

## CHAPTER 41

# Greek Interior Decoration: Materials and Technology in the Art of *Cosmesis* and Display

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## Introduction

The concept of “ordering” and “adornment” is expressed in Greek culture with the word *cosmesis*. The interior space—be it domestic or public—adapted to architectural features and building functions is transformed into a suitable setting for the human activities that are to occur there; a setting where various movable objects and fixed decorations interact to order and adorn it. The interior space becomes its own closed universe, *cosmos*, combining a variety of materials, textures, colors, and light. To enhance a temple with monumental statues, to adorn a tomb with paintings or a house with mosaics, to display domestic paraphernalia in *gynaecea* (women’s quarters) or bronze armor on the walls of *andrōnēs* (men’s dining rooms), to furnish a king’s residence with sumptuous couches and artworks; these are acts that reflect specific social motivations and cultural behaviors, religious beliefs, political environments, and aesthetic values.

We limit our focus to the fixed elements of interior decoration in ancient Greek domestic space (wall paintings and mosaics), movable artifacts (such as freestanding sculpture and furniture), and panel painting. We shall briefly touch on the interior decoration of Greek public spaces. While the function of architectural sculpture was decorative from its origin, statues and large-scale painting in Greek public buildings assumed religious or civic roles and cannot be considered decorative in the current sense of the word (Ridgway 1971, 337). Likewise, the accumulation, with no primary planning, of countless dedications within public buildings, particularly in temples (although on view for worshipers and visitors), did not reflect a predefined concept for interior decoration. The rich archaeological documentation from private funerary monuments, such as Macedonian chamber tombs, providing indirect but valuable evidence of elements of Greek interior decoration, will also be discussed briefly.

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## The Private Interior Space: Function and Decoration

The mode of decoration of private interiors, which heavily depended on wealth, served to mediate the social identity of its occupants, according to geographical and chronological contexts (Westgate 2000; 2007). Social changes were also reflected in how an interior space was organized and furnished. Houses assumed a multifunctional character, becoming places where both domestic and ritual actions occurred, and their layout was influenced by a combination of practical and aesthetic considerations (Walter-Karydi 1998; Nevett 1999; 2010; Ault and Nevett 2005; Westgate 2010). Most “decoration” was applied to spaces that were accessible, as for example the *andrōnēs*, where banquets occurred. With the exception of figurative painting—whose role in the private sphere seems to have been almost exclusively aesthetic—sculpture, mosaics, and furniture primarily served ritual and practical functions. But how can we define the essential character of an artifact or artwork within its original frame? At which point do the notions of “utilitarian,” “ritual,” and “decorative” merge? Common vessels obviously had purely utilitarian functions, but a collection of metal ware arranged in a *kylikeion* (cupboard) certainly became part of the interior decoration, as well as a display of status. Likewise, simple wooden couches or *diphroi* (stools) in modest houses represented part of the utilitarian furniture necessary for everyday activities, but gold and ivory furniture with elaborate sculptures and glass ornaments found in royal residences, obviously decorative, served as indicators of power and wealth (Brecoulaki et al. 2014; Athenaeus mentions Alexander the Great’s golden *diphros* [*Deipnosophists* 12.539e] and Antiochus Epiphanes’ ivory *diphros* [5.193]). Terracotta figurines have always been used decoratively inside houses, but the practice of setting up freestanding statues in private spaces was established rather late in the fourth century BCE. However, although herms and statuettes of gods contributed to the embellishment of noble houses, their function was mainly associated with domestic rituals and cults (Walter-Karydi 1998, 65–71). Certain forms of fixed decoration, such as mosaics and wall plastering, were primarily practical: bathrooms usually had water-resistant plastered walls; spaces exposed to open air (e.g., courtyards) or those for receiving dinner guests (*andrōnēs*) were often paved with mosaics or cement to protect them from humidity and mechanical damage. However, with the development of sophisticated techniques during the Hellenistic period, aesthetic parameters gradually became increasingly important, to the point where functionality almost became subordinate to decorative and artistic value. Although textual sources recall the decoration of King Archelaos’ residence in Macedonia with paintings made by Zeuxis from as early as the late fifth century BCE (Aelian, *Historical Miscellany* 14.17), and houses at Olynthus feature colored plastered walls, not until the third and second centuries BCE do we find archaeological evidence of private houses decorated with figural wall paintings, signed mosaics, and freestanding marble sculptures, the most elaborate examples coming from Pella and Delos.

The simplicity of a typical household in democratic Athens, and its distinction from elaborate civic buildings, has been suggested from both textual evidence (Demosthenes, *Olynthiacs* 3.25–26; *On Organization* 29; *Against Aristocrates* 207) and archaeological remains of fifth-century BCE excavated houses. This modest way of dealing with the private sphere must have been, in a way, counterbalanced by the city’s commitment to decorating public and religious buildings sumptuously with artworks produced by the most illustrious contemporary sculptors and painters. The Classical Greek house, built

around an open courtyard, with a physical division between *andrōn* and *gynaecon*, seems to have been poorly decorated (Xenophon, *Economics* 9.2–5). The decoration of Alcibiades' house, with its wall paintings, must have been uncommon (Plutarch, *Alcibiades* 16). By the end of the fifth century, however, Aristophanes briefly describes an elaborately decorated *andrōn* with bronze statues and painted ceilings (*Wasps* 1215).

