Listening to the Stones

Essays on Architecture and Function in Ancient Greek Sanctuaries in Honour of Richard Alan Tomlinson

edited by

Elena C. Partida and Barbara Schmidt-Dounas

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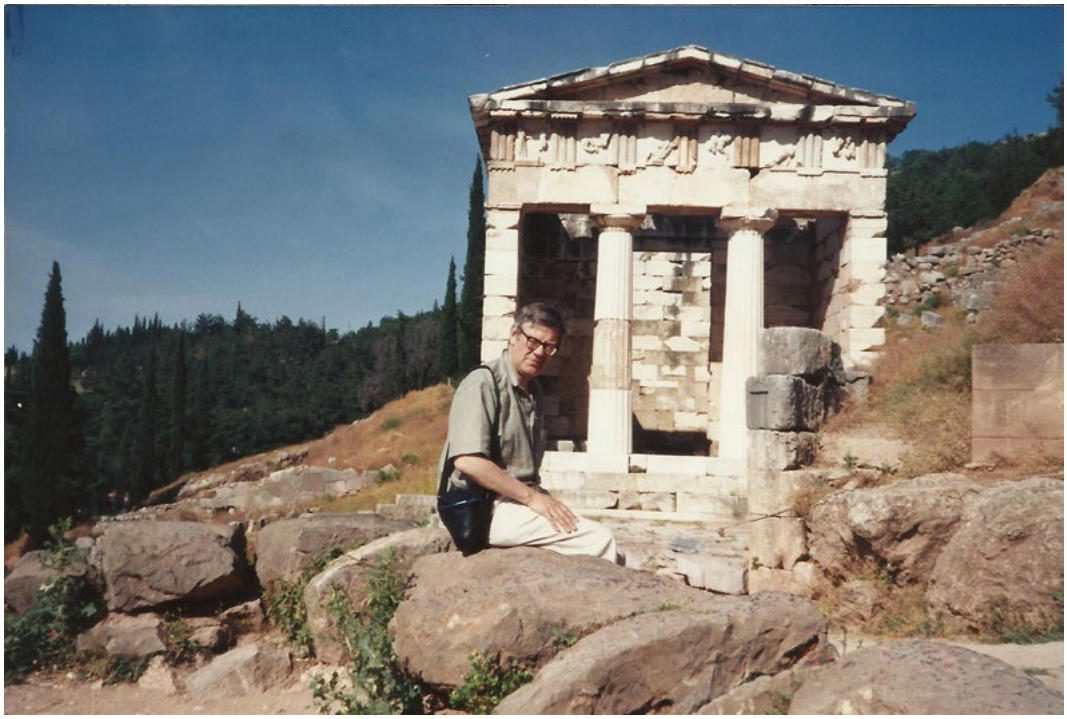

Richard Tomlinson in Delphi. May 1994

Richard Tomlinson in Amphissa. May 1994

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Preface

Two groups of architectural historians have benefitted from Richard Tomlinson's scholarship: the readers of his published work and –in a far more advantageous position- his students. Those of us who share the good fortune of having been taught by Professor Tomlinson, share also the feeling that his dedication to teaching stands out, emulating his professional capacities as Head of the Department of Ancient History and Archaeology at the University of Birmingham, and former Director of the British School at Athens.

The multinational provenance (Great Britain, Germany, Denmark, Finland, Italy, Turkey, the USA, Australia and Greece) of the contributors to the present volume, who immediately responded to our invitation, reflect precisely the radius of R.T.'s reputation. Nearly all of the geographical regions represented here coincide with areas of his investigation. More important, the range of topics discussed relate to the broad scope of the dedicatee's own archaeological quests. Since its 24 chapters seem to provide answers to enquiries which R.T. himself has motivated and inspired us to look into, this book echoes his own methodology in research.

Innovative masonry modes, matters of style and orders, proportions and design principles, as well as the inter-regional connections which fostered the transmission of architectural traditions and technical know-how have been cardinal points in R.T.'s writings and lectures, as much as the Greek foundations on foreign soil, the forethought in planning, achievements in the field of engineering and the interaction between the secular, the sepulchral and the sacred premises in an ancient city. Among R.T.'s essential instructions is high attention to detail, evaluated as a key to unlocking the past. The conservative or progressive attitudes of a society are bound to leave an imprint on architectural creations, as argued in the present volume. Salient in R.T.'s methodology is the spherical, interdisciplinary, holistic approach of every subject, an approach that broadens our perspective. He urged his students to glean evidence from art and archaeology, seeking the builders' original intentions. Thereby a monument could be properly contextualized and embedded not only in its structural setting and natural landscape but also in contemporary mentality.

Of particular gravity is the human factor, be it stone-cutters, architects, revelers, a town's population, pilgrims or commissioners. The people's spirit, genius, needs and demands underlay every architectural synthesis. So his students grew to realize that architecture is subject to evolution along with the developing societies. Its constant transformation, as if triggered by some intrinsic motion, makes architecture look almost alive. No less alive than the human beings who forged it into shape. No less adjustable than the people whom it represented. The appearance of an ancient sanctuary was continuously evolving and it should not be conceived as scenery frozen in time. Its gradual changing signifies precisely the unceasing building programs taken up by ancient communities. Recurring details in style, construction or carving techniques may verify the mobility of artists and the hypothesis for itinerant masons. Within this frame we better comprehend the adaptability and occasionally composite function of public edifices, the remodeling of cult sites in accordance with historic circumstances, the role of politics in architecture.

R.T. has the insightful ability to reconstruct from humble vestiges. His keen interest in auxiliary components, to elucidate neglected or seemingly secondary aspects of religious architecture, resulted in his pioneer interpretation of specific buildings as ceremonial dining-halls, which met with diachronic applause. His passion for restoring settings of the past reveals his love not only of ancient but also of modern Greeks, since he always wishes to share his discoveries with them. His love of Greece radiates every time he would refer to this country with enthusiasm. R.T. studied Hellenism to its frontiers. Fascinated by Ptolemaic Egypt, Alexander's campaigns and the Orient, he traced the transition from the Hellenistic to the Roman architectural setting in Palmyra, as if fatally foreseeing this place's tragic destiny.

All of his Greek students were amazed at the respectful manner R.T. would rely on ancient authors. To arrogantly attack what earlier archaeologists had propounded was never among his targets. Apparently his respect of his predecessors and of the *Glory that was Greece* (if we may borrow Patrick Cronin's apt phrasing) stemmed spontaneously from his genuine philhellenic sentiments and his indulge into history and literary sources, first-hand testimonies to the ancient past.

R.T. systematically advises close inspection and acute observation. Researchers must structure their arguments succinctly and with clarity, thus allowing their audience and/or readers to visualise. Still resonant are his words '*if you observe and study patiently and persistently, the remains will reward you; all you have to do is listen for their whispers*'.

Indeed, the three-dimensional rendering of the Delphi sanctuary by John Goodinson, which epitomizes our current state of knowledge regarding the probable appearance of this majestic, bustling site in the last decades of the 4th century BC, vividly confirms the wisdom of R.T.'s words. We should always listen to the stones.

This book is a token of appreciation of a British Professor of Greek Archaeology, whose scholarship, authorship and teaching methodology spread knowledge of the oecumenical character and impact of Greek civilization, manifesting the brilliant spirit of the versatile ancient Greek builders. For their role in the accomplishment of the present volume, we heartily thank all contributors. Editing has been confined to the extent necessary for the precision, accuracy and comprehensibility of the text, without affecting each author's personal writing style. Sincere thanks are due to *Archaeopress,* in particular to Danko Josic for his efficiency and patience throughout the laying out and editing process, and especially to Professor David Davison, for willingly embracing this publication and for our impeccable co-operation.

The Editors
Elena Partida and Barbara Schmidt-Dounas

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Forthcoming

The Menelaion - the Architectural Remains (*Menelaion* 2)

Emplekton - The Art of Weaving Stones

Poul Pedersen

Summary

Vitruvius (2.8.7) and Pliny (*NH* 36.51.171-172) write of a type of Greek masonry called *emplekton* masonry. Unfortunately it is not very clear exactly which kind of masonry they are talking about, among the various types of masonry known archaeologically. The word is generally believed to have to do with the Greek word for weaving, although a few find this impossible and think it has to do with filling, referring to the rubble fill generally used for the interior of Greek fortification walls. Many scholars have tried to explain the expression and among these there is a different and original proposition by Prof. Richard Tomlinson. In the contribution presented here, it is suggested that *emplekton* masonry is referring to Greek masonry of a technique not previously discussed in this connection, as far as the present writer is aware.

Περίληψη

Ο Βιτρούβιος (2.8.7) και ο Πλίνιος (Φυσ. Ιστ. 36.51.171-172) αναφέρουν έναν τύπο τοιχοποιίας που ονομάζεται 'έμπλεκτον'. Δυστυχώς δεν είναι σαφές ποιον από τους γνωστούς σε εμάς από αρχαιολογικά ευρήματα τύπους εννοούν. Διατυπώθηκε η υπόθεση ότι η λέξη έχει σχέση με την ελληνική λέξη 'πλέκω'. Άλλοι υποστήριξαν ότι πρόκειται για το γέμισμα (υλικό πλήρωσης) στο εσωτερικό οχυρωματικών τειχών. Πολλοί ερευνητές προσπάθησαν να εξηγήσουν τη λέξη, ανάμεσα σε αυτούς και ο καθηγητής Richard Tomlinson, που έκανε μια διαφορετική και πρωτότυπη πρόταση. Στο άρθρο που προσφέρεται προς τιμήν του, το 'έμπλεκτον' θεωρείται μια ελληνική τοιχοποιία, της οποίας η τεχνική ως τώρα - όσο τουλάχιστον γνωρίζει ο συγγραφέας - δεν έχει συζητηθεί σε συνάρτηση με το παραπάνω ζήτημα.

Key Words

Emplekton; ashlar masonry; headers; stretchers; fortification walls.

Vitruvius on Greek walling

Vitruvius' chapter 8 in book 2 on walling poses enough difficulties to turn the hair grey on its readers but nevertheless a number of devoted architectural historians have responded to the challenge and tried to make sense of his description. Among these I would in particular like to draw attention to the works of G. Dennis (1848), R.A. Tomlinson (1961) and L. Karlsson (1992) while exploring if there are still any new angles from which the subject can be viewed.[1]

The text by Vitruvius seems inconsistent and self-contradictory and in order to make sense of some parts of the text it seems simply necessary to ignore what Vitruvius has just written in another part of the text.[2] Before describing the masonry types of *isodomum, pseudisodomum* and *emplekton* Vitruvius seems to say that these types concern masonry which is *not* ashlar masonry. This statement is, however, generally ignored by architectural historians, who apply these terms precisely on ashlar work and not without reason. Because all the concerns expressed by Vitruvius about the careful levelling of courses and avoiding placing joints congruently above one another, make far less sense in rough work of unhewn stones than in ashlar work. In a similar way, most readers ignore that Vitruvius seems to presuppose that the Greeks used mortar in building their walls. Only Tomlinson would not readily discard this notion in his important article on *emplekton* from 1961, in which he insists that Vitruvius is talking about '... rough stone and mortar, not solid squared masonry (*quadratum*)'.[3] Tomlinson did, however, I think, have considerable difficulties in identifying Greek mortar masonry archaeologically.[4]

Vitruvius admires and praises Greek masonry in this part of his text whilst at the same time expresses some mistrust in Roman mortar walls which tend to break down and begin to dissolve when the mortar has dried out. Speaking of *isodomum* and *pseudisodomum* he is of the opinion that as the building stones of the Greek

[1] Dennis 1848: 106-108 Appendix. Emplecton masonry; Karlsson 1992: 67-85 Emplekton Masonry and the Chain Technique; Tomlinson 1961.

[2] I have made use of the Loeb edition edited and translated by F. Granger (Granger 1970) and I have accepted, in general, the interpretation of the Latin text which Granger expresses in his translation. I am very grateful to Jacob Isager from the University of Southern Denmark for sharing his expertise on Vitruvius with me and I am also most grateful to Lars Karlsson for his advice and comments although unfortunately he does not share my view on the meaning of '*emplekton* masonry'.

[3] Tomlinson 1961: 133.

[4] Tomlinson 1961: 136-140.

walls are of a dense and strong nature, they will not dry out the moisture of the mortar, and, because they are placed carefully in levelled courses and bonded in headers and stretchers, they will stay in place for very long time.

Emplekton

In addition to the *isodomum* and *pseudisodomum* masonry, the Greeks had another type called *emplekton*. What is *emplekton* masonry?

The word is definitely Greek and it is generally believed that it has to do with the Greek word πλέκω for weaving cloth or plaiting baskets. *Emplekton* masonry can therefore, in some respect, be characterised as 'interwoven'. This has caused much trouble and some unsuccessful attempts have been made to interpret '*emplekton*' differently as meaning 'filling up', mainly in order to bring sense into Vitruvius' description.[5]

Vitruvius begins his description of *emplekton* by introducing a kind of Roman walling which is supposed to form an analogy to this Greek type of masonry. This technique was still in use in the countryside at the time of Vitruvius and the characteristic feature was that only the face of the stones in the wall face was dressed, while the stones in the interior of the wall were left in their natural state although placed in mortar and with alternating joints. In more recent times - if I understand correctly - this technique had degenerated in the opinion of Vitruvius. People now were eager to build fast and therefore constructed two facing walls separately sometimes setting stones on end for speeding up the building process. Then they filled up or 'stuffed' the space between the walls with broken rubble and mortar. The Roman wall accordingly consists of three separate, vertical sections or 'slices', which are not connected.

The Greeks did not do like this, Vitruvius says. They place the stones level, stretchers alternating with headers going into the wall. The Greeks therefore do not fill up or 'stuff' the middle of the wall ('*...non media farciunt...*') but instead with blocks going from the face of the wall they make it into one solid and permanent unity. Furthermore, they insert very long binders, which they call *diatonoi* that reach from one wall face to the other and thus hold the wall together.

I understand the text in the way that in Roman architecture the *emplekton*-system has developed into a system of three more or less separate bodies, consisting of the two facings and an interior stuffing of broken rubble and mortar. This is in fact a simple description of the general system applied to most Roman concrete walls, whether they are faced with natural stones in *opus incertum* and *opus reticulatum* or with bricks (*opus testaceum*) or with more or less regular ashlar work.

It seems clear to me, though, that Vitruvius is of the opinion that in Greek masonry *emplekton* refers to walls built solidly of headers and stretchers through the entire thickness of the wall.

This reading finds some support in Pliny, I think. In his account of Greek walls Pliny seems to be paraphrasing Vitruvius although he has obviously mixed up his descriptions of the Roman *emplekton* with that of the Greek *emplekton*.[6] In Karlsson's translation the text by Pliny runs like this: 'A third style is the *emplekton*, in which the wall faces are dressed and the rest of the material being laid at random. It is essential that the joints should be made to alternate in such a way that the middle of the stones covers the vertical joints in the course last laid. This should be done even in the core of the wall if circumstances permit, and failing this, at least on the sides. When the core of the wall is packed with rubble, the style is *diatonikon*'.[7] The first part of the text must refer to Roman walling, but the central part of the text surely must refer to a wall solidly built up by headers and stretchers. The great concern for avoiding vertical congruence of joints in both the faces of the wall and in its interior would make little sense for a wall built of rubble. In my opinion it must therefore be assumed that Greek *emplekton* walls are normally constructed of worked ashlars throughout the thickness of the wall.[8]

This is precisely what Dennis concluded in 1848 in his discussion which I find convincing.[9] He rejected the attempts that were made in his time by Italian scholars to derive the word *emplekton* from ἐμπίπλημι or ἐμπλήθω, 'to fill up'. Dennis had seen solid Greek ashlar masonry in Sicily and southern Italy and especially in Etruria. He had observed, that masonry solidly built of standard ashlar block was typical of southern Etruria, where the natural rock consists of easily workable volcanic tuff, while the harder types of natural rock like e.g. limestone typical for northern Etruria was the reason that other types of wall techniques were prevailing there.[10]

To this day, however, the term *emplekton* masonry is almost universally used as designating the technique

[5] Dennis 1848: 106.

[6] Pliny *NH* 36.51.

[7] Karlsson 1992: 68.

[8] The *diatonikon* of Pliny looks like a description of normal Greek fortification masonry with a fill of rubble and earth, but is generally regarded as a misunderstanding of Vitruvius' diatonous-system (Karlsson 1992: 69). Could *diatonikon* simply mean 'masonry tied together with *diatonoi*'? If so, there would be no discrepancy between Vitruvius and Pliny.

[9] Dennis 1848: 106-108.

[10] Dennis 1848: lxiii.

of Greek fortification walls, which most often consists of two facings constructed of large stones of ashlar, trapezoid or polygonal type and a filling of earth and rubble.[11] Headers are occasionally inserted from the front of the wall into its inner in order to bind the three layers together. The insertion of these headers into the fill of the wall is what has been seen as 'weaving' or 'plaiting' and as having given the masonry its name of '*emplekton*'.[12]

Karlsson has observed that at a certain time and place - maybe in Sicily - the builders began to place the headers vertically above one another up through the wall face in 'chains'.[13] In this way compartments were created inside the wall both making the wall stronger and limiting the size of a breach, if an attacking enemy managed to make part of the wall collapse during a siege. This, Karlsson suggests, could perhaps be what was called *diatonikon* and could be where *diatonoi* especially came into use.

Karlsson – like most others - in general takes it for granted, that Vitruvius is talking about fortification walls when describing Greek *emplekton* masonry.[14] This is, in my opinion, far from certain and I think that it could be precisely here that the search for Greek *emplekton* masonry ran off the track. Karlsson, however, saw the problem when trying to make the text of Vitruvius fit the fortification wall-technique and he rhetorically asked: 'The text is a little difficult to understand and it seems as if Vitruvius would be describing a wall built solid with ashlar blocks. Did Vitruvius not know that the most common Greek wall type of the Hellenistic period was the header and stretcher wall with two separate faces and a filling of rubble or mudbrick? Or is this the wall he is describing? He wrote that the Greeks *non media farciunt.* If the Greeks did not fill in the middle, then the headers and stretchers must have been placed so that they filled even the interior, thus making the wall solid'.[15]

Like Karlsson and most other scholars, Tomlinson seems to regard Greek *emplekton* walls as more or less identical with Greek fortification walls and to consist of three sections, two outer faces and a central core.[16] Tomlinson did not agree, however, in his 1961 article, that the designation *emplekton* is derived from the structural method by which headers are occasionally and sometimes systematically inserted from the face of the wall into its core, especially as this is specifically said by Vitruvius not to be the case for Roman *emplekton*. Instead Tomlinson offered an entirely new and original explanation: The word *emplekton* does not refer to the structure of the wall but to its appearance. When headers are placed at regular intervals among the stretchers, they form a pattern on the façade of the wall, which may remind one of the pattern made by warp threads and weft threads in woven cloth or basketry. *Emplekton* thus constitutes a parallel to the other designations for walling that Vitruvius applies. *Opus incertum*, *opus reticulatum*, *isodomum*, *pseudisodomum* can all be said to refer to the surface patterns resulting from the different construction techniques applied.

Tomlinson's ingenious explanation of the origin of the designation '*emplekton*' has been widely accepted[17] and may appear to have solved the enigma of this technical term. But even if one accepts for a while that '*emplekton*' refers to the pattern created by the appearance of the headers and stretchers on the wall face, there are still some related problems, that are not solved, I think.

Is it likely that we should look for Greek *emplekton* masonry only among Greek fortification walls? Why would Vitruvius now suddenly have turned to Greek fortification masonry?

And perhaps even more important: can we disregard that both Vitruvius and Pliny seems to be describing Greek *emplekton*-walls as walls that are solidly constructed of ashlar masonry?

Greek walls solidly built of ashlar

Perhaps it would be useful to follow up on the opinion expressed by Dennis in 1848 and look for an entirely different kind of Greek masonry, when trying to understand the original Greek *emplekton* as described by Vitruvius and Pliny above. We should then look for examples of Greek walls solidly built entirely of ashlar, with no stuffing in the middle - masonry in which great care has been devoted to avoid joint congruence from one course to the courses above and below and masonry which somehow forms a more direct analogy to weaving.

Dennis had noticed that walls solidly built of ashlars are common in southern Etruria, where the natural rock is generally of volcanic tuff. Tuff is comparatively soft and easy to quarry and to cut into regular ashlars. When many stones are needed for a specific building purpose, it is therefore most logical to quarry the needed number of stones systematically and in standard sizes that are

[11] E.g. Hellman 2002: 115, 348.
[12] Critically discussed in Tomlinson 1961: 134. Karlsson thinks that *emplekton* specifically designates masonry in which headers and stretchers alternate systematically in the same course (Karlsson 1992: 68).
[13] Karlsson 1992: 69.
[14] Karlsson does mention an example from a stoa at Morgantina (Karlsson 1992: 86) and has informed me by email that the chain technique/*emplekton* is known also from houses in Sicily and North Africa.
[15] Karlsson 1992: 68.
[16] Tomlinson 1961: 136.
[17] E.g. Karlsson 1992: 86 n. 361; Lawrence 1979: 214-215 n. 12.

