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Introduction

A fame-seeking arsonist burned down the temple of Artemis at Ephesos in 356 BCE; it was one of the largest temples of the ancient Greek world and—supposedly—the first built in the Ionic order. The Ephesians confronted this trauma in three ways, two of which are well-known. First, the Ephesians rebuilt the temple on the same plan and footprint, but they traded the old, doughy style of carved decoration from the sixth-century temple for the rich, relief style that had become standard in the fourth century. Second, they tried to erase all memory of the arsonist by decreeing that anyone caught repeating his name would be put to death. The third response has not yet been understood: the creation of another new temple, which was dedicated to Athena at the spot where, according to local legend, Ephesos was founded. This new temple had Ionic column capitals that contrasted an outside face carved in contemporary style with an inside face that recreated the convex volutes of the ancient, burned temple (fig. 0.1). As a visitor entered the colonnade toward the spot of the city’s beginning, she might have felt from the changing appearances that she was stepping back in time.

The temple of Athena Trecheia at Ephesos looked back to the past, and its juxtaposition of the old and new offered a narrative of resilience in the face of disaster. Indeed, this temple and its retrospective columns illustrate the power of architectural style, which could become a component of civic, religious, and ethnic identities. By reproducing obsolete elements from the old Artemision, Ephesian builders preserved destroyed physical testimonies of a local history of architecture that centered the city of Ephesos among the Ionians. The temple of Athena Trecheia at Ephesos, however, is not the only one of its kind: eight other Ionic monuments have Ionic column capitals juxtaposing the convex volutes characteristic of Archaic-period Ionia with the concave relief styles of later periods on opposite faces. These are discussed individually under names such as “convex-concave-capitals” and “capitals with hollow and solid volutes.”¹ This type of Ionic capital appears on buildings and monuments at Oropos, Delos, Neapolis (Kavala), Thessaloniki (likely originating at ancient Therme), Eretria, Pallene in Attica, Ephesos, Delphi, and Selinous, ranging in date from about 550 BCE to about 250 BCE (fig. 0.2, fig. 0.3). They have a three-hundred-year chronological scope and a wide geographic range across the modern countries of Turkey, Greece, and Italy. Essential to understanding



these monuments, therefore, is documenting and presenting them all together, as this book does for the first time with original measured drawings and orthographic images based on photogrammetry.

The Ionic order is arguably the most complex of ancient Greek building traditions. Its early history is quite different from the other major Greek building tradition, Doric, which followed a rather linear pattern of early development and had most of its canonical features fixed by the first quarter of the sixth century BCE. Ionic buildings varied greatly by region, and developments rarely follow a strictly linear sequence. The Roman architect Vitruvius, in his *Ten Books on Architecture* (composed in Rome in the 20s BCE), relays a tidy origin story to explain the Ionic order, a system of columnar design to which he devoted the majority of book three. According to his account, the sons of the legendary hero Ion ventured to establish the Ionian cities on the coast of Asia Minor and built a temple to honor Artemis at Ephesos (Vitr. 4.1.4–8). Rejecting the manly Doric order of their mainland brethren as unsuitable for the goddess, the first Ionians crafted a temple with more delicate proportions and more elaborate ornamentation—establishing the model for the Ionic order. This account, relayed in the only surviving ancient architectural treatise, is a convenient, explanatory myth. Archaeological discoveries have shown that the conventions of the Ionic order as Vitruvius knew them took shape gradually over the course of the sixth and fifth centuries BCE.² Not only was there no one first Ionic temple, but temples alone were not the only place where this design idiom developed. Numerous freestanding Ionic columns used as pedestals for statues set up as dedications in sanctuaries show that votive columns were just as important as temple porticos in establishing the conventions of Ionic column design.³ There were also other early columnar forms that never caught on, most notably capitals with volutes that rise vertically, dubbed “Aeolic” in modern scholarship because they are



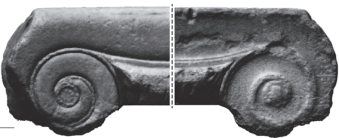
0.1. Ephesos, Ionic capitals of the Archaic temple of Artemis, sixth century BCE (top left, British Museum, London), the late-Classical reconstruction of the temple of Artemis, late fourth century BCE (top right, British Museum, London), and the opposite convex and concave sides of a capital of the temple of Athena Trecheia, late fourth century BCE (bottom, Ephesos Museum, Vienna).



CHAPTER 2



Delos



CHAPTER 3



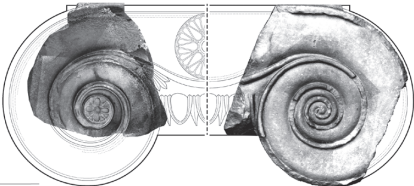
Oropos



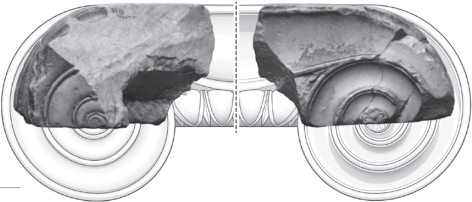
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Neapolis



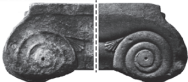
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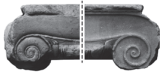
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Eretria



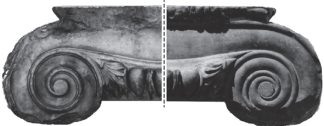
Pallene, Attica



CHAPTER 6



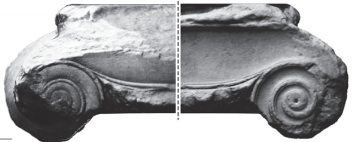
Ephesos



Selinous



Delphi



0 10 m

0 1 m



0.2. Bilingual Ionic capitals, arranged by chapter.

0.3. Map of sites discussed.

primarily known from the region of the Aeolian Greeks in the northeastern Aegean.⁴ In the last two decades, it has become clear that the most important temples of Ionia had not just Ionic capitals with volutes, but a second type without volutes entirely, which topped off the column shaft with only the pillowy echinus (see, e.g., fig. 1.5).⁵ Vitruvius also offered a second explanation for the origins of temple design, relating how the entablature of Doric and Ionic buildings originate in wood rather than stone (4.2.1–5). The triglyphs of the Doric frieze took the place of plaques at the ends of timber joists, and Doric mutules and Ionic dentils preserved in stone the ends of wooden rafters. This proposal of wooden origins has occasionally been extended to Ionic capitals, where the volutes were envisioned as a fossil of a horizontal wood bracket (*Sattelholz* in German) that reduced the span of the beam between columns. Scholarly consensus, however, now holds the Vitruvian doctrine of petrification to be legendary.⁶ Doubt arises in large part from the Ionic evidence, which does not appear completely formed as a replication in stone of a preexisting manner of building in timber but takes shape gradually in stone over the course of the sixth century. A fixed architectural canon for the Ionic order only solidifies in the fourth century BCE. Much of the meaning of the Ionic order, therefore, lies not at a single point of origin—whether a primeval wooden prototype, a single exemplary temple, or a first inventor—but in the process of consolidation. As builders returned to and selected

certain elements over others, they layered on meaning over time. Ionic capitals that plainly mix forms from different periods and places show the making of an architectural tradition in action.

Scholarship has understandably prioritized sorting buildings into a chronological sequence of styles to establish the dates of buildings and to present a larger historical narrative. Yet ancient builders were not oblivious to the persistence of older structures in their built environment. This book emphasizes that ancient builders revisited venerable old temples in new creations. It is tempting to borrow from the study of Greek sculpture the term “archaistic,” but this term does not quite fit Ionic capitals that only half reproduce Archaic forms and that emerged at the tail end of the Archaic period. The archaistic style in relief sculpture is hard to miss. It is distinguished by rigid figures, mannered gestures, and geometric drapery folds, deployed in complete compositions. It first occurs for a full sculptural program on the frieze of the Hall of Choral Dancers on Samothrace (third quarter of the fourth century BCE).⁷ Yet sculptors began to look back to stylistic features of early sculpture already in the fifth century, including in two metopes of the Parthenon where the stiff, frontal posture of older sculpture was borrowed to distinguish inanimate cult statues in mythological scenes where characters seek refuge in temples.⁸ Long before the archaistic style was a full-blown sculptural model, elements of retrospective design crop up within specific, representational scenes, almost always in sanctuary contexts, mixed with other styles but always recognizable. In a similar way, archaism in architecture has generally been identified with bursts in specific historical contexts, such as Athens in the time of the statesman Lykourgos (338–322 BCE). Yet Ionic capitals with opposite convex and concave faces illustrate that retrospective design in architecture began at the end of the Archaic period and ran parallel to the wide-ranging pattern of retrospection in sculpture. These Ionic columns also parallel the repair and reconstruction of temples and altars, which sometimes called upon stonemasons to carve new pieces that matched older elements.⁹ They also coincide with the symbolic reuse of older architectural members in new building contexts (i.e., spolia), a practice that took on particular importance in Athens in the aftermath of the city’s destruction in the Persian invasion of 480–479 BCE.¹⁰ Together this pattern of revisiting, reusing, and reinterpreting earlier monuments has been dubbed the “archaeology of the past,” material evidence that shows a concern for the past and the shaping of memory independent from the writing of historical accounts.¹¹ Retrospective Ionic columns show patron communities embracing the pluralism of Ionic styles and juxtaposing elements from different places and times to embody histories and myths that were integral to community self-image.