The private display of artwork began to acquire a more decorative character toward the end of the fourth century BCE. The shift to monarchies during the Hellenistic period enhanced the role of private residences and palaces vis-à-vis public buildings, and households served as a means of self-promotion, signaling status and power through elaborate decoration and display of luxury (Kutbay 1998). The earliest and most impressive surviving example, the palace of Aegae in Macedonia, whose great *andrōnēs* could accommodate up to 230 couches, and whose huge courtyard almost assumed the role of *agora* (public meeting place) in democratic cities, marks the transition from a sumptuously decorated private building to a space for public life and political action (Kottaridi 2009). Consider the poet Simonides' words to the tyrant Hieron:

And first, the palace: do you imagine that a building decorated in every way and most expensively could have offered you greater glory and honor than a whole city surrounded by walls and buttresses, decked with temples, stoas and colonnades, harbors and markets? (Xenophon, *Hieron* 11)

Luxurious decorations of late-fourth-century BCE Macedonian chamber tombs offer an illuminating glimpse into the material culture of the Macedonian elite: wall paintings, painted ceilings, purple textiles on the walls, copper, gold, silver, and ivory artifacts, and unusual pigments adorning magnificent couches (Brecoulaki 2006; Kottaridi 2011). Such interiors, even though in funereal contexts, offer tangible evidence of elements of interior decoration, and they illuminate literary descriptions, such as Athenaeus' banquets and the grand Seleucid and Ptolemaic pavilions where *cosmesis* and luxury surpassed the very limits of extravagance (Calandra 2011). The famous pavilion of Ptolemy Philadelphus at Alexandria, with its remarkable collection of panel paintings (Athenaeus, *Deipnosophists* 5.196a–197c), would have probably functioned in the same way as the public *Pinakothēkē* displayed on the Athenian Acropolis. The gemstone collections of Ptolemaic queens, as described by Posidippus (*Stones*, 1.1–4.6), reflected the accumulation of wealth and the social motivation to exhibit it.

## Elements of Fixed Interior Decoration

### *Mosaics and the Art of Pavement Decoration*

A mosaic is almost always connected to the architectural setting and purpose of the building it decorates, providing a smooth, water-resistant walking surface that is easy to clean and maintain. Plain pebble floors are already found in temples of the Archaic period, but the earliest extant decorated mosaics (fifth century BCE) are preserved almost exclusively in private houses, most often in *andrōnēs*. The overall quality and subject matter of a mosaic was determined by the function, size, and shape of the space to be decorated, as well as by personal taste, the house owner's wealth, and choice of workshop

(on workshops: Dunbabin 1999, 269–278). An exception to practical requirements is the fine Hellenistic *emblemata*, picture-mosaics prefabricated in specialized workshops as self-contained centerpieces for floors. *Emblemata* were prized luxury items, and some were signed (e.g., two at Pompeii, signed by Dioscorides of Samos: Dunbabin 1999, 32, 43, 271–272). The application of mosaics to walls and vaults is a Roman invention.

The choice of materials relied on chronology, geography, the personal style of a workshop or individual decorator, and the patron's level of affluence. Often, however, new materials were introduced as techniques were developed. Nonetheless, certain standard materials and application techniques endured from the earliest geometric pebble mosaics to the most refined Hellenistic figured scenes. Vitruvius (7.1) gives detailed instructions (Dunbabin 1999, 279–303; ROMAN INTERIOR DESIGN for further discussion of mosaic preparation and execution). Evidence attests the detailed planning of mosaic designs: lead stripes for outlining bands, colored preparatory drawings or incised preliminary guidelines on the *nucleus* to create grids, and careful measurements (a representative example of incised preliminary guidelines is attested on a Hellenistic mosaic from Samos [Gianoulli and Guimier-Sorbets 1988]). Red preliminary sketch lines are visible in places on the Hellenistic “Rape of Helen” mosaic in Pella (Petsas 1965, 44). Also attested are detailed full-colored preliminary drawings for the production of complex mosaics, executed on the lime bedding to guide the placement of colored tesserae (pigments such as Egyptian blue, hematite, and carbon black have been identified; Smirniou et al. 2010). The finished floor had to be ground with grinding stones and abrasives (Dunbabin 1999, 288). At a final stage, a thin lime stratum or marble dust could be spread over the surface to fill the tiny gaps left between the stones. Mineral pigments, usually composed of red or yellow ochres (iron-oxide-based minerals), could eventually be added to this final lime stratum. The use of applied color over the surface of stone tesserae has also been reported in a few Hellenistic mosaics at Delos and Ephesus (Guimier-Sorbets 2007).

