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Structure, Image, Ornament: Architectural Sculpture in the Greek World

Proceedings of an international conference held at the American School of Classical Studies, 27–28 November 2004

Edited by
Peter Schultz and Ralf von den Hoff

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Most of the papers in this volume are based on a conference hosted by the American School of Classical Studies, Athens and the Deutsches Archäologisches Institut, Athens which ran 27–28 November 2004. It was the second conference on ancient Greek sculpture organized by the editors of this volume in cooperation with these institutions after “Early Hellenistic Portraiture: Image, Style Context” in 2002, and it was the first major conference event held in the newly finished Cotsen Hall. The purpose of the colloquium was to bring together an international team of experts in the field of architectural sculpture to discuss problems specific to this sub-field. The conference was a success – not so much because of our efforts but rather because of our superb speakers and an energetic audience. While the conference was well received, we did feel that further papers were required to fill out a proper proceedings and to cover the important field of Greek architectural sculpture as widely as needed. For this reason, we contacted Martin Bentz, Patricia Butz, Robin Osborne, Katherine Schwab, Justin St. P. Walsh, Hilda Westervelt and Lorenz Winkler-Horacek all of whom had been doing important work in the field of architectural sculpture; while these scholars were not able to present their research in Athens, we are honored by their contributions to this volume. Our further thanks go to those colleagues, who participated in the Athens conference and contributed papers to this volume. They will make this book a success. We also are indebted to Dorothy King, Vinzenz Brinkmann, Andreas Grüner, Rudolf Känel and Richard Neer, who provided contributions to the conference and highly enriched our discussions in Athens.

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The authors’ choices in transliterating Greek has been respected in the text. English or American usage and spelling have also corresponded to authors’ preference. Bibliographic abbreviations follow the guidelines of The American Journal of Archaeology at http://www.ajaonline.org/index.php?ptype=page&pid=8 (downloaded 15 April 2008).

Peter Schultz
Concordia College

Ralf von den Hoff
Institut für Archäologische Wissenschaften
der Albert-Ludwigs-Universität Freiburg
Abteilung für Klassische Archäologie

July 2008
The Origins of the Corinthian Capital

David Scahill

The Corinthian capital – like all capitals – has the dual function of being a structural element of a building that also serves as ornament.1 When used structurally, its function is to transfer the load from the entablature to the column. As ornament, it is sculptural in the most literal sense. Interestingly, the origin of the Corinthian capital is the subject of an anecdote recorded by the Roman architect Vitruvius. His story helps to establish a possible meaning for the origin of the form and its constituent design elements. Indeed, Vitruvius’ tale imbues Corinthian capitals with special meaning. The problem, of course, is that Vitruvius wrote and explained the origins of a capital invented roughly 350 years before his time. However, when we trace the design elements that constitute the Corinthian capital there are, in fact, interesting parallels with Vitruvius’ text.

On the face of it, Vitruvius’ story regarding the origin of the Corinthian capital might be dismissed as mere art historical myth-making. Indeed, when he turns to discuss the Corinthian he qualifies his remarks, saying, “it is said that the invention of this type of capital occurred in the following manner.”2 Like the origins of the Doric and Ionic orders, the origins of the Corinthian are uncertain. The basic story that Vitruvius tells is straightforward: a kalathos bearing funeral offerings was conveyed to the grave of a deceased young girl, was placed on the top of the tomb and was covered with a tile. The kalathos rested on top of an acanthus root, causing the acanthus leaves to spread around it and curl over in volutes at the sides (Fig. 4.1). Seeing this, the sculptor Kallimachos (who, Vitruvius points out, was given the name katatechnos by the Athenians for the elegance and refinement of his marble carving) created a column based on this model.3 Kallimachos also fixed the proportions of the order and is said to have made the columns while “at” or “nearby” Corinth, or “among” the Corinthians.4 The particulars are not given.

Are there particular aspects of this story that might
have a factual basis? Three obvious connections present themselves. First, there is a connection between late fifth
century funeral monuments and both the kalathos and
the acanthus plant. Second, there is a well documented
association between the Corinthian capital and the city of
Corinth. Third and finally, Kallimachos was, in fact, an
Athenian craftsman known to the Romans for his artistry
in marble carving and his work in bronze and gold.
Earlier scholars have examined all of these associations.
Specifically, they have pursued the idea that Corinthian
capitals were somehow connected to metalworking.
Traditionally – and in a rather circular fashion – this idea
has been based on Kallimachos’ known association with
metalworking and his connection (via Vitruvius) with
the invention of the Corinthian capital.5 Scholars have
not been able to identify a clear prototype with metal
attachments that might be connected chronologically and
geographically with earliest extant Corinthian capitals.6