The first chapter of this book frames how a set of heterogeneous buildings sharing a common anomaly tells stories about the past, who built them, and why. Many Greek temples are heterogeneous by circumstance, openly displaying histories of long construction, renovation, or repair. Others were heterogeneous by design, conspicuously combining different elements from scratch to engage in the same type of storytelling. The chapter then turns to the intentionality of retrospective design. Itinerant workshops of stone carvers, as well as traveling architects, were

the primary agents for cross-pollinating architectural practices in antiquity, but these Ionic capitals warrant a model of agency distributed among carvers, architects, and their patrons to explain how features dependent on specific carving techniques were organized at a large scale to create buildings that changed appearance from different perspectives. This first chapter uses examples of heterogeneous and retrospective designs drawn from outside the realm of Ionic architecture—Doric temples, bilingual Attic vases, and incuse coins—to put the phenomenon of these Ionic capitals in their ancient cultural context and show their broader relevance to ancient Greek architecture and art.

The subsequent chapters explore where and when these capitals appear, presenting a diachronic overview of developments and regional adaptations in Ionic architecture. Chapter 2 examines the first fully formed examples, capitals which were carved for the sanctuary of Apollo on Delos, within the context of the sixth-century Cyclades, where there was much early experimentation with Ionic elements. Viewed from the perspective of late sixth-century Delos, this monument emerged as a response to the stylistic pluralism visible in sanctuaries after a century of rapid change. Chapter 3 steps back to a slightly older votive column, from Oropos at the edge of Attica, which blends Aeolic and Ionic elements, and combines the faintest traces of convex and concave volutes on opposite faces. Chapter 4 investigates how bilingual Ionic temples took hold in two colonies (*apoikiai*) in coastal Thrace, where syncretic cults were focal points for conceiving new identities and community histories between native populations and mother cities. In chapter 5, an Ionic temple at Pallene in Attica forms the basis for reconsidering how fifth-century Athens adapted and reinvented the Ionic order at a time when Athenians mobilized their Ionian ethnic identity in the service of empire. Chapter 6 returns to the temple of Athena Trecheia at Ephesos as a model of historic preservation and broader retrospective aspects of fourth-century Ionian architecture. Major retrospective Ionic cult buildings in cities and sanctuaries with Ionian roots drew upon historic elements to emphasize shared history to structure cohesive group identities. Yet chapter 6 also engages with exceptions that prove the rule: two private monuments from outside the Ionian sphere, an Aetolian dynastic monument at Delphi and a possible tomb monument at Dorian Selinous, are examples of heirloom Ionic elements mobilized to express the individual preeminence of elite families set apart from their communities.

Scholars have occasionally suggested that these capitals are simply cases of cutting corners, with less attention given to carving less visible faces.¹² The line of argument underlying this commonsensical interpretation has not been consistently articulated, but it has four main elements. First, the inward-facing sides of Ionic capitals were more difficult to see, and builders occasionally sought to save time and money when no one was looking, occasionally leaving one side of an Ionic capital completely uncarved, with blank volutes.¹³ Second, reverting to an older, simpler way of carving could have labor savings that made the change in style economical. Third, this compromise suited lighting conditions as well as visibility, with more time-consuming relief carving placed in direct sunlight for maximum effect.¹⁴ Fourth, Ionic capitals were originally painted, and this lost, multicolor layer of

embellishment may have concealed shortcuts in the carving of capitals. This book casts doubts on this line of reasoning. The focused examination of each monument in the following chapters reveals that an explanation of frugality is premised on an incorrect assumption that all the capitals were oriented with the high-relief carving facing out. These monuments survive in scattered pieces (*disiecta membra*), and thus it is not always possible to reconstruct the exact position of each capital. Yet the position of some capitals can be ascertained with certainty based on dowel holes (Delphi), actual half-finished details (Pallene), and corner capitals, where the outer and inner sides are evident from overall shape (Delos, Ephesos). At fourth-century Ephesos, high-relief carving did face out, but the two earlier fixed cases (sixth-century Delos, fifth-century Pallene) were oriented in the opposite direction of what has generally been assumed. It is necessary to view these capitals as they once were, as part of larger buildings, set high above viewers, and with sculpted textures invigorated by the play of light and shadow—a mandate addressed here through perspective views of digital models, which capture the experience of seeing these dispersed elements as integral components of buildings. These monuments take different forms, including large temples encircled with colonnades, a propylon for entering a sanctuary, and freestanding columns supporting statues as votive gifts. To understand their internal contrast these capitals must be viewed contextually within buildings, within larger built environments, and within historical social settings.

Although this book sets aside the interpretation of frugality, because it is premised on an assumed reconstruction of the capitals that is not substantiated by the material evidence, it nevertheless considers the constitutive elements of this line of thought. At the root of each is a fundamental idea of much broader significance to the understanding of ancient Greek architecture: (1) builders grappled with the practical limitations of viewing their works, (2) the labor of carving stone was itself a central consideration of ancient building projects, (3) nascent aesthetic appreciation of light and shadow effects drove changes in carved ornament, and (4) the painted and gilded embellishment of stone, now largely deteriorated, substantially shaped the ancient perception of architecture. Thus, in chapter 2, the subsection “Conditional Visibility” addresses the constraints of viewing buildings, a subject that has long been a point of contention surrounding figural reliefs on temples that were impractical to look at directly, such as the frieze of the Parthenon, but that is a pertinent consideration to other forms of carved ornamentation. In chapter 3, the subsection “Carving Ionic Capitals” assesses the labor involved through experimental archaeology, recreating convex and concave volutes in marble with hammer, chisel, and stopwatch to determine empirically the differences in labor involved. Also in chapter 3, the subsections “The Interplay of Convex and Concave in Ornament” and “An Eye for Shadows” survey the popularity of variegated surface treatment in Ionic ornament and contextualize developments in chiaroscuro design in architecture in relationship to contemporary concerns for light and shadows in ancient art and thought. In chapter 5, the subsection “Ionic Polychromy” reviews the evidence for painting Ionic capitals. This survey draws attention to exceptional cases of capitals from the same colonnade painted differently, an underappreciated phenomenon that primed ancient audiences to look for differences in carved ornament as well.



0.4. Bilingual Attic amphora with the same scene in black-figure by the Lysippides Painter and red-figure by the Andokides Painter. Museum of Fine Arts, Boston [01.8037].

Instead of generalizing about visibility, labor, lighting, and painting to explain away this unusual corpus of Ionic capitals, this book argues that these exceptional artifacts offer insights about designing in accordance with vision, the craft of stone working, the refinement of chiaroscuro effects through surface modeling, and the original appearance of temples in more hues than marble white. A nonspecialist reader may wish to jump ahead from the focused discussion of specific Ionic monuments to these subsections in chapters 2, 3, and 5 to cut to the broader implications of this study.

These Ionic monuments center the ways Ionic architecture often embraced internal variation, including the painting and sculpting of columns with different colors and patterns, features that are often absent from reconstruction drawings made without color or shading. Wilhelm Alzinger and Anton Bammer first compared the back-to-back pairing of convex and concave volutes on these Ionic capitals to the phenomenon of bilingual Attic vases, which juxtapose black-figure and red-figure painting techniques on opposite sides of vessels (fig. 0.4).¹⁵ These are the creation of vase painters who were equally fluent in older and newer painting techniques and reveled in combinations that highlighted how each technique presented figures through opposite positive and negative shapes of added black slip and exposed orange clay. The capitals debut in roughly the same period, in the late sixth century BCE. Because the retrospective aspect of these capitals took on greater salience over time, this book relies on the more neutral coinage of *bilingual* Ionic capitals—emphasizing the striking visual contrast and the fluency of their carvers

0.5. Two non-joining fragments of Ionic capital volutes of similar size, one concave and one convex. Krastevich, Bulgaria.



in multiple approaches to carving—rather than on their associations with the past exclusively.

Bilingual Ionic capitals have been overlooked because they are anomalous, yet they appear as outliers because they have not been viewed synoptically nor integrated into the story of Ionic architecture. The overwhelming impression that Greek builders aimed for total homogeneity in their colonnades owes something to the modern practices of drawing reconstructions of ruined buildings by copying and pasting one standardized column that has been pieced together from many assorted fragments. Here is an inherent dilemma of archaeological illustration that warrants critical reexamination: the process of filling in the blanks with comparable material inadvertently propagates an image of uniformity.¹⁶ Recent excavations of a fifth-century Ionic temple at Krastevich, Bulgaria, produced both fragments of convex capitals and one lone concave volute fragment of the same size (fig. 0.5).¹⁷ Difference in the stone type means these fragment cannot be combined into a single bilingual capital, but the case illustrates how the chance survival of fragments could alter reconstructions. It is possible that additional bilingual capitals exist as fragments in excavation and museum storerooms.