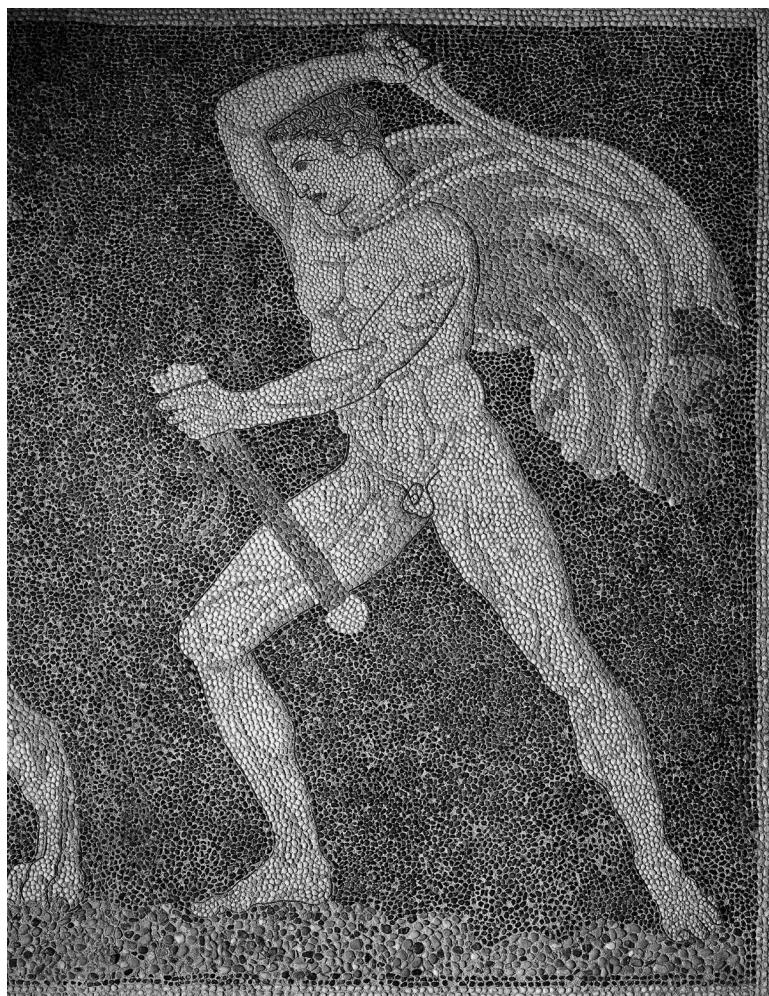
The earliest decorated pavement mosaics in Greece (late fifth century BCE) are made with smooth natural white and black pebbles, 1–2 cm (0.4–0.8") thick, set in a bed of lime-based plaster. The designs are usually laid in white against a dark ground. Most of the floors are bichrome, but occasionally colored stones are used: mainly yellow, red, and green randomly dispersed on the background, and less often to mark figural details. The mosaic from the Centaur Bath in Corinth (late fifth century BCE) is the earliest example of the random use of colored pebbles (Williams and Fisher 1976, 109–115, plates 13,14). The largest number of mosaics from this early period comes from the New Town at Olynthus in Eastern Macedonia. Other examples are found in Attica (Athens), Euboea (House of the Mosaics at Eretria), and the Peloponnese (Corinth and Sicyon). The basic ornamental motifs are meanders, floral and vegetal elements, concentric circles, and circles divided into quadrants to form wheel patterns. The border patterns also include wavebands, scrolls, palmette friezes, and rows of triangles, motifs also frequent in contemporary architectural decoration and vase painting. Figurative scenes are used less often to form friezes, usually with rows of animals or imaginary creatures. More complex figural compositions decorate mosaic central panels, the finest examples of which are from the House of the Mosaics at Eretria and the Villa of Good Fortune at Olynthus. An evolution toward more realistic rendering is traceable in certain conventional motifs, such as scrolls and certain more complex floral compositions, which acquire more plasticity and a three-dimensional effect that would be fully explored during the early Hellenistic period (the

examples at Sicyon are representative). Floral motifs and vegetal ornaments of extraordinary richness and vividness—recalling the “flowery floors” of the house of Demetrius Phalereus (*Athenaeus, Deipnosophists* 12.542)—reflect the progressive accumulation of pictorial acquisitions to produce naturalistic effects. The best-preserved examples include the mosaic of the Palace at Aegae, with its elaborate female *protomai* ending in scrolls at its outer corners (for recent photos in color, see Kottaridi 2009, 135–137), and the signed mosaic by Gnosis at Pella with its laborious floral compositions (for recent photos in color, see Lilimpake-Akamate 2011, 153–154).

Only at the end of the fourth century do we see mosaicists attempting to imitate the achievements of painting in figural scenes. At this time, new techniques in setting the stones and sorting pebbles were developed (rendering details with small pebbles and employing shading to model figures with more naturalism and evoke depth), and new materials were introduced. Stripes of terracotta and lead, together with colored clay beads, delineated figures and interior facial details, and they introduced a greater range of colors and gradations. The most representative examples of this development can be observed in the pictorial mythological scenes in large houses at Pella, such as the “Rape of Helen by Theseus” or “Dionysus Riding a Panther” (Figure 41.1). In elaborate hunting scenes, figures exhibit extreme plasticity and detail, pushing the laborious natural pebble mosaic technique to its limits (Figure 41.2). Although pebble mosaics continued to be produced during the third and second centuries BCE, their overall quality progressively declined. The *opus tessellatum* technique, using regularly sized tesserae of stone and glass, opened up opportunities for more realistic rendering of decorative motifs and figure scenes.



**Figure 41.1** Pella, aerial photograph of the House of Dionysus with the restored peristyle in the north courtyard. *Source:* Universal Images Group/Universal History Archive/Getty Images.



**Figure 41.2** Pella, detail of the mosaic decoration on the floor of the symposium hall in the House of Dionysus depicting a lion hunt, 325–300 BCE. *Source:* De Agostini Picture Library/A. Dagli Orti / Bridgeman Images.

Mosaics composed of tesserae (near-cubic pieces), appearing during the early Hellenistic period, offered a wider range of possibilities for precision and enhanced polychromy, and they allowed for more ambitious images. Transitional mosaics show both techniques: pebbles and rough marble chips (e.g., mid-third-century BCE mosaics at the temples of Zeus at Olympia and Sparta). Fine examples of the mixed technique come from Ephesus and Alexandria (Guimier-Sorbets 2004), a high-quality third-century BCE production center. The “Stag Hunt by Three Erotes” shows a sophisticated combination of tesserae with small pebbles, heralding more advanced experimentation with small regular tesserae. Among the masterpieces of this fully developed *vermiculatum* technique is the “Personification of Alexandria” from Thumis (Daszewski 1985, 146–158). Tiny fragments of colored stones were juxtaposed to create an optical fusion