Figure 1: Foundations of the great temple at Gortys, Arcadia (photo: P. Pedersen).

convenient for both quarrying, transportation and building. Such solidly built structures of prefabricated blocks of standard dimensions are also seen very early in Rome for instance, in such important constructions as the Servian wall of the early 4th century BC, the podium of the Capitoline temple of Jupiter from *c.* 500 BC and the foundation for the early 5th century BC temple of Castor and Pollux.[18]

Although Dennis first identified *emplekton* masonry in Etruria, he rightly saw it as a Greek type of masonry, as is also indicated by its name.

Masonry solidly built of ashlars comparable to the type seen by Dennis in northern Italy is very common in the Aegean region wherever softer types of rock are found in large and homogenous deposits that can systematically be quarried into ashlars of standard sizes.

This is the case for both *poros* and some types of conglomerate in Attica and on the Greek Mainland and for different types of volcanic tuff typical for large parts of Western Asia Minor.

These types of soft stone are not well-suited for the superstructure of temples and other prestigious buildings, which would normally be of harder stone constructed in *isodomum* and *pseudisodomum*. The character of the softer stones is normally better suited for utilitarian types of masonry. Furthermore the concern expressed by Vitruvius and Pliny for avoiding congruency of joints in the internal part of the masonry shows that we are dealing with utilitarian masonry of greater thickness than the fine walls of marble temples. *Emplekton* masonry thus constitutes a third type of Greek masonry different from the fine walls in isodomic and pseudo-isodomic techniques. We should look for it where more substantial masonry is required, as in the foundations of temples, in terrace walls, in retaining walls and in fortifications.

In fact, this is an extremely well-known type of masonry in Greek architecture, beginning already in the Archaic period and seen for example in the foundation-podium of the Parthenon.[19] Taking issue in the temple at Gortys in Arcadia (FIGURES 1 and 2)

[18] Servian Wall: Boëthius 1978: 121-122; Capitoline temple: Boëthius 1978: 46-48; Temple of Castor and Pollux: Nielsen and Poulsen 1992: 61-79. The last-mentioned had ashlars of 30 x 60 x 90 cm, probably equaling 1, 2 and 3 feet. G. Lugli treated this kind of masonry in detail (Lugli 1957, *Capitolo* II. *Opus Quadratum*). His typology consisting of *maniera etrusca*, *maniera graeca* and *maniera romana*, appears impossible to me, as *maniera graeca* and *maniera romana* in my view are merely two versions among a number of variations found in both Greek and Roman architecture. Lugli has very few references to mainland Greek architecture and appears not to be familiar with this material, much of which was not known when he wrote his book.

[19] Travlos 1971: fig. 567.

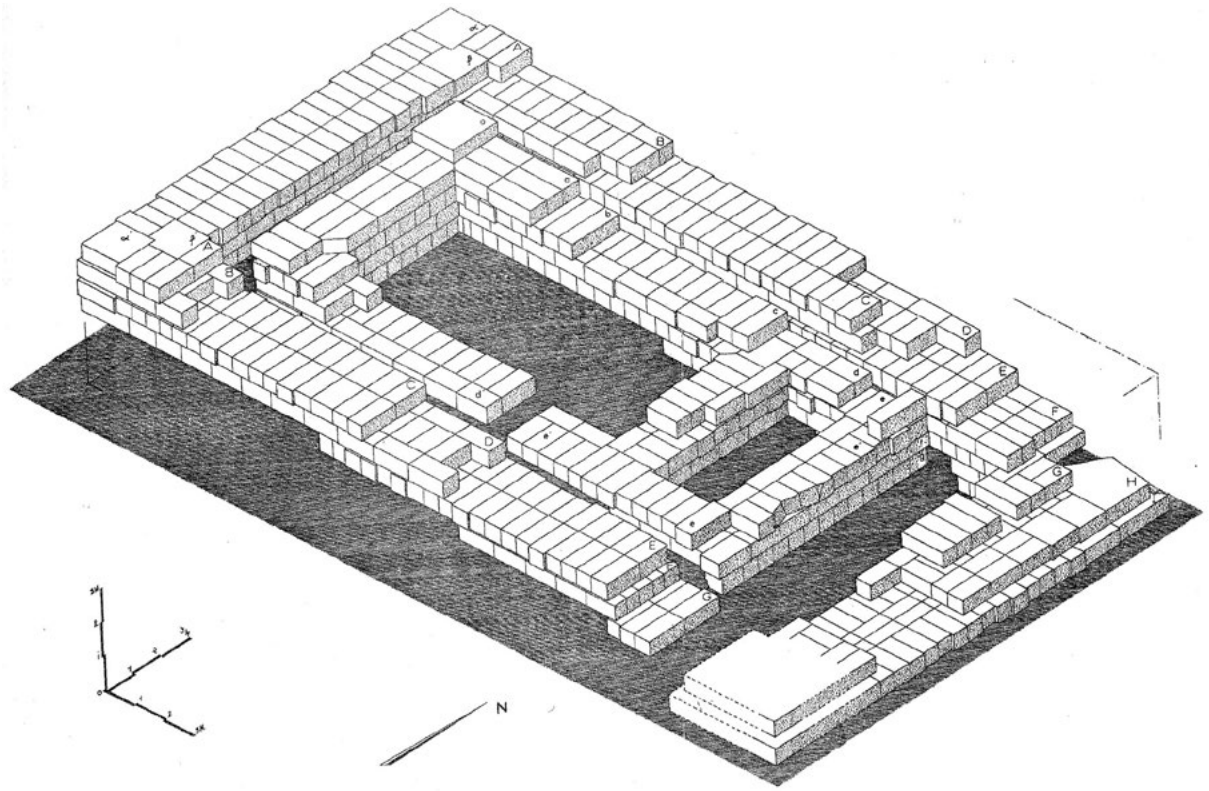

Figure 2: Foundations of the great temple at Gortys, Arcadia (after Ginouvès 1976: fig. 1).

R. Ginouvès published a number of examples in an important article in 1976 and made a basic analysis of the masonry from a number of constructions in which it has been applied for foundations mainly for temples.[20] He did not pretend to include all examples of such masonry and unfortunately missed important epigraphical and archaeological evidence from the 4th century BC. Ginouvès did not think of identifying this kind of masonry with Vitruvius' *emplekton* type, as far as I am aware, but this is in my opinion what we should probably do.

A detailed look at one comparatively simple example of this kind of walling may be useful. I will choose the foundation wall of the *peribolos* wall of the Maussolleion at Halikarnassos (FIGURE 3).[21] The foundation wall reaches in some places a height of 3-4 m, it is about 1.8 m wide and only had the purpose of carrying the *peribolos* marble wall, which was approximately 2.56 m high. The foundation wall is built of blocks of soft, volcanic andesite with standard dimensions of approximately: width: 0.6 m, length: 1.2 m and height 0.45 m, no doubt equaling 2 x 4 x 1.5 units of 30 cm (feet?).

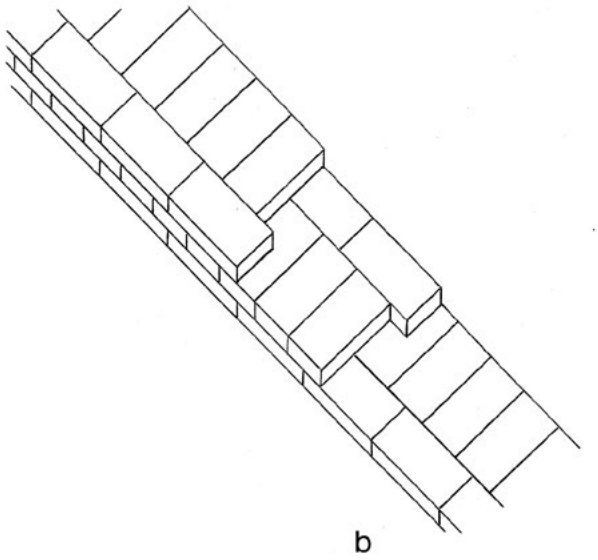

Figure 3: Foundation wall of the Maussolleion *peribolos* wall (drawing: P. Pedersen).

[20] Ginouvès 1976. Among examples from central Athens are the walls around the Odeon of Pericles and the great retaining walls by the theatre of Dionysos (Travlos 1971: fig. 504).
[21] Pedersen 1991: 12-17.

For making a simple wall like this, which is solidly built of standard ashlars, the architect or construction foreman would have to choose one out of a few possible patterns which would fit the width of 1.8 m and minimize the occurrence of congruence of vertical joints in both the face of the wall and in its interior. For the Maussolleion *peribolos* foundation the architect chose a pattern, which simply consists of a row of headers combined with a row of stretchers. In the *peribolos* foundation the two rows are placed so that there will be no transversal congruency of joints. This will, however, result in some short vertical congruencies in relation to the courses above and below in the center of the wall. In some foundations of approximately the same time as the Maussolleion, the builder has chosen to place two headers and one stretcher together forming a rectangle (FIGURE 4).[22] In this way, vertical congruence of joints is completely avoided, but horizontal congruence of joints occurs between each rectangular unit.

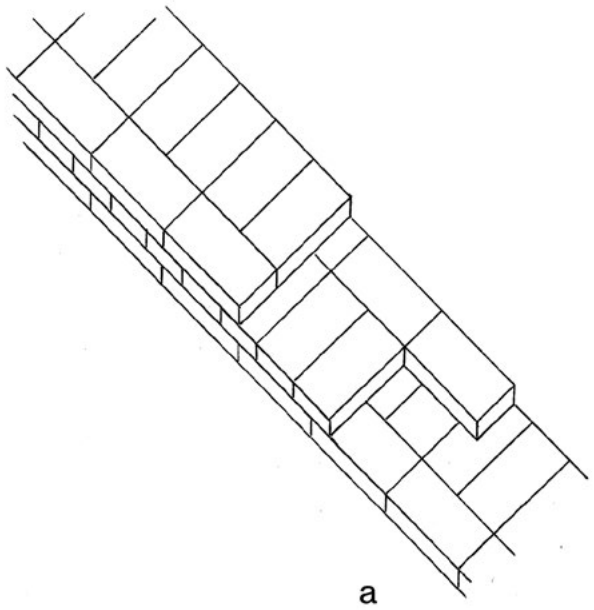

Figure 4: Alternative system for a wall with dimensions like Maussolleion *peribolos* foundation (drawing: P. Pedersen).

So, even for a very simple wall like this, it is necessary to design a basic pattern, which will give the optimal result with as few occurrences of congruence of joints as possible.

When the architect had decided on a pattern, it was then left to the foreman and his workmen to carry it out and repeat the pattern from one end of the wall to the other. When they finished one course, they would reverse the order of the stretchers and the headers and shift the rhythm with half the width of a block and then systematically place the next course. The system would be repeated until the intended height of wall had been reached.

In my opinion, this process forms a striking analogy to weaving, and thus constitutes the most probable explanation for the designation '*emplekton*' in Greek and Roman architecture. Interesting, of course, is the fact that, no matter which system is chosen for organising the ashlars of one course, it is repeated in every other course of the wall, will necessarily lead to the formation of regular patterns on the wall face. These could have some similarity to woven material, but although this may seem to support the explanation presented by Tomlinson, I agree with earlier students of Greek walls that *emplekton* refers not to the appearance of the wall face, but to the structure of walls – and in my opinion to walls, that are built solidly of ashlars of regular standard dimensions, like those discussed here.

For walls of other dimensions, suitable systems would have been applied, as demonstrated by the foundations of the temple of Gortys and other examples presented in the article by Ginouvès.[23]

Almost contemporaneously with the work of the architect Pytheos and his collaborators at the Maussolleion in Halikarnassos another famous Greek architect, Philon, applied the same kind of masonry in Piraeus. During excavation in Piraeus in 1988/1989 two sections of one of the most famous buildings of Classical Greece, the Arsenal or '*Skeuothek*' of Philon, were found and, although some of the ashlars have other proportions than those of the Maussolleion *peribolos*, it seems that exactly the same system was applied by Philon as by Pytheos before him.[24]

The Arsenal inscription specifies that the stones of the foundation shall be placed alternately as headers and stretchers, but is not sufficiently detailed to have a description of the basic pattern for the organization of the stones. However, by an unusual piece of good luck, a system like this is described in more detail for the foundations of Philon's great project in Eleusis in the inscription *Insciptiones Graecae* II² 1671.[25] K. Jeppesen and P.H. Davis do not agree on the width of the foundations but it is clear that the inscription intends to give precise instructions for the basic pattern for the organisation of the stones in each course. It is quite complicated, however, and stones of several different

[22] Ginouvès 1976. In the foundations for the *cella* walls of the temple at Gortys.

[23] Ginouvès 1976: fig. 1. Other examples may be seen in Müller-Wiener 1988: fig. 23.

[24] Steinhauer 1994: 44-50, figs. 23, 24, 35, 36.

[25] Davis 1930: 11-19; Jeppesen 1958: 139-143.

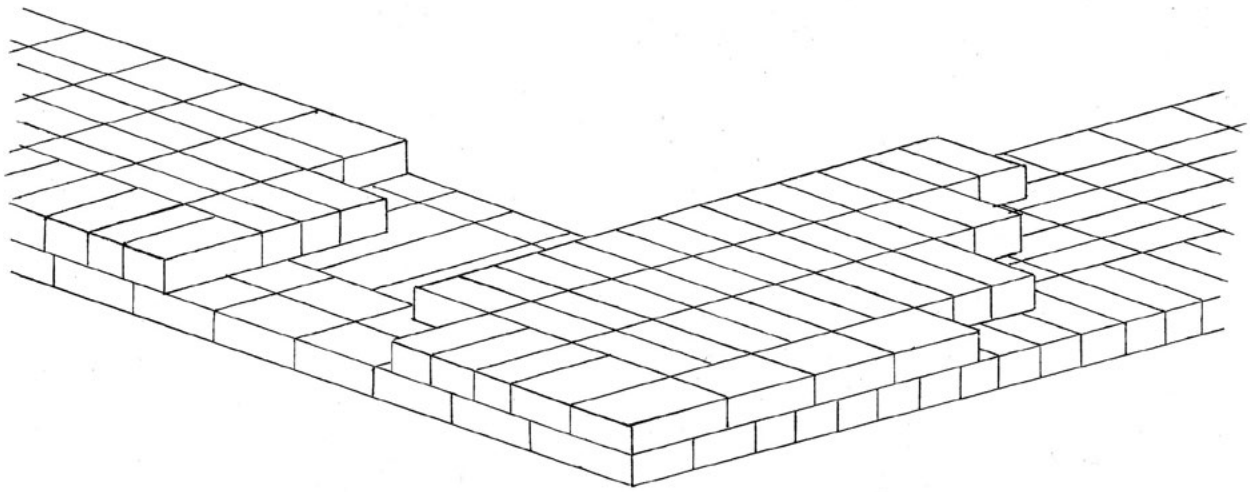

Figure 5: Foundations for the Philonian porch at Eleusis, as restored by Davis (after Davis 1930: fig. 3).

standard dimensions are needed to fill out the jig-saw puzzle. Most of the stones needed are 2 feet wide, 4 feet long and 1.5 feet high, as in the foundations of the Maussolleion *peribolos* and at many other places, as shown by Ginouvès.[26] In order to complete the jig-saw puzzle, a certain amount of stones are needed measuring in width to length 3 x 5 feet, 2 x 5 feet and 3 x 4 feet (FIGURE 5).

As the pattern should be reversed or changed in every other course and as it is specifically stipulated in the inscription that care must be taken to avoid congruence of joints, it is evident that very difficult and careful calculations had to be made by the architect himself or somebody close to him before stones could be ordered from the quarry.

G.R.H. Wright describes the complications involved in similar work with modern brick masonry, where congruence of joints is avoided by insertion of stones of special scantlings in the corners and the problems are exactly the same.[27] According to Wright, the organization of the system for placing stones is the work of trained tradesman and cannot be carried out by laymen. In modern brick work experienced, professional builders know these problems very well and have names for the stones of irregular dimensions, such as 'Queen closer', 'King closer', 'half bat' and 'three quarter bat'. These are for brick walls which have the width of 1.5 stones, and they are placed just as the ashlars in the foundations for the Maussolleion *peribolos* wall, which also had 'Queen closer' and 'three quarter bat' in the corners. Greek walls many stones wide were even more complicated, and as the calculation would be used for ordering large stones from a distant quarry, it was extremely important that the calculation was precise. It seems quite possible that some standard patterns were generally known among experienced architects and foremen. But it may also be that great architects, such as Pytheos and Philon, developed their own systems and wrote them down both on inscriptions, such as *Inscriptiones Graecae* II² 1671 from Eleusis for building contractors and workmen, and perhaps also in their writings. As these were available to Vitruvius, this could very well be wherefrom he obtained his specific information about Greek *emplekton* technique - although he might also know it from autopsy in some, mainly older structures, in Rome and northern Italy.

Vitruvius' description of Greek *emplekton* masonry as walls solidly built of ashlars is in perfect accordance with the archaeological evidence and it constitutes a main category of Greek masonry. It was probably of Greek origin as indicated by its name, but was universally known and used east and west of the Aegean as well as in Etruria, Rome and *Magna Graecia*. It was used by some of the most famous Greek architects and may have been described in their treatises on architecture writings. If *isodomum* and *pseudisodomum* are generally about fine walls of temples and public buildings, then *emplekton* seems to be ashlar masonry of utilitarian character used for foundations, strong retaining walls (FIGURES 6 and 7) and in some rare cases for city walls (FIGURE 8).

At least one enigma remains, however. How could Vitruvius possibly compare Roman three-layer walling to Greek masonry constructed of ashlars throughout?

[26] Ginouvès 1976: 111-115.
[27] Wright 2005: fig. 156.

Figure 6: Retaining wall west of the Odeon of Pericles at Athens (photo: P. Pedersen).

Figure 7: Retaining wall west of the *auditorium* of the Theatre of Dionysos at Athens (photo: P. Pedersen).

Figure 8: North wall of the gate-yard of the Myndos Gate at Halikarnassos (photo: P. Pedersen).

Figure 9: Rough drystone wall. City wall at Halikarnassos (photo: P. Pedersen).

This is not easy to say, but one might argue that they both have the same origin in simple drystone walls (FIGURE 9). For these un-worked stones were collected around the building site and placed flat with one straight side turned outwards so that a number of these blocks form an outer facing of the wall. The two faces of the wall must be arranged quite carefully in order that the wall does not collapse, as whoever has tried to build a dry-stone garden wall, knows. The interior of the wall is also built of unhewn stones laid flat to secure some stability. Such dry-stone walls of a very rough character are found everywhere as fences around fields and they are sometimes built with great refinement for houses, as seen in villages all over the Mediterranean.[28]

Following what Vitruvius seems to have meant, the Romans wanted to build very fast and only cared about the facing. Therefore, they gave up the laborious process of organizing the stones carefully and neatly and, instead, built the facings separately using mortar and simply 'stuffed' the middle of the wall with un-organized rubble and mortar, and so saved time and effort.

The Greeks developed the simple drystone walls in a completely different way. They cut the rough stones to

[28] Extremely fine drystone housewalls can be seen in Caria, e.g. Labraunda-Milas area, in modern as well as in ancient ('Lelegian') masonry.

ashlars and developed patterns for organising these as interlocking headers and stretchers both in the façade and all through the wall. The Greek way of interweaving the stones thus may be thought to have started in simple drystone walling and culminated as the sophisticated *emplekton* ashlar masonry of Classical Greek architecture with important examples from Piraeus, Eleusis and in central Athens, as in the retaining walls of the theatre of Dionysos and the Odeon of Pericles. It spread early to Italy and is also found in the Greek East. It was used in the works of famous architects as Pytheos and Philon, who may have been the sources of Vitruvius in this respect, as they were in many others.

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Ionic or Doric

Barbara Schmidt-Dounas

Summary

During the excavations of the years 1980-1982 in the necropolis of Sindos by Aik. Despini, architectural members were found reused as *spolia* in several tombs. In Grave T 70 three early column-capitals and some large stone slabs were recovered. Other stone slabs came to light in tombs T 40 and T 68. The material used for the architectural members was white, fine-grained *poros* stone of excellent quality. As the graves can be dated in the second quarter of the 6th century BC, we have a *terminus ante quem* for the architectural members under discussion, which most probably originate from an important Archaic building within the settlement district. These architectural members were mentioned only briefly in archaeological bibliography and described by Aik. Despini as early Ionic leaf capitals. For comparison, she referred to the capitals of the Archaic Demeter temple in Sangri on Naxos. In our article in honour of R.A. Tomlinson we discuss whether we are actually dealing with Ionic leaf capitals or with normal Doric capitals.