Chapter 1

Bilingual Ionic Capitals in Context

How Buildings Tell Stories about the Past

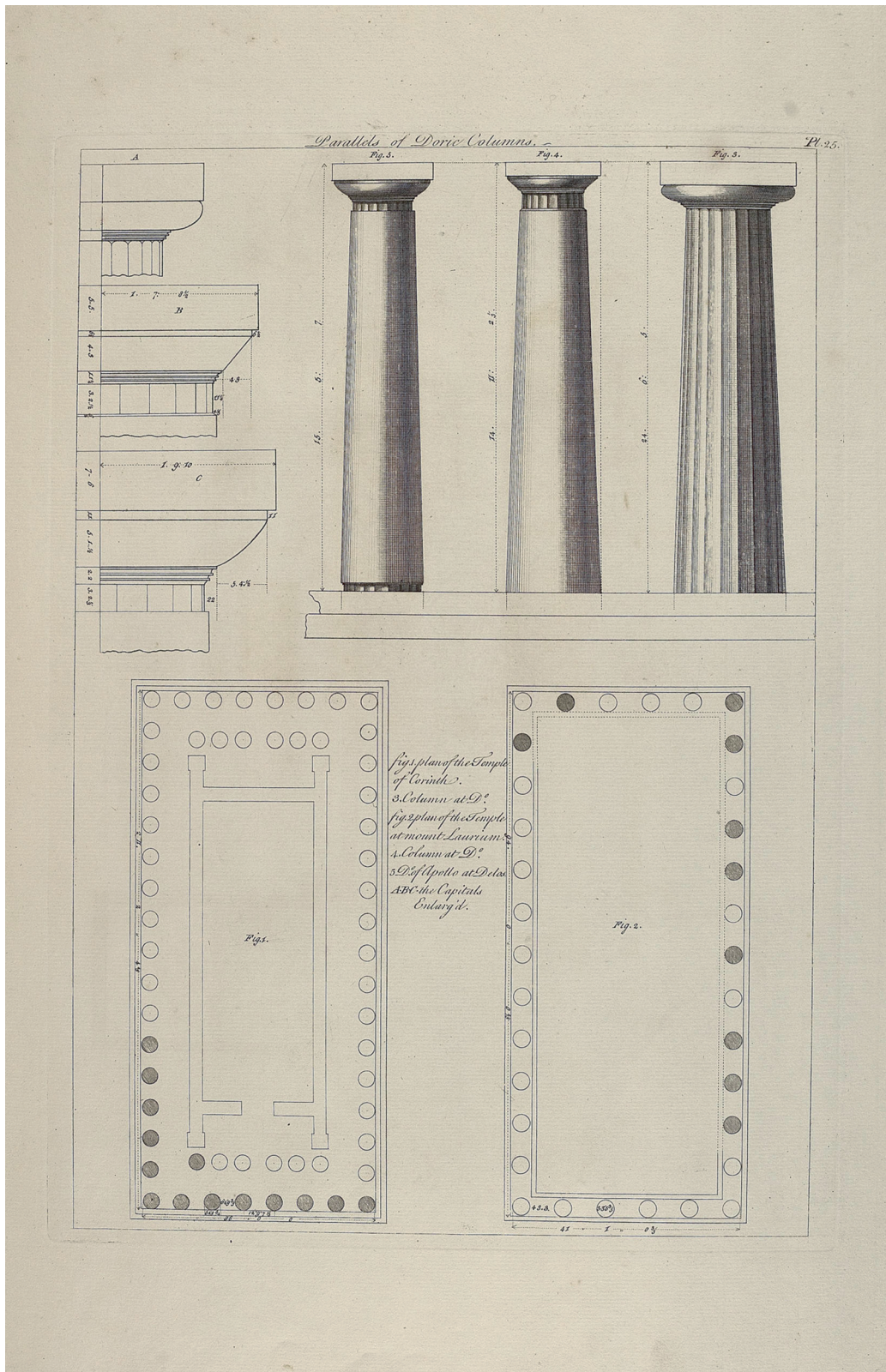
In 1754–1755, the French architect Julien-David Le Roy traveled to Ottoman Greece on a mission to measure and draw the ruins of ancient architecture, many for the first time. He was struck by the variation of Doric columns that he observed. Until this point, the ancient columnar orders had been understood largely through the model of the “parallel” of five orders—the Greek orders of Doric, Ionic, and later Corinthian described by Vitruvius, and the Tuscan and Composite orders, which were formulated by Renaissance architects based on observation of Roman antiquities.¹ Le Roy observed that the Doric order itself was not static but seemed to change over time in phases. He set out a history of the Doric order in three stages by comparing plans, shaded elevations, and the sculpted profiles of column capitals.² Beginning with James Stuart and Nicholas Revett, Le Roy’s contemporary rivals, subsequent investigators revealed errors in Le Roy’s recording and interpretation that showed his initial Doric sequence was hopelessly muddled.³ Measuring errors made the columns of the portico at Thorikos too squat on paper and the gateway to the Roman Agora in Athens too slender. Also, Le Roy was led astray by Doric columns that were not fluted. Ancient builders carved the channels on column shafts last because they were prone to breaking in the bustle of a construction site, preparing only the beginnings of the flutes at the top and bottom as guidelines. Le Roy mistook these unfinished columns as traces of a developmental phase before fluting was invented. Nevertheless, Le Roy’s attempt to sort buildings into a chronological sequence based on formal and stylistic qualities was a revolutionary paradigm for the history of architecture and for archaeology.⁴ When the London-based publisher Robert Sayer produced an unauthorized, cut-rate, English translation, he halved the price of the volume by compressing together Le Roy’s figures—putting the Doric plans, elevations, and capital profiles side by side in a single diagram (fig. 1.1).⁵ This

distillation of drawings also set a lasting graphic model for subsequent research.

It seemed self-evident to Le Roy that the history of Greek architecture was written on temple facades, which only needed to be sorted by the discerning eye. His whiggish history of Doric architectural progress bares the distinctive imprint of his own mid-eighteenth-century moment. A developmental model had already been applied to medieval paleography, and Johann Joachim Winckelmann's sorting of Greek painting and sculpture into phases—beginning with an “Archaic” phase of Greek art characterized by simple, rigid figures—was soon to follow.⁶ Le Roy's graphic presentation of architectural evidence was also dependent on the conventions of architectural drawing and publishing of his own era. Yet the pith of his observation, as he himself noted at the outset of his discussion of Doric architecture, was rooted in the text of Vitruvius.⁷ Vitruvius appealed to legends of progress in building from ephemeral to solid materials (2.1.1–7, 4.2.2). In his description of the origins of the Doric and Ionic orders, he notes that they changed over time, with bulky columns replaced by proportionally slimmer ones, “succeeding generations having made progress in taste and subtlety of judgement and delighting in more gracile proportions” (4.1.7–8).⁸ This statement offered a structuring arc for Le Roy's initial sequence of Doric columns. This developmental model, however, was not the invention of Vitruvius either.

Two centuries before Vitruvius, the Hellenistic engineer Philo of Byzantion (*Bel.* 50.30) conjured a similar progression in architecture from rude to refined: “For instance, the correct proportions of buildings could not possibly have been determined right from the start and without the benefit of previous experience, as is clear from the fact that the old builders were extremely unskillful, not only in general building, but also in shaping the individual parts.”⁹ For Philo, the technological and aesthetic improvement in architecture apparent from observing older buildings was an example of the importance of experience (*peira*) in advancing art (*technē*)—a central principle for his conception of engineering.¹⁰ A notion of architectural progress may even be sensed in the fifth-century historian Thucydides (1.10), who contrasts the modern image of the Athens of his day to the settlement “in the old manner of Greece” still evident in Sparta.¹¹ At the root of these statements lies a progressive model of human history, which was articulated already by the sixth-century Ionian philosopher Xenophanes of Kolophon, who remarked that “the gods have not revealed all things to men from the beginning, but by seeking they find in time what is better.”¹² The opposite, lapsarian model of history as a story of decline was also attested in antiquity and was occasionally invoked to express admiration and nostalgia for early sculpture (echoed in archaistic sculpture), but was rarely attached to accounts of architecture.¹³ The current consensus on the stylistic seriation of Greek architecture is indebted to the diligent work of many investigators improving upon the sequence sketched by Le Roy, but it would be a mistake to regard ancient viewers, especially ancient builders, as oblivious to changes visible in the edifices around them.

