

BRONZEWORKERS  
IN THE  
ATHENIAN AGORA



AMERICAN SCHOOL OF CLASSICAL STUDIES  
AT ATHENS

EXCAVATIONS OF THE ATHENIAN AGORA  
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Front Cover: Two figures stand in front of a tall cylindrical furnace with a lidded crucible on top for melting metal. Athenian red-figured oinochoe, late 5th century B.C.

# Bronzeworkers in the Athenian Agora



Hephaistos, god of metals and of fire, wears  
the metalworker's skullcap and carries a torch.  
Terracotta lamp, 3rd century after Christ

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1982



1. Hephaistos, Greek god of fire and of metals, is shown in his workshop, a hammer in one hand and a bronze helmet in the other. Completed greaves, shield, and spear have already been given to his client. An anvil and a hammer, tools of the metalworker's trade, can be seen to the right. The scene, a fairly common one in Greek vase painting, illustrates a passage from Homer's *Iliad*: "And when the renowned smith, lame in both legs, had wrought all the armor, he lifted it and placed it in front of the mother of Achilles [Thetis]." (*Iliad* XVIII.614-615) Athenian red-figured cup by the Foundry Painter. Early 5th century B.C. Staatliche Museen, Berlin.

## HEPHAISTOS, GOD OF METALWORKERS

The Greek god of metalworkers was Hephaistos, lame but strong armed. Thrown down from Mount Olympos by his mother Hera because he was not perfect like the other gods, Hephaistos sent her a magnificent golden throne, which she thought was a conciliatory gift. But once Hera was seated, she found that she could not rise. Her clever son did not consent to free her from the trap until after Dionysos had lured him back to Olympos with wine, too drunk to object.

The Greeks believed that Hephaistos used volcanoes as furnaces in his underground workshops, where he was assisted by the Cyclopes, a race of giants, and by beautiful golden handmaidens, the first automatons, whom he made himself. Hephaistos wrought many wonders in metal for the gods and heroes: shining armor for Achilles, a carefully wrought scepter owned by Agamemnon, and an invisible net in which he snared his own wife Aphrodite in the arms of her lover Ares, who had incautiously laid aside his armor for the tryst.



2. View across the Agora towards the Temple of Hephaistos, 1957. In antiquity, the slopes around the temple were the site of a busy industrial region. “Chalko: the name of a place where bronze is sold; it is sold where the Hephaisteion is.” *Anecdota Graeca*, I.316.23.

Hephaistos was worshiped with particular devotion in Athens, a city of craftsmen, among them the many smiths who hammered metal and founders who cast bronze. The Temple of Hephaistos, built in the second half of the 5th century B.C. at about the same time as the Parthenon, occupied a position of prominence overlooking the Agora, the city center, to the east. On the gentle slopes around the temple lay a busy industrial region where many metalworkers had their shops. Because of its later use as a Christian church, the Hephaisteion is today the best preserved Classical Greek temple.

Inside the temple stood two bronze statues, one of Hephaistos and the other of Athena, the goddess of the city and a patron of crafts. Sometimes called Athena Ergane (the Worker), she was celebrated with Hephaistos at an annual festival known as the *Chalkeia*. This name derives from *chalkos*, the Greek word for copper or bronze, as does *chalkeus*, the title generally given a bronzeworker.

3. Fragmentary inscription detailing purchases of copper, tin, lead, wood, and charcoal to be used by metalworkers in completing the bronze statues of Hephaistos and Athena and the base on which they stood in the Temple of Hephaistos. Height 0.50 m.

421–415 B.C.



## BRONZE PRODUCTION IN ANCIENT ATHENS

Gold, silver, lead, copper, tin, and iron were all available to Athenian metalworkers. Bronze, an alloy of copper and tin, was known in Greece from around 3000 B.C. onwards. Less expensive than gold or silver and also stronger, it was used for a great variety of objects. The discovery of iron in the early historical period in no way diminished the popularity of bronze. Although softer than iron, it was far more flexible; it could be hammered or cast, and was soft enough to inlay or engrave.



4. Today, as in ancient times, metalworkers' shops abound in the region of the Agora. On Hephaistos Street, one block from the ancient Agora, a pedestrian passes shops that sell a wide assortment of metalwares, such as copper trays, iron farm tools, and brass meat skewers.

5. Bronze statuette of a helmetmaker. Solid cast. Late 8th or early 7th century B.C. Metropolitan Museum of Art, New York.





6. Official bronze weights. The largest is 0.064 m. across.

Many of the metal objects found in the Agora excavations were probably produced in near-by workshops. By far the largest group of such pieces were those made of bronze, either hammered or cast: jewelry (14, 64), mirrors, pins and needles, lamps (16), vases (12), tools, nails and other hardware (61), medical instruments, official weights (6, 7) and ballots (8), coins (13), weapons (10), armor (9), inscriptions, and statuary.

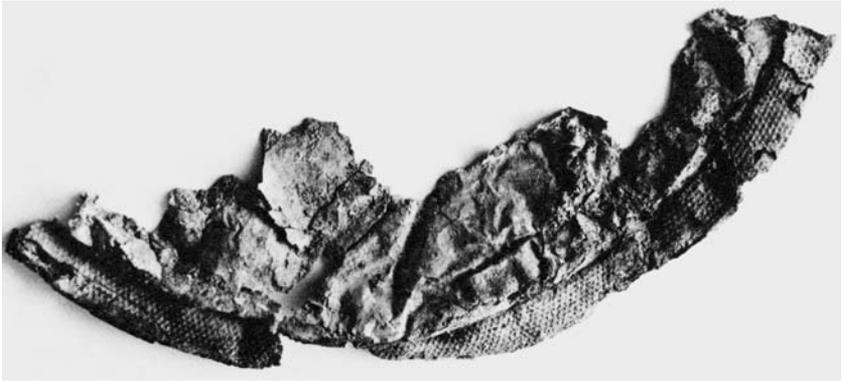
I bind Dionysios the helmetmaker  
 and his wife Artemis the female gilder  
 and their house and their work and works  
 and their life  
 and Kallipos . . .

Lead curse tablet from Athens.

