ancient Greek thought, see Xenophon *Oeconomikos* and its reception, Tim Rood, "Xenophon's Changing Fortunes in the Modern World," in *The Cambridge Companion to Xenophon*, ed. M. Flower (Cambridge: Cambridge University Press, 2016),

example of ancient Athens in the mid-fifth century BCE, Athenian direct democracy included only male citizens and barred all women from participation in democratic processes like voting and serving on juries, but these same political structures accorded women citizens an adjacent, though limited and contingent, power as the wombs that nurtured future male citizens.[74] Regulation of these elite wombs constrained the freedoms of some women, while the same patriarchal structures constrained the lives of noncitizen and non-elite men and women in very different ways.[75] In addition, citizen girls and women did participate in rituals of public life, as Joan Connelly has demonstrated in connection with the cult of Athena.[76] In modernity class and race have shaped who might be confined to the home, as well as who might labor in and on behalf of and within the homes to which patriarchal structures confine women of some classes. Modern feminisms collapsing differences of race and class under the sign of woman damage possible solidarities while projecting these erasures onto the past, manufacturing their deep history and upholding patriarchal structures with evidence of their ancient Greek authority. Interpreting work like the panel paintings as mimetic replicates this problem. In contrast, in her analysis of this gendered color convention visible in both ancient Egyptian and ancient Greek art over millennia and across different political structures, Mary Eaverly counters such assimilation of gendered color conventions and representational mimesis to argue that artists used this system to mark difference rather than represent living bodies.[77]

In the Herakles vessel discussed at length in Chapter 1, skin color marked not gender, but a difference between living men and gods and the statue.[78] The artist rendered all of the living bodies (human and divine) with the same fired terracotta skin color and added white pigment to the statue after the vessel had been fired. At the same time, the artist depicted the painter on the vessel in the process of painting over that white with colors. Rather than dazzling as a mimetic representation of the living Herakles, who is also represented on the vessel in fired terracotta, the white paint marks the statue's marble substrate being given its painted skin and surface. The living Herakles like the artists and gods, appears

435–448. On translations of this text as a wedding gift into the eighteenth century, see Gabriele Schor, "The Death of the Housewife," in *Women House*, ed. Camille Morineau and Lucia Pesapane (Washington, DC: National Museum of Women in the Arts, 2017), 22.

74 See "The Disenfranchised I – Women," www.agathe.gr/democracy/women.html, and "The Disenfranchised II – Slaves and Resident Aliens," www.agathe.gr/democracy/slaves_and_resident_aliens.html. On the reception of Greek democratic speech in modern democratic theories, see Daniela Cammack, "Deliberation in Ancient Greek Democracies," *The Journal of Political Philosophy* (2020): 488–489, n11.

75 Birthright citizenship, a critical legal category in ancient Athens, remains a modern political tool of the patriarchal powers and structures of the nation-state. For one example in a contemporary context, see recent research on the experiences of Black Haitian women in the Dominican Republic by Amaryllis Estrella, "Interrogating Intimacies: Black Feminist *Desahogos* in Anti-Racist Activism," presented March 3, 2021, Johns Hopkins University, Baltimore.

76 Joan Connelly, *Portrait of a Priestess: women and ritual in ancient Greece* (Princeton: Princeton University Press, 2007), 5–6.

77 Citing Martin Robertson, Eaverly, *Tan Men/Pale Women*, 3–4.

78 Several engagements with the mixing bowl have described the curly-haired, beardless, naked assistant as an African boy and also identified him as enslaved. On scholars projecting enslaved status onto representations of Africans, Sarah Derbew argues, "The decision to categorize the four objects in the 'Africans' display [of room 15 in the British Museum] as depictions of enslaved people unhelpfully applies a restrictive modern lens to the diverse enterprise of Greco-Roman slavery. Although the attribution of some black people as enslaved in the fifth century BCE is plausible, there is no sure signification among these objects of their enslaved status," Derbew, *Untangling Blackness in Greek Antiquity*, 57.

with brown skin, while his statue has been painted white and the artists are in the process of adding its colors. In this example, white pigment does not mark gender or age, but materials and states of being.

Additive pigments can act as an object's skin but need not do so mimetically. Yet, modern reconstructions of colors on ancient Greek and Roman artworks have been produced with mimesis and naturalism in mind, marshalling colors to produce lifelikeness.[79] In the wake of a reception tradition that constructs ancient Mediterranean art as white, even reconstructions that add colors back to that art can mobilize mimesis in the service of modern racecraft.[80] Dismantling the intersecting constructions of the classical and of whiteness as they have merged in the reception tradition demands more than adding back colors as marks of mimesis. Reconstruction efforts that fit polychrome paintings and statues back into an existing discourse on mimesis risk reproducing whiteness in the very reconstructions designed to undermine it.[81] At the same time, as Aimee Hinds argues, the recovery of the contingent particularity of individual colors counters notions of universalizing exceptionalism.[82] Debates have ranged from whether or not ancient artists added colors to the parts of a marble sculpture carved to represent flesh (they regularly did) to which pigments ancient artists chose to represent skin colors (among the identified traces of additive colors are mixtures of red and brown oxides with lead white, red madder, hematite, various ochres, Egyptian blue, and fired black glaze).[83] As the bronze sphyrelata from Olympia also demonstrate, these surfaces and skins could also be forged from other materials such as bronze. Ancient artists used a range of material colors to represent the skin of figural images.

Depictions, for example, of the Aithiopian hero Memnon, son of the Trojan Tithonus and the goddess Eos who allied with the Trojans in the Trojan War and who appears in a number of post-Homeric texts, demonstrate some of the ways in which artists worked with additive color to convey surface and skin.[84] Across a selection of depictions of Memnon on ceramic vessels, some of which are labelled with his name, artists represented him in a variety of ways: leaving his Blackness undifferentiated from the other figures in a terracotta red or black-glazed scene, adding black pigment to his skin in contrast with the white skin of his attendants, or covering him in full, gleaming armor (his *kosmēsis*) and depicting his attendants with short, tight curls and black skin (Figure 60).[85] In other words, artists sometimes used black slip or pigment to to depict Memnon's Blackness, and at

79 See, for example, the exhibition titles, *The Color of Life*, J. Paul Getty Museum, Los Angeles, 2012 and *Like Life*, The Met Breuer, New York, 2018.

80 On the construction of whiteness in the reception of classical art, see Charmaine A. Nelson, *The Color of Stone: Sculpting the Black Female Subject in Nineteenth-Century America* (Minneapolis: University of Minnesota Press, 2007), 57–72. On racecraft, see K. Fields and Barbara Jeanne Fields, *Racecraft: The Soul of Inequality in American Life* (London; New York: Verso, 2012), especially chapter 1.

81 On colors disrupting exceptionalism, see Hinds, "Hercules in White." On the synthesis of monochrome and whiteness, see Jennifer Stager, "Unbearable Whiteness of Whiteness," *Art Practical*, January 16, 2018, www.artpractical.com/column/feature-the-unbearable-whiteness-of-whiteness.

82 Aimee Hinds, "Hercules in White: Classical Reception and Myth," June 23, 2020, www.thejugaadproject.pub/home/hercules-in-white-classical-reception-art-and-myth.

83 Brinkmann, *Bunte Götter*, 141–151.

84 On the ancient term Aithiopia as distinct from the modern nation-state of Ethiopia, see Derbew, *Untangling Blackness in Greek Antiquity*, 12–14; 98–128. See also Sarah Derbew, "An Investigation of Black Figures in Classical Greek Art," *Getty Iris*, April 25, 2018.

85 In the context of painted and fired ceramics, Sarah Derbew substitutes the term "black-glazed" for the conventional "black-figure," to emphasize artistic production and facture. Derbew, "An Investigation of Black Figures in Classical Greek Art." More recently, however, Derbew asserts that this semantic shift remains insufficient in the face of anti-Black racism and substitutes "black face," Derbew, *Untangling Blackness in Greek Antiquity*, 2022, 34–35.

Figure 60 Painted and fired terracotta amphora depicting Memnon with two attendants, Attributed to Exekias, Black-glazed technique, ca. 535 BCE, H: 41.50 cm x W: 30 cm, British Museum 1849,0518.10. © The Trustees of the British Museum

other times did not, emphasizing variability in how artists chose to represent skin.[86] Sarah Derbew locates a similar multiplicity in the depictions of brown and black faces on vessels for ancient drinking symposia, arguing that "color was part of a larger apparatus of distinction on Attic pottery, but its valence was not perpetually fixed."[87] Colors pose the challenge of their changeableness, but that lack of fixity is precisely what artists working in the ancient Mediterranean sought to engage.

Rather than constituting a naturalistic documentation of the living population of the ancient Mediterranean, adding back material colors shows us artistic practices organized around not only hues, but also variegation, and brilliance. Artists focused primarily on producing dazzling assemblages of vibrant colors. Material color also makes visible and knowable the beholding body's own polychrome variegation and the fitted-together material color-parts of living bodies both on and beneath a painted surface.[88] Additive colors on the surface of an object operate simultaneously as a distinct physical layer and as that which unifies disparate parts beneath its surface (khrōs) through color. As surface or skin, additive colors mark the outermost layer of an object and enclose its substructure.

The protective surface-layers of skin, the largest organ of the body, were considered inviolable in the ancient Greek world and the importance of an individual's physical skin extended metaphorically to communities, which could be surrounded by a "skin" that unified the parts into a coherent, functioning group. In sacrifice, attendants removed the skin (*derma*, rather than *khrōs*) of the animal in one piece, rather than burning it with the rest of the corpse, in order to offer visible evidence for the undisturbed wholeness of the sacrificed animal's interior parts.[89] Henrich von Staden has argued that taboos against the dissection of human cadavers for medical purposes upheld the importance of leaving the boundary layers of the body intact.[90] In trying to escape the poisoned chiton (stained with the blood of the centaur Nessus, mixed with venom from the Lernean Hydra), Herakles strips off his own skin, the surface boundary of his body. Skinned and without this boundary of his individual self, Herakles's apotheosis, von Staden argues, becomes inevitable.[91] An ancient beholder looking at the scene on the Herakles vessel from Chapter 1 might have brought this knowledge of skin's role as a boundary and also of Herakles's own self-skinning to the scene of the living Herakles watching an artist paint the skin (*khrōs*) of his own statue and the hide (*derma*) of the Nemean lion worn by Herakles. The artist of the vessel mobilizes this distinction between skin as system and surface.

Color as skin (*khrōs*) and essential surface extends to the descriptions of its loss from sculpture. For example, in papers describing reactions to the vigorous nineteenth-century cleaning of a portion of the Parthenon marbles in the British

86 On chromatic range, see Derbew, "An Investigation of Black Figures in Classical Greek Art," For a forthcoming study of depictions of Africans on painted Greek ceramics, see Najee Olya, https://peoplingthepast.com/2021/03/12/blog-post-18-grad-student-feature-with-najee-olya. Both Derbew and Olya emphasize the role of artists in producing these images.

87 Derbew, *Untangling Blackness in Greek Antiquity*, 2022, 45.

88 Neer, *The Emergence of Style,* 149–165 has argued for the role of sculpted drapery in constructing of the idea of interiority and surface colors might operate similarly. On armor as an immortal skin, see Marina Haworth, "The Impenetrable Body: Armour and the Male Nude in Greek Art," in *Fashioned Selves: Dress and Identity in Antiquity*, ed. Megan Cifarelli (Oxford: Oxbow Books, 2019), 161–176.

89 Heinirch von Staden, "The Discovery of the Body: Human Dissection and Its Cultural Contexts in Ancient Greece," *The Yale Journal of Biology and Medicine* 65 (1992): 227–228. Skin also played a role in several foundation myths, such as the association of the Athenian king Kekrops with the skin of a sacred ox, and the story of Dido using the skin of an ox to outline the circumference of Carthage. Because of his self-skinning, Herakles became associated with a variety of gruesome skin diseases.

90 Ibid., 228.

91 Ibid., 229.

Figure 61 Statue of the head of a horse pulling the chariot of Selene, East Pediment O of the Parthenon, marble from Penteli with (now lost) pigments, H: 62.60 cm × L: 83.30 cm. British Museum, London 1816,0610.98. © The Trustees of the British Museum

Museum, one observer described the vigorous cleaning of the head of Selene's horse as a "ferocious skinning," mobilizing the metaphor for a hide (*derma*) stripped whole from an animal's body following the animal's sacrificial death (Figure 61).[92] Skinning Selene's horse removes the animation wrought by material color, as a skin (*khrōs*) integrating surface and depth. Another writer described the stripped "patina" (which we would now call additive color) as having once "knit [the marbles] in a single unity."[93] This critique of the cleaning recognizes the role of additive colors in fitting together whole forms and in producing each object's polychrome skin. Wholeness comes not through a unified monochrome surface, but through the visible fitted-togetherness of material color-parts including of surface layers.

92 Ian Jenkins, "Cleaning and Controversy: The Parthenon Sculptures 1811–1939," *The British Museum Occasional Papers* 146 (2001): 8. On skinnings in modern feminist practice, see Gill Perry, "Traces of Home and Changes of Skin," in *Women House*, ed. Camille Morineau and Lucia Pesapane (Washington, DC: National Museum of Women in the Arts, 2017), 33.

93 Jenkins "Cleaning and Controversy," 12, 45.

Figure 62 Unknown, statuette of Venus, first century BCE, Rock crystal, 8.5 × 4 × 6 cm (3 3/8 × 1 9/16 × 2 3/8 in), 78.AN.248, The J. Paul Getty Museum, Villa Collection, Malibu, California

Two later examples of how artists negotiated the relationship of material color and skin (*khrōs*) are found in two Roman statuettes crafted out of rock crystal, a high-value material also used in the production of some fitted-together inlaid eyes explored in Chapter 4. These rare examples are both palm-sized rock crystal; one represents the goddess Aphrodite

Figure 63 Unknown, statuette of Herakles with the Erymanthian boar, fourth century CE, Rock Crystal. 3 1/16 × 1 3/8 × 1 1/8 in. (7.7 × 3.6 × 2.9 cm) 42.208. Walters Art Museum, Baltimore, MD

(Venus) while the other the hero Herakles (Figures 62 and 63).[94] Their translucent material and small scale allow beholders to hold each statuette and to briefly give the representation of Aphrodite and Herakles their own skin tone, as seen through the rock crystal body of each figure. The appearance of the statuette changes as it passes from hand to hand, each beholder seeing their own skin through the statuette for the duration of their hold. While an unusual material and type of object, these two statuettes invite their beholders to see themselves in each representation of goddess and hero, as well as to change the colors of the statuette as it passes hand to hand, harnessing the changeableness of colors as a component of its power.

ADORNMENT AS CARE

Joining and bringing together material color-parts features in the Greek creation myth of the first human woman, Pandora, formed from a clay core, textile, flowers, silver, and gold.[95] Artists sculpted and painted a depiction of Pandora's birth through adornment (*kosmēsis*) onto the six-foot-high platform in the Parthenon on which the Athena Parthenos stood. On beholding this depiction of the myth of Pandora, the second-century CE peripatetic writer Pausanias simply stated: "On the base of the statue the birth of Pandora has been fashioned. Hesiod and others have told how this Pandora was the first woman; before Pandora was born there was as yet no womankind."[96] The adornment of Pandora exemplifies the work of material color (*khrōma*) to form a whole body from polychrome parts.

Pandora, like Athena's son and founder of the Panethenaia, Erichthonios, is autochthonous, but she remains inanimate until the *kosmēsis* of the gods adorns her clay core with material gifts.[97] The poet Hesiod describes the birth of Pandora in both the *Theogony* (571–584) and in *Works and Days* (60–82). In both versions Athena adorns (using the verb *kosmein*) the clay, female figure forged by Hephaestus. In the *Theogony* she alone adds silvery clothes, a veil, a crown of flowers, and a gold diadem, while in *Works and Days* the other Olympians add some of the gifts and the poet explicates her name, "All gifts," in connection with this pan-Olympian adornment. It is also in the *Works and Days* that Hesiod describes Pandora as a *kalon kakon* (beautiful evil) whose curiosity in opening a storage jar unleashes every ill upon mankind.[98] Amy Lather emphasizes Pandora's strange status "fashioned in the likeness of a youthful woman [παρθένῳ αἰδοίῃ ἴκελον, 572], when both women and the likenesses thereof do not yet exist in the mortal world . . . she resembles an absent prototype."[99] Lather characterizes this deliberate opposition in Hesiod's accounts of Pandora as a kind of *poikilia*.[100]

This indictment shaped by a single author also shapes Pandora's reception. For example,

94 "Heracles with the Erymanthian Boar" Walters Art Museum 42.208; "Statuette of Venus," Getty Museum 78. AN.248; Patrick R. Crowley, "Crystalline Aesthetics and the Classical Concept of the Medium," *West 86th* 23, no. 2 (2016): 220–251, Jennifer M. S. Stager, "The Unbearable Whiteness of Whiteness," *Art Practical* (January 2018).

95 Pausanias *Description of Greece* 1.24.5–7; Pliny *NH* 36.18–19; Jean-Pierre Vernant and Froma Zeitlin, "Semblances of Pandora: Imitation and Identity," *Critical Inquiry* 37, no. 3 (2011): 404. On the multivalence of the Pandora myth, see Verity Platt, *Facing the Gods: Epiphany and Representation in Graeco-Roman Art, Literature and Religion* (Cambridge: Cambridge University Press, 2011), 113–114. Duigan, "Colour and the Deceptive Gift," 78.

96 Pausanias *Description of Greece* 1.24.7

97 Roy Kennedy and Max L. Goldman, *Race and Ethnicity in the Classical World*, 55–59. Jacquelyn Clements, "The Terrain of Autochthony: Shaping the Athenian Landscape in the Late Fifth Century B.C.E.," in *The Routledge Handbook to Identity and the Environment in the Classical and Medieval Worlds*, ed. R. F. Kennedy and M. Jones-Lewis (New York: Routledge, 2016), 315–340.

98 On the Hesiodic Pandora, see Vernant and Zeitlin, "Semblances of Pandora," 404–415.

99 Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry*, 121.

100 Ibid., 120.

Jeffrey Hurwitt argues that the choice to depict the birth of Pandora on the base of the platform supporting the gold and ivory statue of the goddess Athena on the Acropolis in Athens offered a clear contrast with the myth of Athena. Hurwitt contends that Pandora's story reproduces a familiar gender binary that would have reassured Athenians anxious about the female goddess's patronage of the city.[101] Under this reading, the gender nonconformity of the goddess Athena – born fully armed and adult from the head of Zeus, and a virgin who never gives birth – finds its antonym in the well-decorated, deceptive femininity of the first human woman, Pandora.

Rather than interpret Pandora as Athena's antonym, I argue that her myth is appropriate for the platform of the statue of Athena Parthenos and its carefully conceived iconographic program because of her relationship to rather than her difference from Athena.[102] In addition to affinities for waging warfare and intellectual plots, Athena was the goddess of craft, including weaving.[103] Each year at the Panathenaic festival, Athenians gathered on the Acropolis to replace the brightly colored woven *peplos*, dressing the ancient wooden statue (*xoanon*) of Athena housed in the temple of Athena Polias, often called the Erechtheion. Members of Athena's female-only cult wove this *peplos* and adorned the wooden statue with it, refreshing her garment annually in a ritualized act of *kosmēsis* and care.[104] Many interpret a scene from the frieze of the Parthenon depicting a small figure holding up a folded textile as a representation of the Panathenaic ritual and the folded textile as the annual peplos (Figure 64). Given the added pigments that would once have rendered this scene and the whole frieze in vibrant colors, this representation of a textile might once have captured the variegated colors of the cloth adorning the nearby statue of Athena Polias. That these pigments have only endured in the barest traces attests to the regular care they would have required in antiquity as well. Many of the humans and gods in the frieze also wear different textiles, and just to the right of this scene Hephaestus sits with his garment tucked under his right armpit, softening the handle of his crutch where it would otherwise meet soft flesh. The depiction of Pandora's creation on the base of the Athena Parthenos would have engaged not only the earlier dedications of painted *korai* (the maidens of which she is a prototype) on the Acropolis, but also the contemporary caryatids holding up the roof of the Temple of Athena Polias.

The *kosmēsis* of Pandora appears on the platform of the statue of the Athena Parthenos not because she is Athena's opposite – a typical woman – but because Athena wrought her. Athena births Pandora in and through her adornment (Figures 65 and 66). The first woman comes from the clay of Mother Earth, shaped by Hephaestus and by Athena's *kosmēsis*. Earthborn colors and materials, like autochthonous ancestors, connect Athena and Athenians to the primordial mother, Gaia. When we insist on binary oppositions rather than a spectrum of possible ways to present as female, we collapse

101 Jeffrey M. Hurwit, "Beautiful Evil: Pandora and the Athena Parthenos," *American Journal of Archaeology* 99, no. 2 (1995): 171–186.

102 Kenneth Lapatin, "The Statue of Athena and Other Treasures," in *The Parthenon: from Antiquity to the Present*, ed. Jennifer Neils (Cambridge: Cambridge University Press, 2005), 261–292. Jeffrey Hurwit, *The Athenian Acropolis: History, Mythology, and Archaeology from the Neolithic Era to the Present* (Cambridge: Cambridge University Press, 1999), 235–245. Joan Breton Connelly, *The Parthenon Enigma* (New York: Alfred A. Knopf, 2014), 278–282, suggests that the relief showed Pandora's apotheosis rather than her birth.

103 On *poikilia* and Athena, see Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry*, 20. On craftspeople sacrificing to Athena and Hephaistos, see Stewart, *Greek Sculpture*, 74.

104 Connelly, *Portrait of a Priestess*, 59–64.

Figure 64 Relief, Slab V, the central block of the East frieze of the Parthenon: Athena and Hephaestus (seated), with three attendants, a child and a priest displaying the peplos, and priestess facing left towards two attendants out of view, Marble from Penteli with lost pigments and metal attachments, 438–432 BCE, The British Museum, London 1816,0610.19 © The Trustees of the British Museum

the range of embodied possibilities, then and now, that Pandora and Athena manifest.

Hesiod's misogynistic account of the creation of Pandora describes the capacity of material color to cloak humble clay and to render something deceptively beautiful.[105] Pandora's *kosmēsis* at the hands of the gods is described as fitting punishment for man's theft of fire. The material colors of her surface will beguile men and they will fail to notice the disjunction between exterior and interior, between the earth-wrought vessel and its appearance as a blindingly beautiful (first) woman. This deceptive image provides the form after which all subsequent women are modeled. Hesiod explicitly links the deceptive *kosmēsis* that brings Pandora into being with the character (*ethos*) of mortal women. Just as the made-up Pandora deceives and conceals, so might the mortal women formed in her image. The relationship between cosmetic color and women that this narrative proposes in the eighth century BCE continues to inflect gendered ideas about color.[106]

The worry that material color might, like cosmetics, hide or deceive runs through the discourse on color.[107] Filtered through two

105 Duigan, "Colour and the Deceptive Gift," 82. For a detailed analysis of Hesiod, Pandora, and the multivalence of *pokilia*, see Lather, *Materiality and Aesthetics in Archaic and Classical Greek Poetry*, 104–108.

106 A. S. Brown, "Aphrodite and the Pandora Complex," *The Classical Quarterly* 47, no. 1 (1997): 39.

107 A woman's *kosmēsis* could eventually destroy not just her surface, but the interior of her body as well. The

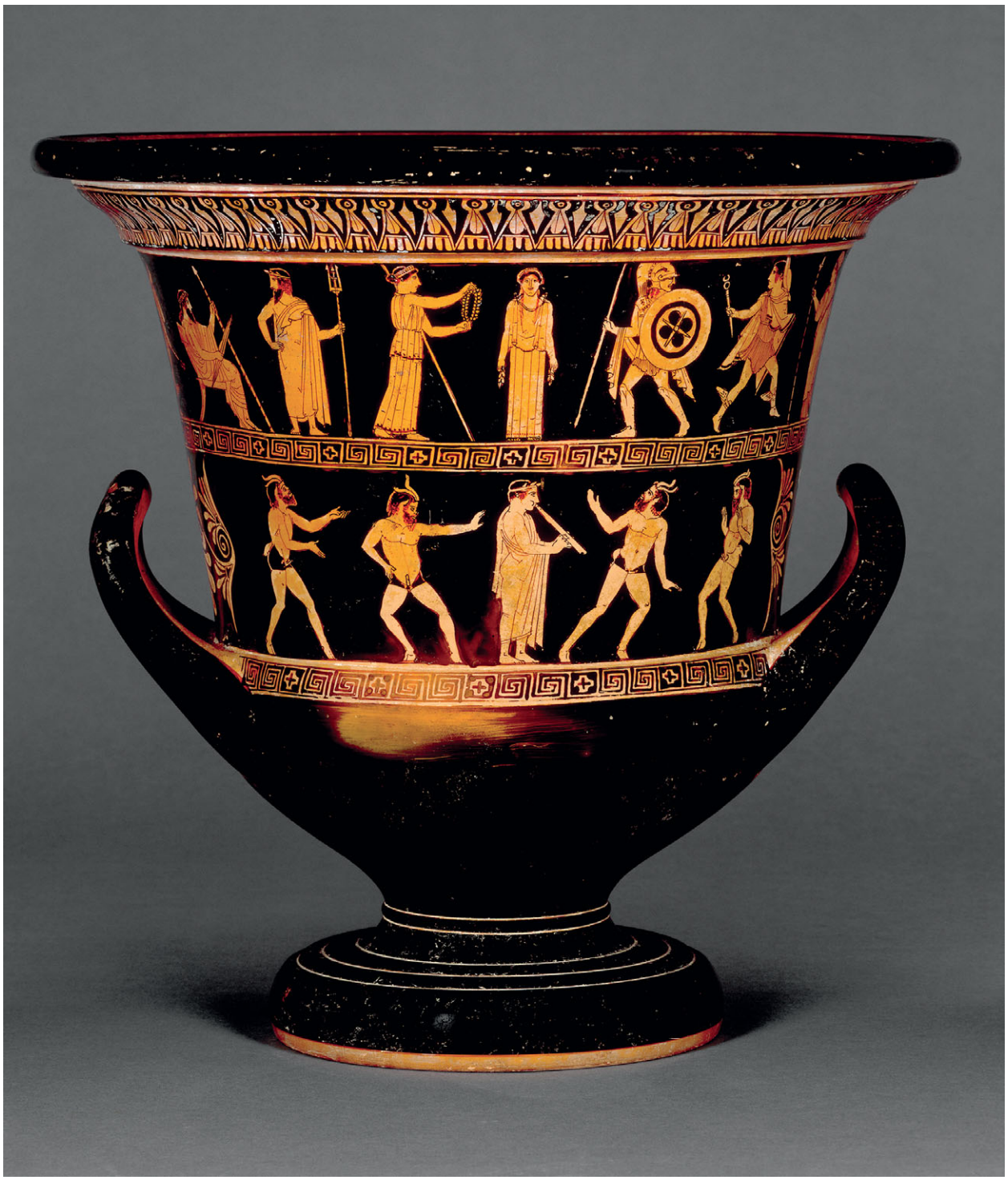


Figure 65 Creation of Pandora painted onto an Attic red-figure calyx-krater, Fired terracotta with pigments, the Niobid painter, 460–450 BCE, H: 49 cm x D: 50 cm, Excavated from Altamura, Italy. British Museum, London 1856,1213.1 © The Trustees of the British Museum

Figure 66 Creation of Pandora (detail) painted onto an Attic red-figure calyx-krater, Fired terracotta with pigments, the Niobid painter, 460–450 BCE, H: 49 cm x D: 50 cm, Excavated from Altamura, Italy. British Museum, London 1856,1213.1 © The Trustees of the British Museum

millennia of reception, such anxiety about color, cosmetics, and deception, as Jacqueline Lichtenstein argues, inflects both fifteenth-century Italian debates about the priority of drawing (*disegno*) versus color (*colore*), and also seventeenth-century condemnations by artists and rhetoricians in France of color as "libertine".[108] These later characterizations were built from Hesiod's characterization of Pandora, as well as Plato's condemnation of form, color, and rhetoric. In *Gorgias* 465b Plato characterizes *kosmēsis* as follows: "With its rascally, deceitful, ignoble, and illiberal nature it deceives men by forms and colours, polish and dress, so as to make them, in the effort of assuming an extraneous beauty."[109] Lichtenstein sums up the reception of Plato in seventeenth-century France: "The metaphor of the courtesan marks a transhistorical rallying point that unifies protagonists of the most diverse and unorthodox philosophies."[110] Feminized color emerges as deceitful, promiscuous, and cosmetic.

Although the account that begins with Hesiod emphasizes deception, Pandora herself shows *kosmēsis* to be a set of generative actions. The representation of the *kosmēsis* of Pandora on the base of the Athena Parthenos centers the feminine in all of its polychrome possibility. The excision of material color is one part of the suppression of femininized matter from histories of art. Material color in the form of cosmetics was a part of the *kosmēsis* of a woman, a part of what completed and made up part of her *khrōs* (skin). Writers from Hesiod to Freud have mistaken the necessity of *kosmēsis* as care for a basic lack.[111] Feminized matter could be put to use in the service of a form-driven history of art but has been denied constitutive status.[112]

Like color (*khrōma*), adornment (*kosmēsis*) is constitutive. Pandora comes into being in and through her *kosmēsis*. The gods outfit her clay core with all sorts of material colors: textiles, jewelry, spring flowers, as well as various qualities (per Hesiod) of grace, desire, a lying nature, and speech. Her *kosmēsis* encompasses both her external adornment and her interior self.[113] The word *kosmēsis* relates to a host of other words with the same root including *kosmos*, or universe, and *kosmopoieō*, to make the world or to frame a system of the world.[114] In the context of ancient Greek temple architecture, Clemente Marconi has argued

practice of making up the dead for view to temporarily delay the visibility (on the surface of the body) of death despite the arrest of the body's internal systems brings together *to kosmein* (to adorn) and *to kosmein* (to bury). On poison and Roman cosmetics see Kelly Olson, "Cosmetics in Roman Antiquity: Substance, Remedy, Poison," *Classical World* 102, no. 3 (2009): 291–310. On cosmetics excavated at Ur, see Mavis Bimson, "Cosmetic Pigments from the 'Royal Cemetery' at Ur," *Iraq* 42, no. 1 (1980): 75–77.

108 Lichtenstein, *The Eloquence of Color,* 190.

109 Ibid., 38–39.

110 Ibid., 190. The role of makeup in the recent rape-revenge film, *Promising Young Woman* (2020), tracks this through line of colors, cosmetics, and sexual availability in contemporary discourse. *Promising Young Woman*, www.imdb.com/title/tt9620292.

111 Sigmund Freud, "Fragment of an Analysis of a Case of Hysteria (1905 [1901])," James Strachey, ed. with Anna Freud, assisted by Alix Strachey, and Alan Tyson. *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume VII (1901–1905): A Case of Hysteria, Three Essays on Sexuality and Other Works* (London: Hogarth Press, 1953), 3–124. On lack, Freud, and later psychoanalysis, see Toril Moi, "From Femininity to Finitude: Freud, Lacan, and Feminism Again," *Signs* (Spring 2004): 846–855.

112 This is true even in the rerouting of the story of art narrated by David Summers to rest less on the shoulders of classical Greek art and more on traditions developed in Egypt and Western Asia. The end towards which these earlier Eastern traditions are working remains the linear perspective of the Italian Renaissance. David Summers, *Real Spaces: World Art History and the Rise of Western Modernism* (London; New York: Phaidon, 2003).

113 On the abstract gifts with which the gods fit out Pandora, like *charis* and *pothos*, see Christopher A. Faroane, *Ancient Greek Love Magic* (Cambridge, MA: Harvard University Press, 1999), 98–100.

114 Chantraine, *Dictionaire*, 549, 570–571. Clemente Marconi, "Kosmos: The Imagery of the Archaic Greek Temple," *RES: Anthropology and Aesthetics* 45 (2004): 211.

that the different parts of a building make up and order its *kosmos,* or "world," and that this notion "expanded to signify form, government, decoration, and honor. . .[and] to designate the order of the world and the universe."[115] Such world-making – producing civic buildings, monumental sculpture, weapons, wars, politicians, and laws – has so often been maintained as a domain of men. And yet the very world-making potential of *kosmēsis* resists these gendered divisions.

This chapter has been tracking the particular parts added to a surface, namely additive color, which is a subset of the broader practice of assemblage. Material colors are themselves parts, which fit together to make forms. Marconi focuses on the "dismembered parts" of the temple's substructure (column drums, roof, figural sculpture), which are often physically separated and also studied separately. His analysis also applies to the material colors that made up the building, from its various stones and metal pins, clamps, and joins, to the many additive colors layered on to its surfaces.[116] If the word *kosmos* comes to signify a whole – body, building, world – that whole has been formed through fitting together and joining parts. These parts are marked by their material colors. In this sense, *kosmēsis* brings each *kosmos* into being. Just as *kosmēsis* makes Pandora, and thus women, so can ornamentation, *kosmopoiesis*, make a world. In overlooking the world-making significance of *kosmēsis,* we have dismissed additive colors as merely cosmetic and therefore inessential to the whole form and so we have missed the constitutive role of material colors in making forms.

Both the initial fitting together of material colors and the ongoing maintenance that they require comprises *kosmēsis.*[117] This *kosmēsis* is not superficial, but structural. Ongoing care work preserved (for a time) specifics like surface colors, inlaid eyes, and high-value metals as well as ritualized additions such as textiles and flowers. Care work connects the material presence of colors with embodied practices. Through the maintenance that they demand, material colors engage a feminist ethics of care that centers care work as political work.[118] A feminist ethics of care, Joan Tronto and Bernice Fischer write, "includes everything we do to maintain, continue, and repair our world so that we may live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web."[119] Parts (bodies, selves, environments) connect and fit together to form wholes, demonstrating the process of *kosmēsis* in action.

While people living in the ancient Mediterranean did not articulate their practices as a feminist ethics of care, this modern political framework invites us to recognize and value ancient care practices and also to trace out their gendered reception. As Brooke Holmes argues, when scholars have engaged with ancient care, they filter this through Michel Foucault's interest in "care of the self" and discourses of male self-

115 Ibid. 116 Ibid., 212.

117 On the maintenance of art objects in Greek antiquity, see Kousser, *Afterlives of Greek Sculpture.*

118 Joan Tronto, *Who Cares?: How to Reshape a Democratic Politics* (London: Cornell Selects, 2016), 9–16. Feminist ethics that center care have a multivalent history within feminism, on which see Kathryn Norlock, "Feminist Ethics," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, https://plato.stanford.edu/archives/sum2019/entries/feminism-ethics. On Black Feminist ethics of care, see Audre Lorde, *Sister Outsider* (New York: Random House, 1984), 31–41, 61–65; Angela Davis, *Women, Race and Class* (New York: Random House, 1981), 208–220. On care work within modern democracy, see Joan C. Tronto, *Caring Democracy: Markets, Equality, and Justice* (New York: New York University Press, 2013), 67–122. On care in the context of the Covid-19 pandemic, Andreas Chatzidakis et al., "From Carewashing to Radical Care: The Discursive Explosions of Care during Covid-19," *Feminist Media Studies* (2020): 1–6.

119 Joan Tronto, *Who Cares?: How to Reshape a Democratic Politics* (Ithaca: Cornell University Press, 2015), 40.

mastery of the unruly (feminine) within.[120] A feminist critique of Foucault's free masculinized subject argues that he "fails to acknowledge – let alone analyze – the gendering of the ethical subject of care."[121] In contrast with the elevation of care for and mastery of the masculinized self, care labor of others has historically been feminized and rendered invisible.[122]

Of the sustaining care of her community of women as she awaited a breast surgery and assessment of the tumor's possible malignancy, Audre Lorde writes of,

> the concern and caring of all those women which gave me strength and enabled me to scrutinize the essentials of my living. The women who sustained me through that period were Black and white, old and young, lesbian, bisexual, and heterosexual, and we all shared a war against the tyrannies of silence. . . Each of us is here now because in one way or another we share a commitment to language and to the power of language, and to the reclaiming of that language which has been made to work against us.[123]

Naming her own subject position as a Black lesbian poet, Lorde urges her audience (at the Modern Languages Association meeting in Chicago in 1977) to abandon their silences, which she argues we each may imagine will protect us, but which instead "will choke us."[124] In naming her community of care, Lorde makes their care for her and care as such visible and knowable through language. *Kosmēsis* is precisely a word which has been made to work against women since antiquity, from the descriptions of Pandora's making to the erasure of vibrant material colors from ancient Mediterranean art in the pursuit of ideal forms coded as masculine. In reforming our understanding of *kosmēsis* in the ancient Mediterranean, we come to understand its centrality, not only for making objects, bodies, and worlds, but for maintaining them. Without ongoing care, pigments fade, metal is repurposed, and added textiles deteriorate. Without ongoing human interaction and attendance, without ongoing *kosmēsis,* the unadorned ruin tends towards monochrome. Without care work, objects, bodies, and worlds are unmade (*akosmetos*).[125]

120 Brooke Holmes, *Gender: Antiquity and Its Legacy* (London; New York: I. B. Tauris, 2012), 33, 89–90, 119–120.

121 Ibid., 100.

122 Chatzidakis et al., "From Carewashing to Radical Care," 2, and on corporate "carewashing," 3.

123 Lorde, *Sister Outsider,* 41–43.

124 Ibid., 44.

125 I am grateful to Michele Asuni for locating this term and its associations, in particular its use in Pl. *Gorgias* 506e.

Chapter 3

KHŌRA, RELIEF, AND LANDSCAPE

The path to the Panhellenic sanctuary of Apollo at Delphi takes a visitor up a steep and winding path from the lush expanse of the plain to the multifaceted sanctuary complex that was considered the navel (*omphalos*) of the ancient Mediterranean world (Figure 67). Climbing the path towards the sanctuary in the late sixth century BCE, a pilgrim would have encountered a small, vibrantly polychrome, temple-like building (Figures 68 and 69).[1] Officials from the island of Siphnos commissioned this treasure-house, built about 525 BCE, which is thought to be among the first of such buildings erected along the switchback path. Over the next 200

1 On treasuries as a building type and the Siphnian treasury in particular, see Richard Neer, "Framing the Gift: The Politics of the Siphnian Treasury at Delphi," *Classical Antiquity* 20, no. 2 (2001): 273–344. On the overall site, see Michael Scott, *Delphi: A History of the Center of the Ancient World* (Woodstock: Princeton University Press, 2014), 291–302. On the Athenian treasury, Richard Neer, "The Athenian Treasury at Delphi and the Material of Politics," *Classical Antiquity* 23, no. 1 (2004): 63–93. On the imagery of the Siphnian treasury, see Livingston Vance Watrous, "The Sculptural Program of the Siphnian Treasury at Delphi," *American Journal of Archaeology* 86, no. 2 (1982): 159–172; Clarence Kennedy, *The Treasury of the Siphnians at Delphi: Photographs* (Northampton, MA: Smith College, 1929); George Seferis, *Delphi* (Munich: Knorr & Hirth, 1962); Manolēs Andronikos and Brian de Jongh, *Delphi* (Athens: Ekdotike Athenon, 1994). On networks and Delphi, Elena C. Partida, *The Treasuries at Delphi: An Architectural Study* (Jonsered: Paul Åströms Förlag, 2000). On color traces on archaic objects, see T. Ganetsos, A. Regkli, N. Laskaris, and I. Liritzis, "Spectroscopic Study of Colour Traces in Marble Sculptures and Architectural Parts of Monuments of Archaic Period in Delphi, Greece," *Mediterranean Archaeology and Archaeometry* 19, no. 3 (2019): 51–61.

Figure 67 View of the Phaidriades (Shining Rocks), Delphi. © Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

years, dozens more cities would build treasure-houses lining a path to the oracular sanctuary and the Temple of Apollo (Figure 70).[2]

The treasure-house was built up and formed from material color-parts. Its porch and entrance faced west, with the long walls extending to enclose the north and south sides. Two painted, anthropomorphic, marble female statues (caryatids) held up the pedimental roof above the porch. One of these statues remains extant and bears visible holes for the attachment of metal earrings and a metal headpiece (Figure 71). Like the polychrome korai dedicated on the Acropolis in Athens and the female statues holding up the roofed porch of the Erechtheion, this caryatid and its absent counterpart were once formed through *kosmēsis*, the addition of material colors.

A painted and sculpted frieze ran around the periphery of the treasure-house, just below painted and sculpted pediments (Figures 72 to 74). Material colors – additive pigments and metal attachments – created the building's polychrome skin (*khrōs*).[3] Traces of these pigments,

2 On the date, see Neer, "Framing the Gift," 289. The approach to the Temple of Apollo changed over time in antiquity and there were potentially several access points.

3 The following scenes comprise the iconography: Herakles stealing Apollo's trident on the porch pediment, and a seated assembly of twelve gods (east); Achilles and Memnon fighting over the body of Antilochus and an indeterminant narrative (west); a fragmentary scene (two suggestions include Artemis or the judgment of Paris) and a battle between gods and giants (north); and another indeterminant scene involving horses (south). On the iconography, see especially Neer, "Framing the Gift." On architectural decoration and contemporary media such as

Figure 68 Base of the Siphnian Treasury along the Sacred Way, Delphi. © Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo by author

Figure 69 Reconstruction of the Siphnian treasury, Delphi. Assassin's Creed: Odyssey. Courtesy of © Ubisoft

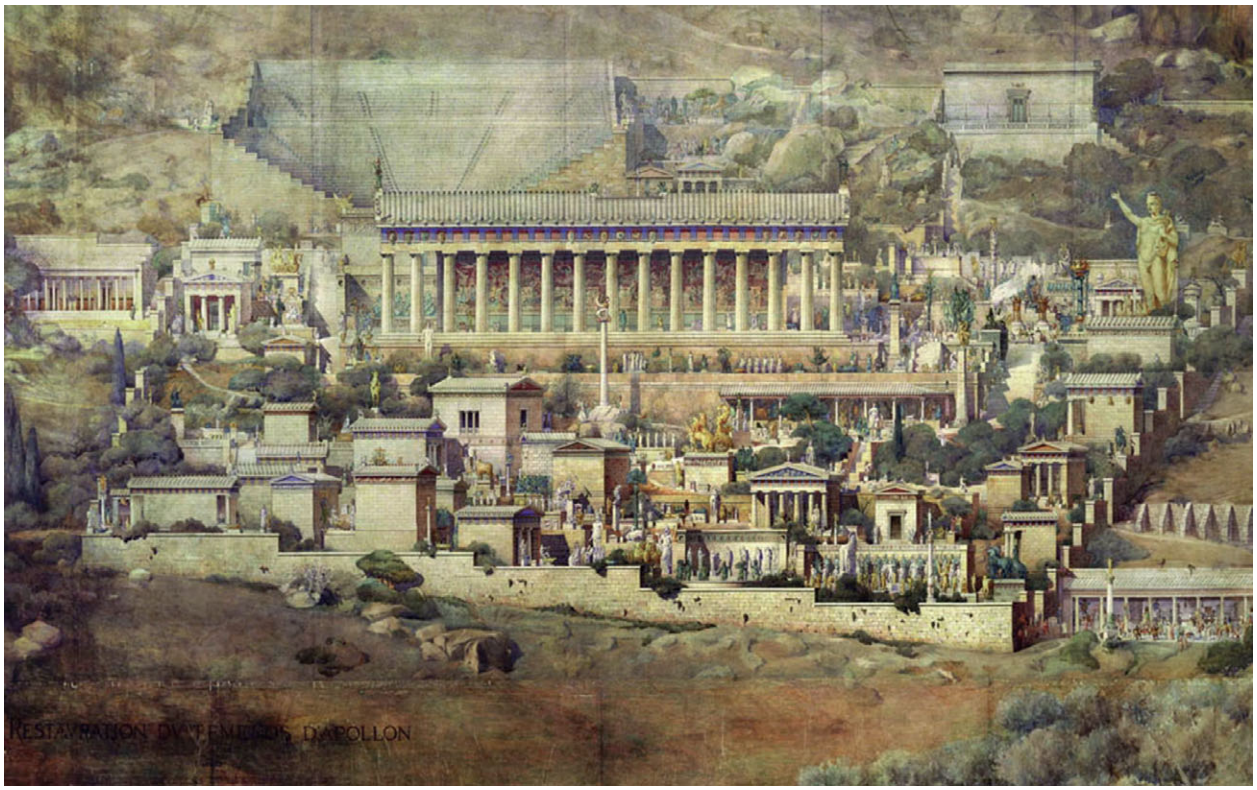


Figure 70 Albert Tournaire, reconstruction of the sanctuary of Apollo at Delphi, 1894, Watercolor and brown ink on paper. École Nationale Supérieure des Beaux-Arts Inv. 84-07

Figure 71 Part of a statue of a woman that functioned as a column (caryatid), West façade of the Siphinian treasury at Delphi, marble with lost pigments with holes for metal attachments, ca. 525 BCE, H: 1.75 m. © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

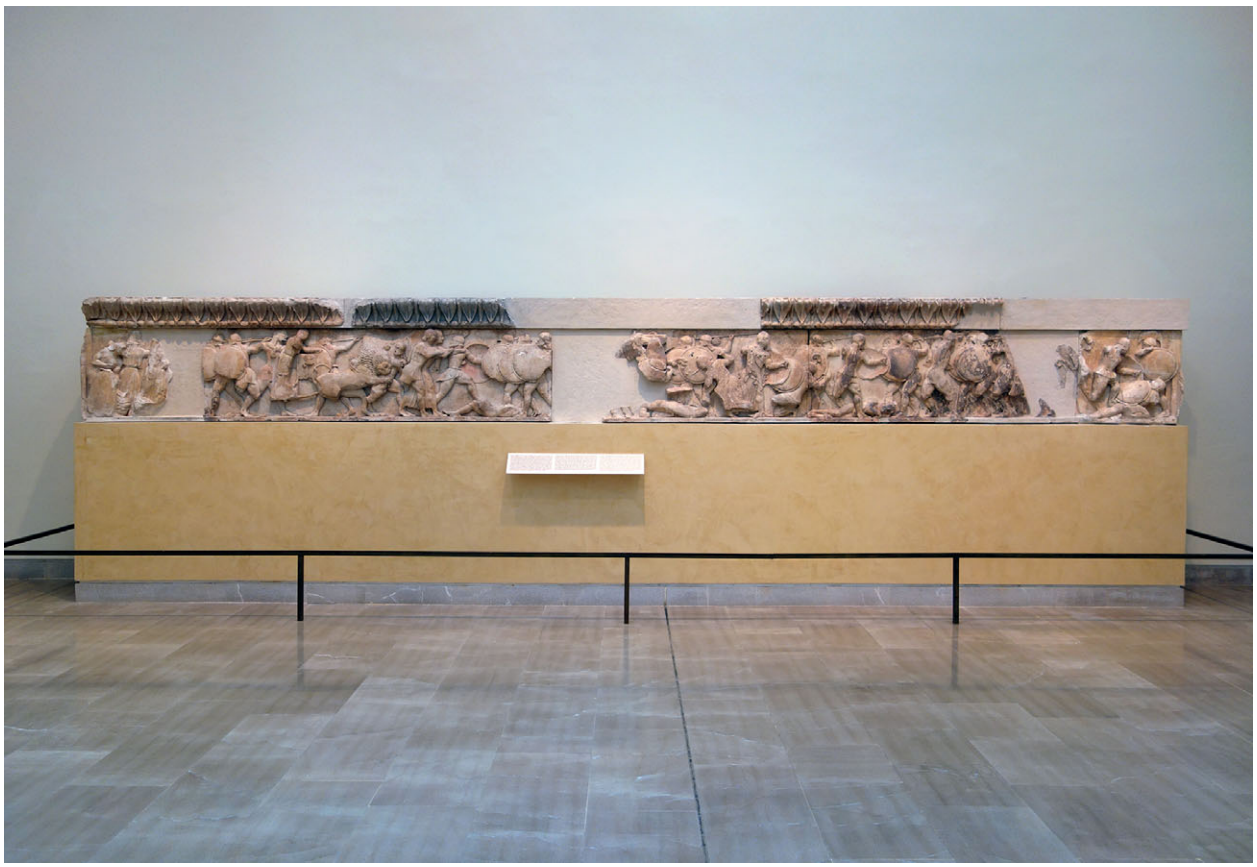


Figure 72 Frieze (north) from the Siphnian treasury, Battle of gods and giants. Marble from Paros with pigments and metal attachments, ca. 525 BCE, L: 8.6 m x H. 0.64 m © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

remnants of metal attachments such as spears and pins, as well as holes where additional metal would once have been attached on these reliefs remain partially visible to the naked eye. Today, they are in the archaeological museum at Delphi. In their original outdoor context in antiquity, the material colors of the treasure-house would have been juxtaposed with the rich changing colors of Delphi's landscape.