Περίληψη

Κατά τη διάρκεια των ανασκαφών στη νεκρόπολη της Σίνδου που πραγματοποιήθηκαν από την Αικ. Δεσποίνη στο διάστημα από το 1980 έως το 1982, βρέθηκαν σε ορισμένους τάφους αρχιτεκτονικά μέλη σε δεύτερη χρήση. Στον τάφο Τ 70 ανακαλύφθηκαν τρία πρώιμα κιονόκρανα και μεγάλες λίθινες πλάκες, ενώ λίθινες πλάκες χρησιμοποιήθηκαν εξίσου για την κατασκευή των τάφων Τ 40 και Τ 68. Τα παραπάνω αρχιτεκτονικά στοιχεία είναι δουλεμένα σε λευκό λεπτόκοκκο πωρόλιθο εξαιρετικής ποιότητας. Οι τάφοι που αναφέραμε μπορούν να χρονολογηθούν στο δεύτερο τέταρτο του 6ου αιώνα π.Χ. Έτσι προσφέρουν ένα *terminus ante quem* για τα *spolia* που χρησιμοποιήθηκαν στην κατασκευή τους και που προέρχονται μάλλον από ένα σημαντικό οικοδόμημα της αρχαϊκής εποχής από την περιοχή του αρχαίου οικισμού. Τα υπό συζήτηση αρχιτεκτονικά μέλη αναφέρονται μόνο συνοπτικά στην αρχαιολογική βιβλιογραφία και η Αικ. Δεσποίνη τα περιέγραψε ως πρώιμα ιωνικά κιονόκρανα. Τα συνέκρινε με τα κιονόκρανα του αρχαϊκού ναού της Δήμητρας στο Σαγκρί της Νάξου. Στο άρθρο μας προς τιμήν του R.A. Tomlinson τίθεται το ερώτημα, εάν έχουμε να κάνουμε με ιωνικά κιονόκρανα ή αν πρόκειται για κανονικά δωρικά κιονόκρανα.

Key Words

Sindos; Cyclades; Doric capitals; Ionic leaf capitals; Sangri.

During the works being carried out since 1980 to improve the infrastructure of Thessaloniki's second industrial zone near the modern village of Sindos, an important necropolis of Archaic and Classical times was discovered and excavated by Aik. Despini in three excavation campaigns in the years 1980-1982.[1] The necropolis is located a short distance south of the double *trapeza* of Anchialos, the site of a small polis.[2] Unfortunately, before the excavations began, some of the graves had been damaged by earthmoving equipment digging ditches for sewage pipes. One of these graves was Grave T 70, which had been constructed of reused architectural elements made of fine-grained *poros* stone. Consequently, the *spolia* were not found *in situ* but in the soil excavated from the ditch of the northern sewage pipe and then dumped north of the ditch.[3] Reused architectural elements of the same material – specifically, eight slabs and fragments of two more – were also used in the construction of Graves T 40 and T 68 in the necropolis of Sindos.[4]

According to the excavator, Grave T 70 as well as the other two graves can be dated to the second quarter of the 5th century BC.[5] Thus they provide a valuable *terminus ante quem* for dating the reused architectural elements.

The *spolia* from Grave T 70 consist of three fragmentarily preserved capitals, currently stored in the Archaeological Museum of Thessaloniki. They have already been mentioned briefly in the archaeological

[1] On this and the following Despini 1985: 11.

[2] Despini 1985: 11. M. Tiverios, in Gimatzidis 2010: 13. On the polis see Gimatzidis 2010. On the problem of the settlement identification see Despini 2009: 30 with n. 93, 44-47; Gimatzidis 2010: 50-54 with references to older literature; Tiverios 2008: 21-24 and especially M. Tiverios, in Gimatzidis 2010: 16-17.

[3] On this see Despini 2016: 74 T 70, drawings A, XIV-XXIII, figs. 145-146, 267-270 on Grave T 70.

[4] Despini 2016: 48-50 T 40, drawings 44-49, figs. 65-70 and Despini 2016: 72-73 T 68, drawings 87-88, figs. 139-143, 252-266.

[5] Despini 2016: 50 T 40 (460-450 BC), 73 T 68 (470-460 BC), 74 T 70 (480-470 BC). In Despini 2009: 45 a date 'between 470 and 450 BC' was suggested for the three graves.

literature[6] but are discussed here in more detail. Each of the three capitals consists of an *echinus*-like element with a superposed *abacus*. Because of the matching dimensions, the identical material, and the cuttings on the upper side of the *abacus*, we can assume that they were architectural components. This is also supported by their size[7] and the reuse of stone slabs made of the same material in two additional graves of the necropolis. All these structural elements obviously come from one and the same building that, after its destruction, supplied the material for the graves. No traces of colouring were found on any of the capitals.

A) Thessaloniki, Archaeological Museum MΘ 27652 (FIGURES 1 left, 3)

Measurements: preserved height: 0.21 m, height of *abacus*: 0.115 m, preserved height of *echinus*: 0.095 m, side length of *abacus*: 0.73 m, largest diameter of *echinus*: 0.73 m.

This is the best preserved example of the three capitals, because the *abacus* has survived with part of the *echinus* in one piece. The surface of the capital is grey. The underside of the *abacus* has turned blackish at the corners. The surface features small and larger cavities caused by weathering.

In order to re-use the piece in the construction of Grave T 70, the underside of the *echinus* was very roughly worked off with a pointed chisel. For this reason, the exact upper diameter of the column shaft can no longer be determined. In addition, one lateral surface of the capital was vertically picked off. Since the *abacus* is square and the lateral length of two of its sides measures after the intervention only 0.668 m instead of 0.73 m, the width of the removed area amounts to 0.062 m.

The surface of the *echinus* and the sides of the *abacus* were finely worked and carefully smoothed but now show traces of weathering in many places. The *abacus* is chipped at one corner as well as on the side opposite the vertically chiseled-off side. The upper side of the capital was dressed with a flat chisel and features an oblong cutting (10 x 5.5 – 6 cm, depth: 3 cm) and a square one (6 x 6 cm, depth: 4.5 cm), spaced at 0.14 m apart.

B) Thessaloniki, Archaeological Museum MΘ 27654 (FIGURES 1 right, 4)

Measurements: preserved height: 0.25 m, height of the *abacus*: 0.11-0.115 m, preserved height of *echinus*: 0.14 m, side length of *abacus*: 0.73 m, largest diameter of the *echinus*: 0.73 m.

The *poros* stone of the capital has turned grey and in some places blackish. The stone surface is more weathered than on capital A and dotted with round black spots.

Approximately three quarters of the capital are preserved. In this case, too, the soffit of the *echinus* has been roughly dressed with a pointed chisel, so that the upper diameter of the column shaft can no longer be determined. In addition, one side of the capital was worked off vertically with a pointed chisel to the depth of 0.25 m. In this case, however, the vertical area is much more carefully trimmed than at capital A.

The profile of the capital's *echinus* matches that of capital A. Where the original surface has survived, the excellent workmanship of the architectural element and its smoothness is remarkable. One corner, the edges of the shorter sides and the vertical area of the completely preserved side of the *abacus* are chipped.

The upper side of the capital has been treated with a pointed and a coarse claw chisel. Here, too, we find two cuttings, lying 0.11 m apart. One of them is square (5 x 5 cm, depth 3.5 cm). The second one is not completely preserved and shows remains of lead.

C) Thessaloniki, Archaeological Museum MΘ 27566 (FIGURES 2, 5)

Measurements: preserved height: 0.175 m, height of the *abacus*: 0.122-0.124 m, preserved height of the *echinus*: *c.* 0.053 m, lateral length of the abacus 0.715-0.72 m. As in the other capitals, the largest diameter corresponds to the side length of the *abacus*.

The stone surface is grey with black spots in places. Smaller and larger cavities can be attributed to the effect of weathering.

This capital is the worst preserved example. Almost the entire *echinus* has been removed with a pointed chisel. On one side, approximately one third of the capital (0.25 m) has been vertically removed with a pointed chisel. This architectural element, too, was originally finely worked. Today, the edges of the *abacus* are chipped and a large piece of the vertical area of the side which is

[6] Despini 1985: 12 ('τρεις ήταν χτιστοί με γωνιόλιθους και τρία πρώιμα ιωνικά κιονόκρανα σε δεύτερη χρήση'); Despini 2009: 45-46 with n. 207; Gimatzidis 2010: 313 (fragments of Ionic capitals of tufa, 'wahrscheinlich ursprünglich von einem bedeutenden öffentlichen Gebäude der Stadt'); Hatzopoulos 1996: 107 n. 2 ('an early Ionic capital from a monumental construction'); Tiverios 1991-1992: 216; Tiverios 2008: 24 ('stone fragments of a monumental building, perhaps a temple, probably of the early 6th century BC').

[7] The dimensions are somewhat smaller (side length of the *abacus* in Sindos 0.73 m, in Paros 0.819 m; height of the *abacus* in Sindos 0.115 m, in Paros 0.135 m) than those of the capital in the Panaghia Septembriani on Paros published by Schuller 1985: 322-324; according to the author, on account of the considerable dimensions, it can be excluded that it was part of a column monument, see Schuller 1985: 324.

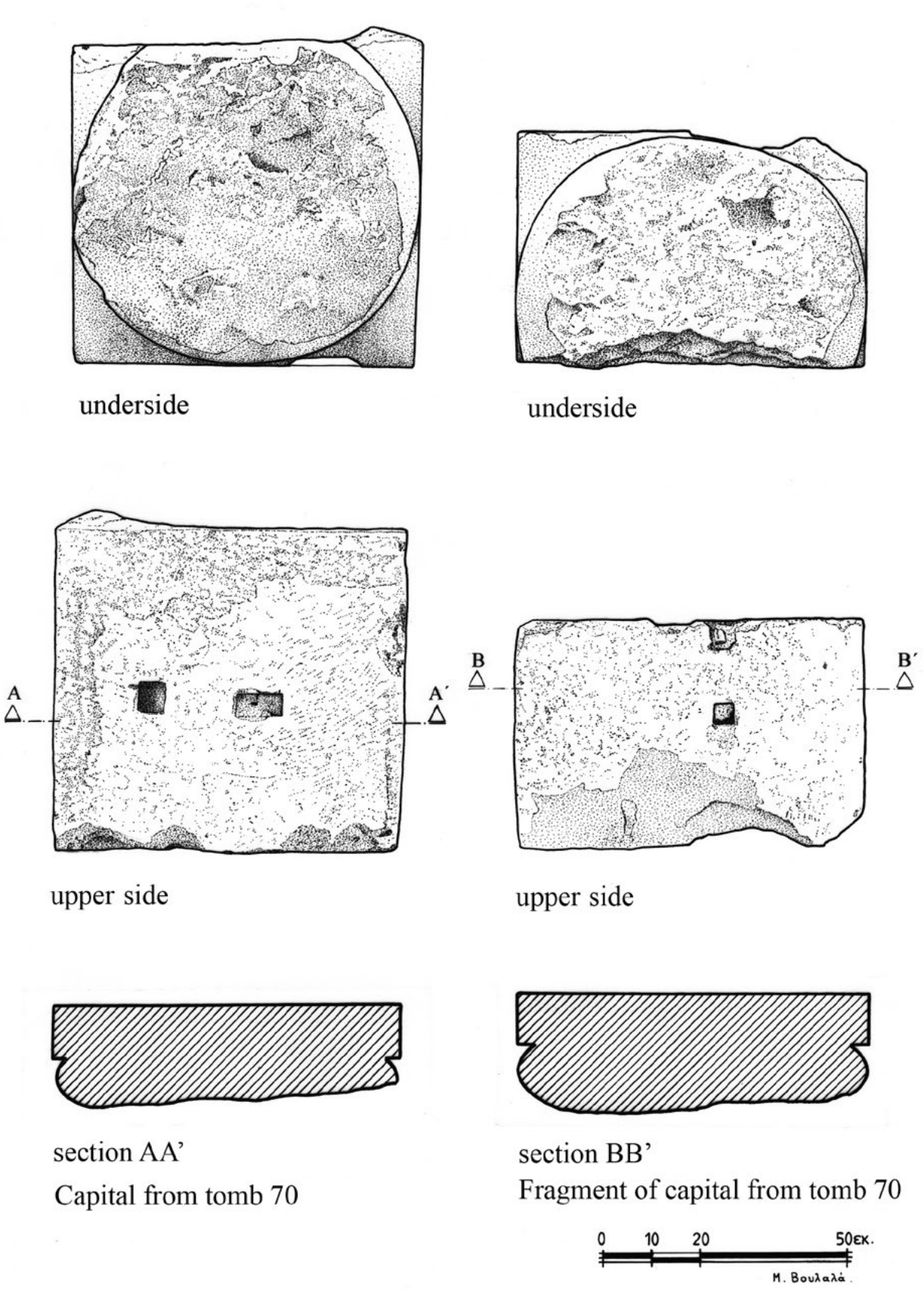

Figure 1: left: Capital in Thessaloniki, Archaeological Museum MΘ 27652; right: Capital in Thessaloniki, Archaeological Museum MΘ 27654 (drawings: Ephorate of Antiquities of the Thessaloniki Region).

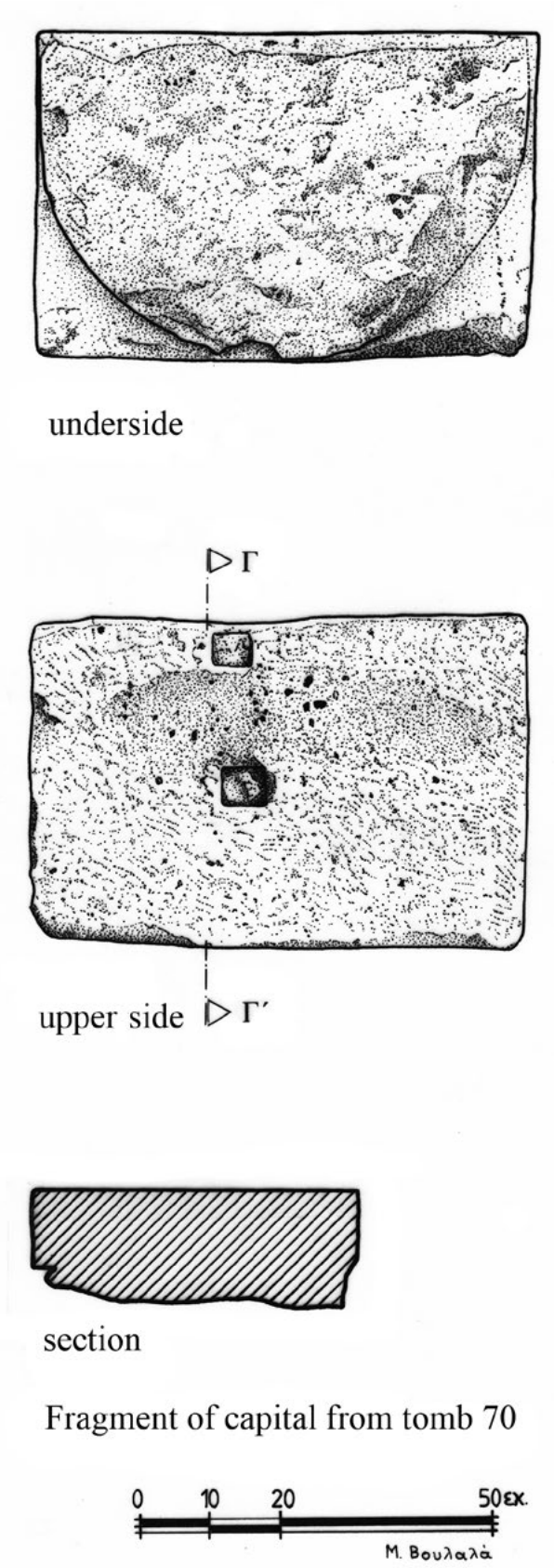

Figure 2: Capital in Thessaloniki, Archaeological Museum ΜΘ 27566 (drawings: Ephorate of Antiquities of the Thessaloniki Region).

preserved in full length, as well as part of the upper side are missing.

The upper side of the capital has been dressed with a claw chisel and is smoother than at capital B. Like the other two capitals, it features two sockets. One is square (7 x 7 cm, depth: 4 cm). The second cutting, with a side length of 6 cm, lies 0.135 m apart.

The three capitals listed above were described by Aik. Despini as early Ionic leaf capitals with a low *abacus* and a simple *echinus* distinguished by having the profile of an Ionic *ovolo*. She assumed that the details were possibly rendered in paint. For comparison, she referred to the capitals of the Archaic Demeter temple in Sangri on Naxos.[8] Although these capitals strongly resemble Doric capitals and were initially considered as such,[9] there are a number of indications allowing the conclusion that we are dealing here with leaf capitals. Two of the special characteristics of these capitals had already been pointed out by G. Gruben. It is M. Schuller, however, who defined the characteristic features of this architectural member most clearly:

a) The columns belonging to these capitals have a base consisting of a *torus* and *trochilus*.[10]
b) The *echinus* lacks the short integral shaft, characteristic of the Cycladic capitals.[11]
c) In its place, we find a small semicircle at the shaft end.[12]
d) The *echinus* profile shows an S-shaped sweep in the form of an Ionic *ovolo* characteristic of Naxos.[13]

Leaf capitals occur more frequently in the Cyclades than initially thought. As concerns Naxos, the columns *in antis* of the *pronaos* and *opisthodomus* of the 6th century Apollo temple on the small Palatia island have been reconstructed with leaf capitals,[14] although no fragments of them have survived.[15] Votive columns with such capitals occur on Delos and were published by J. Marcadé.[16]

[8] Despini 2009: 45-46 with n. 207. On the capitals from Sangri see Gruben 1972a: 341-342, fig. 10; Gruben 1972b: 22, fig. 18 top; Lambrinoudakis *et al.* 2002: 392; Ohnesorg 1996: 46, fig. 7; Ohnesorg 2005: 138-141, fig. 4, pl. 32A-B; Schuller 1985: 386 with fig. 49, 394-395.
[9] For example by Daux 1955: 290; Kontoleon 1954: 334. Additional references in Ohnesorg 2005: 138 n. 11. The great similarity with Doric capitals was pointed out by Gruben 1972b: 22, 27; Lambrinoudakis *et al.* 2002: 392 and Schuller 1985: 386, 395.
[10] Gruben 1972b: 22; Lambrinoudakis *et al.* 2002: 392; Ohnesorg 1996: 46; Schuller 1985: 394.
[11] Schuller 1985: 394.
[12] Schuller 1985: 394.
[13] Gruben 1972b: 22; Lambrinoudakis *et al.* 2002: 392; Ohnesorg 1996: 46; Schuller 1985: 394.
[14] Gruben 1972a: 341-342; Gruben 2000: 379.
[15] Lambertz 2009: 1.
[16] Especially noteworthy is the fragmentary capital A 3117 with a round *abacus* and an *echinus* with a *cyma-reversa* profile followed below by an astragal. The *echinus* shows the eggs, painted in red, of an Ionic *ovolo*, see Marcadé 1974: 308-311 no. 4, figs. 7-8.

Figure 3: Capital in Thessaloniki, Archaeological Museum MΘ 27652 (photo: O. Kourakis).

Figure 4: Capital in Thessaloniki, Archaeological Museum MΘ 27654 (photo: O. Kourakis).

Figure 5: Capital in Thessaloniki, Archaeological Museum MΘ 27566 (photo: O. Kourakis).

From Paros we have two leaf capitals dating to the middle and the second quarter of the 6th century BC, respectively. Here, too, we are dealing with votive columns. One of these capitals has a smooth, evenly rounded *echinus* below the round *abacus*. That this is a leaf capital is evident from the plastically rendered leaves tips on the underside. In the upper zone of the *echinus*, the leaves were probably painted.[17] The *echinus* of the second capital features incised leaves.[18] On the island of Ceos, the Archaic leaf capital of a votive column was found, which is very similar to the latter Parian capital.[19] To these capitals we must add one found on Delos with carved leaves.[20] But the round capitals of

[17] Paros, museum inv. no. 767: Ohnesorg 1993: 111, pl. XX,1-3.
[18] Paros, museum inv. no. 364: Ohnesorg 1993: 111, pl. XX,4-5.