7. A bronze dry measure. Height 0.064 m.



8. Five bronze jurors' ballots. Average diameter 0.065 m.



9. Fragment of a hammered bronze shield, originally 0.90 m. in diameter. First half of the 5th century B.C.



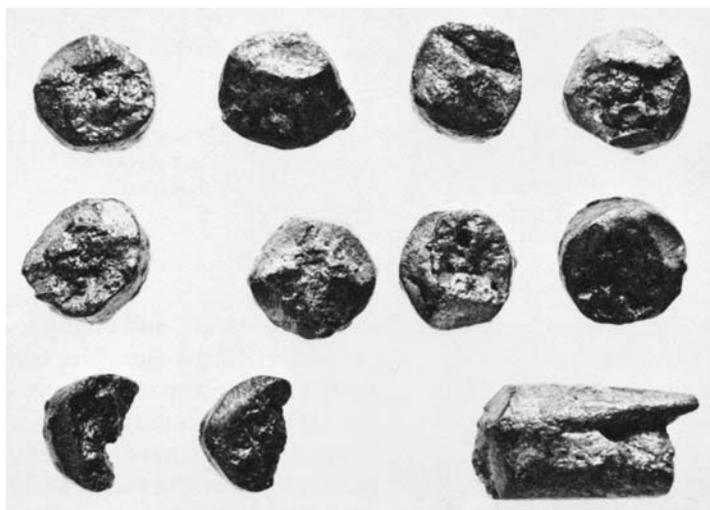
10. Cast bronze arrowhead.



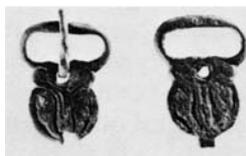
11. Cast bronze candlestick.  
Early Roman.



12. Hammered bronze oinochoe, its base  
weighted with lead. 3rd century after Christ.



13. Hellenistic bronze disks and a rod from which such blanks (flans) were cut, to be hammered flat and then struck with dies to produce coins. Average diameter 0.013 m. The Mint is located at the southeast corner of the Agora, beside the later Church of the Holy Apostles.



14. Cast bronze belt buckles.



15. Cast bronze key.



16. Cast bronze lamp. The filling-hole has a hinged lid in the form of a scallop shell. Rings on the cross above the handle and on the nozzle were used to attach a chain for hanging the lamp. Christian, 5th century after Christ.



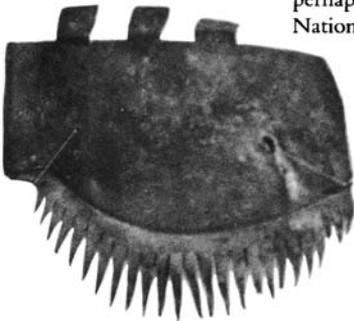
17. Bronze ear and a lock of wavy hair, fragments of two different life-size statues.

## BRONZE SCULPTURE

Statues of gods and heroes, of political and military leaders, and of important citizens played a major role in the life of every Greek city. Not one Athenian bronze statue is intact today, largely because bronze, an expensive commodity in any period, could easily be melted down and re-used for hardware or weapons. Nonetheless, the Agora excavations have revealed a tantalizing array of fragments of bronze statues, from toes to ears to locks of hair. Most of these pieces reveal little about the original appearance of whole statues, nor do they suggest where the works were once displayed. Many of the stone bases upon which these statues once stood have been moved far from their original locations or have disappeared altogether.

Pausanias, walking through Athens in the 2nd century after Christ, described the buildings and monuments that he considered to be the most important. In many cases he did more than simply name a famous work: he identified the artist, or he told the related legend or history. Of the statues in the region of the Agora that Pausanias singled out as being worthy of mention, at least thirty-five were bronze.

18. A colossal bronze eyelash, once set into a statue of perhaps three times life-size. Possibly 6th century B.C. National Archaeological Museum, Athens.



19. A life-size bronze right foot wearing a sandal, from a standing draped female figure. Hellenistic.



20. Life-size bronze hoof, fetlock, and lower part of a horse's left hind leg, probably from an equestrian group.

There are stoas from the gate [the Dipylon] to the Kerameikos, and in front of them are bronze statues of those men and women who had title to fame. . . . In front of the temple [of Apollo Patroos] is one Apollo by Leochares, and another, called Averter of Evil, by Kalamis. . . . Farther up stand statues of heroes, the Eponymoi, from whom the Athenian tribes later received their names. . . . There are statues of gods, Amphiaraos, and Eirene [Peace] carrying the child Ploutos [Wealth]. Here stands a bronze statue of Lykourgos, son of Lykophron, and one of Kallias who, as most of the Athenians say, brought about the peace between the Greeks and Artaxerxes. . . . Near the statue of Demosthenes is a sanctuary of Ares, where two statues of Aphrodite are placed, one of Ares by Alkamenes, and one of Athena. . . . Around the temple stand images of Herakles, Theseus, Apollo binding his hair with a fillet, . . . Kalades, . . . Pindar. . . . Near by stand statues of Harmodios and Aristogeiton, who killed Hipparchos. . . . Two are the work of Kritios, and the old ones are the work of Antenor. In front of the . . . Odeion . . . are statues of Egyptian kings. . . . After [them] stand images of Philip and of his son Alexander. . . . The Athenians also have a statue of Pyrrhos. . . . When you have entered the Odeion, you find a figure of Dionysos worth seeing . . . . As you approach the Poikile [Painted Stoa], there is a bronze statue of Hermes Agoraios [of the Marketplace] . . . .

Pausanias, *Description of Greece*, 1.2.4–15.1.

## PRODUCTION OF STATUETTES

Bronze statuettes were traditionally cast solid, through the simple procedure of modeling a figurine in wax, covering it with a clay mold, burning out the wax (hence the name “lost-wax process”), and pouring metal in its place. Hollow-casting, which provided the means for producing large-scale works, was a skill apparently picked up in Egypt by two artists of the 6th century B.C., Rhoikos and Theodoros of Samos, an island whose seafaring citizens had longstanding trade contacts with the Egyptians. This technical discovery, however, had little immediate effect on established methods, for stone continued to be the usual medium for sculpture throughout the 6th century. Not until the 5th century did artists fully explore the many advantages of using bronze for freestanding statuary and of casting it hollow.



21. Bronze figurines were made in large numbers from the 9th century B.C. onwards and served as grave offerings or as votive gifts in sanctuaries. This small bull (height 0.061 m.) gives only a suggestion of the high quality of the work of Myron, a 5th-century B.C. sculptor who was so famous for the realism of his bronze statues that he was said to have “contrived a cow with his hands which was not formed in molds, but which turned to bronze through old age.” *Palatine Anthology*, II.9.716.



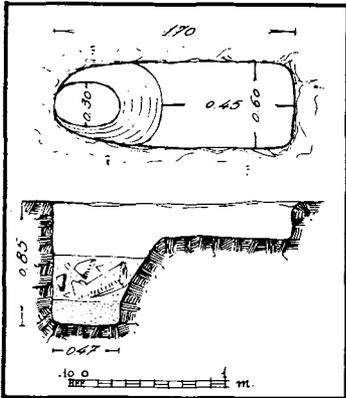
22. Marble statue of a kouros (youth) from Volomandra near Athens. Height 1.79 m. Second quarter of 6th century B.C. National Archaeological Museum, Athens.