Like a painting, sculpture, or object produced in another medium, a building is fitted together from material color-parts.[4] These part-to-whole relationships expand outward through the landscape, itself an assemblage fitted together from parts within which smaller polychrome assemblages form. Each scaleable assemblage constructs a world (a *kosmos* emerging through *kosmopoesis*), while the excision of colors from buildings and the decontextualization of their parts unmakes these relationships of color-parts. As with other sorts

television, videos, and billboards, and the Internet, see Jennifer Neils, "Color and Carving: Architectural Decoration in Mainland Greece," in *A Companion to Greek Architecture*, ed. Margaret Miles (Chichester: John Wiley & Sons, 2016), 166, who draws on the work of Brunhilde Ridgway.

4 Clemente Marconi, "Kosmos: The Imagery of the Archaic Greek Temple," *Res* 45 (2004): 211; On piecing, see Patricia Boulter, "The Erechtheion Frieze," *AntP* 10 (1970): 1–28. On the use of Eleusinian blue-gray limestone for the frieze of the Erechtheion to even out the different heights of the walls see Niels, "Color and Carving," 169. Of the radical potential of recovering architectural polychromy see David Gissen, "Wake New History" *Log* 46 (2019): 65–72.

Figure 73 Frieze and pediment (East) from the Siphnian treasury, full view. Marble from Paros with pigments and metal attachments, L: 3.83 m x H: .74 m. © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

of objects, a building and its material colors require ongoing maintenance, repair, and care (*kosmēsis*). For a treasure-house, this care could extend to the continued placement of dedications within the treasure-house as well as maintenance of the pigments and metal attachments on the exterior.

The relationships of material colors to each other in making up the built and natural environments exemplify the three principles of color that Aristotle lays out in his text *On the Senses* (*De Sensu* 439b15–440b15): juxtaposition, superimposition, and mixing.[5] Pigments, metals, and stones are juxtaposed to form the built environment, polychrome buildings are superimposed against the polychrome landscape, materials from the natural world are mixed together to form material colors, and people moving through these spaces adorn, modify, and care for them, changing their colors. Built up and formed through material color, each polychrome building superimposes itself on and situates itself within the polychrome landscape, and many different material colors form its sub- and superstructures. The concentration of buildings and objects dedicated at Delphi offers a particularly vivid example of the ways in which material colors are fitted together across a site and landscape and how the relationships among and within assemblages act on each other.

In this chapter, I will consider *khrōma* (hues, brilliance, variegation) in three contexts at Delphi:

5 Writing on the relationship between the senses and colors, Aristotle outlined three possible modes of producing and working with colors in *De Sensu* 3.440b12–23.

Figure 74 Frieze (South), fragmentary scene, Marble from Paros with pigments and metal attachments, H. 0.64 m. © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

the landscape, the temple to Apollo, and the Siphnian treasury. The previous chapters argued for the materiality of color in the ancient Mediterranean and explored how that materiality – as additive colors and assemblage – constitutes forms. This chapter extends these coordinates spatially, moving from the surface and depth of individual bodies to the relational colors of built and natural environments. Bringing together the materiality of colors (*khrōmata*) and materialized instantiations of landscape (*khōra*) at Delphi, this chapter argues for a dimensional or spatial understanding of color and a polychrome, material understanding of space.

SPACE AND LANDSCAPE

Reconstructing spatial color requires excavating period terminology for space. Drawing together work on the "spatial turn" in the humanities as it relates to the ancient Mediterranean, Kate Gilhuly and Nancy Worman lay out the relevant ancient Greek terms. They write that "ancient Greek terminology seems just as unstable as modern geographical discourse, since there is considerable overlap and fluidity in the usage of such terms as *topos* (place, site), *chōros* [*khōros*] (space, region), *chora* [*khōra*] (land, countryside)."[6] In considering the spatial role of material color, all three of these terms overlap and intersect at the site of Delphi and its spaces – treasure-houses and

6 Kate Gilhuly and Nancy Worman, *Space, Place, and Landscape in Ancient Greek Literature and Culture* (Cambridge: Cambridge University Press, 2014), 4. The introduction assesses the impact of landscape theory, memory studies, and monumentality, as well as textual space emphasized by structuralism.

temples – and the *khōra*, or landscape, into which these are set.

While each of these ancient Greek terms builds up a language about space and landscape, this chapter will devote particular attention to *khōra*, a term that also gives rise to a rich history of engagement in modern feminist theory and philosophy, a history that intersects with its use in the ancient Mediterranean. *Khōra* can mean "land" or "countryside," but also "field," "occupied space or room," "socket or cavity," or "social position," among other literal and metaphorical uses attested to in Greek literature.[7] As Gilhuly and Worman rightly emphasize, this slippery interpenetration of terms and definitions – space, place, landscape – is one feature of spatial language.[8] This polyvalence of *khōra* opens up an analytical space in which to consider the interactions of material color with the spaces that both produce and enclose it – at the level of landscape, buildings, and beholding bodies. The superimposition of polychrome buildings with the polychrome Delphic landscape is one example of choric polyvalence, building up a set of nested spaces made up of and enclosing material color. *Khōra* also has an extensive reception history emerging from and building on Plato's deployment of the term in the *Timaeus*. Building on atomist investigations of the universe, Plato explores and exploits the polyvalence of the term *khōra* in his own pre-primordial explanation for how the bright and colorful world came to be made. As I will elaborate below, Plato presents a version of *khōra* that molds colored matter into forms but contributes none of its own matter. The polyvalence of ancient Greek *khōra*, as this examination of the layered landscapes and spaces of Delphi demonstrates, intervenes in chora's modern philosophical and feminist afterlives.

In addition, written with a post-Newtonian conception of color as dematerialized hue, these feminist philosophical engagements with Plato's *khōra* do not account for the materiality of color or connect the gendering of *khōra* in the *Timaeus* with the gendering of material color. And yet, shortly after his discussion of *khōra*, Plato lays out a materialist theory of colors that remains the longest extant discussion of colors preserved in ancient Greek texts. In studying the role of the *Timaeus* in antiquity, scholars have often analyzed the text of the *Timaeus* itself in parts. Some, such as Katerina Ierodiakonou and Michela Sassi, focus on its theory of colors, while others, such as Brooke Holmes and James Porter, on its discussion of forms and excision of matter from their production.[9] This excision of matter has been the part of the text most activated in the modern feminist response. Despite the excursus on material colors in the *Timaeus* and the feminizing of colors through their materiality, theorists have not analyzed color and matter together in their engagement with the text. Yet the deeply materialist theory of colors in the *Timaeus* exists in some tension with the molding of colored matter into forms by the notionally matterless *hupodokhē* or *khōra* in the same text.

A range of feminist theorists, including Julia Kristeva, Luce Irigaray, Judith Butler, and Elizabeth Grosz, have engaged with Plato's specific notion of *khōra* to highlight the excision of the feminine via the excision of matter.[10]

7 LSJ, s.v. "khōra." Jacques Derrida, Peter Eisenman, Jeffrey Kipnis, and Thomas Leeser, *Chora L Works: Jacques Derrida and Peter Eisenman* (New York: Monacelli Press, 1997), 16.

8 Gilhuly and Worman, *Space, Place, and Landscape*, 4.

9 Maria Michela Sassi, "Perceiving Colors," in *A Companion to Ancient Aesthetics*, ed. Pierre Destrée and Penelope Murray (Hoboken: John Wiley & Sons, 2015), 262–273; Ierodiakonou, "Plato's Theory of Colours in the Timaeus"; Porter, *The Origins of Aesthetic Thought in Ancient Greece*, 70–120; Brooke Holmes, *Gender: Antiquity and its Legacy* (London: I. B. Tauris, 2012).

10 Julia Kristeva, *Revolution in Poetic Language* (New York: Columbia University Press, 1984); Luce Irigaray, *Speculum of the Other Woman* (Ithaca: Cornell University Press,

Disconnected from the polyvalence of *khōra* and also disengaged from the materiality of color, this modern chora sits somewhat uncomfortably alongside the materialist history that gives rise to it. If, however, we reinscribe the *Timaeus* within the polychrome world from which it emerged, we find a critique of Plato's dematerialized *khōra* not only within his own text, but also situated in the landscape itself. In its broader meaning as polychrome landscape, *khōra* reclaims the variegated material color of space and place. The relationship of the Delphic landscape, polychrome buildings, and their beholders establishes a set of nested receptacles (like *matryoshkas*, or Russian dolls) of *khōra* within *khōra* within *khōra* (landscape, building, body). The material color of landscape countermands the excision of choric matter in the *Timaeus*. This counternarrative makes visible alternatives to the Platonic narrative of master craftsman and immaterial vessel that mapped so neatly onto monotheistic receptions of Platonic philosophy and deepened the gendered divide between form and matter proposed in the *Timaeus* and resisted by feminist theorists.[11]

KHŌRA

Building on similarly structured inquiries of earlier atomist and Presocratic thinkers interested in the nature of the visible world, Plato, in the *Timaeus*, analyzes the ways in which colors, matter, and form create the universe (*kosmos*). Like earlier thinkers, he understood the universe to be made up of colors, which are integral to the perception and understanding of it.[12] In the *Timaeus*, Plato expands upon his Theory of Forms and also offers a materialist theory of colors. He then adapts the ancient Greek word for "space" and "landscape," *khōra,* to encompass a notional space within which the pre-primordial forms of the visible world are copied and from which they emanate.[13] When first introducing this idea in the text (49a), he names this space the "receptacle" (*hupodokhē*).[14] Plato's *khōra* (52b) is both space and container within which serialized mold-made material copies of the forms are pressed into being and from which they flow in order to build up the material colors of the visible world. These forms, which have their own material color, circulate within a *kosmos* that Plato also likens to a body (*sōma*). While commonly translated as "receptacle," *hupodokhē* can denote an interior organ of the body or an external gathering space and can connote the idea of "harboring," all of which Plato brings to bear on his own description of this unnamed concept as "the receptacle, and as it were the nurse, of all things created (*geneseōs*)" (49a). Introducing the idea of the receptacle as "a form (*eidos*) that is difficult (*khalepos*) and obscure (*amudros*)" (49a), Plato promises to elucidate it, but instead narrates flux and flow across the elements – fire, water, air, earth – and the lack of fixity to material forms. Turning to the metaphor of artistic production, specifically of shaping and replicating forms, he argues that a set of objects that have been worked and reworked by an artist out of gold and into all possible shapes (*skhēmata*) should be called gold,

1985); Judith Butler, *Bodies That Matter: On the Discursive Limits of "Sex"* (New York: Routledge, 1993).

11 See Christina Hoenig, *Plato's Timaeus and the Latin Tradition* (Cambridge: Cambridge University Press, 2018).

12 Katerina Ierodiakonou, "Plato's Theory of Colours in the Timaeus," *Rhizai: Journal for Ancient Philosophy and Science* 2, no. 2 (2005): 219.

13 On the difficulty of the *Timaeus* and the distinction between Plato's and the Presocratics' engagement with color and the cosmos, see ibid., 219.

14 See Plato, *Timaeus. Critias. Cleitophon. Menexenus. Epistles*, trans. R. G. Bury, Loeb Classical Library 234 (Cambridge, MA: Harvard University Press, 1929); Plato, *Timaeus*, trans. Donald Zeyl (Indianapolis: Hackett Publishing, 2000).

for the material is steadfast (elsewhere gold is called the "touchstone," or *basanos*), while the artistic forms gold can take are changeable.[15] Similarly, the receptacle itself is a steadfast "molding material" (*ekmageion*) that is shaped and reshaped by forms that enter it, and from which copies of those entering forms are made (50c).

Plato's imagined receptacle is both a vessel and a mold-making material; it is both endlessly changed and reshaped by the forms of the perceptible world which enter and exit it, and also materially steadfast in reproducing those forms. "Its nature is to be available for anything to make its impression upon, and it is modified, shaped, and reshaped by the things that enter it" (50c).[16] Trading the artistic for the biological metaphor, Plato claims that the receptacle is like the mother, the forming agents are like the father, and the forms that emerge are their offspring (50d).[17] And yet, the material substance of these offspring-forms is determined entirely by the father, for in order to reproduce variegated forms, Plato's receptacle must itself be formless (*amorphēn*). The "mother and receptacle" should not be identified as any of the material elements, but as unformed, unshaped, all-receiving, and several lines later, as space (*khōra*) (52b).

Plato's notion of *khōra* is pre-primordial, such that being, becoming, and space collectively precede divisions of the universe into earth and heaven (52d). Within the receptacle, within space, all forms of the universe are crafted and emerge.[18] These forms are molded from material color by the *hupodokhē* or *khōra*. For Plato, *khōra* precedes the creation of the elements fire, water, air, and earth, and this material void molds material forms, but leaves no material trace upon them. As the void or space into which forms are received and from which they emerge, *khōra* brings the construction of material color, gender, and sexuality into connection with the construction of sites (*topoi*) and spaces (*khōroi*) of the built and natural environments.

Amid Plato's narration of his pre-primordial *khōra*, he also puts forth his most extensive theory of colors. The anti-materialist reception of Platonic philosophy, as James Porter has shown, avoided the very materialism embedded in his texts.[19] Partially aligned with earlier philosophers, Plato argues that colors are material effluences that emanate from every form; these effluences merge, make contact, and mix in a fiery visual stream to produce additional colors (68a).[20] Plato describes the mixing of visual fires as sparkling (*marmarugē*), radiant (*lampros*), and gleaming (*stilbōn*) and as the space from which colors (*khrōmata*) emerge through mixing (*kukēsis*). He offers specific formulas for mixing matter to produce different colors (68b–c): red/*eruthros*, yellow/*xanthos*, purple/*halourgos*, gray-violet/*orphninos*, orange/*purrhos*, gray/*phaios*, ochre/*ōkhros*, deep blue/*kuaneos*, light blue/*glaukos*, bright green/*prasinos* (Figure 75). Although each of these terms has a history of use in other ancient Greek texts, this series of color recipes is the longest preserved list of ancient Greek colors. In Plato's conception, *khrōma* emerges from these affective, kinetic, and spatial properties and processes. Although the two topics are not explicitly linked in the text, he develops this theorization of

15 Leslie Kurke, *Coins, Bodies, Games and Gold: The Politics of Meaning in Archaic Greece* (Princeton: Princeton University Press, 1999), 16–23.

16 Pl. *Timaeus* 50c, trans. Zeyl.

17 "It is quite appropriate to compare the receiving thing to a mother, the source to a father, and the nature between them to their offspring." Pl. *Timaeus* 50d, trans. Zeyl.

18 On Aristotle's engagement with Plato's *khōra*, see Johannes Fritsche, "Aristotle on Χώρα in Plato's 'Timaeus' ('Physics' IV:2, 209 B 6–17)," *Archiv Für Begriffsgeschichte* 48 (2006): 28.

19 James Porter, *The Origins of Aesthetic Thought in Ancient Greece: Matter, Sensation, and Experience* (New York: Cambridge University Press, 2010), 14–17.

20 Ierodiakonou, "Plato's Theory of Colours," 221.

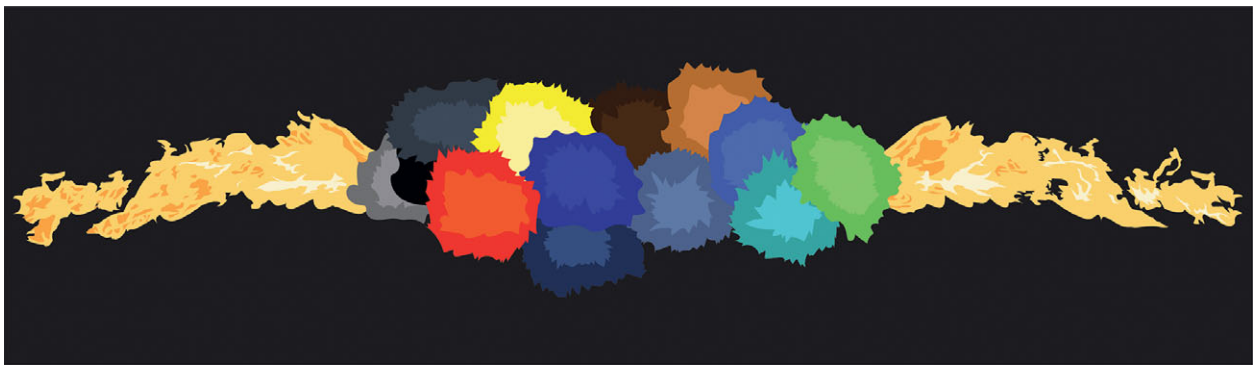


Figure 75 Colors within the visual flame, as described in Plato's *Timaeus* 67c–69a. Illustration by Mali Skotheim

the materiality of colors shortly after outlining the molding, matterless labor of the *khōra*.

Despite the analogy Plato draws between the receptacle/space and the mother, he also argues that this space (*khōra*) cannot contribute its own matter to that which it forms (50a–d), thus, as Elizabeth Grosz summarizes, Plato simultaneously genders the *khōra* and deprives it of material impact. "The notion of chora generates a founding concept of femininity whose connections with women and female corporeality have been severed, producing a disembodied femininity as the ground for the production of a (conceptual and social) universe."[21] Feminist philosophers and political theorists have productively engaged with Plato's *khōra* in a discourse that unfolds from the *Timaeus* and its subsequent receptions. I am using this Latinized spelling chora to signal the feminist philosophical response to a term that has been severed from its ancient Greek polyvalence.[22] Although Plato's *Timaeus* uses the ancient Greek term *khōra*, his description of the term in this context lays groundwork for its subsequent receptions, a discourse often marked by the Latinized chora. This modern response to chora is built from Julia Kristeva's semiotic absorption of Plato's term in the 1980s.[23] Kristeva writes, "We borrow the term chora from Plato's Timaeus to denote an essentially mobile and extremely provisional articulation constituted by movements and their ephemeral stases."[24] Luce Irigaray focuses on ideas in the *Timaeus* without naming the text in her essay "La Mère de glace" and engages directly with Plato's text in a subset of "Plato's Hystera" to critique the terms that Plato sets up for the

21 Grosz, *Women, Chora, Dwelling*, 22.

22 Derrida et al., *Chora*; Julia Kristeva, *La Révolution du langage poétique: l'avant-garde à la fin du Xixe siècle, Lautréamont et Mallarmé* (Paris: Éditions du Seuil, 1974), 23–30; Judith Butler's analysis responds to the French psychoanalytic feminist Luce Irigaray's reworking of Derrida's engagement with Plato's *khora*, both of which follow from Julia Kristeva's work on the term. Butler, *Bodies That Matter*. On the legacy of chora in Kristeva's work see Maria Margaroni, "'The Lost Foundation': Kristeva's Semiotic Chora and Its Ambiguous Legacy," *Hypatia* 20, no. 1 (2005): 78–98; and on the "objective ordering" to which Kristeva argues chora is subject, see Margaroni, "The Lost Foundation," 84; and on Grosz's emphasis on the othering and gendering of the chora while disinvesting it of the feminine, see ibid., 95; Emanuela Bianchi, "Receptacle/Chōra: Figuring the Errant Feminine in Plato's Timaeus," *Hypatia* 21, no. 4 (2006): 124–146; Rebekah Sheldon, "Form/Matter/Chora: Object-Oriented Ontology and Feminist New Materialism," in *The Nonhuman Turn*, ed. Richard Grusen (Minneapolis: University of Minnesota Press, 2015), 211–218.

23 Kristeva, *The Revolution in Poetic Language*, 25.

24 Ibid. In a similar moment Derrida had also picked up Plato's chora, even partnering with the architect Peter Eisenman on the plans for the Parc de la Villette in Paris informed by Plato's ideas, but Derrida does not object to the de-naturing of the maternal chora of Plato's terms. Chora/z Peter Eisenman Studios, with conceptual input from Jacques Derrida, *Chora L Works*.

chora.[25] She writes, "The maternal, the feminine serve (only) to keep up the reproduction-production of doubles, copies, fakes, while any hint of their material elements, of the womb, is turned into scenery to make the show more realistic. The *womb,* unformed, 'amorphous' origin of all morphology, is transmuted by/for analogy into a circus and a projection screen, a theater of/for fantasies."[26] Irigaray, thus, rejects the terms on which Plato's chora reproduces the forms of the visible world. In *Bodies That Matter*, Judith Butler resists Kristeva and Irigaray's absorption of Plato's limited terms of the feminine and also links Plato's description of the receptacle/space with Aristotle's analysis of matter (*hulē*), although Plato does not use the word *hulē* in the *Timaeus*.[27] In their critique of Plato's matterless chora, Butler writes, "In this sense, the receptacle is not simply a figure for the excluded, but, taken as a figure, stands for the excluded and thus performs or enacts yet another set of exclusions of all that remains unfigurable under the sign of the feminine – that in the feminine which resists the figure of the nurse-receptacle."[28] In their critiques of Plato's matterless chora, Butler argues that Kristeva and Irigaray have accepted Plato's limitation of chora and the feminine to the mother-wet nurse.

Plato's focus on forms and their reproduction does not include the word matter, or *hulē*, but implicates matter in the theory of reproduction he lays out. Aristotle (*Metaph.* 7.1029a2–8) describes a hierarchical relationship of matter and form in the production of a bronze statue and argues that "the form is prior to the matter and more truly existent (7–8)."[29] While this hierarchy is implicit in Plato's description of the chora, Butler connects the *Timaeus* and Aristotle's reception of his teacher's text to make this elevation of (masculized) form above (feminized) matter explicit.

This connection to matter and gender has run through modern philosophical debate about the chora, but these modern engagements do not account for the materiality of color, which it to say that when they discuss matter (*hulē*), they do not also discuss color and so do not connect the gendering of the *khōra* with the related gendering of color. And yet Plato's narration in the *Timaeus* of a maternal vessel that reproduces material forms but contributes none of her own matter also describes the excision of material color in and through the replication and reproduction of objects throughout the reception tradition – as casts, prints, and black-and-white photographs and films. As this book argues, material color-parts build up and constitute forms and this undermines the hierarchy of form above matter that Aristotle, building on Plato, sought to establish. Nor is this excision of matter quite as straightforward in Plato's text as it becomes in the text's reception if we consider the relationship between the chora and the *Timaeus*'s subsequent theory of colors. We can test Plato's chora against *khōra*'s other meanings and the polychrome material world from which the text emerges. Recovering material color undercuts an anti-materialist and anti-feminist reading of chora in favor of the vibrant polyvalence of *khōra*.

In his engagement with and contribution to ongoing philosophical inquiries into the creation and nature of the universe, Plato argues for *khōra* as matterless, but lived experience of the material world in its post-primordial iterations shows forth a very different version of *khōra* – space or landscape – a term that precedes Plato's

25 Luce Irigaray, *Speculum de l'autre femme* (Paris: Les Éditions de Minuit, 1974), 210–224.

26 Luce Irigaray, "Plato's Hystera," in *Speculum of the Other Woman* (Ithaca, NY: Cornell University Press, 1985), 307.

27 Butler, *Bodies That Matter*, 16.

28 Ibid., 15–16.

29 Aristotle, *Metaphysics Books I–IX*, trans. Hugh Tredennick, Loeb Classical Library 271 (Cambridge, MA: Harvard University Press, 1933), 7.1029a7–8.

engagement.[30] This is likely why Plato consigns his chora to a pre-primordial time before the existence of the visible world. The lived experience of the polychrome built and natural environments at Delphi sketches an expansive understanding of *khōra* that intersects with the story of color, matter, and form that this book has been building to offer an alternate to the primordial Platonic molding stuff. Landscape was experienced in terms of its colors and materials, and the interdependence of the built and natural environments articulates a different, generative, and relational *khōra*.

OMPHALOS

Delphi sits in a glen on the southern slope of Mount Parnassos.[31] A pair of cliffs, the Phaidriades, or the "shining ones," enclose one side of the site of Delphi, cut a mountainous swath through the skyline, and frame the ravine in which the Castalian spring bubbles up. Their name refers to the way in which the sun reflects off the cliff faces, dazzling those in the sanctuary with their brilliance. The valley of Pleistos stretches out below. The Greek travel-writer Pausanias (10.5.5), in the second century CE, describes the ascent to Delphi: "From here the high road to Delphi becomes both steeper and more difficult for the walker."[32] Mists moving in from the mountains frequently shroud the site, dimming the shining Phaidriades. As modern commentators note, "You have the feeling that you have entered a place separated from the rest of the world," a description of the site as both space and receptacle at once.[33] The lush beauty, colorful landscape, altitude and shifting atmosphere, and physically demanding topography all animate the site. Delphi is the landscape, the *khōra,* around which this chapter turns and within which the other *khōrai* are situated. At the same time, as an ambassadorial site, Delphi brings in other materials from other places to build up enclosures within its *khōra*, creating a nested set of *khōrai* on the site.

This tucked-away pilgrimage site was at one time the center of regional and pan-Mediterranean politics and religious life. Pilgrims traveled to Delphi to hear the oracle of Pythian Apollo's pronouncements, which played an important role in civic decisions.[34] A biological metaphor describes Delphi as the navel of the world, and several known dedications of stone navels have been found on the site. While the Platonic chora has no material tie to the forms it molds, and thus no navel (*omphalos*), the Delphic *khōra* develops in all of its polychrome splendor because of its generative tie to Gaia and the site's foundation myth. While the term "navel" was commonly used to denote the importance or centrality of a place, with Delphi the description relates directly to a version of its foundation myth and even its etymology, a myth that narrates a complicated intersection of material and gender.[35] In the *Theogony* Hesiod describes how Kronos swallowed each of his children to prevent them from overthrowing him. Eventually his wife, the titan Rhea, offered him a swaddled stone in lieu of their infant Zeus. Kronos eventually vomited up the stone. Zeus grew up, castrated his father, seized power, and then set his stone double into

30 LSJ, s.v. "khōra," and discussion in Gilhuly and Worman, *Space, Place, and Landscape in Ancient Greek Literature*, 1–20.

31 For a recent survey of the site, see Scott, *Delphi*, 290–299.

32 Pausanias, *Description of Greece, Volume I: Books 1–2 (Attica and Corinth)*, trans. W. H. S. Jones, Loeb Classical Library 93 (Cambridge, MA: Harvard University Press, 1918).

33 George Seferis, "Delphi," trans. Clay Diskin, *Arion* 12, no. 3 (2005): 4.

34 On the importance of the oracle in democratic decision-making, see H. Bowden, *Classical Athens and the Delphic Oracle: Divination and Democracy* (Cambridge: Cambridge University Press, 2005).

35 On the frequent application of the term "navel" to centers, see Summers, *Real Spaces*, 130–137.

the ground at Delphi as the original *omphalos* to be a sign (*sēma*) and wonder (*thauma*) to mortals. The stone marks Zeus's survival and the rise of the Olympian gods, including Apollo, whose sanctuary is built at Delphi.

The site of Delphi originally belonged to the primordial goddess Gaia, mother of Rhea and grandmother of Zeus, until Zeus's son Apollo took control of the site by killing the dragon Pytho, another of Gaia's daughters, who guarded the stone. "Whoever met the she-dragon died that day, until Apollo, who works from afar, shot her with a piercing arrow – she lay down, shattered with brutal pain, wheezing heavily, thrashing on the ground. Her divine cry became unspeakable – writhing without ceasing amid the woods, she left her life breathing out her blood-red (*eruthros*) spirit."[36] Although alternative versions of the site's foundation and development were also in circulation ("many and different are the stories told about Delphi, and even more so about the oracle of Apollo," Pausanias 10.5.5.), the myth involving Gaia, the dragon, and Apollo most clearly matches the description of the site as an *omphalos*. Pytho evokes the umbilical cord that connects Mother Gaia to this place. Apollo killed the dragon, cut the cord, and took over the cult center. An *omphalos* both marks the physical connection whereby a mother nourishes her child in the womb and the violent separation ("breathing forth in blood") of the child from the mother at birth. The site of Delphi was steeped in its connection to primordial Gaia, and was also oriented towards the social and political world of the Olympian gods and the human-built environment.[37]

The Temple of Apollo was built up to mark the *omphalos* (Figures 76 and 77).[38] Within the sanctuary of the temple, and seated over an opening into the earth, the priestess of Apollo, the Pythia, delivered her famous oracles one day per month, excepting the three months of winter.[39] Although the Pythia was thought to channel the word of the god Apollo, she was also said to purify her body in the Castilian spring and to inhale vapors emerging from the earth as part of her oracular process.[40] The oracle drew on the larger choric landscape of Delphi and the pre-Apollonian powers of Gaia to prepare her own *khōra*, or body, to make her pronouncements. The Pythia was also said to sit over the site of the navel, situating the innermost *khōra*, the body of the Pythia, in direct connection with the *omphalos*.

The site of Delphi is a *khōra*, or landscape, within which buildings, dedications, oracular

36 Diane J. Rayor, *The Homeric Hymns* (Berkeley: University of California Press, 2004), 47; Scott, *Delphi*, 48–49, points to the competing account in *Iphigeneia at Tauris* and summarizes the literary testimonia about Delphi.

37 On the haunting of Delphi at the site of the *omphalos*, see Jane E. Harrison, "Delphika. (A) The Erinyes. (B) The Omphalos," *The Journal of Hellenic Studies* 19 (1899): 242–243. Harrison also lectured on Delphi in London and framed the site as one at which the patriarchy subsumed an earlier matriarchy. See "Miss Harrison's Lectures on Delphi," *The Englishwoman's Review of Social and Industrial Questions* 29 (1898): 123.

38 The current archaeological remains date to the fourth century BCE, built atop the footprint earlier iterations. On goats marking the site of the oracle, see Diodorus Siculus 16.26. On the environment of Delphi and the changing nature of the oracle, see Plutarch, *Moralia de Pythiae oraculis* 398 C5–399 F5. On the role of the oracle in Herodotos, see J. Kindt, "Delphic Oracle Stories and the Beginning of Historiography: Herodotus' Croesus Logos," *Classical Philology* 101, no. 1 (2006): 35–44.

39 Scott, *Delphi,* 29–30. Geologists investigating the site of Delphi in the 1980s discovered the intersection of two fault lines immediately below the temple and, still discernable in the extant local bitumous limestone, elevated levels of ethane, methane, and methylene. John R. Hale, Jelle Zeilinga de Boer, Jeffrey P. Chanton, and Henry A. Spiller, "Questioning the Delphic Oracle," *Scientific American* 289, no. 2 (2003): 66–73; L. Maurizio, "Anthropology and Spirit Possession: A Reconsideration of the Pythia's Role at Delphi," *The Journal of Hellenic Studies* 115 (1995): 69–86.

40 Scott, *Delphi*, 9–30; Peter Green, "Possession and Pneuma: The Essential Nature of the Delphic Oracle," *Arion* 17, no. 2 (2009): 27–47; Herbert B. Huffmon, "The Oracular Process: Delphi and the Near East," *Vetus Testamentum* 57, no. 4 (2007): 449–460.

Figure 76 Remains of the Temple of Apollo, Delphi, looking East, limestone (*Profitis Ilias*) foundation blocks and marble columns, 4th century BCE. © Archaeological Site of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

Figure 77 Remains of the Temple of Apollo, Delphi, looking West, limestone (*Profitis Ilias*) foundation blocks and marble columns, 4th century BCE. © Archaeological Site of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

pronouncements, and pilgrims converge. Each iteration of the Temple of Apollo can be understood as a *khōra* within the larger *khōra* of the Delphic landscape, a space within which especially significant dedications were housed, in which the oracle sat, and from which politically imperative pronouncements were issued to shape the pan-Mediterranean political landscape. We might further understand the female body of the Pythia to be yet another *khōra*, nested within the temple and landscape and giving form to these enigmatic and influential prophetic directives. Around the body of each Pythia, economies of exchange built up, political actions were said to be taken by many powerful leaders throughout the Mediterranean world, and colonizers occupied lands from Cyrene to Marseille (Massallia).

Fragments of several phases of the Temple of Apollo remain in situ today, although to date there has been little analysis of the temple's pigments.[41] Although we do not have ancient archival accounts of building the temple, accounts of the site and buildings in drama and mythology speak to the color and materiality of these structures. In Euripides' play *Ion*, the chorus of Creusa's attendants narrates the experience of looking at depictions of the battle of Olympian gods and giants adorning the walls of Apollo's temple (184–224).[42] This popular battle scene was, in fact, also present on the north frieze of the Siphnian treasury down the hill. When the chorus describes the gigantomachy of the Temple of Apollo, it would also have brought to mind the depiction of that myth on the treasury frieze, connecting the two depictions across the space of the site. Euripides's chorus sings of the fiery golden weapons pictured in the battle, an evocation of the sorts of metal attachments that we know were used on many architectural reliefs, including on the Siphnian treasure-house. After invoking the golden weapons, the chorus asks Ion if Apollo's temple has really been built over the central navel of the earth. "Yes," replies Ion, and then he describes the temple as "clothed in garlands and gorgons" (224). This splendor of the outside of the temple "delights their eyes" (231). While the dramatic sequence does not mention specific colors beyond these gold weapons, the chorus does emphasize the material adornment and *kosmēsis* – the garlands and gorgons – of the temple.

The iteration of the temple that Euripides describes likely evokes the stone building completed by the Alcmaeonids of Athens at Delphi in the late sixth century BCE. Pindar (sixth–mid-fifth centuries BCE) and later Pausanias (second century CE), however, describe a succession of early temples to Apollo that preceded the Alcmaeonid iteration.[43] In his eighth paean, Pindar recounts iterations of the temple built up from different materials. Pindar's four iterations of the temple take his listeners through a series of material transformations. This first temple was a shelter built up from laurels, a native evergreen sacred to Apollo (Figure 78).[44]

41 For ongoing work to produce a digital reconstruction of different phases of the temple, see Anasynthesis: Delphi: www.anasynthesis.co.uk/index.php/delphi/delphi-2020.

42 Euripides, *Ion,* with commentary by John C. Gibson (Cambridge: Cambridge University Press, 2020), 30–50; 90–100. On the laurel boughs, ibid., 75–80. I am grateful to Michele Asuni for drawing this passage to my attention. On the cartographic possibilities of choral performance, applicable at Delphi, see Leslie Kurke and Richard Neer, *Pindar, Song, and Space: Towards a Lyric Archaeology* (Baltimore, MD: Johns Hopkins University Press, 2019), 11–44.

43 Sourvinou-Inwood, "The Myth of the First Temples at Delphi," 231–232.

44 See Pierre Amandry, *La Mantique apollinienne à Delphes: essai sur le fonctionnement de l'oracle* (Paris: E. de Boccard, 1950), 126–129. For additional discoveries related to architecture of the temple, see Pierre Amandry, "Recherches récentes au Temple d'Apollon à Delphes," *Revue Archéologique*, no. 1 (1993): 201–204. Sourvinou-Inwood, "The Myth of the First Temples at Delphi," 232–233nn10, 12. In addition to accounts by Pindar and Pausanias, see P. Oxy. 841 fr. 107

Figure 78 First mythical Temple of Apollo built from laurel branches. Photograph of Laurus Nobilis plant (Laurel). Photo by Forest and Kim Starr.

Daphne, a nymph, ran from Apollo. To escape his attempt to rape her, she transformed herself into a laurel tree. A much later mosaic floor from the site of Antioch (Antakya) attempts to depict this moment of Daphne's transformation, showing the laurels engulfing her as she runs away. Despite the distance in time, this image also allows us to think about the relationship between laurel branches and architectural structures, here pictured in stone tesserae, a medium to which Chapter 5 will return (Figure 79). Apollo cut a branch from Daphne-as-tree and wore a crown of the detached branch. The laurel crown also wreathed the head of the Pythia, as well as the heads of athletic victors at Olympia and at the Pythian games at Delphi, crowning each with a representation of the broken body of the nymph Daphne.[45] The first temple to Apollo at Delphi was said to have been formed from laurel branches brought from Tempe to Delphi and to have replicated Daphne's trauma and Apollo's power in each break of a branch to build it up.

The second temple was said to have been formed by bees and birds from their own beeswax and feathers (Figure 80).[46] The molding, healing, adhesive, and hydrophobic properties of beeswax were hugely important in the ancient Mediterranean world and the subject of continued textual discussion; recent conservation work on the Athenian Acropolis has revealed beeswax was used as a binder for pigments on the Parthenon.[47] The oracular powers of birds – ornithomancy – features widely, and the variegated colors of bird feathers fit beautifully within the economy of color, of *poikilia*, active throughout the ancient Mediterranean.[48] Birds and bees formed the temple structure through their own labor and materials, producing the second temple's magical materialism. Vibrantly polychrome bird feathers held together by sweet-smelling golden beeswax formed a variegated building or *khōra* to house the Pythia. That birds and bees built this temple connects the material colors of the built structure with the material colors of the Delphic landscape realized through the work of pollinators who spread plants and flowers across the land, rendering it variegated (*poikilia*).

The third mythical iteration of the temple was said to have been crafted by the gods Hephaestus and Athena from bronze, and they also adorned it with singing golden statues (Figure 81).[49] The fourth iteration, and the structure that corresponds with the archaeological remains, was said to have been crafted from stone, moving us from the world of Pindaric song to the archaeological site and its visible remains.[50] The mytho-historical sequence of temple buildings and materials stages an iterative variegation (*poikilia*)

Scholia to Paean viii; Pindar and Ian Rutherford, *Pindar's Paeans: A Reading of the Fragments with a Survey of the Genre* (Oxford: Oxford University Press, 2001), 160; Strabo 9.421.

45 Sourvinou-Inwood, "The Myth of the First Temples at Delphi," 233.

46 Pausanias and Pindar each mention the beeswax and feather temple, as do Aristotle *De Philosophia* fr. 3 R; Strabo 9.421; Eratosthenes *Catast.* 29; Philostratos *VA* 6.10–11.

47 For an in-depth analysis of beeswax in antiquity, with an emphasis on Hellenistic and Roman evidence, see Platt "Beeswax: The Natural History of an Archtypal Medium," "Beeswax: The Natural History of an Archetypal Medium," in A. Anguissola and A. Grüner (eds.), *The Nature of Art: Pliny the Elder on Materials*. Turnhout: Brepols, 2021, 51–64.

48 On Apollo's connection to birds and on Pindar's reference to the Pythia as a "Delphic Bee," see Sourvinou-Inwood, "The Myth of the First Temples at Delphi," 239.

49 Sourvinou-Inwood, "The Myth of the First Temples at Delphi," 231n3, who notes that only Pindar includes both gods, while Pausanias mentions only Hephaestus.

50 Pindar *Paean* 8 11.58–99, Paus 10.5.9; Aristotle *De Philosophia* fr. 3 R, and Strabo 9.421, also mention the temple of feathers. On the early temples to Apollo at Delphi, see Sourvinou-Inwood, "The Myth of the First Temples at Delphi," and Marcel Detienne and Janet Lloyd, "This Is Where I Intend to Build a Glorious Temple," *Arion* 4, no. 3 (1997): 12. Clemente Marconi, *Temple Decoration and Cultural Identity in the Archaic Greek World: The Metopes of Selinus* (Cambridge: Cambridge University Press, 2007), 43, 191–193.

Figure 79 Daphne transforming into a laurel tree while Apollo pursues her, Multicolored stones and glass tesserae and lime mortar, Antioch (Antakya, Turkey), late third century CE. Princeton University Art Museum y1965–219. Gift of the Committee for the Excavation of Antioch to Princeton University

that layers each successive material temple atop the next: laurel branches, wax and feathers, bronze and gold, and finally polychrome stone.

Local blue-gray limestone quarried several kilometers west of the temple site was among the stones used in the construction of the latest phase of the temple, the remains of which are visible today (Figure 82).[51] Recent analysis has identified at least twelve different types of stone in use at Delphi, of which 85 percent were autochthonous, or locally quarried, and the remaining 15 percent allochthonous, or brought in from other places.[52] Although little of the superstructure is extant, the abundance of pigments preserved on the nearby treasure-houses suggests that the stone temple was also brightly painted (Figure 83). The temple and the area surrounding it were layered with many freestanding dedications in bright colors and metals, in addition to pigments and metal attachments on the building itself. Among the most well-known examples is the bronze, copper, and silver charioteer with inlaid eyes, who drove a chariot pulled by four horses. The statue group was set up on a base of the same local blue-gray limestone and dedicated by Polyzalus of Gela in Sicily. Only the figure of the charioteer remains extant and on view in the archaeological museum. This assemblage of gleaming metals and other material colors was set up directly in front of the entrance to the polychrome temple, juxtaposed with and superimposed against its colors as well as those of other dedications and the surrounding landscape.

Analyzing the embeddedness of Pindar's fragmentary eighth paean with the site of Delphi, Naomi Weiss has argued that performers singing the paean's sequence of mythical temples built from different materials layered these colorful descriptions with visual experience of the painted and sculpted stone temple built in 505 BCE, "to create a layering effect, building the present temple into a superstructure with a long Delphic lineage."[53] That the paean would have been performed in and around the site further layered the evocation of past buildings with the voices, bodies, and movements of

51 De Vals et al., "The Stones of the Sanctuary of Delphi: Northern Shore of the Gulf of Corinth," *Bulletin de la Société Géologique de France* 191, no. 1 (2020): 3.

52 De Ibid., 11.

53 Naomi Weiss, "The Choral Architecture of Pindar's Eighth Paean," *TAPA* 146 (2016): 239.

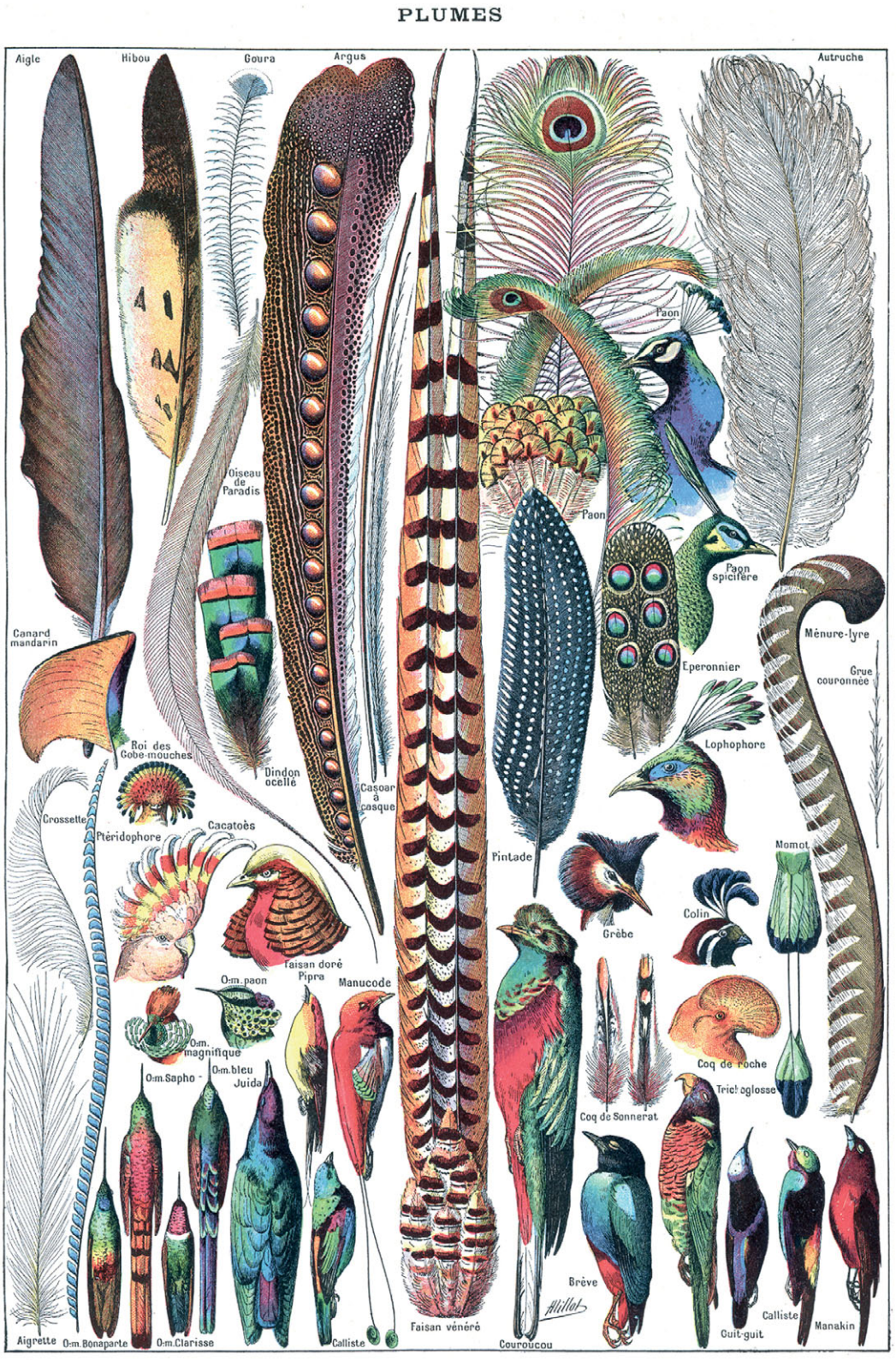


Figure 80 Second mythical Temple of Apollo built from beeswax and feathers. Adolphe Millot, *Plumes* (Aigle, Hibou, Goura, Argus, Paon, Autruche, Canard, Dindon, Pintade, Aigrette, Faisan, etc.) *Larousse pour tous: nouveau dictionnaire encyclopédique*, vol. 2, Librairie Larousse, Paris (1907–1910), p. 465

Figure 81 Third mythical Temple of Apollo built from bronze with singing gold statuettes. Recreated with bronze from the body of the charioteer from Delphi and a gold statuette of Zeus (Metropolitan Museum of Art, New York, 53.191.2) to mark the singing golden statues.

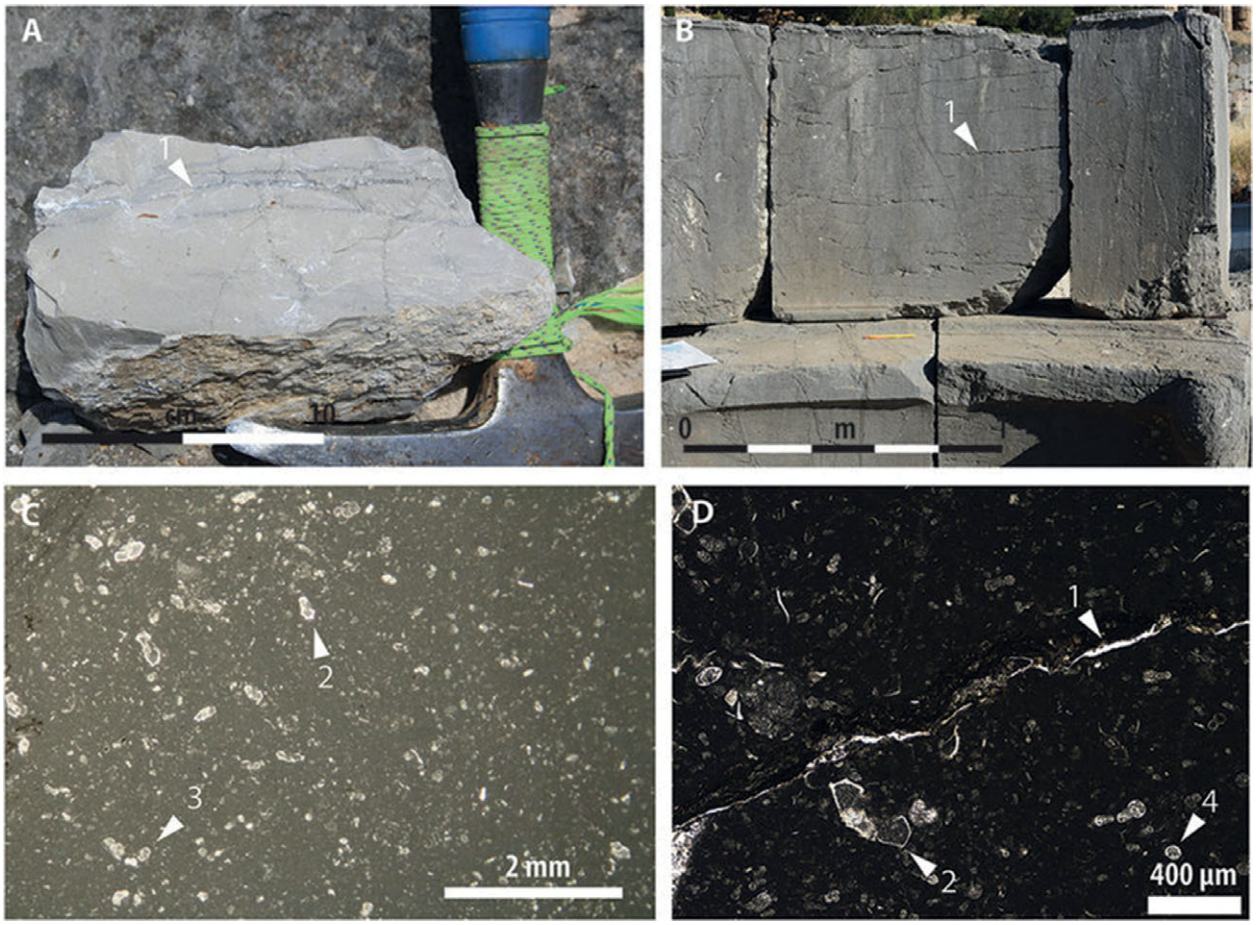


Figure 82 Profitis Ilias blue-gray limestone A. general view and B. blocks from the Temple of Apollo. Source: de Vals et al., "The Stones of the Sanctuary of Delphi," 6.