[19] Ceos, museum, without inv. no.: Ohnesorg 1993: 112, pl. XX,6; Ohnesorg 1996: 46, fig. 6. A capital from Siphnos mentioned but not illustrated by Ohnesorg (Siphnos, museum inv. no. 133: Ohnesorg 1993: 112 with n. 12) seems to have – like the Parian capitals - a pendant foliate wreath. Without an illustration, however, it is difficult to form a sound opinion.
[20] Delos, museum inv. no. 222: Martin 1973: 378-382 no. 4, figs. 6-8; Ohnesorg 1993: 112.

the Hera temple of Polycrates on Samos, some of which belong to the columns of the inner *peristasis*, must be included here as well.[21] All these capitals have in common that their *echinus* – either evenly rounded or tensely profiled – is decorated with an Ionic *ovolo* that is painted, incised or rendered in relief.

A. Ohnesorg presented another leaf capital from Ceos, which is only briefly discussed here, mainly to show how it differs from the others. It has a *cyma-recta* profile and is composed of upright leaves that we have to conceive as being painted.[22] In this respect, it resembles the capitals of the treasuries of Siphnos, Massalia, and Clazomenae in Delphi.[23] These capitals are generally designated as 'Blattkelch' capitals.[24]

The leaf capitals used in the architecture of Old-Smyrna, Phocaea, Neandria, and Thasos are not relevant in this context, because with their plastically rendered pendant leaves with a midrib they correspond to those of the Lesbian *cymatia* and are thus too far removed from the Sindos capitals.[25]

After this brief survey of the known variations of Archaic leaf capitals, we return to the capitals of Grave T 70 in Sindos, in order to check which of the characteristics defined by Schuller they share with the capitals of the Demeter temple in Sangri on Naxos, to which Despini referred for comparison: Whether the columns belonging to the Sindos capitals stood on a base can, unfortunately, no longer be determined, because only extremely few architectural elements have survived, none of which can be attributed to a base. The underside of the *echinus* was on all three capitals roughly chiseled off, so that we cannot say either whether the shaft was an integral part of it. Neither can the existence of a semicircle at the upper end of the column shaft be ascertained, since none of the upper column drums has survived. The S-shaped sweep of the *echinus* profile, however, which is so clearly executed at the Sangri capitals and also encountered in a similar form at the votive capital with a painted *cymatium* in the museum of Delos (see note 16), definitely does not exist here (see especially FIGURES 1, 3-4). One could at most imagine that the *echinus* was decorated with a painted Ionic *ovolo*, as seen in various forms on the previously mentioned leaf capitals from Paros, Ceos, and Samos. But no traces of paint that could support this theory have survived. Furthermore, the profile of the '*echinus*' of these capitals, which – except for the Samian examples – broadens sack-like downwards, differs distinctly from that of the Sindos capitals, whose largest dimension lies in the upper third.

In my opinion, the negative balance in this comparison allows only one conclusion: We are dealing here not with Ionic leaf capitals but with regular Doric capitals, even though on all three capitals the lower part of the *echinus* has been chiseled off and they are, therefore, unfortunately lacking the part where on Doric capitals the *scotia* filled with petals or the *anuli* can usually be expected.[26] That the latter are also occasionally missing in Doric buildings in the Cyclades is attested by the capitals of Building B in the Apollo sanctuary of Despotiko.[27] In other cases, they have deteriorated into a lip.[28]

If one compares the capitals in the Museum of Thessaloniki with Doric capitals, similarities in the upper curvature of the *echinus* and the transition to the *abacus* with early examples from Delphi,[29] Corinth,[30] and Olympia can be detected.[31] The profile of the Sindos capitals, however, is in the middle section considerably more slanted and more comparable with that of a capital from Paros[32] and the capitals from Building B of the Apollo sanctuary of Despotiko (see above note 27). The resulting general date in the 6th century BC matches the *terminus ante quem* provided by the construction of the graves briefly mentioned above. It is difficult to determine the date more precisely, since the fragmentary condition of the capitals supplies so few clues. Furthermore, the stylistic dating of the Doric capitals based on the form of the *echinus* must be met with some skepticism, as a recently published capital dated by stratigraphy from Abai/Kalapodi proved.[33] The fact that the upper side of the capitals B and C has been dressed with a claw chisel is helpful in the dating since,

[21] Gruben 2014: 58-77. The columns of the inner *peristasis* and the *pronaos* of the Kroisos temple in Ephesos are also reconstructed with this kind of capital, see Ohnesorg 2007: 112, 132, pls 38-40. For the columns of the *pronaos* and *cella* of the Rhoikos temple on Samos, on the other hand, wooden *tori* with *abacus* are assumed (Heinrich 2007: 57-58, 58-59, 64, tab. 1), whereas the inner *peristasis* is reconstructed with stone *tori* with horizontal fluting and wooden *abacus* (Heinrich 2007: 59-60, 64, pl. 1).

[22] Ceos, without museum inv. no.: Ohnesorg 1993: 112, pl. XX,7-8.

[23] Gruben 1972b: 21-22, figs. 16-17; Hellmann 2002: 178; Wesenberg 1971: 44-45 nos 3-4, 46-47. On the capitals of the Siphnian treasury see also: Bommelaer and Laroche 1991: 124, fig. 43 with older literature; Daux and Hansen 1987: 150-151 K 8, 152-153, pl. 68. Partida 2004: 296 fig. On those of the treasury of Massalia see Bommelaer and Laroche 1991: 62-63, fig. 12 with older literature. Partida 2004: 45 fig. More examples of this kind of capital in Wesenberg 1971: 43-49.

[24] Hellmann 2002: 178.

[25] Ohnesorg 1993: 11. On these capitals see lit. Ohnesorg 1993: 112 n. 13 as well as summary in Hellmann 2002: 177-178, who points out that these leaf capitals are older than the examples from the Cyclades. See also Gruben 2014: 81-82.

[26] On these elements of the Doric capital see Wesenberg 1971: 61.

[27] Kourayos *et al.* 2012: 111-112, fig. 22, 115. Kourayos 2012: 27, 34, fig.

[28] Schuller 1985: 338, 356. These are capitals found on Paros and the island of Despotiko. See also Hellner 2015: 132 on the capital from Abai and the capital no. 3 in the *cella* of the Heraion of Olympia.

[29] De La Coste-Messelière 1942-1943: 24-28, figs. 1-2 (capital of the old *tholos*, first quarter of the 6th century BC). On the old *tholos* generally see Bommelaer and Laroche 1991: 120-121.

[30] Kaufman Williams 1984: 71, 72 nos 1-2, fig. 1 nos 1-2.

[31] Adler *et al.* 1966: 27-28, 29, pl. 21,3-4.

[32] Schuller 1985: 322-324, fig. 3.

[33] Hellner 2015: 125, 127-132, 135. This capital, which is to be dated to the first quarter of the 6th century BC, also has a relatively steep *echinus* profile.

according to general opinion, this tool was not used in architecture before the middle of the 6th century BC.[34]

A glance at the chronological development of the settlement on the double *trapeza* of Anchialos - to which the ancient necropolis and the capitals originating in it belong - is also helpful. It can, for good reasons, be equated with the ancient town of Sindos mentioned by Herodotos (7.123).[35] The rich finds of Euboean ceramics of Geometric time discovered during the excavations allow the conclusion that in the course of the so-called second Greek colonization a Euboean *emporion* was established on the double *trapeza* of Anchialos.[36] In late Geometric times, this trading station was destroyed by fire, possibly as a result of enemy attacks.[37] According to St. Gimatzidis, it was finally abandoned around 700 BC.[38] The double *trapeza* was then apparently uninhabited for one and a half centuries, until it was resettled in the second half of the 6th century.[39] According to M. Tiverios, only a decline but no complete abandonment can be observed,[40] which he connected with the withdrawal of the Eretrians after the end of the Lelantine War.[41] In fact, there are no further signs of Euboean presence here during the Archaic times.[42] Finally, in the second half of the 6th century, the settlement experienced a second *acme*, which is attested by the rich graves of that time coming to light in the necropolis of Sindos.[43]

The excavator, Aik. Despini, assumed that the architectural elements used in the graves came from an important Archaic building within the settlement district.[44] This monumental stone structure is undoubtedly connected to the settlement's second flourishing and, therefore, was most probably built in the second half of the 6th century BC.[45] According to Despini, it could have been a temple.[46]

A temple is a building dedicated to a deity. The building belongs to it and has its place within a sacred *temenos*. It is conceivable that architectural elements of such a building were reused in building activities within the sanctuary or for erecting buildings related to its function in the immediate surroundings of the sacred precinct, such as we know from the Older Aphaia temple on Aigina,[47] the earthwork on the Athenian Acropolis after the destruction by the Persians[48] as well as from the north and south wall of the Acropolis.[49] A reuse in a sepulchral context, however, would be tantamount to desecrating the deity's property, which leads us to the question whether the capitals might not, instead, have come from a profane public building that, until its destruction, adorned the town.[50]

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[34] Kourayos *et al.* 2012: 104 with n. 46 with further lit., 115; Ohnesorg 2007: 128 with further lit. in n. 824, 129. Kissas 2008: 100-104, on the other hand, believes that traces of tooth chisels can already be ascertained on building elements of the first half of the 6th century BC.
[35] See literature references in n. 2. See also Tiverios 1998: 252; Tiverios 2009: 406.
[36] Tiverios 1991-1992: 217; Tiverios 1998: 249-250; Tiverios 2008: 21; Tiverios 2009: 402; M. Tiverios, in Gimatzidis 2010: 15-16; Tiverios 2013: 101, see also the lit. listed in Despini 2009: 47 n. 223.
[37] The destruction layer belongs to phase 7 of the settlement, see Gimatzidis 2010: 67-69, 73-77, 310-312. On the destruction see also Tiverios 1998: 244; Tiverios 2009: 399 (around 720 BC).
[38] Gimatzidis 2010: 312 with n. 1949.
[39] Gimatzidis 2010: 311-312 n. 1947. On the question whether this is a Macedonian town or a colony see Despini 2009: 44-47.
[40] M. Tiverios, in Gimatzidis 2010: 16 remarks that the settlement shrank considerably overcoming this crisis. See also Tiverios 1998: 250; Tiverios 2009: 404.
[41] Tiverios 1998: 250; Tiverios 2009: 404 n. 39.
[42] Tiverios 2008: 24.
[43] Tiverios 1991-1992: 217.
[44] Despini 2009: 46; Gimatzidis 2010: 313 and Tiverios 1991-1992: 216 however, speak of a public building. Tiverios 2008: 24 (probably a temple).
[45] Gimatzidis 2010: 312 with n. 1950 dates the resettlement shortly after the middle of the 6th century BC.
[46] See Despini 1985: 12.
[47] Schwandner 1985: 1-2.
[48] On the Persian debris see Lindenlauf 1997; Lindenlauf 2003: 53-54.
[49] Förtsch 1995: 174-175; Lindenlauf 2003: 54-55 with further lit.
[50] As a parallel for a profane public building of Archaic time in Northern Greece, the so-called building A at the agora of Methone in Northern Pieria can be mentioned, see Besios *et al.* 2004: 370-372, figs. 5-7; Besios *et al.* 2008: 243-244, fig. 5; Besios 2010: 105, with ills. on pp. 106-107.

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Observations on the Interior Structure of Macedonian Tombs

Stella Drougou

Summary

The creation of the type of the Macedonian tomb has been interpreted in many ways, but it seems that there are two powerful factors that have led to the form of these burial structures: the first is to secure a large interior space, while the second seems to be dictated by tradition in relation to burial customs and burial ideology, the dead, his social position and the expression in ways dictated by the era and social conditions of the country. These basic observations are examined on the basis of certain findings or characteristics of the graves, such as real furniture and fabrics, and their stone and painted imitations found in the interior of the burial monuments.

Περίληψη

Η δημιουργία του τύπου του 'μακεδονικού τάφου' έχει ερμηνευθεί με πολλούς τρόπους, φαίνεται όμως ότι υπάρχουν δυο ισχυροί παράγοντες που οδήγησαν στην μορφή αυτών των ταφικών οικοδομημάτων: ο πρώτος είναι η εξασφάλιση ενός μεγάλου εσωτερικού χώρου, ενώ ο δεύτερος φαίνεται ότι υπαγορεύεται από την παράδοση σε σχέση με την ταφή, τον νεκρό και την κοινωνική θέση του και την έκφρασή της με τρόπους που υπαγορεύουν η εποχή και οι κοινωνικοί όροι της χώρας. Οι βασικές αυτές παρατηρήσεις εξετάζονται με βάση ορισμένα ευρήματα ή χαρακτηριστικά των τάφων αυτών, όπως είναι τα πραγματικά έπιπλα και τα υφάσματα και οι λίθινες και ζωγραφιστές απομιμήσεις τους όπως έχουν βρεθεί στους εσωτερικούς χώρους των ταφικών μνημείων.

Key Words

Ancient Macedonia; Macedonian tomb; tomb furniture (throne, bed); burial customs.

In a series of presentations during the Scientific Symposia on Ancient Macedonia in Thessaloniki from 1970 to 1999, Professor R.A. Tomlinson made important observations on ancient architecture in Macedonia. He dealt, mostly with the best examples, the Macedonian tombs describing some of the biggest problems concerning these monuments.[1] During the same crucial period for Classical archaeology in the area, several new and significant 4th century BC funerary monuments were discovered in the area of the Macedonian kingdom. This has rendered the north Greek region, with regard to archaeological and historical evidence, quite rich in both the number of its monuments and points in question. Continuing the examination of this rich archaeological material is justified and could be decisive. Several observations discussed here have been presented primarily during the last decade on some occasions shrewdly and in detail. For example, one concerns the role and interpretation of furniture in the funerary process and within the Macedonian tombs. Another discusses the creation of this characteristic type of monumental burial. And there are many more. The study and re-evaluation of these promising archaeological topics has been appropriate and fruitful, given that new data are being revealed and new questions are being formulated, mostly regarding cultural and historical content.

It is evident that from a practical and technical point of view the creation of the Macedonian tomb type[2] was dictated by the necessity to ensure a large interior space. At the same time, its development was equally defined by the need to express tradition and the basic symbolisms associated with the burial, as well as the deceased and his/her social status, in ways that abided with the times and the country's social norms. The findings from the few large unlooted tombs, as well as the burial monuments themselves demonstrate the wealth of the powerful groups of the kingdom, the military and the royal court. The deceased of presumed divine ancestry are honoured as heroes with all the representations and ideological constructs of their lives, such as the symbols of their power or wealth. This was accomplished through the process of cremation and often a ceremonial *symposium* or funerary banquet.[3]

[1] See Bibliography.

[2] von Mangoldt 2012 (with detailed inventory of the monuments and extensive discussion on the creation of the vault in addition to the previous bibliography on the subject). Also, Andronikos 1984a; Drougou 2016: 335-341; Drougou *et al.* in press; Gossel 1980: 10-18; Guimier-Sorbets and Morizot 2006: 117-130; Huguenot 2007: 17-19; Huguenot 2008; Huguenot 2010; Miller 1982: 4-12; Petsas 1969; Rhomiopoulou and Schmidt-Dounas 2010: 10-11, 127-142; Sismanidis 1985; Sismanidis 1986; Tsimbidou-Avloniti 2005; Tzanavari 2000. See below n. 4.

[3] On interpretational observations on the ideological content and symbolisms of burial process in 4th century BC Macedonia, see Andrianou 2009: 123-129; Andrianou 2012: 40-51; Andronikos 1984a: 218-220; Andronikos 1993: 147-154; Guimier-Sorbets and Morizot 2006: 117-130; Huguenot 2006b: 40-43; Miller 1993: 61-67. In general,

With the consideration of these two requirements, a distinct type of burial monument was created in the 4th century BC bearing two major features: the secure sheltering of an interior with a semicircular, so-called barrel vault, and the creation of an entrance based on a distinctive architectural design.[4] The interior space is formed by either one or two chambers or a main chamber with a narrow antechamber. There is an obvious effort to have a wide, safe, subterranean space without the need for internal supports, but dependent on the peripheral walls alone. As R.A. Tomlinson notes,[5] the solution could apparently be offered by the wide barrel-vaulted chamber with a series of cornerstones supported on the two, usually long, parallel walls.[6] This constructional way has been shown to be quite audacious, since it has been demonstrated that it was connected with certain other structural or design features of these subterranean constructions in their final form, which in most cases appears to be 'original and imaginative':[7] In many examples, the architectural composition of the entrance featuring Ionic or Doric elements or a mix of these orders, as well as the decoration of the interior surface of the walls, can express the ideological-religious context of the burial, while, at the same time, the dimensions and design of the structure indicate a conscious study behind the project's completion. The façade is an example of a special architectural composition. It performs two specific functional and symbolic roles: the first as a monumental entrance, the second as a shelter for the chamber under the tomb's semicircular, barrel-vaulted roof.

Based on the archaeological data so far known about the subterranean funerary structures, it appears that even in the previous period, i.e., the early 4th century and perhaps even in the 5th century BC, a broad subterranean space was sought before the appearance of the early Macedonian tombs that are known today.[8] The subterranean cist-graves in the necropolis of Aigai should be dated to this early phase. These are usually made of *poros* stone with a relatively large interior space not covered by a semicircular vault but rather by the commonly used horizontal roof made of tufa cornerstones.[9] Most of the known examples are the numerous cist-graves of the middle and/or second half of the 4th century BC, e.g., in Aigai-Vergina the Tomb of Persephone (3.50 m x 2.09 m x 3 m [height]),[10] and those in Pella,[11] in Lete-Derveni, in Aineia (Michaniona)[12] and elsewhere. Among these tufa burial monuments, there are a few that bear special characteristics, most importantly a 'double' interior space formed by the technical drawbacks resulting from the roof.

This concerns the big built tomb on the borders of the modern city of Katerini,[13] dated by its excavator Aik. Despini to the second quarter of the 4th century BC as well as another tomb dated to the mid-4th century BC on the eastern limits of the necropolis of Aigai near the village of Palatitsia.[14] The Katerini tomb has no exterior entrance. Its two interior chambers (chamber dim. 3.66 m x 2.32 m x 2.95 m [height]; antechamber dim. 3.66 m x 1.95 m x 3.22 m [height]) are partitioned by a wall that has the appearance of a regular entrance, and are connected by a monumental marble door. The tomb is covered by a horizontal roof of cornerstones of uneven heights that are placed in a double layer.[15] The tomb in the necropolis of Aigai (the Palatitsia tomb)[16] is covered by horizontal cornerstones laid in a double layer. Its interior (dim. 3.89 m x 3.08 m x 2.945 m [height]) is divided into two very narrow areas by the two strong

see Kurtz and Boardman 1971.

[4] Andronikos 1987: 1-16; Andronikos 1993; Demakopoulos 2003; Drougou 2016 (on Macedonian tombs with Ionic façades); Drougou *et al.* in press; Gossel 1980: 18-30; Haddad 1995: 9-42; Kurtz and Boardman 1971: 273-288; Miller 1972 (on the architectural orders in ancient Macedonia); Miller 1993: 9-10; Pandermalis 1972: 149-182; Rhomaios 1951; Rhomiopoulou and Schmidt-Dounas 2010; Tomlinson 1970: 308-315 (on the role of the *symposium* areas in relation to burial spaces); Tomlinson 1977: 473-479; Tomlinson 1987: 305-315; von Mangoldt 2012: 31-42. Also, see very briefly but aptly Saatsoglou-Paliadeli 2004: 7-24.

[5] Demakopoulos 2003; Tomlinson 1977: 473-479; von Mangoldt 2012: 5-21 (bibliography and ancient sources on the issue of the vault).

[6] It refers to the long walls, perpendicular to the entrance wall (the structure's façade) and its parallel narrow wall. The long walls are apparently sufficiently massive to support the referred weight of the barrel vault. They might be said to be 'supported', in turn by the eventual filling in of the big trench where the tomb was constructed.

[7] See n. 4. Main issues include the drawing and proportions of the tomb which form the basis for the formation of the interior spaces, the vault and the tomb's façade. The description of the burial monument and the tumulus was noted by Plato (*Leges*, 947). On the mathematical-philosophical interpretation of the Macedonian tombs, see Demakopoulos 2003.

[8] The cist-grave type, known since already the 5th century BC, becomes dominant in the 4th century BC showing a tendency towards a gradual monumental nature and bigger dimensions, see below ns 10, 11, 12). Cf. Besios and Tzifopoulos 2010: 212, 236 (Pydna, Korinos, Kitros); Karamitrou-Mentesidi 1996: 25-28; Karamitrou-Mentesidi 2008: 48-70. The case of the big built cist-graves from the area of the old city-hall of Vergina is characteristic. They were revealed on the eastern section of the necropolis of Aigai and are dated in the early reports to the 5th century BC, see Kottaridi 2009: 151-153. Also in Vergina, in the 'Oblong tumulus', Kyriakou 2008: 113-116, 239-241.