The earliest Corinthian capital for which we have
evidence is the example from the Temple of Apollo at
Bassai, examined and drawn by Haller Von Hallerstein
in 1811 and 1812 and by Thomas Allason between 1814
and 1817 (Fig. 4.2).7 The fragments studied by Cooper
add useful information to what Haller described and
drew in his notebooks. A somewhat similar example,
although slightly later in date, comes from the tholos in
the Marmaria at Delphi (Fig. 4.3).8

The essential design elements of the early Corinthian
capitals from Bassai and from the Delphic tholos are the
kalathos, leaf decoration (including acanthus), volutes,
central palmette, spirals, and abacus. According to Haller,
the kalathos of the Bassai capital was painted with a
petal leaf design. It is clear from Haller’s drawing that
the ornamental relief work on the Bassai capital is fairly
restrained. The same is true of the decoration on the
Delphi capitals.9

The Corinthian capitals from Bassai and Delphi were
set up in the interior of their respective buildings. The
earliest extant Corinthian capitals used on the exterior
of a building are the ones that adorn the monument of
Lysicrates dated to 335/4 B.C.10 The relative importance
of the distinction between interior and exterior use of
Corinthian capitals is interesting and deserves elaboration.
Early placement of Corinthian capitals in the interior, as
opposed to the exterior, of a temple or tholos might suggest
that the order had a special role or significance. It is true
that the Corinthian capital, being multisided, obviates
the problem of corner design and that it is ideal for use in
tholoi and interior spaces where it would be viewed from
multiple angles. But what else can be said?

If we take the the Bassai and Marmaria capitals as
a starting point, the essential elements are a kalathos
core, a variety of ornamental leaves including acanthus,
spirals, volutes and palmettes and a crowning abacus.

Fig. 4.2. Corinthian capital at Bassai. A) Drawing: after Cooper 1996, pl. 50 d. B) Drawing after Roux 1961, pl. 17.

Fig. 4.3. Reconstruction of the Corinthian capital from the
tholos in the Marmaria at Delphi. Drawing after Pedersen
1989, fig. 21.
Although the Bassai and Delphi capitals are obviously of Corinthian design, the capitals that come afterwards are far more elaborate. The Corinthian capital from the tholos at Epidauros, for example, can be taken as a fully developed Greek type. By the Roman period, the proportions and decoration did become – in a Vitruvian sense – canonical, although a vast array of variation continue to exist; Vitruvian proportions are never strictly adhered to (Fig. 4.4). The capitals from Bassai and Delphi should thus be seen as examples from an early stage in the development of Corinthian design with the understanding the development probably was not linear and may have been the product of multiple lines of influence. Indeed, the lines of influence that may lead to these two capital types are difficult to pin down. In order to trace the development back to possible prototypes, one useful approach might be to examine the distinct design elements in multiple contexts.

If we break down the parts of the capital into separate categories of decorative motifs, interesting patterns emerge. The kalathos has strong associations with funerary customs; Vitruvius picked up on this theme. As a vessel, the form is already present in the Geometric period and kalathoi were depicted in the fifth century B.C. vases associated with graves, especially on white ground lekythoi (Fig. 4.5). At the same time, the “bell”-like shape of the kalathos, Dinsmoor stressed, also has a tradition in “Aeolic basket capitals” of the Archaic period, illustrated the Clazomenian.

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Fig. 4.4. “Standard” Roman Corinthian Capital. Drawing after Wilson-Jones 2000, fig. 7.28.
The Origins of the Corinthian Capital

and Massiliot treasuries at Delphi. These capitals seem to be a variant form of capitals with leaf design. It is possible that they represent a parallel development to Corinthian capitals that culminate in palm capitals like those of Pergamene type. In any case, it is not possible to firmly conclude that these archaic palm leaf capitals influenced Corinthian capital design. Even so, it is clear that in the archaic period there was a tradition of attaching leaf patterns to a central core. Finally, the form of the kalathos also resembles a taller version of the Doric and Ionic echinus. The Ionic echinus has decoration either painted or carved, but it is often overlooked that the Doric echinus could have painted decoration as well, and there are examples of Doric capitals with leaf patterns carved into the echinus (Fig. 4.7).

The kalathos is not the only aspect of Corinthian design that can be connected to funerary contexts. Acanthus leaves combined with spirals and palmettes are shown crowning grave stelai on white-ground lekythoi in the fifth century B.C. (Fig. 4.6). The acanthus plant appears to be drawn by the artist not as decoration but as a real plant growing from the top of the stele, strengthening the association of the form with growth and regeneration.