Figure 83 Reconstruction of the Temple of Apollo, Delphi in Assassin's Creed: Odyssey. Courtesy of © Ubisoft

living performers.[54] By juxtaposing and superimposing images of the preceding temples, the paean crafts temporal variegation. Pindar's account engages with material colors derived from nature. to track structures built up from successive materials and adorned with stones, pigments, and metals. This magical materialism of the Temple of Apollo affirms the importance of *khrōma* (variegation, brilliance, hues) in the building's production.

THE HEGEMONY OF NATURAL FORMS

A topos of architectural theory that looks back to ancient Greek architecture, specifically to the mythological first temple of laurels, embraces not this polyvalent and polychrome *khōra* as landscape, but a fiction of pure form. The story of the first temple of laurel branches makes its way into modernist architectural theory through this connection to nature. The version of nature that emerges, however, excises the vibrant material color that was so central to ancient building practices and to connections between landscape and the built environment.

The first temple of laurel branches is refashioned into the idealized form of the ancient Greek "hut" produced from branches. This trope of modern architectural theory emerges from the French Jesuit Marc-Antoine Laugier's *An Essay on Architecture*, published in the mid-eighteenth century, who engages with the Roman architectural historian Vitruvius's treatise *De Architectura*. Before the Roman architectural historian Vitruvius (first century BCE), we do not have any known theoretical accounts of buildings and architectural theory.[55]

54 Richard Neer and Leslie Kurke, *Pindar, Song, and Space: Towards a Lyric Archaeology* (Baltimore: Johns Hopkins University Press, 2019), 31.

55 Laugier's hut is sometimes called the Vitruvian hut. On the relevant passage in Vitruvius (2.1), see Marden Nichols,

Laugier draws on Vitruvius (2.1–9), who describes early humans harnessing the wildness of the natural world to produce increasingly domestic structures. For Vitruvius, these long-ago humans exist in something like the mythical time of the temple of laurel branches in Pindar's eighth paean. Vitruvius describes the structures that people built from branches and mud as *tecta*, "shelters" or "dwellings." Laugier substitutes his own mythologization of the historical Greeks for Vitruvius's deep mythical past.[56] In the introduction he writes,

> Architecture owes all that is perfect in it to the Greeks, a free nation, to which it was reserved not to be ignorant of anything in the arts and sciences. The Romans, worthy of admiring, and capable of copying the most excellent models that the Greeks helped them to, were desirous thereto to join their own, and did no less then shew the whole universe, that when perfection is arrived at, there only remains to imitate or decay.[57]

Laugier argues for the idea of an ancient Greek "cabane" as a prototype for subsequent architecture produced in other materials, such as marble, limestone, or in later periods, concrete.[58] He sought idealized, dematerialized pure form in the ancient Greek past in contrast with the material opulence of baroque architecture of his day. Such projections have often overwhelmed the material counterpoints produced by the very culture from which he and others have sought such ideals.

Laugier commissioned illustrations for the French (1755) and English (1756) versions of the expanded second edition of his treatise, both of which depict the "Greek hut" (Figures 84 and 85).[59] This single-room structure with a pedimental roof is being pieced together from wood and branches and set within a pastoral landscape. Laugier invoked the simplicity and purity of this ancient Greek temple of branches, in contrast to the rich ornamentation of architecture contemporary with his writing.

"The Vitruvian Body in *De architectura*'s Third Preface: Architecture and Rhetoric Between Nature and Art," in *Material World: The Intersection of Art, Science, and Nature in Ancient Literature and its Renaissance Reception*, ed. Guy Hudreen (Leiden: Brill, 2021), 50–66. On the engagement with the Greek architectural past in Vitruvius, see Marden Fitzpatrick Nichols, *Author and Audience in Vitruvius' De Architectura* (Cambridge: Cambridge University Press, 2017), 23–41. On the development of the hut in Vitruvius, see Claudio Sgarbi, "A Newly Discovered Corpus of Vitruvean Images," *RES* 23 (Spring 1993): 34, fig. 1.

56 Laugier refers briefly to Vitruvius in his preface. Marc-Antione Laugier, *Essai sur l'architecture*, rev. ed. (Paris: Duchesne, 1755), xxxv.

57 Laugier, An *Essay on the Study and Practice of Architecture*, 3–4.

58 See Joseph Rykwert, *On Adam's House in Paradise: The Idea of the Primitive Hut in Architectural History*, 2nd ed. (Cambridge, MA: MIT Press, 1981), 35; 90–91; 141–151. Ginger Nolan, "Architecture's Death Drive: The Primitive Hut Against History," *Log* 42 (2018): 91–102. Nolan emphasizes the "preoccupation with insides and outsides, with borders that frame this relationship; and conversely, with architectures that nest and burrow into the earth, dissolving the boundaries and milieu (through the substrate of the *boden*)," 98. See also Antione-Chrystostum Quatremère de Quincy, who credits Vitruvius with the rustic hut, Antione-Chrystostum Quatremère de Quincy, Charles Joseph Panckoucke, Clément Plomteux, and Antoinette-Pauline Agasse, *Encyclopédie méthodique: architecture* (Paris: Chez Panckoucke, hôtel de Thou, rue des Poitevins, 1788), 382. For Goethe's counterargument see the discussion in Daniel L Purdy, *On the Ruins of Babel: Architectural Metaphor in German Thought* (Ithaca, NY: Cornell University Press, 2011), 165–166; Dorothea von de Mücke, "Beyond the Paradigm of Representation: Goethe on Architecture," *Grey Room* 35 (2009): 9–11. See also Ovid *Met.* VIII.982–988, in which the wooden beams of Philemon and Baucis's home turns into columns, the yellow thatched roof into gold, with doors inlaid with bronze, and the dirt floor became marble.

59 For an analysis of the prints of the frontispiece, see Fabio Restrepo Hernández, *Ceci est mon testament,* Phdiss (Universidad de Los Andes Bogotá, Columbia, 2010), 34-40. See also Mari Lending, "Origins in Translation," *Drawing Matter* (20 January 2020): https://drawingmatter.org/origins-in-translation/

Figure 84 Frontispiece to Marc-Antoine Laugier, *Essai sur l'architecture* (Paris : Chez Duchesne, Libraire, rue S. Jacques, au-dessous de la Fontaine S. Benoît, au Temple du Goût, 1755). Source: the Morgan library

In the French version, a female personification of Architecture reclines on a pile of architectural fragments and points towards the structure with a baby Eros-figure as witness. Architecture as classicizing goddess shows us her preference. In the English translation, the female personification has been replaced with laboring male bodies. Nine men work on, around, and in front of the

Figure 85
Samuel Wale, Frontispiece to Marc-Antoine Laugier, *An Essay on the Study and Practice of Architecture: Explaining the True Principles of the Science; . . . Illustrated with Figures, Elegantly Engraved, . . . To Which Are Added, Directions for the Embellishment of Cities, and for the Laying Out of Gardens*. London: printed for Stanley Crowder and Henry Woodgate, 1755, engraving. © Sir John Soane's Museum, London

wooden building. Two mature, leafy trees frame the scene. In the foreground, the laborers chop wood with an axe and mix mortar in a pit. Two men thatch the roof with leafy branches. The vertical supports of the unwalled structure all retain their bark and the stubs of cut limbs, but the ends have been shaped into columns that hold up the roof and frame the hut. The earth, argues Laugier, provides all the necessary materials with which to build.

Laugier's turn to natural materials would have resonated with architects and builders working at Delphi in antiquity, but they were not working in pursuit of the ends to which Laugier seeks to direct this connection to nature. In an era before commercial chemical production of colors, all building, painting, and sculpting materials emerged from the earth, including the quarried marble, forged metals, and pigments painted over a building. For an architect, artist, or beholder working in the ancient Mediterranean, the earth supplied not simplicity and purity, but rich, polychrome variegation, all superimposed upon and drawing from the rich polychrome variegation of the landscape.

The idealized primitive Greek hut also finds its way into archaeological interpretation of ancient Greek architecture and reemerges as a theory advanced by the nineteenth-century German archaeologist Wilhelm Dörpfeld, who excavated Olympia. He held that the Doric style of Greek architecture derived its formal characteristics – thick columns capped with simple capitals and a band of triglyphs and metopes – from petrified wooden predecessors.[60] Wood, like many organic materials, is rarely substantially preserved in the archaeological record, so its ancient presence can often only be hypothesized from architectural absences.

Laugier imagines a version of the first laurel branch Temple of Apollo in pursuit of architectural purity and simplicity, whereas the laurel temple itself was one iteration in a series of polychrome, polymaterial structures invoked in song and superimposed one on top of the other in the history of the extant stone temple. Laugier did not present this prototype of a simple wooden Greek building to celebrate the deep brown of its bark and bright green of its leaves or to celebrate the architectural polychromy of ancient Greek buildings. His focus on an ur-prototype and seriality follows a similar path to Plato's account of the chora reproducing forms and to the excision of material color in and through the reproduction and replication of images in the reception tradition. Laugier's Greek hut contributes to the prioritization of form and formal similarity as the standard for comparison, rather than on the constitutive primacy of material color. The wood (*hulē*) of the mythical Greek hut in Laugier's account emphasizes its earthborn matter only on its way to becoming an ideal form (*eidos*).

The mobilization of monochrome sculptural and architectural bodies from antiquity by fascist and white supremacist groups embraces a similar logic to Laugier's idealization of the stripped-down hut, as the 2020 executive order "Promoting Beautiful Federal Civic Architecture," which prescribed building in the classical style, made visible.[61] Linking this executive order with earlier white supremacist rallies, such as the "Unite the Right" rally in Charlottesville, Virginia, in 2017, and the physical occupation by white supremacists

60 Friedrich Adler, Richard Borrmann, and Wilhelm Dörpfeld, *Die Baudenkmäler von Olympia* (Berlin: Asher, 1892), 36. Dörpfeld 1935, 187–189; 2. On Dörpfeld's petrification theory and subsequent revisions to this idea, see Philip Sapirstein, "The Columns of the Heraion at Olympia: Dörpfeld and Early Doric Architecture," *American Journal of Archaeology* 120, no. 4 (2016): 567 n37.

61 Elizabeth Blair, "'Ugly', 'Discordant': New Executive Order Takes Aim at Modern Architecture," *NPR*, December 21, 2020, www.npr.org/2020/02/13/805256707/just-plain-ugly-proposed-executive-order-takes-aim-at-modern-architecture.

of the white-columned and pedimented Capitol Building on January 6, 2021, Lyra Monteiro argues that the 2020 executive order's "ultimate logic is that America's public spaces must be dominated by Greek and Roman architecture in order to affirm that America – like these Mediterranean empires (per white supremacist doctrine) – is a nation made by and for white men."[62] White marble does not straightforwardly represent the white flesh of a body or a building. Instead, unadorned marble stripped of its metal attachments, vibrant polychromy, and historical heterogeneity aligns with the ideology of purification that these groups seek. The fiction of an *eidos*, or pure immaterial form, has its roots in ancient Mediterranean philosophy, but was not the dominant paradigm governing artistic and architectural practice or lived experience. Instead, we encounter a world of colors, matter, and connection.

The excision of material color, like Laugier's paradigm of the simple wooden Greek hut, manufactures a pure, monochrome, white antiquity. Although the 2020 executive order embraced neoclassicism in opposition to modernism, both of these architectural styles draw on fictions of the pure monochrome forms of Greek antiquity and, per Laugier, Roman architects "capable of copying the most excellent models that the Greeks helped them to."[63] Even modes that eschew neoclassical forms embrace, instead, a stripped down, monochrome aesthetic. Modernist architect Louis Kahn, for example, traveled through Egypt and the Mediterranean in 1951 and made a series of drawings, including of the pyramids at Giza, the Parthenon, and a tree from Delphi (Figure 86). Kahn also designed a number of iconic structures, including the Four Freedoms Park commemorating President Franklin Delano Roosevelt in New York City (Figure 87). Kahn's monument, with its monochrome concrete forms, draws on the stripped-down simplicity of the Greek hut invoked by his drawing of the Delphic tree, without replicating neoclassical shapes. Notably, Laugier connected a notion of "freedom" to architectural forms, rather than color and material and Kahn's design celebrates Roosevelt's ideal of the Four Freedoms through monochrome forms.[64] Despite a vast stylistic and political gulf, Kahn's modernism and those advocating for neoclassical Federal architecture draw on the same fiction of monochrome Greek forms.

Writing of the ur-myth of the ancient Greek hut as architecture's death drive, Ginger Nolan captures the intersecting structural problems undergirding the pursuit of pure, unornamented form for which Laugier advocated:

> We might ascribe architectural phenomenology's disquietingly fascist-*like* aspects to a more general pathology endemic to modernism: a pathology that has to do with the purification of architecture (as distinct from the purification of nation-race). The problem is that these homologous operations of purification are often hard to disentangle . . . Purification entails a disavowal of history's heterogeneity so as to recuperate an originary moment at which a thing – whether architecture or nation-race – purely expressed its own nature.[65]

Like Laugier's paradigm of the simple Greek wooden hut, both modernist and neoclassical civic architecture are built on the fiction of antiquity's monochrome simplicity. Monochrome ur-forms (*eidē*) project a static picture of the built environment occupying the landscape. The iconic white marble, classical temple

62 Lyra Monteiro, "How a Trump Executive Order Aims to Set White Supremacy in Stone," *Hyperallergic*, January 12, 2021, https://hyperallergic.com/614175/how-a-trump-executive-order-aims-to-set-white-supremacy-in-stone.

63 Laugier, *An Essay on the Study and Practice of Architecture*, 3.

64 Ibid., 17.

65 Nolan, "Architecture's Death Drive," 92.

Figure 86 Louis I. Kahn, *Tree Study*, Delphi, Greece, 1951, charcoal pencil on paper. © Estate of Louis Kahn and Courtesy of Sue Ann Kahn

continues to shape ideas about and afterlives of ancient Mediterranean art and architecture. Architectural polychromy formed through fitting together material color-parts and adding polychrome pigments and metal attachments makes visible a radically different set of ancient priorities and practices. The heterogeneous material colors of the built environment acted on and were acted upon by the equally heterogeneous and polychrome environment of which they become a part. Recovering the colors of and on the built environment recovers the deliberate material heterogeneity of ancient practice and shows the importance of juxtaposing, superimposing, and mixing material colors.

EMBODIED KHŌRA

The Siphnian treasury was known in antiquity for its ornate polychrome decoration. Its well-placed position meant that at least

Figure 87 Louis I. Kahn, Franklin D. Roosevelt Four Freedoms State Park, New York, granite from Mount Airy, NC, designed 1973 and completed 2010–2012. Photo: Diane Bondereff

one face of the building was prominently visible from either the east or west entrance to the sanctuary, and each face was covered in bright material colors.[66] To reach the Temple of Apollo, a pilgrim had to turn away from the rich panorama of the land below and walk past a succession of highly adorned polychrome treasuries erected by different city-states to house Delphi's material abundance of civic and individual dedications.[67] These buildings were city-state sponsored, built far away from the territory of the cities that dedicated them, and were generally intended to house the dedications of a given city's citizens.[68] Some of the material colors of the Siphnian treasury, built around 525 BCE, remain visible today.[69] The *khrōma* of the treasury includes added blue, brown, red, white, and green pigments, as well as gleaming metal attachments. Limestone, marbles, metals, and pigments make

66 At the time of the treasury's construction, visitors entered the sanctuary from the southwest entrance, confronting the West façade of the treasury immediately. Only later in antiquity did the southeast entrance supersede the southwest. Jean-François Bommelaer, *Guide de Delphes: le site* (Athens: École française d'Athènes, 1991), 94, 97, 124, nos. 103, 232.

67 As Richard Neer has argued, the rise of civic treasuries, literally treasure-houses (*thesauroi*), corresponded with a transition in many Greek cities from aristocratic power centered around individuals and their *oikoi* and towards the civic power of the polis, under which, for citizens, collected resources were claimed and redistributed by the city rather than the household. Neer describes the treasury as "a synecdoche for the polis itself." Neer, "Framing the Gift," 284.

68 Ibid., 277–278.

69 On the Siphnian treasury, see Georges Daux, Erik Hansen, and Marie-Christine Hellmann, *Le Trésor de Siphnos* (Paris: Diffusion, De Boccard, 1987). For reconstructions of the treasury's additive color, see www.stiftung-archaeologie.de/SiphnTreasEast_1_1.html and additional variations.

up the building and these materials each found some contrast or extension in the surrounding natural setting, and as time went on, in relation to the increasing number of adjacent treasuries and freestanding dedications in the sanctuary.

While the Delphic landscape is one *khōra*, the treasure-house, like the temple, is another, nested within the landscape and interacting with it. Some of the materials used to craft the treasure-houses, including the Siphnian, were drawn from the immediate Delphic landscape. The foundations of the Siphnian treasury, for example, were built, like the temple, from local blue-gray limestone. This choice built the material color of the Delphic *khōra* into the structure. Materials used for the superstructure, however, were imported from three other places, piecing together the building from geographically dispersed parts assembled in its making.[70] In addition to the local blue-gray limestone, the Siphnians used marble imported from the island of Siphnos for the superstructure. Use of Siphnian marble, which was not a pan-Mediterranean luxury good, was a deliberate choice to mobilize localizable material with its own colors, in the construction of their treasure-house at Delphi. Nor were the Siphnians alone in incorporating stones from their home into their building at Delphi; many of the treasure-houses included parts built from materials imported from the city that sponsored the treasury, showcasing the effort and expense that the practice demanded.[71] Builders added marble imported from Naxos and Paros, two islands with renowned quarries often used for sculpture, to the Siphnian marble. The complete structure had a foundation built up from local blue-gray limestone, walls of imported Siphnian marble, carved and painted floral bands of Naxian marble, and a frieze and pediments carved from and painted on Parian marble.[72] Pigments and metal attachments were then layered on top of this polychrome assemblage of different stones. Variegated materials make up both the building's surface and its internal structure.

The expense, labor, and engineering required to bring together such variegated building parts all contributed to the treasury's effects. Wealth from the gold and silver mines of Siphnos likely funded the procurement and construction of the treasury (Herodotos 3.57.1–3.58.4).[73] By assembling the building from a combination of materials the Siphnians asserted their civic authority in this space and deepened their connection to Delphi by working local limestone for the foundations. Sourced from different places (*topoi*) and collected and assembled within the Delphic *khōra*, the treasure-house is built up through the juxtaposition of materials to produce variegation with localizable parts (Delphic, Siphnian, Naxian, and Parian). These produce a polychrome sub- and superstructure drawing from the landscape while also bringing together material color from other landscapes so that each *khōra* generates and circulates matter. We might understand each of these locations as a *khōra*. In this relational model, *khōra* or landscape contributes material colors to build up forms that circulate beyond its

70 Daux, Hansen, and Hellmann, *Le Trésor de Siphnos*, 26–31, 233.

71 On the importation of local materials from each sponsoring city-state to Delphi, see Neer, "Framing the Gift," 278–279. On the word treasury, ibid., 274, 278; On the extraterritorial nature of treasuries, ibid., 277.

72 Daux, Hansen, and Hellmann, *Le Trésor de Siphnos*, x; Neer, "Framing the Gift," 290. The treasury was not, as Brinkmann states, carved entirely from Parian marble. Brinkmann, *Gods in Color*, 55.

73 See J. Theodore Bent, "On the Gold and Silver Mines of Siphnos," *The Journal of Hellenic Studies* 6 (1885): 195–198. On enslaved labor and mining in the ancient world, see Deborah Kamen, *Status in Classical Athens* (Princeton: Princeton University Press, 2013), 1–18; Neer, "Framing the Gift," 306; On the relationship of towers, mines, and enslaved labor, see Sarah Morris and John Papadopoulos, "Greek Towers and Slaves: An Archaeology of Exploitation," *American Journal of Archaeology* (April 2005): 155–225.

boundaries, but each *khōra* also takes in and connects to material color from other spaces or *khorai*. The operations of *khōra* in the lived experience of the visible world differ from Plato's notional pre-primordial void.

The crystalline structure of high-value marbles, especially Parian and Naxian, has often been held up as a reason to reject the fact of architectural polychromy in the ancient Mediterranean. It seems strange to quarry, purchase, and import high-value marble, only to cover its surface with pigments. This dismissal misses the importance of the materials themselves in the story of the building. It also fails to recognize the important interactions of pigments and different material supports. The interaction of the highly crystalline Parian marble of the pediments and frieze and the pigments layered on the marble produced a sparkling, variegated surface integrated with the structure of the building. Many parts of the building retain visible applied pigments.[74] The style and iconography of the carved sculpture on the Siphnian treasury has been the subject of extended analysis since its excavation.[75] Despite the pigments and holes for metal attachments that remain visible on the reliefs now on display in the museum at Delphi, these colors have factored only minimally into analysis of the monument.[76]

Given the importance of the raw materials used in constructing the treasure-house, the pigments must have been just as carefully selected and applied. In the volume of *Fouilles de Delphes* dedicated to the Siphnian treasury, Georges Daux includes three-quarters of a page on the monument's polychromy and a color reconstruction on paper of the polychromy of the moldings running above and below the frieze (Figure 88).[77] Daux writes, "this treasury of white marble was painted with vibrant colors."[78] He goes on to discuss the tentative acknowledgment of that polychromy by the original excavators in the late nineteenth century, who saw traces of pigments on the emerging stones, including blue, red, and green.[79] Although Daux does not offer any complete reconstructions, he describes the blue background of the relief space, with its red plinth and groundline as well as additional details in blue, red and green.[80] Daux confirms that some of the paint traces remained visible to his team in the 1980s, as some do today. Details of the site's polychromy also survive in watercolor reconstructions painted in the nineteenth century, which remain the best suggestion, although subjective, for what color was preserved at the time of the earliest excavations at Delphi.[81] Additional comparanda of architectural polychromy from the later material colors

74 For a reconstruction, see www.nikeisnow.co.uk/index.php/shultz-on-nike/nike-at-delphi. The details are as follows: a pediment carved from Parian marble that depicts Herakles's (foiled) attempt to steal the Delphic tripod from Apollo; the frieze, also carved from Parian marble, that possibly depicts the Judgment of Paris to the west, an abduction scene to the south, the battle between the Olympian gods and the giants to the north, and to the east the fight between Greeks and Trojans over the body of Antilochus after he has been killed by the Aithiopian hero Memnon (Pindar *Pythian Odes* 6.28) as well as an assembly of the gods. For a complete description of the iconography and style, see Stewart, *Greek Sculpture*, 128–129.

75 Scott, *Delphi*, 112–115; Neer, "Framing the Gift," 302–303; Charles Picard, *Sculptures grecques de Delphes* (Paris: E. de Boccard, 1927).

76 Neer, "Framing the Gift," 291.

77 Daux, Hansen, and Hellmann, *Le Trésor de Siphnos*, 222, 233n3–7. The reconstruction of these decorative fragments is based on notes taken by the original excavators, which describe multiple colors, but not always with replicable specificity.

78 Ibid., 233.

79 Théophile Homolle, "Nouvelles et correspondance. Delphes – Trésor des Siphniens," *Bulletin de correspondance hellénique BCH* 18 (1894): 194. Homolle et al. "Institut de correspondance hellénique," *Bulletin de correspondance hellénique* 19 (1895): 535.

80 See also Bommelaer, *Guide de Delphes*, 125, for a description of the polychromy of the moldings and bronze attachments.

81 Hellmann and Fraisse, *Le Trésor de Siphnos*.

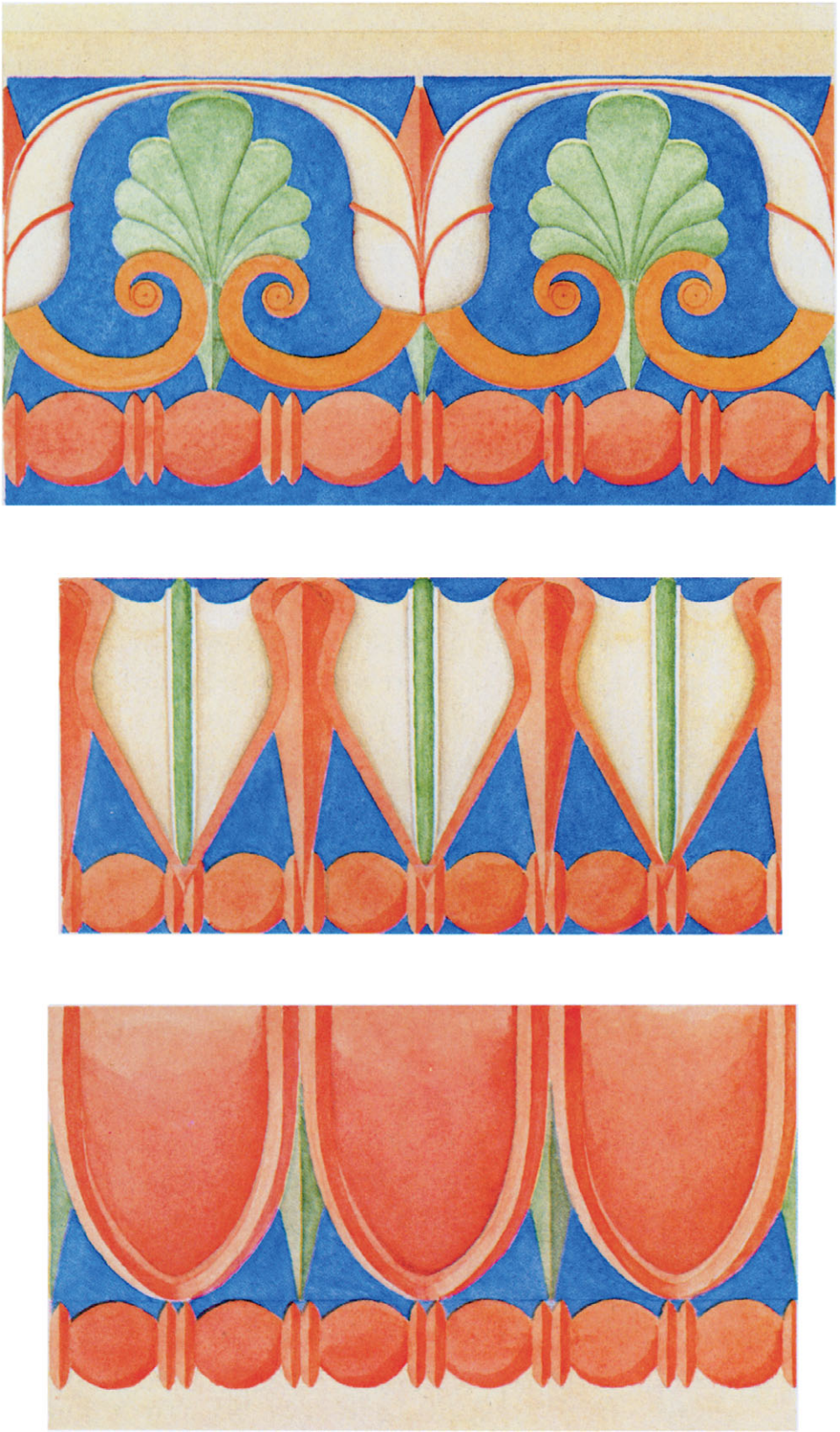


Figure 88 Reconstruction of pigments on marble moulding from the Siphnian Treasury, ink on paper, Georges Daux, *Fouilles de Delphes*, t.2: pt.10:v.2

of the Parthenon includes, not only the previously presented metopes, which also had blue backgrounds, but also evidence of a painted meander pattern on the molding that would have wrapped and framed the four sides of the building, pictured here with its associated reconstruction (Figures 89 and 90).[82] Such painting also links architecture produced in marble with architecture produced in other materials, including terracotta.[83] Each of these examples demonstrates that material colors built up many non-figural patterns which intersected with the vibrant colors of the landscape.

In addition to colorful non-figural patterns, many traces of material colors remain extant on figural elements of the frieze of the Siphnian treasure-house. In particular, the insides of many shields, for example, retain traces of red pigment, as do garments and hair in the reliefs. For example, in the abduction scene on the south frieze, red pigments cling to the long hair of a woman being forcibly carried off to a chariot (Figure 91). Were the rest of the scene's material colors extant, its subject matter and the particulars of the abduction would have registered more directly. The loss of the relief's material color-parts sanitizes and abstracts some of the scene's violence and recovering the material colors that would have made up the scene also recovers its visual intensity. On the north frieze depicting the battle between the gods and giants, Hephaestos appears at the far left with his bellows, forging metal ore and bright weapons for himself and the other gods in their battle with the giants (Figure 92). Artists carved his forge in marble and painted it, presenting the tools of one artistic medium using those of another. In addition, remnants of and holes for metal attachments to add weapons and personal adornments such as earrings and hairbands, stud the reliefs, indicating that gleaming metal would have been fitted together with pigments and marble to populate the frieze with brilliant Hephaestian metalwork while also depicting him in the process of forging ore.[84] Dedications of gleaming bronze statues, tripods, and vessels throughout the sanctuary would also have echoed the metal on the frieze and within the treasure-house.

On the East frieze, Achilles and Memnon fight over the body of Antilochus (Figure 93).[85] Vivid red paint traces remain visible inside Memnon's shield, while Medusa's head looks out from the shield of Achilles (Figures 94 and 95). Conservation analysis using x-ray fluorescence recovered a copper-based green pigment coloring the hair and lead white in the eye of the decapitated head of Medusa.[86] These analyses build on the extant pigments visible to the naked eye and expand our knowledge of the range of additive pigments that once made up the frieze. A comparable example found in Athens preserves red and blue pigments on a similar marble shield with Medusa's head at the center, suggesting the regular addition of pigments to such representations. Layering either the x-ray fluorescence analysis or the painted

82 Similarly, Similarly, painted patterns preserved on two Ionic fragments from the temple of Athena at Sounion (ca. 460–450 BCE) now in the National Archaeological Museum (4478, 4479) gives some sense of how widespread painted architecture would have been in antiquity.

83 Examples of painted patterns on architectural terracotta include Olympia, Athens, Epidaurus, Syracuse, and Temple C from Silenus.

84 On the iconography of metal in the context of Siphnian mining wealth, see Neer, "Framing the Gift," 314–315.

85 On the tradition of Achilles and Memnon fighting over the body of Antilochus, see OCD, s.v. Antilochus. The team carrying out the reconstruction elected to fill in colors only where physical evidence remained, thus many of the figures remain white. The interiors of the shields are all painted red (still visible to the naked eye), with green for the shield-strap. A brownish red is used on some of the figures' hair, both divine and human. See www.stiftung-archaeologie.de/SiphnTreasEast_2_1.html.

86 Mattias Alfed et al., "The Eye of the Medusa: XRF Imaging Reveals Unknown Traces of Antique Polychromy," *Analytical Chemistry* 89.3 (2016): 1493–1500.

Figure 89 Fragment of a frieze-crown from the Parthenon, 438 BCE–432 BCE. Marble from Penteli with added pigments. British Museum, London 1816,0610.397 © The Trustees of the British Museum

marble shield from Athens over the section of the East frieze of the Siphinian treasury offers some indication of where and how colors would have emphasized the shield amid the battle represented on the frieze (Figures 96 and 97).

Such shields drew on representations of Medusa that artists carved and painted on a range of architectural structures. For example, artists carved and painted the scene of Perseus beheading Medusa, as well as an image of her head alone on the metopes at Temple C from Selinus (sixth century BCE). At Thermos, artists painted flat terracotta panels from the temple of Apollo Thermios (seventh century BCE) to depict Perseus running away with Medusa's decapitated head looking out from under his arm on one panel, and Medusa's head and gaze filling the frame of a second panel (Figure 98).[87] Each context has its own distinct materialities through which artists built up these representations of Medusa.

Building from what remains visible, the Stiftung Archaeologie team, led by Ulrike Koch-Brinkman and Vinzenz Brinkman, has reconstructed the possible polychromy of the East

87 Clemente Marconi, *Temple Decoration and Cultural Identity in the Archaic Greek World: The Metopes of Selinus* (Cambridge: Cambridge University Press, 2007). Stewart, *Greek Sculpture*, 115, pls. 83–87.

Figure 90 Facsimile, fragment of a frieze-crown from the Parthenon with pigments reconstructed. British Museum, London 1816,0610.397 © The Trustees of the British Museum

frieze that runs beneath the pediment (Figure 99 to 101).[88] This is the side that a beholder would encounter when first approaching from the current path. Using a variety of ultraviolet and photographic techniques for recovering paint traces in combination with what remains visible in daylight and raking light, the team has reconstructed color where they have found direct evidence of pigments.[89] Ongoing research continues to change and expand the picture of these colors. For example, sculptors and painters worked together to label the figures – Achilles, Memnon, Antilochus, Ares, Aos, Artemis, Apollo, Athena, Hera, Thetis, and Zeus – in the frieze. The act of incising the marble replicates the way in which the assembled building cuts through the skyline and the manner in which the marble and its pigments have been cut from the ground. Painters then painted these letters, reconstructed by the Brinkmanns in white pigment in vivid contrast with the blue background of the frieze. These white names floating near their figural referents in the frieze evoke the white clouds in the blue sky of the landscape surrounding the building. Such interactions of the built and natural environments – of names, incised letters, added white pigment, and atmospheric cloud – capture the movement of mythical

88 www.stiftung-archaeologie.de/SiphnTreasEast_1_1.html; www.stiftung-archaeologie.de/SiphnTreasEast_3_1.html; www.stiftung-archaeologie.de/SiphnTreasEast_4_1.html.

89 Brinkmann and Wünsche, *Bunte Götter*, with updated variations produced in partnership with Georg-August-Universität Göttingen, Archäologisches Institut.

Figure 91 Frieze (South), fragmentary scene (detail), Marble from Paros with pigments and metal attachments, H. 0.64 m. © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

Figure 92 Frieze (north) from the Siphnian treasury, battle of gods and giants, marble from Paros with pigments and metal attachments, including red pigments visible inside Athena's shield and on Dionysos's garment, © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

Figure 93 Frieze and pediment (East) from the Siphnian treasury, central frame, marble from Paros with pigments and metal attachments, © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

Figure 94 Frieze (East) of the Siphnian treasury, detail of Achilles and Memnon fighting over the body of Antilochus, marble from Paros with pigments and metal attachments, © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

Figure 95 Frieze (East) of the Siphnian treasury, detail of the body of Antilochus, marble from Paros with pigments and metal attachments, © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

names passed on through oral history and performance, fixed by the incised letters, and evocative of and visually connected to the moving, changing, dissipating imagery of clouds against the landscape. While the reconstruction team chose to paint the first iteration in white pigment, for the second the reconstruction team chose to fade the letters for Thetis and Zeus to indicate that no trace remains. These kinds of visual tools can cue beholders to recognize which parts of a reconstruction rest on more stable evidence and which parts remain speculative and such cues also reinforce that these reconstructions are experimental and iterative.

Each marble slab of the frieze of the Siphnian treasury is covered with a solid blue background and deep ochre painted onto the fascia to craft a groundline on which the feet of the figures rest or stand. Recovering this blue and ochre makes visible the ways in which the building superimposes its colors upon the blues of the surrounding Delphic sky and upon the rich soil into which the building's foundations have been cut and on which each beholder stands. On the one hand, these colors do representational work within the frieze: they create the environment in which its internal actions – of debate among the gods and of battles between opposing heroes – are set. On the other hand, these colors also craft a set of animated interactions between the world represented on the building and the world in which the building has been built up (Figure 102).

On the far right of the East frieze, four horses pull Automedon's quadriga. The manes of the horses are staggered blue, red, green, red, with small amounts of the original pigments still

Figure 96 Fragment of a sculpture of an arm holding a shield carved and painted with an image of the head of Medusa at its center, marble from Paros with pigments, 500 BCE, H: 0.185 m, Acroplois Museum, Athens Acr.338. © Acropolis Museum

Figure 97 Experimentally acquired elemental distribution image of pigments placed over the image of Medusa on the shield of Achilles from the frieze (East) of the Siphnian treasury. Source: Alfed et al., "The Eye of the Medusa," 1497, fig. 5 and photo courtesy of Dr. Steven Zucker. ©Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis– Archaeological Receipts Fund

Figure 98 Metope from Temple of Apollo at Thermos depicting the head of Medusa, terracotta and pigments, Seventh century BCE, National Archaeological Museum, Athens © Hellenic Ministry of Culture and Sports – Archaeological Receipts Fund

preserved.[90] These are partly superimposed over each other to create depth in the relief, and the variegated manes are set against the blue background. The color of each mane distinguishes it from the next, but their multiple colors act together, as do the four horses that pull the quadriga. This layering of contrasting manes produces coloristic order. Superimposition, layering, and delineation of interacting parts governed color, so that the order of the polychrome landscape found instantiation in the order of the

90 Brinkmann, *Gods in Color,* 59, figs. 82–85. www.stiftung-archaeologie.de/SiphnTreasEast_4_1.html.

Figure 99 Reconstruction of the East frieze of the Siphnian treasury, Delphi, Plaster with historical pigments, Slabs 1 and 2, Variant A © Courtesy of Vinzenz Brinkmann, Ulrike Koch-Brinkmann and Georg-August-Universität Göttingen, Archäologisches Institut. Photo by Stephan Eckardt

Figure 100 Reconstruction of the East frieze of the Siphnian treasury, Delphi, Plaster with historical pigments, Slabs 3, Variant A © Courtesy of Vinzenz Brinkmann, Ulrike Koch-Brinkmann and Georg-August-Universität Göttingen, Archäologisches Institut. Photo by Stephan Eckardt

represented landscape. The relationship between the choric landscape and the choric building thus is not one of competition or representational imitation, but of structural evocation and interaction. Juxtaposition and superimposition of colors is one means of structuring them, and it is a spatial process.[91] Layering of the horses'

91 On juxtaposition as a form of color mixing in Aristotle *De Sensu* 3.439b15; Ierodiakonou, "Empedocles on Colour and

Figure 101 Reconstruction of the East frieze of the Siphnian treasury, Delphi, Plaster with historical pigments, Slabs 4, Variant A © Courtesy of Vinzenz Brinkmann, Ulrike Koch-Brinkmann, and Georg-August-Universität Göttingen, Archäologisches Institut, Photo Stephan Eckardt

manes in distinct colors orders a beholder's experience of the scene and renders the animals both individually distinct and joined through their layered superimposition. Set against the blue background of the frieze, the colors of the manes offer a rhythmic connection to the surrounding landscape against which they are set, such that they are superimposed against, connecting to, and contrasting with the surrounding colors of nature.

At the center of the assembly of the gods, the figure of Zeus wears a red garment decorated with glittering stars, underscoring the difference in daylight between the frieze and the surrounding environment, edging closer to alignment as each day passed towards night, twinkling out of visibility with the dusk, so that when the vast starscape of the Delphic *khōra* became visible in the night sky, few of the treasure-house's colors would have been fully visible, other than by flickering torchlight. Natural light conditions change throughout the day and these would have altered the experience of these colors for ancient beholders as they alter our experiences today. As the light changes, the colors of the natural setting and the built environment change as well.[92] Kinesis of the landscape's colors is also experienced as kinesis of the building's colors.

Colour Vision," 18. Sassi, "Perceiving Colors," 271; Porter, *The Origins of Aesthetic Thought*, 153n93.

92 Several polychrome reconstruction efforts attempt to account for the role of light from the sun in beholding color. Examples from Delos and from Pompeii offer a glimpse of how raking light of the sun altered the experience of an object's colors throughout the day. See Brigitte Bourgeois and Philippe Jockey, *Les Arts de la couleur en Grèce ancienne. . .et ailleurs: approches interdisciplinaires*, ed. Philippe Jockey (Athens: École française d'Athènes, 2018), 166–167; Ethan Gruber, "The House of the Faun in a New Light," https://vimeo.com/38875794.

Figure 102 Delphi in daylight. ©Archaeological Site of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund

The material colors of the relief and the material colors of the landscape into which they have been set act on and with each other. The figures of the friezes are set against a blue background around which the framing colors of the Delphic landscape change as day moves into night and back. Red and green foot and crown moldings further frame the painted frieze with contrasting polychromy. Elena Walter-Karydi notes a shift from predominantly red to blue background color in architectural relief in the late sixth century BCE, for which she cites the blue backgrounds identified for the friezes on the Parthenon, the Hephaisteion, the Siphnian treasury, and the Mausoleum of Halikarnassos.[93] She argues that this blue color of the relief background does not mimetically represent the sky.[94] In favor of Walter-Karydi's position, we find both interior and exterior scenes set against blue. If we move beyond mimesis, however, the blue background of architectural relief stages a relationship between the surrounding sky and the representational space of the frieze. This relationship is neither one of competition nor one of striving imitation, but rather one of mutual inflection. As nested *khorai*, the building emerges from the landscape and acts within it.

The shifting blues of the surrounding natural world and the blue pigment of the relief interact

93 Walter-Karydi, "The Coloring of the Relief Background in Archaic and Classical Greek Sculpture," in *Gods in Color*, ed. V. Brinkmann and R. Wünsche 2008 (Cambridge, MA: Harvard University Art Museums, 2008), 172–177.

94 Ibid., 175, 177.

Figure 103 Delphi under a night sky. © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund

with each other recursively. Light shining on its façade and the contrast with adjacent colors, both added and natural, render the background as changeable as the sky (Figure 103). These blues alter a beholder's experience of the natural setting and the architecture set within it. While a beholder would not mistake the painted background for surrounding air and sky, the superimposition of the colors of the frieze on the colors of the natural world animates the space between them.[95] This space is energized by matter, since pigments, parts that make up a building, and handfuls of earth are all material colors.

Delphi brought together disparate materials and people, drawing variegation from one place (*topos*) to another. These colors of the built and natural environments continue to change and inflect each other. The earth is constantly moving; with that movement light conditions shift and under those shifting conditions the appearance of colors alters. All of this we accept as part of the natural world, the reds of a setting or rising sun, the bright blue of a cloudless sky that shifts to midnight as bright stars emerge, the brown, sunburnt grass of summer, the polychrome abundance of spring, and the pallid grays of winter. Daily, seasonally, the earth changes its colors. Material colors of the built environment – a brightly delineated relief, the gleam of a bronze door, a painted pediment, a mosaic floor – all

95 The changeableness of color emerges as a source of its power, which counters the prevailing logic that color's changeableness countered truth and authenticity, a position advocated for by Plato and picked up in the early modern *paragoni* between painting and sculpture and between color and drawing. Pl. *Gorgias* 465a–b; Lichtenstein, "Eloquence of Color," 37–54.

change in relation to the daily rotation of the earth, but they also insert themselves into their environment, shifting the way a beholder perceives the surrounding sky, plants and earth. As the light conditions change throughout the day and seasons and the sun's rays sweep across a given area, pictorial and color elements are alternatively highlighted and shadowed. This creates a daily cinematographic panning movement across changing colors.

In his study of color and the unique environment of Venice, Paul Hills argues that the reflective water and ambient light of its canals, the rich imports that moved through its port, and the vibrant colors used on its architecture and in its painting tradition, all act upon and enhance each other to create a city for which vibrant color became a powerful attribute.[96] Certainly the case of Venice is particularly unusual, but Hills's insistence that we take seriously the interaction of artistic and natural colors applies widely. Of Venetian color, Hills writes:

> Venice, through its setting and its politics, creates a unique relation between the subject – as citizen-inhabitant and viewer – and the object viewed – the city, the work of art. Colour plays a role in this special subjectivity, operating at a subliminal level of shared experience of the climate and atmosphere of the lagoon (which in pictorial terms harmonizes colour by interweaving reflections, by softening and blending) and at the conscious level of design in clothes, in flags and even in the carpets hung from balconies.[97]

Although the cultural and geographic conditions of Delphi and Venice differ markedly, the integrated approach of Hills's reading of Venice is equally appropriate at Delphi. For Venice, Hills argues for a reciprocal relationship between a beholder's experience of the place and the art that they might choose to produce or consume. Similarly, the rich Delphic landscape of mountain, spring, and valley are juxtaposed with the varied materials of the substructure and the rich colors applied to each building's surface acting on and in dialogue with each other and with beholders who bring their own material bodies, sweat, odors, footsteps, voices, and objects to dedicate as they move through the space. Each building and its range of colors is juxtaposed with, superimposed against, and mixed with the colors and materials of the many other monuments on the site and across the Delphic countryside. The colors of each building affect each other, but they also act on and with the colors surrounding them. Nature and the built environment may be said to color each other. If *khōra* is space, landscape, and receptacle within which material forms come into being, the site Delphi may be said to be *khōra*, both a site of formal activity, and a space within which materials are brought together, recombined, formed, and set up. Recognizing the symbiosis of color as matter and form produces a different relationship to nature, one of interaction and interconnection, rather than competition and control. *Khōra*, at once material place and indescribable material void, captures the land as a source for the materiality of color and form, as well as a space within which these assemblages are pieced together and across which they travel.

Coloristic relationships at Delphi are shot through with interactions between nature, colors, and forms. Architects, builders, and artists built up each structure, juxtaposing materials and additive and pieced-together colors. The forms that these material colors make up both enclose and contain more objects formed from material color

96 Paul Hills, *Venetian Colour: Marble, Mosaic, Painting and Glass, 1250–1550* (New Haven: Yale University Press, 1999).
97 Ibid., 18.

(such as dedications to a treasury or temple) and are superimposed against the changing colors of the landscape. The notion of material color proposes polychrome assemblages that scale from the indivisible atom, or an aggregate of polychrome particles, to a figural body pieced together from polychrome forms, or a building built up from polychrome materials. At Delphi as *khōra* (landscape, space, container) this scalability expands outwards across the site.

The Siphnian treasury, like the other buildings and dedications in the sanctuary, is a product of the earth worked by humans. Metals, pigments, clays, limestones, marbles, fires, bodies, and songs produce a polychrome world. While assemblages of applied, pieced-together, and natural colors can be found at any site, these relationships take on particular resonance at Delphi. Known as the navel, or *omphalos,* of the ancient Mediterranean, this pilgrimage center drew in people and materials from throughout the wider Mediterranean, but through the oracle's pronouncements also sent people and materials outwards. As an *omphalos* Delphi is not merely a center, but also a source that nourishes, provides, generates, and destroys. Delphi as *khōra* is a heavily layered landscape filled with vibrant material colors and as *khōra,* the site draws in, gives forth, and mixes together the material color of objects, buildings, and living bodies.

An extended ekphrasis from Book VI of the *Odyssey* thematizes Odysseos's encounter with the material splendor of the built environment. Having washed up on shore in Scheria, Odysseos makes his way to the palace of Alcinous where vivid material color arrests his gaze and approach – a bronze threshold gives onto bronze walls lined with a contrasting frieze of lapis lazuli or blue inlay, gold doors, silver pillars, gold statues, and embroidered textiles, opening onto a lush fruit-bearing garden of pears, apples, pomegranates, olives, grapes, figs, and springs of water (6.80–130).[98] Odysseos's encounter with the material colors of the palace narrates the encounter of a traveler or pilgrim with the abundant colors of the built environment and cultivated earth. At the site of Delphi, each body emerged from the physical toll of the journey itself into the striking landscape and material polychromy of the sanctuary.

On Scheria, Odysseos encounters not only the polychrome material abundance of the palace, but also enslaved laborers who grind grain and weave tapestries. He also encounters sculpted bodies that labor, golden guard dogs, and golden kouros-style light-bearers. At Delphi, people would also have managed the relentless transport of materials into the site and, the ongoing building projects, as well as care for the material colors of its built environments. Recovering the site's colors also marks their less visible labor. In addition, as Ruth Bielfeldt has demonstrated in the later context of Pompeii, embodied objects that labor also act on the living bodies with which they engage.[99] At Delphi, a beholder would also have encountered polychrome, anthropomorphic bodies doing structural work.[100] On the Siphnian treasury, the caryatids formed from material color physically hold up the roof. They are assemblages, but also structural parts that form and order the whole polychrome building. They

98 Homer, *The Odyssey*, trans. Emily Wilson (New York: W. W. Norton, 2018), 210–212.

99 In the context of Pompeiian houses, Ruth Bielfeldt has explored this relationship between living bodies and sculptures that perform labor, especially anthropomorphic light-bearing statues that perform roles also demanded of enslaved bodies. See Ruth Bielfeldt, "*Candelabrus* and Trimalchio: Embodied Art Histories and Roman Lampstands and their Slaves," *Art History* 41, no. 3 (2018): 420–443.

100 Elena Karakasi, *Archaic Korai* (Los Angeles: J. Paul Getty Museum, 2004). At Delphi, the vivid materiality of personal dedications had been partially harnessed by the city-state, enclosed in the *khōra* of each treasure-house, but freestanding dedications also stood for their dedicators. On the role of the city-state, see Neer, "Framing the Gift," 277, 297.

bring the architectural polychromy of the site of Delphi (*khōra*) and of the building of the treasury (*khōra*) to the scale of human bodies (also *khōra*).