23. The foundations of the Temple of Apollo Patroos lie below (here, in front of) the Temple of Hephaistos.

## PRODUCTION OF STATUES

Excavations in the Agora have yielded evidence that reinforces the literary testimonia about the work of Rhoikos and Theodoros. An early bronze sculptor's casting pit was dug in the mid-6th century on the south side of a small temple dedicated to Apollo Patroos, father of the Ionian race. A simple pit in the ground, it nonetheless had the capacity for hollow-casting, and was probably used to produce a bronze cult statue for this 6th-century building.

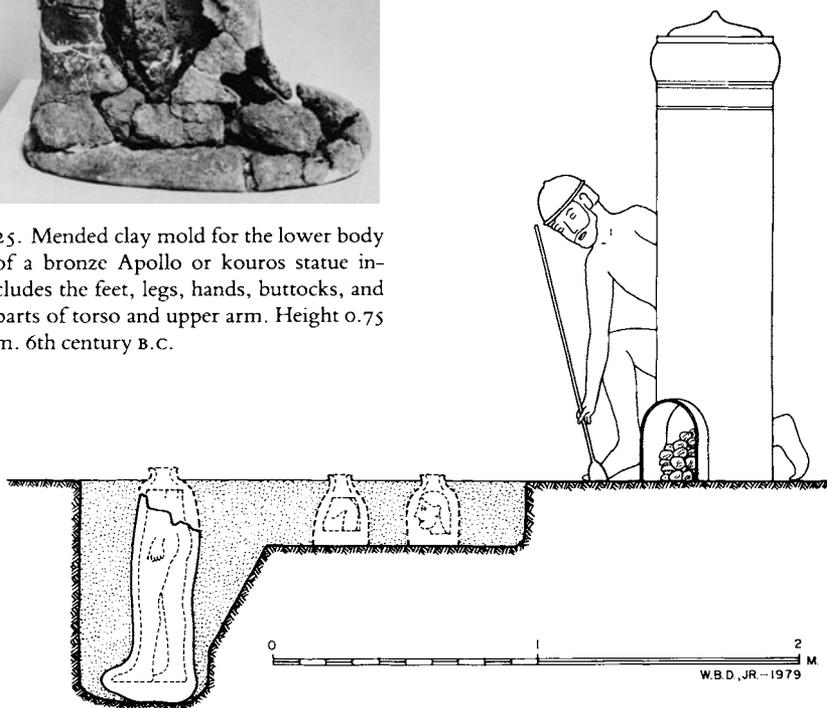


24. A small pit dug in the bedrock beside the Temple of Apollo Patroos served as a workshop for casting the cult statue for the 6th-century B.C. temple.



25. Mended clay mold for the lower body of a bronze Apollo or kouros statue includes the feet, legs, hands, buttocks, and parts of torso and upper arm. Height 0.75 m. 6th century B.C.

The contents of the simple work area next to the Temple of Apollo Patroos constitute the earliest archaeological evidence for the production in Greece of a bronze statue. The pit contained hundreds of fragments of clay molds used to cast a figure two-thirds life-size. These molds, now mended, show that the statue represented either a nude, youthful Apollo or a *kouros*, cast hollow by the lost-wax process.



26. Reconstructed drawing of the work area or casting pit, with the molds packed in the ground, and a founder tending a furnace in which the bronze is heated for the pour.



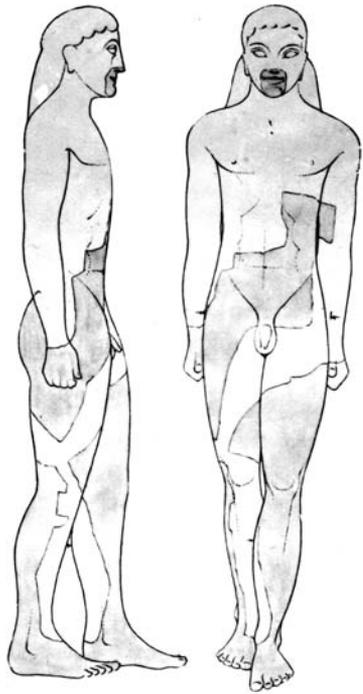
27. Fragmentary clay funnel for receiving bronze into mold. Restored drawing shows pouring channels (gates) through which bronze flowed from funnel into mold cavity.



28. Solidified bronze from a gate.

In casting this large statue by the lost-wax process, the head, torso, and lower body were modeled separately in clay. Each section served as a core, coated with wax which was carved to show the detailed features of the figure, and to which were attached wax gates (pouring channels) and funnels. A coating of clay was next applied, forming a mold which was secured to the core by metal pins driven through the wax. When the wax was melted out by baking in the casting pit, the funnels (27, 37), now hollow, were ready to convey the bronze into the air space between the mold and core. A tall, cylindrical furnace for melting the bronze was erected in the immediate area of the pit to facilitate pouring the heavy and dangerous metal, which reached a temperature of 1000 to 1100 degrees centigrade, and which began to congeal rapidly when removed from the furnace. After the metal was poured and cooled, the mold was broken away and the core removed from each section, leaving a hollow bronze statue in three parts. These were assembled, joints and imperfections repaired, and the surface polished to a high gleam.