[9] See below, ns 11-12.

[10] Andronikos 1994: 29-49.

[11] Lilimbaki-Akamati 2007: 11-18 (with references to other examples from Pella and its surroundings).

[12] Themelis and Touratsoglou 1997: 135-141. On Aineia, see Vokotopoulou 1990: 22-24.

[13] Despoini 1980: 198-201. The tomb is dated to before the mid-4th century BC based on the small clay lamp found inside and the bronze coin of Amyntas found in the mixed-fill of the monument. Guimier-Sorbets and Morizot 2006: 117-130; Huguenot 2010: 40-47. Also see Schmidt-Dounas *et al.* 2011: 123-129; Schmidt-Dounas 2017: 146-150, who dates the tomb in the 3rd quarter of the 4th century BC.

[14] Andronikos 1984b: 32-33; Andronikos *et al.* 1985: 55-58, pl. 13.

[15] Andronikos *et al.* 1989: 348-350; Brecoulaki 2006: 170-171, pl. 62 (wall decoration); Drougou 1999: 535-546; Drougou and Saatsoglou-Paliadeli 1999: 40; Drougou and Saatsoglou-Paliadeli 2005: 195-196; Drougou *et al.* in press.

[16] See above, n. 14. Excavation has not made clear whether this tomb contained inhumation or the remains of cremation; in our opinion, it may have been the cremation remains of a female, see Drougou *et al.* in press. On decoration as well, see Brecoulaki 2006: 170-171, pl. 62.

pillars that support the double layer of *poros* stone cornerstones, which, like those covering the Katerini tomb, are of uneven heights. The decoration on the walls is confined to wide bands of yellow and white at the top of which is a narrow strip depicting multi-coloured spiral tendrils and a unique representation of a dove. In the northern part of the tomb lies the stone where the bed or ossuary would normally have been placed; this is a subject into which we need to look again.

Even though these last two burials are dated, in accordance with new publications, to the middle of the 4th century BC or later, i.e. in the period when the Macedonian tombs with a barrel-vaulted roof have already made their appearance, they could be considered two of the very few examples later in chronology that demonstrate the attempt to solve the problem of a bigger space without the obstacle of interior support.[17] Both the effort to achieve large areas with the help of a vault and the craftsmen's reservations are clearly shown in a distinctive funerary monument on the southwestern corner of the cemetery of Aigai (outside the northwestern corner of the city-wall), the Tomb of Eurydice. This is the earliest known example of its type, a monument that is distinguished by many peculiarities in its construction and decoration.[18] As M. Andronikos notes: 'The exterior of the burial has the form of a parallelepiped structure, 10.60-10.70 m long and 7.50-7.95 m wide, inside of which the barrel-vaulted tomb has been interned...'.[19] It becomes evident that the need to cover the burial with a vault prohibited entering the tomb from the roof and led to another solution, i.e., through a real narrow wall. This resulted in the construction of a 'monumental' façade with a grand entrance door, which apart from its symbolism as the entrance to the Underworld offers an ingenious technical solution of concealing the vault.[20]

Another example of a rather simpler solution regarding the entrance to the burial concerns the small tufa-tomb 'Heuzey a' in Vergina, though it belongs to the last quarter of the 4th century BC.[21] Its interior dimensions are 2 m x 3 m x 3.60 m (height) and it has no vault but the usual horizontal cover. Its entrance is situated at its narrow eastern side, thus retaining certain characteristics of the earlier tombs that have been mentioned. Given its dimensions and the horizontal roof, the 'Heuzey a' burial, is clearly reminiscent of the simple cist-graves but is differentiated in terms of its entrance, which, based on the scant preserved carvings on its narrow doorframe, had a wooden door.[22] A series of small iron nails have been observed on the inner surface of the *poros* cornerstones of the tomb's cover, comprising a feature similar to one seen on the interior surface of the vault in the Tomb of Eurydice, according to M. Andronikos's report.[23] The presence of these nails on both examples, which are not close in chronology, cannot be easily explained. However, the suggestion that there might have been pieces of fabric covering the vault of the Eurydice tomb or the makeshift horizontal cover of the small 'Heuzey a' tomb may be correct. This idea is further supported by the interior decoration of the vaults of some Macedonian tombs that include designs of fabrics, for example in the Tomb of the Palmettes and the Tomb of Lyson and Kallikles in Mieza (Lefkadia).[24] The interior surface of the antechamber

[17] According to the known excavation evidence and other finds from the preserved burial monuments, i.e., the cist-graves and the Macedonian tombs, the Tomb of Eurydice is considered as the oldest known Macedonian tomb, followed by the Tomb of Philip II, as long as we accept the excavators' chronology, that is, in the first decade after the middle, and in the third quarter of the 4th century BC. This period cannot be far apart from the date of the introduction of the Macedonian grave type, possibly shortly before the middle of the same century in this author's opinion. The chronology of the Macedonian tombs has been a keen issue, one that has been intensely argued. It concerns not only the two early - I believe - examples of Vergina-Aigai, but also the subsequent Macedonian tombs and especially those belonging to the transition period from the 4th to the 3rd century BC. In the light of the discussions and observations, however, the dominant topics are clearly both the creation and evolution of the Macedonian funerary architecture and the expression of traditions concerning death and burial.

[18] Andronikos 1987: 81; Andronikos 1993: 156; Brecoulaki 2006: 49-76; Drougou and Saatsoglou-Paliadeli 1999: 60-61; Drougou and Saatsoglou-Paliadeli 2005: 183-186; Kottaridi 1996: 631-642. Kottaridi 2006: 155-166; Kottaridi 2009: 152-153; Kottaridi 2011: 145-147; von Mangoldt 2012: 291-294 (bibliography). Despite having been robbed, the tomb is dated to *c.* 340 BC based primarily on the decorated pottery evidence, such as the two (?) aryballoid lekythoi by the Eleusinian painter (under examination!) and the fragments of two Panathenaic amphorae, one of which bears the name of the archon Lykiskos. See, above, n. 17 and below, n. 23.

[19] Andronikos 1993: 156. He also notes the interior dimensions of the antechamber (4.48 m x 2.50 m) and main chamber (4.48-4.50 m x 5.51 m, and 5.51 m high) that demonstrate the large size of the monument and the unknown architect's bold attempt to achieve a large space with a secure way to provide it with a roof. The tomb's size and especially its barrel-vaulted roof apparently forced the monument's creator, for example, to build double walls even on its façade.

[20] See, above, n. 4. It should be noted that in all Macedonian tombs with a complete architectural composition on the façade, the problem is addressed in various ways. Examples are the great Ionic frieze depicting the hunting theme on the façade of the Tomb of Philip and the 'two-story' façade of the Tomb of the Judgement in Lefkadia, among others. Some architects employed other solutions, for example in the 3rd century BC 'Bella' cluster. See Andronikos 1984a.

[21] Drougou 1999: 535-546; Drougou 2000: 227-246; Drougou *et al.* in press. The gold coin of Pixodaros, satrap of Caria, along with other finds, dates the burial to the last quarter of the 4th century BC. See also a similar burial structure in Agios Athanasios in Thessaloniki, Tsimbidou-Avloniti 2000: 544-546.

[22] No trace of a wooden door survives. Drougou *et al.* in press. On similar wooden doors and solutions, see Haddad 1995: 169-172. Cf. also, Kottaridi 1996: 632-634 (from the cremation in the Tomb of Eurydice).

[23] Andronikos 1993: 156. Drougou *et al.* in press.

[24] Rhomiopoulou and Schmidt-Dounas 2010: 76-77 (the ceiling of the antechamber at the Tomb of the Palmettes in Mieza [Lefkadia]). Tomlinson 1986: 607-651 (with caution regarding the possibility of hanging textiles from the ceiling); von Mangoldt 2012. Also, Miller 1993: 45-46 (Tomb of Lyson and Kallikles at Lefkadia-Mieza). On the use of fabrics in the funerary process and burial decoration, see Andrianou 2012: mainly 42-61. As indicated by certain data from unlooted tombs like the Tomb of Philip, it is worthy of mention that, apart from any bedcovers, more fabrics or bands may have been

vault of the Tomb of the Palmettes is covered by a richly painted floral composition. It does not necessarily depict a tapestry, or a curtain, but, rather, a lighter piece of fabric decorated with real-life motifs, as is attested by finds such as the gold-threaded textile of Vergina or the painted ceilings of some Macedonian tombs (e.g., the ceiling of the Soteriades tomb in Dion).[25]

The construction features, summarized above, as well as the great variety of finds from the Macedonian tombs, comprising remains of furniture, personal items, weaponry and jewelry, tableware and other objects of the deceased's social and religious life, all reveal the importance and honour bestowed upon the dead male or female. The living praise his or her power, social or political role and ancestry while evidently pay him or her the honours of a hero. The discovery of both *symposium* and bathing vessels, pottery, and fine beds has on many occasions permitted the identification of the *symposium* or even the funerary banquet as the focus of the burial rites inside the tomb in honour of the 'equal-to-the-gods' deceased.[26] Especially as preserved in the unlooted Tomb of Philip, the numerous drinking cups and bathing vases and the gold-and-ivory burial beds, have strengthened the view of a *symposium*. Still, there are certain details in the main chamber of this tomb, such as the position of the bed and the weapons as well as other objects that are not well preserved because of their organic materials that need further examination and interpretation. The idea of the *symposium* has prevailed in understanding the funerary process, however, even though there are many significant but unexplained aspects, like the presence of the stone thrones.[27]

It has been already mentioned that the Tomb of Eurydice had been looted when discovered and most of the grave offerings no longer exist. Based on the very few pieces of jewelry and pottery sherds that remained, it is difficult to ascertain the burial rites performed during the funeral of this distinguished person. However, there are enough architectural and other types of elements surviving to reveal crucial aspects of not only the construction and function of the monument, but perhaps also the evolution of the

Figure 1: Vergina - Aigai. The Tomb of Eurydice. The façade with the throne
(photo: APTh Archive of the Excavation of Vergina).

Macedonian type of burial and the general ideology behind this ceremony.[28] The imposing and ornate marble throne with its footstool is indeed of great importance (FIGURE 1). It stands facing the west wall of the main chamber, which bears the well-defined architectural form of a façade of a structure in the Ionic order.[29] This is a surprising association that poses a number of questions concerning both its specific meaning and the

hanging on tomb walls. See the testimony of the stone furniture found in burials in Andrianou 2009; Andronikos 1993: 160 n. 16; Huguenot 2008 (the tombs of the Erotes and at Amarynthos in Eretria); Drougou, The Vergina Textile (in press).

[25] Miller 1993: pl. 8.

[26] See Andronikos 1968; Burkert 1977: 293-318; Kurtz and Boardman 1971: 297- 302. See, above, n.3.

[27] The theme of the *symposium* dominates the interpretation of the archaeological monuments of ancient Macedonia. Even though it appears on certain occasions as an absolute criterion, it is not intrinsic to all. The importance of the *symposia* in the social and political life of the Macedonians is undeniable, yet, many data can be differentiated to provide a richer picture. On the archaeological aspect of the subject, see Tsimbidou-Avloniti 2005: 134-142 (with extensive bibliography).

[28] See above, n. 18.

[29] Andrianou 2009: 30; Andrianou 2012: 42-61; Andronikos 1993: 160-161 (description of the throne); Brecoulaki 2006: 53-60; Huguenot 2006b: 36-37; Kottaridi and Walker 2011: 14 (A. Kottaridi); Kottaridi 2013: 140, 278-281; Tomlinson 1993: 1183-1187; von Mangoldt 2012: 79-90. The starting point for the study of thrones and beds and their meanings in various social events remains the monograph by Kyrieleis 1969. Cf. Paspalas 2000; Sismanidis 1997: 197-199 (also on beds in general).

interpretations proposed thus far about the interior space of similar burial monuments. The size, the luxury, and especially the 'iconography' of the throne featured on the backrest with its painted frontal depiction of the divine couple Hades and Persephone, supports the view that the nature of this distinctive piece of 'furniture' is strongly symbolical and associated with the prestige of the deceased and the Almighty deities of Hades. It should also be noted that the marble *larnax* with the dead woman's bones must have been placed here.[30] Its position in front of the façade of an Ionic 'structure', which this author believes may represent a temple, implies that the significance of the interior of the burial chamber is other than that of the *symposium*, and may even demonstrate prestige and honour due to a nearly divine authority.[31]

The significance of the throne in the social, religious, and political life of the Macedonians has been discussed in detail. However, its presence in the context of a funerary process is of particular importance, to which the example in the Tomb of Eurydice as well as others known from the necropolis in Aigai testify. A big marble throne was discovered inside the main chamber of the Rhomaios tomb (FIGURE 2), which is in the same area of the Aigai cemetery. It is a well-known burial with an Ionic façade at its entrance. The throne, though smaller and less luxurious than the one in the Tomb of Eurydice, is decorated with relief and painted sphinxes and griffins.[32] The ossuary or *larnax* may have been placed on top of the throne as in the Tomb of Eurydice. In addition, a plain stone bench-like base was found inside the looted tomb beside the throne; its use remains unknown. Based on these two stone items of 'furniture' it has been suggested that there were two burials inside the tomb, an hypothesis that has not been sufficiently proved.[33] However, it is apparent that the throne inside the Rhomaios tomb adds to the burial process a sense of honouring the deceased just as the throne does in the Tomb of Eurydice conveying to a lesser extent the spirit of *symposium*. A stone throne was also placed in the center of the eastern 'blind' wall inside the single-chamber Macedonian tomb of the

Figure 2: Vergina – Aigai. The Tomb of Rhomaios. The throne (photo: APTh Archive of the Excavation of Vergina).

'Bella' cluster (FIGURE 3),[34] dated to the first half of the 3rd century BC. That tomb, found looted with only a few offerings remaining inside its single chamber, has on its façade the image of the deceased military man being crowned by a female figure. In contrast to the two previous tombs, which were those of women, the depiction of the military figure clearly indicates the identity of the dead as a man. The throne is distinctive in that its missing backrest has been reproduced in paint on the wall behind the throne. Its footstool has been preserved. The remaining finds from the looted tomb are both few and rather puzzling, and cannot contribute to an overall interpretation before their publication.[35]

Certain important funerary monuments should be added to this valuable group of thrones in Vergina despite chronological and other differences. These include the marble furniture, beds, and 'thrones' of the tomb of Eretria[36] and the well-made bench-like bases inside the tomb at Phoinikas in Thessaloniki.[37] It becomes evident that, in addition to the image of

[30] See Andronikos 1993: 161; Kottaridi 2011: 145.

[31] Naturally, these observations are put forward with caution given that all the data from this area are not yet known. The publication of all finds could supply the necessary means of examination. Andronikos 1993; Kottaridi 2009: 152-153.

[32] Andrianou 2009: 30; Andronikos 1984a: 32-33; Andronikos 1993: 177-179; Brecoulaki 2006: 160-161; Drougou and Saatsoglou-Paliadeli 1999: 62-63; Drougou and Saatsoglou-Paliadeli 2005: 186-189; Huguenot 2006b: 34-36; Huguenot 2007: 22-23; Kottaridi 2006: 155-166; Kottaridi 2009: 145-153; Kottaridi and Walker 2011: 52 (Y. Galanakis); Kottaridi 2011: 145 -147; Kottaridi 2013: 338-339 (plates); Rhomaios 1951; von Mangoldt 2012: 271-273. It is worthy of note that almost all burials in this area of the cemetery in Aigai have been linked by the excavators to wealthy women or queens, forming a separate cluster of tombs despite their chronological differences. Hence, it seems logical to assume that the tomb with the Ionic façade studied by K. Rhomaios belonged to a woman. See Kottaridi 2009: 152-153.

[33] Andronikos 1984a; Andronikos 1993: 177-179; Rhomaios 1951.

[34] Andrianou 2009: 30; Andronikos 1984a: 35-37; Andronikos 1993: 178-179; Brecoulaki 2006; Drougou and Saatsoglou-Paliadeli 1999: 65-69; Drougou and Saatsoglou-Paliadeli 2005; Huguenot 2006b: 36; von Mangoldt 2012: 288-289.

[35] See above, n. 33.

[36] Andrianou 2009; Huguenot 2006b: 29-56; Huguenot 2008.

[37] Tsimbidou-Avloniti 2005: 33-44.

Figure 3: Vergina - Aigai. The Tomb of the 'Bella' cluster. The throne (photo: APTh archive of the excavation of Vergina).

the *symposium*, another distinctive notion is formed, that of the honour paid towards the 'heroic' occupant of the grave irrespective of gender. It is unknown whether these burials contained objects associated with drinking or bathing, as in the unlooted Tomb of Philip, though the scant remains left behind after the destruction of the burials do suggest the possibility that the dead individuals were accompanied by personal items, weapons or jewelry.[38] In any case, the central location, the size, and the 'luxury' of the stone thrones appear to grant in a particularly symbolic way a royal honour to the 'heroic' dead, possibly suggesting this person's authority during his/her life-time. The issue of the bench-like bases appears more complicated, but could be rather simple. The surviving examples cover a wide range from very plain (cist-tomb at Palatitsia, the Rhomaios tomb, the 'Heuzey a' tomb) to lavish (tomb at Phoinikas in Thessaloniki), to those confined in cist-tombs or Macedonian tumuli.[39] K. Rhomaios and M. Andronikos have cautiously suggested the general use of a table(?) with regard to the Rhomaios tomb with the Ionic façade. By contrast, the luxurious altar-shaped bases of the Macedonian tomb at Phoinikas allowed the excavator to recreate with the help of other finds an impressive tomb interior with two burials with elegant beds on bases. It is not easy to comprehend the reasons behind the selections of various types of burial arrangements and the methods used to achieve them. They may have been dictated by social tradition and economic status.

It has been repeatedly argued that the creation of the Macedonian tomb with the wide interior space and the staging of the burial is associated with (or is even the result of) the opportunity to promote the dead of the ruling class in Macedonian society by means of both the monumental architecture and the wealth of either the individuals themselves or the family responsible for their funeral. These phenomena concern primarily the 4th century BC and the communities of the Macedonian kingdom.[40] However, it is interesting to observe these phenomena during the subsequent centuries, especially during the 3rd and 2nd centuries BC, when these objects and trends became stereotypes that were broadly adopted in rich, or less rich, and even in poor burials throughout the Hellenistic world.[41] This is a topic that has brought forth a wealth of archaeological material and has posed numerous questions.

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[38] Cf. Andronikos 1984a: 145-166; Andronikos 1993: 160-161, 168-175; Tsimbidou-Avloniti 2005: 33-44. Also compare the very few offerings discovered inside and outside the 'Heuzey a' tomb. Drougou 1998; Drougou 1999; Drougou 2000.

[39] Andronikos 1984a: 32-33; von Mangoldt 2012: 270-273; on the issue in general, see Sismanidis 1997: 168-177; Tsimbidou-Avloniti 2005: 33-45. See also, above, ns 32, 33, 36.

[40] Lane Fox 2011a; Lane Fox 2011b; Mari 2011: 456-460.

[41] Andronikos 1984a: 35-37; Chrysostomou 1998: 38-43; Miller 1993; Pandermalis 1972: 147-162; Rhomiopoulou and Schmidt-Dounas 2010: 120-128, 139-142; von Mangoldt 2012: 273-275. On the historical context, Hatzopoulos 1994; Mari 2011: 456-465; Touratsoglou 2010.

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The Stoas of the Sanctuary at Dodona

Nikolaos Th. Katsikoudis

Summary

The stoas were responsible for the visual impact of the religious and secular buildings of the sanctuary at Dodona. The *hiera oikia* E1 - the temple, the pi-shaped stoa and the propylon - was unified as one building. Porticoes were erected in front of the *bouleuterion* and the theatre which deviated from the usual type of the stoas found in northwestern Greece. The western stoa was an L-shaped building when it was connected to the existing eastern portico of the *prytaneion*. The eight-sided pilasters belonged to the local characteristics and the sandstone for the architectural members was available from the local quarries. Sandstone was not limited to the early Hellenistic period, but was used also in the second half of the 3rd or in the early 2nd century BC. The stoas of the sanctuary at Dodona served as the façade of secular buildings with their impressive size creating a compact and homogeneous appearance. The colonnaded front of the buildings with the linear confines of the porticoes interrupted the monotony of the large surfaces, created a series of changeable theatrical scenes and gave the impression of perspective depth. Votive monuments and honourary statues in front of them turned the surrounding area into a sculpture gallery.