To produce variegation, colors must join and mix. Although the excision of colors and variegation from classical art and architecture largely occurs through their reception history, as Laugier's wooden hut exemplifies, germs of this purification drive also emerge in ancient Mediterranean texts, such as Hesiod's characterization of Pandora, Helen's beauty likened to pigments of a painting or statue (Eur. *Helen* 262–263), and Platonic and Aristotelian elevation of form (*eidos*).[101] At Delphi, *khōra* allows bodies and materials of various places to mix within space.

Amid his account of matterless *khōra* in the *Timaeus*, Plato describes how mixing might produce a palette of colors (67c4–68d7).[102] The verb for sexual intercourse, *meignumi*, which conveys mixing or mingling, is also used of colors to emphasize both their material substance and their entanglement. It is precisely this mixing that Plato narrates in the production of *khrōma* and effaces from his conception of *khōra* with his insistence, earlier in the same text, that it contributes only gestational space. Plato constructed his *khōra* outside of the world of human experience to avoid mixing. Regulating the maternalized body of the chora in the *Timaeus* corresponds to the regulation of female bodies and their wombs, notions of the feminine (mother as wet nurse), and the mixing of colors – the very mixing that Plato goes on to describe in his theory of colors. Plato feminized the space within which forms are produced yet denied that feminized space material contribution to the production of the forms of the universe. Subsequent feminist critiques of Plato's hollowed out chora contest its construction, but do not return material color to it.

Embodied experiences of landscape undermine this logic of dematerialized space, matterless molding of forms, and bounded, architectural order. As landscape, *khōra* gathers people, plants, pigments, stones, metals, treasure-houses, and sanctuaries, producing spaces of intentional and incidental mixing. Material colors drawn from landscape, buildings, and bodies come together and cohere in and as supple and mutable space.

101 Covering the extensive technical debate over when this passage refers to a painting or a sculpture, see Mary Stieber, *Euripides and the Language of Craft* (Leiden: Brill, 2011), 172–178. As the previous chapter argued, however, material color collapses firm distinctions between painting and sculpture, an ambiguity that the passage in Euripides exploits.

102 For analysis of this passage, see Ierodiakonou, "Plato's Theory of Colours in the Timaeus," 219–233.

Chapter 4

INLAID EYES, EFFLUENCES, AND *OPSIS*

Approaching the bronze statue of a naked male figure from the left, a beholder encounters the uncanny sight of an eye looking out from a socket cast into its head (Figure 104). Anatomical parts of the eye have been pieced together from polychrome materials: white bone for the white, a pink vitreous paste for the tear duct at the inner corner, a ring of black surrounding a thicker brown ring for the iris, and at the center a void where a pupil would once have been inlaid.[1] Only the tear duct alters the symmetry of these concentric circles, decreasing in diameter to the pupil point – white, black, brown, black again – like a target. A sheet of bronze enfolds the back of the eye to hold its parts together; at the front, this bronze sheeting has been sliced into lashes that curl away from the eye and frame it.[2] The eye does not move or contract as a beholder approaches; however, brilliance, hues, and variegation form and animate it.

Polychrome eyes that remain partially preserved or that have been fully reconstructed radically change a beholder's encounter with a polychrome statue. The gaze of the inlaid eye amplifies the impact of the whole polychrome body. The inlaid eye also produces wonder (*thauma*) as it glints, reflects, absorbs, and

1 Edilberto Formigli, ed., *Colore e luce nella statuaria antica in bronzo: indagini archeometriche e sperimentali* (Rome: L'Erma di Bretschneider, 2013), 7–9, 71–76, figs. 23, 24, 28; 55, figs. 1–3.

2 Formigli, *Colore e luce*, 4–10. On bronze eyelashes, see Peter Bol, *Antike Bronzetechnik: Kunst und Handwerk Antiker Erzbildner* (Munich: C. H. Beck, 1985), 106–108. On Riace ibid., 166–167, fig. 119, on coloration, 148–160. Examples of parts of eyes from Olympia, ibid., 150, fig. 106.

Figure 104 Statue known as Riace B, detail of head and torso in profile, Bronze, copper, silver, bone, 460–450 BCE, H: 197 cm, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Photo: Alfredo Dagli Orti / Art Resource, NY

shines forth from a figure designed to dazzle.[3] A beholder processes such wonder through their entire body and especially through the eyes. Iris is both the word for the most colorful part of an eye and the goddess of the rainbow. In accounting for the visual splendor of the rainbow, Plato reminds his readers that the goddess Iris is the child of Wonder (Thaumas), providing a geneaological explanation for the relationship between the eye-part, the rainbow, and states of wonder.[4] Of the sculpted body's complex material polychromy, the eye is the most complex, most colorful, and most intricately pieced together. The eye's superlative materiality commands a beholder's attention and foregrounds the eye as both a microcosm of the body's fitted-together assemblage of material color-parts and as the most important part within the polychrome whole.

Approaching the same bronze statue from the right instead of from the left, a beholder encounters the uncanny sight not of the fitted-together inlaid eye, but of the dark void of an empty socket. An inlaid eye would once have been fitted into that socket, but it now looks back with a blank gaze (Figure 105). Modern beholders have become accustomed to this blank-eyed appearance when looking at classical sculpture. The preservation of this statue affords us the opportunity to isolate the differences between a sculptural body with inlaid eyes and one with the more familiar blank eye. The empty socket, which is void translated into opacity, acts differently from the inlaid eye. Where the right eye looked back with an assemblage of vibrant material color, the left eye stretches across the socket in an undifferentiated expanse (Figure 106). The lack of differentiation and the monochrome produced by the empty socket denies a beholder the visual exchange that the polychrome body, enhanced and animated by the polychrome eye, performs.

While the previous chapters focused on the additive material colors of paintings, statues, buildings, and landscape, this chapter considers the colors of bronze sculpture as assemblage. Bronze was the most popular material for full-scale sculpture in the fifth and fourth centuries BCE, but due to the combination of natural disaster, military destruction, accidents during long-haul transit, iconoclasm, and reuse to supply metal in antiquity and the Middle Ages, comparatively few bronzes have survived.[5] Marble reproductions of bronze statues do not retain the variegation that artists achieved through different alloys, inlays, and overlays, even though some ancient marble copies were likely painted with additive colors. Modern bronzes made in a neoclassical tradition tend to reproduce the monochrome matte patina of a bronze sculpture that has not been cared for and maintained. These seem to produce monochrome wholes where ancient artists in fact fitted together assemblages.

In addition to variegating the surface of bronze sculptures through alloys, ancient artists also regularly inlaid surface colors, such as copper blood or silver nails, and inlaid body parts, such as lips, teeth, and eyes (Figures 107 and 108).[6] They fitted these inlays together from different polychrome materials as separate assemblages and then set these into sockets left in the cast bronze form. Inlaid eyes in particular are often the most complex assemblage within the larger assemblage of polychrome materials that make

3 On the dialectical reciprocity of the gaze in the ancient Mediterranean, see Helen Morales, *Vision and Narrative in Achilles Tatius' Leucippe and Clitophon* (Cambridge: Cambridge University Press, 2004), 13.

4 Pl. *Th.* 155d; on the rainbow, see Aristotle *Met.* 2–3, Fischer 1998, 35–36 and 113, in Roman context, Bradley, *Colour and Meaning*, 36–55; in Byzantium, James, *Light and Colour*, 92–97.

5 Andrew Stewart, *Greek Sculpture: An Exploration* (New Haven: Yale University Press, 1990), 24.

6 Sophie Descamps-Lequime, "La Couleur des bronzes antiques: recherches récentes," *Technē* 48 (2019): 72–82.

Figure 105 Statue known as Riace B, detail of head and torso, Bronze, copper, silver, bone, 460–450 BCE, H: 197 cm, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Photo: Alfredo Dagli Orti / Art Resource, NY

Figure 106 Statue known as Riace B, frontal view, Bronze, copper, silver, bone, 460–450 BCE, H: 197 cm, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Photo: Alfredo Dagli Orti / Art Resource, NY

Figure 107 Edilberto Formigli inserting a copper-fused mouth into a wax reconstruction of the head of the bronze statue Riace A. Originally published in Formigli, *Colore e luce nella stuatuaria antica in bronzo*, p. 94, Fig 14. Reproduced with kind permission of L'Erma di Bretschneider

up each statue.[7] Each eye is made up of material color-parts and is itself a part within the whole body, making visible the part-to-whole relations that scale from the chromatic particle (atom, seed, part) up through the body itself. Artists

7 On piecing and bronze production, see Carol Mattusch, "The Berlin Foundry Cup: The Casting of Greek Bronze Statuary in the Early Fifth Century B. C." *American Journal of Archaeology* 84, no. 4 (October 1980): 440. On bronze workshops in Greece, see Carol Mattusch, "Bronze and Iron Working in the Athenian Agora," *Hesperia* 46, no. 4 (1977): 340. Carol Mattusch, *Greek Bronze Statuary: From the Beginnings Through the Fifth Century B.C.* (Ithaca, NY: Cornell University Press, 1988), 8–9, 14, 99, 153, 183, 201–211, fig. 8.4; Carol Mattusch, *Classical Bronzes* (Ithaca, NY: Cornell University Press, 1996), 9–12, 66, fig. 2.16; On bronze-production in general, Jens Daehner and Kenneth Lapatin, *Power and Pathos: Bronze Sculpture of the Hellenistic World* (Los Angeles: J. Paul Getty Museum, 2015). Erik Risser, David Saunders, and Jean-Robert Gisler, "The Bronze Apollo and Diana from Pompeii: An Example of Serial Production," *Antike Kunst* 58 (2015): 83, 86–87. Diana retains eyes, which are made of bone and glass-paste with an incised line to delineate the pupil. For "onlaid" eyes and the shallow hollow instead of void, see ibid., 90, figs. 13b–c.

Figure 108 Colors in metal on the statue known as Riace A, detail of lower face and beard, Bronze, copper, silver, 460–450 BCE, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Erich Lessing / Art Resource, NY

produced bodies through assemblage, and within these, they produced eyes through the assemblage vibrant material color-parts. This chapter analyzes the different hues, brilliance, and variegation of bronze statues, the particularly complex example of assemblage that inlaid eyes offer, and the ways in which the production of these inlaid eyes intersected with and informed contemporary theories of material vision.

Assemblage, or fitting together material color-parts, offers the broadest model for how material color, even as the layering of additive colors, works. A more specific term for an assemblage is a hylomorph, or a form assembled from matter. The term itself is a nineteenth century neologism designed to capture ancient Greek philosophical engagement with the relationship between matter and form.[8] The Presocratic and atomist philosophers investigated the nature of the universe and its visible colors and Plato and Aristotle each engaged with their arguments. The ideas of these earlier philosophers must be pieced together from the fragments of their writing that remain extant. In contrast, Plato and Aristotle's writings have remained central to the reception tradition and are therefore better preserved and more consistently engaged with by later thinkers. Their ideas about matter and form have thus had an outsized impact in the history of aesthetics in comparison to earlier Greek philosophers who describe a world pieced together from color-parts. In the *Metaphysics*, for example, Aristotle takes up the relationship of part to whole (5.25) and two chapters later the relationship between matter and form (7.1029a2–8). He writes:

> Now in one sense we call the matter the substrate; in another, the shape; and in a third, the combination of the two. By matter I mean, for instance, bronze; by shape, the arrangement of the form; and by the combination of the two, the concrete thing: the statue. Thus if the form is prior to the matter and more truly existent, by the same argument it will also be prior to the combination.[9]

For Aristotle and many later thinkers building on this passage, the idea of form preceded both its matter and the combination of matter and form that makes up an object, such as a bronze statue. In his nineteenth-century text *A Study of Religion*, James Martineau draws out a ranked humanist hierarchy (intellect, physiological, mechanical) framed in terms derived from Aristotle

> In order to mark the differentia of these three theories, we may certainly call them respectively Anthropomorphism, Biomorphism, and Hylomorphism: but in descending from the first to the second, and again from the second to the third, we do not leave our own nature behind; we only step from its specific to its generic properties: the *biós* and the *hulē* too lying within its comprehension, and rising to the surface as soon as the superior stratum is withdrawn.[10]

Martineau builds on a hierarchy already present in Aristotle, now filtered through centuries of Christian theology. In the twentieth century, as discussed in the previous chapter, Judith Butler drew attention to Aristotle's explicit naming of matter (*hulē*), which, they argued, also operates unnamed within Plato's Theory of Forms.[11] Artistic practice in antiquity, however, presents an alternative to this elevation of the disembodied idea as do slightly earlier philosophers, such as Democritus and Empedocles. Reintegrating

8 James Martineau, *A Study of Religion: Its Sources and Contents*, 2nd rev. ed. (Oxford: Clarendon Press, 1900), 317.

9 Aristotle, *Metaphysics*, books 1–9, trans. Hugh Tredennick, Loeb Classical Library 271 (Cambridge, MA, Harvard University Presse, 1989), 7102 9a2–8.

10 Martineau, *A Study of Religion*, 317.

11 Judith Butler, *Bodies That Matter* (New York: Routledge, 1993), 7.

inlaid eyes into objects makes visible the interdependence of matter (*hulē*) and form (*eidos*, *morphē*) and the hylomorphism that idealized monochrome subverts.[12]

Assemblages or hylomorphs produce spatial and kinetic color effects that animate images. We might understand animation produced through assemblage as artistic atomism, a phrase that captures the activity of forming and re-forming wholes from material color-parts. Ancient Greek philosophers explored this animation in their efforts to understand the materialism of the visible world. Empedocles and Democritus informed the Stoic philosopher Epicurus, as well as Lucretius, whose Latin treatise *On the Nature of Things* builds on this earlier Greek tradition to present a mosaicized world made up of atoms, seeds, or parts moving through the world, forming and re-forming.[13] This tracks a different philosophical genealogy from that which regularly upholds humanism and informs art historical aesthetics – of Platonic forms and Aristotle's reception of them, filtered through the lens of Christianity in the Latin West and later Cartesian rationalism, Kantean aesthetics, and Hegelian humanism. To track this less familiar philosophical trajectory, this chapter now turns to these earlier Greek thinkers and the artists contemporary with them producing polychrome bronze statues with fitted-together inlaid eyes.

The extant fragments of a range of thinkers writing in ancient Greek in the sixth to fifth centuries BCE – working before modern disciplinary boundaries across what one might now call philosophy, the natural sciences, and literature – are gathered together under the label the Presocratic philosophers of whom the atomists are sometimes regarded as a subset.[14] These thinkers considered the nature of the visible world. Material color marks out that which we see and so takes a central place in these thought experiments. Although we tend to consider the fragments making up this tradition together, the range of thinking that they capture presents varied positions on the questions they take up. Plato's concern in the *Timaeus*, explored in the previous chapter, with the pre-primordial production of the universe, builds on thought that appears in these earlier fragments. These ancient writers worked in environments populated by objects built up from material color-parts and polychrome statues looking back at them with fitted-together inlaid eyes. We cannot disentangle the artistic atomism that surrounded these writers from the theories of material vision, animism, and mixing that they produced.

INLAID EYES

To craft inlaid eyes for statues, artists pieced together eye-parts from an array of colorful, often high-value materials including copper, gold, silver, ivory, bone, alabaster, quartz, limestone, obsidian, rock crystal, lapis lazuli, resin, various pigments, and colored glass. While these materials varied – there seems to be no set formula for the materials used to craft eyes – each eye includes distinct colors and materials for its various anatomical parts. This juxtaposition and contrast of colored matter distinguishes different parts of the eye – cornea, iris, pupil, canthus, caruncle, lashes – and also emphasizes the functioning assemblage that these pieced-together parts produce. Highlighting the eye through

12 On the importance of both parts and interstices in the production of assemblages, see Jane Bennet, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), 61.

13 Ibid., 17–22; Gaifman and Platt, "Introduction," 406.

14 G. S. Kirk, J. E. Raven, and Malcolm Schofield, *The Presocratic Philosophers: A Critical History with a Selection of Texts*, 2nd ed. (Cambridge: Cambridge University Press, 1983).

these vibrant material colors shows it to be both a part of the whole figure and a synecdoche for the way in which the entire body has also been pieced together.[15] Within a system of scalable material color, the eye is both a part (of the figural body) and a whole (organ of sight) that has itself been assembled from color-parts.

The material color-parts that formed inlaid eyes are among the many colors lost from bronze statues. Most extant examples of bronze statues once had or still have inlaid eyes. For statues produced in other materials, such as the painted marble figural statues discussed in Chapter 2, artists sometimes inlaid the eyes and at other times painted them. Inlaid and painted eyes were once ubiquitous in the ancient Mediterranean. Many ancient statues have not retained their polychrome eyes, and this fitting together has been replaced by an empty hole or a solid surface from which the pigments have worn off. When such statues are reproduced, these polychrome eyes become a solid, monochrome expanse.[16]

Restoring polychrome eyes to statues or attending to those inlaid eyes still extant in the material record invites us to picture ancient Mediterranean beholders constantly confronting these eyes looking back at them. Visual exchanges between living beholders and polychrome objects depend on both the inlaid or painted eyes and the polychrome bodies into which they have been set and that they animate. These effects of assemblage and animation permit visual exchange at the level of particulate matter and these visual exchanges draw attention to each eye's, each sculpture's, and thus each beholder's scaled assemblage, opening onto a range of discourses, materials, and geographies not generally associated with these works. Fitted-together eyes allow us to see the scalable part-to-whole relationships of material color. These relationships draw together a wide geographic range of materials, philosophical notions of vision and anatomy, a discourse around wonder, the relationship between vision and the wider sensorium (especially touch), and atomism. The eye thus becomes a material locus where ideas about color, vision, beholding, assemblage, animation, and mixing all come together.

Facing the bronze statue with which we began, known in the scholarship as Riace B, a beholder might choose to focus on the blank left eye rather than the vibrant anatomical assemblage of the right eye. In the drive to excise polychrome particulars, the empty socket offers something closer to the ideal form of an eye than the inlaid one, or even the living beholder's own eye. The void of the empty socket approximates an ideal form crafted in the mind, merely notional and devoid of material specificity. The substitution of an empty socket for a fitted-together assemblage offers a modern beholder the illusion of greater wholeness. The monochrome fragment has done away with the necessity of parts and no longer indexes the heterogeneity of fitted-together forms and of a beholder's own physical body. The image is now abstracted into an idealized metaphysical form, or *eidos*.

Through their assemblage, the material colors of the right eye of Riace B draw the beholder's gaze to the shining colors of the whole sculptural body, whereas the blankness of the left eye dims the whole body's overall polychromy. The empty socket, having lost the most important of the body's assemblages, de-emphasizes the part-to-whole relationships that make up the statue. The polychrome eye, in contrast, makes visible these scalable relationships of material color. Its polychrome assemblage is both a whole eye pieced together from parts and a part within

15 Also described through the poetic term *blason*. Morales, *Vision and Narrative*, 138.

16 On the transformation of an inlaid eye into a solid plaster surface in the casting process, see Gisela Richter, "An Aristogeiton from Baiae," *American Journal of Archaeology* 74, no. 3 (1970): 296–97.

the whole body.[17] With the inlaid eyes in place, the figure's materiality is never in question. The maker's artistry (*tekhnē*) lies not in concealing the sculpture's materiality with a veil of what is conventionally understood as naturalism. Instead, artistry lay in fitting together material color-parts to form an enchanted and enchanting whole body.[18] As a microcosm and part within the larger whole, the eye makes visible this artistic project of fitting material color together into assemblages. The fitted-together eye is a particularly clear example of assemblage and of what comes to be called a hylomorph. This scalable, fungible, hylomorphic practice intersects with a period discourse of atomism, suggesting that philosophical and artistic practices informed and inflected each other.

Artistic atomism produces objects that make the comparable atomism of beholding bodies and surrounding spaces visible and knowable, modifying the ways in which beholders understood themselves as beings in the world. The material color-parts of intact inlaid eyes show back the colors that are vision's sense object, and make visible the juxtaposition, superimposition, and mixing of colors that a living eye brings together and processes through vision.[19] In this way, inlaid eyes show how a body is built up from material colors while simultaneously mirroring the synthetic and syncretic work that a beholder's eye does with material colors.[20]

MATERIAL VISION

In the *Encomium for Helen*, the philosopher Gorgias (485–380 BCE) emphasizes the visual pleasure of artistic colors: "Whenever painters perfectly create a single body (*sōma*) and shape (*morphē*) from many colors (*khrōmatōn*) and bodies (*somatōn*), they delight the sight (*opsin*)" (18).[21] Gorgias emphasizes the manner in which parts are synthesized into wholes through fitting together material colors (*khrōmatōn*). This synthesis takes place through the eyes, which take in the colors of the visible world and synthesize them. Through mixing, superimposing, and juxtaposing material colors, the painter to whom Gorgias refers (like sculptors, builders, and jewelers) brings together many colors into one body (*sōma*), or many parts into one whole.[22]

Although Newton's spectrum ushered in a more limited notion of modern color-space as

17 On piecing together to produce sculptures, see Raphaël Jacob, "Piecing, Attachments, Repairs," in *Handbook of Greek Sculpture*, ed. Olga Palagia (Berlin: De Gruyter, 2019), 657–689.

18 Descriptions in Latin literature of the image of Helen painted from the assembled body parts of five different young women offer an example of artistic assemblage, Cic. *De Inv.* II.i.1 and Pliny *NH* 35.64. For later use of the myth as described by Cicero, see Michael Baxandall, *Giotto and the Orators* (Oxford: Oxford University Press, 1986), 35–39. On Zeuxis and Mimesis, see Elizabeth Mansfield, *Too Beautiful to Picture: Zeuxis, Myth, and Mimesis* (Minneapolis: University of Minnesota Press, 2007), xii–xv, 28–29. Later renditions of the scene include François André-Vincent, *Zeuxis Choosing His Models for the Image of Helen from among the Maidens of Croton*, ca. 1791 (Cantor Art Center, Stanford University, 2007), 28; Edwin Long, *The Search for Beauty* and *The Chosen Five*, 1885 and G. A. Storey, *The Choice of the Beautiful Five*, 1885.

19 Bielfeldt "*Candelabrus* and Trimalchio," 125. Aristotle *De Anima* 418a7–418a16; *De Sensu* 3.440b12–23. Bradley, *Colour and Meaning*, 134n13, who cites Galen, *The Art of Medicine*, 8.6 on the eyes as the body's judge of colors.

20 On the role of mirroring in Plato's *Timaeus*, see Ava Shirazi, "The Liver and the Mirror: Images beyond the Eye in Plato's *Timaeus*," in Maria Gerolemou and Lilia Diamantopoulou, *Mirrors and Mirroring: From Antiquity to the Early Modern Period* (London: Bloomsbury Academic, 2020), who notes Pl. *Tim.* 45b–46a on mirroring and the eyes in n40.

21 Porter, *The Origins of Aesthetic Thought*, 283, 285 and 300, both with translation and a discussion of Helen's composite body and of *mixis* and pigments. Ierodiakonou, "Empedocles and the Ancient Painters," 91. Sassi, "Perceiving Colors," 265.

22 On the development of the *sōma*, see Brooke Holmes, *The Symptom and the Subject: The Emergence of the Physical Body in Ancient Greece* (Princeton: Princeton University Press, 2010), 5–6, 102–103, 155.

dematerialized hue, ancient Greek philosophers had debated explanations for the phenomenon of color. As early as the sixth century BCE the Elean philosopher Parmenides (born 515 BCE) argued in his only surviving treatise, *On Nature,* that color did not have material form, and as such did not exist.[23] Parmenides, however, positioned himself at one end of a debate over colors, atoms, and effluences as the only known anti-materialist among the Presocratic philosophers.[24] In refuting Parmenides, Empedocles of Akragas (ca. 485–432 BCE) positioned color and form as mutually constitutive of the world and cosmos, a position that runs through subsequent ancient Greek philosophical and artistic practice. In her deft analysis of these fragments, Katerina Ierodiakonou emphasizes that despite taking opposite positions on the material status of color, both Parmenides and Empedocles engage with color as part of a shared interest in understanding the nature of the cosmos.[25] Writing in environments saturated with the vibrant colors of the earth and landscape and many polychrome buildings, paintings, and sculptures, philosophers sought to understand the phenomenon of color as an index of the visible, knowable world.

In the ancient Mediterranean, seeing was a matter of materials acting on each other. The centrality of vision and optics in the ancient Mediterranean has been and continues to be well analyzed, although this analysis has not always incorporated the centrality of color, despite the emphasis on the connection between vision and color by ancient authors. Ancient Mediterranean theories of vision and theories of color inform each other through their connection to the eye-part and also to materiality. Color is vision's "sense object," which is to say that colors are processed through sight.[26] While the materiality of color, like the materiality of vision, engages the wider sensorium, a beholder takes in color primarily through the eyes.[27] Because ancient philosophers took colors to be an index of the visible world, and understood those colors as material, philosophers exploring the nature of the visible world have much to say about color, vision, matter, and movement. When I refer to artists crafting forms from material color as artistic atomism, I am situating their practice within a period discourse on atoms, particles, and movement understood as atomism. Within atomist explorations of the nature of the universe emerge a series of theories about color and vision.

Like explanations for material color, texts about ancient Mediterranean optics are fragmentary and often partly preserved embedded in later sources. In her work on light and ancient lamps, Ruth Bielfeldt has argued that despite offering different ideas for *how* vision worked, ancient Mediterranean thinkers collectively emphasized the materiality of sight, what Bielfeldt names "vision's visibility."[28] Ancient Greek metaphysical

23 Ierodiakonou, "Empedocles on Colour and Colour Vision 3" (DK 28 B 8. 41). See also Porter, *The Origins of Aesthetic Thought*, 19, 88.

24 Ibid., 19, 150.

25 Ierodiakonou, "Empedocles on Colour and Colour Vision," 3.

26 Introduction to Alex Purves, ed., *Touch and the Ancient Senses* (London: Routledge, 2018), 2. Sassi, "Perceiving Colors," 262.

27 On the field of dermo-optics and perceiving color through touch, see Faber Birren, *Color and Human Response: Aspects of Light and Color Bearing on the Reactions of Living Things and the Welfare of Human Beings* (New York: Van Nostrand Reinhold Co., 1978), 29.

28 Ruth Bielfeldt, "Sight and Light: Reified Gazes and Looking at Artifacts in the Greek Cultural Imagination," in *Sight and the Ancient Senses*, ed. Michael Squire (Abingdon: Routledge, 2016), 125. Presocratic philosophers agreed that color was the epistemological index of the perceptible world, although they debated both the reliability of sensory perception and the epistemological value of the perceptible world in relation to the world of the mind. On color as vision's sense object, see Mark Bradley, "Colour as Synaesthetic Experience in Antiquity," in *Synaesthesia and the Ancient Senses*, ed. Shane Butler and Alex Purves (Hoboken: Taylor and Francis, 2014), 132. See also Bradley, *Colour and Meaning*, 57, who also offers a clear and useful summary of ancient theories of perception

thinkers posited several related, if slightly contradictory, optical processes with the evidence for each scattered across different writers and often passed down through students of the original thinkers as doxographical texts.[29] This is to say that the evidence of ancient Greek theories of visuality maps well to the fragmented and pieced-together evidence of ancient polychrome eyes. Both the perceptible, material world and the anatomical eye itself are understood as made up of material color-parts that can be synthesized into wholes. Perception of the polychrome world takes place in and through the polychrome eye, so that material color is both in and of the eye. Among a series of philosophical investigations into the nature of the perceptible world, Gorgias writes in *On Non-existence, or On Nature*:

> Just as vision does not recognize sounds, so hearing does not hear colors, but sounds. And a speaker says, but what he says is not a color or a thing. Thus if someone does not have a notion of something, how could he acquire a notion of it from someone else by a word or by some sign different from a thing, *except by seeing it if it is a color, or by hearing it if it is a sound?* For to begin with someone who speaks does not say a sound or a color, but a word, so that *a color cannot be thought*, nor can a sound, but it is only possible to *see* a color and hear a sound.[30]

Gorgias's treatise is instructive not only for his assessment of the senses, but also for the ontological position of his inquiry, which explores these sensory experiences in relation to the nature of the universe. *On Nature* emerges from a tradition of inquiries that often positioned colors as markers of the visible (knowable) world. It is only through seeing colors, these natural philosophers argue, that one comes to see and know the world, which is made up of material color.[31]

According to such materialist theories of vision, eyes and artists alike craft hylomorphs. Establishing an analogy between well-organized class hierarchies and well-painted sculptures, Plato argues that as the most important part of the body, the eyes should be painted with the most beautiful color – Tyrian purple – but are instead painted merely black (*Rep* 4.420c).[32] With this analogy, he offers a casual hierarchy of bodily systems and the senses, with the eyes and vision at the top. The most important system, Plato claims, should be painted with the most beautiful (and most expensive) color.[33]

from the Presocratics to Lucretius, 56–86. Porter, *The Origins of Aesthetic Thought*, 65, 155.

29 Kelli Rudolph, "Sight and the Presocratics: Approaches to Visual Perception in Early Greek Philosophy," in *Sight and the Ancient Senses*, ed. Michael Squire (Abingdon: Routledge, 2016), 36–53, and Andrea Nightingale, "Sight and Philosophy in Ancient Greece: Democritus, Plato and Aristotle," in ibid., 54–67, both untangle fragmentary texts written by ancient philosophers seeking to understand how vision worked. In a series of standalone articles, Katerina Ierodiakonou works though these ancient philosophical positions on color, vision, and artistic practice. See Ierodiakonou, "Plato's Theory of Colours in the *Timaeus*," "Empedocles on Colour and Colour Vision," and "Empedocles and the Ancient Painters." See also the summary of ancient Greek optical theories in Verity Platt and Michael Squire, "Getting to Grips with Classical Art: Rethinking the Haptics of Graeco-Roman Visual Culture," in *Synaesthesia and the Ancient Senses*, ed. Shane Butler and Alex Purves (Hoboken: Taylor and Francis, 2014), 81.

30 Michael Gagarin and Paul Woodruff, *Early Greek Political Thought from Homer to the Sophists* (Cambridge: Cambridge University Press, 1995) 208. Emphasis mine.

31 Ierodiakonou, "Empedocles on Colour and Colour Vision," 1. Sassi, "Perceiving Colors," 262–273.

32 See Agnès Rouveret, "Les yeux pourpres: l'experience de la couleur dans la peinture classique entre realités et fictions," in *Couleurs et matières dans l'antiquité: texts, techniques et pratiques*, ed. Agnès Rouvert, Sandrine Dubel, and Valérie Naas (Paris: Éditions Rue d'Ulm/Presses de l'École normale supérieure, 2006), 23–24; On murex shells and evidence for Tyrian purple production, see S. Rebecca Martin, *The Art of Contact: Comparative Approaches to Greek and Phoenician Art* (Philadelphia: University of Pennsylvania Press, 2017), 90, 94, 134; on Tyrian purple in Latin, see Bradley, *Colour and Meaning*, 34, 189–211.

33 The multisensory experience of producing, using, smelling, and seeing Tyrian purple, however, emphasizes the

Alcmaeon of Croton (500–450 BCE) seems to have understood body parts as relational, in particular the eye, optical nerve, senses, and brain, and to have argued for a set of openings or pores (*poroi*) through which information from the world was taken in and processed by the living body.[34] These pores remain important for subsequent materialist accounts of vision. Anaxagoras of Clazomenae, in Persian-controlled Asia Minor, who was active in Athens (ca. 520–428 BCE), emphasized color as sight's object and considered the eye's capacity to perceive proportional differences in the mixing of material color.[35]

In working through this fragmentary evidence for ancient Greek ideas about seeing and being seen, three distinct but related theories of vision emerge: intromission, extromission, and a dual theory that combines elements of both (Figure 109).[36] These three related theories emphasize the materiality of vision and argue for material effluences (*apporrhoiai*) emitted from the eye, the object, or both. Having established the materiality of color and the scalable part-to-whole relationship that this material color makes visible and knowable, we can recognize these effluences as chromatic particles of matter.

Intromission, championed by Empedocles of Akragas (459–435 BCE), posits that colorful material effluences move from the object of sight to the eye, which takes these effluences in through its pores (*poroi*) in order to be processed.[37] These effluences, or streams of particulate matter, are said to have color, which is perceived by the receiving eye.[38] Empedocles argues that the effluences emanating from objects must match up with, touch, and pass through the appropriately sized pores in the beholder's eyes

intersections of sensorial experience that these hypothetical, most-beautiful eyes might introduce. On the stench of money and Tyrian purple, see Bradley, *Colour and Meaning*, 194–195, Pliny *NH* 9.127, and Bradley, "Colour as Synaesthetic Experience in Antiquity," 142. Even while foregrounding vision, Plato's analogy emphasizes relationships between the senses. A color of great expense, laborious production, Eastern derivation, and stench. I. Irving Ziderman, "Purple Dyeing in the Mediterranean World: Characterisation of Biblical *Tekhelet*," in *Colour in the Ancient Mediterranean World*, ed. Liza Cleland and Karen Stears (Oxford: Hedges, 2004), 40–45. Benedict Lowe, "The Industrial Exploitation of Murex: Purple Dye Production in the Western Mediterranean," in ibid., 46–48.

34 Rudolph, "Sight and the Presocratics," 40. In his influential analysis of later Roman art, Alois Riegl focused specifically on drilled as opposed to painted or inlaid eyes, seeking in the drilled, monochrome detail an expression of interiority. The text, which advanced Riegl's influential theory of *kunstwollen* (loosely, "will to art"), has played an important role in art historiography, see Alois Riegl and Benjamin Binstock, *Historical Grammar of the Visual Arts*, trans. Jackie Jung (New York: Zone Books, 2004). While Riegl's turn from color to the drill would seem misaligned with a project invested in color, his attention to the gaps between anatomical eye-parts made visible through drilling corresponds with the piecing-together of colored inlaid eyes and of the interstices theorized as essential to vision that I analyze here. Gaps, or interstices, as earlier inlaid eyes demonstrate, serve the important function of receiving the matter of sight. Despite the embrace by his followers of this theorization of late Roman art as a formalist treatise, Riegl's interpretation of Roman eyes shares aspects of the colorist and materialist position.

35 Rudolph, "Sight and the Presocratics," 41–42. On *eis apeiron*, see Porter, *The Origins of Aesthetics Thought*, 142–144n61; among the fragments, see B4=Sim. *In Ph.* 34–29–35.3.

36 On the collective tactility of different theories of vision, see Platt and Squire, "Getting to Grips with Classical Art," 81. Rudolph, "Sight and the Presocratics," 44–53.

37 Rudolph, "Sight and the Presocratics," 36, 44–46, DK 31 B84; on pores and effluences in Presocratic thought, see Victor Caston, "Perception in Ancient Greek Philosophy," in *The Oxford Handbook of Philosophy of Perception*, ed. Mohan Matthen (Oxford: Oxford University Press, 2015), 32–37. On gaps in crystalline structures of metal in relation to vibrant materialism, see Bennett, *Vibrant Matter*, 59.

38 Empedocles influences Lucretius, whose work is foundational to many later thinkers, including the field of new materialism. On which, see David N. Sedley, *Lucretius and the Transformation of Greek Wisdom* (Cambridge: Cambridge University Press, 1998), 10–14. Porter, *The Origins of Aesthetic Thought*, 157. Rudolph, "Sight and the Presocratics," 46. Myrto Garani, "Lucretius and Ovid on Empedoclean Cows and Sheep." Daryn Lehoux, A. D. Morrison, and Alison Sharrock, eds., *Lucretius: Poetry, Philosophy, Science* (Oxford: Oxford University Press, 2013), 1–34; n1 for extensive bibliography on the relationship between Empedocles and Lucretius. On Lucretius and New Materialism, see Bennett, *Vibrant Matter*, xiii.

Figure 109 Diagram of three theories of vision: extramission, intromission, dual. Illustration by Mali Skotheim

in order to be seen. As an effluence moves into the eye, it must touch the material color-parts that fit together the eye and that leave interstices, or pores, between its part.[39] These effluences of matter move out from the object and into the beholding eye and thus materialize an object's agency and animation. Particle effluences, Empedocles argues, must be so microscopic as to be insignificant to the mass of their object; nevertheless in this model, being seen demands that the object transfer some of its particulate matter to the beholder as effluences that enter the pores of the beholder's eyes. Being seen intromissively necessitates a body's material loss and mixing.

Another proponent of intromission, Democritus of Abdera (460–370 BCE) built on this theorization of the materiality of vision to consider how these object-effluences interacted and mixed with effluences from the surrounding environment before making their way through the pores of the beholding eye.[40] Theophrastus (*De Sensu* 50=DK 68 A135) records Democritus as arguing "The visual image does not arise

39 DK 31 A86.7; Rudolph, "Sight and the Presocratics," 44–46, and on the question of whether Empedocles argues for dual rather than intromissive vision, 45; Ierodiakonou, "Empedocles on Colour and Colour Vision," 4. Caston, "Perception in Ancient Greek Philosophy," 33.

40 Kirk et al., *The Presocratic Philosophers*, 402–433, esp. 428, no. 588, Aetius IV.8.10; Nightingale, "Sight and Philosophy in Ancient Greece: Democritus, Plato and Aristotle," in *Sight and the Ancient Senses,* ed. Michael Squire (London: Taylor and Francis, 2015), 56. Rudolph, "Sight and the Presocratics," 49–53, with slightly different analysis of Democritus in the same volume; Caston, "Perception in Ancient Greek Philosophy," 35–36.

directly in the pupil (*korē*), but the air between (*ton aera ton metaxu*) the eye and the object of sight is contracted and stamped (*tupousthai*) by the object seen and the seer; for from everything there is always a sort of effluence (*aporrhoēn*) proceeding."[41] According to Democritus the beholding eye takes in a mixture of polychrome particulate matter from the object and polychrome particulate matter from the surrounding environment, which accounts, at the level of the particle, for the ways in which object and environment act on each other. This theory resonates at the level of the particle with the relationship of color, landscape, and the built environment discussed in the previous chapter. For Democritus, seeing and vision depend on mixing particulate matter from both the object and the environment.

The theory of extromissive vision posits that a beholding eye emits rays that traverse the space between a beholder and an object. These rays then "trace" the form of the object, apprehending its particulars through a kind of visual touch. Rays emitted by the eyes perceive both colors and contours.[42] Plato, who does not fully share the materialist interests of the Presocratic thinkers and in places actively counters them, offers several related arguments for extromissive vision, using the metaphor of light-bearing eyes (*Meno.* 76c–d).[43] Plato's extromissive gaze, like the intromissive mixtures of Democritus, mixes together with the extromissive light of the sun before acting on the object of sight.[44] This mixing with the particulate matter of the environment and the rays of the sun takes place in a space (*khōra*) between both object and beholder.

Plato also seems to offer an adjacent theory of vision, dual, that joins the intromissive action of the object with the extromissive action of the eyes. Tellingly, he describes this dual theory of vision amid his theory of colors (*Tim.* 45c–d, 67d–68e) discussed in the previous chapter. In his dual theory, the beholding eye emits a "particle stream" and the material object emits its own counter "particle stream." Both streams are made up of polychrome particulate matter from both object and beholder. These two material streams meet and engage each other in the space between beholder and object, mixing and recombining before returning to both eye and object. The dual theory of vision captures the reciprocal material action and exchange of seeing and being seen. Particle exchange or mixing midstream takes place in the separate space (*khōra*) of visuality. Seeing and being seen demand mixing on the level of the particle.

Materialist and atomist theories describe being in and seeing the world as the mixing and recombination of polychrome particles between bodies and across space. Seeing thus constitutes the sort of material color mixing that Artistotle outlines in *De Sensu*, moving between juxtaposition, superimposition, and mixing on the level of the particle, but scalable from particle to eye to body to the built environment. These chromatic particles mix and join together, moving in and out of bodies, but also joining them, building up individual parts, such as the eye, and from those parts

41 Kirk et al., *The Presocratic Philosophers*, 428, no. 589; Caston, "Perception in Ancient Greek Philosophy," 34.

42 On extromissive theories in Indian visual theory, see Alfred Gell, *Art and Agency: An Anthropological Theory* (Oxford: Oxford University Press, 1998), 117. Extromissive optics find their contemporary realization in technology for rendering computer graphics called "ray tracing," which uses algorithms to sort light rays that emanate from (imagined) "eyes" to the object of sight (that which is represented). Ray tracing can replace rasterization, a pixelating technique with much in common with mosaic and other pointillist constructions. Ray tracing stages the light emanating from "eyes." M. Ward, "Rays Light up Life-Like Graphics," *BBC*, March 16, 2007.

43 Nightingale, "Sight and Philosophy in Ancient Greece," 57n11. Plato draws this from Empedocles without sharing the directionality of Empedoclean intromissive effluences. This theory is also attributed by Aristotle to Democritus. See Rudolph, "Sight and the Presocratics."

44 Nightingale, "Sight and Philosophy in Ancient Greece," 57.

building up whole bodies, which are themselves parts of the visible world. In this manner, all things scale from the single particulate atom up to the matrix of polychrome particulate matter that makes up the cosmos.

Despite affirming the acute materiality of seeing, Plato moves from his theories of vision towards metaphysical questions establishing a binary separating the visible, material world and immaterial mental forms (*eidē*).[45] He simultaneously offers materialist accounts of vision and color and rejects materiality and the sensorium. In the *Timaeus*, on the one hand, Plato embraces a materialist notion of vision tied to matter; while in both the *Republic* and the *Philebus*, on the other hand, he pushes the abstraction of form to the cognitive rather than material realm.[46] Receptions by later philosophy and aesthetics, however, particularly Neoplatonism under Christianity, placed disproportionate weight on Plato's turn from matter, despite his preoccupation with the materiality of color, vision, and space. That reception lies at the root of concurrent excisions of color from the material record in that it erased abundant textual evidence for the importance of color and matter to vision, just as that tradition also excised the inlaid and painted eyes that recorded artistic ideas about vision.[47]

Atomist theories contend that material colors have form at the level of the particle and that these colored particles join together to make up larger, infinitely scalable forms. These theories of vision develop over the sixth to fourth centuries BCE, produced by writers throughout the Mediterranean – Athens, Sicily, Ionia – in spaces populated by figural statues with inlaid and painted eyes.

Since vision brings material color into beholding bodies, the specific materials of inlaid eyes take on particular significance. The materials used to craft inlaid eyes often contrasted with the materials used to sculpt the rest of the body into which they were fitted. Working these materials, which were frequently expensive, quarried with great bodily difficulty, and sometimes imported, required different skills than did working the hollow lost-wax cast bronze or chiseled marble bodies into which they were placed. Rock crystal, for example, was among the most prized materials of the ancient Mediterranean.[48] Obsidian, a volcanic glass, came from a variety of deposits across the Mediterranean and ancient Near East and had a deep history as a material used to make stone tools while the role of obsidian's reflective properties extended into the Roman period.[49] Lapis lazuli, as discussed in Chapter 1, also had rich history as a high-value and widely traded material.

The whites of eyes could also be produced from materials ranging from bone to marble. Cutting bone to produce the white of an eye

45 Nightingale, "Sight and Philosophy in Ancient Greece," 58; for a succinct list of sources on Plato's theory of forms, see especially n15.

46 On Philebus, see Porter, *The Origins of Aesthetic Thought*, 87, and Ralph Rosen, "Plato, Beauty, and Philosophical Synaesthesia," in *Synaesthesia and the Ancient Senses*, ed. Shane Butler and Alex Purves (Hoboken: Taylor and Francis, 2014), 97–99.

47 On might read, for example, Abbot Suger's argument for the greater importance of form and skill, rather than material splendor, despite his investment in materials to adorn Saint Denis, as simultaneously Neoplatonic and Christian, and thus understand Panofsky's engagement with Suger to situate this mode of dematerialized formalism in art historical modes of the early twentieth century. See Teresa Grace Frisch, *Gothic Art 1140–ca. 1450: Sources and Documents* (Toronto: University of Toronto Press in association with the Medieval Academy of America, 1987); Suger, Erwin Panofsky, and Gerda Panofsky-Soergel, *Abbot Suger on the Abbey Church of St. Denis and Its Treasures*, 2nd ed. (Princeton: Princeton University Press, 1979).

48 Pliny *NH* 37.9. On which, see Patrick R. Crowley, "Crystalline Aesthetics and the Classical Concept of the Medium," *West 86th 23*, no. 2 (2016): 221, and, on Pliny's debt to Theophrastus, 223.

49 P. Avino and A. Rosada, "Mediterranean and Near East Obsidian Reference Samples to Establish Artefacts Provenance," *Heritage Science* 2, no. 16 (2014): 16. Crowley, *The Phantom Image*, 25.

comments implicitly on the relationships between bodily systems, reusing the interior scaffolding of an animal to make a soft tissue part of an exterior-facing human organ. Bone, however, was also theorized as a combination of the elements earth, fire, and water (Empedocles B96) and its use as an eye-part brings these elements into the material body.[50] Using marble for the same anatomical part (eye white), on the other hand, stages a relationship between a material used for the sculptural body and the eye-part. When fitted into the socket of a marble sculpture, this reduplication would be unique among the eye materials; when fitted into the socket of a bronze, as was more common, the use of marble for the white evokes other uses for marble, such as producing figural sculptures, relief, and architecture. Alabaster (calcite), which was also used for eye-whites, was another material used widely across the ancient world, especially for smaller decorative objects; the English term "alabaster" derives from the ancient Greek *alabastros*, and refers to both the material itself and to a small vessel typically used to hold fragrance.[51] Each of these materials brings a material valence to the bodily assemblage of which they are a part.

MEDITERRANEAN EXEMPLA

Despite the importance of polychrome eyes for animating sculptures, their presence has been largely ignored in scholarship on ancient Mediterranean art, likely because the eyes do not conform to dominant disciplinary priorities and forged a set of material connections with art produced by other cultures, thus undermining a narrative of Greek exceptionalism. The bronze Athena discovered in 1959 amid a cache of bronze and marble sculptures in the main harbor of the Piraeus in Athens, for example, has partially intact inlaid eyes (Figures 110 and 111).[52] In addition, Medusa and her writhing snakes look out from the goddess's chest-piece, their eyes cast in bronze and not inlaid, but emphasizing the power of Athena's polychrome gaze (Figure 112). Two bronze statues representing Artemis produced during the fourth century BCE include not only inlaid eyes, but also additional color on the quiver strap created through adjustments to the metal alloys (Figures 113 to 116). Despite the frequency with which artists produced inlaid eyes for bronze statues, descriptions often omit them.[53] Lack of analysis of the inlaid eyes of the statue of Athena is particularly notable because of the Homeric epithet describing Athena as *glaukōpis* (gray or glittering-eyed).[54] Her glittering gaze was an essential aspect of her divine epiphany and the inlaid eyes of the Piraeus Athena were equally essential to the sculpture's affect and animation.[55]

50 Ierodiakonou, "Empedocles and the Ancient Painters," 9.

51 LSJ, s.v. "alabastros." See Simon J. Barker and Simona Perna, "Alabaster: Quarrying and Trade in the Roman World,"*ASMOSIA XI Interdisciplinary Studies on Ancient Stone* (Split: University of Split, 2019), 45–64.

52 Mattusch, *Classical Bronzes*, 131–138, who notes that the statue was cast in pieces. Olga Palagia, *Euphranor* (Leiden: Brill, 1980), 23–24; David Finn and Caroline Houser, *Greek Monumental Bronze Sculpture* (New York: Vendome Press, 1983), 50–51, 58–61. Susan Deacy and Alexandra Villin, "Athena Blues? Colour and Divinity in Ancient Greece," in *Colour in the Ancient Mediterranean World*, ed. Lisa Cleland and Karen Stears (Oxford: Hedges, 2004), 87; the inlaid eyes of the Athena Parthenos originally had ivory whites and irises and pupils of colored stone, Olga Palagia, "Classical Athens," in *Greek Sculpture: Function, Materials, and Techniques in the Archaic and Classical Periods* (New York: Cambridge University Press, 2006), 123.

53 A notable exception is Mattusch, *Classical Bronzes*, 131, and Carol Mattusch, "Archaic and Classical Bronzes," in Palagia, *Greek Sculpture*, 208–242.

54 Although typically rendered "gray-eyed," *glaukos* could also refer to a multitude of hues (blue, green, gray), objects (the sea, an olive, a vine, the moon, sky, dawn), or symbolic associations (untrustworthiness, variability, the power of the evil eye). Deacy and Villin, "Athena Blues?," 85–86. Sassi, "Perceiving Color," 263. On the depiction of Minerva with *caerulei* eyes, see Bradley, *Colour and Meaning*, 11n52.

55 Platt, *Facing the Gods*, 168.

Figure 110 Statue of Athena, bronze with inlaid eyes, 4th century BCE, H: 2.35 m, Piraeus Archaeological Museum, Inv 4646. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author.

Figure 111 Detail of eyes, statue of Athena, bronze with inlaid eyes, 4th century BCE, H: 2.35 m, Piraeus Archaeological Museum, Inv 4646. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author.

Figure 112 Detail of Medusa and snakes on aegis, statue of Athena, bronze with inlaid eyes, 4th century BCE, H: 2.35 m, Piraeus Archaeological Museum, Inv 4646. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author.