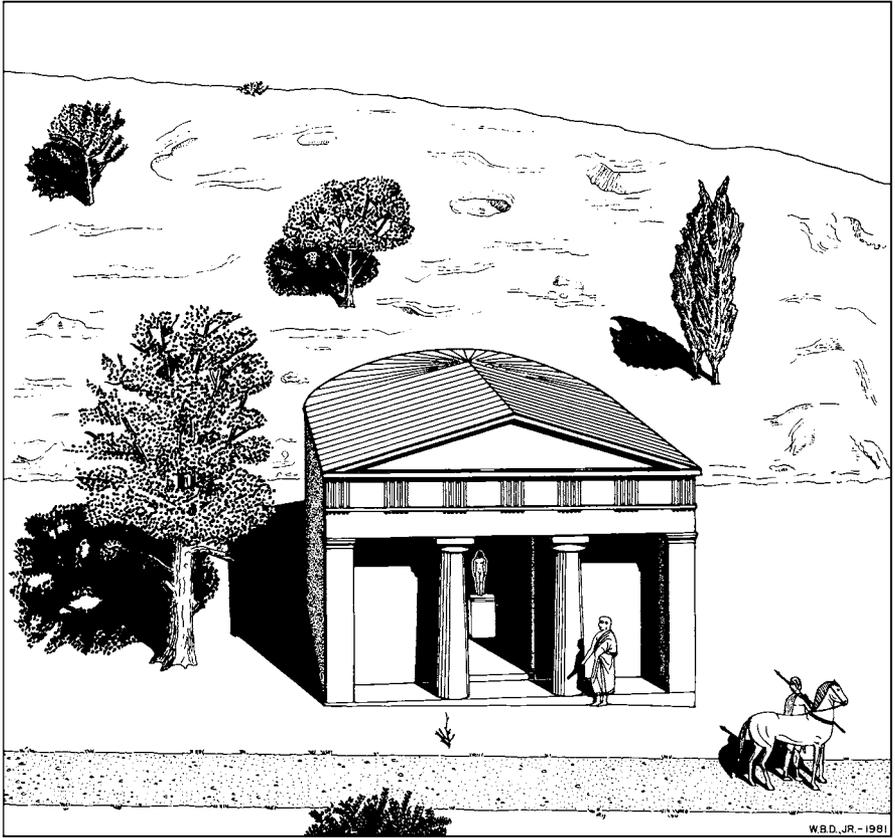
Hollow-cast bronze is far lighter in weight than stone and can support its own weight more easily, allowing greater freedom in rendering the pose. The risk of an extended arm breaking off under its own weight is eliminated. The natural color and gleam of bronze are well suited for statues of nude, suntanned gods, heroes, and athletes. The realism thus achieved can be further enhanced by engraving and by inseting details such as the eyes, lashes, and eyebrows. Most important, the creation of a bronze statue leaves a certain margin for error. The sculptor works first in clay or wax, building up a model which can be corrected; the bronze statue is a reproduction of this model. But a sculptor working in stone must be wary of breaking off too large a chunk from the block, as it cannot be replaced, and he may thus ruin his work.



29. Drawing of the bronze statue from the 6th-century Temple of Apollo Patroos, showing the parts preserved in the clay molds. The two-thirds life-size figure was of the kouros type common in stone sculptures of the 6th century, a nude youth with arms at sides and with the left foot slightly advanced.



30. Mold (left) with modern plaster cast for the head of the bronze kouros. Nose, mouth, and chin are visible from the front.



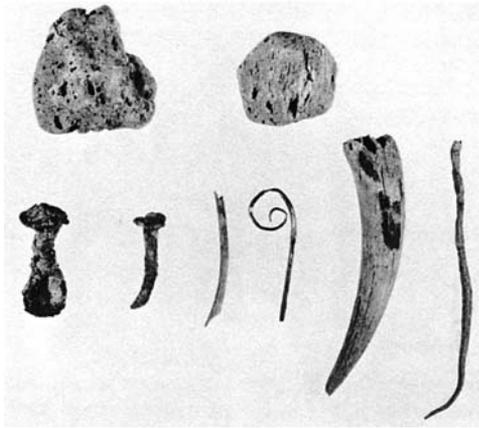
31. Reconstructed drawing of the 6th-century Temple of Apollo Patroos, a small apsidal building on the west side of the Agora. The bronze cult statue is visible within.

Once the statue for the Temple of Apollo Patroos was completed, the casting pit was no longer needed, and the workmen threw the debris back inside, including the furnace material, and then refilled the pit. Their refuse provides a record of the casting of the statue and gives a good idea of its appearance. The statue itself, a simple kouros or nude youth of the common 6th-century Apolline type known from works in stone, is unfortunately not preserved; it may have been destroyed during the Persian sack of Athens in 480 B.C.



32-34. Lost-wax casting, although now refined in the details, is a process which has not changed significantly since antiquity. These views of a present-day foundry show the building up of a clay mold, a brick furnace much like an ancient one, and the pouring of bronze into funnels leading to molds packed in a makeshift casting pit. 1957.





35. Objects from the Keyhole Foundry: two pieces of pumice for polishing bronze, an iron suspension hook for lowering molds into the casting pit, an iron nail, a bone, a curled bronze wire for patching mistakes in the casting, a burnt horn, and a thin strip of lead for inlays.

### THE KEYHOLE FOUNDRY

A bronze foundry of the 4th century B.C., located in the industrial region to the southwest of the Agora proper, provides evidence for some of the Agora's lost public monuments. The pit is shaped like a keyhole, with steps at the narrow end leading down to the work area. From this large pit came hundreds of fragments of terracotta molds, as well as other equipment used in the casting and finishing of one or more life-size statues. Once mended, the clay molds from the Keyhole Foundry proved to have been used for casting draped or partially draped statuary in pieces. Whether these were standing or seated, male or female, cannot be ascertained.

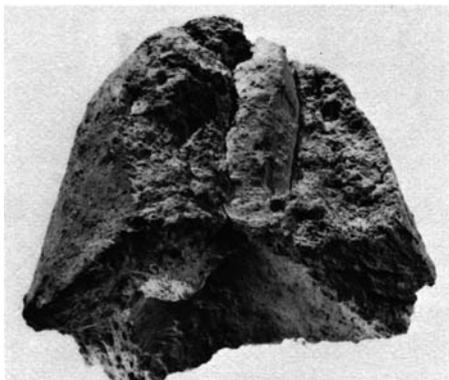


36. Keyhole-shaped bronze foundry, seen during excavation. 4th century B.C.

## BRONZECASTING MOLDS



37. Clay funnel used to receive molten bronze into a mold. *Ca.* 0.151 m. high.



38. Clay vent permitting air to escape from a mold during the pour. 0.092 m. high.



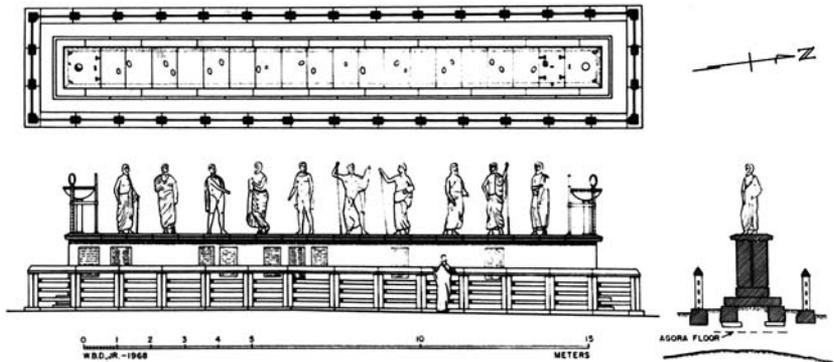
39. Clay mold for an arm. Maximum preserved dimension 0.185 m.