when seen from a distance, as if of fine strokes of paint. Bright reds, purple, and gold revive the palette. And a variety of earthen hues allow for the naturalistic rendering of flesh tones and facial features. The artist's signature, Sophilus, remains, and the mosaic's high pictorial quality suggests that it was probably copied from a pre-existing painted prototype. The school of Pergamum is also distinguished by remarkable and colorful combinations of glass and minuscule stone tesserae, exhibiting *trompe l'oeil* realism, as on fruit and flowers, garlands, and figured scenes with comic masks in rooms from Palace V. However, the largest corpus of Greek mosaics (second to early first century BCE) comes from Delos, where 354 mosaic pavements exhibit a notable variety of techniques, decorative motifs, and figured subject matter (Bruneau 1973). Pebble mosaics, chip mosaics of whitish marble, mosaics using ceramic fragments, and tessellated mosaics in the *opus tessellatum* and *vermiculatum* techniques with tiny stone, glass, and faience (glazed ceramic) tesserae, are all attested in lavishly decorated Delian houses. Among the rich repertory of geometric motifs, *trompe l'oeil* cubes represent a characteristic trend of Delian pavement decoration. Fine *opus vermiculatum* technique was used for figured mosaics in the House of Dionysus and the House of the Masks. A winged Dionysiac *daimon* riding a tiger is among the finest examples, combining "pictorial" possibilities with an extraordinary wide range of colors, employing not only natural stones and terracotta, but also glass and faience tesserae, particularly for blue and green hues (Guimier-Sorbets 2007; Figure 41.3). The use of colored pigments in mortar was used to mask the interstitial joins between fine tesserae and to suggest pictorial effects more convincingly, while the occasional superimposition of a paint layer on the top aimed at enhancing



**Figure 41.3** Delos, mosaic emblem from the House of Dionysus. Detail of the head of the winged god, second century BCE. *Source:* Hervé Champollion/akg-images.

the vividness of colored tesserae. The culmination of fine *opus vermiculatum* technique toward an increasingly pictorial rendering in large narrative compositions is reflected in second-century BCE masterpieces: for example, the “Alexander” mosaic from the House of the Faun in Pompeii (Moreno 2001), a transfer into stone of an earlier Hellenistic panel painting, showing extreme technical virtuosity in both the formal treatment of figures and coloristic effects.

Recent studies stress the color alteration of glass and faience tesserae in Hellenistic mosaics and the importance of color reconstruction for correctly appreciating the original polychromy (for the alteration of purple tesserae into gray on the Alexander mosaic: Guimier-Sorbets 2010).

The use of colored pigments is attested within mortar, to mask joins between tesserae, and to enhance the colors of tesserae with superimposed layers of paint. However, in certain cases paint was also used directly on white tesserae to depict geometric motifs. And painted floors, executed exclusively with mineral pigments, have survived. In most cases, painted floors were monochrome, and pigments were directly mixed with mortar.

### ***Mural Decorations: Masonry Style and Figural Painting***

The earliest literary evidence of painting in a domestic context relates to Alcibiades (450–404 BCE), the notorious Athenian general who “imprisoned” the painter Agatharchus in his house until he had adorned it with paintings (Plutarch, *Alcibiades* 16). We also know that a painter named Theophilus from Alexandria, active 300–250 BCE, received orders to paint murals and *pinakēs* for houses (Nowicka 1984). However, no large-scale figurative paintings from Greek interiors have survived. The only (extant) type of mural decoration consists of colored plaster, small-scale painted friezes, and applied stucco in various degrees of elaboration and complexity. The most common and widespread system of mural decoration was based on the so-called Masonry Style, imitating ashlar masonry walls, typically consisting of a socle zone, orthostates, the decorative string course, the main wall area, an upper zone, and a cornice band. The suggestion of volume was obtained with the use of three-dimensional plaster motifs. The structural elements of this style recall those of the Classical Greek orders. And various lapidary textures—marble, alabaster, and colorfully veined or mottled stones—were reproduced with illusionistic painting. The orthostate and isodomic zones of smaller blocks were delineated by incised lines or modeled in plaster relief and drafted margins. This method of decoration probably appeared in Greek houses sometime during the end of the fifth century BCE (Walter-Karydi 1998, 33), adopting decorative schemes and aesthetic ideals that had already been applied in the design of temples and other public buildings of the Classical period. The morphological principle of Masonry Style wall decoration became standard in elite domestic mural decoration through the Hellenistic *koinē* with specific regional traits and variations, requiring trained craftsman and expensive pigments.

Only poor evidence of early polychrome mural decorations survives in domestic contexts. The Olynthus excavations have brought to light many houses with painted plaster dating to before the mid-fourth-century BCE, but only a few walls are preserved with a height greater than 1 m (3.2'). A floral frieze was found in the House of Many Colors, and a painted garland was found in House BiV. The wall paintings at Olynthus were divided into three main categories: monochrome walls; walls with multiple horizontal divisions; and elaborate five-zone schemes, similar to the well-preserved interior of

the tomb in the west ridge. In the late-third-century House of the Colored Plaster at Pella (for recent photo in color: Lilimpake-Akamate 2011, 112), large parts of the wall feature a colorful five-zone architectural decoration (Figure 41.4). The orthostates are white, separated by vertical bands of red, black, and yellow. Above this is a zone of faux marble panels, a string course of ochre panels framed with relief moldings, and an upper part divided by low-relief white pillars, suggesting the illusion of openings to allow light and air in the rooms (for an example of a wall with actual columns in Eretria, see Reber 2007). There are no figured friezes from domestic contexts in Macedonia, but domestic



**Figure 41.4** Pella, two-story façade in stucco and painting decoration of an interior wall from the so-called House of the Plaster, late fourth/third century BCE. *Source:* Carole Raddato.

architecture is producing an increasing body of wall decoration (faux marble panels have been preserved at a Hellenistic house at Petres, Florina: Adam-Veleni 1998, 59, figures 35–38). A house at Amphipolis, second century BCE, decorated in the Masonry Style, features large-scale painted lozenges on orthostates with alternating colors, stucco cornices, and garlands with Erotes (Ginouvès and Akamatis 1994, 103, figures 92–93). A figured frieze depicting a chariot race with a winged Nike as charioteer was found in a house on Rhodes, presumably third century BCE, and a narrow frieze, featuring Erotes on tendrils, is preserved in a Late Hellenistic house at Knidos. Other examples of mural decorations survive sporadically from Hellenistic domestic contexts in Athens (Wirth 1931, plate 20.1), Macedonia, Crimea (Panticapaeum), Pergamum, Alexandria, and the Near East (Wulf-Rheidt 1998). However, the best-preserved corpus of Masonry Style decoration comes from the late-second-century BCE houses at Delos.