Figure 113 Detail of eyes and head (frontal), statue of Artemis, bronze with inlaid eyes and metal alloys, H. 1.55 m, Piraeus Archaeological Museum 4648. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author

Figure 114 Detail of alloyed patterning along quiver strap, statue of Artemis, bronze with metal alloys, H. 1.55 m, Piraeus Archaeological Museum 4648. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author

A possible Parian marble copy or iteration of this bronze statue of Athena is now in the collection of the Louvre, Paris (Figure 117). This marble iteration corresponds to the bronze version in many formal particulars, but the glittering inlaid eyes of the bronze version have been rendered in blank marble (Figure 118).[56] While the components of the eyes might once have been painted, they now appear as a monochrome white surface, editing out the important polychrome variegation and brilliance of the glittering-eyed bronze sculpture. This material substitution alters the copy, which lacks both the scalable part-to-whole relationships internal to the bronze version and the animation that this polychrome variegation crafts. In contrast with the marble version, the Piraeus Athena looks out and down toward an approaching beholder with bright, pieced-together eyes, key parts in the assembled whole that animate the sculpture and catch a beholder's eye.

As the comparison between the bronze Piraeus Athena and the marble iteration now in the Louvre shows, inlaid eyes did not always transfer when artists produced a reproduction or iteration in a new material. The copy tradition replaced the pieced-together polychromy of inlaid eyes with solid monochrome expanses of marble produced in the same material as the rest of the sculpture. Where those copied eyes were painted in antiquity, often only traces of pigment

56 G. B. Waywell, "Athena Mattei," *The Annual of the British School at Athens* 66 (1971): 373–382, who works through the formal particulars of scale and shape but does not describe the inlaid eyes of the Piraeus bronze.

Figure 115 Statue of Artemis (full view, frontal), bronze with inlaid eyes and metal alloys, H: 1.95 m, Piraeus Archaeological Museum 4647. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author

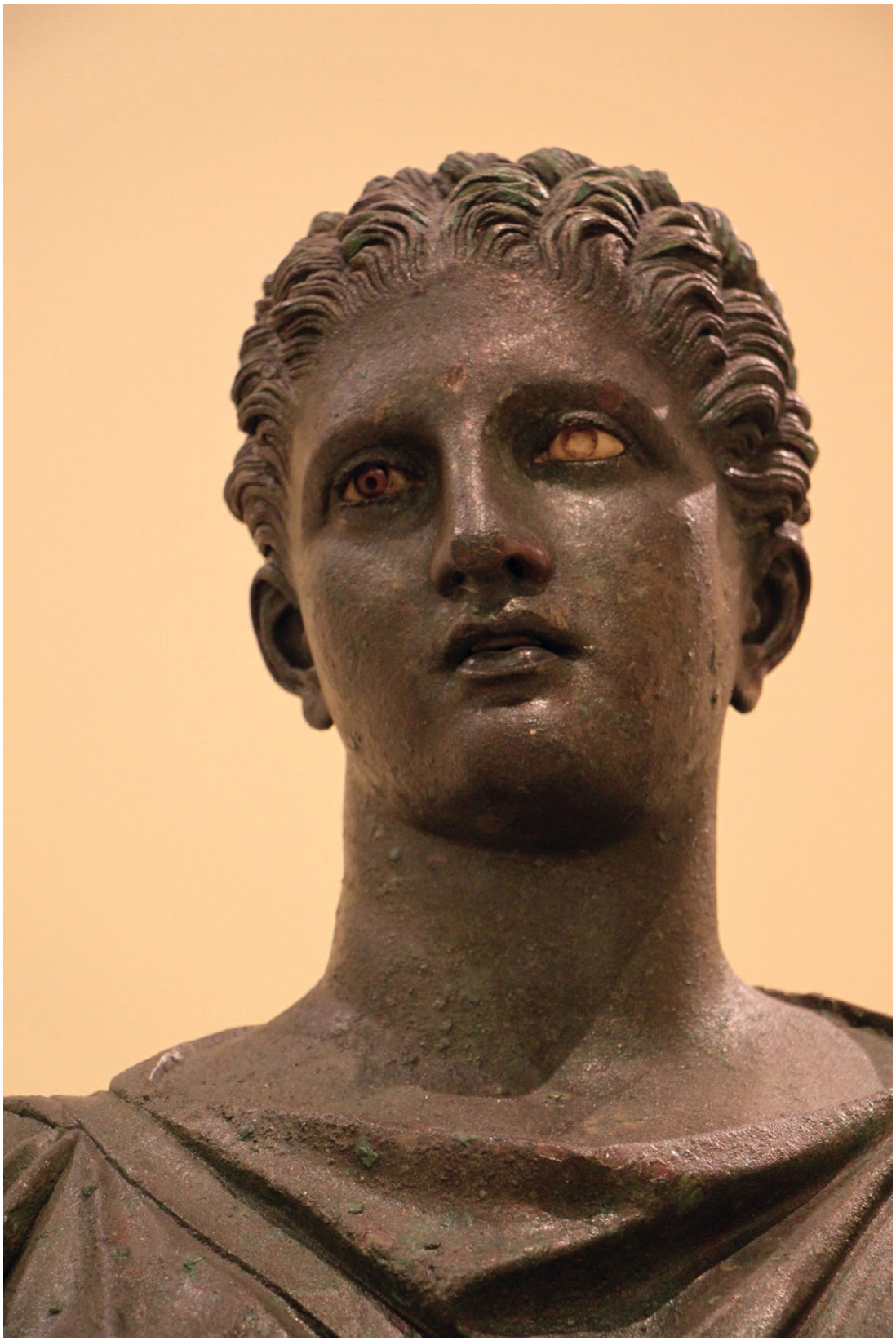


Figure 116 Detail of eyes and head, statue of Artemis, bronze with inlaid eyes and metal alloys, H: 1.95 m, Piraeus Archaeological Museum 4647. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author

Figure 117 Statue of Athena ("Mattei" or "Peaceable"), marble from Paros, 2nd century BCE-2nd century CE, H: 230 cm x. W: 98 cm x D: 68 cm, Louvre Museum, Paris © RMN-Grand Palais / Art Resource, NY

Figure 118 L. Detail of eyes, Statue of Athena, bronze inlaid with various materials, 4th century BCE. © Archaeological Museum of Piraeus – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author. R. Detail of eyes, Statue of Athena, marble from Paros, 2nd century BCE-2nd century CE, Louvre Museum, Paris © RMN-Grand Palais / Art Resource, NY

remain visible to the naked eye today. Rigorous cleanings of objects in museums have compounded losses. When individuals created molds to produce additional copies, as in the example of the Athena Promachos from the Villa dei Papiri at Herculaneum, those molds could whisk away remaining surface pigment traces through direct touch between the mold and the painted surface.[57]

In addition to the lack of ongoing maintenance and *kosmēsis*, the story of ancient Mediterranean eyes has also been shaped by interventionist conservation. A group of bronze busts excavated from the Villa dei Papiri once had inlaid eyes in antiquity, but at the time of excavation they only had empty sockets and received a curious early conservation treatment aligned with the monochrome aesthetics of that era. Rather than reconstruct inlaid eyes for these blank-eyed busts with empty bronze sockets, the conservation team at the Archaeological Museum in Naples in the eighteenth century produced bronze films to cover over the void of the empty sockets (Figure 119).[58] Thanks to the rich archival documentation preserved by the museum, we have insight into these conservation decisions. Other bronze sculptures from the Villa dei Papiri, such as the two male runners, a herm of Dionysos, and the series of dancing female figures, retain their inlaid eyes along with variegated

57 Kenneth Lapatin and Ruth Allen, *Buried by Vesuvius: The Villa dei Papiri at Herculaneum* (Los Angeles: J. Paul Getty Museum, 2019), 154, no. 7.

58 Lapatin and Allen, *Buried by Vesuvius*, 184–190 nos. 26–27, 29–30 (painted plaster eye films). Nos. 20 and 21 have intact inlaid eyes (dark stone and white bone), 172–174.

Figure 119 Herm of Doryphoros, bronze, 1st century BCE with 18th-century bronze lenses covering eye sockets. Naples Archaeological Museum, Inv. 4885. Photo: Marie-Lan Nguyen

metal alloys throughout the figural bodies and garments of the statues (Figure 120).[59] Inlaying eyes appears to be one of a spectrum of artistic options in the Roman period including painting and drilling the surface of the eye in order to demarcate individual parts. And yet, the bronze lenses added in the eighteenth century to cover the empty sockets of some statues crafted a solid, monochrome whole and erased the important piecing together of different polychrome materials present in the ancient iterations. Based on eighteenth-century norms conservators carried out these interventions when many foundational ideas for the discipline of art history were also being established, so that an ideal of monochrome formal unity drove the theorization of art, which in turn contributed to the (re)production of more art from the past that conformed to these ideals, in a feedback loop from which scholarship has struggled to emerge even hundreds of years later.

Renewed research on extant eyes, supported by new discoveries of intact inlaid eyes, reveals consistent artistic attention to the particulars of the eye-parts in figural statues.[60] Inlaid eyes necessitated ongoing care and maintenance without which they fell out and left a blank void and an empty socket such as the one visible on the left side of the bronze warrior B from the Riace marina. Other such examples include the statue of Zeus found off of the coast of Artemision, and the statue pair of a horse and young jockey in the National Archaeological Museum in Athens, a bronze statue of a young man now in the Getty villa, and the remarkable bronze statue of a woman found underwater near the island of Kalymnos and now on display there (Figures 121 to 123). Empty sockets mark where the statue would once have had inlaid eyes, and traces of edgework visible throughout her elaborately wrapped, fringed himation evoke the polychrome textile work discussed in Chapter 2. Like the Riace warriors and the statues of Athena and Artemis, each of these bronze statues would once have looked out from inlaid eyes fitted together from vibrant material color-parts.

While the inlaid eyes of many bronze statues are no longer in place, a number of statues do retain one, both, or parts of their eyes. A bronze statue of a young male athlete in the National Archaeological Museum, Athens still has its inlaid eyes.[61] Similarly, the statue of a charioteer from Delphi, discovered in 1896, still looks back at beholders with two fully intact inlaid eyes (Figure 124).[62] Dedicated in the 470s BCE, the charioteer was one part of a group of bronze statues that also included his chariot and team of horses and once stood in front of the Temple of Apollo at Delphi, its bright colors juxtaposed

59 Lapatin, *Buried by Vesuvius*, 146, no. 3; 170. nos. 18, 19; 172–175, nos. 20, 21; 184–195, nos. 26–32; 198, no. 35. "Use of calcareous stone (not ivory as previously reported) is indicated by high calcium levels, shiny inclusions, and faint abrasion marks. Remnants of broken copper eyelashes surround the eye and are pressed into the eye socket. Inspection from the interior reveals that the eye has been reattached with a modern resin." Jeffrey Maish, "The Getty Herm of Dionysos: Technical Observations, Review, and Interpretation," in *Artistry in Bronze: The Greeks and Their Legacy (XIXth International Congress on Ancient Bronzes)*, ed. Jens M. Daehner, Kenneth Lapatin, and Ambra Spinelli (Los Angeles: J. Paul Getty Museum; Getty Conservation Institute, 2017), no. 41.

60 Sturgeon, "Archaic Athens and the Cyclades," 55–57. Mattusch, "Archaic and Classical Athens," 222–225. Mattusch, *Classical Bronzes*. Formigli, *Colore e luce*, 1–18, 91–93. Bol, *Antike Bronzetechnik*, 150–153.

61 Nikos E. Kaltsas, *Sculpture in the National Archaeological Museum, Athens* (Los Angeles: J. Paul Getty Museum, 2002), 86, no. 146; Houser, *Greek Monumental Bronzes*, 45–49. Kaltas, *Sculpture in the National Archaeological Museum*, 92–93, no. 159. Stewart, *Greek Sculpture*, 147, figs. 287–288; Houser, *Greek Monumental Bronzes*, 76–85. Kaltas, *Sculpture in the National Archaeological Museum*, 242, no. 509, Stewart, *Greek Sculpture*, 177, figs. 497, 499. Kaltas, *Sculpture in the National Archaeological Museum*, 248–249, no. 518, Houser, *Greek Monumental Bronzes*, 92–99.

62 Delphi Museum, 3484, 3540. Mattusch, *Classical Bronzes*, 38. Houser, *Greek Monumental Bronzes*, 20–31. Bol, *Antike Bronzetechnik*, 153.

Figure 120 Appias ("Herculaneum dancer"), Greco-Roman, First century BCE–First century CE, bronze, copper, silver, bone, and stone. Museo Archeologico Nazionale, Naples, 5621. Photo: Giorgio Albano

Figure 121 Statue of a woman, bronze with empty sockets for inlaid eyes, 300–100 BCE. © Archaeological Museum of Kalymnos – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Kalymnos – Archaeological Receipts Fund. Photo by author

Figure 122 Statue of a woman (detail of head and torso), bronze with empty sockets for inlaid eyes, 300–100 BCE. © Archaeological Museum of Kalymnos – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Kalymnos – Archaeological Receipts Fund. Photo by author

Figure 123 Statue of a woman (detail of fringed himation), bronze, 300–100 BCE. © Archaeological Museum of Kalymnos – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Kalymnos – Archaeological Receipts Fund. Photo by author

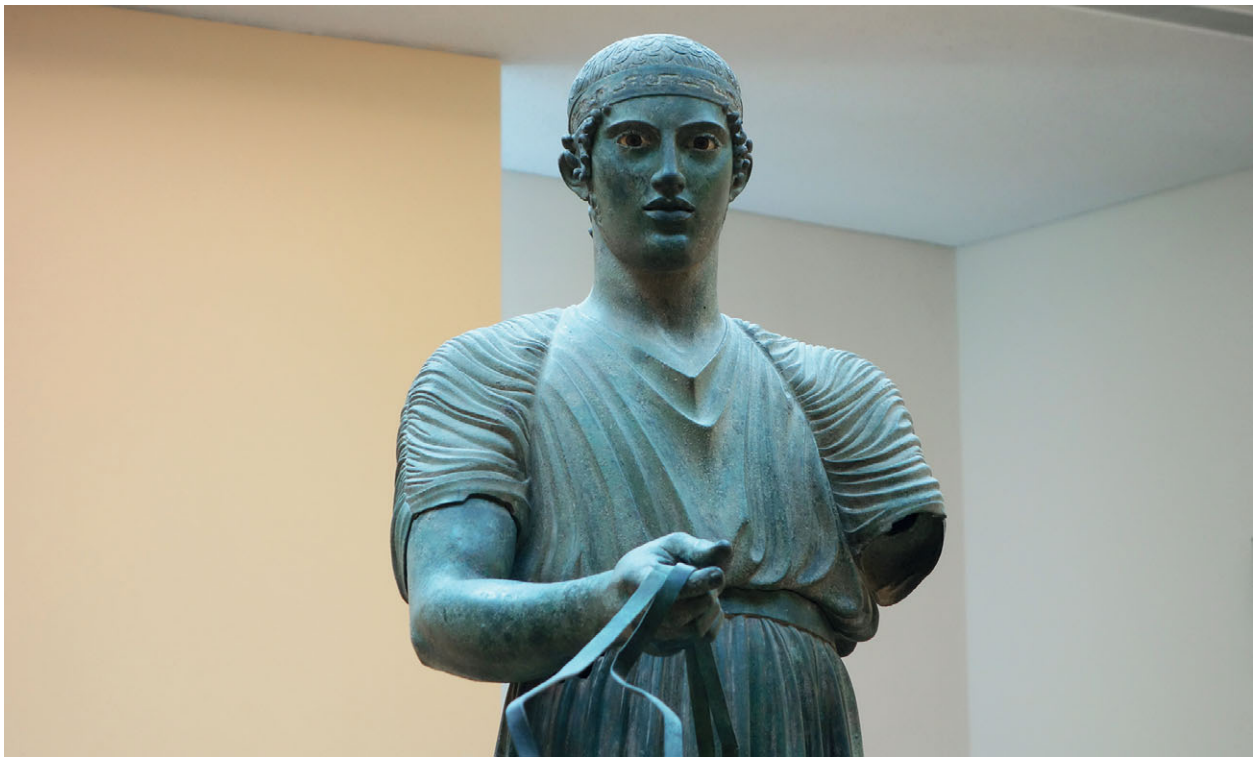


Figure 124 Statue of a charioteer (head and torso), bronze, silver, copper, inlaid eyes, 478 or 474 BCE, H: 1.8 m © Archaeological Museum of Delphi, Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Phocis – Archaeological Receipts Fund. Photo courtesy of Dr. Steven Zucker

with those of the temple, other dedications, people, and landscape. The bust of Seuthes III from Kazanlak (fourth century BCE), which was discovered more recently in 2004, further expands the repertoire of intact eyes.[63] A bronze head found in a secondary context (beneath a mosaic floor) in Cyrene (Libya) has copper-plated lips, bone teeth, and partially intact inlaid eyes made of magnesium carbonate and glass (Figure 125).[64] A photograph taken from inside the hollow-cast bronze head makes visible the fitted-together parts by which these inlaid eyes were made up (Figure 126).

While most of the surviving examples are in bronze statues, a number of marble statues also had inlaid eyes. An example is an acrolithic head from Krimisa that also had a body formed from different materials, such as wood, straw, and plaster.[65] Several marble sculptures with partially preserved inlaid eyes or empty sockets are in the collection of the Acropolis Museum (Figures 127 and 128, 49 a,b). The painted marble statue known as Kritios boy has empty sockets that once would have held inlaid eyes.[66] In the museum gallery, the statue's empty sockets resonate with those of the nearby Antenor kore (Acr. 681), which retains parts of the crystal inlays that once formed violet eyes. A female head in marble, also in the Acropolis Museum,

63 National Institute of Archaeology with Museum, BAS, 8594. Daehner and Lapatin, *Power and Pathos*, no. 9, EX.2015.1.

64 British Museum, London, 1861,1127.13. Lapatin and Daehner, *Power and Pathos*, no. 28, EX.2015.1.41. Mattusch, *Classical Bronzes*, 80–83.

65 Sturgeon, "Archaic Athens and the Cyclades," in *The Greek Cities of Magna Graecia and Sicily*, ed. Luca Cerchiai, Lorena Jannelli, and Fausto Longo (Los Angeles: J. Paul Getty Museum, 2004), 111.

66 Jeffrey Hurwit, "The Kritios Boy: Discovery, Reconstruction, Date," *American Journal of Archaeology* 93, no. 1 (1989): 41–80.

Figure 125 Head of a man, bronze, copper bone, magnesium carbonate, glass, 300 BCE, found Cyrene, Libya. British Museum, London 1861,1127.13 © The Trustees of the British Museum

Figure 126 Inlaid eyes viewed from inside the hollow-cast head of a man, bronze, copper bone, magnesium carbonate, glass, 300 BCE, found Cyrene, Libya. British Museum, London 1861,1127.13 © The Trustees of the British Museum

had inlaid eyes.[67] The statue of a man carrying a calf for sacrifice (calf-bearer/Moschophoros) now looks back with empty sockets where ancient artists had inserted the iris and pupil and attached them with a small joining pin.[68]

As discussed in Chapter 2, many other korai, including numerous examples in the Acropolis Museum, have painted eyes (Figures 49 to 52).[69] In her work on *daedala*, François Frontisi-Ducroux refers in passing to the blindness of statues from which the eye-pigments have disappeared or been cleaned, associating their polychrome eyes with the animacy of vision.[70] On korai with painted rather than inlaid eyes, traces of red and yellow-ochre, violet, and black remain visible today.[71] The limestone Bluebeard sculptures, the terracotta Zeus and Ganymede,

67 Kaltas, *Sculpture in the National Archaeological Museum,* 128, no. 244.

68 Neer, *The Emergence of the Classical Style*, 114. The calf he bears across his shoulders has painted rather than inlaid eyes; an ironic distinction that might have been intended, in this particular case, to animate the dedicator more intensely than his no-longer animate offering, ironic since both the man and his calf are actually offerings.

69 Mary C. Sturgeon, "Archaic Athens and the Cyclades," in *Greek Sculpture: Function, Materials and Techniques in the Archaic and Classical Periods*, ed. Olga Palagia (Cambridge: Cambridge University Press, 2006), 57. In addition to eyes in which all of the selected surface details were rendered in stone, glass, or pigment, some eyes made from glass crystal may have had the iris and pupil incised or painted onto the surface in order to heighten the fusion of color and light. Karakasi, *Archaic Korai*, pls. 35, 86, 87, 110–111, 115, 138, 139, 146–149, 152–154, 158–167, 169, 178–180, 188–196, 236–237, 244–247, 254–255, 258–261, 264–265, 269–272, 276–278. See also Dimitris Pandermalis, *Archaic Colors* (Athens: New Acropolis Museum, 2012).

70 Françoise Frontisi-Ducroux, *Dédale: Mythologie de l'artisan en Grèce ancienne* (Paris: F. Maspero, 1975), 108, and Françoise Frontisi-Ducroux, "Living Statues," in *Antiquities*, ed. Gregory Nagy, Laura M Slatkin, and Nicole Loraux (New York: New Press, 2001), 171.

71 See n37, above, and Karakasi, *Attic Korai*. Mary C. Stieber, *The Poetics of Appearance in the Attic Korai* (Austin: University of Texas Press, 2004), 45–49. On the poetic language of colors and animation, see 127–128.

Figure 127 Statue (known as "Kritios boy"), marble from Paros with pigments and empty sockets for inlaid eyes, 480–475 BCE, H: 1.167 m, Gallery view with Korē 686 in the background, Acropolis Museum, Athens #689. @ Acropolis Museum. Photo: Sokratis Mavrommatis

Figure 128 Statue of a man carrying a calf (Moschophoros, detail of head and torso), marble from Mount Hymettos with empty sockets for inlaid eyes, 570 BCE, H: 1.65 m, Acropolis Museum #624. @ Acropolis Museum. Photo: Yiannis Koulelis

and the terracotta Hades all discussed in Chapter 1 also had painted eyes. While produced from different techniques – inlay and painting – artists created these eyes through fitting together or layering material colors.

The popularity of the Kritios boy has meant that many plaster cast collections around the world include or included a copy of the sculpture. These plaster copies solidify the empty sockets of the marble statue and render them as monochrome white surface. Recovering material colors more generally and inlaid and painted eyes more specifically connects the practices of artists working in the ancient Mediterranean with those working in other cultural contexts across a vast geo-temporal expanse. The empty sockets and the inlaid eyes that would have filled them in antiquity have been plastered over in the copy tradition. A bronze head excavated from the same trench as the Kritios boy has received ample scholarly attention, while its single intact eye has not.[72] Focus on formal or stylistic qualities, such as hairstyle or contrapposto stance, thought to assist with comparative chronology or to exemplify naturalism, have taken precedence over material specificity. These priorities have elided evidence for ancient polychrome eyes. Notably, these examples of now-lost, partially, and fully intact inlaid eyes span many hundreds of years indicating that artists continued to fit together inlaid eyes and to fit these into bronze statues even as the reproduction and circulation of additional iterations complicated their reception.

MATERIAL CONNECTIONS

Recovering material colors more generally and inlaid and painted eyes more specifically connects the practices of artists working in the ancient Mediterranean with those working in other cultural contexts across a vast geo-temporal expanse. Polychrome eyes were ubiquitous not only in the ancient Mediterranean but also throughout the wider ancient world. The erasure of polychrome eyes from ancient Greek art seems to have been part of the construction of Greek exceptionalism by erasing evidence of artistic atomism that connects ancient Greek art to art produced by other ancient cultures.[73] A wider tradition of producing inlaid eyes in Egypt, Mesopotamia, the ancient Near East, and later in Rome, is related to but distinct from the eyes produced in the ancient Mediterranean in the sixth to fourth centuries BCE. Extant inlaid eyes show ancient Mediterranean artists to have been working in a tradition aligned with their broader zone of cultural connections.

Inlaid eyes made across the ancient world could, as in Greek contexts, be assembled from various materials, found intact in the sockets of figural statues or disengaged and loose. Examples from ancient Egypt range from a very early carved bone figurine with enlarged, smooth chunks of lapis lazuli to the differentiated eye-parts of Tutankhamun's mummy mask and the inlaid eyes of Romano-Egyptian funerary sculptures, indicating that Egyptian artists produced a variety of inlaid eyes over several millenia.[74] In

72 NM 6590; Bol, *Antike Bronzetechnik*, 152, fig. 110. Houser, *Greek Monumental Bronzes*, 40–42. Stewart, *Greek Sculpture*, no. 18, fig. 16, with relevant bibliography.

73 On the disjunction between Herzfeld's excavation notes from Persepolis, which mentioned significant amounts of extant pigments, and what Herzfeld publishes, see Alexander Nagel, "Ernst Herzfeld" and "Farbe in Persepolis," in *Teheran 50. Eine Ausstellung im Museum für Isalmische Kunst in Berlin, 1 Dezember 2011 bis 28 Februar*, ed. B. Helwing and O. Raheimpour (Mainz: Von Zabern, 2012), 42–65 and 171–173.

74 For inlaid eyes emphasizing response, see British Museum, London, EA 32141. Large, round eyes cut from lapis lazuli look out from the face of an Egyptian figurine carved otherwise entirely from white bone (from Upper Egypt, Early Predynastic period, Naqada I, 4000–3600 BCE). George L. Hart, *Pharoahs and Pyramids: A Guide Through Old Kingdom Egypt* (London, Herbert 1991). Scale, hue, surface and material in this sculpture foreground vision at the top of a bodily hierarchy of systems

the carved bone figurine, for example, the large pieces of lapis lazuli that mark the eyes appear to foreground the eye's own response to seeing (widening at the sight of something wondrous), while those with differentiated eye-parts, such as on Tutankhamun's mummy mask, emphasize the process and apparatus of sight through their fitted-together parts. The ubiquity of inlaid eyes in ancient Egyptian art corresponds with the importance of the eye in Egyptian cosmography, as captured by the prominence of both the eye of Horus and the eye of Ra.[75] This tradition continued into later periods and Egyptian artists working in the first to third centuries CE either painted eyes as part of funerary portraits using encaustic and tempera techniques or pieced-together inlaid eyes to fit into sculpted funerary masks (Figures 129 and 130).[76]

In the Mesopotamian context, Irene Winter has argued that the large, opaque eyes given to dedicatory statues embody the wide-eyed admiration that appropriately infuses a beholder when gazing upon the divine in a devotional setting (Figure 131).[77] Elisa Roßberger has analyzed the composite assemblages of material colors – such as Baltic amber, lapis lazuli, variscite, and gold – to form eye beads, alongside temple inventory lists of these objects and their materials. Artistic atomism and fitting together material color-parts were important to representations of the eye in ancient Mesopotamia.[78]

Reconstituting polychrome eyes, both painted and inlaid, also recovers processes of intersubjective exchange between the figure and the beholder by crafting animate, embodied polychromy. Polychrome eyes act. They see and are seen and they shape the period discourse on visuality. This reciprocal exchange takes place between the polychrome eye of a statue and the polychrome eye of a beholder, and the exchange animates the space between them. A sculpture that is animated through its own material assemblage makes visible the actions of organic and inorganic matter combining and mixing within

and senses; inlaid eyes were also used on mummy masks, coffins, mummies, statues, statuettes, and relief. So abundant are the possible forms that ancient Egyptian inlaid eyes took, they are the subject of a chapter in *Ancient Egyptian Materials and Industries*, in which A. Lucas sorts known inlaid eyes into six classes on the basis of their anatomical complexity, construction technique, and use. A. Lucas and J. R. Harris, *Ancient Egyptian Materials and Industries* (Mineola: Dover Publications, 1999), 98–127. The more complex inlaid eyes, such as in the mask of Tutankhamun's mummy mask, do not recreate the entire internal eye-system, but they do reconstruct interiority by including a structural pupil. See also examples in Formigli, *Colore e luce*, 2, fig. 3.

75 On the eye of Ra's association with a sun-disc with extending rays that are said to color the earth, see Sylvie Donnat, "Lumière, couleurs et peaux dans l'Égypte ancienne," in *L'Antiquité en couleurs: catégories, pratiques, représentations*, ed. Marcello Carastro (Grenoble: J. Millon, 2009), 199.

76 See "Eton Collection" Johns Hopkins Archaeological Museum: https://archaeologicalmuseum.jhu.edu/objects-on-loan/eton-collection.

77 Irene J. Winter, "The Eyes Have It: Votive Statuary, Gilgamesh's Axe and Cathected Viewing in the Ancient Near East," in *Visuality Before and Beyond the Renaissance*, ed. Robert S. Nelson (Cambridge: Cambridge University Press, 2000), 22. The twelve votive sculptures from Tell Asmar, Khafeje were found together within the precinct of the Square Temple (ca. 2750–2400 BCE) and were positioned before the temple's resident deity. The figurines are carved from alabaster (gypsum) and their enlarged eyes are formed from shell for the whites and lapis lazuli or bitumen for the pupil. Texts also describe inlaid eyes and the centrality of vision. See, for example, the Akkadian "Legend of Kirta," which reads, "the beauty of Aštart (the one) whose pupils are lapis lazuli, whose eyelids are cups of alabaster." Carole Roche, "The Lady of Ugarit" *Near Eastern Archaeology* 63, no. 4 (2000): 214. For a range of Mesopotamian statues with inlaid eyes, see Astrid Nunn, "Catalogue of the 59 statues with colour residues and resulting analysis," in Astrid Nun and Heinrich Piening eds., *Mesopotamian Sculpture in Colour* (Berlin: PeWe-Verlag-Gladbeck 2020), 46–125; 133. For painted eyes see 180–181.

78 Elisa Roßberger, "Shining, Contrasting, Enchanting: Composite Artefacts from the Royal Tombs of Qatna," in *Composite Artefacts in the Ancient Near East: Exhibiting an Imaginative Materiality, Showing a Genealogical Nature*, ed. Silvana di Paolo (Oxford: Archaeopress Publishing, 2018), 88.

Figure 129 Attributed to the Isidora Master, *Mummy Portrait of a Woman*, 100 CE, encaustic on linden wood, gilt; linen, 48 × 36 × 12.8 cm (18 7/8 × 14 3/16 × 5 1/16 in.), 81.AP.42, The J. Paul Getty Museum, Villa Collection, Malibu, California

Figure 130 Sculpted funerary mask of a woman, plaster, paint, glass, ca. 30 BCE–395 CE, from Egypt, On loan from Eton College Myers Collection, ECM 1509. Photo courtesy of the Johns Hopkins Archaeological Museum

Figure 131 Statue of man holding a cup, gypsum alabaster, shell, bitumen, lapis lazuli, Tel Asmar, ca. 2900–2600 BCE. The Metropolitan Museum of Art, New York 40.156

and between both artistic and living bodies. This animacy of material colors forges a space between bodies in which visual, material exchanges could take place. These visual exchanges extend the principles of color mixing on palettes or in alloys to chromatic particulate matter exchanged across and between bodies.

ANIMATION

The mythical artist Daidalos, to whose artworks were ascribed wonderous animation, was said to produce both wooden statues (*xoana*) that received adornment and care as well as hammered bronze sphyreleta, like the korai from Olympia discussed in Chapter 2. Writing of Daidalos, the Greek historian Diodorus Siculus, active in the first century BCE, offers the following apocryphal insight:

> In the production of statues he so excelled all other men that later generations preserved a story to the effect that the statues which he created were *exactly like living beings* (*empsukhos,* lit. containing a soul); for they say that they could *see* and *walk,* and preserved so completely the disposition of the entire body (*holon sōma*) that the statue which was produced by art seemed to be a *living being* (*empsukhon zōon*) (4.76.2).[79]

Diodorus's text has often been marshalled to support the recurring argument that Greek artists sought to imitate or even surpass life.[80] "Mimesis" is an English term derived from the ancient Greek *mimēsis* (imitation, reproduction, representation by means of art) and is often presented as the motivation driving Greek artists working in the fifth century BCE in the mythical Daedalic fashion.[81] Reading Diodorus as tracking Daidalos's mythical *mimēsis* places the emphasis on the final word of this passage, *zōon*, meaning "living being, animal."[82] The assumption that verisimilitude is the goal towards which ancient Greek artists were working is so built into discussions of Greek art as to require no defense or evidence. Each ancient Greek artist is presumed to seek either to imitate or to compete with living bodies. Under this logic, fitting together polychrome parts pieced together an even more lifelike *sōma*, or body. Mimesis, however, is a reception issuing from the application of the practice in literature to the visual arts, not an ancient Mediterranean artistic priority. In the service of their own contemporary rhetorical ends, Roman authors, such as Pliny the Elder, Philostratus, and Cicero, imagined a past pursuit of mimesis centered around lost panel painting, and these authors have shaped the historiography of earlier ancient Mediterranean artistic practice.

In her work on Daidalos, Françoise Frontisi-Ducroux distinguishes between animation and mimesis.[83] Daidalos's sculptures live not because they mimetically imitate life, but because they are animated through their polychrome assemblages. Frontisi-Ducroux also emphasizes that Daidalos's statues gaze at and are gazed upon by beholders. These gazes animate the statues and the space between statue and beholders. Animation rather than mimesis sets the mythical Daidalos apart. Thus, the most significant word in Diodorus is the repeated *empsukhon* ("animate, having life in one," even "a breathing corpse").[84] What continues to be called lifelikeness, or a description of how an

79 Pollitt, *The Art of Greece: Sources and Documents*, 5. On Daedalos, see Frontisi-Ducroux, *Dédale and* "Living Statues," 164–175.

80 For the most explicit example of this see n120 and Buitron-Oliver, *The Greek Miracle*, but the idea pervades many aspects of the field.

81 LSJ, s.v. "mimēsis."

82 LSJ, s.v. "zōos."

83 Françoise Frontisi-Ducroux, *Dédale: mythologie de l'artisan en Grèce ancienne* (Paris: F. Maspero, 1975).

84 LSJ, s.v. "*empsukhon.*"

object looks, should be named animation, or a description of what an object does. Hues, variegation, and brilliance all work together to animate objects, so that we might reconceive Daidalos's mythical animate sculptures as acting rather than appearing "like living beings." Diodorus's description of Daidalos's skill emphasizes what his statues *do*. Daedala are like living bodies in that they act.

Evidence of color in ancient Mediterranean art, especially on and of sculpture, has often been taken as further evidence of this pursuit of *lifelikeness*.[85] As conservation scientists recover ever more evidence for pigments, metals, and other materials in and on ancient Mediterranean art, they have often fitted these discoveries into existing narratives offered by art historians and archaeologists, who in turn have not radically adjusted their stories in light of this same polychrome evidence. Recovering color reconstitutes the whole body (*sōma*) as an assemblage of material color-parts, but we should not mistake that process for mimesis. This artistic atomism produced assemblages of animate, kinetic, material color. Daidalos was celebrated for the animacy of his statues, not their imitation of nature. Living is not an appearance, but an act. Daedala *see* and thus live. Material colors, shining brilliance, and saturated hues do not service lifelikeness, but *kosmēsis* and animation.

Unknown artists working in the fifth century BCE produced two polychrome bronze sculptures that embody the Daedalic animation described by Diodorus. Known as the Riace bronzes (A and B) because they were discovered by a skin diver in the sea off of the coast of the Riace marina in 1972, both sculptures represent idealized, naked, polychrome male bodies. One of these, Riace B, opened this chapter. The artists who produced these statues achieved such vibrant polychromy through the alloys, inlays, and overlays of the lost-wax casting technique. Contrasting hues, variegation, and brilliance animate these bronze statues, but these materials do not, however, create a "reality effect," for this is strikingly not a real body.[86] Light shimmers across an expanse of gleaming bronze flesh, from bright silver teeth and nails to copper nipples and lips; ivory or bone eye-whites look out from bronze lashes.[87] The sculptures' expanses of bronze skin (*khrōs*) would have gleamed even more brightly with regular maintenance and care. The conceit of mimesis that such bodies might reveal something achieved or achievable by human standards mistakes their important more-than-ness.[88] Material color and the relationship of light to those materials forge a supranatural body animated in and through

85 Panzanelli, *The Color of Life*, 2; Brinkman, Dreyfus, and Koch-Brinkman, *Gods in Color*, 27; Luke Syson, Sheena Wagstaff, Emerson Bowyer, Brinda Kumar, and Bharti Kher, eds. *Like Life: Sculpture, Color, and the Body* (New York: Metropolitan Museum of Art, 2018).

86 Neer, *The Emergence of the Classical Style*, 150. Descamps-Lequime, "La Polychromie des bronzes Grecs et Romains," 79–80.

87 Ibid., 80, suggests that artist achieved the lip color by deliberately leaving that area unpolished to preserve the color which results from the alloy's high copper content. Warrior A's mustache, for example, was executed from bronze with a higher tin content in the alloy than that used for the rest of the face. Edilberto Formigli, "Alterazioni superficiali dei bronzi di Riace," in *Due bronzi da riace: rinvenimento, restauro, analisi ed ipotesi di interpretazione* (Rome: Istituto poligrafico e zecca dello Stato, 1984), 130, 132, fig. 30. The Delphi charioteer deploys a similar mix of colors. See also Claude Rolley, "En regardant l'Aurige," *Bulletin de Correspondance Hellenique* 114 (1990): 285–297. Descamps-Lequime follows Formigli in taking these deliberate manipulations of the statue's color as evidence for a sophisticated combination of positive and negative lost-wax casting, in which the parts intended to be of different colors were cast before others and using different alloys.

88 Neer, *The Emergence of the Classical Style*, 150, dismantles both the persistent claim that these sculptures instantiate artistic naturalism as well as the claim that they have been cast from life. The association of these bronzes with high Classical "naturalism" led some scholars to argue that the bronzes were literally cast from life, and thus both a trace and a replica of a "real" body.

the non-human vibrant matter of its parts.[89] By juxtaposing, superimposing, and mixing colors to create vivid variegation and brilliance, artists forged an explicitly superhuman body.[90] At the same time, these sculpted bodies engage the bodies of their beholders, not by representing ideal potential, but by indexing their own pieced-together color-parts, or hylomorphism (Figures 132 to 134).

Artists worked out individual body parts with copper, silver, ivory, and obsidian inlays and overlays. Such metallic variegation Sandrine Dubel has described as "painting from metal" and the Hellenistic poet Poseidippos called *poikilletai* (variegated things).[91] The Riace bronzes exemplify the way in which ancient bronze sculptures produced in the lost-wax casting technique were not made up of one monochrome expanse of bronze, but comprised many different material colors.[92] This *khrōma* demanded the combined techniques of casting, overlaying and inlaying metals, stones, and glass to produce polychrome assemblages. These different alloys, inlays, and overlays fit together material color-parts to craft whole bodies that each remain a "wonder to behold" (*thauma idesthai*).[93]

PARTS

A pair of disembodied larger-than-lifesized eyes (fifth century BCE) rests in a display case in the Metropolitan Museum of Art, in a gallery adjacent to the fifth-century Greek sculpture hall populated by many monochrome white marble Roman copies of earlier Greek statues (Figures 135 and 136).[94] These eyes were formed from marble, frit, quartz, and obsidian pieces joined together and encased in hammered bronze, which wraps around the back of the eyeball and which has been cut into lashes in the front to frame the visible parts of the inlaid eye. Disembodied, these eyes are no longer connected to a statue, although they would have once been fitted into sockets cast into a bronze head and would have looked out from that sculptural body. Now they look out from a display case. Similarly, a single eye assembled from pieces of marble, obsidian, glass, and copper in the collection of the Getty Museum (Figure 137)

89 On the super-body of Greek gods, see Jean-Pierre Vernant, "Dim Body, Dazzling Body," in *Fragments for a History of the Human Body*, ed. Michel Feher (New York: Zone Books, 1989), 39. Writing in an entirely different context of Leonardo's *technē,* Martin Kemp describes just this sort of "supranaturalism," Martin Kemp, *Leonardo* (Oxford: Oxford University Press, 2005), 193. On the "vibratory vitality" of metals, see Bennett, *Vibrant Matter*, 59–61.

90 On their rich metallic *poikilia*, see Descamps-Lequime, "La Polychromie des bronzes grecs et romains," 80, and Mattusch, "Archaic and Classical Bronzes," 215–216. For a notable exception to this sheering off of *poikilia* from color, see Grand-Clément, "*Poikilia*," 406–421.

91 Dubel, "Quand la matière est couleur," 164, who draws this concept from D. H. F. Gray, "Metal-Working in Homer," *The Journal of Hellenic Studies* 74 (1954): 1–15. Sophie Descamps-Lequime cites Poseidippos in her analysis of bronze polychromy, Descamps-Lequime, "Les Couleurs de l'antique," 80.

92 For more on the experimental reconstruction of the statues, especially of the bronze patinas, see Vinzenz Brinkmann and Ulrike Koch-Brinkmann, "The experimental reconstruction of the bronze warriors of Riace as part of the Frankfurt "Liebieghaus Polychromy Research Project," *Technē* 48 (2019): 120–132. For a critique of the proposed atttribution of different ethnic identities to the reconstruction of different alloys for each statue's skin, see Stager, "The Unbearable Whiteness of Whiteness."

93 On the phrase *thauma idesthai*, see Raymond Prier, *Thauma Idesthai: The Phenomenology of Sight and Appearance in Archaic Greek* (Tallahassee: Florida State University Press, 1989). Jean-Pierre Vernant and Froma Zeitlin, "Semblances of Pandora: Imitation and Identity," *Critical Inquiry* 37, no. 3 (2011): 412–418; Helen Morales, *Vision and Narrative in Achilles Tatius' Leucippe and Clitophon* (Cambridge: Cambridge University Press, 2004), 9; Neer, *The Emergence of the Classical Style*, 55, 65–68.

94 Metropolitan Museum of Art, New York, 1991.11.3a, b 1.5; Michael Squire, "Introduction" Michael Squire, ed., *Sight and the Ancient Senses* (Abingdon: Routledge, 2016), 24.

Figure 132 Statues of two men known as Riace A and B, bronze, copper, silver, ivory, bone, mid-fifth century BCE, H: 1.98 m and 1.97 m, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Photo: Alfredo Dagli Orti / Art Resource, NY

Figure 133 Statue of a man known as Riace A, detail of head, bronze, copper, silver, ivory, 460–450 BCE, Museo Nazionale di Reggio Calabria, Reggio Calabria, Italy. Alfredo Dagli Orti / Art Resource, NY

Figure 134 Installation view of *Gods in Color: Polychromy in the Ancient World* at the Legion of Honor Museum, October 28, 2017–January 7, 2018. Courtesy of Fine Arts Museums of San Francisco

would once have been fitted into a sculpture along with a second eye, but now circulates as a disembodied part. Each eye is at once an assemblage of polychrome materials and a part of the larger assemblage to which it no longer attaches.

As parts in independent circulation, these assemblages could be connected with different material color-parts to form new assemblages. For example, a votive offering from the sanctuary of Asklepios at the base of the Athenian Acropolis consists of part of a marble head inlaid with a pair of eyes (Figures 138 and 139).[95] The piece was set into a pillar of porous stone with variously shaped niches cut into it for dedications. A special curved slot was cut for this dedication. Beneath the eyes an inscription was carved into the porous stone of the stele: "UPER TĒS GUNAIKOS/ EUXA-MENOS PRAXIAS ASKLEPIOI" (Making a vow on behalf of his wife, Praxias [dedicated it] to Asklepios).[96] In the latter half of the fourth century BCE, Praxias probably erected this dedication on behalf of his unnamed wife, who was losing her sight.[97] Her brow, eyebrows, lids, eye sockets, and bridge of

95 Acropolis Museum, Athens, 15244. M. Salta, "Hyper tes gunaikos euxamenos Praxias Asklepio," in *Volume in Memory of Gerhard Neumann, Mouseio Benaki*, 2nd supplement (Athens: Benaki Museum, 2003), 171–182. Squire, *Sight and the Ancient Senses*, 21–22, fig 1.5.

96 *CIA* II 1453; *IG* II^2 4372.

97 Salta, "Hyper tes gunaikos euxamenos Praxias Asklepio," 171–182. Although this piece appeared in the exhibition *The City Beneath the City*, it is not included in the published exhibition catalogue, Liana Parlama and Nikolaos C. Stampolidēs, *Athens: The City Beneath the City: Antiquities from the Metropolitan Railway Excavations* (New York: Harry N. Abrams, 2001). I am grateful to Bob Bridges and Olga Palagia for their assistance in my research of this piece.

Figure 135 Pair of eyes (front), bronze, marble, frit, quartz, and obsidian, fifth century BCE or later, H. 1 1/2 in. (3.8 cm), Metropolitan Museum of Art, New York 1991.11.3a

the nose (now broken) were sculpted from marble. The eyes were crafted separately and laid into the sockets that were cut into the marble. These eyes, the subject of the dedication, include the pink tear duct, white, iris, and pupil, each crafted from different materials and assembled together. Dark, brown-black irises are set into the bright white material used for the whites, which have not yet undergone technical analysis. On her left eyeball one can see a slight gap between the iris and the white on the inner arc of the join. Sparkling crystalline stones set into an adhesive resin form her pupils, which look out from the votive offering.

Having been cut from a larger statue to produce this dedication, the inlaid eyes take on a metonymic function.[98] This important piece of the whole object was fitted into the porous-stone pillar and placed in the sanctuary of Asklepios to receive healing attention. No other offerings remain in the pillar. Instead, empty niches mark where other isolated body parts would have been placed to create a pillar studded with detached body parts standing metonymically for different dedicators, a monument to the breakdown of somatic systems. Corporeal metonymy was an important part of Greek image practice, especially in the arena of medicine and the cult of Asklepios. Unlike the loose inlaid eyes that have

98 Salta, "Hyper tes gunaikos euxamenos Praxias Asklepio," 172, figs. 2–7.

Figure 136 Pair of eyes (back), bronze, marble, frit, quartz, and obsidian, fifth century BCE or later, H. 1 1/2 in. (3.8 cm), Metropolitan Museum of Art, New York 1991.11.3a

been separated from their bodies, these deliberately disembodied eyes redistribute the material color-parts of a prior assemblage. Dedications in the temple of Asklepios, the Greek god of medicine, typically took the form of a sculpted piece of the body part in need of repair. Thus, a broken arm produces the dedication of a terracotta plaque of the arm, mastitis yields a plaque displaying the ailing breast, and ocular disease leads to the dedication of an image of the eyes themselves. All of these dedications stand in not only for the ailing body parts, but also for the whole body of the dedicator and the referent.

This pair of eyes from Praxias's votive dedication now greet visitors at the entrance to the Acropolis exhibition spaces of the Acropolis Museum, which are staged to evoke entering the sanctuary of Asklepios at its base and then mounting the Acropolis itself. These eyes gazed upon Asklepios in his sanctuary and sought his returning (healing) gaze. They also looked back at other dedications, dedicators, and sanctuary workers. This sign (*sēma)* of her eyes and brow stands in not only for the exact part of her body that requires the deity's healing attention, but also represents her entire body/being as a supplicant in the sanctuary of Asklepios and the body of her husband who petitions the god on her behalf.

Separated from their body, set into the pillar and accompanying the offerings of other parts of other ailing bodies, these eyes do not quite return our gaze because they show themselves

Figure 137 Unknown, eye from a bronze statue, fifth–second century BCE, marble, obsidian, glass, and copper, 2.1 × 4.9 cm (13/16 × 1 15/16 in.), 84.AI.625. The J. Paul Getty Museum, Villa Collection, Malibu, California

to have been cut off from the accompanying body and systems that make seeing and knowing possible. The inlaid eyes, like the earlier examples, are a subset of scalable part-to-whole color relationships. Although the pillar is pieced together, like other material forms, this reassemblage produces a different sort of reciprocal exchange. Isolated from the body, these eyes show us not the self shaped by a contingent encounter with another, but sight as pure material process.

The eye – of living and crafted bodies – is both a site and a system through which bodies exchange scalable material color across the spaces between them. That eye is itself colored. *Iris* in Greek names the colored ring of muscle surrounding the pupil, the movements of which dilate the pupil; Iris also names the messenger goddess, whose flight is associated with rainbows and the movements of colors through the ether, and names the phenomenon of rainbows themselves.[99] Rainbows and the goddess share properties of movement and traversal with the dilating muscle of the eye. Materialist accounts of vision have already narrated a spatial account of ancient Greek optics, in which particulate exchange takes place in the space also traversed by Iris. Seeing and knowing requires this space of material exchange.

99 *IL*.11. 27. See Arist. *Mete* 375a1, Epicur. *Ep*. 2p.51U. Other meanings include the flower, the halo of a candle, the eye of a peacock feather, on which, see Sassi, "Perceiving Colors." See also Platt, forthcoming, on *Iris in Poseidippos*, presented in *Siren Echoes* at Cornell University, November 2019.