At what point meaning became subsumed into a more generalized architectural vocabulary of decoration – if in fact we should understand it thus – is another matter. Other palmette motifs are more readily traced in Aeolic and Ionic design. Palmettes on a central axis suggest derivation from Aeolic and Ionic capitals with central palmettes, which are prevalent by the fifth century B.C.

The palmette, however, nearly disappears from the so-called canonical repertoire of Corinthian design in the Roman period and is replaced by other plant motifs, especially rosettes.

There is more to work with when it comes to volutes. These can be traced to Aeolic design, but, as with the volutes of Ionic capitals, their inspiration is more probably a combination of Near Eastern and mainland spiral designs that can be traced through metal work on votive objects. Spirals and volutes also appear as crowning members of funerary stelai by the Archaic period in Greece. An example of an Archaic stele capital, dated to 500 B.C., from Megara Hyblaea in Sicily, is often shown as an early example of the combination of double volute, or spiral scrolls, with a central palmette. While it does not have acanthus leaves, the Megara Hyblaea capital bears a striking resemblance to the early Corinthian capitals from Bassai and Delphi.
By the time all these elements come together to form the Corinthian capital, their use in other architectural contexts is already well established. Especially noteworthy, again, is their use within the context of funerary architecture. It is interesting how closely this archaeological evidence corresponds to Vitruvius’ anecdote.

What about the association of Kallimachos? From Pausanias, we learn that Kallimachos was known for making the golden lamp in the Erechtheion and his participation with the decoration in this building suggests that he was considered one of the best craftsmen available. Whether or not he actually did make the first Corinthian capital, it is understandable how the association of his name with the invention of such an ornate and distinct form could have occurred; but why Kallimachos and not some other well known craftsman? And why Corinth?

The association of Kallimachos with the Corinthian capital was explored in depth during the latter part of the 19th and early 20th centuries by Chipiez, Choisy and Homolle. These early scholars drew out the connection between the notoriety of Corinthian bronze in antiquity and the story of the invention of the Corinthian capital presented by Vitruvius, noting that Kallimachos was famous for bronze work as well as the invention of the running drill for carving long, fine details.

Besides being a major center of artistic production and trade commanding a position on both sides of the Mediterranean, Corinth, by the Hellenistic period, was also known for the production of a particularly high quality of bronze. Pliny makes several remarks regarding Corinthian bronze. Quoting an ancient authority, Pliny says that the Porticus Octavius, built by Gnaeus Octavius, in the Campus Martius was called the Corinthian portico, because of its bronze capitals. The term “Corinthian” in other words, became synonymous with bronze capitals.

Roux devoted a section on Corinthian capitals to the question of metallic origins; he agreed that the name “Corinthian” could have come from a tradition of metal attachments. Attaching metal decoration to a kalathos core would be a more costly process but a simpler one than carving the decoration in stone. It would also have a different visual effect. However, Roux argued that no evidence for metal attachments existed before the Hellenistic period. In fact, a tradition of attaching metal decoration to capitals did exist in the fifth century B.C. in the Ionic order.

In terms of material evidence, few examples of bronze architectural ornaments have survived. Examples of such ornamentation, however, do exist from the Geometric to the Roman period. There are also several examples of stone architectural members with attachment points preserved. Most importantly for us, the Ionic capitals of the Erechtheion provide solid examples where evidence for bronze attachment is preserved on the capitals themselves. This can be corroborated by the Erechtheion building accounts.

The Erechtheion accounts provide unambigious evidence for the fashioning of wax models of bronze rosettes and acanthus for the coffers of the Erechtheion. Payment is made for the model (παράδειγμα) of the bronze rosettes and the model of the acanthus, for the cover slabs or coffers (καλύμματα) of the ceiling. The use of bronze adornment of the building’s architecture is thus certain. More significantly, metal rods also exist on the bolsters of the Erechtheion’s Ionic capitals for the attachment of a bronze ornament. This bronze ornament could have been a floral design in the form of garlands or wreaths, which was a common motif carved or painted on Ionic bolsters (Fig. 4.7). This evidence can be matched by the Ionic capitals flanking the central passageway of the Propylaea on the Athenian Acropolis which have holes drilled into the upper surface of the echinus and abacus to support a bronze attachment. On the basis of examples in stone, a bronze palmette design can be tentatively restored.

What is certain, then, is that by the middle of the fifth century B.C., at least in Athens, we have evidence of metal attachments.
attachments applied as architectural ornament, specifically the adornment of capitals. Interesting for us, the choice of motifs centered chiefly around acanthus, rosettes, and – in the case of the Propylaia capitals – possibly a large palmette.