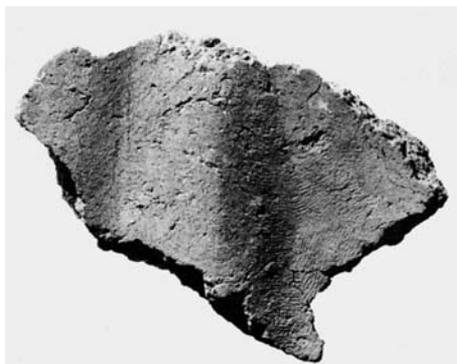
40. Clay mold for a hand, with vents at top for the escape of air during casting. Maximum preserved dimension 0.134 m.

## THE STATUES OF THE EPONYMOUS HEROES

The Keyhole Foundry dates to the same period as a monument erected near by and dedicated to the Eponymous Heroes, legendary figures whose names were given to the ten tribes of Attica. (Every Athenian citizen belonged to one of these tribes.) Ten life-size bronze statues of these heroes stood on the long stone base whose foundations are preserved in front of the Metroon, the temple of the Mother of the Gods. Public notices were attached to the monument base, and a stone fence surrounded the whole. The molds from the Keyhole Foundry, for drapery, exposed flesh, a hand, and an arm, may well have been used to cast the lost statues of the Eponymous Heroes.



41. The monument to the Eponymous Heroes consisted of ten bronze statues standing on a long stone base, surrounded by a stone fence. 4th century B.C.



42. Molds for wide drapery folds. Maximum preserved dimension 0.179 m.



43. Mold for an overfold from the waist of a garment. Maximum preserved dimension 0.247 m.



44. The restored stone fence as seen today on the west side of the Agora.



45. SIDE A.

45. SIDE B.





46. Industrial quarter immediately to the southwest of the Agora, near the State Prison. Here a wide variety of workshops was located, including those of smiths, who hammered bronze or iron, and those of founders, who cast bronze. 1956.

## THE FOUNDRY CUP

First the craftsmen model the statues, then, after cutting them up into their natural parts, they cast [them], and in the end they put the pieces together and stand the statue up.

Philo Byzantius, *De septem miraculis*, 4.

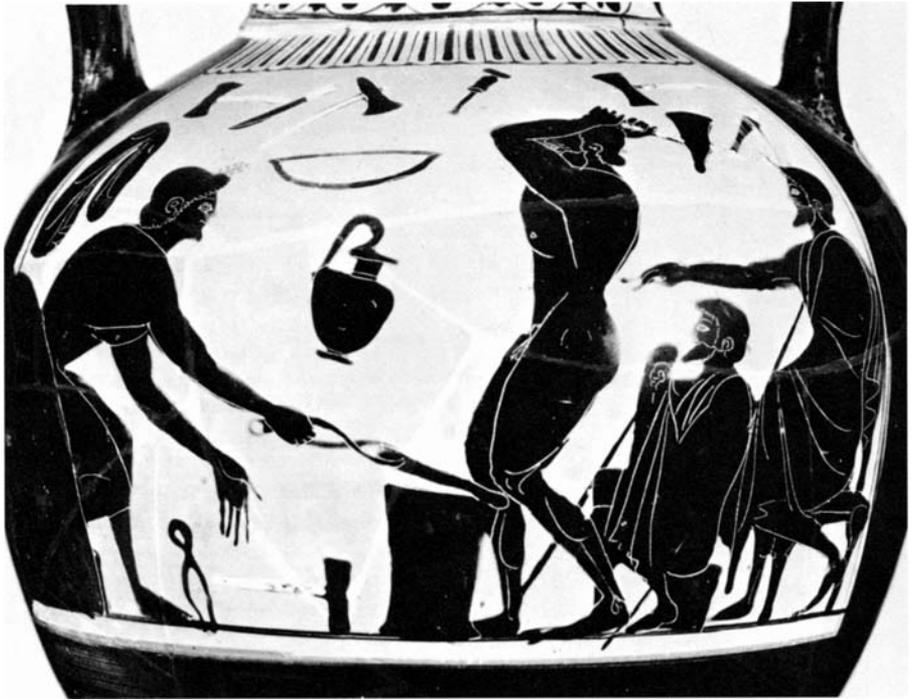
Not all metalworkers were held in equally high regard. A lead tablet inscribed with a curse was found lodged beneath the floor of a smithy of the 4th century B.C.

I bind Aristaichmos the bronzesmith  
to those below, and Pyrrias the bronzesmith,  
and his work and their souls  
and Sosias of Lamia,  
both his work and his soul . . .  
and Agesion, the Boiotian woman. (IL 997)

It is impossible to say whether the Boiotian woman was to blame for the ill feelings, or whether the perpetrator of the curse was instead a dissatisfied customer or a vengeful competitor.

45. SIDE A. The heat, hard work, and sweat of a bronze foundry are minimized in these idealized but detailed scenes on an Athenian red-figured cup of the early 5th century B.C. Berlin, Staatliche Museen. One side of the cup shows workmen stoking a furnace and joining the parts of a life-size nude bronze statue, likely to represent a victorious athlete. Models used for casting the statue's feet hang on the wall, along with mallets, a saw, and an assortment of votive plaques.

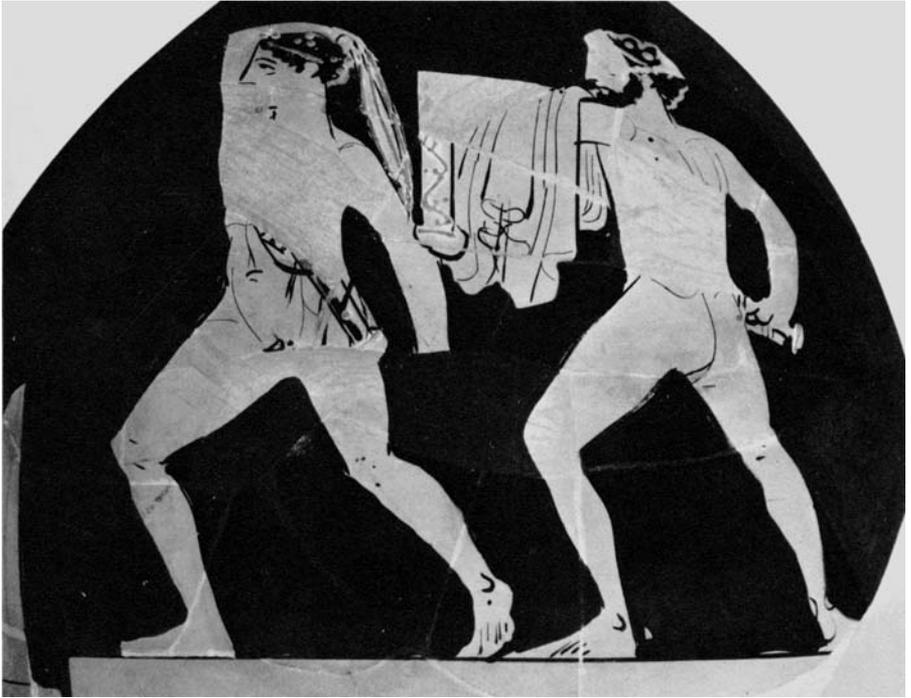
45. SIDE B. On the other side of the cup, workmen polish the surface of a colossal bronze warrior, and two larger-scale observers, perhaps the sculptor and founder, stand by. Hephaistos, the patron god of metalworkers, appears in his workshop on the interior of the cup (1).