The standard decorative arrangement of major rooms in Delian houses replicate stone masonry by using different architectural elements in painting and stucco. The plinth and orthostates are monochrome, usually red and black, respectively. Drafted panels above the orthostates are usually rendered in solid colors or faux marble. Pictorial friezes, to emphasize the string course, constitute the major center of interest (Bruno 1969, 3, 5), subdivided into two major categories: those with decorative repeated motifs, and those with original narrative scenes (Hadzidakis 2003, 214–223). Molded bands separating distinct zones bear various geometric and floral motifs, lesbian cymatia, broken meanders, and wave patterns (Bezerra de Meneses 1970, 161, figure 117). The use of double- or triple-pattern bands below the figured frieze is a common feature on Delos. Sometimes only one band appears above and below the figured frieze, as in the courtyard of the House of the Comedians (Bezerra de Meneses 1970, 152, figure 108). In the House of the Tritons, several pattern bands appear above the isodomic zone (Bezerra de Meneses 1970, 62, figure 118). The color sequence of the usual isodomic course above the frieze is typically monochrome, either red or white. Decoration of the wall's upper zone was sometimes copious and complex. In the House of the Comedians, the blue upper zone is reconstructed with stucco affixes of palmette and lion heads (Bezerra de Meneses 1970, 154, figures 110; 1987, 78, figure 1), while the upper zone of the walls in the House of Dionysus was decorated with Ionic half columns in stucco with molded dentils, triglyphs, and metopes (Bulard 1908, plate 6a).

During the Classical and Hellenistic periods, the techniques of wall plastering for monochrome surfaces or backgrounds for wall paintings usually relied on the application of successive layers composed of lime and various inert (sand, crushed marble) and/or hydraulic aggregates (volcanic earths, crushed bricks). Local workshops often show particularities in the application of plaster, and they utilize aggregates from local minerals. Organic additives such as straw, plant fibers, or animal hair were occasionally employed to enhance the plaster's mechanical properties and reduce lime's contraction during setting. The number of layers, their thickness and consistency, the ratio and nature of their ingredients, and finally the modes of application (with or without polishing) determined both the durability and the final appearance of the plastered surface. A thin layer of lime wash applied by a brush (whitewash) was often superimposed on top of the final layer of *intonaco* to achieve a smooth support for painting (ROMAN INTERIOR DESIGN).

The Delian houses offer the best-preserved evidence of Hellenistic domestic mural decoration, allowing us to document the entire stratigraphy of the plaster layers and to study the technology of their wall paintings (Kakoulli 2009, 33, 92–105). In the House

of the Comedians, five different plaster layers have been revealed. The first rough layer consisted of a pinkish mortar containing lime, quartz, calcareous aggregates, and large terracotta shards (1–3 cm [0.4–1.2"] thick). Over this thick layer, two layers of lime plaster mixed with crushed brick were superimposed, and a third was composed of pure lime and crushed (possibly Parian) marble fragments (thickness: 0.5 cm [0.2"] each). The uppermost plaster layer was also composed of lime and finely ground marble. Iron-based pigments (red and yellow ochre) were mixed into this final layer to obtain the wall's monochrome surface. Vitruvius (7.3.5–7) and Pliny (*NH* 35.174–177) describe the components and application of plaster, the importance of multiple layers, and the recommended use of potsherds or crushed marble to ensure the brilliance of the top surface.

The painting could be applied to walls either by the *fresco* (pigments applied on a fresh plaster) or *secco* technique (pigments mixed with organic binders, applied on a dry wall; ROMAN INTERIOR DESIGN). The identification of organic binders in the paint layers of Hellenistic funerary paintings—such as egg, animal glue, tragacanth, and fruit tree gums (Brecoulaki 2006, 400–405)—has confirmed that the most common painting technique was the *tempera* (*secco*) method. The gamut of pigments used by late Classical and Hellenistic painters on wall decorations consists of a series of natural and artificial materials of mineral or organic origin, as reconstructed from funerary monuments, especially from Macedonia. The most frequently applied pigments in ancient Greek mural decorations include iron-based ochres of various hues (yellow, brown, and red), calcium carbonate white, carbon black, and Egyptian blue. Other less commonly identified pigments, which may also come from regional mineral sources, include copper-based greens (malachite, conichalcite, atacamite), serpentinite, cinnabar, orpiment, jarosite, madder lake, murex purple, and lead white (Brecoulaki 2006). Systematic investigations of the painting materials of domestic mural decorations in Greece have thus far only been conducted on the Delian houses (Kakoulli 2009, 92–105). Several pigments were employed to produce various colors, as identified in the Delian wall paintings. For red, orange, brown, yellow, and pink, the painter used iron-based ochres (goethite, limonite, and hematite), jarosite, and cinnabar, either pure or mixed with red ochre. Egyptian blue was applied either in single paint layers, or on top of a layer of carbon black. To produce greens, painters employed Green earth (celadonite, an iron-based green which seems to have been progressively substituted for costlier copper-based greens used in the fourth and third centuries BCE). Kaolinite, a white clay, also evident as a white pigment, was found in mixtures with red ochres. The application of pigments in successive paint layers, on top of colored backgrounds, suggests the *secco* technique. Bruno (1969; 1985) has observed mature artistic expression in both the three-dimensional rendering of floral motifs and the illusionistic suggestion of depth and light in compositions with a narrative interest, as in the “Frieze with the Actors,” emphasizing the role of color and *trompe l’oeil* techniques in establishing pictorial formats which break with the conventional uses of flat backgrounds as abstract fields of color.