When it came to the Ionic order, it was the convex volute that stood out to early investigators as the most striking feature of Archaic capitals. It was an unmissable contradiction to the terminology recorded by Vitruvius, which assumed the

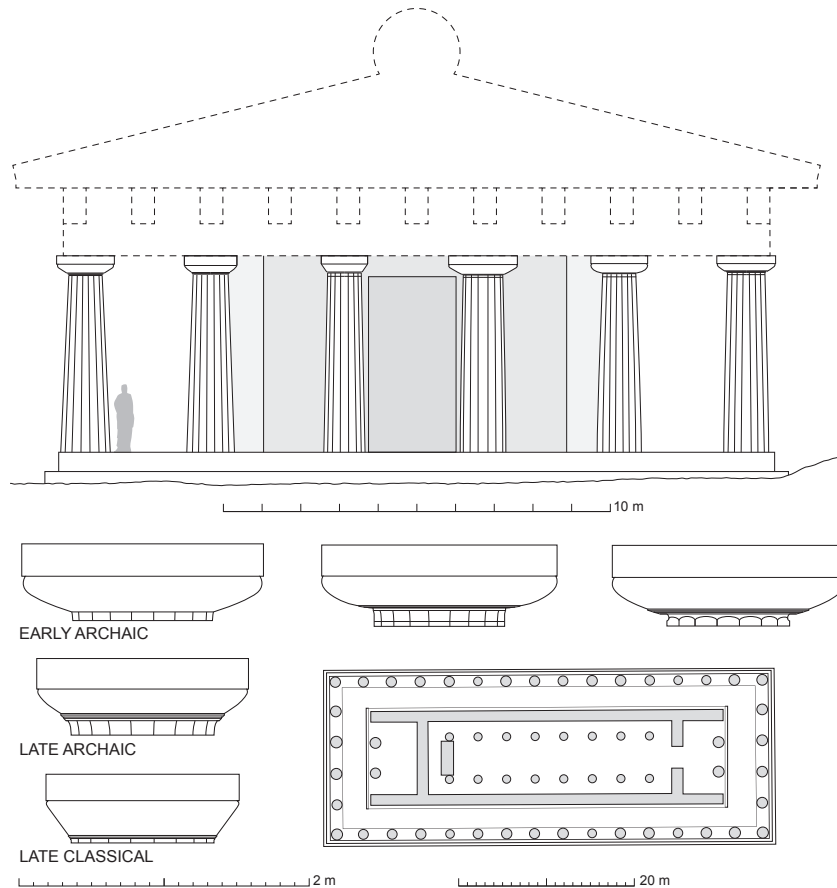


1.1. Robert Sayer after Julien-David Le Roy, comparison of Doric orders from Delos, Thorikos, and Corinth (Le Roy 1758b, plate 25).

volute “channel” (*canalis*) was by nature a sunken relief. This first impression of early capitals, however, became more complicated as more came to light, including numerous singletons from freestanding votive columns that could not be assigned a date as easily as whole buildings. Some of the very earliest capitals had a flat volute surface with an incised or painted helix, and some from the Cyclades had a shallow concave volute almost from the beginning. As Roland Martin put it in 1973: “We increasingly recognize that decoration is far from being the essential element that allows us to define the specific characteristics of a group; it sticks, often as an external addition, to very different structures and only these can provide the essential criteria for the classification of capitals.”¹⁴ Martin was part of a wave of studies of the proportions of Ionic capitals that looked beyond the surface to proportional ratios in the dimensions of capitals as the basis for chronological sequencing.¹⁵ The specialist consensus that surface carving alone is not a dependable dating criterion, however, does not negate the signifying power of style to ancient viewers. In fact, it was precisely because sculptural style conjured earlier times and places that it was revisited—tangling up what might have been a tidy sequence of chronological markers.

Beginning with John Boardman, scholars have queried whether bilingual Ionic capitals are “transitional” between the convex type common in the sixth century and the concave type that became standard from the fifth century onward.¹⁶ Anton Bammer, however, pointed out that these capitals have a long chronological span and cannot all mark a moment of sequential succession.¹⁷ The contradiction between the place of these monuments within a sequence of styles and the actual chronology of their construction highlights how buildings tell stories about the past. Bilingual Ionic monuments are hardly alone in mixing disparate elements: many notable Greek temples change styles, either of architectural elements or architectural sculpture, from one side to another or from inside to outside. It is essential to distinguish between buildings that are heterogeneous *by circumstance* and heterogeneous *by design*. The former were built at periods of rapid change or were gradually built, renovated, or repaired over long periods of time, leaving inconsistencies that display each building’s life story. The latter also tell stories about the past but were built with contrasting elements from scratch.

Two Doric temples, the temple of Aphaia at Aigina and Temple E at Selinous, are staples of Greek art history because their sculptural programs appear to change style from the west side to the east side. Scholars agree that the pediment figures at Aigina and the metopes at Selinous were carved during the rapid period of change between the late Archaic sculptural style and the Severe Style of the early Classical period, preserving this transformation in stone. There is, however, disagreement on the exact timing this change of style implies: Was there a hiatus in work or on-the-job innovation? For example, Brunilde Ridgway dated the west pediment of the Aphaia Temple to ca. 490 and the east pediment beginning a decade later, while Andrew Stewart dated the whole sculptural project to the decade of 480–470.¹⁸ The sculpted metopes of Temple E at Selinous are even more puzzling because the start of construction, which was previously dated ca. 480 to accommodate the Archaic features of the western metopes, has been pushed down to ca. 460 by new analysis



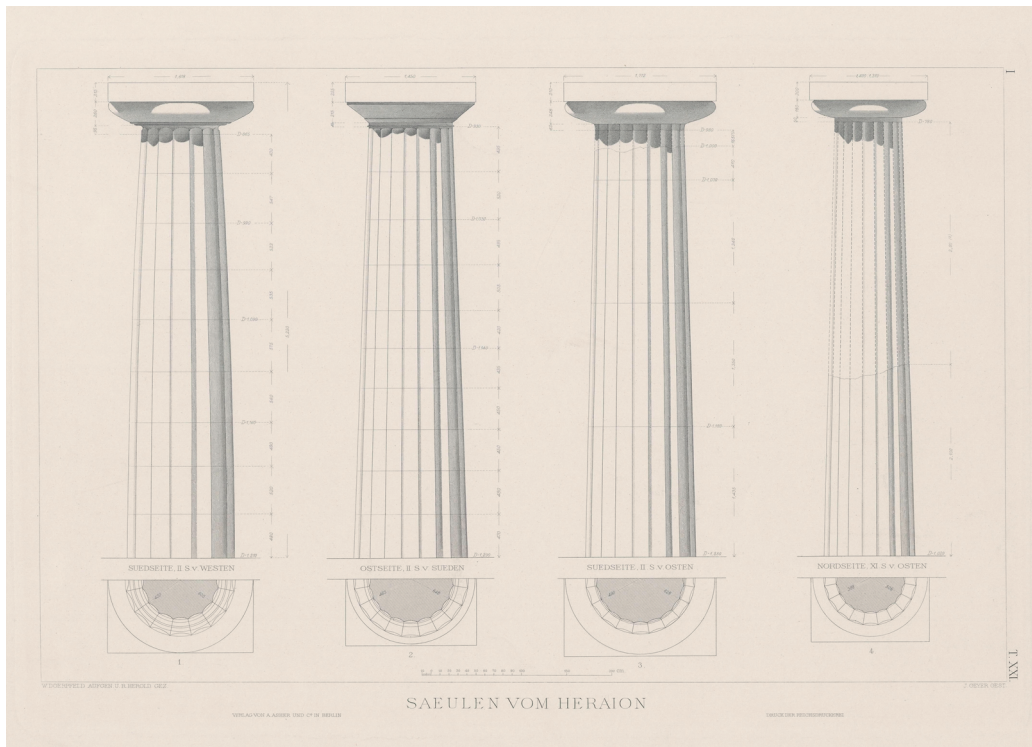
1.2. Olympia, temple of Hera, Doric capitals spanning the sixth to fourth centuries BCE (drawn after Curtius and Adler 1892, pl. 22).

of the foundation pottery.¹⁹ Works of architectural sculpture exhibit great stylistic variation when viewed up close, but temples also present architectural forms that are visibly distinct from each other at a distance.

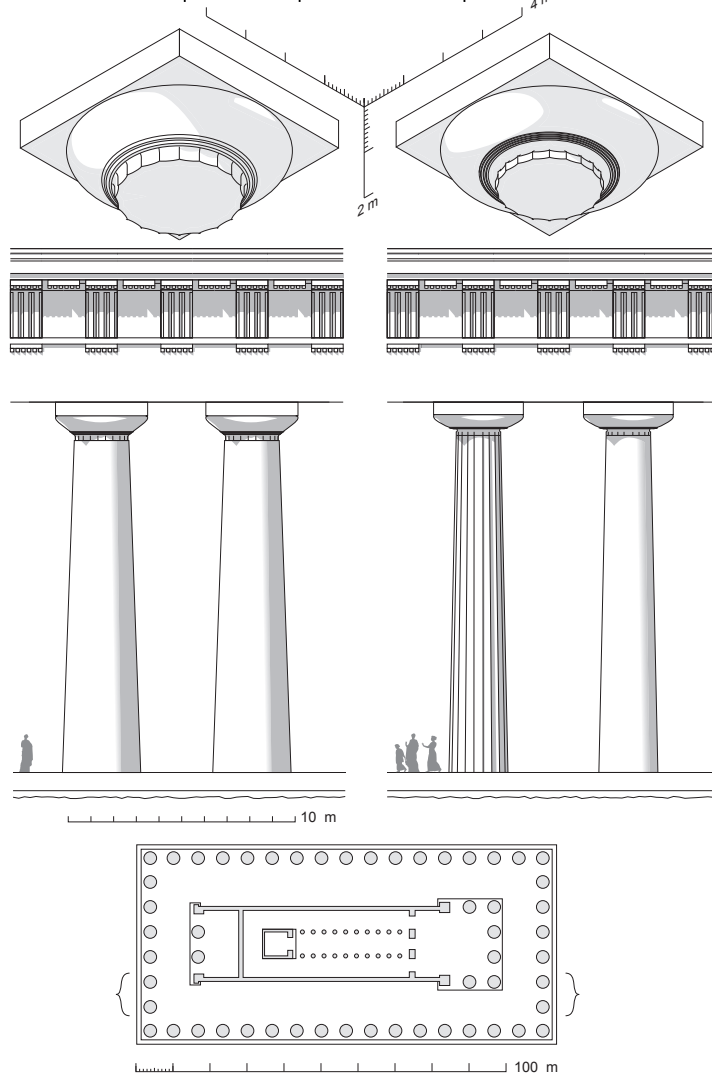
The temple of Hera at Olympia (fig. 1.2) is the most striking example of the build-up of columns in many styles, presenting a span of Doric architecture from ca. 600 through the fourth century BCE. When Wilhelm Dörpfeld first studied this temple, he proposed that the structure offered direct confirmation of Vitruvius's legendary account (4.2.2) that the first Doric temples were executed in wood and only later turned to stone. The absence of stone superstructure showed that all construction above the columns was executed in wood and terra-cotta. This inspired Dörpfeld to propose that the temple was much older, originally built all of wood and gradually petrified as rotting wood columns were replaced with more permanent stone ones, producing a transitional structure with a bricolage of historical styles.²⁰ Philip Sapirostein, however, has convincingly argued that this interpretation is untenable: the substantial stone foundation running continuously beneath all the columns shows that stone shafts were planned from the outset.²¹ Instead Sapirostein proposes a scenario of a drawn-out initial construction phase that spanned the sixth century. Repairs were then conducted in the fourth century as part of a larger