Kallimachos’ association with the Erechtheion would mean that he was aware of (if not involved in) the making of bronze and gold architectural attachments. This connection lends some weight to the idea that he may have created a prototype capital in, or using, metal. In this sense, it is easy to see how Vitruvius or his sources might make the association. It is also reasonable that a connection between Corinth and Corinthian bronze would be associated with the first capital of this new type if, in fact, it was made with bronze attachments or if a version of a Corinthian capital existed in metal.

At Corinth there is a kalathos capital, now assigned to a building of the fourth century B.C., that can be tentatively restored with metal attachments (Fig. 4.8). The capital was found in early excavations in the area of the Peribolos of Apollo. Both the capital and column were carved together out of a single block of limestone and together the total preserved length is approximately 0.65m. The bottom section of the column has been broken off. The preserved shaft is comprised of flutes measuring 0.045m, with fillets 0.005m in width. One side of the shaft has been shaved down flat in a section comprising the width of two flutes. Right above this section is a cutting for a socket, approximately 0.13m² and 0.04m in depth. It would appear that this cutting and the flat section below were intended to take a screen or wall, between this column and the next. The top of the shaft is crowned by a fillet and astragal, or half-round.

On top of the column is a kalathos-shaped capital that is important for us. Restored, the capital has an upper diameter of 0.38m, tapering to 0.31m in the middle before widening slightly again toward its base. The total height of the kalathos is 0.33m. At the base of the capital is a recess, 0.005m in depth, 0.01m high. The base of the capital is offset ca.0.035m from the edge of the top of the shaft. The maximum diameter of the kalathos equals the maximum diameter of the top of the shaft. In the upper bearing surface of the kalathos a central cutting roughly 0.07m² and 0.05m in depth can be observed. The capital and column are of local limestone, with occasional pitting. The entire surface, excluding the top, was given a coat of white stucco, traces of which are preserved. The kalathos lacks an abacus. If one did exist it could have been held in place by using the rectangular cutting in the upper surface.

As to the process of carving the kalathos of this column, there are indications that it was turned on a lathe. Distinct horizontal incised lines can be seen in many places under the stucco on the surface. This would also
explain the large size of the central cutting in the top, which was probably used to secure it to a lathe. No traces of decoration applied in paint were observed; however, it is possible that the stuccoed surface of the kalathos might also have been painted. There is also no evidence of a pattern in the preservation of the stucco to indicate decoration in paint.

There are very few indications as to the date of this capital and column. The capital does not fall into a known type that can be stylistically dated. The flutes of the column shaft are very shallow (Fig. 4.9), suggesting fluting most like Corinthian and Peloponnesian work of the Classical or Hellenistic period, rather than Roman fluting, which is usually much more deeply cut, resembling a half-circle.\textsuperscript{38}

Even including the possibility that the kalathos was painted, it seems quite possible that it was given a decorative metal attachment, resting on the offset of the astragal, and held by a band, or ring, around the inset necking at the base of the capital. The upper section was possibly secured by attachment points either at the top of the kalathos or to a separate abacus. The design of the Bassai capital works well here in a tentative restoration (Fig. 4.10).\textsuperscript{39}

This capital may have been set up in or near the fifth century temple “A” in the area of the peribolos of Apollo. Temple A was replaced in the fourth century B.C. by a naïskos or tetrastylon with four column slabs and a stylobate to carry a screen-wall (Fig. 4.10).\textsuperscript{40} The dimensions of the column slabs and stylobate of this fourth

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**Fig. 4.10.** A) Elevation of Kalathos capital. B) Kalathos with bronze attachment based on the Bassae ornament. Section of flute profile. Drawings by Author.
century tetrastyion are of the right size for the dimensions of our capital and column (Fig. 4.11). The Corinthian column at Bassai provides a conservative basis on which to restore a height for the column shaft of approximately 2.80m (Table 4.1). The total column height with a restored abacus and base would be approximately 3.38m. The facet and socket only occur on one side of the column. This shows that the screen or wall only extended across one side. If the screen or wall extended across the back, as restored here, it seems likely that the structure was roofed, rather than being open-air.

If our capital belongs to the tetrastyion, the choice of a kalathos capital with metal attachments might be seen as carrying special symbolic, heroic or chthonic significance. This would seem fitting for a tetrastyion, since this kind of construction appears in sanctuary contexts related to either altars, hero cults or chthonic deities. One could see a case for using a special type of capital with leaf decoration for such a purpose. Also, from the standpoint of design, a kalathos or Corinthian capital is fitting for a four sided structure to handle the corner problem.