47. A workman with tongs has just removed a heated piece of iron from the forge, and holds it on the anvil; his colleague hoists his mallet aloft to beat the iron into shape, under the watchful eyes of two well-dressed gentlemen. Attic black-figured amphora, 6th century B.C. Museum of Fine Arts, Boston.

The bellows blew on the crucibles, twenty in all,  
sending forth well-blown blasts of every degree  
sometimes in a hurry, at other times  
in whatever way Hephaistos wanted and demanded.  
He threw weariless copper in the fire and tin  
and precious gold and silver; and then  
he set a great anvil on its block, and grasped in one hand  
the mighty hammer, and in the other the tongs.

Homer, *Iliad*, 18.470-477.



48. The statues of Harmodios and Aristogeiton are shown on a red-figured oinochoe. Museum of Fine Arts, Boston.

## THE STATUES OF THE TYRANNICIDES

The two most famous bronze statues that stood in the Agora represented Harmodios and Aristogeiton, who were heroized for killing Hipparchos, a son and successor of the late tyrant Peisistratos, in 514 B.C., and for thus helping to bring democracy to Athens. (In fact, however, they were motivated by a personal grudge, and since they failed to strike down Hippias, the older and more powerful brother, the Athenians suffered even greater oppression after the assassination than they had before. The Tyrannicides were revered nonetheless.) Antenor, an accomplished sculptor of the late Archaic period, was commissioned to make bronze statues of the two men, the first persons to be so honored in Greece. Pliny explains, "The Athenians were, I believe, introducing a new custom when they set up statues at the public expense in honor of Harmodios and Aristogeiton who killed the tyrants." *Natural History*, 34.17.

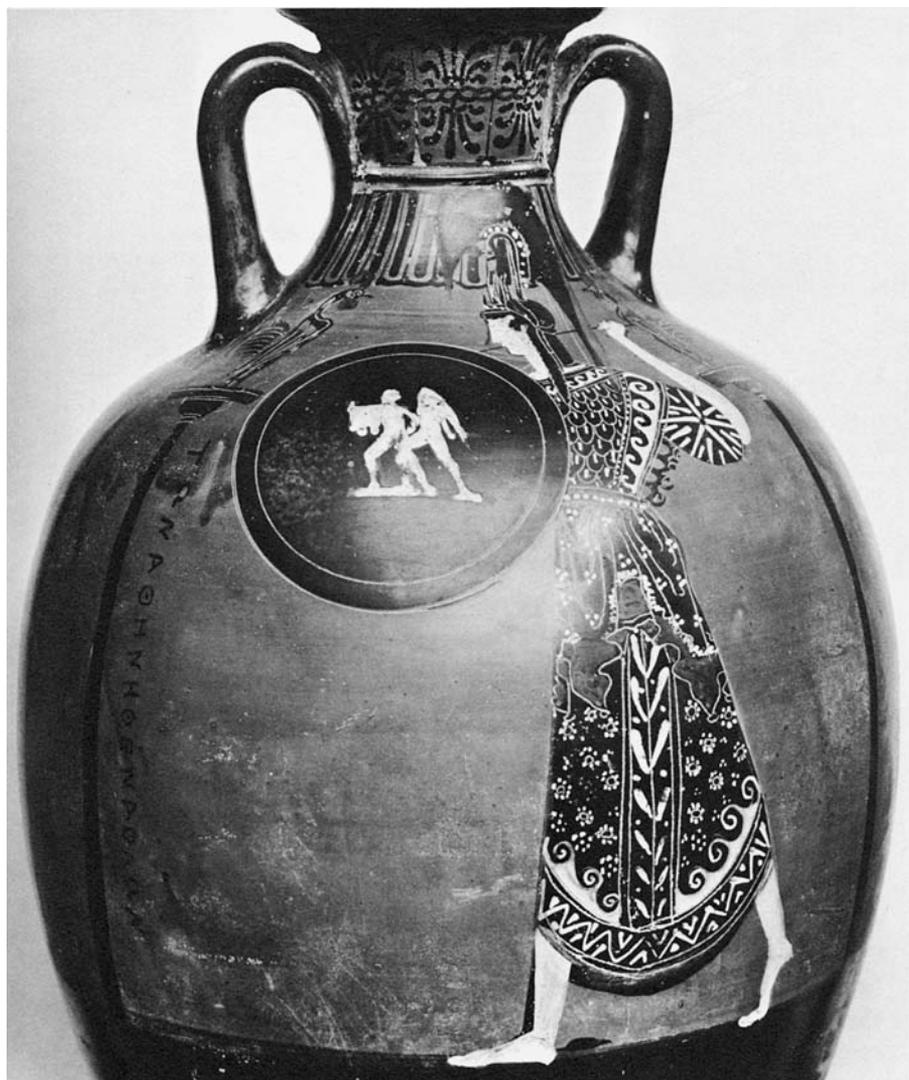


49. Electrum coin of Kyzikos showing Harmodios and Aristogeiton. Second half of the 5th century B.C. British Museum, London.

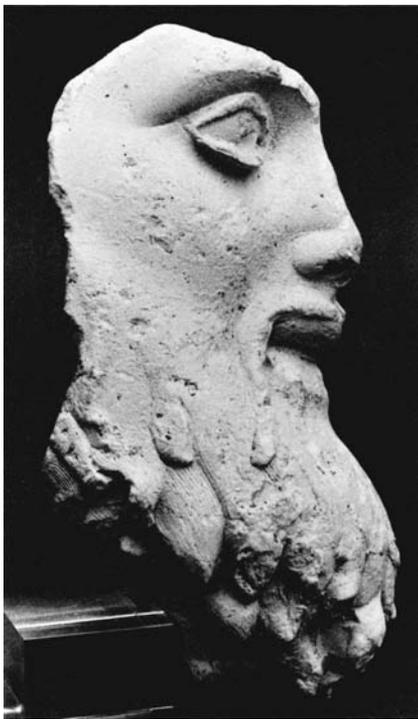
In 480 B.C., the bronze Tyrannicides were carried off by the invading Persian army, which destroyed the city at the same time, burning both the Akropolis and the Agora. Only three years later, a new statue group of the Tyrannicides, made by Kritios and Nesiotes, was erected in a prominent location in the Agora, apparently near the northwest corner where the men had done their great deed. A restriction against erecting other statues too close to these great heroes was instituted. After Antenor's statues were returned to the Athenians, either by Alexander the Great or by one of his successors, the two pairs of statues stood side by side in the Agora. None of the original statues has survived.