campaign of renovations at Olympia, which also left the temple of Zeus with heterogeneous columns (see fig. 3.30). The Heraion columns follow a general, stocky template, but they vary in diameter, the relief carving of the flutes, and the design of the capitals (fig. 1.3). The capitals range from early Archaic types with wide overhangs, pillowy profiles, and elaborate annulet patterns, to streamlined Classical capitals, which have narrower, conical profiles separated from the shaft by a more subdued necking band. Generations of stone-carvers worked on the temple of Hera uninhibited by expectations of conformity. Although the peppering of so many styles across the entire building prevents the reconstruction of the exact sequence of work, the general impression is of new and old standing side by side.

A spatial sequence of styles could be seen in the colossal Temple G at Selinous, which was begun ca. 530 and continued to be built until ca. 460 (fig. 1.4).²² The temple's facade is in an Archaic style with pillowy capitals that significantly overhang their shafts. The west elevation, which faced the ancient city, had thicker columns with more conical capitals in a design approaching the forms of the early Classical period. Temple G was used as a temple, but the project was left in a visibly unfinished state.²³ The colossal task of channeling the flutes of the columns—put end-to-end the flutes would have stretched thirteen kilometers—never progressed beyond four of the eight columns of the facade. Temple G belongs to the league of colossal temples over 100 meters long, including the Doric temples of Zeus at Akragas and of Olympian Zeus at Athens, which were inspired by the three Ionian dipteral



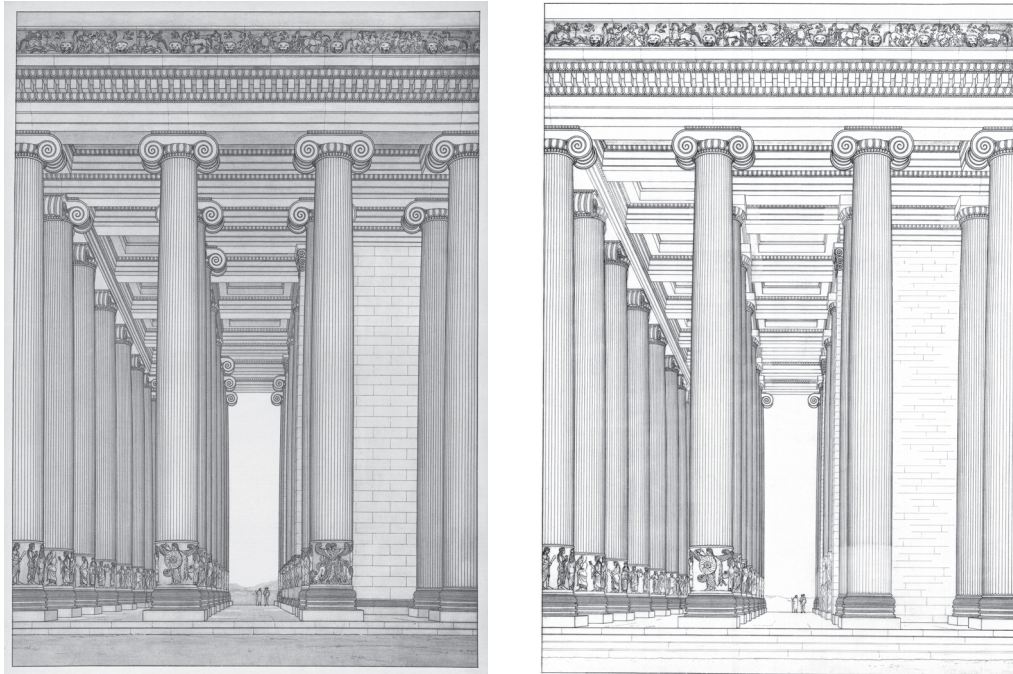
1.3. Olympia, temple of Hera, Doric columns spanning the sixth to fourth centuries BCE (Curtius and Adler 1892, pl. 21).



1.4. Selinus, Temple G, examples of the newer columns of the west elevation (left) and older columns of the east elevation (right), only half of which were fluted (after Koldewey and Puchstein 1899, figs. 103–6).

temples at Ephesos (Artemis), Samos (Hera), and Didyma (Apollo). All these ambitious undertakings stretched over many decades, and most remained unfinished to some degree. None are as well preserved today as Temple G, but many of them, particularly the temple of Artemis at Ephesos, must have given a similar impression of a long history of building revealed by dissimilar elevations.

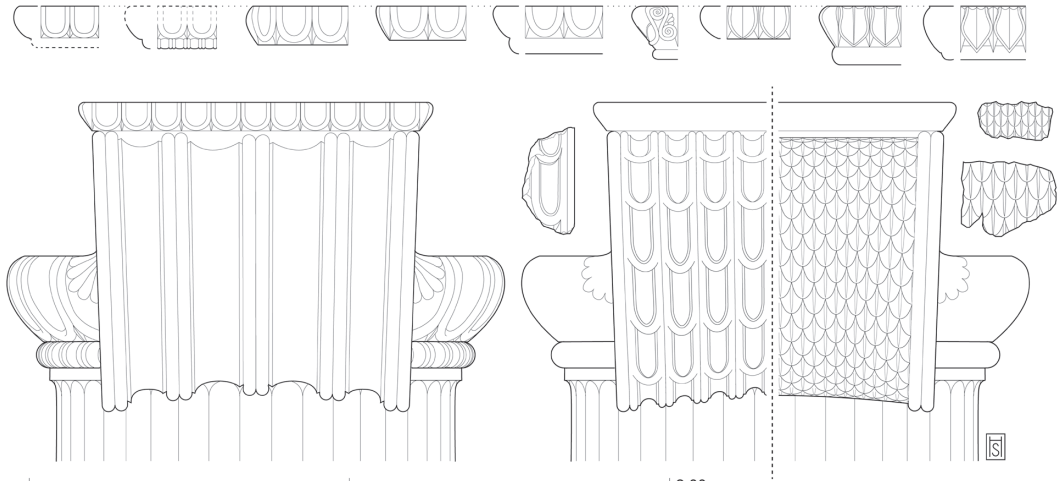
The project to build the Archaic temple of Artemis at Ephesos took more than a century, as did the effort to rebuild it after the fire of 356. According to Pliny, who blurs the distinction between the first and second iteration, the temple “occupied all Asia Minor for 120 years.”²⁴ In a treatise on botany (*Hist. pl.* 5.4.2), Theophrastus reports that the project put the exceptional shelf life of cypress wood to the test, when timber harvested for the temple’s doors was stored for four generations before being used. Aenne Ohnesorg proposes that construction on the Archaic temple