Whether or not Kallimachos did, in fact, make the
Fig. 4.12. A) Perspective reconstruction of the tetrastylon at Corinth. B) Close up view. Drawings by Author.
Fig. 4.13. Chronological and stylistic relationships for the development of the Corinthian capital form. By Author.
first Corinthian capital and whether or not it was made at Corinth, Vitruvius’ story contains elements of fact and would seem to reflect an actual (and ancient) tradition that saw the inspiration for the Corinthian capital intertwined with funerary customs, Corinth and bronze working. The evidence suggests that some early Corinthian capitals were made with bronze attachments that took the shape of palmettes, acanthus leaves, spirals and voutes.

Kalathos capitals, such as the one from Corinth, are perhaps best explained as early experiments in what was to become Corinthian design, combining decorative elements of a special symbolic importance, that were first executed in metal. The evidence suggests that the Corinthian kalathos may be a reflection of a prototype Corinthian capital that was all but eclipsed after the design was translated to stone versions like the examples found at Bassai and Delphi (Fig. 4.12).

In terms of symbolic meaning, the ornamental design of Corinthian capitals can be traced to funerary custom and the intertwined ideas of growth and regeneration. This iconography would seem ideal for architecture related to chthonic or heroic cult, namely tholoi, formal tetrastyla and the sacred areas of temple interiors. Indeed, it is perhaps for this reason that a new capital imbued with symbolic importance might have been introduced for these special and new late fifth and early fourth century building types. Over time, the meaning of Corinthian capitals became subsumed into more popular usage. By the Roman period, Corinthian was a style that could be used for any number of buildings irrespective of function, becoming decoration for its own sake. Vitruvius’ story, however, does seem to preserve a vestige of the origins of the particular form and the possible meaning of this key example of Greek architectural ornament.

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Notes

1 On architecture as sculpture, especially in reference to refinements, see Haselberger, 1999, 64, n. 240.
2 Vitr. De arch. 4.1.9. In Book 4, Vitruvius (4.3) refers to the three main variations of Greek and Roman architecture, Doric Ionic and Corinthian, separately and the word he uses to separate them is genus. E. columna num enim, formationibus trium generum factae sunt nominations, dorica, ionica, corinthia… (4.3). The word order (ordiné), when used to describe classical architecture, is a Renaissance construct that came to be applied in subsequent architectural treatises so that now it is used ubiquitously, but somewhat misleadingly. Genus suggests a much more fluid arrangement with regard to architectural typology. The purpose here is to attempt to understand how design was conceived and practiced in antiquity and to avoid an agenda driven, Renaissance inspired, system of classification. On this distinction, see especially Wilson-Jones 2001, 109–10; Rowland 1994; Rykwert 1996, 4. That Corinthian is not considered by Vitruvius to be a separate order, but merely a separate designation for a type of capital, see Pedersen 1989, 32.
3 Vitr. De arch. 4.1.10. Catatechnos, “thoroughly skilled”, is inserted for catatechnicos, “refined” in some manuscripts. See Corso and Romano 1997, 400, n. 8; Rowland and Howe 1999, 55, 213. For the epithet assigned to Kallimachos see, Pausanias, 1.26.7; Plin. NH 34.9.2.
4 Not “for the Corinthians,” (Granger 1955; Rowland and Howe 1999). The word that Vitruvius uses is apud, literally “at” or “among” or “nearby”. This is an important distinction because “for” could imply patronage. Apud in this context is usually taken to mean “nearby” in a topographical sense (I thank Antonio Corso for help on this point). However, it could also mean “among”, which in this case might imply an association with Corinthian craftsmen.
5 For the most recent synthesis concerning scholarship on the origins of the Corinthian capital, see Hallmann 2002, 169–71. Dinsmoor Sr. (1957, 157, n. 6) stated the following: “As the earliest Greek Corinthian capitals all suggest a metallic origin, and as Kallimachos is known to have worked both in bronze and in marble, it may be conjectured that he worked out the original design in bronze and then reproduced it in marble.” There is ample early scholarship on the subject. Chipiez (1876, 306–321, figs 149, 150) proposed the likelihood of an original Corinthian capital in metal made by Kallimachos. Choisy (1899, 371, fig. 2) showed a prototype design of a Corinthian capital with bronze attachments for decoration on a cylindrical core. Also, Homolle 1916; Alternatively, Ebeling 1924; Martin (1965, 160–162), “Nous avons déjà marqué des restrictions à l’égard de l’hypothèse du modèle métallique du chapiteau corinthien; mais que cetrain aient reçu, en appliqués, des ornements de bronze, les feuilles d’acanthe en bronze trouvées à Pergame et à Samothrace le prouvent.” (p. 161). On Kallimachos’ association with the making of a gold <lamp> in the Erechtheion, see Paus. 1.26.7.
6 Roman examples of kalathos capitals that may have had metal attachments have been found. For the kalathos capitals from the peristasis for the temple of Bel at Palmira restored with metal attachments, see Wiegand 1932, 129; Amy, Seyrig and Will 1975, fig. 42. Also, Durm 1905, fig. 232.
7 Although the capital itself was destroyed under mysterious circumstances pieces of it did survive. See Cooper 1996, 305–14, for a thorough review of the evidence. For Haller’s notes and drawings see Roux 1976; also Roux 1953, 124–28.
For the Corinthian capitals in the tholos at Epidauros, see Gottlob 1925, pl. 25. Pederson (1983, 120–21) has suggested, based on stylistic criteria, that the capitals from the Tholos in the Marmaria may be earlier than the Corinthian capital from Bassai. See Seiler (1986, 65–7) for an earlier dating of the Tholos in the Marmaria at Delphi that would place it before the Temple at Bassai. From these two examples, we can already infer stylistic variation early in the development of the form.