Περίληψη

Οι στοές συνέβαλαν στην αρχιτεκτονική διαμόρφωση των λατρευτικών και δημόσιων οικοδομημάτων του ιερού της Δωδώνης. Η ανάπτυξη στοών σε σχήμα Π εσωτερικά του περιβόλου της Ιεράς Οικίας διαμόρφωνε ένα ομοιογενές αρχιτεκτονικό πλαίσιο που περιέβαλλε την αυλή. Οι στοές μπροστά από το βουλευτήριο και τη σκηνή του θεάτρου απέκλιναν από τον συνήθη στον ΒΔ ελλαδικό χώρο αρχιτεκτονικό τύπο της στοάς με κλειστά τα άκρα της πρόσοψης. Η δυτική στοά αποτελούσε το στωικό μέτωπο του τείχους στο νότιο τμήμα του ιερού και απέκτησε τη μορφή ανεστραμμένου Γ, όταν συνδέθηκε με την υφιστάμενη ανατολική στοά του πρυτανείου. Συνδεδεμένη με την τοπική παράδοση ήταν η χρήση οκταγωνικού τύπου στύλων και υλικών όπως ο αμμόλιθος (ψαμμίτης) για τα αρχιτεκτονικά μέλη, χωρίς ωστόσο το υλικό να αποτελεί ασφαλές κριτήριο για την αντικειμενική χρονολόγηση των οικοδομημάτων στον πρώιμο 3ο αιώνα π.Χ.

Οι στοές διέκοπταν τη μονοτονία των μεγάλων επιφανειών των δημόσιων οικοδομημάτων και του τείχους του ιερού και δημιουργούσαν σειρά εναλλασσόμενων θεατρικών σκηνικών που έδιναν την εντύπωση του προοπτικού βάθους. Η εντυπωσιακή εικόνα του ιερού, πέρα από το φαινομενικά ομοιόμορφο μοτίβο των κιονοστοιχιών, καθοριζόταν και από τα παρατακτικά τοποθετημένα εμπρός τους βάθρα αγαλμάτων και τιμητικών ανδριάντων που μετέτρεπαν τον περιβάλλοντα χώρο σε υπαίθρια γλυπτοθήκη.

Key Words

Dodona; *hiera oikia*; stoas; *temenos* wall; *prytaneion*; *bouleuterion*.

The dominant element for the architectural planning of the sanctuary at Dodona was the dwelling-place of Zeus (*hiera oikia*) in the eastern area around which smaller temples[1] were erected for the worshipping of Heracles, Dione, Themis and Aphrodite (FIGURE 1). The *bouleuterion*, the *prytaneion* and the theatre were erected on the western site of the shrine and in front of these buildings stoas were constructed. On the southern site porticoes shaped the architectural image within the *temenos* wall (*peribolos*) and created a unique ensemble providing an aesthetically pleasing perspective against the landscape.

During the third construction-phase in the first quarter of the 3rd century BC the building complex of the *hiera oikia* E1 (FIGURE 2) consisted of the temple, the colonnaded courtyard with Ionic columns along the western and southern side, the sacred oak-tree on the east side of the court and the low precinct.[2] The temple, situated between two and four columns on the northern colonnade, projected inwards to the courtyard and was oriented to the southeast. The precinct had an entry in the middle of the southern side and the axis of the temple was not identical with that of the precinct. The architectural form, the material and historical considerations indicate a date of the *hiera oikia* E1 in the later 4th century or in King Pyrrhus' period, who

[1] Doubts about the identification of these buildings as temples dedicated to the above mentioned Gods are expressed by scholars who advances the hypothesis that these buildings were treasuries Dieterle 2007: 130 (she refers to them as temples on p. 168); Mancini 2013: 84-88; Piccinini 2016: 164.

[2] Dakaris 1995: 43-46; Emmerling 2012: 33-45; Evangelidis and Dakaris 1959: 48-73.

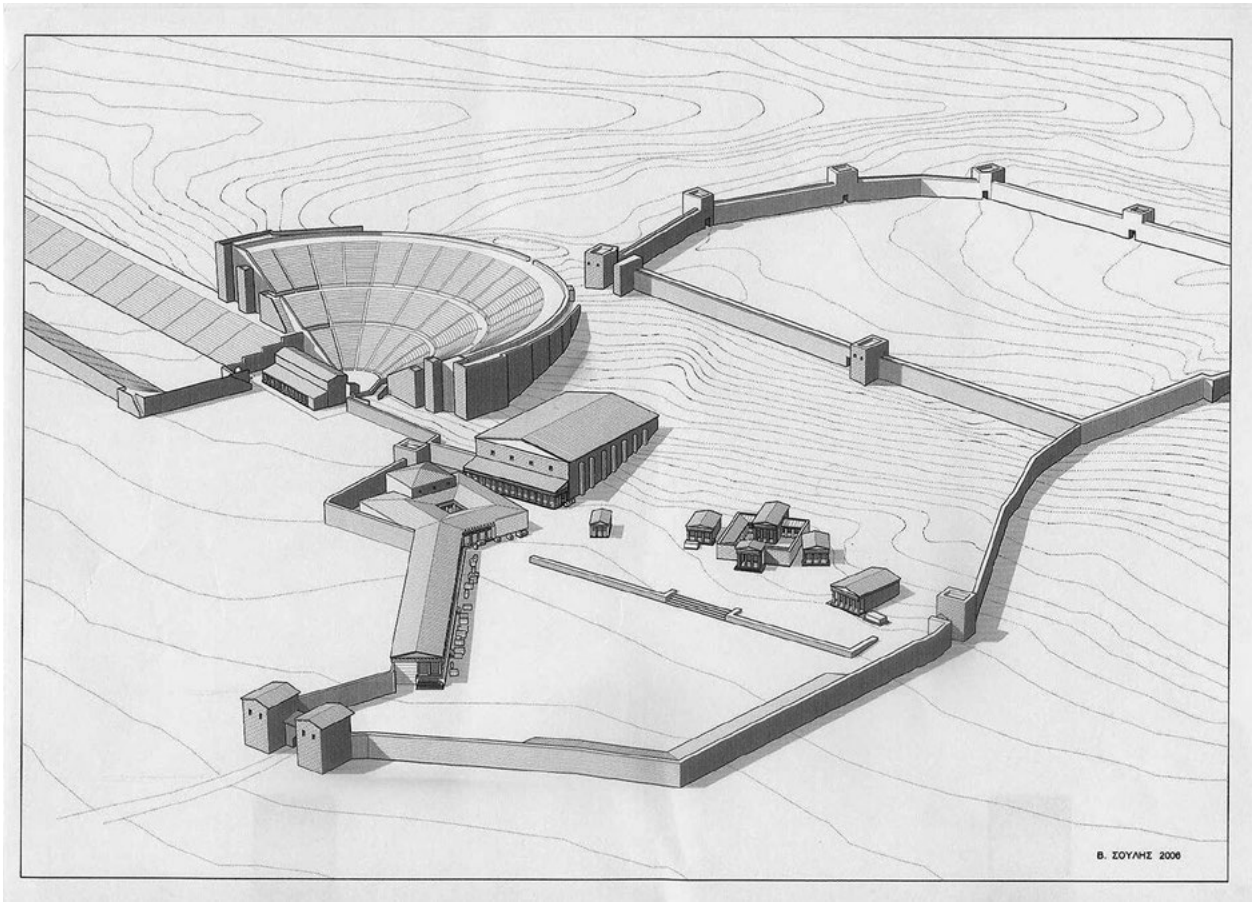

Figure 1: Reconstruction of the sanctuary of Dodona (© Copyright the Trustees of the Archives of the University of Ioannina).

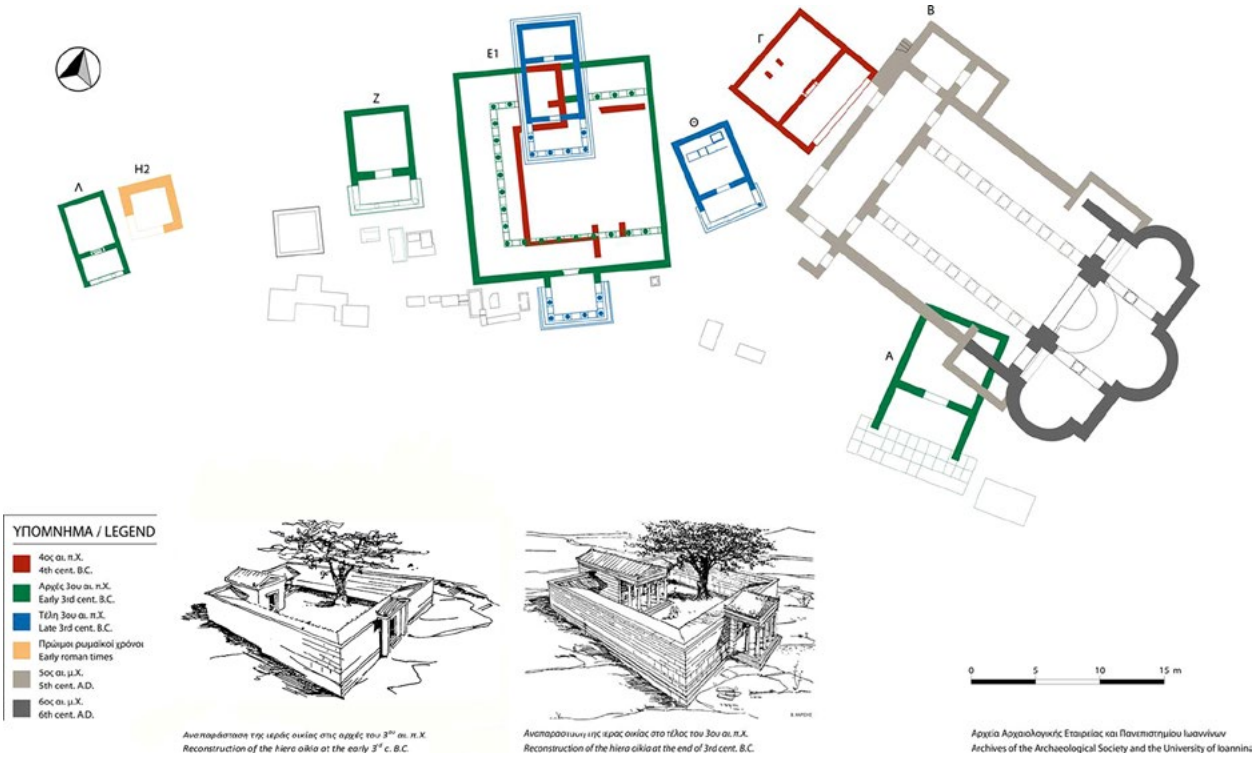

Figure 2: Plan of the *hiera oikia* E1 and the small temples on the east side of the sanctuary at Dodona (© Copyright the Trustees of the Archives of the University of Ioannina).

Figure 3: Plan of the *bouleuterion* (E2) with the portico, the *prytaneion* (O, O1-O2) and the western stoa (© Copyright the Trustees of the Archives of the University of Ioannina).

adorned the sanctuary with victory-dedications.[3] After the sack of Dodona by the Aetolians in 219 BC a larger prostyle-tetrastyle temple with Ionic columns was erected in the *hiera oikia* E1 and the columns of the colonnaded courtyard were left unchanged, but taller.[4] On account of the expansion of the temple towards the courtyard east and south, the northern colonnade had five columns. A tetrastyle propylon with Ionic columns was added close to the middle of the south precinct.[5] The destruction of the *hiera oikia* E1 in 167 BC was not confirmed by the archaeological evidence.[6] Stone *antefixes*[7] and a lion's head from the *sima*[8] of the colonnade have been dated by scholars in the period between the late 4th and the early 3rd century BC. It was recently suggested that they originated from a renovation of the roof of the porticoes during the second half of the 2nd century BC.[9] Both the stone *antefixes* and the lion's head are Hellenistic in style and indicate that the cost had become increasingly burdensome, which in my opinion, is not compatible with the political and economic situation of the sanctuary after 168/167 BC. I am inclined to believe that such a renovation in the late 3rd or at least in the first quarter of the 2nd century BC is possible, just at the same time that the *prytaneion* was renovated. At this time the *koinon* of the Epirotes met prosperity, which is reflected in its silver and bronze coinage[10] and the sanctuary of Dodona was in its prime due to the *Naia* games in honour of Zeus, which were celebrated in sequence in a period of four years and were declared of the same rank as the Olympic Games.[11]

The *prytaneion* (O) at Dodona in the first construction-phase in the end of the 4th or early 3rd century BC (FIGURE. 3) was thought to be consisting of a main square room on the western side and a rectangular one with a peristyle court on the eastern side, with 4 x 5 Doric columns on a continuous stylobate.[12] Probably the entrance of the *prytaneion* was located on the eastern side.[13] During the second construction-phase the wings O1 and O2 were added to the original core-building O. The front of the building was formed as a colonnade between re-entrant angles for some distance along the

[3] Ameling *et al.* 1995: 172-175; Dakaris 1966: 77-78, pl. 80a; Dakaris 1968: 58-59, fig. 2, pl. 42c; Dieterle 2007: 116; Emmerling 2012: 115-116, 118-148, 236 n. 1438; Evangelidis and Dakaris 1959: 91 ns 3-4, 94-97; Hintzen-Bohlen 1992: 71-74, 234; Katsikoudis 1997: 270 ns 74 and 77; Meyer 2013: 90; Schalles 1995: 668; Schmidt-Dounas 2000: 4, 90.
[4] Emmerling 2012: 140-172; Evangelidis and Dakaris 1959: 98-99, 112, 156.
[5] Evangelidis and Dakaris 1959: 103-107.
[6] Evangelidis and Dakaris 1959: 113.
[7] Emmerling 2012: 136, 245, 276 S1, fig. 79 (left), S2, fig. 79 (right); Evangelidis and Dakaris 1959: 172 no. 23, pl. 13d (right), no. 24, pl. 13b; Vlachopoulou-Oikonomou 1986: 140-144.
[8] Evangelidis and Dakaris 1959: 173 nos 25. 26, pls 13c (right), 14a, p. 174.
[9] Emmerling 2012: 136-139, 245, 276-277 nos S3. S4, fig. 80.
[10] Diez 1989; Franke 1961: 134-217.
[11] Cabanes 1988: 73; Moustakis 2006: 125-126.
[12] Dakaris *et al.* 1999: 151, fig. 4; Gravani 2008: 60-63, drawing 4, fig. 5.
[13] Gravani 2008: 62.

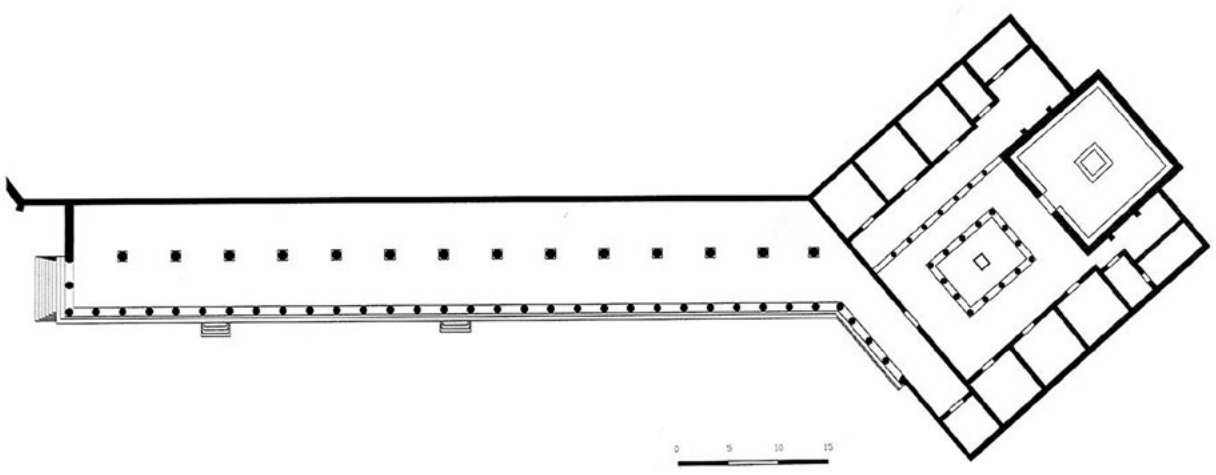

Figure 4: Reconstruction of the *prytaneion* and the western stoa
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façade and it was planned at the centre of the complex (O - O1 - O2) and not on the axis of the original core-building O.[14] The extension is dated before the Aetolian destruction of 219 BC.[15] The eastern colonnade of the *prytaneion* was connected to the western stoa of the sanctuary, which was extended towards the south and was erected in the third construction-phase, after 219 or early in the 2nd century BC.[16] The western stoa (FIGURE 4) had a length of 77.25 m from the point of connection with the eastern colonnade of the *prytaneion*, a width of 10.50 m and was two-aisled, in view of its depth, with Doric outer and axially disposed Doric inner colonnade.[17] The western stoa had 29 columns on the façade and one column at the conjunction with the eastern stoa of the *prytaneion*, which to the north bend had a length of 20.40 m. A colonnade of three columns formed the façade of the *prytaneion*. The southern façade of the western stoa had a closed corner space on the southwestern end and one column between the lateral wall and the colonnade of the façade. Therefore, the building was a unified whole L-shaped stoa having on the façade a total of 34 Doric columns.[18] One half-column was in contact with the end of the southern and northern walls respectively according to the pattern of the *bouleuterion*.[19] The western stoa had 14 inner Doric columns with an intercolumniation of 4.30 m.[20] Entrance was granted from two staircases on the front of the stoa, south and north, with four and three stairs respectively.[21] On the southern side of the western stoa there was a staircase with six stairs.[22] The inclination of the terrain and the altitude difference imposed tiered reduction in the stairs from south to north. After the Roman destruction in 167 BC the *prytaneion* was confined to the original building O, but the peristyle court had 4 x 7 Doric columns[23] and some bases slabs came from demolished pedestals.[24] Bases of votive and honourary monuments were found in front of the western stoa and some of them closely adhered to others.[25] A stoa was also constructed along the eastern enclosing wall (*peribolos*) of the sanctuary and in front of the portico statues and other offerings were set up.[26] A systematic geophysical research using two geophysical techniques (geoelectric and geomagnetic) applied to a depth of 3 m on the southeast side of the sanctuary, yielded the remains of another new structure, probably the south stoa.[27]

The *bouleuterion* E2 (FIGURE 3) became much more impressive by the construction of the Doric stoa, which extended along the whole width of the public building (32.40 x 5.50 m) with 15 columns on the façade and 2

[14] Dakaris *et al.* 1999: 154; Gravani 2008: 63-67, drawing 5, fig. 8.
[15] Dakaris *et al.* 1999: 153. Eaves tiles from the wing O1 and inscribed tiles were dated in the late 3rd century BC. Vlachopoulou-Oikonomou 1988: 69-78; Vlachopoulou-Oikonomou 1994: 209-210. For the dating of wing O1 before 219 BC, see Dakaris *et al.* 1999: 153; Gravani 1994: 333 n. 27, fig. 3; Gravani 2008: 66.
[16] Gravani 2008: 68-69; Souli *et al.* 1999: 152-153, pl. 91a-b; Souli *et al.* 2004: 66, 72-74.
[17] Gravani 2008: 68-69, 72-79, drawings 3. 9-10; Souli *et al.* 2003: 67-70, pls 39-41; Souli *et al.* 2004: 73-74.
[18] Gravani 2008: 77, drawings 12-13, 15-17, p. 78.
[19] Dakaris 1996: 72, fig. 2; Gravani 2008: 77.
[20] Bilis 2006: 20, fig. 13; Gravani 2008: 78 ns 108. 111.
[21] Gravani 2008: 75, figs. 17-18; Souli *et al.* 2002: 84, pls 54a, 56a; Souli *et al.* 2003: 69-70, pl. 41.
[22] Gravani 2008: 75, figs. 12-13; Souli *et al.* 2002: 83-84, pl. 55a-b.
[23] Dakaris 1987: 120, 121; Dakaris *et al.* 1999: 156, pl. 6a-b, fig. 9; Gravani 2008: 69-71; Souli *et al.* 2005: 85 n. 25.
[24] An inscribed base with the name of the sculptor Melissos Epikrateos from Corfu had been dated in the late 3rd or early 2nd century BC, Dakaris 1987: 120-121; Dakaris 1989: 178, 179-180; Katsikoudis 2005: 75-77, pl. 10.
[25] Gravani 2008: 79-81, drawing 3, figs. 11-12, 15-20; Katsikoudis 2005: 137-141, figs. 10-11; Souli *et al.* 2005: 79-80, figs. 2-3, pls 41-45.
[26] Carapanos 1878: pl. III; Katsikoudis 2005: 141-143.
[27] Souli *et al.* 2005: 88. For the geophysical research on the south area inside the Sanctuary at Dodona see Gravani 2008: 84, 109, drawing 18; Sarris 2005: 4-13.