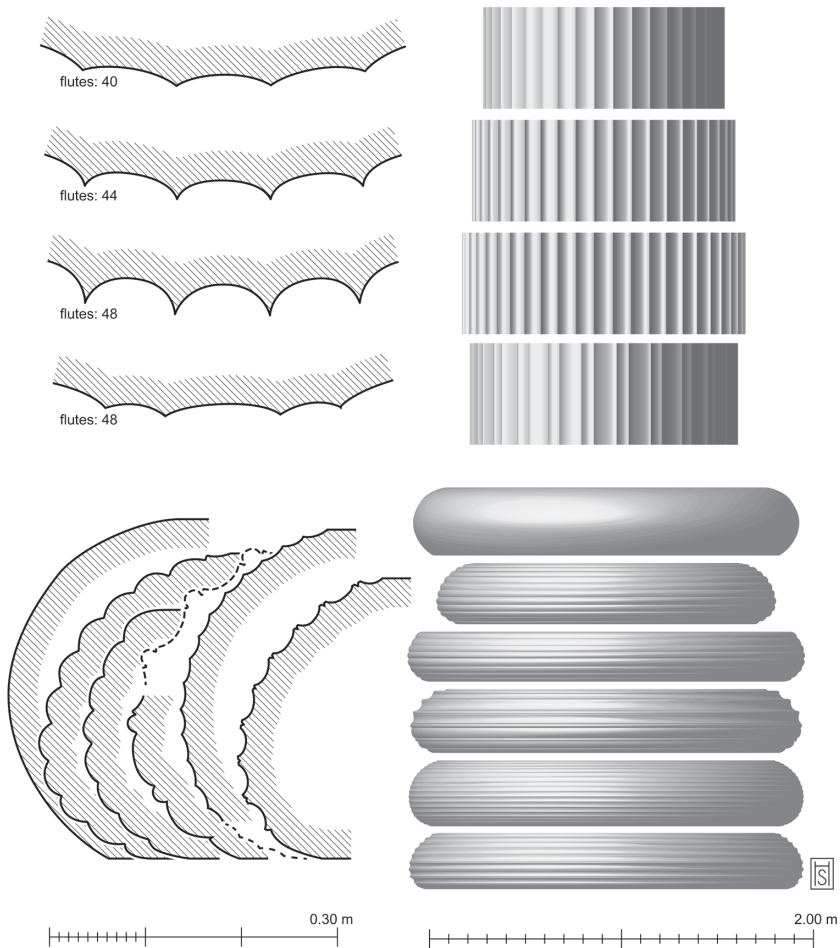
1.5. Ephesos, Archaic temple of Artemis, reconstructed perspective by F. Krischen (left) (Krischen 1938, pl. 33) and updated by A. Ohnesorg (right) (Ohnesorg 2007, pl. 38).

began as early as ca. 575 / 570 BCE and continued down into the 450s.²⁵ Ulrike Muss has shown that the sculpture has a range of styles spanning the mid-sixth to mid-fifth century, progressing from the relief figures on the lowest column drums to the scenes on the sculpted sima at the building's roofline.²⁶

Reconstruction illustrations of the Artemision, foremost among them the 1938 perspective drawing by Fritz Krischen (fig. 1.5) perennially reprinted with updates as scholars make corrections such as the presence of echinus capitals without volutes, gives a limited sense of the myriad textures of the actual surviving elements.²⁷ Fragments of column shafts, for example, show columns with thirty-two, thirty-six, forty, forty-four, and forty-eight flutes, with a range from shallow to deep carving, and at least one column with a rare design of alternating narrow and wide flutes (fig. 1.6).²⁸ The torus elements topping the column bases were even more dissimilar, with smooth profiles, or carved with convex rods, concave channels, convex and concave elements together, and occasionally sculpted with patterns of water-plant leaves (fig. 1.6).²⁹ The surviving fragments of capital volutes are all of the convex, Archaic, Ionic type, but there were at least three designs for the bolster sides of the capitals: a standard Archaic form of four large channels, a variant with channels subdivided into tongues, and interlaced leaf patterns that belong to later phases of construction dating from the Classical period (fig. 1.7).³⁰ Fragments of large rosettes were once mistakenly identified as a second capital type, but are now understood to be the inside angle of the corner capitals (fig. 1.8).³¹ Smaller Ionic buildings usually combine two mitered half volutes or simply leave the two awkwardly intersecting interior volutes uncarved, but the colossal scale of the temple of Artemis required a

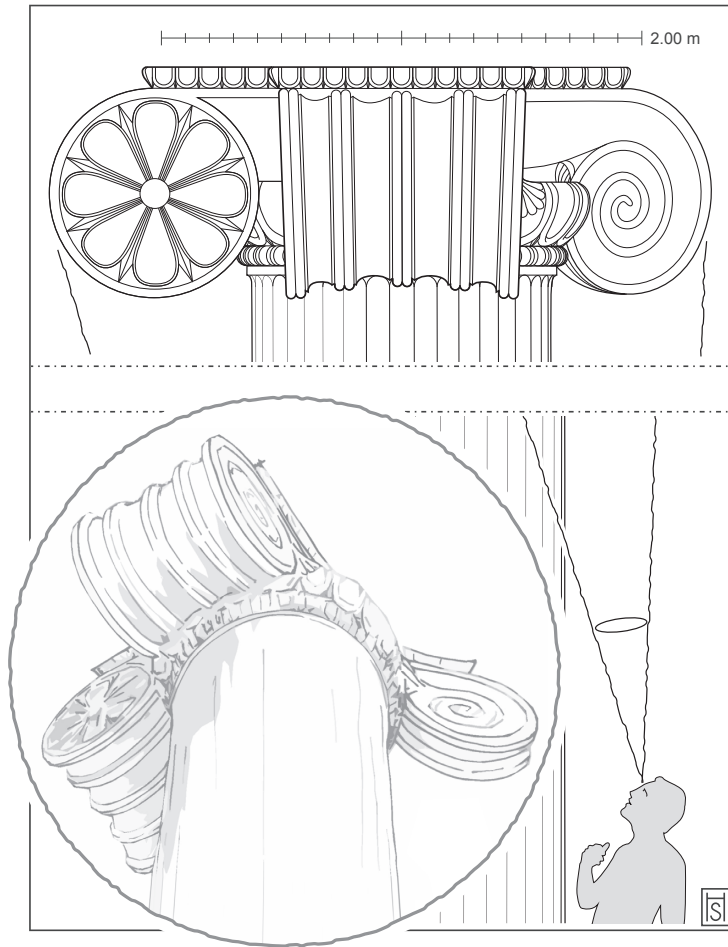


1.7. Ephesos, Archaic temple of Artemis, side view of capital showing the standard bolster design of four channels, as well as fragments with the interlaced leaf patterns and a selection of abacus moldings (drawn after Ohnesorg 2007).

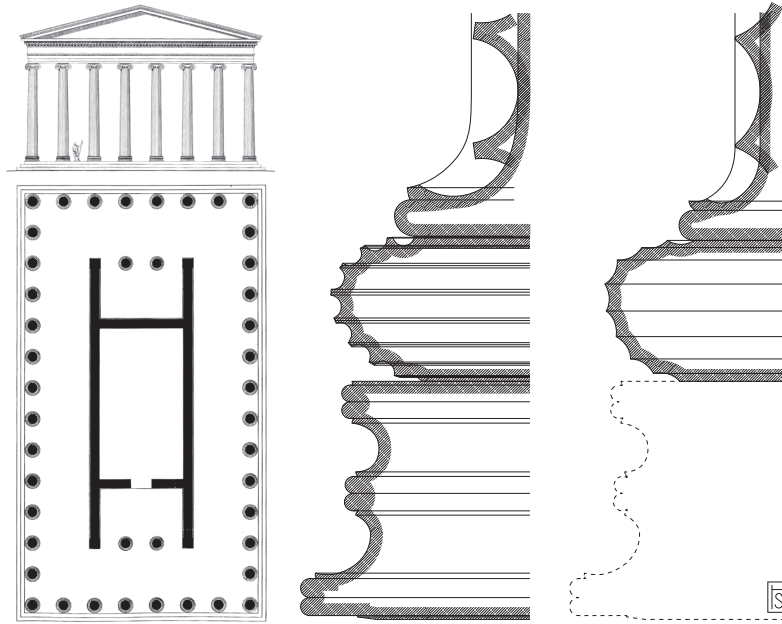


1.6. Ephesos, Archaic temple of Artemis, selection of column shafts and torus base profiles.

1.8. Ephesos, Archaic temple of Artemis, corner capital seen from below (drawn after Ohnesorg 2001, fig. 8).



better solution: the substitution of the volutes with two large rosettes, each almost one meter in diameter. Not only would a visitor see differences among the temple's columns, but looking up at the colossal colonnade from below it was possible to see in a single snapshot view that the corner capitals had convex volutes on one side and rosettes on the other. Simply put, variegation must have been one of the building's most striking features. Pliny cuts off his account of the construction of the temple (*HN* 36.97) by noting that "the other embellishments of the building are enough to fill many volumes."³² No stranger to voluminous description—the comment falls midway through the thirty-sixth volume of his *Natural History*—Pliny hints that the opulence and variety of this temple's decoration were well-known. Pliny also hints at an explanation for the variety seen in the temple: each column was donated by a different king (*HN* 36.95). Pliny's comment is an embellishment of the statement of Herodotus (1.29) that the majority of the columns of the Archaic temple were donated by the Lydian king Kroisos, a claim that is substantiated by dedicatory inscriptions in Greek and Lydian found on fragments of its columns.³³ Occasionally, the piecemeal appearance of the columns in the temple of Hera at Olympia has been attributed to multiple donors, but inscriptions naming separate benefactors of individual columns are only known in the Hellenistic and Roman imperial periods.³⁴



1.9. Lesbos, temple at Messon, late Classical profiles from the exterior columns (center) and archaistic profiles from the pronaos and opisthodomos columns (right) (plan and elevation adapted from Koldewey 1890, pl. 20).



1.10. Lesbos, temple at Messon, archaistic drums of rosy volcanic stone in the opisthodomos (foreground) and drums of white limestone in the peristyle (background).