Figure 138 Votive dedication fitted into stele, marble from Paros, pigments, vitreous paste, porous stone, from the Asklepion, Athens, ca. 350–300 BCE @ Acropolis Museum, Athens 15244. Photo: Sokratis Mavrommatis

Figure 139 Votive dedication fitted into stele (detail), marble from Paros, pigments, vitreous paste, porous stone, from the Asklepion, Athens, ca. 350–300 BCE @ Acropolis Museum, Athens 15244. Photo: Sokratis Mavrommatis

Figure 140 Korē reflected in the pupil of a modern glass eye, with Thia Schuessler. Photo by author

The materials of polychrome objects, like the materials of polychrome living bodies, however, produce an intersubjective exchange that is only ever partial. A passage from Plato's *Alcibiades* both captures the spatial limits of intersubjectivity and centers the parts of the eye in recognizing and reflecting back those limits. Plato describes a beholding body perceiving an object:

> And yet as a body moves closer to the object of its gaze, it sees, not the other, but itself reflected back in the pupil.
>
> "You've realized then" Socrates says to Alcibiades, "that when someone looks into an eye, his face appears in the center of the eye of the person opposite, as though in a mirror? It's what we call a pupil (a *korē*) since it is a little image (*eidōlon*) of the person looking in."[100]

100 Plato *Alc.* 133 (trans. D. S. Hutchinson). Shadi Bartsch, *The Mirror of the Self: Sexuality, Self-Knowledge, and the Gaze in the Early Roman Empire* (Chicago: University of Chicago Press, 2006), 48, 110.

The pupil (*korē*) reflects a maiden (*korē*), not in all of its glorious, fitted-together material color-parts, but as a shimmering form on the surface of another's eye (Figure 140). The beholder's approach reduces the distance between beholders and objects that is necessary for a material exchange. Without that distance, seeing produces only (self) reflection. In the absence of a choric space sufficient to enable the mixing of particulate matter, the polychrome specifics of the object dissolve and show back only a silhouette of the beholder themselves. No longer a hylomorph, the iris reflects back the polychrome assemblage as only an *eidos*, or an abstracted immaterial form.

Chapter 5

ATOMS, *LITHOI*, AND ANIMACY

A massive mosaic of black, white, orange, and tan uncut pebbles covered the floor of a banquet room in a private house at Pella (Figure 141).[1] The pebbles depict Theseus, the mythical founder-king of Athens, abducting the child Helen of Sparta, years before her marriage to the Mycenaean king Menelaus and subsequent trafficking by Aphrodite and Paris to Troy. Phorbas drives Theseus's getaway chariot, pulled by four white horses, each with contrasting golden-orange manes and tails. Although this portion of the mosaic has sustained heavy damage and partial erasure, we can still see that the chariot driver looks over his shoulder at Theseus, who drags Helen towards the chariot.[2] Helen's companion, Deianeira, reaches for the girl, as

1 On the house context in which this mosaic was found, see Hallie M. Franks, *The World Underfoot: Mosaics and Metaphor in the Greek Symposium* (New York: Oxford University Press, 2018), 12. In connection to painting, especially the Tomb of Persephone at Vergina, see Dimitris Plantzos, *The Art of Painting in Ancient Greece* (Athens, Greece: Lockwood Press 2018), 225–228. Andrew Stewart, "Focus II: Hellenistic Mosaics," in *Art in the Hellenistic World: An Introduction* (Cambridge: Cambridge University Press, 2014), 197–205. Katherine Dunbabin, *Mosaics of the Greek and Roman World* (Cambridge: Cambridge University Press, 1999), 12. Martin Robertson, "Greek Mosaics," *The Journal of Hellenic Studies* 85 (1965): 79.

2 In composition this pebble mosaic echoes other scenes of abduction, such as the fresco depicting the god Hades abducting the goddess Demeter's daughter Persephone, which artists painted in fresco with vivid colors on the interior walls of the tumulus Tomb II at Vergina. Manolēs Andronikos, *Vergina: The Royal Tombs and the Ancient City* (Athens: Ekdotike Athenon, 1992). Agnès Rouveret, *Histoire et imaginaire de la peinture ancienne: Ve siècle av. J.-C.-Ier siècle ap. J.-C.* (Rome: Ecole française de Rome, 1989), 72; Sophie Descamps, "Les Révélations de Vergina: fouilles en Grèce du Nord," *Revue des Deux Mondes* (2004): 117, as well as the mosaic of Hades abducting Persephone found at Amphipolis. Katerina Peristeriand and Éphorie De Serrès, "Les Fouilles récentes du tumulus Kastas et le lion d'Amphipolis (2012–2014)," *Revue Archéologique*,

Figure 141 Scene of Theseus abducting Helen, pebble mosaic with metal and lime mortar, Pella, 325–300 BCE, L: 8.40 m x W: 2.80m. © Archaeological Museum of Pella – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Pella – Archaeological Receipts Fund

Theseus pulls her out of reach. The scene captures a critical moment in Theseus's abduction in which Deianeira fails to recover Helen.

Mosaic offers a paradigm of artistic atomism and the assemblage of material color, which the previous chapters have traced in other media. Mosaic brings together the themes of the materiality of color, the integration of surface and depth, of *kosmēsis* and care, of gender, space, and landscape, and of color's haptic and optic dimensions. The medium of mosaic also thematizes artistic atomism and material color's kinesthetic and recombinatory possibilities. Fitted together stones produce hylomorphic assemblages.[3] Artists eventually substituted cut stone and glass pieces (tesserae) for uncut pebbles. Each pebble or cut tessera is a color-part, like the atom or seed of philosophical inquiry, and makes visible the particulate matter that fits together forms and bodies as assemblages.[4] These lithic and vitric colors mix across space as they are traded, often over long distances, installed, deinstalled, reused, and recombined to form new images.

A hylomorph proposes a non-hierarchical relationship between matter and form. At the same

Nouvelle Série, no. 1 (2016): 166–169, fig. 11. On the literary traces of Theseus's abduction and a possible connection between Persephone and Helen in that mythical tradition, see Matthew Grumpert, *Grafting Helen: The Abduction of the Classical Past* (Madison: University of Wisconsin Press, 2001), 9–10. See also Isocrates's *Encomium for Helen*, who identifies the abduction of Helen by Paris as the event that brought the disparate parts of the Greek-speaking Bronze Age world together to fight against the non-Greek speaking Trojans, as cited in Grumpert. In this reading, Helen's abduction catalyzes a kind of physical, cultural, and political assembly/assemblage of Greek speakers.

3 On mosaic technique, see Dunbabin, *Mosaics of the Greek and Roman World*, 279–290.

4 In this way, mosaic anticipates the recombinatory powers of the digital pixel or image. Understanding mosaic as paradigmatic of artistic forming diminishes any proposed distinction between analog and digital image-making. What makes this proto-digitality of mosaic so striking, in fact, is that many other media have shown themselves, through artistic atomism, to be driven by mosaic technologies. See Jens Schröter, "Mosaic: A Deep History of the Digital Image," presented at *Siren Echoes*, Cornell University, November 9, 2019.

time, the historical distinction between masculinized form and feminized matter begins the process of organizing these terms hierarchically. The germs of the elevation of form above matter were already visible in ancient Greek philosophical texts, as Chapter 4's engagement with Aristotle's *Metaphysics* argued. In antiquity competing philosophical voices and, most significantly, the atomism of artistic practice countered the form/matter hierarchy that would take hold in later receptions of antiquity precisely because of the excision of material color.[5] Taking up examples of feminized bodies in the paradigmatic hylomorphic medium of mosaic, this chapter will analyze how the kinesis of material colors and their recombinatory potential models relational artistic atomism.

This chapter is organized around mosaic representations of the bodies of two iconic mythical ancient women – Helen and Medusa. While artists produced a vast array of figural and nonfigural subjects in mosaic, depictions of these two women also join together gendered matter in all of its recombinatory complexity. Artists fitted together and built up mosaics from material color, which is itself generated from the earth, trafficked, and circulated on its surface, before being pieced together to form new surfaces of material color. Helen's body is built up from pieces into a hylomorphic whole that is repeatedly abducted and trafficked. In contrast, Medusa has been cursed with the power to turn other bodies into monoliths with her gaze, a power that can only be contained by breaking her body apart. Once her head has been severed from her body, parts of her, specifically her severed head and neck-sprung progeny, circulate separately. Medusa's dispersed body parts and progeny, as well as her capacity to petrify the parts of other track the movements of stones through her myth and its representation. Writing on assemblages of stones, the fourth-century BCE philosopher Theophrastus offers a materialist narrative of sticking together stones, complete with what appears to be a gendered language of materials, in his treatise *On Stones*.[6] This language of a gender binary turns out, however, to offer a spectrum of recombinatory possibilities that materialize in mosaic. Rather than applying Theophrastus's text on stones to these images, or the reverse, this chapter analyzes a selection of images produced in mosaic alongside this text that takes as its subject the many different colored stones in circulation across the wider Mediterranean region. Analyzing representations of Helen and Medusa in stone alongside Theophrastus's text on stones brings to the fore the relational potential of artistic atomism to form and (re)form scalable combinations of material color into infinity (*eis aiperon*).

KINESTHETIC EXPERIENCE

Mosaic demands and produces movement – to source its material colors for production, in the movements of bodies across finished assemblages, and through ongoing care and repair over time. This movement takes on additional urgency in the representation of Helen's abduction. Movement in her story – kidnapping – leads to rape, although unsurprisingly, Helen's possible consent is always at issue in her myth.[7]

5 Porter, *The Origins of Aesthetic Thought in Ancient Greece* (Cambridge: Cambridge University Press, 2010), 152–157, citing Empedocles B23 on 152, with the emphasis on fitted togetherness in B71, 153–154. "Here, Empedocles' interest in painting and in color theory is conjoined with his interest in physics. And with his model of parts and wholes, he shows himself to be a forerunner of the materialists who, from the latter third of the fifth century on, will adopt a model of elements joined in combination."

6 Theophr. *Peri Lithōn*. Earle Radcliffe Caley and John F. C. Richards, eds., *Theophrastus: On Stones, Introd., Greek Text, English Translation, and Commentary* (Columbus: Ohio State University, 1956).

7 P. J. Finglass, "Gazing at Helen with Stesichorus," in *Gaze, Vision, and Visuality in Ancient Greek Literature*, ed. Alexandros Kampakoglou and Anna Novokhatko (Berlin: Walter de Gruyter, 2018), 140–159.

Women's bodies and wombs have long been regulated in an effort to protect not each individual woman, but patriarchal social structures from the violent mixing of bodily fluids and any possible progeny that this might engender.[8] That Theseus will be thwarted in his abduction and young Helen returned home, only to be trafficked again in her adult life, adds to the movements across space and time captured by the polychrome stones.

In this pebble mosaic, uncut stones piece together a double frame of black-and-white patterns – lozenges and a meander – and bound the figural action, which unfolds against a dark background and along a groundline defined by lighter white and tan stones.[9] Just as producing a groundline for the frieze at Delphi engaged the disjunction between the representation of landscape within the frieze and the landscape in which the treasure-house had been built up, so in this example does the representation of a groundline and landscape within the mosaic floor undercut boundaries between the real space of beholders and the representational space of the abduction.[10] Since the mosaic is also a floor, producing a separate representational ground inside the scene destabilizes the solid space on which a beholder stands. Walking across this mosaic puts a beholder simultaneously on top of and within the scene. Movement between planes is one of the kinesthetic effects of mosaic floors. A beholder walks across the floor, steps into the frame and onto the groundline, and is carried through space back into the mytho-historical time in which Theseus abducts Helen, while simultaneously remaining grounded in the here and now.[11] Even more explicitly than a scene represented on a wall, the mosaic implicates a beholder's own body in this space-time transition.

Recent work in mosaic studies tries to recontextualize floor mosaics within their original architectural setting in order to address the kinesthetic effects of beholding mosaics.[12] A mosaic floor's ancient beholders likely included people of varying class positions and different durations of engagement. Artists who worked together to source the materials, lay the substructure, and place the individual stones would have engaged directly with each color-part of the mosaic and just briefly with its assembled whole, unless called to care for and restore parts damaged over time and with use. Members of individual households would not only walk regularly across each floor, but might also observe the scene while reclining on couches in the dining room or for a symposium in the *andron* (men's room), or in the more private spaces of a bedroom.[13] Household laborers, servants, and enslaved workers would have regularly walked across and cleaned mosaic scenes.[14] Movements of beholders through space, smells associated with the use of the room, sounds of movement across and

8 Rebecca Futo Kennedy, *Immigrant Women in Athens: Gender, Ethnicity, and Citizenship in the Classical City* (New York: Routledge, 2014), 12–25.

9 Verity Platt and Michael Squire, "Framing the Frame," in *The Frame in Classical Art: A Cultural History* (Cambridge: Cambridge University Press, 2017), 3–100.

10 David Summers, *Real Spaces: World Art History and the Rise of Western Modernism* (London; New York: Phaidon Press, 2003), 36–41.

11 The author had the opportunity in January 2019 to walk across a mosaic floor representing a hunting scene installed in one of the galleries at Dumbarton Oaks and to experience this kinesthetic disjunction – being both on top of and within the hunt scene – firsthand.

12 On pebble mosaics specifically, see Franks, *The World Underfoot,* 14–22, n81. On recontextualizing mosaics and on mosaic making, see Christine Kondoleon, *Antioch: The Lost City* (Princeton: Princeton University Press, 2000). On experiencing mosaics with the full sensorium, see Rebecca Molholt, "Roman Labyrinth Mosaics and the Experience of Motion," *The Art Bulletin* 93, no. 3 (2011): 287–303. On the speculative relationship between Greek art in other media and Roman mosaic floors, see Bettina Bergmann, "Greek Masterpieces and Roman Recreative Fictions," *Harvard Studies in Classical Philology* 97 (1995): 81–83, 98. For recent work recontextualizing the mosaics floors from Antioch in their houses, see http://antiochrecoveryproject.org.

13 See Mary Beard and John Henderson, *Classical Art: From Greece to Rome* (Oxford: Oxford University Press, 2001), 13.

14 On pebble mosaics in the sympotic context of the *andron*, see Franks, *The World Underfoot*, 3–17.

acoustics within rooms, and the touch of the pebbles underfoot, or under knee and hand while scrubbing, all produce the syn- and kinesthetic space of a mosaic.[15] Contemporary museums often display floor mosaics on the walls, like paintings, which removes the sense of touch essential to the experience of traversing a mosaic floor and alters the experience of the tesserae.[16] In the pebble mosaic of Helen's abduction, the visual effects of the assembled uncut pebbles pull a beholder into its representational space, while the sound of each step and the feel of the pebbles beneath their feet grounds them in real space.[17] Touch can register across the entire skin (*khrōs*), which, as argued in Chapters 1 and 2, connects the system of skin with the internal organs of a body, so that *khrōs*, like *khrōma*, integrates surface and depth. Each pebble registers as a kind of tangible, visible atom, the shape and surface of which a beholder initially takes in through their feet. These experiences capture important synaesthetic and kinesthetic aspects of color-space.

As a beholder takes in these sensations through their feet, they also see the colors – orange, tan, yellow, blue, green, white, black – of these pebbles with their eyes. Haptic and optic particle exchange, as those theorized in Chapter 4 for polychrome eyes, move through a beholder's whole body along different sensory pathways, drawing beholder and mosaic into an atomist network of exchange. Material color and artistic atomism involve movement – in the production of an assemblage, in experiencing it, and in its possible futures. This representation of Theseus abducting Helen further complicates the embodied experience of a beholder moving across multiple planes, implicating a beholder in the abduction itself through material contact. Optically, haptically, and audibly, the viewer traverses each assembled body of the scene, creating friction between the representation of abduction and their embodied movement across the material color-parts of the mosaic assemblage.

Artistic atomism produces not only figural and nonfigural images, but also texts in the form of name-labels that mark each figure. Textual labels within scenes appeared in other contexts – on scenes painted onto ceramics or reliefs, and carved and painted into the frieze of the Siphnian treasure-house at Delphi – and these put pressure on the work of representation while also clarifying its narrative.[18] In this mosaic, Greek letters label each figure in this scene – Phorbas, Helen, Deianeira, Theseus (Figure 142). Each letter is made up of individual pebbles joined together. The stones bring together a set of letters to lay out each name, just as other stones were assembled into whole figural bodies and landscape (*khōra*). Above Helen's outstretched arms, fitted-together pebbles form the Greek capital letters that assemble her name. Similar pebbles mark Deianeira as she reaches towards Helen. Just as their hands do not succeed in holding each other fast, so have their

15 On synaesthesia in antiquity, see the introduction to Shane Butler and Alex Purves, *Synaesthesia and the Ancient Senses* (Hoboken: Taylor and Francis, 2014), 1–8. For metacommentary on household labor and the aftermath of meals served around mosaics, see the second-century-CE Roman mosaic signed by Heraklitos, *asaratos oikos*, described in Pl. *HN* 36.184 and cited in Dunbabin, *Mosaics of the Greek and Roman World*, 27. Marina Bien-Aimé, an undergraduate in a research-driven course at Johns Hopkins, the *Antioch Recovery Project*, explored the sounds of mosaic floors in her final project for the course and laid the groundwork for future captured sound analysis.

16 On the debate over how best to exhibit floor mosaics, see Jerry Podany, "From Floor to Wall: Lifting and Exhibition Practices Applied to Ancient Floor Mosaics," in *Stories in Stone: Conserving Mosaics of Roman Africa: Masterpieces from the National Museums of Tunisia*, ed. Ben Khader and Aïcha Ben Abed (Los Angeles: J. Paul Getty Museum, 2006), 115–127. On the enduring display convention of placing floor mosaics on walls, see Molholt, "Roman Labyrinth Mosaics," 287.

17 Ibid., 288.

18 Sean Leatherbury, "Framing Late Antique Inscriptions as Texts and Images," in *The Frame in Classical Art: A Cultural History*, ed. Verity Platt and Michael Squire (Cambridge: Cambridge University Press, 2017), 544–581.

Figure 142 Scene of Theseus abducting Helen, detail of ELENĒ inscribed above outstretched hands of Helen and Deianeira, pebble mosaic with metal and lime mortar, Pella, 325–300 BCE, L: 8.40 m x W: 2.80m. © Archaeological Museum of Pella – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Pella – Archaeological Receipts Fund

names been held apart by intermediary stones, marking and piecing together space, name, and body. Pebbles assemble different categories of wholes – letters, bodies, landscape – but also elide differences across these, rendering each whole divisible to stones or parts. Words, like bodies and spaces, can make themselves known as hylomorphs.[19] Like material colors that modern beholders conceive as dematerialized hues, we often receive texts as dematerialized words. Writing in mosaic amplifies the materiality of text. The hylomorphic production of writing makes visible the somatic production and embodied reception of both writing and reading.

Stones extracted from the earth maintain a direct tie between color and earth. What artists could collect on the earth's surface determined the palette of pebble mosaics, which primarily included various shades of brown, black, red, orange, yellow, and white, gray, and purple.[20] Pebble mosaics mark most of their unworked color as born from the earth. In addition, the pebble mosaic depicting Theseus abducting Helen reused faience beads for the wheels of the chariot driven by Phorbas.[21] Faience, a blue

19 On artist's signatures in mosaic, see Dunbabin, *Mosaics of the Greek and Roman World*, 270–278; Robertson, "Greek Mosaics," 81. For mosaicists named in inscriptions and epigraphic evidence, see Christine Kondoleon, "Mosaics of Antioch," in *Antioch: The Lost City*, ed. Christine Kondoleon (Princeton: Princeton University Press, 2000), 64–65.

20 Robertson, "Greek Mosaics," 84. Franks, *The World Underfoot*, 14.

21 Cristina Boschetti, "Vitreous Materials in Early Mosaics in Italy: Faience, Egyptian Blue, and Glass," *Journal of Glass Studies* 59 (2011): 62n14 and fig. 2. See also P. Petsas, "Mosaics from Pella," in *La Mosaïque Gréco-Romaine: Paris, 29 Août–3 Septembre 1963* (Paris: Éditions du Centre national de la recherche scientifique, 1965), 41–56. Anne-Marie Guimier-Sorbets and Marie-Dominique Nenna, "L'Emploi du verre, de la faïence et de la peinture

or blue-green fired frit (powdered quartz) manufactured in Egypt, is a markedly different material from the found pebbles used throughout the rest of the mosaic.[22] The reused faience beads along the chariot wheels adorn the vehicle and call visual attention to the object in motion.[23]

Artists fitted together pebbles to create assemblages of different scales and they also selected pebbles of different sizes to produce parts of these assemblages. Just as scale between figures could mark differences in status or age, so does scale across stones mark out hierarchies. Artists rendered particularly important parts of a mosaic, such as a face, or a central scene or *emblēmata*, using smaller pebbles, or later, smaller tesserae. At other times, they selected larger distinct stones to mark each figure's eyes. The semiprecious eye-stones that marked Theseus, Phorbas, Helen, and Deianeira have been emptied.[24] Without ongoing *kosmēsis* and care, the sockets remain empty. Rather than the fitted-together polychrome eyes of sculpture explored in Chapter 4, within ancient pebble mosaics a single, larger, precious stone was often used for each eye.[25] The eye-stones would have stood out in their colors, material effects, and expense, emphasizing the work of a beholder's eyes to synthesize individual stones into each figure and also into the full scene. Since these precious stones have been ripped out, vacant gaps remain, much like the empty sockets and blanked over surfaces of the eyes of figural sculpture. These gaps discourage modern beholders from seeing the eyes of these mosaics as distinctive from the other stones of each body. Through the use of smaller pebbles or tesserae, or the use of larger, distinctive stones, artistic atomism produced both scalable assemblages and also scaled images within distinct assemblages.

Producing mosaic images demanded that artists fit together colored stones according to intentional order. As discussed in Chapter 2, in the *Poetics* Aristotle emphasizes the importance of order in the production of images made with "beautiful colors."[26] To the extent that this metaphor offers any commentary on material color and artistic practice, it focuses on the ordering of material colors that the medium of mosaic makes visible. Whether figural, as in Theseus abducting Helen, or nonfigural, as in the many geometric color gradient patterns, artists ordered colored stones into patterns to produce polychrome wholes (mosaic floors).[27] These assemblages are crafted through the ordered recombination of the earth's material colors.[28] As different colored stones are brought together, earthborn materials form floors, images, and texts, and also map sets of geographic connections, from locally sourced stones to those

dans les mosaïques de Délos," *Bulletin de Correspondance Hellénique* 116, no. 2 (1992): 607–632.

22 On the range of varieties and colors within Egyptian faience, see Alfred Lucas and John Richard Harris, eds., *Ancient Egyptian Materials and Industries*, 4th rev. ed. (London: Histories & Mysteries of Man, 1989), 156–168.

23 On faience, see ibid.; M. S. Tite and Andrew J. Shortland, *Production Technology of Faience and Related Early Vitreous Materials* (Oxford: Oxford University School of Archaeology, 2008). For more on faience object production, see Bart Vanthuyne, "Amarna Factories, Workshops, Faience Moulds and their Produce," *Ägypten und Levante / Egypt and the Levant* 22/23 (2012): 395–429.

24 Dunbabin, *Mosaics of the Greek and Roman World*, 13. On precious gems as eyes and frame, see Platt, *Facing the Gods*, 5, 11, n19.

25 For a detail of a missing eye stone from a mosaic of Dionysis, see Anne-Marie Guimier-Sorbets, "De le peinture a la mosaïque: problmèmes de couleurs et de techniques a l'époque hellénistique," in Anne-Marie Guimier-Sorbets ed. *Peinture et couleur dans le monde Grec antique* (Paris: Musée du Louvre 2007), 207, fig. 3.

26 Deploying a metaphor of the visual arts to describe word order in poetry, Aristotle 1045a–b argues against placing colors "scatteredly" (*khudēn*), discussed in Chapter 2, pp. 97–98.

27 For a mathematical exploration of the non-figural mosaic pattern known as "twisted ribbon," see "Twisted Ribbon Border Pattern (Alex Klein)": https://www.antiochrecoveryproject.org.

28 For an interpretation emphasizing form and line rather than color and order, see John Gage, *Colour and Culture: Practice and Meaning from Antiquity to Abstraction* (London: Thames and Hudson, 1994), 15.

traded over vast distances. Mosaic makes visible the processes of artists fitting together, layering, and mixing material color, and also lays bare color's spatial, kinetic, and recombinant properties and thus instantiates artistic atomism.

HISTORIOGRAPHY

Although the early roots of mosaic coincide with the paintings, sculptures, and architecture around which earlier chapters have been organized, centering this chapter around the medium of mosaic might seem surprising. Mosaic has often been thought of as a later technology of the Hellenistic and Roman empires that persists throughout the Middle Ages, developed extensively as pebble floors for the homes of the Hellenistic court, and expanding into cut stones across the Roman Empire, before climbing the walls in Byzantium.[29] Instead of thinking of pebble-mosaic floors as the early point of a later technology, we can actually understand them as looking back to earlier mosaics produced in the Mediterranean and in other contact zones and to artistic practices and technologies of assemblage and fitting together material color-parts.

Commissioning artists to produce mosaic floors for elite houses became popular in the fourth and third centuries BCE, but they were not an invention of those places and spaces, and mosaics appear earlier in the archaeological record. The shift in the balance of power from city-states to the Macedonian monarchy under Philip II and his son Alexander in the fourth century BCE did not produce conditions that gave rise to the production of mosaic floors. In fact, Pausanias describes the mosaic floor of the reflecting pool constructed before Pheidias's gold and ivory sculpture of Zeus from Olympia (5.11.10). Black stone tiles are inlaid in a circle with a lip of white marble to form a shallow basin for reflective olive oil that maintained the climate conditions needed by the statue. Mosaic floors were not a new technology, but the expansion of a set of atomist technologies and practices that had been artistic priorities for several centuries across the ancient Mediterranean.

In the opening to his book devoted to Greek and Roman mosaic, a pendant to his volume on Greek and Roman painting, Roger Ling describes mosaic as "a bizarre art form."[30] He goes on to contrast the effort and expense of fitting together stones and tesserae with the ease and comparative inexpensiveness of painting. He concludes that the eventual popularity of the medium must have come down to durability and function. To be sure, the material color of ancient mosaic endures far longer than pigment, but mosaic emerges in art historiography as inexplicable only because historians have approached the medium as a lesser form of painting, rather than a technique woven through artistic practice and production in other media, including painting.

Mosaic images, especially figural representations, have been valued primarily as substitutes for lost ancient paintings.[31] This is particularly apparent when they are cut into workable geometric shapes, lifted from their original context, and hung on museum walls as if they were panel paintings, as in the Antioch Court at the Baltimore Museum of Art.[32] Because of the

29 While evidence for Roman wall mosaics also exists, it is rare. See Boschetti, "Vitreous Materials in Early Mosaics in Italy," 5on1; F. B. Sear, "The Earliest Wall Mosaics in Italy," *Papers of the British School at Rome* 43 (1975): 83–97. On Byzantine mosaic, see Liz James, *Light and Colour in Byzantine Art,* (Oxford: Clarendon Press, 1996).

30 Roger Ling, *Ancient Mosaics* (Princeton: Princeton University Press, 1998), 6.

31 Ibid., 6.

32 On the Antioch mosaics in the Baltimore Museum of Art, see Clara Leverenz, "Antioch Mosaics at the Baltimore Museum of Art (BMA)" (April 24, 2021): https://storymaps.arcgis.com/stories/e79b5001977d40a4845f14bedfa1bf51.

weight of these mosaics, which were often backed with rebar and concrete before they are extracted from the ground, the cost of moving them is often prohibitive, even as curatorial perspectives change. Rebecca Molholt, drawing on the scholarship of Christine Kondoleon, offered a robust corrective to the prevailing view that mosaics can only be understood as derivative of painting in an essay that reorients art history's "vertical bias" to focus on the kinesthetic priorities of mosaic.[33] The embodied encounter with floor mosaics alters when they are affixed to walls in modern exhibition contexts. Mounted on the wall, mosaics are asked to substitute for a different and today more highly valued medium – painting. The value accorded to ancient Greek painting depends largely on its relative scarcity and on the celebration of named painters and paintings in later textual records. Authors such as Pliny, Pausanias, and Lucian, named artists and described specific paintings, often for rhetorical ends. The importance of the archive, the lack of physical examples to corroborate written tales of virtuosity, and a reception tradition that produced material versions of compositions recorded in text have all contributed to the elevated status of largely absent painting.

Thus, the medium of mosaic has long been taken as a too-present, too-polychrome, too-fitted-together substitute for painting.[34] As this book argues, painting traversed traditional divisions between media, for painters worked on panels, figural sculptures, and architectural relief. The painted mark of additive color and the cut tessera of assembled color share material properties. Mosaic, a medium of primarily assembled color, also makes visible the assemblages within additive color – both the stone and the paint mark are color-parts.[35] Materially absent and yet conceptually present as text, descriptions of paintings produced in the fifth and fourth centuries BCE offered later beholders something like an *eidos* – an ideal form with no material manifestation to detract from its imagined perfection. In this material absence, ancient Greek painting achieves lofty status, even though it was precisely the material colors of painting that assured its tertiary status in the theory of forms in antiquity. Mosaic, on the other hand, has never allowed beholders the possibility of deferring its materiality. Rather than recognize the relationship between painting and mosaic practices in and through their shared material colors and artistic atomism, art historians have instead instituted a series of hierarchies and binaries – painting/mosaic, form/matter, art/craft. More recently, art historians have increasingly explored work that refuses such hierarchies, but that dismantling has been less visible in the treatment of the art of the ancient Mediterranean. Reworking mosaic's chronology as well as reframing its association with other media shifts its position.[36] These earlier examples contradict the presentation of mosaic floors as an artistic rupture that postdates the celebrated Athenian democracy and its monumental, monochrome, white sculpture, and architecture, with all of their constructed cultural associations.

Mosaic stones straightforwardly preserve their color, but mosaic colors have not been taken as reasonable evidence for the polychrome variegation of ancient Mediterranean art. Instead,

33 Molholt, "Roman Labyrinth Mosaics," 287. Dunbabin, *Mosaics of the Greek and Roman World*, 300–301, maintains that many mosaics copied paintings.

34 Dunbabin, *Mosaics of the Greek and Roman World*, 13. Among the vast corpus of mosaics, Pliny singled out only the mosaicist Sosus, with the result that two mosaics thought to replicate the two examples of Sosus's work, *Unswept Floor* and *Doves at the Fountain*, have received far more art historical attention than other mosaics. Pliny *NH* 36.184, who describes the floor as made up of "cubes tinted with various colors" (*tessellis tinctisque in varios colores*).

35 In modern painting, emphasis on the material presence of the paint mark emerges as a theme. Kathryn A. Tuma, "Cézanne and Lucretius at the Red Rock," *Representations* 78 (2002): 56–85.

36 Dunbabin, *Mosaics of the Greek and Roman World*, 5.

Figure 143 Scene of a griffons attacking a horse, pebble mosaic, fifth century BCE, Corinth. © Archaeological Museum of Corinth – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Corinth – Archaeological Receipts Fund

scholarship has focused on the presence or absence of additive colors on marble sculpture. Categorized as a late or nonclassical medium, the abundant colors of mosaic floors have not factored into debates about polychromy. In addition, mosaic has been cordoned off from the powerful triumvirate of sculpture, painting, and architecture, rendering its colors less central to the discipline. For these reasons, the indisputable material colors of mosaics have not been fully integrated into histories of Greek and Roman art.[37]

Pebble mosaics were popular in the northern Greek houses of the Hellenistic court and tessellated mosaics expanded across the Roman Empire. Scholarly focus on earlier monumental civic art and architecture produced in mainland Greek cities sidelined mosaic. However, mainland sites such as Athens, Corinth, Sikyon, and Olympia included mosaic floors as early as the mid-fifth century BCE, as in this example of a mosaic representing horses and griffons from Corinth (Figures 143 and 144).[38] Reinstating material color in other media reveals mosaic as a *telos* of practices and philosophies of color that preceded extensive mosaic floor production. For this reason, while the central examples governing other chapters dated to the sixth to fourth centuries BCE, in this chapter I have included later examples. An early pebble mosaic comes from the Phrygian site of Gordion and dates to the ninth century BCE (Figure 145).[39] At least

37 Ibid., 5–17. Roberston, "Greek Mosaics," 73–76; Ruth Westgate, "Greek Mosaics in their Architectural and Social Context," *Bulletin of the Institute of Classical Studies* 42 (1997): 93–115.

38 On the challenge of under-excavated domestic contexts, see Franks, *The World Underfoot*, 11. For fifth- to fourth-century BCE Greek mosaics, see Dunbabin, *Mosaics of the Greek and Roman World*, 5–7.

39 C. Brian Rose, "Fieldwork at Phrygian Gordion, 2013–2015," *American Journal of Archaeology* 121, no. 1

Figure 144 Scene of a horse fighting a griffon (detail of griffon biting), pebble mosaic, fifth century BCE, Corinth. © Archaeological Museum of Corinth – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Corinth – Archaeological Receipts Fund

seventy pebble-mosaic floors dating from the fifth to third centuries BCE have been discovered from the port of Piraeus in Athens to Pella in the north. Mosaic production precedes its technological standardization and rigorous production in the third century BCE through late Roman period and Middle Ages, but only later do the technologies of fitting together material color find their most explicit and extensive form as mosaic floors.

Exceptions to the dismissal or erasure of ancient mosaics include those that have been interpreted as having been based on an earlier Greek painting, like the Alexander mosaic from the House of the Faun at Pompeii.[40] While the association with a painting elevates the status of the Alexander mosaic, it does so only on derivative terms.[41] Having tracked the preservation of

(2017): 135–178. Boschetti, "Vitreous Materials in Early Mosaics in Italy," 61n10 and Young 1957; Robertson, "Greek Mosaics," 72. Dunbabin, *Mosaics of the Greek and Roman World*, 5.

40 Bernard Andreae, *Das Alexandermosaik* (Bremen: W. Dorn, 1959). Stewart, "Hellenistic Mosaics," 203–205. Andrew Stewart, *Faces of Power: Alexander's Image and Hellenistic Politics* (Berkeley: University of California Press, 1993), II.2; Ada Cohen, *The Alexander Mosaic: Stories of Victory and Defeat* (Cambridge: Cambridge University Press, 1997), perpetuated by Ling, *Ancient Mosaics*, and Dunbabin, *Mosaics of the Greek and Roman World*, 300–301.

41 Elaine K. Gazda, *The Ancient Art of Emulation: Studies in Artistic Originality and Tradition from the Present to Classical Antiquity* (Ann Arbor: University of Michigan Press, 2002), 17–18. Roman artists took their sculpture and painting in their own directions, but the relationship of these paintings and sculptures to earlier Greek artworks

Figure 145 Polychrome pebble mosaic floor in geometric pattern from Megaron 2, 850–800 BCE, Gordion, 1956. Photo: Courtesy Penn Museum, Gordion Project Archives, image no. G-1974

color in other media and also examined work reconstituting colors from traces, we can now look at the material colors in mosaic as coextensive with colors in other media. Mosaics present extant colors and demand less reconstruction, although they too need conservation treatment and ongoing maintenance. Within mosaic we can see all of the components of the earlier chapters of the book. They show us the capacity of fitted-together color-parts to build up wholes, and the converse possibility of wholes to revert again to their constituent parts. We can understand these hylomorphic part-to-whole relationships as shaping a beholder's experience of art objects and potentially their own conception of the fitted-togetherness of living bodies.

Fitting together parts to form polychrome wholes in other media connects these practices with the production of pebble and tessellated floor mosaics. Mosaic exemplifies the juxtaposing, mixing, superimposing, and recombining of particulate matter, and most explicitly instantiates the procedures of artistic atomism that undergird the polychrome production of other media. The containment, sidelining, and erasure of mosaic from histories of ancient Mediterranean art allowed art historians to build methods and theories around monochrome forms and dematerialized Platonic ideals for which these forms stand in, rather than the material color and artistic atomism manifest in so many ancient Mediterranean objects.

drove initial engagement. On which, see Jaś Elsner, "Classicism in Roman Art," in *Classical Pasts: The Classical Traditions of Greece and Rome*, ed. James I. Porter (Princeton: Princeton University Press, 2006), 270–271; Tonio Hölscher, "Greek Styles and Art in Augustan Rome," in ibid., 251–255.

Mosaic production renders the assemblage implicit in other media fully visible, tangible, and explicit. That explicitness counters the narrative of whole, monochrome forms long upheld by the history of art and so has led to marginalization of the medium. Although Byzantine mosaic covers the walls of buildings, mosaic produced in the ancient Mediterranean primarily, but not exclusively, served as flooring.[42] The function of a mosaic as a walkable floor further separated it from purely aesthetic art forms. Mosaic traversed the ancient Mediterranean and artists continued producing mosaics into the early modern period, shifting from floor to wall in the Middle Ages, a technological continuity that undercuts notions of periodization organized around formal breaks.

MATERIAL CONNECTIONS

The practice of artistic atomism through which mosaics are produced connects artists from the Greek-speaking world with artists practicing across contact cultures. Although floor mosaics are often described as Graeco-Roman in origin, mosaic making emerged much earlier in the ancient Near East.[43] Painted and fired clay cone mosaics have been found at Warka (Uruk) and date to the fourth millennium BCE (Figure 146). Mosaic floors have been found at various sites throughout Mesopotamia and as far east as the site of Habuba Kabira in Syria.[44] Mosaics from Mari included carved mother-of-pearl figurines interspersed with cut shale tesserae and situated within fitted-together lapis lazuli or pink limestone.[45] Molded and glazed bricks of the Ishtar Gate from Babylon (c. 575 BCE) piece together the bodies of polychrome lions and dragons that float along a backdrop of thousands of blue bricks. While the gate's reconstruction in Berlin (completed in 1930) emphasizes the structure's completed form, the 2019 exhibition *A Wonder to Behold* emphasized the fragmentary evidence behind that reconstruction in the form of 800 crates of brick fragments that were shipped from Iraq to Germany in the early twentieth century.[46] While often presented as whole panels or architectural features, in reality these polychrome images of lions and magical creatures and the building that they construct are fitted together from material color-parts (Figure 147).

Although floor mosaics from Mesopotamia are not widely preserved, archaeologists have discovered examples of pebble mosaics at several Assyrian palaces of the ninth century BCE as well as at the Aramaean sites of Arslan-Tash (ancient Hadatu) and Tell Ahmar (ancient Til Barsip) in northern Syria, which were conquered by the Assyrians in the ninth century BCE.[47] These early

42 For known wall and vault mosaics from antiquity, see Dunbabin, *Mosaics of the Greek and Roman World*, 236–253.

43 Roger Ling, *Ancient Mosaics*, 19, for example, ascribes the origins of floor mosaics to Greece.

44 P. R. S. Moorey, *Ancient Mesopotamian Materials and Industries: The Material Evidence* (Oxford: Clarendon Press, 1994), 309. The Uruk mosaics were formed from small clay cones. The flat end of the cone formed the surface of the mosaic and the pointed end of the cone was pressed, like a tack, into the wall covered with wet plaster. Artists painted the flat surface of the cone in red, white or black, and the juxtaposition of different cones created the geometric patterns of the full mosaic. Grouping cones of like colors produced the forms of the pattern. The result was a rhythmic movement of colors over the surface of the temple walls. The application of hardened clay cones may also have enhanced the structural longevity of the walls, reinforcing their strength. For example, see the limestone cones in the Metropolitan Museum of Art, New York, 62.154.3.

45 On Mari, see A. Malamat, "Mari," *The Biblical Archaeologist* 34.1 (1971): 17, fig. 7.l.

46 Anastasia Amrhein, Clare Fitzgerald, and Elizabeth Knott, *A Wonder to Behold: Craftsmanship and the Creation of Babylon's Ishtar Gate* (New York: Institute for the Study of the Ancient World, New York University, 2019). See also *From Fragment to Monument: The Ishtar Gate in Berlin*, Pergamon Museum, November 10, 2020–October 3, 2021.

47 Valentin Müller, "The Origin of Mosaic," *Journal of the American Oriental Society* 59, no. 2 (1939): 247–248; Dunbabin, *Mosaics of the Greek and Roman World*, 5.

Figure 146 Cones for fitting together wall mosaics in red, blue, and tan limestone, ca. 3500–3100 BCE. The Metropolitan Museum of Art, New York 62.154.2-4

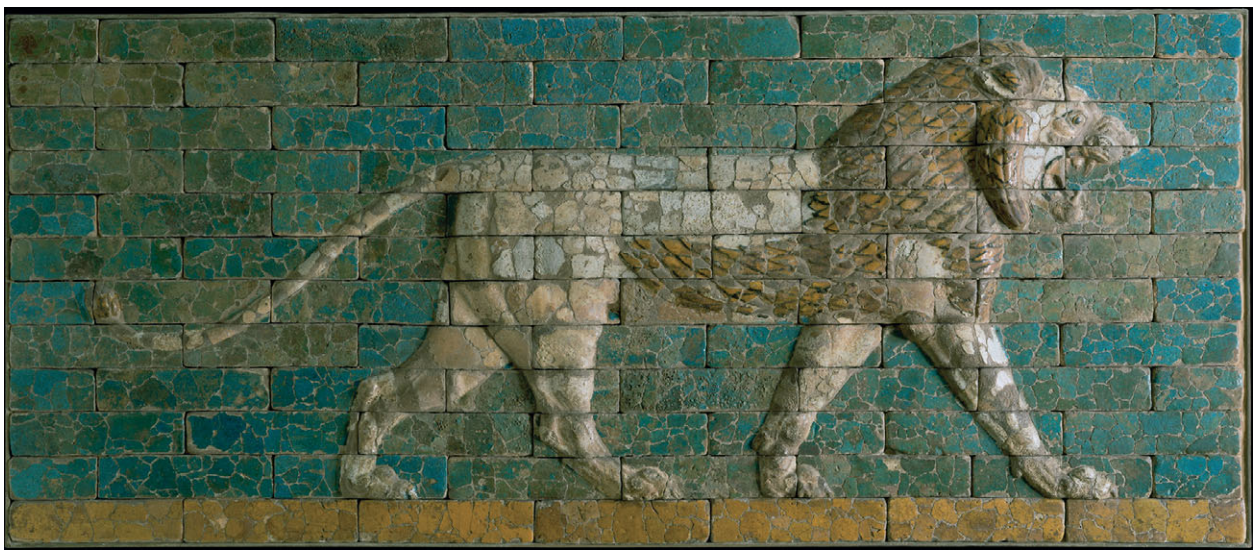


Figure 147 Lion walking across a yellow ground against a blue background, glazed ceramic bricks, ca. 604–562 BCE, Babylon (Modern Hillah), Iraq. The Metropolitan Museum of Art Fletcher Fund, 193, 31.13.2

eastern examples are not typically connected with the rise of pebble-mosaic floors produced in the ancient Mediterranean, preserving a narrative of autochthonous (native soil-born) artistic birth for ancient Greece.[48] In addition to siloing examples from the ancient Near East, scholarship has distinguished the abundance of tessellated mosaic floors produced in later Roman contexts from both ancient Near Eastern and Greek examples. Because Roman art has often been used to reconstruct earlier lost Greek art, the flourishing tessellated mosaic floor practice in the Roman period only has only affirmed the medium's adjacency.

Material connections are geographic, but also chronological and imperial. The strong association of mosaic walls with Byzantine art, including Greek Orthodox churches, rather than the art of the Holy Roman Empire, also likely contributed to its devaluation.[49] Mosaic not only maps a wide range of cultural interactions in the ancient Mediterranean, but also tracks Graeco-Roman connections. These, however, were elided in conjunction with the divide in the Middle Ages between Byzantium and the Holy Roman Empire, such that art historians retrofitted Greek and Roman art practices to the values of the Holy Roman Empire, even outside of religious contexts. John Gage has argued that Greek writers of the Middle Ages, such as Photius (ninth century CE) and Theophilos (twelfth century CE), looked back to the Greek-speaking Atomists of the fifth and fourth centuries BCE, such as Empedocles and Democritus, and drew on their atomist theories of material color.[50] In order to construct Greek and Roman art as Western, and also as foundational to canonical media of the Italian Renaissance, early connoisseurs, antiquarians, and archaeologists prioritized a triumvirate of painting, sculpture, and architecture. Keeping mosaic out of the story required complex intellectual contortions and separations, whereas the principles of artistic atomism visible in mosaic traversed cultures, religions, and geotemporal moments.

GENDERED MATTER

As unworked stones gathered directly from the land, pebble mosaics make explicit the materiality of colors. Prolific philosopher Theophrastus (372–287 BCE) wrote the treatise *On Stones* (*Peri Lithōn*), a work on which Pliny the Elder drew in his *Natural History* (first century CE). My intention here is to read Theophrastus alongside or with engagement with specific mosaics, not as a frame or prism through which to see them. Much like the atomist texts and atomist inlaid eyes of Chapter 4, this text on stones and these artworks produced through fitting together stones inflect each other. In the opening of *On Stones*, Theophrastus writes: "from earth come stones, including the more precious kinds, and also the types of earth that are unusual because of their color, smoothness, density, or any other quality" (1.2–3).[51] *On Stones* traces a vast geography from Afghanistan to Liguria across which different types of stones are sourced. In contrast to the anxiety that Pliny later expressed

48 Ibid., 5. Pliny *NH* 36.184 describes mosaic as originally Greek.

49 On Byzantine mosaics in Greek churches, see Carolyn L. Connor, *Saints and Spectacle: Byzantine Mosaics in Their Cultural Setting* (New York: Oxford University Press, 2016), 2–9. Exemplifying the refusal of mosaic paradigms for art constructed as western, Martin Robertson writes, "The curious art of mosaic had one period of splendour: the Byzantine empire; and that art was assuredly Greek. The Greek mosaics of my title, however, are the much more humdrum productions of an earlier age . . . Mosaic by its nature is essentially an art of decoration and can only achieve real greatness in an aesthetic ambience where purely decorative values are dominant, as they were in Byzantium; not in the Greco-Roman world, where, as in the Renaissance, half the artist's excitement comes from wrestling with the representation of nature," Roberston, "Greek Mosaics," 72.

50 Gage, *Colour and Meaning*, 78–86.

51 Caley and Richards, *Theophrastus: On Stones.*

about the wide-ranging sources for colors (such as the blood of Indian dragons), Theophrastus celebrated the geographic expanses from which artists sourced stones.

While Theophrastus notes the specific quarries of well-known marbles within the Greek-speaking world, including the quarries of Penteli, Paros, Chios, and Thebes (6.5–6), these receive no greater priority than other vibrant stones. Resistance to painting on marble sculpture has tended to emphasize the high value of marble from these Greek quarries.[52] As discussed in the first and second chapters, additive color joins with its material support to form objects and painting on Parian marble, for example, produces different surface effects from painting on terracotta, but both surfaces were once painted. While modernity elevated the autochthonous whites of quarried marbles, Theophrastus demonstrates that in antiquity these marbles were valued similarly to other stones in other colors that were valued for their *khrōma* – their qualities of hue, brilliance, and variegation. Throughout the text, Theophrastus focuses on the geography, colors, material differences, rarity, value, sensory experiences (especially sight, smell, and touch), extraction and production, as well as artistic uses of different kinds of stones. The text accounts in detail for all sorts of stones, from opaque lapis lazuli to porous pumice as well as pigments and glass that are produced from the earth and stones. Theophratus's text produces its own variegation in fitting together descriptions of many different material colors.

The treatise is one of the few preserved from among a number of Theophrastus's many essays on stand-alone topics, from *Inquiry into Plants* to *On Sweat*.[53] Born in Eresos on Lesbos in 372 BCE, Theophrastus studied with both Plato and Aristotle and took over from Aristotle as director of the Lyceum in Athens, expanding enrollment under his leadership.[54] A prolific writer, according to his biographer Diogenes Laertius, Theophrastus wrote hundreds of essays across the natural sciences, ethics, and philosophy.[55] While only a handful of Theophrastan texts survive to contemporary times, traces of his writings also appear in the work of a range of later authors, from Galen and Pliny to Averroes and Thomas Aquinas.[56] Katerina Ierodiakonou has characterized Theophrastus's metaphysics as defined by connection (*sunaphē*) and partnership (*koinōnia*), ideas in accordance with the *kosmos* connected through material colors that this book has been tracing.[57]

In *On Stones*, Theophrastus groups together pigments and stones, a relationship that suggests a connection between painting and mosaic at the level of materials. This connection is not, as has historically been assumed, of second tier mosaic substituting for absent painting, but of different modes of related artistic production. Theophrastus describes lapis lazuli produced in three geographic regions, Egypt, Scythia, and Cyprus. To Egypt, Theophrastus attributed the first production of artificial (*skeuastos*) lapis lazuli, which he also describes as "poured lapis lazuli" (*khutos kuanos*) (55). This manufactured lapis lazuli seems to be the copper silicate pigment now known colloquially as "Egyptian blue." Theophrastus cites the mixing of both natural and manufactured lapis lazuli in the circulation of tribute gifts (55). Grinding lapis lazuli, he writes, produces four pigment colors (*khrōmata tettara*) scaling from the finest and lightest to largest and

52 Neer, *Emergence of the Classical Style*, 75–76.

53 Theophrastus, *Theophrastus; Enquiry into Plants and Minor Works On Odours and Weather Signs*, trans. Arthur Hort (London: W. Heinemann, 1916).

54 Katerina Ierodiakonou, "Theophrastus," *The Stanford Encyclopedia of Philosophy* (Summer 2016 edition), ed. Edward N. Zalt, https://plato.stanford.edu/archives/sum2016/entries/theophrastus. *Life of Theophrastus* V. 36, fr. 1 FHS&G.

55 Ibid. Hermann Diels considered Theophrastus's history of philosophy to be the first doxographical text and model for his own.