The overall impression of the decoration is one of restraint compared to later examples, which could be read as a reflection of early attempts at translation from bronze to stone.

See Bauer 1977.


See Wilson-Jones (2001, ch. 7 [esp. 140–147]) on Corinthian design in the Roman period.

While there do seem to be iconographic signs paralleled in funerary architectural display and Vitruvius (4.1.9) makes a direct association, it is necessary to be careful not to carry these iconographic parallels too far. Obviously, however, architectural display can carry multiple meanings. The association for an ancient or modern viewer intended or not, is to a degree inevitable.

An example of a stone kalathos dated to the 1st c.A.D. used as a funerary urn to hold ashes was found in the Evangelismos Metro Excavations (briefly mentioned in Parlama and Stampolidis 2000, 212). For an example of a white ground lekythos scene of a kalathos depicted on top of a grave monument see ARV² 998, 164; Beazley, *Addenda* 313 (Vienna, Kunsthistorisches Museum 3746); Oakley 222(164), pl. 116A and 117. See Oakley 1997, 67, n. 49, for bibliography of kalathoi on tombs in vase painting. This is not to say that kalathoi were confined to funerary contexts. Liddell and Scott define the word kalathos as a basket, narrow at the base, which could serve a number of purposes.

For the most recent study of these two treasuries, see Patrida 2000, 224–47; Dinsmoor 1913, 4–82; Dinsmoor, 1923, 164–73; Fomine 1923; Dinsmoor (1957, 140) notes the resemblance of these capitals to the early Ionic eichinos.

On the question of terminology for “palm” capitals, see Hellmann 2002, 178; also King 1997, “Aeolic” in the case of the capitals from the Clazomenian and Massiliot treasuries at Delphi denotes a topographical location and should be distinguished from Aeolic capitals with volutes.

The Doric temple of Apollo at Metropolis (near modern Karditsa) in Thessaly has several distinct patterns of carved lotus and palmette combinations on the eichinos of each capital. This temple has not yet been published fully. For a preliminary report, see Intzesiloglou 2002.

For an annotated bibliography on the design of the acanthus in architecture see Di Marzio 1999, 89–107. Also, Meuer 1896. These motifs would probably have carried a variety of meanings in architectural use outside of funerary custom: For the acanthus plant in Greek architectural roof decoration, see Billiot 1993, 39–74.

For Near Eastern prototypes of Aeolic capitals, see Shiloh 1979. On the development of Aeolic see Betancourt 1977. Pederson (1989, 32) has pointed out that Ionic capitals with elaborate lotus and palmette necking as well as floral decoration on the bolsters may be seen as a stage in the development of the Corinthian capital.

For the capital from Megara Hyblaea, see Mertens 1993, Taf. 71.6. Although it is most probably a stele capital, it is sometimes referred to as an anta capital. Also of importance is a terracotta capital found at Olympia of the fifth century B.C. (see Mallwitz 1981, 318–52, fig. 101). The terracotta capital from Olympia exhibits stylistic similarities comparable to the Megara Hyblaea example.


Chipiez 1876, 306–321, figs 149, 150; Choisy 1899, 371, fig. 2; Homolle 1916.

There is a possibility that Kallimachos could have been associated with itinerant Athenian craftsmen who left Athens during the Peloponnesian War for work elsewhere, so he could have been in Corinth towards the end of the fifth century B.C.


