

# GREEK SCULPTURE: FUNCTION, MATERIALS, AND TECHNIQUES IN THE ARCHAIC AND CLASSICAL PERIODS

Monumental Greek sculpture in stone began on the islands of the Aegean and on Crete in the seventh century B.C. and developed very rapidly. The Classical style, which set the standards for future generations, was created after the Persian Wars of the early fifth century, and was greatly indebted to technological developments in bronze casting and ivory molding. Written by an international team of experts, this book explores the material aspects of Greek sculpture at a pivotal phase of its evolution from the seventh to the fourth centuries B.C. Types of sculptures and choice of marbles are examined according to regions, and there are special chapters devoted to bronze casting, marble carving techniques, and the determination of marble provenance. Taking a novel approach to a key topic in classical archaeology, this volume sets the groundwork for future research.

Olga Palagia is Professor of Classical Archaeology at the University of Athens. A specialist in the sculpture of classical Greece, she is the author of numerous articles and books, including *The Pediments of the Parthenon*, and co-editor of several volumes of conference proceedings and essays, including *Personal Styles in Greek Sculpture*.



## GREEK SCULPTURE



FUNCTION, MATERIALS, AND TECHNIQUES IN THE ARCHAIC AND CLASSICAL PERIODS

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#### **PREFACE**

Greek monumental sculpture was developed on Crete and the islands of the Aegean in the mid seventh century B.C. The adaptation of forms and technologies borrowed from Egypt and the Near East created a new artistic idiom suitable to the needs of the individual city-states and the panhellenic sanctuaries. In about a century and a half, rapid developments led to the birth of Classical art that heralded the dominance of the idealized human figure, man becoming the measure of all things. Sculpture was the perfect vehicle for the expression of the new Classical ideal.

New techniques in bronze casting were developed in the sixth century and were rapidly diffused; centres of production were distinguished in antiquity by their alloys. Availability of good marble determined the centres of production of stone sculpture. After the false dawns of Crete (local limestone) and Sparta (grey marble of Mt. Taygetos) in the seventh century, Naxos and Paros dominated sixth–century sculpture production thanks to their exportable marbles. The Parian colony of Thasos exploited its own marble quarries for local use only. Naxos and Thasos attempted colossal statuary in imitation of Egypt. The sculptors of South Italy and Sicily were restricted to local limestone, importing Parian marble for luxurious items. The acrolithic technique (marble heads and limbs attached to wooden torsos) was developed in areas that lacked high-quality stone. Athens not only attracted sculptors and marbles from the islands but also used home-grown talent and resources (white and grey marbles from Mt. Pentelikon and Mt. Hymettos). The Persian invasions

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of Greece in the first decades of the fifth century brought about not only the cessation of Naxian marble production but also the political and artistic domination of Athens, which emerged as the champion and eventually the master of the island states. The considerable resources of the Athenian Empire financed the costly rebuilding of Athenian sanctuaries damaged by the Persians. New technologies enabled the Athenians to fashion colossal images in ivory and gold and to adorn their temples with colossal marble statues held in place by structural iron. In the fourth century Athenian marble became dominant, with Parian retaining a corner of the market in Magna Graecia, the panhellenic sanctuary of Olympia and the Hellenized satrapies of Asia Minor. Finally, marble and bronze polychromy, an essential element of Greek sculpture, was achieved not only by the application of pigments but also through combinations of coloured stones and metal alloys.

Greek sculpture served very specific functions. During its formative periods it was confined within a religious framework for the decoration of temples, sanctuaries and tombs. Its subjects were gods and heroes; dead individuals or victorious athletes were commemorated with generic figures. It is symptomatic of the religious nature of Archaic and Classical sculpture that in democratic Athens repeated attempts curbed the private munificence of funerary art. It is only in the western satrapies of the Persian Empire that Greek sculpture was employed to glorify individuals: temple-like tombs were built on high podia that imitated funeral pyres, and were lavishly decorated with portrait statues and sculptured friezes illustrating aristocratic pursuits, life in the satrapal courts, and funeral games.

Greek sculpture of the Archaic and Classical periods is admired for its excellence. Even though it was made for worshippers, it was aimed at connoisseurs and this gives it a timeless quality. Wrenched from its context, it can nevertheless reach modern audiences even though they do not always understand its production mechanisms. Virtuosity of execution is matched by clarity of design, where every fine detail counts yet does not detract from the appreciation of the whole. What determines the high quality of Greek sculpture? Did region or material matter? What can direct observation or laboratory analysis teach us? The evidence is fragmentary and the study of Greek sculpture is plagued by an inherent difficulty to correlate extant material with literary testimonia. An



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exploration of the material aspects of sculpture is only possible through an interdisciplinary approach.

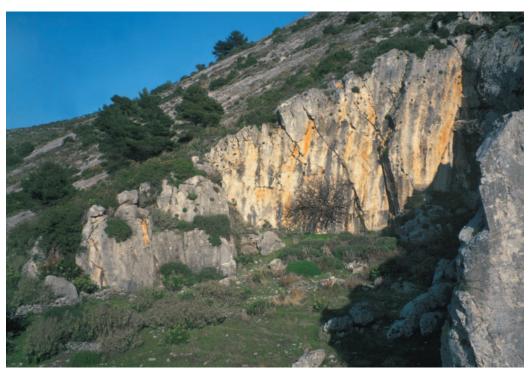
The differentiation of regional bronze alloys is still beyond the reach of modern scholarship, whereas the determination of marble provenance has become a field in itself. The present collaborative effort of an international cast of scholars, noted for their hands-on approach to material culture, attempts to illuminate sculptural production, offering a survey of techniques in marble and bronze, arranged, as far as possible, according to regional characteristics. Special chapters are devoted to the discussion of marble carving processes, as well as to the characteristics of Greek marbles and the methods of determining their provenance.

This book was long in the making. The result owes a lot to the enthusiasm, patience and expertise of its authors. I owe a personal debt of gratitude to the late sculptor Stelios Triantis, who shared generously his incomparable knowledge of ancient sculptural techniques and Greek marbles. He was an inexhaustible source of information and insight and our world is poorer in his absence. I am also grateful to Beatrice Rehl and John Boardman for their faith and encouragement. Hans R. Goette greatly contributed to the collection of photographic material and generously allowed the reproduction of his own work. Eugene Ladopoulos offered unlimited moral support and jolly company on field trips.

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1. Quarry on Mt. Hymettos. Photo H. R. Goette.





2. Statue of Leto from Delos. Athens, National Museum 22. Photo O. Palagia.





**3.** Head of Telamon from the temple of Zeus Olympios at Akragas. Agrigento Archaeological Museum. Photo H. R. Goette.





4. Base of Nemesis with fragments of the statue. Rhamnous, storeroom. Photo O. Palagia.





**5.** Statuette dedicated by Lysikleides at Rhamnous. Athens, National Museum 199. Photo O. Palagia.





**6.** Horse from the chariot on top of the Mausoleum at Halikarnassos. London, British Museum 1002. Photo H. R. Goette.





7. Head of boxer from Olympia. Athens, National Museum X 6439. Photo H. R. Goette.





8. Athena Lenormant, after Pheidias' Athena Parthenos. Athens, National Museum 128. Photo O. Palagia.