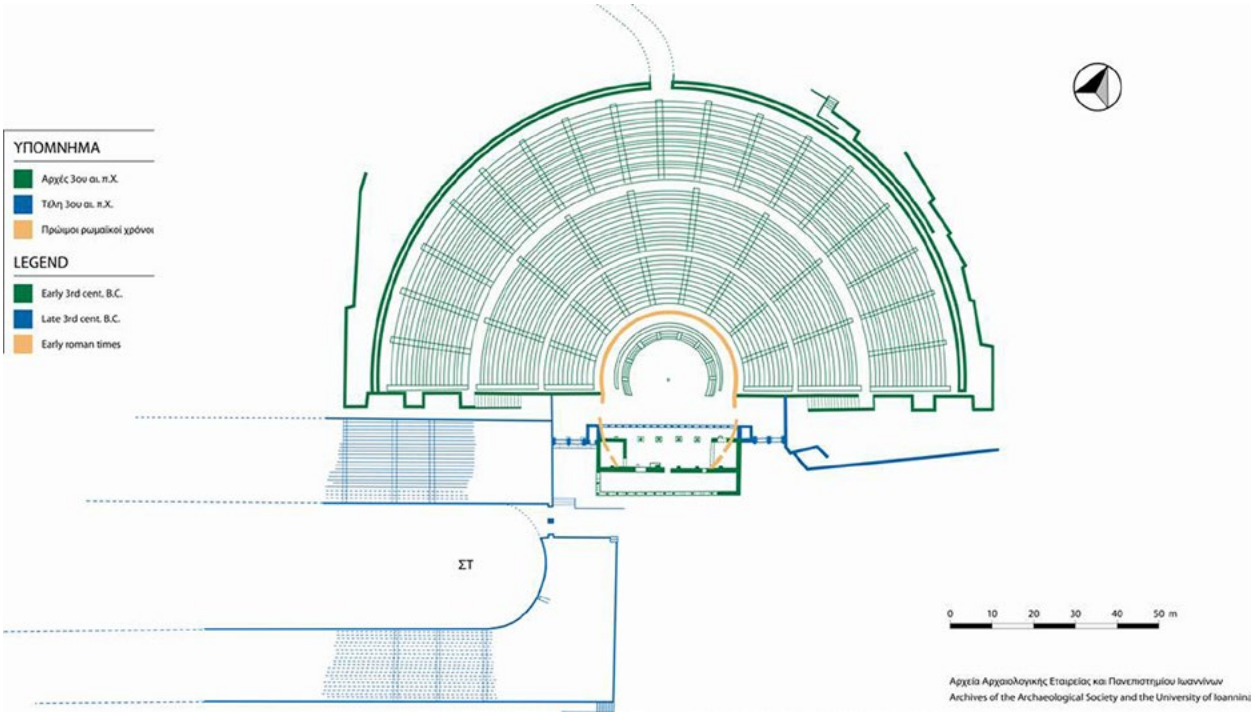

Figure 5: Plan of the theatre with the *skene* and the portico
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columns on the narrow sides in front of the attached half-columns of the lateral walls of the *bouleuterion*.[28] The stoa was constructed in the early 3rd century BC.[29] Barriers 0.65 m in height from limestone plinths coated with mortar were built after 219 BC[30] and, as a matter of fact, in the 2nd century BC. The space between the attached half-columns and the middle columns of the lateral walls, as well as the intercolumniation opposite of the two entrances of the *bouleuterion* remained without barriers.[31] The definitive destruction of the stoa is dated probably in 168/167 BC.[32]

Behind the back wall of the *skene* of the theatre a rectangular hall was erected (FIGURE 5), measuring 31.20 x 4.60 m and facing south with 13 Doric octagonal pillars and two pillars on the western side opposite to an octagonal half-column attached to the west end of the *skene*.[33] The eastern end of the hall returns for some distance along the façade. The excavator linked the stoa with the first construction-phase of the theatre in the beginning of the 3rd century BC.[34] However, we cannot be certain about this date, because the octagonal pillars were used at the end of the 3rd century BC.[35] The lateral wall of the eastern *paraskenion* and that of the stoa were built in isodomic masonry and it is quite apparent that they belong to the same construction-phase. So it is reasonable to regard[36] that instead of a portico with colonnaded façade, a rectangular hall was built here in the first construction-phase, leading through an opening in the arch-shaped lintel into the *skene*.[37] The rectangular hall was re-built into a portico, probably after 232 BC, by the time of the *koinon* of the Epirotes and before 219 BC, a period during which the extension of the *prytaneion* had been built.[38] The stoa underwent no extensive interventions during the reconstruction of the *skene* after 219 BC. The colonnade was built of conglomerate and limestone was used for the capitals. Additional openings in the back wall of the *skene* were related with restorations that were made when the *skene* became two-storeyed at the end of the 3rd century BC,[39] whereas another two openings on both sides of the arch-shaped entrance are probably connected to later restoration.[40]

The whole complex of the *hiera oikia* E1 - the temple, the peristyle court and the propylon - was unified into one building during some final planning after 219 BC.

[28] Dakaris 1966: 73, fig. 2, pl. 73a; Dakaris 1995: 58, pl.10.
[29] Dakaris 1966: 73 n. 1, 80-88; Dakaris 1968: 53.
[30] Dakaris 1965: 56; Dakaris 1966: 73-74, fig. 2, pl. 73a-b.
[31] Dakaris 1966: 73-74. Without barriers remained also the fifth and the sixth intercolumniations.
[32] Dakaris 1966: 82.
[33] Dakaris 1960: 28, fig. 9, pls 7; 8a.
[34] Dakaris 1960: 28, 38.
[35] See ns 68-71. The same is pointed out by Dieterle 2007: 147.
[36] Gogos 1989: 122-124, fig 6.1; he also suggested that the dating of the stoa at the *bouleuterion* and of the portico at the Theatre within the same construction-phase is not entirely certain.
[37] Dakaris 1960: pls 8a, 9b.
[38] See above n. 15.
[39] Same interpretation by Gogos 1989: 123.
[40] Dakaris 1960: 35, pl. 8a.

From the viewpoint of planning the *pronaos* projecting inward to the courtyard and the propylon in the middle of the front enclosure emphasized perspective directing the visitor's eye to the temple façade.[41] The northern stoa formed the colonnaded background of the courtyard, thus achieving a rhythmic alternation with the temple. The peristyle court planning based on right-left symmetry became a self continent space with dynamic vitality.[42] Winter remarks: 'the new emphasis on the *temenos* and propylon, or entrance, in relation to the temple, was really a further secularizing of religious architecture at the expense of the 'sacred *naos*'.[43] Regarding the architectural plan of the *hiera oikia* E1, the closest parallel is the sanctuary of Zeus *Soter* at Megalopolis, which is dated *c.* 320 BC.[44]

The second construction-phase of the *prytaneion* (O) refers to residential architecture with a 'great hall' (*oecus maior*) and a *pastas* with colonnade in the central axis. The extension of the *prytaneion* with the wings O1 and O2 in order to serve the needs of the expanded *koinon* of the Epirotes constitutes an architectural type that occurs more frequently in the 4th century BC.[45] It is even possible that the whole complex was used in cult practices and probably in hosting authorities during the *Naia* festivals.[46]

The materials of construction are common in all buildings and stoas of the sanctuary of Dodona. A whitish and grey hard limestone, which came from the quarries of the region, was the material extensively used. Limestone was used to build the *euthynteria*, the lower part of the walls, the *orthostates* and thresholds. Architectural members such as columns, half-columns, capitals and *antae* capitals were constructed of green sandstone. For the upper part of the walls mud bricks were used reinforced by timber lacing, and bricks coated with mortar.[47] The architectural members of sandstone and conglomerate stone were coated with mortar also for reasons of protection of the materials, highlighting the fluted shaft of the columns and the colour unison with the whitish limestone.[48] S. Dakaris relied on the use of sandstone to date certain buildings in the early 3rd century BC.[49] The overall image of the buildings of the sanctuary of Dodona and those at Kassope[50] does not support the excavator's proposal. The colonnades of the *hiera oikia* E1 and their bases were built of limestone, on the contrary sandstone was used for the capitals.[51] Part of an angular Ionic capital, that was found in the SE corner near the propylon, probably belongs to it. It is of sandstone and was constructed in the late 3rd century BC.[52] In the early 3rd century BC sandstone was used for the columns of the lateral walls of the stoa at the *bouleuterion*, for the Doric capitals and the half-columns.[53] The 13 intermediate columns of the façade during the reconstruction of the stoa after 219 BC were of conglomerate stone, the capitals of limestone, but in the western part the columns and capitals were of sandstone. Ionic capitals with angle volutes of sandstone were found within the *bouleuterion*.[54] Doric sandstone capitals found in the peristyle court at the *prytaneion* are the same as the capitals of the stoa at the *bouleuterion*.[55] The columns of the western stoa of the shrine that was constructed after 219 BC were of sandstone.[56] Therefore sandstone was not limited to the early Hellenistic period, but was used the same as the conglomerate stone and the limestone in the second half of the 3rd or in the early 2nd century BC. The entablature of the stoa at the *bouleuterion*[57] was considered to be wooden; the same can be said for the western stoa that had double the intercolumnar space in its internal colonnade, an appraisal that was set forth for the Northeastern Stoa and the *Abaton* of Epidauros.[58] The peristyle courts at the *prytaneion* and the *hiera oikia* E1 had a shed-roof,[59] the southern part of the western stoa[60] had a gabled roof and the northern part of the same building had a single shed roof, as well as the porticoes at the theatre and the *bouleuterion*.[61] The upper flooring of the three-sided stoa at the *hiera oikia* E1, of the porticoes at the *prytaneion*, as well as the remainder of the stoas of the shrine were of packed earth.

The stoas of the sanctuary of Dodona deviate from the usual type of stoa found in northwestern Greece by

[41] For a thorough interpretation of the architectural planning of the Sacred House see Evangelidis and Dakaris 1959: 152-159; also worth noting is the way Ito interpreted the transitional phase from Classical to Hellenistic planning: Ito 2002: 11-12. Also, Winter 2006: 19.
[42] Lavas 1974: 68-69.
[43] Winter 2006: 17.
[44] Lauter-Bufe 2009: 69-78.
[45] Leypold 2008: 179.
[46] See, for example, the *prytaneion* at Delphi or at Olympia, Mylonopoulos 2006: 204. Emmerling 2012: 211-228, notably 222-228, has reservations about the function of the building O - O1 - O2 at Dodona as *prytaneion* and she notes that it was reserved for cult practices. Nevertheless, the building O - O1 - O2 was probably used for many purposes, not the least of which were cult practices.
[47] Dakaris 1965: 57. The earlier use of bricks in Epirus is due to the seismicity of the site, Dakaris 1968: 46-47. In the rest of Greece, it was used since the 2nd century BC, Orlandos 1955: 84-85.
[48] Coulton 1976: 143; Dakaris 1966: 73.
[49] Against this date, see Emmerling 2012: 168-171, 189, 193, 196.
[50] In the Northern Stoa on the Agora at Kassope, which was built in the second half of the 3rd century BC, limestone and sandstone were used for the columns and architectural elements; limestone and sandstone were also used for eight-sided pilasters ending in Doric capitals of the stoa of the courtyard of the monumental building known as *Katagogion,* see Hoepfner 1994: 133.
[51] Evangelidis and Dakaris 1959: 63, figs. 56-57, 64, 67.
[52] Evangelidis 1930: 54.
[53] Dakaris 1965: 56, 57; Dakaris 1966: 73, 81, pls 73b, 74a, 75a.
[54] Dakaris 1970: 78, fig. 117b.
[55] Dakaris 1987: 118.
[56] Souli *et al.* 2004: 75, pl. 37a.
[57] Dakaris 1966: 75; Dakaris 1995: 62.
[58] Coulton 1976: 144, 237, fig. 65.1-2, p. 239, fig. 65.3.
[59] Dakaris *et al.* 1999: 153; Evangelidis and Dakaris 1959: 79, fig. 73; Gravani 2008: 62, drawing 4.
[60] Gravani 2008: 78.
[61] Dakaris 1960: 32.

forming two closed corner spaces at the ends.[62] The portico at the theatre has the eastern end closed forming a corner space[63], while the portico at the *bouleuterion* has open ends.[64] The western stoa is an L-shaped building forming at the northern and southern ends closed corner spaces, which served primarily as unifying façades. The west stoa is a two-aisled Doric portico,[65] with colonnades denser in the façade and more widely spaced apart (*araeostyle*) on the inside.[66] Due to the fact that the stoa does not belong to a single construction-phase, the two buildings that were joined did not meet at an angle of 90°, but at an obtuse angle, so that the whole construction was conceived as a bent stoa.[67]

The eight-sided limestone pilasters of the stoa at the theatre are typical of the local architecture. At Dodona, eight-sided pilasters existed in the temple Λ[68] in the end of the 3rd century BC. The courtyard of the *Katagogion* at Kassope, constructed at the end of the 3rd century BC, was surrounded by a stoa with 26 eight-sided limestone pilasters ending in Doric capitals.[69] The *bouleuterion* on the Agora at Kassope, which is dated in the second half of the 3rd century BC, had -to the east of the *cavea*- an oblong hall with re-entrant angles for some distance along the front façade and a colonnade with 13 eight-sided pilasters.[70] Fragments of eight-sided drums, dated in the Roman times, were found outside of the temple of Zeus *Areios* at Passaron[71] too, but they most probably date in the last quarter of the 3rd century BC.[72]

The stoas of the sanctuary at Dodona served as the façade of public buildings with their impressive size creating a compact and homogeneous appearance. Elements of the *hiera oikia* E1, such as the front of the temple, the porticoes, which impart a sense of perspective and the monumental propylon, which underlies the central axis and imparts exterior aesthetical expression to the building,[73] constitute characteristics of Hellenistic architecture. However, because of the cult symbol (the sacred oak) the symmetrical organisation and the quadratic framing were not completed. The embellishment of the eastern front of the *prytaneion* reveals the scenographic mood in the design of the architectural configuration. The colonnaded fronts of the public buildings and of the *peribolos* with the linear confines of the porticoes interrupted the monotony of the large surfaces, created a series of changeable theatrical scenes and gave the impression of perspective. Moreover, the colonnaded fronts of the buildings with votive monuments and honourary statues in front of them turned the surrounding area into a sculpture gallery, where visitors admired the creations of the artists. Bronze statues stood on pedestals in an impressive density, one fantastic population near the visitors to the sanctuary, founded with a tidiness of erection, so as not to hamper the movement of the population and hide the current offerings.

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[62] Such stoas at Molykreion, New Pleuron, Oiniadae, Thermos: Coulton 1976: 58, 81 n. 4, fig. 22; Papapostolou 2014: 163, fig. 89; Serbeti 2001: 74, figs. XII, XIII, pls 5-7. The Northern, Western and Eastern Stoas on the Agora at Kassope, Hoepfner 1994: 133-139, figs. 100, 114; Stoas in Elea and Gitana in Thesprotia, Riginos and Lazari 2007: 58-59, 61-66. Furthermore, Coulton 1976: 81 ns 5.6.
[63] See the North Stoa at the Argive Heraion and the West Stoa at Argos, Coulton 1976: 81, 215, fig. 49.4, 217, fig. 51.1.
[64] See the South Stoa and the portico of the *Bouleuterion* at Olympia, Coulton 1976: 80, 268, figs. 95.7-8.
[65] Coulton 1976: 100. Doric outer and inner colonnade: Stoa at Palladion (late 4th or early 3rd century BC), Pi-shaped Stoa at Priene (4th-3rd century BC), Coulton 1976: 101, 225, fig. 22, 278, fig. 103.2.
[66] Outer intercolumniation 2.64 m, inner intercolumniation 5.28 m: Bilis 2016: 18. Further, see Coulton 1976: 77.
[67] Coulton 1976: 95-96.
[68] Dakaris 1967: 33, 35, fig. 3; Hoepfner 1994: 160 n. 332; Lauter 1986: 189.
[69] Dakaris 1984: 32, fig. 7; Hoepfner 1994: 127-128, figs. 103-104, 107.
[70] Hoepfner 1994: 139-140, figs. 100-101.
[71] Evangelidis 1952: 308-309, 314-317, figs. 9-10.
[72] Pliakou 2007: 96-98.
[73] Coulton 1976: 171.

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Architectural Practice and the Distinctiveness of Sacred Sites

Franziska Lang

Summary

Sanctuaries are specific spaces of interaction for both individual and collective activities. For communities, they serve as places of self-assertion, with various underlying temporalities. Sanctuaries are determined by socio-political power structures and normative conditions, which manifest themselves in certain rules as regards access and behaviour. Rituals are an essential part of practices performed in sanctuaries, adapting themselves to the established cults. These sacral-ritual or secular demands have an impact upon the spatial configuration of cult places, often displayed through architectural configuration. While rituals are short-term events potentially liable to change, architecture has a durable quality, usually maintained. Architecture artificially retains formal spaces of agency, constitutes behaviour, perception and communication within a sanctuary. The tangible edificial composition of sanctuaries is the result of processes of construction and selectivity, in which either new architectural forms were developed or existing ones were chosen from the entity of all architectural forms, in order to meet the local requirements of a cult place. In this -often iconic- architecture the intrinsic logic (*Eigenlogik*) of places becomes evident, resulting in the distinctiveness of these places. In order to describe this distinctiveness, a heuristic approach is chosen by an exemplar investigation of the architectural practice at Dodona, Calydon and Thermos. In addition, the analysis of the differences between these places ought to be understood as a micro-historical contribution.

Περίληψη

Τα ιερά είναι ειδικοί χώροι διάδρασης τόσο ατομικά όσο και συλλογικά. Για τις κοινότητες σήμαιναν επίσης ένα χώρο αυτοπροβολής, αναλόγως των εκάστοτε συγκυριών. Τα ιερά προσδιορίζονται από δομές κοινωνικο-πολιτικής ισχύος και κανονιστικές συνθήκες, οι οποίες εκδηλώνονται με συγκεκριμένους κανόνες πρόσβασης και συμπεριφοράς. Οι τελετουργίες αποτελούν βασικό στοιχείο των ιερών, προσαρμοσμένες στις λατρείες που ασκούνται κατά τόπους. Αυτές οι ιερατικές-τελετουργικές ή κοσμικές απαιτήσεις έχουν επίδραση στη χωρική διαμόρφωση των τόπων λατρείας, όπως συχνά φαίνεται στην αρχιτεκτονική διαμόρφωση. Ενώ οι τελετουργίες είναι βραχυπρόθεσμα γεγονότα δυνητικά υποκείμενα σε αλλαγή, η αρχιτεκτονική έχει το χαρακτηριστικό της διάρκειας. Η αρχιτεκτονική τεχνητά συγκρατεί επίσημους χώρους δράσης και σχηματοποιεί τη συμπεριφορά, αντίληψη και επικοινωνία μέσα σε ένα ιερό. Η απτή, κτιριακή σύνθεση των ιερών είναι αποτέλεσμα επιλεκτικής διεργασίας και διαδικασιών δόμησης, όπου είτε νέες αρχιτεκτονικές μορφές αναπτύσσονταν είτε υπάρχουσες επιλέγονταν από το σύνολο, προκειμένου να εξυπηρετήσουν τις τοπικές ανάγκες ενός χώρου λατρείας. Σε αυτήν την -συχνά εμβληματική- αρχιτεκτονική αποτυπώνεται η εγγενής λογική των τόπων κι έχει ως αποτέλεσμα την μοναδικότητα αυτών. Προκειμένου να περιγράψουμε αυτήν τη μοναδικότητα, υιοθετούμε μία ευρετική μέθοδο προσέγγισης, κατά την οποία διερευνάμε παραδειγματικά την αρχιτεκτονική πρακτική σε Δωδώνη, Καλυδώνα και Θέρμο. Επιπρόσθετα, η ανάλυση των διαφορών αυτών των θέσεων μεταξύ τους θα μπορούσε να θεωρηθεί ως μια μικρή συνεισφορά στο ιστορικό σκέλος.

Key Words

Practice theory; Greece; rational choice; architecture; differences.

Sanctuaries are particular spaces of interaction, which can be architecturally comprehended. They exhibit a diverse complexity, resulting from the sacred-ritual and secular activities and their administration. Their existence and various emphases were each determined by the occasional requirements of the participants and the demands of the site. If a sanctuary was architecturally[1] developed, intangible beliefs were given a tangible form. This resulted in an intended permanence for a timeless and perpetual relationship to the deity. Furthermore, architecture fixed artificial and formal spaces of action and agency, and it constituted behaviour, perception and communication within the sanctuary. In addition, socio-political power structures and normative parameters were embedded in the architecture, and these were expressed, for example, in specific rules of behaviour and access.