Although literary evidence attests domestic ceiling decoration (Walter-Karydi 1998, 54–55), archaeological evidence in Greece is limited, contrary to the more abundant documentation from Hellenistic funerary monuments and Roman-era houses (for a recent overview: Meyboom and Moormann 2013, 110–144). Delian houses again provide interesting, although fragmentary, insight. Fragments of painted plaster (found

in the first-floor rooms in the House of Seals and the House of the Sword) facilitate the restoration of patterns of bands surrounding a quadrangular field, evoking carpets stretched on the ceiling. These decorations are richer (costly pigments, gold leaf) and more complex (some fifteen motifs) than those in contemporary tombs, adopting the same “carpet” composition whose patterns are borrowed from textiles. Particularly light materials were usually employed in ceiling painting. The lower plaster was not applied to the flat wall surface, but rather on a brushwood or bulrush network, affixed to a wooden ground. Instead of the heavy sand plaster, a lighter lime-based plaster was preferred, applied on a layer of rammed earth.

## Movable Artworks and Artifacts

### *Panel Painting*

In his discussion of ancient painting, Pliny reports that famous painters, such as Apelles, never painted on house walls, which would likely be destroyed in fire, but only on panels (*pinakēs*: *NH* 35.118). Indeed, panel paintings must have represented a highly valued interior decorative feature in elite houses of the Classical and Hellenistic periods, while small pictures of cultic character were probably hanging on the walls of modest domestic rooms, like those depicted on red-figure vases (Walter-Karydi 1998, 50–51). According to Aelian, the renowned painter Zeuxis was hired by King Archelaus of Macedon to decorate his palace at Aegae with paintings (*Various History* 14.17), and Ptolemy Philadelphus collected drawings and paintings from the Sicyonian school (Plutarch, *Ara-tus* 12.5; 13.4); drawings and paintings also decorated the walls of his famous pavilion at Alexandria (above, §2). Although no panel paintings are preserved from the Classical period and the few fragments of painting on wood come from the interior of Hellenistic tombs (Kottaridi 2011, 106–107), the important corpus of large-scale wall painting from Macedonia offers direct testimony to the probable appearance of the panel paintings by great masters. On the façades and interiors of Macedonian funerary monuments (fourth to second centuries BCE), painters tackled the challenge of realistically rendering human figures with complex composition and sophisticated use of line and color. It is particularly interesting that, although surviving paintings are all executed on walls or stone, their technical background relies on the practice of panel painting. This is evident in the use of organic binders, attesting *secco* and tempera techniques, and the application of color in sophisticated mixtures and superimpositions of paint layers, often reflecting dependence on pre-existing panel painting originals (as, for example, in the tombs of Philip II at Aegae and the so-called Tomb of the Palmettes at Mieza: Brecoulaki 2006, 122–123, 185–192).

The only extant ancient Greek painted panels are the four Archaic *pinakēs* found inside a cave at Pitsa in Corinthia. Although their character is votive, we may presume that similar *pinakēs* must have also been hanging on the walls of domestic rooms. Technological investigation of these *pinakēs* reveals interesting information on painting materials and techniques (Brecoulaki 2014). The texture and color of the panels resemble pine, which, along with fir, was used for writing tablets and painters’ panels (Theophrastus, *HP* 2.9.7, 5.7.4; children took lessons in drawing on boxwood: Pliny, *NH* 35.77). The Pitsa *pinakēs* were covered with a thin white ground of gypsum, as a substrate for the

paint layer (*gesso*). The painter did not rigorously follow incisions that marked the preliminary design. Paint was applied directly on the ground to shape bodies with carbon black or red (cinnabar) contour lines. Egyptian blue, red ochre, and realgar (an arsenic sulfide) were originally included in the painter's palette.

### *Freestanding Domestic Sculpture*

Domestic statuary appeared from the mid-fourth to late first centuries BCE as another cultural expression of status (Walter-Karydi 1998, 65–71). Its primary venue was in courtyards or near *andrōnēs*. Sculptural display, as a reflection of prestige and wealth, is clearly evoked in literary sources, especially in the domestic context of Hellenistic rulers. In the pavilion of Ptolemy II Philadelphus, 100 statues created by famous artists were displayed in the large dining room (Calandra 2011), while in the pleasure boats of Ptolemy IV Philopater and Hieron II of Syracuse, Parian marble portraits of the royal family and statues of Aphrodite and Dionysus decorated the *andrōnēs* and private shrines (Athenaeus, *Deipnosophists* 5.205d–207e). Recent studies based on archaeological evidence stress the complex relationship between sculptures and their display context (only a few statues have been found *in situ*), the associations between public and private sculpture, and statuary as an expression of piety, wealth, and taste (Barrett 2011).

Of particular importance for Hellenistic domestic marble sculpture are Olynthus, Eretria, and Delos, with interesting examples from Pella (marble statuette of Alexander the Great as Pan: Pella Museum, #ΓΛ 43) and Rhodes. The earliest known example from Olynthus is a cult statue of Asclepius found in the entrance to the *andrōn* of house B vi 7. In the House of the Mosaics in Eretria, the plinth of a late-fourth-century BCE nude male was excavated in the courtyard outside room 4. House II yielded another fourth-century example, identified as a youthful Hermes, originally belonging to a herm. Hermes in houses are documented in red-figure vase painting (Walter-Karydi 1998, 68). And, in domestic contexts, herms were crowned with wreaths (Athenaeus, *Deipnosophists* 11.460e; Theophrastus, *Characters* 16.10; on herms, Wrede 1986).