56 Ibid., who emphasizes that the impact of Theophrastus on later writers cannot be overstated.

57 Ibid., no. 3.

Figure 148 Pendant in the shape of a ram's head, multicolored glass, fifth to fourth century BCE, 2.38 cm. The Walters Art Gallery 47.96

darkest particles. Theophratus offers no clear value judgment to the differences that he observes and in this he differs from later natural historians who drew on his work, most visibly the Roman author Pliny. Theophrastus groups together stones and pigments, fitting them together as materials where the media in which they have typically been used have been held apart.

In addition to pigments, Theophrastus also wrote about glass (*ho huelos*), which is made from vitreous material (*ek tēs huelitidos*) (49). Obsidian, for example, is a glass produced in nature when unusual heat is followed by rapid cooling. Glass emerges when matter has solidified and arrested before its atoms have arranged themselves in a regular order. It is technically a rigid liquid.[58] Ancient artists and authors of course did not have access to the high levels of magnification necessary

58 Karol B. Wight, *Molten Color: Glassmaking in Antiquity* (Los Angeles: J. Paul Getty Museum, 2011), and https://www.cmog.org/collection/galleries/glass-in-nature.

Figure 148 Pendant in the shape of a ram's head, multicolored glass, fifth to fourth century BCE, 2.38 cm. The Walters Art Gallery 47.97

to see the microscopic atoms of matter that give rise to glass, but they understood the logic of parts and particles. They also certainly understood how to produce it. Glass production has an old history within the ancient Mediterranean, Egypt, and the Near East, but the use of glass tesserae in mosaic developed comparatively late, gaining popularity in the second century BCE.[59] Cast or molded glass objects have been found in ancient Mesopotamian contexts as early as the second millennium BCE and throughout the Mediterranean by the first millennium BCE, such as these small glass pendants in the shape of a ram's head (Figure 148).[60]

59 Boschetti, "Vitreous Materials in Early Mosaics in Italy," 61. Anne-Marie Guimier-Sorbets, "De le peinture à la mosaique," 208–209.

60 On glass pendants in the shape of ram heads distributed across the wider Mediterranean region, see The Walters Art Gallery Catalogue Online (47.96 and 47.97). For a critique of the casual identification of such glass objects as Phoenician-made, see Josephine Quinn, *In Search of the Phoenicians* (Princeton: Princeton University Press, 2018), 233n31.

Figure 149 Glass gold-band mosaic scyphus (drinking cup), glass; cast and cut, late first century BCE–early first century CE. H: 4 1/2 in (11.5 cm), W: 9 13/16 (25 cm), Diam: 7 1/16 in (18 cm). Credit: Edward C. Moore Collection, Bequest of Edward C. Moore, 1891. The Metropolitan Museum of Art, 91.1.2053

In the third century BCE, artists started to produce mosaic glass vessels, such as this drinking cup from fused together pieces of glass in different colors (Figure 149).[61] By the second century BCE glass tesserae in conjunction with stone were regularly used to form mosaic floors.[62] Glass colors, both translucent and opaque, offered a technical bridge between stuck-together stones and blended pigments, for glass colors emerge when colored matter mixes on the level of particles.

Theophrastus accounts for stones, pigments, and glass as equally material, earthborn, and scalable. All of these materials come in some way from the earth and artists used them to piece together images from atoms, particles, and stones of material color. Even stones manufactured through artistic skill (*technē*) depend on matter for their production and involved colors drawn from nature. Better understanding of glass colors will require ongoing technical research to identify the chemical compounds used in mosaic tesserae, which are often grouped together under the blanket category of glass or glass paste.[63] The phrase "glass paste" in particular suggests a

61 David F. Grose, "Glass Forming Methods in Classical Antiquity: Some Considerations," *Journal of Glass Studies* 26 (1984): 25–34, 26–27.

62 See, for example, M. Verità, L. Lazzarini, E. Tesser et al., "Villa del Casale (Piazza Armerina, Sicily): Stone and Glass Tesserae in the Baths Floor Mosaics," *Archaeological and Anthropological Sciences* 11 (2017): 373–385.

63 Boschetti, "Vitreous Materials in Early Mosaics in Italy," 66.

counterfeit, as in modern counterfeit jewels, that does not accord with the high status of glass production in antiquity. Glass could also be recycled as cullet, not just recut, but refabricated.[64] Glass fabrication still depended on earth-born materials in order to imbue silica with colors, so a strict divide between natural and fabricated colors does not bear out. In addition, while one might think of glass paste as a low-value substitute for a high-value precious stone in modernity, celebrating the technological achievement of glass production seems to have accorded glass colors a high, if distinct, status in the ancient world.[65] Glass could stand in for higher value stones, as in examples of glass finger rings, or appreciated for its materiality and facture, as in the examples of the white figuration against the deep cobalt background of the Portland vase or the blue glass amphoriskos from Pompeii.[66] Theophrastus proposes a relationship among pigments, glass, and stones that undermines divisions between painting (art) and mosaic (craft), as well as between natural and manufactured colors.

In *On Stones*, Theophrastus describes stones as gendered on the basis of their color, with lighter and more transparent stones as female (*thēlus*) and darker (*melanteron*) stones of the same type as male (*arsēn*) (30–31). Theophrastus writes, for example: "on the one hand, the one lapis lazuli (*kuanos*) is called female, and on the other hand, the darker (*melanteros*) lapis lazuli is called male" (31.2–4). He makes a similar gendered distinction for *sardion*, but describes the redder stone as female, and the darker as male. Inscribing a gender binary at the level of language and grammar, Theophrastus shifts the article attached to the word for each type of stone to demonstrate when a stone is masculine and when it is feminine.[67] A tension within grammatical gender is that it is sometimes arbitrary and sometimes relevant to the thing described.[68] Theophrastus, however, mobilizes the article of a given stone in order to mark the gender he ascribes to its color and to differentiate gender within the same object. This gendering of stones maps to the saturation of their hues, a convention that artists also sometimes deployed to distinguish between the skin of male and female figures.[69] This raises the question of to what extent gendered skin color conventions in art practice might have informed Theophrastus's gendering of different shades of the same stones in his text. He assigns genders to stones, which are engendered by the earth, on the basis of their colors, while color as a phenomenon is feminized through its connection to matter.

One can take the distinctly gendered articles of different stones in Theophrastus not as a linguistic system applied to material color from without, but as a system that materializes both stones and sexed difference through the deployment of these gendered articles.[70] These stones

64 Amrhein, Fitzgerald, and Knott, *A Wonder to Behold*. See Corning Glass Museum, 51.1.87.

65 Ibid., no. 32; Egyptian blue ingot, no. 36; inlay of beard from statuette with Egyptian blue, no. 39; inlay of beard in lapis lazuli, no. 82; glass bottle nos. 87–91, pieces of cullet. On technical terms related to Greek and Roman glass, see Marianne E. Stern, "Ancient Glass in a Philological Context." *Mnemosyne* 60, no. 3 (2007): 341–406.

66 British Museum, London, 1945,0927.1, "The Portland Vase"; Cameo Glass, Naples Archaeological Museum; Jeffrey Spier, *Ancient Gems and Finger Rings* (Los Angeles: J. Paul Getty Museum, 1992).

67 Caley and Richards, *Theophrastus: On Stones*, 135n31. "Theophrastus also varies the grammatical gender of the word used for stone, which sometimes appears as ho lithos and sometimes as hē lithos.

68 On grammatical gender, see Sebastian Fedden and Greville Corbett, "New Approaches to the Typology of Gender," in Sebastian Fedden, Jenny Audring, and Greville G. Corbett, eds. *Non-Canonical Gender Systems* (Oxford: Oxford University Press, 2018), 9–35. and Greville G. Corbett, *Gender* (Cambridge: Cambridge University Press, 1991).

69 More broadly, although the noun for color takes a neuter article, color (*khrōma*) comes to be associatively gendered feminine through its tie to matter (*hulē*), as discussed in Chapter 2.

70 In their exploration of the gendering of matter, Judith Butler, *Bodies That Matter*, 10, argues that the fixity of the body itself cannot be understood apart from its sexed

are engendered by the earth. Theophrastus then assigns a gender postpartum on the basis of the materialization of their color. Theophrastus's gendered *hē* and *to* mark two differences in color (*khrōma*) within the same type of stone. Only through separating off from the earth, by becoming a stone-part, does each stone fully materialize in gendered space, which is to say that the production of these gendered stones comes about in and through breaking up singular stone into plural stones.

Theophrastus writes repeatedly of the power (*dunamis*) of different types of stones to act (4.2–3) and also emphasizes the actions of stones (to carve, color, and test), as well as their capacities to manipulate or resist other elements, such as water and fire. Finally, he writes of the speculative possibility that stones might birth other stones: "the best and most wonderful power, if it is true, is the power to give birth [to stones]."[71] To reproduce is one of a number of possible actions stones might take.

A light blue stone of lapis lazuli might take a feminine article to mark at the grammatical level the material difference of its saturation from the darker blue stone of the same lapis lazuli. Breaking apart the larger stone into smaller parts of lapis lazuli makes visible color's ultimately unharnessable scalability and variegation because one part might conform to the visual criteria for Theophrastus's feminine lapis lazuli, while another to the criteria for his male lapis lazuli. Both parts emerge from the same large stone, marked and assigned gender only in its division into parts. Theophrastus proposes that gendered articles move across the same stone (*lithos*). This would initially seem to articulate a gender binary that materialized in the ancient Mediterranean as color difference, as in the example of lighter female lapis lazuli and darker male lapis lazuli. Instead, the mixing and recombination of stones in the artistic practice of making and remaking mosaics actually produced something more like a spectrum of recombinable color-parts. Material color is divided up into individual stone-parts, which circulate and are fitted and refitted together in different combinations and recombinations to produce arrays of gendered combinations. One might understand material color, then, as a space of resistance to the very gendered system into which it has been forced.

In one section of *On Stones*, Theophrastus uses an unusual ancient Greek word, first attested here, *lithokollētos*.[72] The term, which is a compound of "stone" (*lithos*) and "stuck together" (*kollētos*), has been glossed in translations of *On Stones* as "mosaic." This rare Greek term communicates the primary technique of mosaic facture (sticking together stones), but also suggests that many different materials could be stuck together. *Lithokollētos* prioritizes the material from which (stones) and the means by which (fitting together) mosaics are made. The word tells us about material and action. Indeed, many different artistic practices might involve the action of sticking together.

Adhesion in the specific case of mosaic requires lime mortar, often with resins like bitumen or amber, materials that Theophrastus includes within his treatise (16). These resins leave their own trace in the material record and by virtue of their stickiness often also bear traces of lost matter and lives, such as impressions of reeds, pawprints, or fingertips.[73] Brooke Holmes

materialization, which serves "the consolidation of the heterosexual imperative."

71 See also Paul T. Keyser and John Scarborough, *The Oxford Handbook of Science and Medicine in the Classical World* (New York: Oxford University Press, 2018), 422.

72 LSJ, s.v. *lithokollētos, on*. Pliny *NH* 36.184, likely following Theophrastus, offers *lithostrota*. On Pliny's debt to Theophrastus, see Bradley, *Colour and Meaning*, 88n3, citing John F. Healy, *Pliny the Elder on Science and Technology* (New York: Oxford University Press, 1999), 58–60.

73 See resin examples in Amrhein, Fitzgerald, and Knott, *A Wonder to Behold*.

has argued that the concept of the body (*sōma*) as a whole, rather than only as disparate parts, develops alongside the practice of Greek medicine in the fifth century BCE.[74] With the notion of a body comes the possibility of its divisibility.[75] We might track some of that transition at the level of language with Theophrastus's *kollētos* or stuck-together, which emphasizes that each assemblage is made up of sticky parts that produce a coherent but flexible whole. Through his use of gendered articles, Theophrastus sought to sort to sort stone-parts by mapping gender to chromatic hue. Stuck-togetherness (*kollētos*) captures, in contrast, the grouping, mixing, and sticking of stones as both of and beyond sexed difference. These technologies of joining and sticking together, of wholes built up from parts, of juxtaposing, superimposing, and mixing colors, and of material exchanges, produce pebble and tessellated mosaic floors, and these technologies show color to be material, spatial, and kinetic.

MOVEMENT AND MIXING

With mosaics, their stuck-togetherness is always on view. The pebble mosaic with which we began, for example, sticks together not only the image of Theseus's and Helen's bodies and his act in abducting her, but also the places from which these many stones originate, the hands that place these stones into mortar, and the spaces that these stones and bodies must traverse in order to put each pebble into place. The mosaic artist's work of sticking together depended on the labor of miners who extracted colored stones, the danger to whom Theophrastus refers (52, 59), and of traders who trafficked the stones. Workshops of artists included those who collected and sorted stones, cut them into tesserae, those who mixed the plaster, and those who stuck stones into plaster to order and fix each pattern and image. Christine Kondoleon has emphasized the importance of somatic memory, rather than reliance on pattern books – for which there is no extant evidence – in mosaic design.[76] Mosaic artists might work in the manner of *rhapsodes,* who recited hours of oral poetry, but were trained instead to remember the polychrome rhythms and patterns of these visual poetics.[77] Colors, stones, hands, letters, figures, workshops, and stories all stick and fit together a mosaic floor. These connections (*sunapses*) are geological, topographical, geographic, and material.

While color's kinesis often brought people and materials together, such forms of movement could also be violent. Taking violent movement as a theme, artists repeatedly depicted scenes of abduction in mosaic. Trafficking played a significant role in ancient Mediterranean mythologies and iconographies.[78] Images of men abducting women, girls, and boys appear frequently in ancient Mediterranean art, including in mosaic and painting. Dominant bodies traffic non-dominant bodies from one place to another, often between different cultures, or in the case of Ganymede, across worlds, from earth to Olympus. Ritualized abduction also seems to have been acted out in ancient Greek marriage

74 Holmes, *The Symptom and the Subject*, 15, 102.

75 Ibid., 102–103; also 104 first instance of *asomatos* (bodyless) in Plato, which tracks to his interest in dematerialization.

76 On memory and patterns, see Kondoleon, *The Arts of Ancient Antioch*, 65. Christine Kondoleon, *Antioch Mosaics*, ed. Fatih Cimok (Istanbul: A Turizm Yayinlari, 2000).

77 Martin L. West, "Rhapsodes at Festivals," *Zeitschrift für Papyrologie und Epigraphik* 173 (2010): 2.

78 Dodson-Robsinon "Helen's 'Judgment of Paris' and Greek Marriage Ritual in Sappho 16," 1. On the frequency of representations of abduction in Hellenistic art, see Stewart, *Hellenistic Art*, 198.

rituals.[79] The violence of abduction feminizes those who are abducted, regardless of gender presentation.[80] Trafficking, abduction, and rape raised the specter of children born of this violence and of the somatic mixing potentially engendered. Where these abductions and subsequent rapes resulted in children, their hybridity is often marked, as in the case of the Minotaur.[81] In the civic realm, regulating female bodies and wombs had long been a legal preoccupation in the ancient Mediterranean.[82] Wombs produced citizens and heirs to property and social position and thus required regulation. In mythology, gods and goddesses often carried out these abductions and subsequent rapes, or had sex with humans while disguised, only to reveal themselves after the act. Violence and mixing at this level created marked living bodies such as monsters and demigods. The popularity of narratives of abduction attests to the simultaneous enticement and threat of inappropriate mixing. In this anxiety over mixing, narratives of abduction and histories of material color intersect.

Helen's superlative beauty marks the violence of her genealogy. Helen was born after Zeus, in the form of a swan, raped her mother Leda, who subsequently delivered two sets of twins of uncertain parentage: Helen and her sister Clytemnestra, and Castor and Pollux (the Dioscuri). Strange parentage produces Helen's strange beauty. Trafficking the commodity of that beauty marks her life. Helen is first abducted and freed as a young girl; later the goddess Aphrodite awards her as a prize to the Trojan shepherd-prince, Paris, and she is trafficked again. Paris and Aphrodite's second abduction of Helen sets in motion the events that led to the decade-long war between the Greeks and the Trojans recounted in the *Iliad*. The story begins with a snub. While most of the Olympian gods gathered for the wedding of Peleus and Thetis, the goddess of Strife (Eris) had not been invited. In retaliation she threw a golden apple inscribed with the superlative "*kallista*," or "the most beautiful" into the feast. Gold, that prized material, ensured that the apple would never lose its brilliance. Zeus foisted the task of allocating the apple on to the Trojan shepherd-prince, Paris, who found himself forced to judge among the three goddesses Hera, Athena, and Aphrodite. Paris selected Aphrodite and received for his prize Helen, then wife of Mycenaean king Menelaus, setting in motion the Trojan war.[83]

79 Dodson-Robinson, "Helen's 'Judgment of Paris' and Greek Marriage Ritual in Sappho 16," *Aresthusa* 43, no. 1 (2010): 16.

80 On the feminized enemies on the Mausoleum of Halicarnassus, see Ian Jenkins and Geoffrey B. Waywell, *Sculptors and Sculpture of Caria and the Dodecanese* (London: British Museum, 1997). On construction of Persians in Athenian art, see Margaret C. Miller, "Orientalism and Ornamentalism: Athenian Reactions to Achaemenid Persia," *Arts: The Journal of the Sydney University Arts Association* (2006): 117–146.

81 On theorizing hybridity and art history, see Feldman, *Diplomacy by Design*, 59–71.

82 Nicole Loraux, *Children of Athena: Athenian Ideas about Citizenship and the Division between the Sexes* (Princeton: Princeton University Press, 1993), 237–251. On control of ancient Greek women's reproductive systems, see Helen King, "Bound to Bleed: Artemis and Greek Women," in *Sexuality and Gender in the Classical World: Readings and Sources*, ed. Laura McClure (Oxford: Blackwell Publishers, 2002), 77–101.

83 The neoclassical sculptor John Gibson depicted this moment of Aphrodite's triumph in color with his *Tinted Venus*. John Gibson, a one-time student of Canova's, was commissioned by Joseph Neeld to produce a statue of Venus. *Tinted Venus*, which Gibson worked on from 1851 to 1856, was first exhibited in Rome. Gibson exhibited *Tinted Venus* a second time in London at the Universal Exhibition of 1862 at the height of the polychromy debates. *Tinted Venus* stood in a rotunda designed by the architect Owen Jones, a champion of universal polychromy. Jones included a Latin inscription on the rotunda which read "without color there is neither life, nor health, nor beauty, nor youth." An anonymous reviewer for *Art Journal* accused Gibson of violating the ideals of sculpture through the application of colors, writing: "This attempt at too palpable flesh not only destroys the very essence of the sculptor's art, but violates the delicacy that attaches to pure material," quoted in W. Drost, "Colour, Sculpture, Mimesis," in *The Colour of Sculpture: 1840–1910*, ed. A. Blühm (Amsterdam: Van Gogh Museum. 1997), 66.

Ambiguity about Helen's guilt in her own trafficking (whether she eloped, was abducted, or was even present at Troy) weaves through the literary tradition.[84] Plato recounts that the Greek lyric poet Stesichorus claimed that Helen had blinded him when he wrote of her guilt but restored his sight when he revised her story in his "Palinode" so that Helen waited out the war in Egypt, while she sent a double (*eidōlon*) of herself to Troy.[85] Euripides's *Helen* builds on this premise of the phantom Helen in Troy and the real Helen in Egypt. At the opening of the play, Helen recounts that Hera, angry at losing the contest to Aphrodite, "made void as wind the love that might have been for Paris and gave him, not me, but in my likeness fashioning a breathing image out of the sky's air, bestowed this on King Priam's son, who thinks he holds me now but holds a vanity which is not I" (1.31–35).[86] Sculpted from air and made to breathe it, Helen's double both acts as her alibi and also showcases the possibilities of materials. Like earth, air can be reassembled and crafted into an animate image.

Later in Euripides's play, Helen laments her extreme beauty and much-trafficked fate. In a passage that scholars have mobilized to demonstrate that sculptures were routinely painted, Helen invokes a metaphor of artistic practice and wishes to wash off her beauty just like one might wipe pigments from a statue (260–263).[87] She wishes to unmake her own polychromy to make herself unattractive (literally, "the opposite of beautiful," *anti tou kalou*) to avoid the fate her beauty affords.[88] Euripides joins together explorations of doubleness and color through the character of Helen. The opposite of beautiful is a sculpture from which the colors have been wiped off, which is to say a sculpture that has not received appropriate care. In depicting Helen in mosaic, artists mobilized and materialized her story.

Another dimension of this myth appears in a much later tessellated mosaic from a dining-room floor of the Atrium House, at the elite summer resort of Daphne near Antioch-on-the-Orontes (modern Antakya, Turkey). This mosaic depicts the Judgment of Paris, the story that precipitates Helen's second trafficking (Figures 150 and 151).[89] The story, cited briefly in *Iliad* 24.25–30 and expanded upon by later writers, including Euripides, Ovid, and Lucian, remained a popular subject of artistic representation in various media – from paintings on Greek ceramic vessels and engravings on Etruscan bronze mirrors to Roman wall paintings and mosaics from North Africa and Romania to Antioch.[90] In ekphrasis, Pausanias describes a cedar chest inlaid with ivory and gold that descendants of the Corinthian tyrant Cypselus dedicated in the sanctuary of Hera at Olympia in the seventh century BCE. This textual object was said to have been made up of various scenes from mythology, including one scene of Hermes bringing the goddesses Hera, Athena, and

84 Mark Griffith and Glenn W. Most, "Introduction," in *The Complete Greek Tragedies: Euripides. Euripides IV (The Complete Greek Tragedies)*, ed. David Grene and Richmond Lattimore, rev. 3rd ed., ed. Mark Griffith and Glenn W. Most (Chicago: University of Chicago Press).

85 Griffith and Most, *Euripides* IV, 257; Pl. *Phaedrus* 243a. See also, Jennifer Stager, "Sophia's Double: photography, archaeology, and modern Greece", *Classical Receptions Journal,* (forthcoming 2022).

86 Griffith and Most, *Euripides* IV, 404–405.

87 Primavesi, *Bunte Götter*, 220. Henke, *Die Farbigkeit der antiken Skulptur*, 316–317.

88 C. W. Marshall, *The Structure and Performance of Euripides' Helen* (Cambridge: Cambridge University Press, 2014), 152, describes this unmaking as a deconstructive act.

89 See Dodson-Robinson, "Helen's 'Judgment of Paris' and Greek Marriage Ritual in Sappho 16," *Arethusa* (2010): 168–169, no. 58. Kondoleon, *Arts of Antioch*, 22–28, figs. 19, 31, 33, 37–41 on the birds in the borders, 76–79. Dunbabin, *Mosaics of the Greek and Roman World*, 160–166.

90 Pausanias 5.19.5. On Roman painting, see J. Keith Doherty, "The Judgment of Paris in Roman Painting," *Art Bulletin* 94, no. 4 (December 2012): 529, fig. 1; For the polychrome Kerch-style *pelike* depicting the Judgment of Paris, 325 BCE, in the J. Paul Getty Museum, see Cohen, *The Colors of Clay*, 11–12, fig. 3; 337–338, no. 104, figs. 104.1–104.2.

Figure 150 Scene of the Judgment of Paris, stone and glass tesserae in many colors, and limestone, from the triclinium of the Atrium House, Daphne (Antioch), early second century CE, L: 196 cm × W: 196 cm × D: 15 cm, Louvre Museum, Paris, Ma 3443

Aphrodite to Paris to judge (*Description of Greece*, 5.19.5). As with the circulation of materials, these repeated textual and iconographic images connect different objects and media that spanned the vast trade and artistic networks of the ancient Mediterranean. Tracing textual and iconographic replications is familiar art historical terrain, but as mosaic makes explicit, materials and hands map additional sets of connections.

In this tessellated mosaic from Antioch, artists have fitted together the collected beauty of the three goddesses through the assemblage of polychrome tesserae. Artists shifted to producing tessellated mosaics, in which individual marks of

Figure 151 Detail of Hera, Athena, and Aphrodite, scene of the Judgment of Paris, stone and glass tesserae in many colors, and limestone, from the triclinium of the Atrium House, Daphne (Antioch), early second century CE, Louvre Museum, Paris, Ma 3443

color are formed from stone or glass cut into a cubic shape, in the third century BCE.[91] Artists produced some transitional mosaics using a combination of pebbles and tesserae, such as the *Erotes Stag Hunt* from Shatbi (Alexandria) in Egypt.[92] The transition from pebbles to tesserae invited mosaicists to expand their palettes beyond what they could collect on the earth's surface to what they could quarry and manufacture (*skeuastos*). In addition to cut stones, the use of an incredible range of colored glass dramatically expanded the number of available colors and increased brilliance. Tessellated mosaics required artists to cut stones and glass into cubes of various sizes. These cuts could change the intensity of color by carving through one outer surface (*khrōs*) and creating another surface with potentially sharper or more variegated colors. Thinking through the cuts in connection with Theophrastus, one could, for example, change the (on his terms) gendered color of the same stone by carving along different lines of the stone. When artists made pebble mosaics they used stones that had been shaped and divided up by the earth. Making tessellated mosaics demanded that they cut into stones and glass to divide them up. These cuts, which produced cubes of different sizes, altered the surface appearance of each tessera – taking what had been on the inside of a stone and presenting it as a new outside surface, skin, or *khrōs*.

In the production of tessellated mosaics, artists used a variety of cutting techniques and moved towards ever-smaller tesserae to produce highly modeled images in a technique known as *opus vermiculatum*. As they had with pebble mosaics, artists often used these smaller tesserae for the central panels (*emblēmata*) of larger floor compositions.[93] The smaller tesserae allowed for highly modulated color mixtures, but these mixtures could always be pulled apart again into their constituent parts. The use of scale in mosaic production, both in terms of the size of the stone and in terms of the size of the assemblage made visible the scalability of artistic atomism.

The mosaic from the House of the Atrium at Antioch is the larger of two central floor panels designed to be viewed both by a person walking across it and by those dining on couches around the room. A frame of two rows of black tesserae surrounds a geometric pattern of orange triangles against a white ground, which gives onto a rich border of twining grape vines laden with yellow grapes, blue ivy leaves, blue-green birds, yellow insects, and polychrome masks, birds and insects within which blues, greens, and earth tones abound. A double border of white and then red tesserae marks the transition from Dionysiac pastoralism to the primary scene of the Judgment of Paris.

Set into the slope of Mount Ida (northwest Turkey), where the shepherd-prince Paris tends his flocks, the vividly polychrome landscape brings the colors of the mountain into the built space of this coastal house and dining-room floor. Felt under bare feet, the craggy scene would have played between its depiction of the mountainside and this retooling of mountainous stones in the service of depiction. Psyche and Eros flank the scene from elevated perches at the far upper left and right, respectively. Paris sits on a rock, holding a sheep in his arms. The depiction of the sheep's soft fleece contrasts with the hardness of stone tesserae felt underfoot. Paris wears leggings, a long-sleeved tunic, and the Phrygian cap, all sartorial markers of his Eastern-ness in the iconography of the ancient Mediterranean. Paris doesn't look directly at the trio of goddesses who on a slightly elevated crop of rock to the right, but towards Hermes, who stands to his left, offloading the task of judgment. Outcroppings of rock stage different planes within the depicted space (*khōra*) of the mountainside. The three goddesses await his selection to the right on a rocky outcrop slightly above the register on which Paris sits.

Hera sits in the middle, with Athena standing to her right and Aphrodite to her left. Different

91 A stele from Ostia depicts mosaicists cutting stones for tesserae, Dunbabin, *Mosaics of the Greek and Roman World*, 281, fig. 287.

92 Ling, *Ancient Mosaics*, 24.

93 Ibid., 25.

colors distinguish each goddess from the others and produce variegation (*poikilia*) of each goddess and across the group. Hera's garment has been pieced together from white stones with a purple border. The purple stones evoke embroidered stitches in dyed thread. Athena's garment has been pieced together from white and pale blue stones that run like ribbons down the front. She wears a black-and-gold breastplate from which Medusa's decapitated head looks out, and her pink-plumed helmet. Rather than the subtle colors of both Athena and Hera, varied blues with shining golden borders and a golden sash form Aphrodite's garment. Gold foreshadows the outcome of the judgment – Paris will award the golden apple echoed in the golden borders of her dress to Aphrodite. In exchange for this victory, Aphrodite will gift Paris with the married, most beautiful (*kallista*) human woman Helen.

In this scene, the artists do not picture Helen's superlative beauty, but the story that leads her body to become a prize and a commodity. Aphrodite promised Paris the same Helen whom Theseus abducted as a beautiful child. The question of how to depict Helen has presented a representational challenge that texts describe as having been answered by the fourth-century BCE Greek painter Zeuxis through assemblage. In order to paint an image of Helen, Aphrodite's human proxy, Zeuxis chose five different young women from the city of Croton to model for him and painted parts of each girl into a composite representing Helen.[94] In depicting a young Helen at Pella, the pebble mosaic artist renders Zeuxis's pieced-together paint-parts as fitted-together colored stones. At Daphne, the mosaic instead foreshadows Helen's fate. Both thematize sticking together vibrant colors, the means by which superlative beauty comes into being. This sticking together demands breaking down wholes into fragments, re-piecing these fragments of color into new polychrome forms (hylomorphs) through collective labor, adhesive materials, somatic memory, trade, and movement.

Artists primarily used cut stones and opaque and translucent glass to create the Judgment of Paris panel. Conservation scientists have analyzed the glass tesserae from the mosaic using X-ray microanalysis with EDS and WDS detectors. [95] Within the interior of the mosaic (excluding the frame of grapes and ivy) conservators isolated twenty-one different colors. These included amethyst, six blues, six greens, two yellows, orange, clear or translucent, three whites, and black, made with the natural glass obsidian, a material also used for the pupils of inlaid eyes.[96] An additional fourteen colors, each with a compositional makeup different from those used on the interior panels, made up the border mosaic: three blues, five greens, three yellows, two oranges, and black. While the cut stones are natural products, glass is a fabricated material. In the ancient Mediterranean, however, glass was valued for its color (*khrōma*), technical innovation, and reusability. There does not seem to have been a different status accorded to fabricated glass tesserae and cut stones.[97] Both glass and stone colors could also be opaque, for ancient glass was initially fabricated as solid color.[98] Extensive analysis of the chemical compounds in each color allowed conservators to demonstrate similarities between the tesserae used at Daphne and Antioch and those from a fountain mosaic from the first century CE at Pompeii as well as from several later mosaics

94 Elizabeth Mansfield, *Too Beautiful to Picture: Zeuxis, Myth, and Mimesis* (Minneapolis: University of Minnesota Press, 2007), xii–xiv, 7–8, 19–38.

95 Lawrence Becker and Mark. T. Wypyski, "Material Study: The Glass," in *The Arts of Antioch*, ed. Lawrence Becker and Christine Kondoleon (Worcester: Worcester Art Museum, 2005), 115–116.

96 For the compositional analysis of the glass tesserae used on the Judgment of Paris mosaic, see Becker and Wypyski, "Material Study: The Glass," 49–61, and "Glassmaking Technology at Antioch: Evidence from the Atrium House Triclinium and Later Mosaics," in ibid., 142–143.

97 Compare also to the equal status of glass in the fabrication of the Ishtar Gate, see Amrhein, Fitzgerald, and Knott, *A Wonder to Behold*.

98 Karol Wight, *Molten Color: Glassmaking in Antiquity* (Los Angeles: J. Paul Getty Museum, 2011).

from Egypt.[99] These colored stones and cut glass pieces were traded across a vast geography.

Conservators also demonstrated that the stones and cut glass originated from different quarries than those that produced the stones used in other mosaics at Antioch.[100] The range of compounds and the variety of colors used across the hundreds of Antioch mosaics indicate that artists drew on many natural sources from within the extended Roman economy for their glass and stone tesserae. Antioch's mosaics map the artists', the city's, and the empire's networks through the collection and assemblage of materials brought together within each mosaic.[101]

The city of Antioch and its seaside outpost Daphne celebrated the cosmopolitan convergence of people and materials from throughout the broader Mediterranean.[102] For example, Libanios of Antioch, a teacher and rhetorician of the fourth century CE, writes:

> It seems to me that one of the most pleasing things in cities, and one of the most useful, is meetings and mixings with other people . . . indeed if a man had the idea of traveling all over earth with a concern not to see how the cities looked but to learn their individual ways, Antioch would fulfill his purpose and save him journeying. If he sits in our marketplace, he will sample every city – there will be so many people from each place with whom he can talk.[103]

The mixing of people and languages that so pleased Libanios materializes in the juxtaposition of materials used to produce the city's mosaics. As mosaics map thematic and geographical material connections and exchanges, they fit together a spectrum of responses to the mixing of matter, from celebration of a vast range of materials brought together in one place, to anxieties about unregulated mixing and possible somatic outcomes. Antioch brought together people from across the ancient Mediterranean and also brought in material color from throughout the Roman Empire. The city also sent out colors, images, and artists across the Mediterranean, circulating beyond its geotemporal borders.

MAKING STONE

In contrast with Helen's body, which shows extreme beauty built up from color-parts sourced from different places, the representation of Medusa's head in mosaic shows instead fitted-together body parts with the power to solidify the bodies of others. Only breaking apart Medusa's living body by severing her head disarmed her. Images of Medusa's severed head (as *gorgoneion*) circulated widely in the ancient world, represented on Athena's aegis, painted architectural elements, ceramic vessels, metalwork, sarcophagi, and mosaics (Figures 152 and 153).[104] These images were built up from an equally varied range of materials, including

99 Ibid., 134.

100 Richard Newman, "Material Study: The Stone," in ibid., 67. On *emblemata* produced in studios and later laid in situ, see Dunbabin, *Mosaics of the Greek and Roman World*, 269.

101 On mosaic, materials, and geography, see Will Wootton, "Making and Meaning: The Hellenistic Mosaic from Tel Dor," *American Journal of Archaeology* 116, no. 2 (2012): 209–234.

102 On the multilingual, multiethnic people living and working at Antioch, see Andrea De Giorgi and Asa Eger, *Antioch: A History* (Abingdon: Routledge, 2021), 1–14.

103 Libanios *Or.* II.166, 213. Glanville Downey, "Libanius' Oration in Praise of Antioch (Oration XI)," *Proceedings of the American Philosophical Society* 103, no. 5 (1959): 652–686. Kondoleon, *Antioch: The Lost Ancient City*, 11..

104 Madeleine Glennon, "Medusa in Ancient Greek Art," in *Heilbrunn Timeline of Art History*, March 2017, www.metmuseum.org/toah/hd/medu/hd_medu.htm. In her essay on Medusa and *écriture féminine*, Hélène Cixous connects Medusa with radical heterogeneity, writing "Woman unthinks the unifying, regulating history that homogenizes and channels forces," Hélène Cixous, trans., Keith Cohen and Paula Cohen, "The Laugh of the Medusa," *Signs* 1, no. 4 (1976): 882. Françoise Frontisi-Ducroux, "The Gorgon, Paradigm of Image-Creation," in *The Medusa Reader*, ed. Marjorie B. Garber and Nancy J. Vickers (New York: Routledge, 2003), 262–267. Julia Kristeva, *The Severed Head* (New York: Columbia University Press, 2012), 30–31. Jonas Greithlin argues that representations of Medusa's severed head (head, aegis, reflection) invite beholders to reflect on seriality, Jonas Greithlin, "Sight and Reflectivity," in *Sight and the Ancient Senses*, ed. Michael Squire (Abingdon: Routledge, 2016), 96–100.

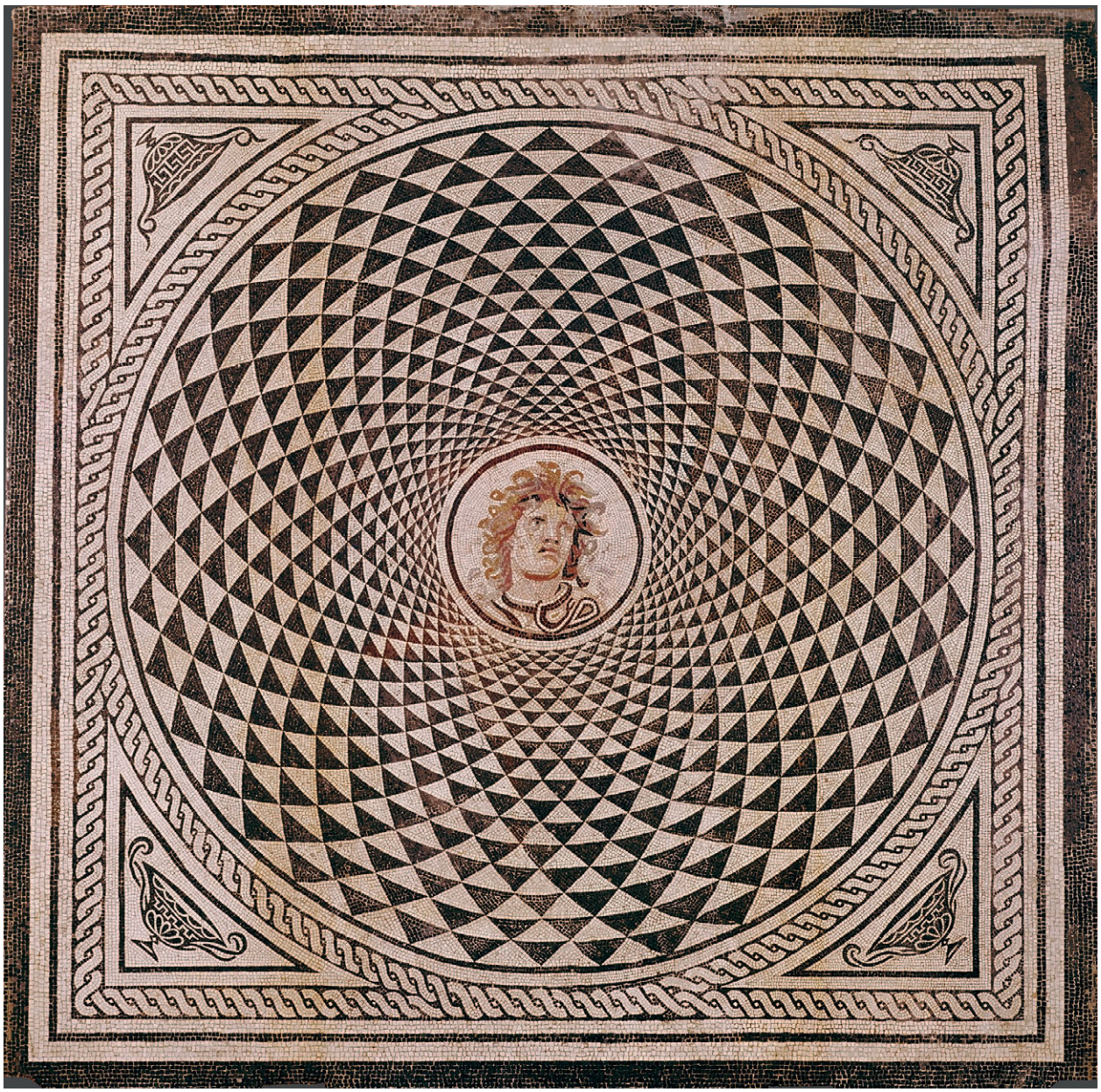


Figure 152 Unknown, mosaic floor with head of Medusa, about 115–150 CE, stone tesserae 270.5 × 270.5 cm, 1745.8949 kg (106 1/2 × 106 1/2 in, 3848.9999 lb), 71.AH.110. The J. Paul Getty Museum, Villa Collection, Malibu, California

painted marble, painted terracotta, painted fossilized limestone, and other painted stones. As with Helen's story, myths of Medusa are polyvalent and unfixed, with variations describing her relationship to her sister gorgons, the reason for her terrible power, the nature of her appearances, and the status of her sex with Poseidon.[105] Older stories describe a sexual encounter between Medusa and the god Poseidon as consensual, if unequal with respect to power, while Ovid describes her transformation from beautiful human woman to fearsome gorgon as a punishment for Poseidon raping her in the

105 Kristeva, *The Severed Head*, 28–30. Elsewhere, Kristeva points to the way in which colors register a form's parts so that "colour is the shattering of unity. Thus it is through colour – colours – that the subject escapes its alienation within a code that it, as conscious subject, accepts. Similarly, it is through colour that Western painting begins to escape the constraints of narrative and perspective form . . ." *Desire in Language*, trans. Leon Roudiez (New York: Columbia University Press, 1980), 221, cited in Elizabeth Grosz, "Feminist Theory and the Politics of Art," in *The Feminist Material Culture Reader*, ed. Amelia Jones (New York: Routledge, 2003), 128–138.

Figure 153 Detail of head, mosaic floor with head of Medusa, about 115–150 CE, stone tesserae. 270.5 × 270.5 cm, 1745.8949 kg (106 1/2 × 106 1/2 in, 3848.9999 lb), 71.AH.110. The J. Paul Getty Museum, Villa Collection, Malibu, California

virgin goddess Athena's temple.[106] She was, of course, held accountable for her own violation. In revenge for the god defiling her temple, Athena turned Medusa, now twice victimized, into a gorgon whose gaze had the power to turn living bodies into stone.[107] As many different media make visible, artists regularly depicted Medusa's story and her severed head, from the metopes of the temple of Apollo Thermios from Thermos, to the Athena Parthenos set up on the Acropolis, to mosaic floors. In each of these contexts artists crafted her image from material colors. Medusa's petrifying gaze stuck together and fixed the vibrant, polychrome matter of living bodies into monoliths. Although sources of the myth are cryptic about the status of this stone, some versions suggest that each petrified body retained its colors.[108]

Killing Medusa became a heroic quest, one the demigod Perseus boasted to his would-be stepfather that he could achieve. With support from the goddess Athena, Perseus escaped Medusa's petrifying gaze, in some versions through the strategic use of Athena's polished shield. Reflection nullified Medusa's power, indicating that what turned objects to stone resided in the visual, material stream that emanated from her eyes, a deadly form of the animate matter of the extromissive gaze described in Chapter 4. Using the mirror to track his victim, Perseus beheaded her and carried away her severed head contained in a protective pouch (*kubisis*). As the metopes from Temple C at Selinus depicted, Medusa's children, Chrysaor and the winged horse Pegasus, sprang from the open wound of her broken-apart body as assemblages of matter born from her body that now circulated independently of her. In Ovid (*Met.* IV.898), Perseus uses Medusa's decapitated head to turn Atlas into a mountain that held up the heavens:

> The hero turned his back to Atlas and raised up in his left hand the unkempt horror of Medusa's head. Atlas became a mountain just as large (900) as the man had been. His hair and beard became a forest, and his arms and shoulders turned into adjacent ridges; his head was now the mountain's summit and his bones were rock. Each part grew to extraordinary size (as you immortals had ordained), until the weight of heaven rested on his shoulders.[109]

Elsewhere along Perseus's journey, Ovid recounts Medusa's head petrifying parts of natural world (*Met.* IV.1010–1028). After slaying the dragon to save the Aithiopian princess Andromeda, Perseus carefully constructs a little nest of soft leaves and seaweed on the beach and places Medusa's snake-fringed head in the nest to protect it from the beach's gravel.

> Thirsty fresh twigs, still living, still absorbent, soak up the monster's force, and at its touch rigidify through every branch and leaf. Astounded sea nymphs try experiments on other twigs and get the same results; delighted, they toss them back into the sea as seeds to propagate this new species! Coral today shows the same properties; its branches harden when exposed to air, and what was – in the water – a spry twig becomes a rock when lifted out of it.[110]

With hands that just slaughtered a dragon, Perseus protects Medusa's severed head from the rocky beach. The head that petrifies remains soft tissue that can easily be damaged. Care for

106 Hesiod. *Theog.* 279–280; Ovid *Bk* 5.740–786.

107 Kathryn Topper, "Perseus, the Maiden Medusa, and the Imagery of Abduction," *Hesperia: The Journal of the American School of Classical Studies at Athens* 76, no. 1 (2007): 73–105.

108 Marshall, *The Structure and Performance of Euripides' Helen*, 152n136.

109 Ovid, *Metamorphoses*, ed. Charles Martin, John Barth, and Shelly Barth (New York: W. W. Norton, 2003), 150.

110 Ovid, *Metamorphoses*, 153–154.

her head turns soft greens to stone, but these stony twigs do not testify to Medusa's destructive power like the stone figures that adorned the approach to her cave. Instead, when the nymphs toss them into the sea, these stony twigs become something new, like coral.[111]

Artists used coral inlay and worked coral widely in the ancient Mediterranean. Inlay is a mosaic technology and we might understand the coral inlay in particular to highlight the recombinatory power of the material. Ovid wrote of these material transformations in more detail than earlier accounts of Medusa. Mosaic technologies also took shape in various media prior to the widespread circulation of mosaic floors throughout the Mediterranean. We can understand this Ovidean expansion of the transformative potential of Medusa's gaze similarly – as a particularly explicit rendition of relational, material transformations.

Although Medusa's head retained the power to petrify, representations of it did not turn people to stone. Rather, Medusa's severed head became a sign (*sēma*) of her once terrible power and took on an apotropaic function. Artists depicted Medusa in different media including in mosaic, often as the central image. Mosaic allowed artists to build up the image of Medusa's petrifying head from assembled stones and glass, from the very parts that her gaze could produce.

A mosaic that fits together Medusa's severed head at its center exemplifies these operations. A Roman mosaic in the collection of the Getty Museum demonstrates the way in which a beholder's feet might first register both individual tesserae and the solid ground that these cut stones assemble. Walking over the dizzying black-and-white geometry of the frame, the black Dionysiac *kantharoi* in each quadrant, the rhythm of the black-and-white twining ropes that suggest the movement of a spinning shield, a beholder might step right onto the floor's center on Medusa's severed head.[112] The earth-toned (golden yellow to black) snakes of Medusa's hair writhe around her face, which has been stuck together from a range of brown, yellow, and white cut stones. This image of Medusa offers up an unstable relationship of head to body. A beholder encounters either the image of a portrait bust of Medusa as a gorgon, prior to her decapitation by Perseus and still imbued with the power to turn beholders to stone with her gaze, or the head safely severed from her neck, its petrifying gaze now largely disarmed, and rendered an apotropaic prize. Prior to beheading her, Medusa's deadly gaze could petrify the animate, pieced-together, vibrantly polychrome matter of a beholder's body. Synthesized into

111 Writing on Medusa as artist, Julia Kristeva writes "Mirror work and coral work . . . The Medusa myth already prefigures an aesthetic of incarnation." Kristeva, *The Severed Head*, 36. Both Kristeva and Frontisi-Ducroux take up Medusa's coral production. Kristeva writes, "Medusa must be beheaded for 'id' to take shape, for the formless threat to become visible coral, for the menacing soft slimy fluid invisible to finally achieve form," Kristeva, *The Severed Head*, 33–36. I wish, however, to understand the work of Medusa's severed head differently. By rendering seaweed into coral, Medusa resists the monolithic forming into which her body and gaze has been forced, instead taking on material color and transforming it into a new material color, which will circulate and populate land and seacapes. With the coral, however, Medusa makes not new forms, but material color. For more on coral, see Sonia Macrì, "Lynx-Stone and Coral: 'Liquid Rocks' Between Natural History and Myths of Transformation," in *Transformative Change in Western Thought: A History of Metamorphosis from Homer to Hollywood*, ed. Ingo Gildenhard and Andrew Zissos (Abingdon: Modern Humanities Research Association and Routledge, 2013), 131–152.

112 *Mosaic Floor with Head of Medusa*, J. Paul Getty Museum, Los Angeles, 71.AH.110. Alexis Belis, "Cat. 1: Mosaic Floor with Head of Medusa," in *Roman Mosaics in the J. Paul Getty Museum* (Los Angeles: J. Paul Getty Museum, 2016), www.getty.edu/publications/romanmosaics/catalogue/1. Bellis includes comparanda from Greece (Crete, Piraeus, and Corinth), Bulgaria (Thrace), North Africa (Dar Zmela, El Djem, and Thina), Turkey (Antioch, Kibrya, Pergamon), and Italy (Rome, Herculaneum). This floor has been assigned a stylistic date of 115–150 CE and was said to have been found in Rome. Angelo Pasqui, "Roma: Nuove scoperte di antichità nella città e nel suburbia," *Notizie degli Scavi* 8 (1911): 338–339.

monolithic, polychrome stone, these objects of Medusa's gaze could now be broken up into smaller parts or stones. These constituent parts don't map to the living body's divisions but emerge as stone-parts that can be divided, trafficked around, and recombined in different places to take part in new assemblages.

To disarm her power to petrify and solidify, Medusa's own body must be broken into parts. Her headless body bore two magical, marked children from her neck. Her severed head circulates. First Perseus carried it away to document his kill and to deploy her as a weapon. Later the head of Medusa decorated Athena's aegis and circulated along with the many replications of Athena's image. She also adorned all manner of art and architecture as a *gorgoneion*, a protective or warning gaze. In a reversal of the process of building up Helen's extreme beauty from colored pieces, Medusa's dangerous appearance was divided up into polychrome parts.[113]

Medusa's head appears frequently on Roman mosaic floors, a popularity certainly driven by the layered aesthetic weight of forming the head of Medusa from cut-up pieces of stone. The stones that make up this image, in particular the stone tesserae of her eyes, surely comment through their material presence on the outcome of meeting her gaze. Her eyes foreshadow their impact through their own materiality. Medusa's gaze activated the transformative power of material – its capacity to be mixed and fused into a monolith, and then to be broken apart and redistributed to form new assemblages. Medusa takes the collected parts of a body and turns them into a whole unified form (*eidos*), but a petrified one. In mosaic, Medusa's deadly gaze comes into being through fitted-together tesserae – a gaze made up of the juxtaposition of small, material color-parts. Medusa's gaze fused parts as an arrested liquid like glass might. Sticking together stones to produce mosaics actively resists just this sort of fusion in favor of assemblage, but through the use of glass tesserae, mosaic production also depends on both the sticking together and the arrested mixing that produces glass itself.