While some Ionic temples, such as the three great Archaic Ionian dipteral temples, were heterogeneous *by circumstance*, others were heterogeneous *by design*. For example, the late fourth-century Ionic temple at Messon, Lesbos, mixed styles and materials in its colonnades: the columns encircling the temple were carved of fine white limestone and executed in the contemporary late Classical style (fig. 1.9, fig. 1.10).³⁵ The fluting of the column shafts and torus column bases takes the

canonical Classical form of semicircular channels separated by flat fillets rather than sharp arrises. Within the colonnade, however, the columns of the pronaos and opisthodomos were of a different style and material. The fluting of the column shafts and torus bases are shallow and terminate in pointed arrises. Early travelers mistook the drums for Doric columns because pointed arrises became a canonical feature of Doric style, but the temple's builders were reverting to the style of sixth-century Ionian temples (compare with fig. 1.6 above).³⁶ The shallower carving could be a response to the harder stone used for these columns, but this choice—to use a rosy volcanic stone resembling the island's andesite bedrock—also seems to be a feature evoking a primeval past. Deploying different materials and period styles between the outer and inner rows of columns created a dramatic effect that made approaching the cella feel like returning to an earlier time in the island's history. Bilingual Ionic capitals engaged in the same staging of heterogeneity.

There are a few internal differences in bilingual Ionic monuments that are heterogeneous *by circumstance*. The temple in Thessaloniki (chapter 4) shows extensive recarving after it collapsed, and the temple of Athena Trecheia at Ephesos (chapter 6) had one of its capitals replaced in the Roman imperial period. Both cases of recarving and replacement, however, retained the bilingual design evident from the initial building phase. Everything, in fact, points to bilingual Ionic capitals as heterogeneous *by design*. To understand why they were made this way, it is helpful to consider another type of two-faced artifact that is also often dubbed “transitional” but has been reconsidered: bilingual Attic vases.

Bilingual Attic vases, which combine the black-figure and red-figure painting techniques on opposite sides, were long interpreted as stepping stones between the older and younger vase-painting techniques (see fig. 0.4). Because they so conveniently contrast the two techniques, Greek art textbooks typically use them to introduce the transition from one to the other.³⁷ Their transitional status, however, is generally disputed, as they are not the first with red-figure painting but rather fall within a generation-long overlap when both painting techniques were current.³⁸ The black-figure technique did not cease altogether. It continued to be used for a few decades more on Attic funerary *lekkythoi*, and it persisted for a much longer period on Panathenaic prize amphorae—objects with ritual function and social currency, where the maintenance of consistent appearances was key to establishing the objects' identification and value.³⁹ Furthermore, bilingual vases are anything but incidental in their mixture of techniques. Their duality is bold and total, deploying duplication and mirroring to produce something polysemous, taken to its greatest elaboration on an eye cup where red-figure and black-figure warriors duel while their dying comrades collapse through the frame that separates their pictorial worlds (fig. 1.11).⁴⁰ Vases were inexpensive, portable, and personal objects not immediately comparable to architecture. Yet their striking visual effect and the scholarly attention to their change in style offers a useful model.

John Beazley coined the term “bilingual” for vases combining both the black-figure painting technique, in which figures are painted as black slip silhouettes with details incised through the slip, and the red-figure painting technique, in which a field of black slip is painted around figures left in reserve with details



1.11. Bilingual eye cup signed by Andokides as potter (adapted from Schneider 1889, pl. 4). Museo Archeologico Salinas, Palermo [V650].

added with a delicate brush.⁴¹ Beazley tried to apply his method of connoisseurship, through which vases could be grouped by shared details marking the personal styles of mostly anonymous painters, but was ultimately of two minds about bilingual vases, vacillating over whether the black-figure hand of the Lysippides Painter and the red-figure hand of the Andokides Painter were connected to the same human body.⁴² Beazley's successors continued this debate, sometimes veering toward psychoanalysis to present scenarios in which the Lysippides Painter and the Andokides Painter were mismatched coworkers grudgingly compelled to collaborate or a unified Lysippides-Andokides Painter struggling to break free from an overbearing teacher (Exekias) to find a personal outlet.⁴³ Bilingual vases pose a challenge to Beazley's method of connoisseurship because few of the personal markers of authorship can be reliably traced across the change in tools and techniques.

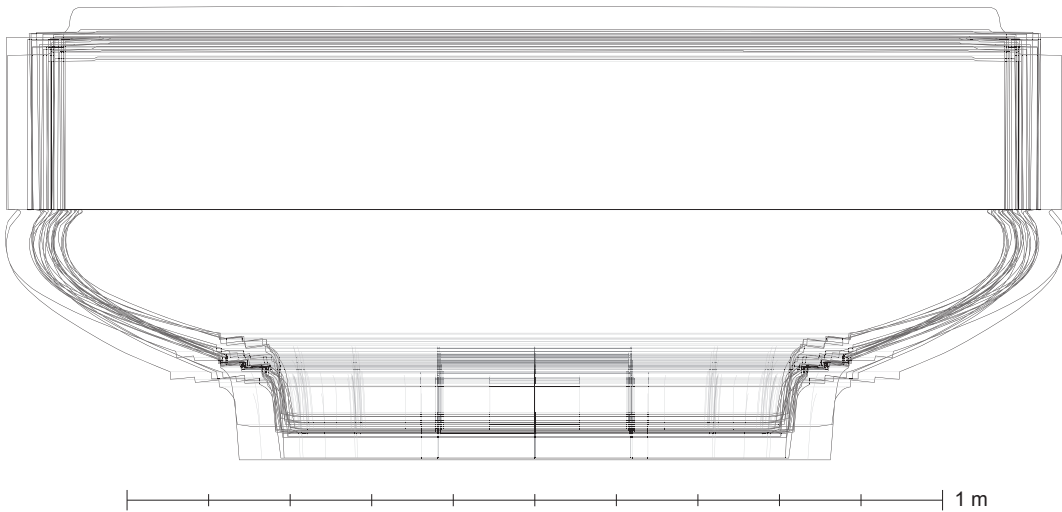
Richard Neer has done much to shift the discussion on the invention of the red-figure technique by reframing it, not within a developmental narrative where it stands as an inevitable step toward more naturalistic and mimetic art, but within a period that saw vase painters experimenting with many different techniques including added polychromy, where it was simply "one novelty among many."⁴⁴ From this short-term viewpoint, bilingual vases are not a "missing link" in an evolutionary sequence, but exhibition pieces:

On these early vases, red-figure does not compete with black-figure: it complements it. Painters employ new and old in tandem, apparently operating on the logic that two techniques are better than one. Indeed, an emphasis on technique itself—on virtuosity and craft—is characteristic of bilingual pots. ... The point seems to be that to have both versions, positive and negative, is desirable. There is a virtual deadlock in such instances, as though technical extravagance—mere visual richness—were an end in itself. The Greek word for such lavishness is *poikilia* (literally, "adornment").⁴⁵

Against a backdrop of many competing techniques, Neer proposes that bilingual vases fit an ancient aesthetic appreciation of visual diversity often expressed through the term *poikilia*. It is essential to understand a culture in its own terms, and *poikilos*, the adjective used to describe things that were multicolored, patterned, embroidered, gilded, shimmering, and even shapeshifting, could have been an ancient descriptor applied to bilingual Attic vases and bilingual Ionic capitals.⁴⁶

Along similar lines, Gottfried Gruben saw the double-sided differences of bilingual capitals as a display of *Variationsfreude* (“delight in variety”) on the part of carvers working “with artistic license.”⁴⁷ The concept of *Variationsfreude* itself seems partly to belong to a renewed appreciation of ornament and historical styles in the German architecture academy that accompanied postmodernism.⁴⁸ The emphasis on joy as a quality of architecture also recalls the programmatic statement of Vitruvius (1.3.2) that sets “delight” (*venustas*) as one of the three tenets of the art of building. Gruben’s impression that the multiform Ionic capital was a source of joy to its maker mirrors Neer’s emphasis on *poikilia* as the ancient aesthetic concept of beauty in visual complexity that explains the emergence of bilingual vases. A subtle distinction can be drawn between the two parallel formulations. Gruben’s *Variationsfreude* prioritizes the creative process and artistic liberty of the stone carver, while Neer’s *poikilia* is in the eye of the consumer with vase painters keen to capitalize on market demand. The emphasis on market trends might go some way to explaining the shorter chronological range of bilingual vases compared to the capitals. The bilingual vases appear in a rapid burst, roughly simultaneous to the examples of bilingual capitals on Delos (chapter 2) and the northern Aegean (chapter 4), but they faded away quickly. The continued production of bilingual capitals in Athens in the mid-fifth century (chapter 5) and at Ephesos, Selinous, and Delphi in the fourth and third centuries (chapter 6), indicates a greater staying power.