50. Fragment from the marble base for the Tyrannicides by Kritios and Nesiotes. Height 0.104 m.



51. Athena, patron goddess of the city of Athens, carries a shield emblazoned with the well-known statues of Harmodios and Aristogeiton. Panathenaic prize amphora, about 400 B.C. The choice of motif was probably inspired by the recent expulsion of the Thirty Tyrants of 404/3 B.C. British Museum, London.



52. Plaster head of Aristogeiton cast from a mold taken of the life-size original in Athens. Baiae, sculptor's workshop of the Roman period.



53. Bronze statuette of Hermes, god of trade, with a pointed cap, a chlamys (cloak) over his shoulders, a purse in his right hand, a caduceus in his left hand, and one wing preserved on his right ankle. Height with base 0.086 m. Early Roman.

The fame of the group both as a work of art and as a political document inspired echoes in media of various kinds: vase paintings, coins, lead tokens, a marble relief. Several full-scale copies in marble also exist, all fragmentary, the most complete being the familiar pair in Naples. A recent discovery in a Roman sculptor's workshop at Baiae on the Bay of Naples brings us closer to the originals. Miscellaneous plaster casts, among them the head of Aristogeiton, were made from molds taken directly from the original works, probably all of them in Athens. These molds were transported to Italy, where casts were taken from them to be used for making marble copies of famous statues.

Besides the Tyrannicides, the Hermes Agoraios was among the works that were widely copied: "It is your brother, Hermes of the Agora, the one by the Painted Stoa; he is all covered over with pitch on account of being molded every day by the sculptors." Lucian, *Zeus Tragoidos*, 33.



54. Athena Promachos appears on the reverse of an Athenian bronze coin of the Imperial period.



55. Adaptation of the bronze Athena on the Akropolis. Terracotta lamp, 3rd century after Christ.

## THE STATUE OF ATHENA PROMACHOS

A colossal statue of Athena Promachos (Warlike Athena) once stood on the Akropolis. Pausanias describes the work as “a bronze Athena, [paid for with] spoils [won] from the Persians who landed at Marathon, a work of Pheidias. . . . The tip of the spear of this Athena and the crest of her helmet are visible to those sailing in from Sounion.” (Pausanias, 1.28.2). The written record of the production of this statue has survived in the form of the overseers’ accounts inscribed on marble. Their records, found in part in the Agora excavations, cover a nine-year period between 460 and 450 B.C.; they list materials purchased and wages paid for the project. Clay was bought, no doubt for molds, and hair for mixing with the clay to reduce mold shrinkage during baking. Charcoal and firewood for the furnace are listed among the purchases, as well as metals, copper and tin, used for the alloy, and also silver, probably used for inlaid details. The record shows that 78,110 drachmas were spent in a single year on the project. A relatively small portion of the total was allotted to wages, which ranged from 6,600 drachmas and 2 obols to 10,100 drachmas in a year. At one point, the daily wage for four overseers, their secretary, and their servant totaled 31 obols, or 5 drachmas and 1 obol. The overseers were probably paid as skilled laborers at 1 drachma each per day, leaving 4 obols for the secretary and 3 obols for the servant.



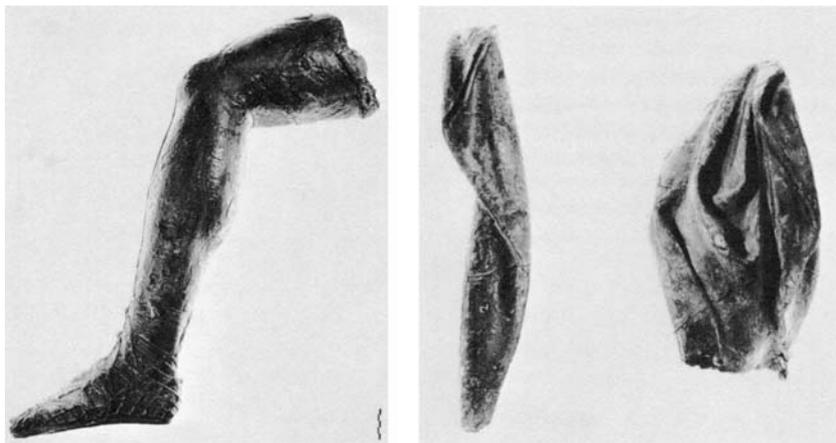
56. Part of the record of the production of the colossal Athena Promachos. XALKO (bronze) is distinctly visible in the second line of the inscription. 460–450 B.C.

## GOLD-PLATED BRONZE STATUES

A curious note on the rise and fall of Athenian fortunes is provided by a bronze female head dating to *ca.* 420–415 B.C. Found in a well, the two-thirds life-size head and neck form a single casting that was once fitted into a draped torso. Eyes, earrings, and a topknot, added separately, are all now lost. Deep grooves along the hairline and up both sides of the neck, used for attaching sheet gold, suggest that this figure was one of a number of bronze *Nikai* (personifications of Victory) which stood in the Parthenon, and to whom were entrusted part of the Athenian gold reserve. The *Nikai* were stripped of their gold when the metal was needed for minting coins. Two sets of grooves on this head show that it was stripped on two occasions. The first time was during the financial crisis of 407/6 B.C. occasioned by the Peloponnesian War, and the second time was probably in 294 B.C., under the Athenian general Lachares, who became tyrant and used the gold to pay his troops. The gold was never replaced, and the head in its denuded state was discarded about 200 B.C. when Athens and Macedon were at war with one another.



57. Bronze Nike, about two-thirds life-size. The deep groove along the hairline was used to attach gold plate. *Ca.* 425 B.C.



58. Bits of drapery and a left leg that once belonged to a life-size gold-plated bronze equestrian statue, perhaps Demetrios Poliorketes of Macedon (336–283 B.C.).

The tyrant Lachares was routed and fled Athens in 294 B.C., thanks to the intervention of Demetrios Poliorketes of Macedon, who had already been added to the list of Eponymous Heroes in 307 B.C. Demetrios was subsequently honored, by an Athenian military unit, with a gold-plated equestrian statue in the Agora. Like the Nike (57) this was destroyed in the year 200 B.C. Fragments, probably of this statue, have come to light in a well, near the northwest corner of the Agora, which was filled in around 200 B.C. Among the debris from the well were the bronze left leg of a man on horseback, his sword, and bits of drapery and decoration. All pieces were once covered with sheet gold over silver secured in the same way as on the head of the Nike.