The widespread production of mosaic floors drew on theories and technologies of juxtaposing, superimposing, and mixing material color to form images that had been active in the ancient Mediterranean for centuries. The techniques used to produce mosaic are distinct to the medium but recovering and seeing material color in ancient Mediterranean art demonstrates that the technologies underlying mosaic production – building up hylomorphs from color-parts; juxtaposing, superimposing, and mixing material colors to animate space; and exchanging and circulating polychrome particles through vision – precede the most active era of mosaic production. The artistic atomism of mosaic production rendered these atomist artistic and philosophical processes highly visible. Material color and artistic atomism produce sculpture, painting, and architecture as well, working through and refining practices of fitting together that give rise to the widespread production of mosaic floors in the ancient Mediterranean.

Material color moves through the world as atoms, particles, and seeds, as material color-parts that assemble into forms, or hylomorphs.[114]

113 For a range of images of Medusa, see Kiki Karaglou, "Dangerous "Beauty: Medusa in Classical Art," *The Metropolitan Museum of Art Bulletin* 75, no. 3 (Winter, 2018).

114 Mosaic is a precursor to the nineteenth-century pointillist movement advanced by the French painters Seurat and Signac. The pointillists were quite influenced by color theories of their day, especially the work of Chevreul, especially the principles of color juxtaposition that Aristotle had explored much earlier Eugène Chevreul and Henri Chevreul, *De la loi du contraste simultané des couleurs: et de l'assortiment des objets colorés* (Paris: BnF-P, 2016). On Chevreaul, Seurat, and Signac, see Gage *Colour and Meaning*, 196–208, 209–227.

Each tessera marks the atomistic assemblages of the visible world. Mosaic is particle assemblage scaled to a visible dimension. An image created through the assemblage of tesserae makes visible the process of perception that material color demands. All forms are at some scale mosaics. To tell a story of the history of art organized around dematerialized, monolithic forms, of dismembered ideas severed from their material instantiations, of minds elevated beyond bodies, and of bounded, individual forms rather than communities, has demanded not only the excision of material color, but also the devaluation of medium of mosaic.[115] Mosaic prioritizes the assemblage of material color to counter the prevailing logic of art historical forms. The visible, tangible artistic atomism of ancient mosaic sticks together color-parts. Mosaic's hylomorphic properties counter the elevation of form beyond matter and propose a necessary entanglement of material color and form, an entanglement that also destabilizes the ways in which these terms have been gendered. Stuck-together stone and glass color-parts propose not the either/or of Theophrastus's shifting article of grammatical gender, but rather a spectrum of possible combinations and recombinations.

115 On the generalized patriarchal hegemony of monolithic forms see Trinh T. Minh-Ha, "Difference: A Special Third World Women Issue," in *The Feminist Material Culture Reader*, ed. Amelia Jones (New York: Routledge, 2003), 201.

EPILOGUE

The opening ceremony for the 2004 Olympic Games took place not at Olympia, the ancient site in the Peloponnese region of mainland Greece that gave its name to the modern games, but, like the first modern games of 1896, in Athens, the capital of the modern nation-state of Greece. This slippage between places maps an ancient artistic connection forged by two colossal polychrome statues, the Athena Parthenos in Athens and the seated Zeus at Olympia, both designed and produced by Pheidias and artists of his workshop. Neither statue exists today; because of their vibrant splendor, politicians spent, people reused, and time degraded the gold, ivory, wood, jewels, stones, and added pigments that formed them. Elements of both statues, however, persist in reproductions, descriptions, and reconstructions. Pausanias, for example, provides a vivid description of their appearance in the second century CE. In conjunction with other literary references and archaeological and epigraphic evidence, we can today form an idea of how these statues might once have been pieced together and beheld.

Inside the Parthenon, the warm yellows and low shimmer of gold, the black-and-white striations and luster of ivory, and the blue, black, white, and pink of the Athena Parthenos's inlaid eyes constituted the colors of the colossal statue. The wooden core to which these material colors were affixed would not have been regularly visible.[1] Reflections of attendants, the dyed and embroidered fabrics of their garments, and the metals, stones, and pigments of offerings and

1 On the wooden core, see Palagia, "The Gold and Ivory Cult Statues of Pheidias in Athens and Olympia," in *Handbook of Greek Sculpture* (Berlin; Boston: De Gruyter, 2019), 331.

cultic paraphernalia all would have gleamed to join with the colors of the statue itself. Soon after the dedication of the Athena Parthenos, builders dug a long, shallow pool in front of the platform to hold water that would reflect the statue's material splendor.[2] Acting as a votive might, the water mirrored the statue's gaze and also reflected the apotropaic stare of the carved and painted ivory depiction of Medusa's severed head sewn onto the goddess's aegis and worn over the gold plates of her *peplos*.[3] These reflected gazes offered the Parthenos sustained attention and expanded and refracted the statue's colors, brilliance, and variegation.

A few years after the dedication of the gold statue on the Acropolis in 438 BCE, Pheidias and his workshop completed their commission for the Zeus at Olympia, a figure eventually lauded as one of the seven wonders of the ancient world.[4] As with the Athena Parthenos, Pausanias leaves a thick description of the statue of Olympian Zeus (5.10–12).[5] Within a temple crafted of local stone (*epikhorios*, from the root *khōra*, or land), a colossal statue of Zeus made from gold and ivory sat on a throne variegated with gold, jewels, ebony, and ivory, on which artists molded and painted images of victories, of sphinxes attacking Theban children, and of Artemis and Apollo murdering Niobe's children. This dazzling assemblage had been formed over a substructure of wooden beams, nails, bitumen, and clay, a material juxtaposition that later writers mined for its humorous contrast with the splendor of the statue's surface (*khrōs*).[6] The god wore a crown shaped like olive leaves and a gold robe variegated with animals and flowers; in one hand he held a gold and ivory Nike and in the other an eagle-topped scepter formed from metal alloys. He rested his feet, which were encased in gold sandals, on a footrest covered in gilded images. Pausanias describes a solid panel painted deep blue (*kuanos*) and depicting mythological and historical scenes and a woven textile dyed with Tyrian purple covering the walls. In lieu of the reflective pool of water that hydrated the ivory of the Athena Parthenos in Athens, Pausanias describes a marble lipped, round pool paved with pieced-together black stones in which attendants poured olive oil to maintain the condition of the statue's ivory in Olympia's humidity (5.11).[7] Like the pool of water in Athens, this pool of olive oil would have reflected and amplified the statue's vibrant material color and brilliance. Pieced together from and surrounded by local and imported material colors, both the Athena Parthenos and the Olympian Zeus dazzled beholders.

Images of the enthroned Zeus appear on later coins minted by Elis in the second century CE, while representations of Zeus that drew on the Elean statue appear on gems, statues, and

2 On the pool and its possible function to maintain the ivory, see Lapatin, *Chryselephantine Statuary in the Ancient Mediterranean World* (Oxford; New York: Oxford University Press, 2001), 85; Pausanias 5.11.10.

3 Pausanias claims to have seen a version of the Athena Parthenos during his travels in the first century CE, and he describes the aegis as of carved ivory, *Description of Greece,* 1.24.

4 Palagia, "The Gold and Ivory Cult Statues," 347–357. On the workshop excavated at Olympia, complete with a skyphos inscribed "I belong to Pheidias," and remnants of bronze, lead obsidian, ivory, amber, ebony, animal horns, and teeth as well as molds, possibly for glass. See Palagia, "The Gold and Ivory Cult Statues," 349–351. On the seven wonders of the ancient world, see Anth. Pal. 9.58.

5 For a selection of texts in Greek and Latin describing the statue, see Henke, *Die Farbigkeit der antiken Skulptur*, 259–274.

6 In Lucian *Gallus* 24 the titular rooster contrasts the high-value materials of the statue's outer surface with interior scaffolding of bolts, nails, wood, pitch, and mortar on which these rest, complete with speculation that rats or mice might take up residence therein. See Palagia, "The Gold and Ivory Cult Statues," 331n19, for a literal interpretation of Lucian's claim, and Platt, *Facing the Gods*, 80–81 on the hollowness of the statue that Lucian's rhetorical strategy exploits. On tensions between the material presence and divine epiphany, see Platt, *Facing the Gods*, 102, and on the slippage between the statue and the god, see Platt, *Facing the Gods*, 324. Pausanias opens his description of the statue with "the god (*ho theos*) sits," *Description of Greece*, 5.11.

7 Among the many vibrant polychrome offerings described by Pausanias is a weaving of Tyrian purple made by Assyrian artists.

statuettes from at least the fourth century BCE (Figure 154).[8] Pheidias's statue of the Athena Parthenos was replicated in even greater abundance (Figure 155). Terracotta molds offered the possibility of serially copying an image of the statue's form, but none of its material particulars.[9] Coins, votive plaques, glyptic arts, a gold disk inlaid with colored stones, statuettes, and eventually large statues all circulated images of the Athena Parthenos, as did evidence from inscriptions documenting the value of Athena's treasury and later authors' references to or descriptions of the statue.[10] Milette Gaifman has described this network of copies as "expanding the original."[11] None of these replicas reproduce the colors, materials, scale, or even exact form of Pheidias's gleaming gold and ivory treasury, so that, in Gaifman's words, "the original is reduced to some basic iconographic trait."[12] Comparing copies to triangulate some sort of lost original form (*Kopienkritik*) has resulted in the form of these ancient sculptures dominating their later reception, while the material colors that made up and made famous Pheidias's version have been filtered out.[13] Stripping color from objects through reproductions selects against color while circulating their forms more widely.

Once that vivid material color no longer confronts us, however, we have failed to mark the presence of color-language in texts, or we have marked these terms but moved easily past them. Having found little textual evidence of color worth dwelling on, in a circular turn we continue to deprioritize colors when looking at ancient Mediterranean art. These material and textual recursions trap us, reducing both our capacity to see and know colors in and on ancient Mediterranean art, and the impact that colors have on art historical narratives. Mold-making, cast production, black-and-white prints, drawings, photography, and film have all expanded access to ancient Mediterranean forms, while circulating images from which most material colors have been excised.[14]

8 On the question of whether there were ancient restrictions on the replication of images of the Olympian Zeus, see Palagia, "The Gold and Ivory Cult Statues," 347. On ancient representations of the Elean Zeus, see Kenneth Lapatin, "Representing Zeus," in *Statue of Zeus at Olympia: New Approaches*, ed. Janette McWilliam (Newcastle-upon-Tyne: Cambridge Scholars Publishing, 2011), 79–108. On the possible impact of this imagery on Hellenistic ruler portraiture, see Judith Barringer, "The Legacy of Phidian Zeus at Olympia," in ibid., 61–78.

9 In an important article on replications circulating roughly contemporary with their referent, Milette Gaifman demonstrates that images of the Athena Parthenos circulated widely. Gaifman, "Statue, Cult, and Reproduction." On the production of imagined originals through seriality, see Jennifer Trimble and Jaś Elsner, "Art and Replication: Greece, Rome, and Beyond," *Art History* 29, no. 2 (2006): 201–212.

10 Jens Daehner and Kenneth Lapatin, *Power and Pathos: Bronze Sculpture of the Hellenistic World* (Los Angeles: J. Paul Getty Museum, 2015), 69, pl. 56.

11 Gaifman, "Statue, Cult, and Reproduction," 259.

12 Gaifman, ibid., 264.

13 On the chain of replications challenging any claim to original status, see Davis, *Replications*, 1–2.

14 Among the many studies of these replicatory technologies, see the following: on indirect lost-wax casting: Stewart, *Greek Sculpture*, I; Carol Mattusch, "In Search of the Greek Bronze Original," *Memoirs of the American Academy in Rome, Supplementary Volumes,* vol. 1, *The Ancient Art of Emulation: Studies in Artistic Originality and Tradition from the Present to Classical Antiquity* (2002), 112, fig. 5.7a–f; Mattusch, "Archaic and Classics Bronzes"; André Malraux, *The Voices of Silence* (Princeton: Princeton University Press, 1978). On the Roman molds at Baiae, see C. Landwehr. *Die antiken Gipsabgüsse aus Baiae* (Berlin: Gebr. Mann, 1985). On the reception history of cast production, including the sculptures that were molded for the Belvedere in Rome, the Tribuna in Florence, and the Musée Napoléon in Paris, defining a cast canon that gradually expanded across the map of Europe and through different economic classes of beholders, see Haskell and Penny, *Taste and the Antique*, esp. xiv; on Leone Leoni's plaster cast collection of 1550, see Vasari *Lives of the Artists*, 545 and Haskell and Penny, *Taste and the Antique*, x; On the role of casts in French and Italian art academies, see Lichtenstein, *The Blind Spot*, 17–34. Nichols, *The Politics of Display*, examines the cast revival from 1980–2005, as cast collections re-emerged following a long period of neglect and destruction that extended through the 1960s, Marden Nichols, "The Politics of Display: Public Cast Galleries Enter the Twenty-First Century" (M.Phil dissertation submitted to Trinity College, Cambridge, 2005), 11. On the revival of cast collections that "have been away so long that they look new," see Nichols, "The Politics of Display," 45,

Figure 154 Coin of Elis reproducing an image of the enthroned figure of Zeus from the Temple of Zeus at Olympia, bronze, second century CE. Museo Archeologico di Firenze. Photo: Scala / Art Resource, NY

Each reproduction or representation of the Elean Zeus and of the Athena Parthenos, however, would once have called to mind the insistent polychrome materiality of the initial assemblages so assiduously described by Pausanias hundreds of years after their making. In beholding an unpainted terracotta plaque from Olynthos or an Elean coin, the gold, ivory, ebony, jewels, metal alloys, pigments, and polychrome stones of these statues could take shape in a beholder's mind. Mentally adding back polychrome specifics to a reproduction could take place whether or not a beholder of a reproduction had seen either of these renowned statues to which the plaque or coin referred. One saw the terracotta or silver material of the reproduction or citation, but this matrix of replications retained an association with the material colors that made up the statues of Zeus and Athena as long as cultural memories of that initial iteration remained strong. While memories and stories of the polychrome iteration persisted, a

citing D. C. McGill, "Plaster Casts of Statues: from Storage into Vogue," *The New York Times*, January 1, 1987), 9. On casts as a space of experimentation, Nichols, *The Politics of Display*, 52, 94. On print-driven canonization preceding textual discourse, see Elisabeth Décultot, *Musées de papier: l'antiquité en livres 1600–1800* (Paris: Gourcuff Gradenigo, 2010). On photography expanding and modifying the replicatory possibilities of print-making, see D. Tomas, "Mimesis and the Death of Difference in the Graphic Arts," *SubStance* 22, no. 1 (1993), 42; William Fox Talbot writes, "statues, busts and other specimens of sculpture, are generally well represented by the Photographic Art; and also very rapidly, in consequence of their whiteness," *The Pencil of Nature* (Dinslaken: anboco, 2016), pl. XI.

Figure 155 Statuette of the Athena Parthenos ("Varvakeion"), marble from Penteli with pigments, 200–250 CE, H:1,05 m. © National Archaeological Museum, Athens – Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Attica – Archaeological Receipts Fund. Photo by author

reproduction that excised colors and variegation might still circulate and expand the material colors of its referent. In this way, even monochrome reproductions initially expand and circulate ideas and memories of material colors. Over time and distance, however, these matrices of monochrome reproductions displace polychrome memories and wrest material color from form.[15]

The very replicatory technologies that have contributed to the excision of material color, however, have also been spaces for adding color back, however selectively and idiosyncratically. Antiquarian travelers in the eighteenth and nineteenth centuries often documented extant colors on ancient monuments, commissioning artists to hand-colored prints or to produce original drawings and paintings to record colors on ancient Mediterranean monuments.[16] Nascent archaeological discoveries in the nineteenth century, such as the excavations at Pompeii and Herculaneum, or Tanagra, Boeotia, revealed vivid material polychromy across different media from those sites.[17] These discoveries fueled debate, both public and scholarly, about the extent to which colors had been integrated into ancient Mediterranean art. In 1814, the French art historian, architect, and politician Antoine-Chrysostum Quatremère de Quincy published a hand-colored etching reconstructing Pheidias's lost chryselephantine cult statue of Zeus from the Temple of Zeus at Olympia as the frontispiece to his publication on the statue (Figure 156).[18] Having traveled through Sicily in 1799 in the company of his friend, the painter Jacques-Louis David, Quatremère de Quincy encountered many extant pigments on the buildings they saw.[19] These antiquarian encounters merged with his close reading of Pausanias, among other Greek and Latin authors.[20] In the first two decades of the

15 On which, see the canonical Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction (1935)," in Hannah Arendt ed. *Illuminations.* (New York: Houghton Mifflin, 1968), 217–252.

16 See Quatremère de Quincy, *Le Jupiter olympien: ou, l'art de la Sculpture antique considéré sous un nouveau point de vue: ouvrage qui comprend un essai sur le goût de la sculpture polychrome, l'analyse explicative de la toreutique, et l'histoire de la statuaire en or et ivoire chez les grecs et les romains, avec la restitution des principaux monuments de cet art et la démonstration pratique ou le renouvellement de ses procédés mécaniques* (Paris: Chez De Bure frères, 1814); J. I. Hittorf, "On the Polychromy of Greek Architecture," in *The Museum of Classical Antiquities: A Quarterly Journal of Architecture and the Sister Branches of Classic Art* 3 (London: J. W. Parker and Son, 1851), 20–34. Gottfried Semper, "On the Study of Polychromy, and Its Revival," in ibid., 228–246. George Scharf, "On the Polychromy of Sculpture," in ibid., 247–255. Franz Kugler, *Über die Polychromie der griechischen Architektur und Sculptur und ihre Grenzen* (Berlin: G. Gropius, 1835). Owen Jones, *The Greek Court Erected in the Crystal Palace* (Marlborough, Wiltshire: Adam Matthew Digital, 2016). Owen Jones, *An Apology for the Colouring of the Greek Court in the Crystal Palace* (Marlborough, Wiltshire: Adam Matthew Digital, 2016). For a summary of the nineteenth century evidence, see Drost, "Colour, Sculpture, Mimesis," and Gage, *Colour and Culture*, 11. Artists also worked through these debates, including John Gibson, *Tinted Venus*, 1854; Lawrence Alma-Tadema, *Pheidias and the Frieze of the Parthenon*, 1868; Gerôme, *Tanagra*, 1890; and *Sculpture Vitam Insufflat Pittura* (or *Atelier de Tanagra*), 1893.

17 Johann Joachim Winckelmann, *Letter and Report on the Discoveries at Herculaneum*, trans. Carol C. Mattusch (Los Angeles: J. Paul Getty Museum, 2011). William Gell, *Pompeiana: The Topogaphy, Edifices and Ornaments of Pompeii, the Result of Excavations Since 1819* (London: L. A. Lewis, 1835). Erasmo Pistolesi, *Antiquities of Herculaneum and Pompeii: Being a Selection of All the Most Interesting Ornaments and Relics which Have Been Excavated from the Earliest Period to the Present Time; Forming a Complete History of the Eruptions of Vesuvius. to which is Added, a Selection of Remarkable Paintings by the Old Masters. Comprising the Principal Objects Preserved in the Museo Borbonico, at Naples* (Naples: Royal Press, 1842). Reinhard Kekulé, *Griechische Thonfiguren aus Tanagra* (Stuttgart: W. Spemann, 1878). Gerôme, Tanagra, 1890.

18 Finds from Olympia include elaborate buildings, sculptures, and objects in a range of vibrant materials, both local and imported, as well as surfaces covered with variegated material colors. Charles Eliot Norton, *The Dimensions and Proportions of the Temple of Zeus at Olympia*, 1877. Paul Wolters, *Der Westgiebel des olympischen Zeustempels* (Munich: Königlich Bayerische Akademie der Wissenschaften, 1908).

19 Sylvia Lavin, *Quatremère de Quincy and the Invention of a Modern Language of Architecture* (Cambridge, MA: MIT Press, 1992), 2.

20 D. van Zanten, *Architectural Polychromy of the 1830s* (New York: Garland Publishing, 1977), 9.

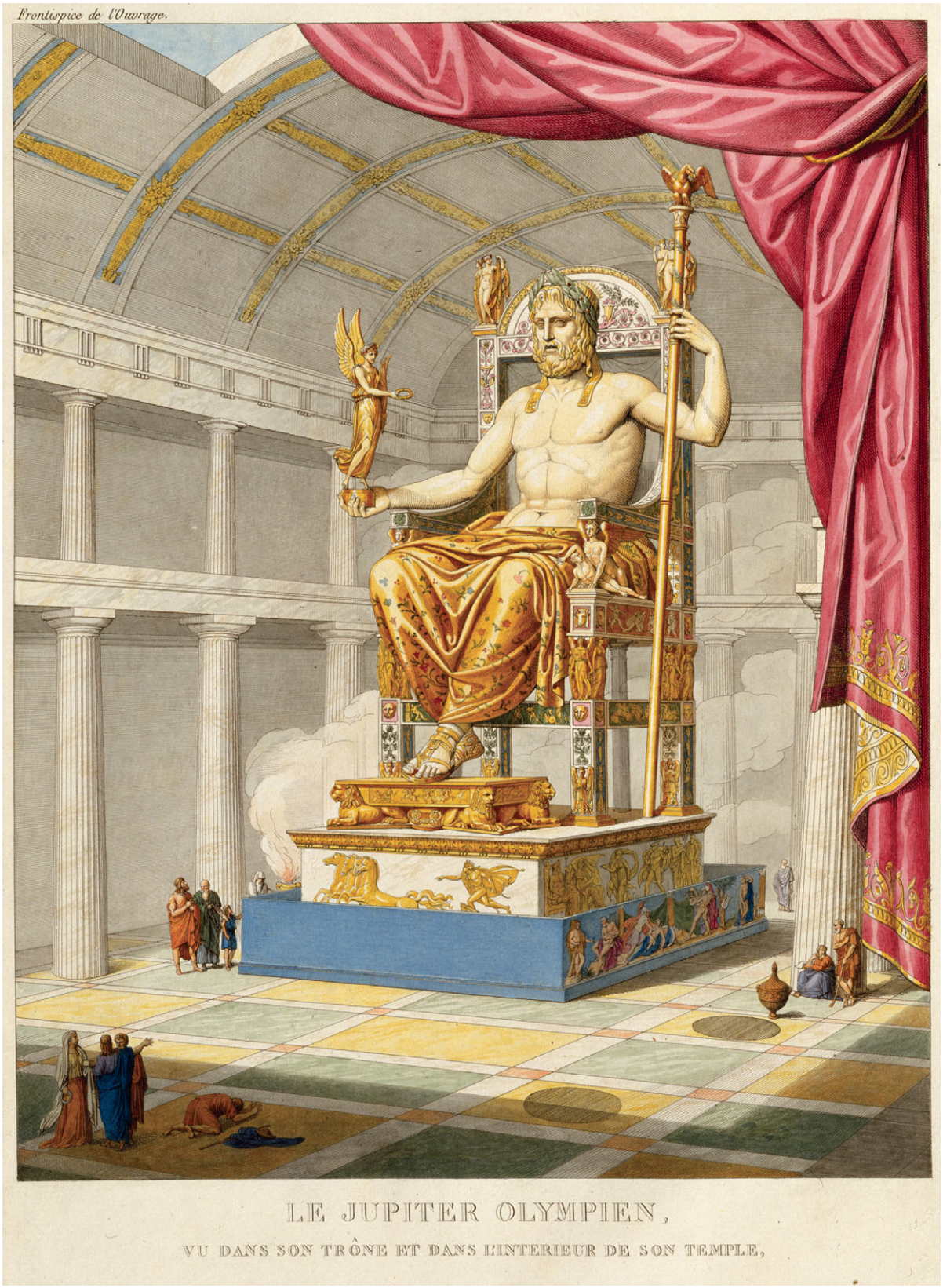


Figure 156 A.-C. Quatremère de Quincy, *Le Jupiter olympien, ou l'art de la sculpture antique*, Paris 1814, frontispiece. Etching and watercolour. Height: 30.4 cm. Width: 23.7. Royal Academy of Arts 05/496 ©Royal Academy of Arts, London; photographer: Prudence Cuming Associates Ltd.

nineteenth century, Quatremère de Quincy had published a series of texts on architectural and sculptural polychromy, contributing to ongoing public debates that engaged the question of color, in particular additive color on ancient Greek freestanding and architectural sculpture.[21] Quatremère de Quincy chose to emphasize, not the robust assemblage of material colors described by Pausanias, but specifically the gold and ivory surface described in the first line of Pausanias's ekphrasis (5.10). His hand-colored etching of the Olympian Zeus, which continues to illustrate descriptions of the statue in contemporary scholarship, reconstructed and circulated to the wider public Quatremère de Quincy's argument for the limited polychromy of this lost wonder of the ancient world.

Debates over the colors of ancient Mediterranean art, especially additive colors on marble sculpture and architecture, persisted throughout the nineteenth century, often staged at universal exhibitions. For example, architects designed the Beaux-Arts building of the Grand Palais in Paris to be an exhibition hall and museum for the Universal Exposition of 1900. A polychrome mosaic frieze designed by Louis Édouard Fournier runs around the East façade of the building and tells an epochal history of art (Figures 157 and 158).[22] The pieced-together polychrome tesserae of the mosaic frieze depict a polychrome world on the exterior of a predominantly monochrome building. On the one hand, the polychrome frieze adds color to the monochrome façade and puts color undeniably on the building's surface. On the other hand, limiting polychromy to the mosaic frieze confines color to that medium and does not undermine the building's monochrome presence.

Within the mosaic, panels depict essentializing tropes of artists at work, first across a wider geographic footprint of East Asia, Mesopotamia, and Egypt, followed by ancient Greece and Rome, and the Islamic Middle Ages, and then narrowing to western Europe in the Middle Ages and Early Modern period, to finish with the triumph of nineteenth-century French artists. Unlike the preceding scenes, this final panel pieces together a tessellated list of the names of French artists, all men, presented as if carved into a stone stele: "1800–1900 David, Prudhon, Percier, Gericault, Delacroix, Duban, Pradier, Ingres, Rude, Berlioz, Carpeaux, Baudry, Garnier, P de Chavannes."[23] The Grand Palais itself and the contemporary art that it houses and exhibits stand as the effective culmination of the timeline depicted in the mosaic frieze on the outside of the building.

21 Quatremère de Quincy, *Le Jupiter olympien* (Paris: Chez De Bure frères, 1814). Antoine Quatremère de Quincy, *Restitution de la Minerve en or et ivoire, de Phidias, au Parthénon* (Paris: BnF-P, 2016), especially drawings on pp. 41 and 42 showing the internal framework of the sculpture. Antoine Quatremère de Quincy, *De l'architecture égyptienne: considérée dans son origine, ses principes et son goût, et gomparée sous les mêmes rapports a l'architecture grecque; dissertation qui a remporté en 1785* (Paris: Barrois, 1803). On the nineteenth century polychromy debates, see Maxime Collignon, "La Polychromie dans la sculpture grecque," *Revue des Deux Mondes* 127, no. 4 (1895): 823–848; D. van Zanten, *Architectural Polychromy of the 1830s* (New York: Garland Publishing, 1977); Blühm, *The Colour of Sculpture 1840–1910*. Bente Kiilerich, "Towards a 'Polychrome History' of Greek and Roman History," *Journal of Art Historiography* 15 (2016): 1–18. On the polychromy debates and Owen Jones rotunda exhibiting John Gibson's *Tinted Venus*, see Drost 1996, 65–66. Jones's rotunda included the Latin inscription that read: *Nec vita nec sanitas nec pulcritudo nec sine colore juventus* (without color there is neither life, nor health, nor beauty, nor youth). On Jones's polychrome Greek court for the universal exhibition of 1851 and subsequent printed apology see Drost, "Colour, Sculpture, Mimesis," 65.

22 The commission for the Grand Palais was the result of keen and unresolved competition, with three architects winning the commission for parts of the building; Fournier's mosaic was originally cut from the designs, but later added back in. On the history of the Grand Palais, see Bernard Marrey, *Le Grand palais: sa construction, son histoire* (Paris: Picard, 2006). A polychrome ceramic frieze runs along the West façade.

23 On lists, see Umberto Eco, *An Infinity of Lists* (New York: Rizzoli 2009); in the ancient Greek context, Athena Kirk, *Ancient Greek Lists* (New York: Cambridge University Press, 2021).

Figure 157 Louis Édouard Fournier, mosaic frieze of epochal art practice: L. Assyrian and Egyptian art. C. Greek art R. Roman art, on the exterior of the East façade of the Grand Palais, Paris, 1896–1900 © Coll. Grand Palais, Photo: François Tomasi

Figure 158 Detail of Greek art section, Louis Édouard Fournier, mosaic frieze of epochal art practice on the exterior of the East façade of the Grand Palais, Paris, 1896–1900 © Coll. Grand Palais, Photo: François Tomasi

Each panel has been distilled to the visual tropes of the cultural epoch it represents. An Assyrian artist chisels the sculpture of a lamassu; an Egyptian artist paints a polychrome mummy case. In comparison to polychrome tesserae used for the panels of other cultures, Fournier's mosaic frieze limits the vibrant material color of the panels depicting Greek and Roman art. The Greek panel shines with golden-white sculpture pieced together from tesserae. A dancer and a musician with a double flute perform. A painter adds color to the surface of a ceramic vessel. A gold owl of Athena floats in the foreground and the white marble Parthenon rises in the background, setting the scene as Athens. The sculptor and designer Pheidias, however, sits, not next to the polychrome Athena Parthenos that would have stood inside the Parthenon, but next to his enthroned statue of Zeus from Olympia. Informed by Quatremère de Quincy's rendition, Fournier substituted Pheidias's enthroned Zeus for his standing Athena, excised the statue of the goddess from her own city, and emphasized bichrome gold and ivory rather than many material colors of the ancient statue. The polychrome mosaic frieze highlights a medium and technology that had not been understood to undergird the epochal story of art told by the frieze and brings a limited polychromy to that story, neither the white monochrome of the reception tradition, nor the polychrome abundance of antiquity. Mosaic, however, tells this story through the relational medium of artistic atomism.

The material color and artistic atomism of mosaic assemblage unsettles the story of bounded epochs with distinct colors and practices progressing towards French modernism narrated by the frieze. That story has been pieced together from tesserae in a wide range of material colors that have been stuck together to produce each cultural epoch, and through their particulate matter, these tropes and tesserae can always be pulled apart and recombined to tell different stories.

In the years just prior to the Grand Palais's construction, an American sculptor from Kentucky who was living and working in Paris, Enid Yandell (1869–1934), received a commission to produce a sculpture of Athena for the Tennessee Centennial Exposition of 1897 in Nashville, Tennessee.[24] In her Paris studio, Yandell produced a statue of Athena from staff, a synthetic stone intended to decompose after a few years.[25] Yandell built up the sculpture from parts and shipped it in pieces to Nashville, where it was assembled and displayed for the Centennial. The commission solidified Yandell's reputation and secured her admission as the first woman to the National Society of Sculptors (NSS) – but Yandell had not designed her Athena to endure.[26] Although lacking the additive and assembled material colors that make visible the act of piecing together, Yandell's Athena was also built up from parts. A surviving black-and-white photograph captures Yandell in Paris amid the parts of her Athena.

In *Enid Yandell with Her Sculpture of Pallas Athena*, 1896 the artist stands amid massive fragments of her sculpture, by Athena's right foot (Figure 159). Scaffolding segments the frame. Yandell, who is tiny relative to the parts of her

24 Yandell's Athena was "reportedly at the time the largest statue ever made by a woman – a 25-foot statue of Athena atop a 15-foot base." Tatiana Ryckman, "The Legacy of Louisville Sculptor Enid Yandell," *Louisville Magazine*, November 8, 2019, 35. Other public sculptures by Yandell included a statue of Daniel Boone and a fountain in Louisville's Cherokee Park. Prior to the Centennial commission, Yandell had produced a porch of caryatids for the women's building of the Chicago World's Fair (1891), Julie Decker, *Enid Yandell: Kentucky's Pioneer Sculptor* (Louisville: University of Kentucky Press, 2019), 48–50. Yandell had a modest sculpture *Kiss Tankard* in the Paris Exposition of 1900 inside the Grand Palais. Ibid., 114.

25 Ibid., 103–111.

26 Ryckman, "The Legacy of Louisville Sculptor Enid Yandell," 34. "ENID: Generations of Women Sculptors" is a group of artists named after the sculptor. Yandell also produced several objects that were on view inside the Centennial exhibition and later produced the extant bronze statue of the Cenntennial's commissioner John W. Thomas (National Register 0800689 listed July 15, 2008). Thanks to Dr. Katherine Petrole for bringing this to my attention.

Figure 159 Enid Yandell with her sculpture of Pallas Athena, 1896, black and white photograph, photographer unknown, H: 26 × W: 21 cm, Enid Yandell papers 1878–1982, Archives of American Art, Smithsonian Institution

sculpture, faces out towards the camera, with her hand on her right hip and a sculpting tool in her left hand. Additional tools have been propped against Athena's shins. Athena's chest and bust appear twice in different scales (a model and final iteration) in profile, facing Yandell. Athena's reduplicated gazes both look at Yandell, as do the eyes looking out from Medusa's severed heads. The photograph captures a moment in Yandell's production of the statue of Athena in which the artist posed surrounded by the plurality of her statue's constituent parts.[27] While the temporary object appeared as a colossal, monochrome whole in the Centennial itself, eventually the staff broke down and the sculpture broke apart into new pieces, abandoning the form of Athena into which Yandell had pressed them.

Organizers of the Centennial placed Yandell's Athena on the cover of the catalogue for the Centennial exhibition and her statue stood at the entrance to the Nashville Parthenon and the main exhibition space (Figure 160). In an effort to claim Nashville as the Athens of the South, confederate veteran William Crawford Smith produced a concrete replica of the Parthenon in Athens in the state park (Figures 161, 162, and 163).[28] Yandell's statue was placed in front of this replica. Yandell's whiteness and Southernness likely overrode objections to her being a woman in securing the Centennial commission. The juxtaposition of Yandell's monochrome Athena in front of the reproduction of the Parthenon constructed a white Greek past to glorify one democracy built on slavery through iconic images of another.[29] Yandell's Athena became white when she came to America.[30]

Like the fifth-century BCE statue of Athena Parthenos, Yandell's staff statue of Athena eventually disappeared. The city of Nashville acquired casts of the Parthenon marbles said to have been made with molds from the Victoria and Albert Museum, London, that were taken directly from the selection of the Parthenon marbles now in the British Museum (Figures 164 and 165).[31] Long after the statue of the Athena Parthenos no longer stood within the Parthenon's cella in Athens, and after the building had survived its

27 Yandell reportedly hosted a dinner for her friends inside the Athena on the evening before she shipped the parts from Paris to Nashville (via New Orleans). Decker, *Enid Yandell*, 104. Yandell also writes of the head of her statue sitting for two months on a dock in Antwerp accumulating moss, which had to be removed upon arrival in Nashville. Ibid., 106.

28 On the building's use to glorify the confederacy, see Savannah Marquardt, "The Nashville Parthenon Glorifies Ancient Greece – and the Confederacy," *Eidolon*, January 15, 2018. The current Nashville Parthenon is the third physical iteration on the site – first the structure of plaster over brick built for the 1897 Centennial, in front of which Yandell's Athena stood, the second produced from aggregate concrete, finally a third renovation of that building in 1991.

29 Yandell submitted a classically themed design for a monument to the Confederate dead of Louisville in 1894, but her commission was overturned in favor of a man's design. Decker, *Enid Yandell*, 1, 78–89. Yandell reportedly took pride in being the daughter of a staff surgeon in the Confederate army. Ibid., 58, 69–70.

30 Of the construction of whiteness, James Baldwin writes, "It bears terrifying witness to what happened to everyone who got here, and paid the price of the ticket. The price was to become 'white.' No one was white before he/she came to America. It took generations, and a vast amount of coercion, before this became a white country." James Baldwin, "On Being White. . .and Other Lies," *Essence*, 1984, republished in David R. Roediger, *Black on White: Black Writers on What It Means to Be White* (New York: Schocken Books, 1998), 178.

31 "The plaster replicas of the Parthenon Marbles found in the Naos are direct casts of the original sculptures, which adorned the pediments of the Athenian Parthenon dating back to 438 B.C. The originals of these powerful fragments are housed in the British Museum in London." Nashville Parks and Recreation website, www.nashville.gov/Parks-and-Recreation/Parthenon.aspx. The museum in Nashville's emphasis on displaying casts that were produced from molds that would have touched the original sculptures draws authenticity from that original contact. Mold production likely contributed to the dissolution of the Parthenon's visible additive pigments, so that the subsequent plaster casts circulate a monochrome white version, but also contributed to the degradation of material color from the original marbles.

Figure 160 Cover with Enid Yandell's Pallas Athena, Catalogue of the Tennessee Centennial Exposition (May 1–Oct 31, 1897), ink on paper. Photo courtesy Nashville Parthenon, Metro Nashville Parks and Recreation. Gift of Col. Robert and Mrs. Ann Lovier Dennison, 2012.5.17

Figure 161 View from the Rialto—Bandstand, Yandell's Athena, and the Nashville Parthenon for the Tennessee Centennial Exposition, 1897, black and white photograph, photographer unknown. Photo courtesy Nashville Parthenon, Metro Nashville Parks and Recreation

Figure 162 Nashville Parthenon, brick, stone, structural reinforced concrete, pigments, architects Russell Hart and William Bell Dinsmoor, 1921–1931. Photo courtesy of Lyana Chalk

Figure 163 Casts of the sculptures of the pediments of the Parthenon, plaster, taken from molds purchased from the Victoria and Albert Museum, London, 1931, Nashville, TN. Photo: Leslie Rodriguez

use as an armory and a bombing by Venetian troops, Thomas Bruce (the seventh Earl of Elgin) removed the figural sculpture of the pediments, the majority of the frieze, and many of the metopes from the Acropolis and shipped these to England between 1801 and 1805. They were first installed in his private collection, but he was later forced to sell them to the British government due to insolvency, and the sculptures entered the collection of the British Museum in 1816.[32] The transfer of these marbles, which remain at the center of international geopolitical conflict, has dramatically impacted the history of color and of ancient Mediterranean art. From extant pigments lost in transport, through mold-taking, and through aggressive cleaning in the museum setting, to the white plaster casts that stand in for the originals on the second floor of the Acropolis Museum in Athens and the vast number of casts that circulated monochrome white formal replications of these marbles around the globe, the nineteenth-century removal of the Parthenon marbles from Athens reshaped receptions of ancient Greek art to prioritize morphological form over material color. In addition, casts produced from these molds of the selection in London circulated only reproductions of the Parthenon marbles removed from Athens, but not those that remained in Athens or were taken elsewhere, reproducing only a subset as the whole. Nashville's Parthenon might seek to position the city as the Athens of the South, but it is an Athens routed through London and partly white-washed along the way. This Parthenon replica is, thus, a distinctly American extension of Western European imperialism.

32 Hanink, *The Classical Debt*, 2, 132–133.

Figure 164 Cast of sculpture of Iris (West pediment N) of the Parthenon, plaster, taken from molds purchased from the Victoria and Albert Museum, London, 1931, Nashville, TN. Photo: Leslie Rodriguez

Figure 165 Alain LeQuire, *Athena Parthenos*, unpainted gypsum cement, gilding on base, 1982–1990, H: 42 ft, Nashville, TN.

Figure 166 Gilding *Athena Parthenos*, 2002, Nashville, TN. Photo courtesy Nashville Parthenon, Metro Nashville Parks and Recreation

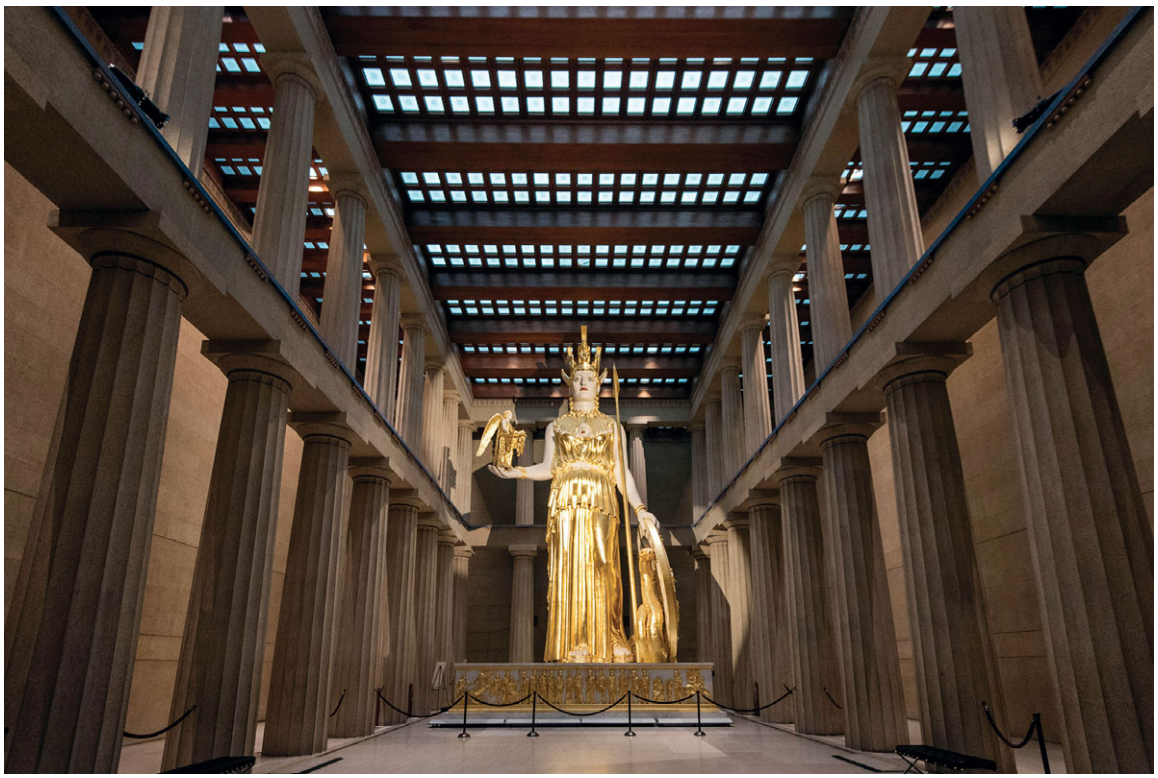


Figure 167 Alain LeQuire, *Athena Parthenos*, gold, pigments, gypsum cement, H: 42 feet, Nashville, TN. Photo: courtesy Centennial Park Conservancy by Leslie Rodriguez.

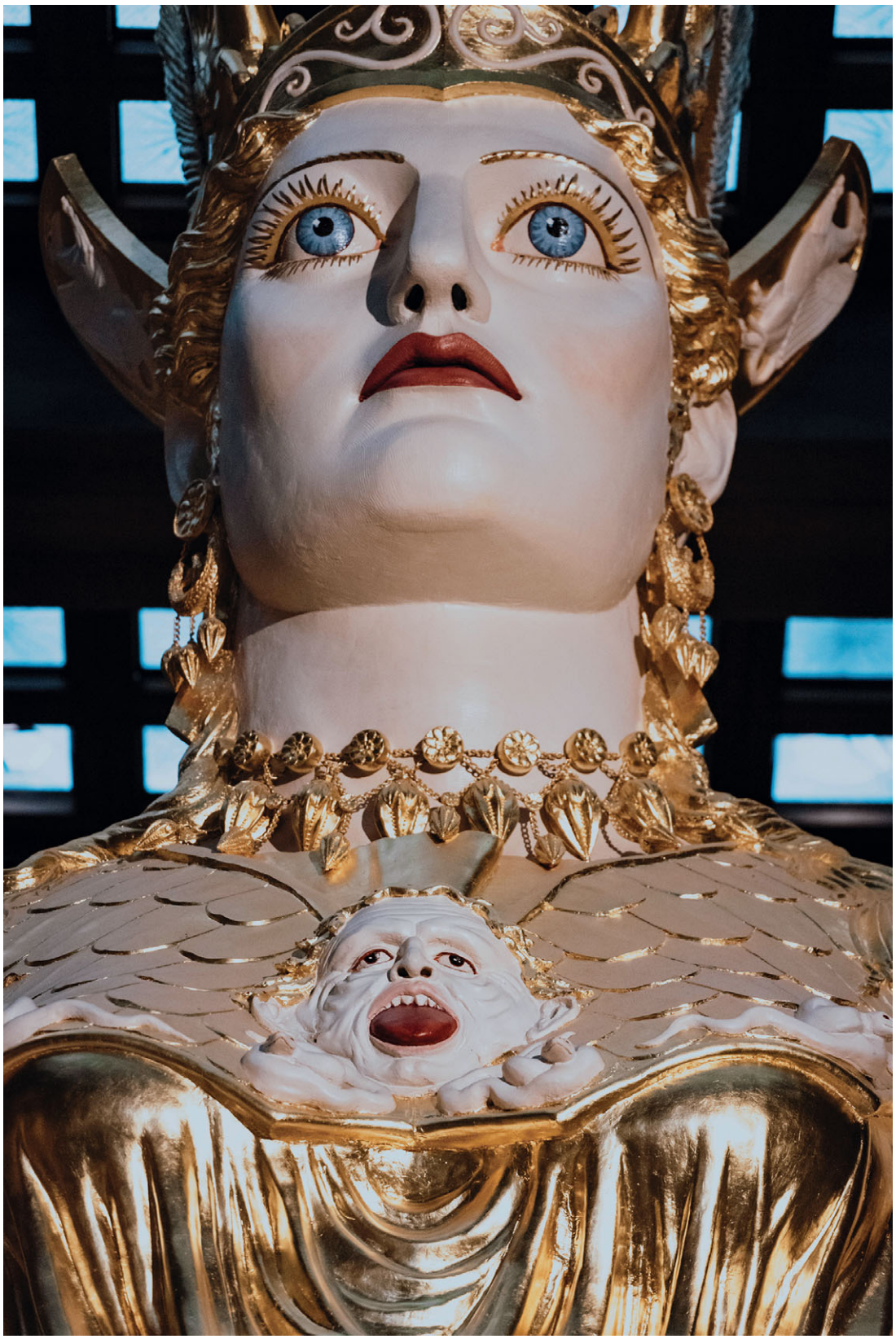


Figure 168 Alain LeQuire, *Athena Parthenos*, detail of head and face, gold, pigments, gypsum cement, Nashville, TN. Photo: courtesy Centennial Park Conservancy by Nathan Zucker

In the decades after the Centennial, the Nashville Parthenon, like the Parthenon in Athens and Fournier's mosaic iteration on the outside of the Grand Palais, stood empty. More than eighty years later, the city commissioned sculptor Alan LeQuire to produce the colossal replica of the Athena Parthenos that now stands inside the Nashville Parthenon. LeQuire's Athena replaced Yandell's, whose name does not appear on publicity for the Nashville Parthenon, having been erased along with the dissolution of her staff Athena. Like Yandell, LeQuire pieced together an iteration of the Athena whose monochrome surface deflects attention from its pieced-togetherness. (Figure 166).

That monochrome Athena stood within the Nashville Parthenon for twenty years, at which time the city crowdsourced the funds to gild and paint the statue, much like Pericles piecing together public money to fund the original "gold statue." The Nashville Athena is painted with different colors and gilding rather than the reported gold plates and luxurious materials of the ancient Athenian iteration; it does not bring back the original so much as form a new polychrome image (Figures 167 and 168). Returning even this approximation of the material colors that would have made up the Athena Parthenos, however, makes visible that sculpture's artistic atomism. It also destabilizes the triumphalist narratives of exceptionalism constructed by the building's and the sculpture's monochrome whiteness. Reconstructing color is not as straightforward as picking up a paintbrush and palette, however we might try to replicate ancient pigments and materials. To see and know ancient Mediterranean color requires entering into the world of material color from which these objects emerged. Recovering color replaces paradigms of universalizing and unchanging formal order with mutable materials and embodied practices. Artists working in the ancient Mediterranean formed and re-formed objects from material colors, producing polychrome assemblages that demanded ongoing care and could be separated into their constituent parts and assembled into new forms. Colors come from, circulate across, interact with, and often return to the earth. As effluences they move through space to engage with the material effluences of others. Seeing, touching, and engaging color traverses media, maps material, social, philosophical, and political connections. In place of immutable order, material color crafts worlds of variegation and communities of relation to offer up protean possibility.

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INDEX

Note: Page numbers in italics indicate figures.