Pliny, *HN* 34.7.1; also in the same passage he states that Syracusean bronze was used for the capitals of the Pantheon constructed by M. Agrippa. For Pliny’s other remarks regarding Corinthian bronze, see *HN* 34.6–8. Pliny (*HN* 34.3) argues that Corinthian bronze was only invented after 146 B.C. when Corinth was sacked. In fact, the earliest known reference to Corinthian bronze seems to go back to the third century B.C. in a reference by Kallixeinos of Rhodes; Callis. *De Alex.*, fr. 1 Jacoby (=FGrH 3, C, 627). See also Corso and Romano 1997, 400, n. 8. The word used is *Korinthioourgès*. I thank Antonio Corso for bringing this reference to my attention. Therefore the word is clearly used before the Roman period. That the Colossus of Rhodes was made of Corinthian bronze see also, Michael von Syrion 4.430 in Hebert, 1989, Q 100, 41. What is chiefly of concern here, however, is the name being attached to the type of capital, not whether or not the earliest capital was in fact made of Corinthian bronze. Pliny (*HN* 34.6–7) makes a point of saying that many works said to be of Corinthian bronze were, in fact, not. By this reasoning we should understand that the name Corinthian was applied in Roman times to bronze works irrespective of whether or not the works were really of Corinthian bronze, where it would be seen to add prestige to the work and points to the fact that Corinthian bronze was prized in antiquity. See also, Paus. 2.3.3; Plut. *De Pyth.* or. 2.395 B; Mart. Spec. 14.172, 177; Petron. *Sat.* 50. For the so-called Corinthian bronze door in the Propylaia at Baelbeck see, Wiegand 1973, 104; For the possibility of metal pilaster capitals from the temple of Zeus at Gerasa see, Kraeling, 1938, 19, n. 33, pl. 4 b. For Bronze attachments in domestic architecture, see Plut. *Vit. Phoc.*, 18. Diod. Sic. 18.26–28 refers to gold acanthus leaves around the Ionic columns of Alexander’s funeral car.


From the Athenian Agora excavations there is an important example of a large scale, bronze double palmette of a size for architectural adornment. These fragments are preliminarily published in Houser 1987, 255, 261–62, where she gives a date for the palmette design in the last quarter of the fourth century B.C. The two palmettes are cast separately, with corresponding holes so that they were attached together by means of rivets, a plate on the back of
the smaller set providing space between the two. Fragment B 1636 is a mirror-image of B 1386-c. The total height of the palmette is 30cm. Spiral tendrils extended below the palmette, out toward the sides and beneath the tendrils were petals of acanthus leaves. The petals of the palmette rise vertically straight, curling forward slightly at the top. On the lower portion of the palmettes are small holes for securing the two pieces to each other. The backside of the larger palmette is curved but where the holes are located toward the bottom, the back flattens out for mounting onto a backing support.

On the Acropolis in Athens: The Propylaia Ionic capitals, the Erechtheion Ionic capitals. At Corinth: Triglyph wall in the Sacred Spring.

1 IGⅢ 476, 1.259–265.

2 These models would have most likely been for bronze or gold rosettes and acanthus leaves. In the north portico the ceiling coffers have holes for the insertion of a bolt or rod. Stevens (Paton and Stevens 1927, 89) suggested that the bolts would have held either an ornament of marble or metal and that the ornament probably would have filled the entire space of the coffer rectangle since the ground is left rough. It seems rather unlikely that the metal bolts would have secured a marble ornament since the size of the bolt would be unnecessarily large for delicately carved marble acanthus leaves.

3 Stevens (Paton and Stevens 1927, 84) thought that these nails might be for temporary garlands put up during festivals, but I would suggest that the pins held more permanent bronze wreaths, not unlike earlier and later examples painted or carved in stone on Ionic bolsters. There are also holes in the inside grooves of the volutes, both front and rear, which Stevens thought might have held metal strips (first proposed by Kinnard 1825, 2, 73 n. a, and 4, 17, n. f). Another Ionic capital, now in front of the Athenian portico at Delphi, has dowel holes in the volute grooves and in the corners where the volutes meet the face of the capital; see Pomtow 1889, pl. 7, 12. This capital is considered to be Roman in date but it clearly copies a fifth century type very close to the Erechtheion capitals in design and carving.

4 Manolis Korres, personal correspondence. The holes have traces of bronze inside. I thank Tasos Tanolou for allowing me to examine and photograph the fragments of the capital, which are currently undergoing conservation and restoration. There is also an example of a classicizing capital at Delphi with drilled holes on the front of the volutes, now set up opposite the Stoa of the Athenians.

5 I thank Charles K. Williams, II for bringing this capital to my attention and for discussing it with me. I also thank the Director of the Corinth Excavations, Guy Sanders, for permission to publish it. The capital has been kept on site with other poros architectural fragments and blocks found during early excavations in the area.