59. A silver coin of Demetrios Poliorketes, with a Nike on a ship's prow (obverse) and Poseidon hurling his trident (reverse).

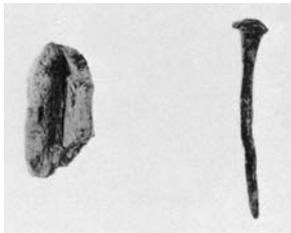
60. Fragments of two bronze statues of unknown date, from a late workshop where available bits of bronze were melted down. 3rd to 4th centuries after Christ.



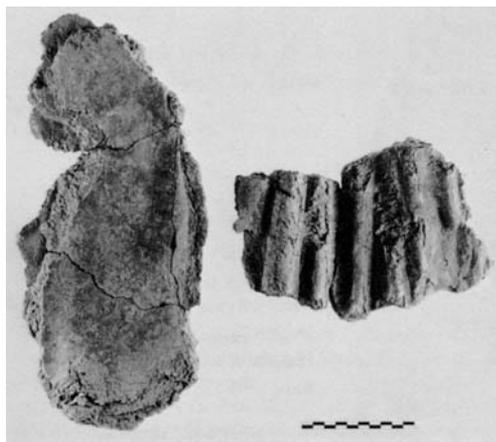
### BRONZEWORRING IN THE LATE ROMAN PERIOD

A still less dignified fate awaited many of the great Athenian bronze statues. Some were dismantled, broken up, and returned to bronzeworkers' shops, where the fragments of metal were remelted and used to produce small utilitarian objects.

In A.D. 267, Athens was invaded from the north by the Heruli. The destruction they wrought marked the end of the Agora as the political center of the city. Over the ruins of some of the public buildings workshops sprang up, conveniently located for scavenging re-usable debris from old monuments, including fragments of bronze statues. There is plentiful evidence for small-scale bronzeworking activity throughout the region in the 4th, 5th, and 6th centuries.

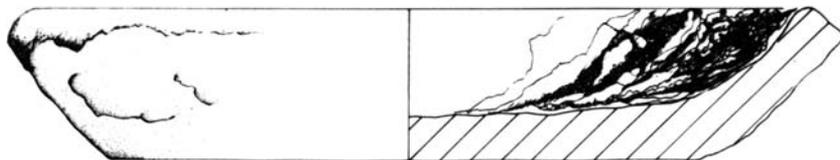
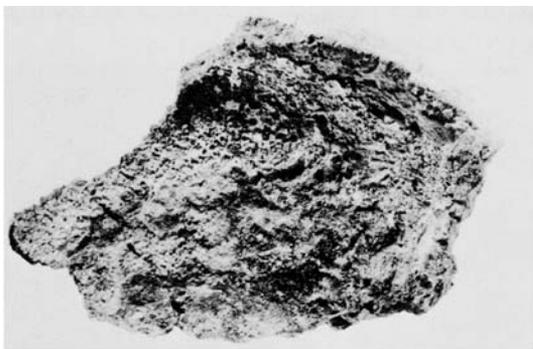


61. Mold for a nail from a workshop of the 4th century after Christ. The bronze nail beside it is typical of the hardware and tools produced in late Agora workshops with the plentiful supply of bronze from ancient statuary.



62. Lightweight clay molds for flesh and drapery of a life-size statue. Molds for bronze bowls were found in the same workshop, located just to the south of the later Church of the Holy Apostles. 6th century after Christ.

As late as the 6th century after Christ, at least one new statue was cast, a life-size, partly draped figure. It was made in a foundry where more practical objects, bronze bowls, were also produced. This is the last of the Athenian bronze workshops; there is no later evidence for the craft on either a large or a small scale. At the end of the 6th century, this part of Athens was deserted altogether, and was not inhabited again until the 10th century, when the Church of the Holy Apostles was constructed.

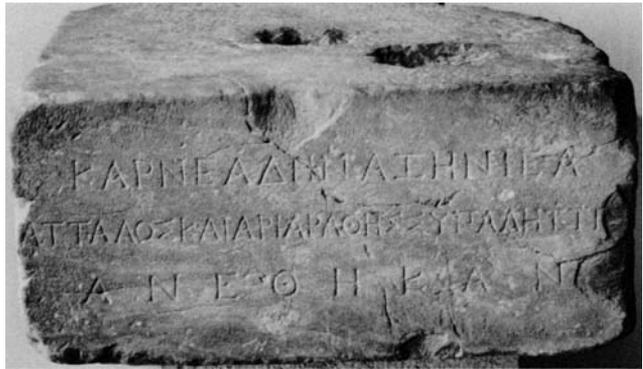


63. Fragmentary ancient crucible for melting metal (seen from above) and restored drawing of the whole vessel.



64. A grieving Odysseus sits with the armor of the dead Achilles. Modern cast from an ancient clay impression of a metal belt buckle. Height 0.118 m. Late 5th century B.C.

Bronzes of all kinds were made and used in ancient Athens, weapons and armor (9, 10), hardware (61), lamps (16) and mirrors, pins and needles, vessels (12), ballots (8), and the votive offerings of the Athenians. Besides such objects, there are preserved today fragments of bronze statues, the inscribed bases on which they stood, and the workshops where statues were produced. This material provides an idea of how bronze statues were made and testifies to their importance in the life of the city. Such evidence helps us to envision that time when the public monuments and buildings of Athens were still standing, and when the Agora was crowded with the statues which Pausanias saw on his walk through the city in the 2nd century after Christ.



65. A base with dowel holes on top is all that remains of a life-size bronze statue of Karneades, a philosopher of the 2nd century B.C. who was both founder and head of the New Academy. The inscription reads: "Attalos [king of Pergamon 159-138 B.C.] and Ariarathes of Sypalettos [king of Cappadocia 163-130 B.C.] dedicated [this statue of] Karneades of Azenia."

## ACKNOWLEDGMENTS

Unless otherwise specified, all objects and illustrations are from the Agora Excavations. Photographs of objects by Alison Frantz, Eugene Vanderpool, Jr., Robert K. Vincent, Jr., and C. C. Mattusch.

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63. B 1506. Drawing by A. Camp
64. T 3393
65. *IG II<sup>2</sup>*, 3781. Agora Museum

For further reading:

- Art and Technology*, Doeringer, Mitten, and Steinberg, edd., Cambridge, Mass. 1970
- C. C. Mattusch, "Molds for an Archaic Bronze Statue from the Athenian Agora," *Archaeology* 30, 1977, pp. 326–332
- G. Savage, *A Concise History of Bronzes*, New York 1969