Delos yields the largest corpus of domestic sculpture from the Hellenistic period. Approximately 260 statues, portraits, and reliefs have been documented so far, allowing us to investigate the types and functions of second-century BCE domestic sculpture, their display and artistic quality, and the cultural background of the house owners (Hardiman 2005, 191–242). In the courtyard of the House of the Herm (Figure 41.5), an impressive group of over thirty sculptures was found: Aphrodite, Artemis, the head of a satyr, a Heracles Farnese, herms, and numerous sculptural fragments and statue bases, including one with an inscription citing famous sculptors (Marcadé 1969). More herms, portrait statues, and fragmentary statues of men and women (possibly representing deities) were found in the House of the Masks and the House of Dionysus in the Theater Quarter. Two dedicatory statue portraits were found *in situ* at the House of Cleopatra and Dioscorides, where an inscription reveals that the owners were of Athenian origin (Marcadé 1969, 325–328; Figure 41.6). A sculptural group of Artemis slaying a deer was found in House Th III S, in the southern section of the Theater Quarter (Marcadé 1969, 218–219), and a total of nine sculptures in the House of Diadoumenos—perhaps a workshop (Marcadé and Hermary 1996, 82–83, 110–111, 192–193).



**Figure 41.5** Delos, the House of the Herms laid out in four different levels, second century BCE.  
Source: John Hios/akg-images.

Marble carving techniques remained static from the Classical to Hellenistic periods. The major early sources of white marble were the Cyclades, mainly Naxos and Paros (see Hertz and Waelkens 1988; CLASSICAL GEOLOGY AND THE MINES OF THE GREEKS AND ROMANS). Translucent “lychnites” marble from Paros was already exploited by the sixth century BCE and still preferred for statuary until Roman times. The marble of Mount Pentelikon in Attica was widely used both in architecture and sculpture. Mt. Taygetus in Laconia and Mount Hymettus near Athens provided gray marble for sculpture, the latter being particularly popular during the Hellenistic times.



**Figure 41.6** Delos, statues of Cleopatra and Dioscorides with dedicatory inscription on the statue base, House III.I, second century BCE. *Source:* Shutterstock/Evgeny Shaparin.

The process of carving is often reconstructible through tool marks on unfinished sculptures (on marble carving techniques and tools: Palagia 2006). To develop a sculpture, the Greek craftsman carved the marble directly without a model, or with the aid of models in soft materials such as wax or clay. The essential carving tool was the mallet,

used to strike the chisel or other tools, and modeling usually started with claw chisels of various sizes, as multiple gouging surfaces produced parallel lines in the stone. Finer modeling was achieved with flat and rounded chisels. A great range of drills (stationary and running) were used for cutting grooves, boring holes to insert various elements into the marble or metal, and indicating facial features, such as nostrils or ears. Tool marks were removed from the final surface with rasps (flat tools with coarse surfaces), and rasp marks were consecutively rubbed off with abrasives (pumice from Melos and Nissiros [Theophrastus, *On Stones* 21–22] and emery from Naxos [Pliny, *NH* 36.52, 54]). A protective coat of wax and olive oil was applied to unpainted nude parts of marble statues (Vitruvius 7.9.3), a process called *ganois*, but the same treatment could also be applied on top of painted surfaces to protect them and enhance their hues. Painting was usually applied with tempera or encaustic techniques, with the aim of intensifying the shapes and volume of carved elements by accentuating the effects of light and shadow, coloring facial features (eyes, eyelashes, lips, and hair), or even painting accessories (Brinkmann et al. 2010). Gold leaf was also used occasionally for jewelry, garments, and hair, or to simulate the shine of bronze when applied all over a nude body. Added materials (bronze, lead, stucco, colored stones, glass, and ivory) were used to indicate various accessories or facial features (in particular, locks of hair and eyes). Additions in stucco and wood were common in the Hellenistic period, especially in regions poor in marble, such as Egypt.

Unfinished fragments of Delian sculptures offer interesting insights into local craftsmanship, and they enrich our knowledge of Hellenistic techniques. It was a four-step process, consisting of roughing out the piece with a point, facetting with a flat chisel, carving details with a drill, and finally polishing the surface. Delian sculpture is particularly characterized by composite carving, wherein two pieces with different physical characteristics (color, grain, and texture) are pieced together, a technique primarily employed to create statuettes from multiple fragments. White marble was used for nude parts, and gray marble was chosen for draped portions. However, differences in marble hues were rarely evident, since the entire finished sculpture was recovered with thick polychrome paint layers, masking the heterogeneity of the marble pieces. The adoption of such a procedure probably served economic requirements: gray marble was certainly less expensive than white. This rather unusual practice was applied to Classicizing types that were mixed with realistic features. The closest parallels for this composite technique come from Cos, where a few statues were carved using the same method (Jockey 1999).

The Delian statues are also the best testimony to the original polychromy. Indeed, color must have played a prominent role in catching the viewer's eye and directing it to the space adorned by the sculpture. Recent 3D reconstructions considerably enhance our understanding of the original (vivid) visual effects that polychrome statues would have produced (Bourgeois and Jockey 2010, 235–238, figure 188). Statues were examined under ultraviolet light. UV-fluorescence photography then documented the areas that preserved fluorescent pigments. A detailed surface examination using a video microscope tracked the remains of paint layers and studied their texture and modes of application. Layers of the painted and gilt areas were subsequently analyzed with *in situ* X-ray fluorescence spectrometry (XRF) and, on a dozen samples, destructive analyses were conducted at the laboratory to further investigate paint layers and organic pigments and binders (Bourgeois and Jockey 2010).

Very few examples of bronze statues in domestic contexts have survived. A series of twenty-one small bronze figures uncovered in Eretria, attesting the wealth of the area's decoration, have been interpreted as evidence of Hellenistic domestic religious practices. Most ancient Greek bronze statues were made using the indirect casting method, wherein the original model is preserved (see Mattusch 1988). Bronze Hellenistic statuary is rare, and only a few pieces have been technically examined. The technological examination of the "Horse and Jockey Group" from Artemision has revealed interesting insights into the combined manufacturing methods of large-scale Hellenistic bronze statuary (Hemingway 2004). Current research on the polychromy and patinas of bronze Greek statues further enriches our knowledge of the use of pigments and metal alloys in facial features—that rendered large-scale Greek bronze statues more realistic (Descamps-Léquime 2006).