Embracing variation could have a function in the construction process. Stone workers often had good reason to treat design specifications as elastic, by stretching, compressing, or changing patterns to fit stone blocks, rather than the other way around. The capitals of the temple of Artemis at Ephesos, for example, are topped off with a wide array of carved moldings, (see fig. 1.7), each seemingly composed on the spot to fit an abacus with a different height. The abacus at the top of an Ionic capital was the last area of wiggle-room when erecting a column; here any differences in the total heights of the columns, which inevitably resulted from the compounding of millimeter-level discrepancies among all the column drums, could be shaved off the top so that the architrave beams could be set level. The seemingly ad hoc molding designs on the abacus were an essential mask of ornament for a zone that was the literal margin for error in the total dimensioning of the column. More dramatically, in the case of the temple of Athena at Assos, Bonna Wescoat has shown how a flexible system based on simple proportional guidelines rather than fixed dimensions could lead to a heterogeneous appearance even within a rapidly built project.⁴⁹ Beginning from quarried blocks that were not always of exactly the same dimensions, carvers at Assos made capitals following a general scheme of proportional relationships, which was revised slightly as builders moved from the short ends of the temple to the sides.⁵⁰ Although the carvers used compasses and rotating templates to make



1.12. Assos, temple of Athena, superimposed profiles of the thirty-two surviving Doric capitals (drawn after Wescoat 2012).

individual capitals perfectly circular and symmetrical, they did not transfer the design of one capital to the next through templates. Superimposing the profiles of the surviving thirty-two capitals (fig. 1.12) produces a blurred silhouette, even when ignoring the capitals of the enlarged corner columns. Ancient builders depended upon a large box of tools for working with precision and consistency at large scale (straightedges, compasses, plumbs, levels, templates, jigs, etc.) and inscribed building accounts reference wax and plaster models used as guides for the standardization of carved ornaments, and even a complete Ionic capital used as a model.⁵¹ Nevertheless, the simple fact that the Greek temple was a handmade building must not be forgotten.

Who Made Buildings This Way?

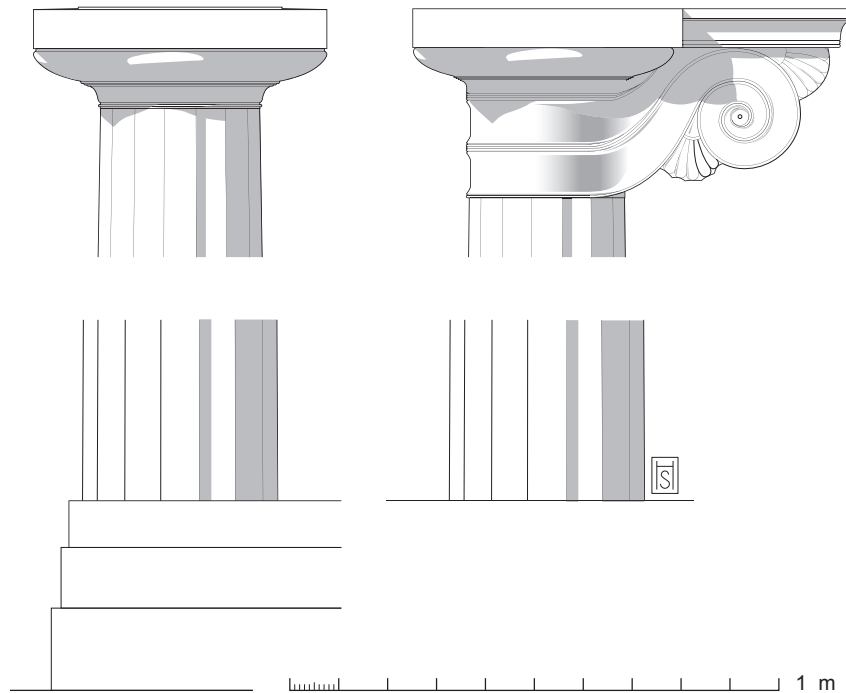
The first bilingual Ionic building was on Delos, and at least two subsequent monuments have Cycladic connections: the temple of Parthenos was built in Neapolis, which was a colony of Thasos, itself a colony of Paros, and the last bilingual Ionic monument was built at Delphi with imported Parian marble. From these connections, Elena Partida suggests that bilingual capitals may reveal Cycladic workshops or architects on the move.⁵² The distinguishing feature of bilingual capitals, however, is the recreation of the old, east Ionian convex volute. Lucy Shoe Meritt interpreted bilingual Ionic capitals in Attica as proof of connections with Asia Minor, not the Cyclades.⁵³ Identifying the origins of artisans from the provenance of their style is slippery when the works are themselves stylistically multiform. Partida's and Shoe Meritt's proposals ask an essential question: Who made buildings this way?

Ancient temple building happened in fits and starts, and large projects depended on contracting many private entrepreneurs, especially itinerant

workshops of skilled builders.⁵⁴ Thucydides twice mentions (4.69, 5.82) Athens sending stoneworkers to quickly fortify allied cities amid the Peloponnesian War, which gives a sense of the great mobility of workshops. The prevalence of Samian features on the Ionic temples in Syracuse and Lokroi Epizephyrioi in Sicily and South Italy has long suggested that itinerant workshops from the temple of Hera at Samos traveled west, probably during a period of turmoil after the assassination of Polykrates in 522 BCE, seeding a new school of Ionic architecture in Magna Graecia.⁵⁵ The inscribed building accounts for the Erechtheion on the Athenian Acropolis record that almost 40 percent of the workers were *metics*, free noncitizen residents, and a sizeable number of skilled workers were enslaved people.⁵⁶ Although most of the *metic* builders of the Erechtheion were likely freedmen or itinerant builders from Greek cities other than Athens, some *metic* and enslaved workers have names that could indicate Persian, Phrygian, Lydian, Karian, and Egyptian backgrounds (Medos, Manis, Kroisos, Karion, and Psammis respectively).⁵⁷ In contrast, J. J. Coulton pointed out that known ancient architects were most often locals to cities or regions, in no small part because patrons entrusted them with administrative and financial responsibilities as well as design oversight.⁵⁸ If the combination of different regional styles reflects human mobility, it is more likely the mobility of stone carvers than of architects.

The Throne of Apollo at Amyklai offers a definite reference for the amalgamation of regional practices by itinerant workshops.⁵⁹ In the mid-sixth century, a sculptor from Asia Minor, Bathykles of Magnesia, was commissioned to build a cult structure at Amyklai, just south of Sparta. Bathykles hailed from the wider region of Ionia (technically as a Magnesian he was ethnically Aeolian), and he added Ionic flourishes to the Doric colonnade, including volute brackets springing from some of the Doric capitals (fig. 1.13).⁶⁰ According to Pausanias (3.18.4), Bathykles used part of the money from the commission to dedicate a statue of his native city's patron, Artemis Leukophryene, and included a frieze depicting his team of Magnesians stone carvers dancing. The mixed Doric-Ionic scheme was the product of hiring a designer and team of craftspeople from the other side of the Aegean. Although a local Lakonian could not have imagined the startlingly inventive creation of Bathykles, it is implausible that this building's patrons sought out a design workshop from Asia Minor with the expectation of creating a conventional Doric structure. The Spartans, despite their insular reputation and stories of their gruff rejection of Ionian luxury (Hdt. 5.51), were adventurous patrons in the Archaic period, supposedly hiring Theodoros, one of the architects of the temple of Hera on Samos, to build the Skias, the covered meeting place of the Spartan assembly (Paus. 3.12.10).⁶¹ The mixed Doric-Ionic capitals of the Throne of Apollo at Amyklai, therefore, offer a model of agency that takes into consideration not just Bathykles as an itinerant architect, but also his traveling team of Magnesians stone carvers and the Lakonian patrons who hired them. The same model applies to bilingual Ionic capitals.

Bilingual Ionic capitals may best be explained by a model of distributed agency resulting from a chain of decision-making, connecting patrons, architects, and stone carvers. Ancient accounts give mixed impressions about the autonomy of architects. At one extreme, Vitruvius (4.3.1) recounts that the architect Hermogenes



1.13. Amyklai, Throne of Apollo, Doric columns and Doric columns with volute brackets (after Fiechter 1918, pl. 6–9, 18).

took a commission from the city of Teos to design a Doric temple for Dionysos but duped his clients, who only discovered his plan to erect an Ionic temple when the blocks arrived from the quarry.⁶² The Athenian decree authorizing “that the temple [of Athena Nike] be built in whatever way Kallikrates may specify” (*IG I³ 35*, ll. 11–12) seems at face value to give the architect carte blanche, though an amendment makes clear that he must report to and collaborate with a building committee.⁶³ An Athenian decree specifying additions to the Long Walls (*IG II² 463*) has so many added clauses that it has been taken to be the work of multiple authors offering alterations to an architect’s design—that is, design by committee.⁶⁴ From the fifth century on, inscriptions describe temple building through public-private partnerships, where patron cities and sanctuaries appointed committees of building overseers (*epistatai* or *naopoioi*) to ensure that the architect’s patron-approved specifications (*syngraphai*) were carried out to the letter by teams of stone workers operating as private contractors. Building contracts for the temple of Zeus Basileus at Lebadeia include provisions that overseers from the Boeotian League must witness the setting of every block and that blocks set without oversight must be removed even if positioned correctly (*IG VII 3073*, ll. 170–76).⁶⁵ It comes as no surprise that a project with such intense administrative surveillance was never completed. Architects who bucked their instructions could pay dearly. An inscription from Epidauros records that the fourth-century architect Perillos was fined 2,160 drachmas in connection with building the Abaton in the sanctuary of Asklepios and the springhouse behind it, effectively a fine of six years’ salary.⁶⁶ The inscription does not say how Perillos erred as an architect, but it indicates that he appealed an initial fine of four years’

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