6 The socket and flat section were probably for the insertion of a wooden frame. The wall itself might have been merely a screen of some kind.

7 That we are dealing with a capital and not a base is understood by the fact that an astragal would never be a termination for the lower part of the shaft.

8 See Bronner 1954, 47, fig. 25 and 103, fig. 63, for a comparison of Hellenistic column fluting and Roman column fluting for the Ionic capitals used in the South Stoa at Corinth.

39 The proportions of the kalathos (diameter to height) are more similar to the capital from the Marmaria at Delphi than the Bassai capital, meaning it is taller than the Bassai capital, so that, in the restoration, two rows of leaves are restored at the base instead of one.

40 See Fowler and Stillwell 1932, plate 10; Stillwell and Askew 1941, 4–9, figs 2–4; Williams 1968, 134.

41 The upper shaft of the column is 0.31m in diameter. The square column bases of the tetrastylon are ca.0.76m2. The square bases around the altar are ca. 0.54m2. The thickness of the stylobate for the screen is 0.37m.

42 The proportion of lower diameter to height for the column is taken at 1:7. Diam./Ht. for the Corinthian column at Bassai is restored as 1:705 by Cooper (1996, 316, Tab. 29–3). The shaft height (2.80) is determined by calculating nine times the known diameter of the kalathos (0.31). The shaft height (2.80) is then divided by seven to get a lower shaft diameter of 0.40.

43 Rupp (1974, Appendix 2, 360–75) compiles the evidence for tetrastylon constructions in Greek architecture. See Ritthmüller 1995, for a discussion of the tetrastylon in the sanctuary of Asklepius in Athens and its identification as a heroon. From a conceptual point of view it is instructive to compare tetrastylo to the later baldacchino. For vase painting depictions of tetrastylo and/or naiskoi in association with personifications of heroes or gods and goddesses, see de Cesare 1997. Vase painters seem to have preferred to depict the columns of these structures supporting a generic aellic-like capital that is not known to have existed.

44 Ionic corner capitals could have been used, but a better solution is found in Corinthian design once it became available. Though kalathos capitals exist earlier than the Roman period, one might expect them to be more prevalent if they really were precursors to the design of Corinthian capitals. (The capital found in Olympia and restored as a corner capital in the Leonidaion is comparable to the example from Corinth and it is possible that it too had attached marble decoration. See Olympia II 88, Taf. 64, 2. 3. 7; Herrman 1996, 129–32, Abb. 8, 9. Proportionally it is not as tall and has additional moulding at the top of the kalathos, but it should be included within the category of kalathos capitals.) One obvious reason for the lack of extant evidence is that architectural metal attachments have not survived to any significant degree. (The tradition of bronze ornamentation attached to a cylindrical core does exist in the Roman period [see supra n. 24]. The kalathos capitals for the temple to Bel at Palmyra in Syria are comprised of a stone core with bronze attachments, see Amy, Seyrig, Will. 1975, fig. 42. They restore bronze leaves, volutes and abacus attachments. This type of capital would appear to be a direct continuation of the type created at Corinth. It is also fitting that the temple dates to the Augustan period, as Augustan architecture readily adopted Classical precedents, recast for an Imperial Roman purpose. On Augustan appropriation of Corinthian design, see Wilson-Jones 2001, 139–140.

45 Pederssen (1989, 30) has suggested restoring Corinthian capitals in the Parthenon’s west chamber, where there were four Ionic bases comprising an inner, enclosed chamber within the chamber. Ultimately, Pederssen’s argument rests on the premise that as a four sided construction it makes more sense to have Corinthian capitals. This construction would, in fact, be a tetrastylon-like construction inside the west chamber of the Parthenon and provides an interesting
parallel. In view of this, it becomes all the more interesting that the Varvakian Athena’s right hand is supported by a kalathos capital. Did this kalathos also have a metal attachment? Nearby was Kallimachos’ golden “lamp”, which Pasaunias (1.26–27.1) refers to as having a bronze palm tree, serving as a chimney above it. Although we do not know what this palm tree looked like, it was probably columnar and has been compared to acanthus columns and votive palm columns. On this association, see Palagia 1984, 519–21. As leaf ornament, it should be considered within the sphere of botanical decoration that influenced Corinthian capital design.
Abbreviations

In addition to those works whose abbreviation are listed on the website of the American Journal of Archaeology (http://www.ajaonline.org/index.php?ptype=page&pid=8), the following publications are abbreviated in the endnotes:


References


References and Abbreviations


Kinnard, W., ed. 1825.


Kjellberg, E. 1926.


References and Abbreviations