### ***Furnishings and Furniture: From Functionality to Luxury***

So much of ancient Greek furniture and textiles has vanished because of the fragility of their organic materials (TEXTILE TECHNOLOGY). In fact, the surviving archaeological evidence does not allow full appreciation of the aesthetic impact of the colorful textiles that once decorated elite Greek houses (essential banquet paraphernalia included cushions, bedcovers, curtains, rugs, and wall hangings of wool, linen, or leather), much less the variety and degree of elaboration of its furniture (Richter 1966; Andrianou 2009). Providing important insight into late-fifth-century BCE household equipment, the so-called "Attic Stelai" records the confiscation and public auction of the property of Alcibiades and his friends, following the notorious mutilation of the herms in 415/414 BCE. Cost evaluation of the furniture and other objects suggests that rich Athenians had little sense of personal luxury (Walter-Karydi 1998, 82). Although Greek houses in general were simply furnished with primarily functional objects for comfort (bed-couches, low tables, armchairs, chairs, and stools) or storage (boxes, chests, cupboards, shelves, and sideboards), luxurious domestic settings, with a rich gamut of precious furnishings and elaborate furniture, were equipped by Hellenistic kings and tyrants (Aelian, *Historical Miscellany* 14.17; Athenaeus, *Deipnosophists* 12.538d). Dionysius I of Syracuse is said to have had decorated the dining rooms of his palace and pavilions at Olympia with tapestries (Polybius 12.24.1–3). Attic vase painting and sculpture from the Archaic and Classical period show furnished interiors in banquet scenes. Important iconographic evidence on the rich polychromy of furnishings and the variety of furniture in a Classical banquet scene is provided by the remarkably well-preserved façade of the Macedonian tomb of Aghios Athanassios in Thessaloniki, late fourth century BCE. Vivid hues of blue, red, yellow, purple, and light green are used for the colorful cushions and bedclothes in remarkable *poikilia*. And a *kylikeion*, displaying metallic phiale on its shelves, is painted in bright red.

Although literary and iconographic evidence allow us to reconstruct a great deal of Greek domestic furniture, only a few domestic pieces have been excavated, while the best-preserved furniture comes from funerary contexts (Andrianou 2009, 22–89). As with textiles, domestic furniture was essentially functional and finely decorated, and elaborate pieces of expensive materials were either dedicated to the gods or belonged to wealthy individuals and Hellenistic rulers. Indeed, we have no direct textual evidence of

furniture displayed in a domestic interior for its design or decoration, with the exception of a display bed in the pavilion of Ptolemy Philadelphus (Athenaeus, *Deipnosophists* 5.197c). In contrast with elaborate furniture (whose production required expert carpenters and craftsmen), simple domestic wooden furniture (seats, tables, beds, shelves, and containers) would have been built by family members (Andrianou 2009, 122). Wood was shaped by carving, steam, and the lathe, and pieces were assembled with mortise-and-tenon joinery, held together by lashings, pegs, metal nails, and animal glue (Richter 1966, 125).

Most Greek furniture was constructed from wood (maple, oak, beech, yew, and willow: Richter 1966, 122). Stone, ivory, and metal were also used decoratively for prestigious pieces: sculpted marble armchairs, richly decorated round stone table-tops with floral and meander patterns, silver *diphroi* (Andrianou 2009, 29), and sumptuous chryselephantine couches from Macedonia. These artifacts testify to the richness of materials and techniques applied to extravagant domestic furniture during the Hellenistic period. Indeed, the outstanding quality of the ivory sculptured compositions on the chryselephantine couches from the tomb of Philip II at Aegae—combining precious pigments, gold leaf, and glass—transform such “functional furniture” into true masterpieces of art (Brecoulaki 2014; Brecoulaki et al. 2014).

## Conclusion

Xenophon lists the conventional constituents of wealth: a house, farm, slaves, cattle, and furniture (*Memorabilia* 2.4.2). And he discourages people from buying more furniture and furnishings than they really need (*Poroi* 4.7). Similarly, after identifying three common personal needs (food, dwelling, and clothing), Plato thinks that there is no point in wanting more (*Republic* 369d). He fears that the *polis'* growing luxury—as painters and embroiders decorate houses with gold and ivory—will generate warfare (*Republic* 373e). Plutarch, in his turn, despising the possession of luxury goods, considers “silver plates” as “unnecessary items” that should be sold off when cash must be raised (*Moralia* 828a). In fact, the history of Greek interior decoration seems to be traced between the “necessary” and “unnecessary”: between the sobriety of the Classical *oikos*, passing through the elite peristyle house, to the extravagant luxury of Hellenistic palaces and pavilions, where the domestic interior was given a visually public character emanating from a change in mentality and a different lifestyle (Walter-Karydi 1998, 84–95). The functional elements of a house progressively acquired a more decorative character, while purely decorative elements, in certain cases, attained the quality of art.

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## FURTHER READING

Nevett 2010 and Ault and Nevett 2005 are valuable sources on Greek houses and households, their function, chronology, and social diversity. Dunbabbin 1999 remains the most comprehensive work on Greek and Roman mosaics. Andrianou 2009 provides a useful up-to-date study on the movable domestic objects in their contexts and new archaeological evidence on the layout of Greek houses. On domestic Hellenistic sculpture, in addition to the seminal work of J. Marcadé 1969 on Delian sculptures, the unpublished thesis of C. I. Hardiman 2005 offers interesting synthesis and interpretation of the archaeological material in connection with its function and contexts. Bourgeois and Jockey 2010 thoroughly explicate the polychromy of ancient domestic statuary in Delos. Three lavishly illustrated volumes on Delos (Hadzidakis 2003), Aegae (Lilimpake-Akamate 2011), and Pella (Kottaridi 2013) offer high-quality photographs of well-known and unpublished artifacts. The exhibition catalog on the Eretria excavations (Pruvot, Reber, and Theurillat 2010) provides an interesting overview of material found in Eretrian houses.