The architectural design of sanctuaries, as a collective construction project, is the result of a selective process of pre-existing courses of action. The decision makers selected, out of the totality of the available architectural repertoire, precisely those building forms and means of design, which corresponded to the local requirements of the sanctuary. This selection process and the embedded results of the decision can be deduced from the built-up environment of an individual site, and they reflect the architectural practice. In these unique and distinctive

[1] On the building forms in sanctuaries, see Osborne 2015: 15.

sacred sites, the divinities accordingly fitted, via their *epitheta*, the respective local cult demands.

The analysis of the architectural practice is suitable, as a heuristic method, for the clarification of distinctiveness of this kind. The configuration of the buildings, their design, and their possible usage define the criteria of investigation. Dynamics and processes of transformation in the sanctuaries can be reconstructed in the architectural alterations, which are discernible in diachronic perspective. As a result, the distinctiveness of the site is defined, which is determined by its intrinsic logic. This contribution therefore focuses on the differences of the sites, and is aligned with micro-historical and regional studies.[2] As case studies, three sanctuaries on the western Greek mainland have been selected: the oracular sanctuary at Dodona (Epirus), the Laphrion at Calydon (Aetolia) and the federal sanctuary at Thermos (Aetolia).

Case studies

Dodona

At Dodona (TABLE 1), steeped in tradition, the oracle of Zeus existed since the 8th century BC;[3] here, an oak tree and birds played an essential role, bronze tripods[4] were dedicated,[5] and it managed for over 300 years without architectural structures.[6] The protection of the site by the construction of a wall around the acropolis (3.5 ha)[7] and the southern region (3.3 ha),[8] in the course of the 4th century BC, is considered to be the first architectural arrangement at Dodona; at this time perhaps colonnades on the inner side of the southern wall[9] were added (FIGURE 1a) and the building M was constructed.[10] Successive expansion occurred after the late 4th century (FIGURE 1b). In the east, *oikoi* (Γ, Z, Θ)[11] were erected, as well as the structure E1-1[12] with an *oikos* set up asymmetrically in a peristyle courtyard.[13] All buildings assumed, in the broadest sense, a cultic function. To the west, on the contrary, a functionally mixed quarter grew up, with the theatre, the *bouleuterion* (E2)[14] and building O-1[15] - with a large western room and peristyle. The prostyle edifices (A, Λ) probably followed in the 3rd century BC (FIGURE 2c). The complex E1-1 received a new architectural concept (E1-2) with a tetrastyle *prostylos*, whereby the *oikos* was now replaced by an axially centred prostyle edifice set up in the peristyle courtyard and accentuated by a propylon emphasizing the entrance similarly located on this axis[16]. The building O-1 was expanded (O-2: peristyle building) by the addition of two wings with rooms for banquets[17] and a porch, closed except for a central entrance with four columns (FIGURE 4). By these means, a new -hybrid- building type for gathering (west room) and banquets was created.

Further building activities are attested after the late 3rd century (FIGURE 2d). The stadium, as a new structure, extended the spectrum of functions to the west.[18] The southern porch of the building O-2 was connected with the new west stoa (O-3), which was accessed via three multi-stepped sets of stairs.[19] Presumably after 160 BC, the usage of building O-3 changed (FIGURES 3-4). The wings were removed, the west room was furnished with rows of steps, and the peristyle was enlarged (O-4). The west stoa probably no longer existed.

Judging by the building volumes, at Dodona more was invested in political-cultural structures,[20] the capacity of which clearly exceeded the number of the population (FIGURE 2).[21] The sacred architecture remained unpretentious and, apart from E1, evinced no decisive requirements for prestigious display. The open area to the south of the cult buildings is noteworthy,[22] as it

[2] Lang 2013; Mili 2015.
[3] Dieterle 2007: 169-234.
[4] Dieterle 2007: 363-382; Mylonopoulos 2006: 189-190.
[5] The reconstruction by Dakaris (1971: 42-45) with an oak surrounded by tripods cannot be proven. Dieterle 2007: 265; Emmerling 2012: 71-74. 263.
[6] Dieterle 2007: 169–234; Friese 2010: 136–141; Parke 1967: 1–128.
[7] On the population (Herodotos 2.55; Homer *Iliad* 2.750) and the acropolis, see Dakaris 1971: 72-74; Dieterle 2007: 151-153.
[8] The situation in the west is unclear. Dieterle 2007: 149-151.
[9] Carapanos 1878: pl. 3.
[10] A detailed archaeological evaluation of the excavation results (Emmerling 2012) contradicts the previous dating, based primarily on historical interpretations. At best, trends are describable. Archaeological evidence also lacks, with regard to the traditionally recorded destruction events (by the Aetolians in 219 BC, by the Romans in 168/167 BC).
[11] In spite of their uncertain dating (Emmerling 2012: 177-210), the buildings A, Γ, Z, Θ and Λ probably existed in the 3rd century. '*Oikos*' is used here as a collective term for multi-functional buildings of simple ground-plan, always in a cultic context. See Dyggve and Poulsen 1948: 20-26, 53-54, 288-289. On the term, see Hering 2015: 159-169.
[12] Indications that the building E1 should be identified as '*hiera oikia*' or 'Zeus temple' are ambiguous. Emmerling 2012: 65-69.
[13] According to Emmerling (2012: 23-176) there is no clear chronological evidence for the four-phase building sequence proposed by Dakaris (1971: 76-83). Equally, in my opinion, at least two different architectural concepts can be clearly distinguished, here E1-1 and E1-2.
[14] The identification of building E2 is based on an altar inscription (Zeus *Bouleus* and others) and tokens: Moustakis 2006: 110.
[15] Due to an oracular enquiry, Dakaris identified the building as a *prytaneion*, contradicting Emmerling 2012: 222-223 and Moustakis 2006: 110-111. There are also objections against its function as an archive, cf. archive buildings in western Greece: for Kallipolis (600 seals) see Pantos 1985; for Gitane (3000 seals) see Emmerling 2012: 225 and Kontorini 1999: 277-280.
[16] Dakaris 1971: 36-42; Emmerling 2012: 45–55.
[17] As ceramic drinking vessels and remains of meals confirm. Emmerling 2012: 226.
[18] Papapostolou (2014: 186) supposes a stadium outside Thermos. A stadium has been discovered in the sanctuary of Molykreion (lecture by N. Kaltsas 2013 in Messolonghi).
[19] Emmerling 2012: 214–216.
[20] According to Moustakis (2006: 115), this is evidence of the supra-regional importance of Dodona and the prestigious decision makers.
[21] Based on 0.5 m² per person, the capacity of the *bouleuterion* was *c.* 2800 people; of the theatre between 13,000 and 18,000 spectators; of the stadium at least 3000 people.
[22] Pending an evaluation of the geophysical investigation, which

Table 1 (based on Dakaris 1971)

	architectural description	date (estimated)	size (m)		surface (square meters)	type	columns	primary use	denotation / function (*= denotation uncertain)
Dodona	acropolis	2nd half 4th			3.5 ha	enclosure	(9 towers)	protection	
	south areal	not before 4th			3.3 ha	enclosure		protection	
	building M	after 390	min. 10.7	min. 17.3	min. 185	unclear		lodging?	
	E1 - *oikos*	not before late 4th	6.8	4.35	30	*oikos*		sacred	temple of Zeus*
	building O-1	end 4th - early 3rd	13.1	31.5	413	peristyle building		gathering	*prytaneion**
	west room		12	12	144				
	peristyle		17.1	12.5	214		4*5 doric		
	theatre	end 4th - early 3rd				theatre		cultural / contest	
	bouleuterion	end 4th - early 3rd	31.6	43.6	1378	hall	columns with 8 edges	assembly	*bouleuterion*
	with stoa	end 4th - early 3rd	31.6	49.2	1555	stoa		entrance	
	building Γ	after end 4th	9.82	9.35	92	*oikos*		sacred	temple of Dione*
	E1-1	after late 4th - before 274	19.2*20.78	/ 19.2* 26	400 / 500	*oikos* + percinct		sacred	temple of Zeus*
	oikos		6.8	4.35	30	*oikos*			
	precinct		19.2*20.78 /	19.2* 26	400 / 500	peristyl			
	building Λ	between early and end 3rd	4.7	8.5	40	*Prostylos*	4? doric	cultic	temple of Aphrodite*
	E1-2 *Prostylos*	late 3rd	14.4	7.1	102	*Prostylos*	4? doric	sacred	temple of Zeus*
	Propylon		7.1	5.18	37	propylon		access	
	building O-2	before end 3rd	32.5	31.5	1024	peristyle building	hybrid	banquette / gathering	
	theatre Phase 2: *skene*	end 3rd					theatre	cultural / contest	
	Stadion	after end 3rd	> 70 m	*c.* 60 m	> 4200	Stadion	stadion	cultural / contest	
	building O-3 (with western stoa)	end 3rd- early 2nd	32.5	31.5	1024		hybrid	banquette / gathering	
	west room		12	12	144				
	western stoa	end 3rd- early 2nd	79	10.5	830	stoa	14 (internal) 34 (external)	multifunctional	
	Building O-4	after 160?	14.4	7.1	102	peristyle building	4x7	gathering	
	Building Z	after archaic	6.25	10.3	64	*Prostylos*	4? doric	cultic	
	Building Θ	after 5th	6.35	9.85	63	*oikos*		cultic	temple of Themis*
	Building A	?	9.55	12.6	120	*oikos*		cultic	temple of Herakles*
	with *prostylos*	?	9.55	16.5	158	*Prostylos*	4? doric	cultic	

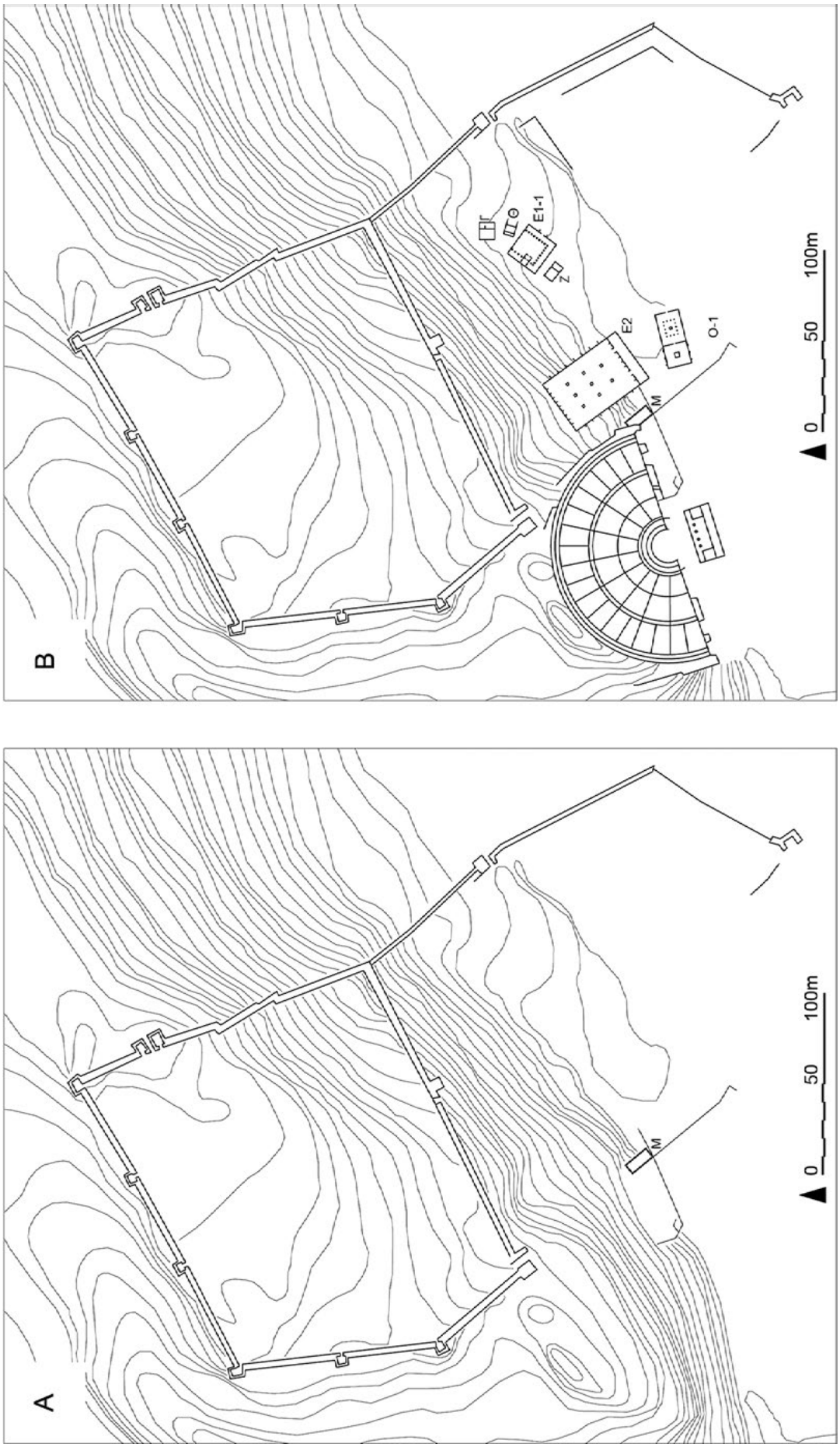

Figure 1. Dodona. A: before end of 4th century BC; B: after end of 4th century BC (drawings: C. Herbrik, M. Pfaff after F. Lang, based on Dakaris 1971).

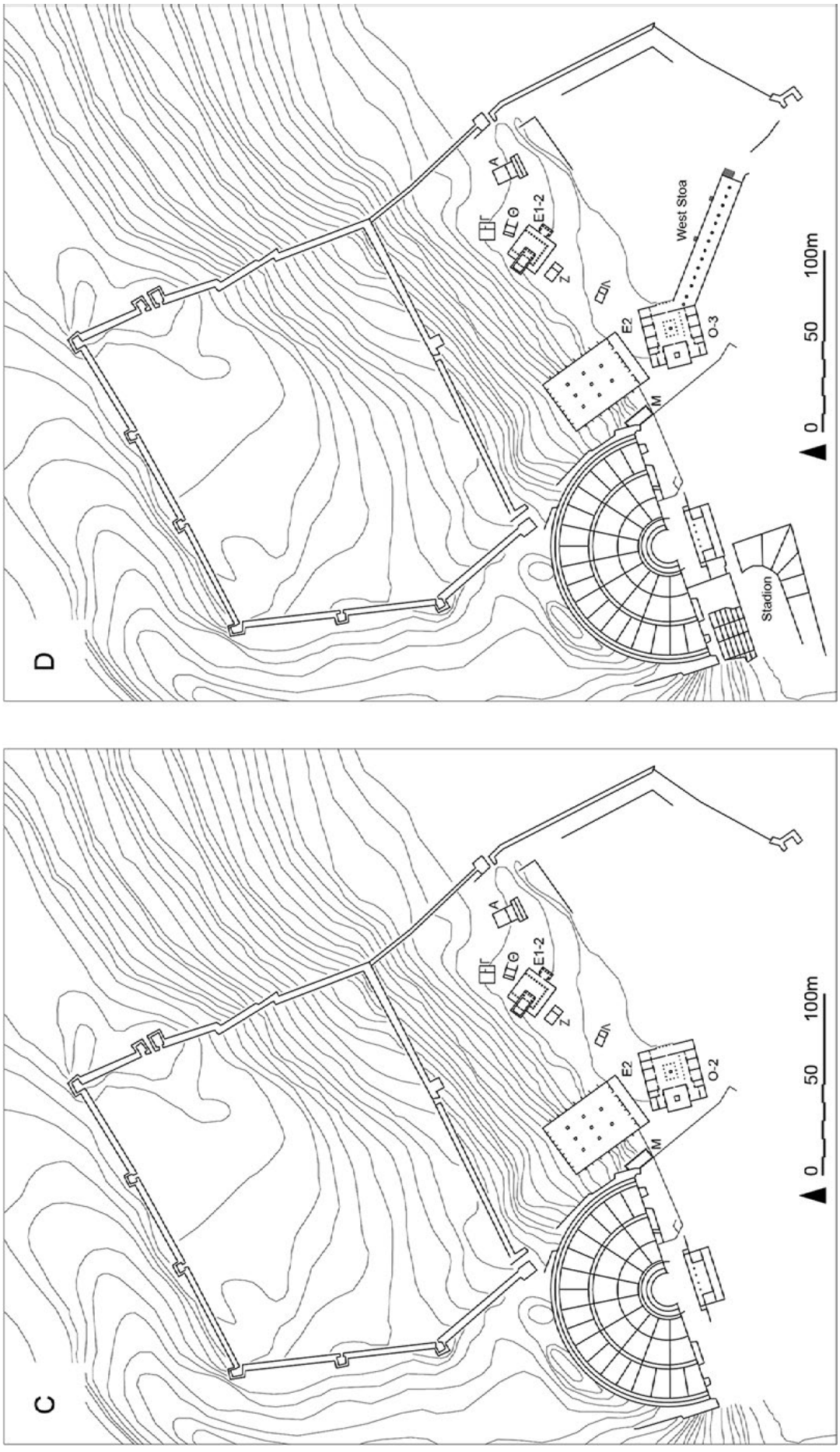

Figure 2. Dodona. C: 3rd century BC; D: after end of 3rd century BC (drawing: C. Herbrik, M. Pfaff after F. Lang, based on Dakaris 1971).

offered a large space for activities.[23] Both phenomena might be connected with specific cultic requirements.

No symmetrical solution was chosen for the planning concept. Construction within the surrounding walls was laid out in a compact and circular fashion, and it was aligned with the natural gradient and the open areas. The spaces for activities were divided into a secular zone with the buildings for assembly and cultural activities in the west, and a sacred zone with cult buildings in the east (FIGURE 2c). In this manner the flow of visitors, particularly during major events, could be regulated. Personnel and spectators arrived at the stadium, theatre or *bouleuterion* from the south. Visitors and pilgrims reached the open area, which afforded space for large congregations of people and was perhaps necessary in connection with rituals, accessed via the east and south gates which were reinforced by towers. The entrances to the buildings could also have regulated access. Whereas, for example, the entrance to the *bouleuterion* with its Doric colonnade invited access, this was much more restricted at the peristyle building O-2, which although equally wide, had an east façade restricted to only five bays (FIGURES 2c and 4).

These spatial asymmetries were augmented by architectural diversity. By contrast to the compact architectural masses of the large secular buildings in the western area, with strong walls with vertical buttressing, in the east the structures were small-scale, with gables and peristyle colonnades. Therefore a diverse panorama of large and small buildings was created, offering open *vistas* to the east, which was structurally less dense. To the south visibility was hindered by the colonnades, and it was only allowed from the adjacent terraced steps with the detached buildings. The city-wall silhouette of the acropolis constituted, with its towers, an impressive background.

Thermos

The sanctuary of the Aetolian League lay in the large inland plain of Thermos (TABLE 2). The site, utilised ritually since the 11th century, acquired in the 8th century BC an enclosed open area, which served as a gathering place for collective ceremonial and ritual banquets. In the late 7th century BC this area was taken up by an elongated temple (25.4 x 4.7 m) containing twelve centrally placed columns,[24] most likely dedicated to Apollo *Thermios* (FIGURE 5a: building 1). In the 6th century the building 2 (for Artemis?) and building 3 (for Apollo *Lyseios*?) were erected.[25] The structures were not related to each other and they were oriented to the south.[26] The transformation of the enclosed open space into an architectural sacred realm, in which common beliefs and mythical origins were displayed and manifested, was the result of a fundamental change in significance, which Thermos had undergone in the context of Aetolia's segmented social organization. Whether Thermos already functioned as a federal sanctuary at that time is still unclear. The League is historically attested in the 5th century BC, at the latest.

Additional building activities, with the exception of a fountain (building 4) dating to the late 4th or early 3rd century (FIGURE 5b), are demonstrated - again, first in the 3rd century. The Archaic temple of Apollo *Thermios* (FIGURE 5c) received a *peristasis*, after a phase of repairs in the Classical period.[27] The building 2 was replaced by an *oikos* with a *pronaos* (vestibule, ante-chamber), and the building 3 by a prostyle edifice. To the south were constructed the largest stoas of western Greece. The southern *terminus* was defined by the so-called *bouleuterion* (7)[28] oriented to the north, the dating of which is still uncertain.[29] During this period of expansion, in addition to the sacred area in the north, a new secular zone was created in the south, as a further space for interaction.

A new concept regarding the construction of collective identity and the medialisation of the Aetolian League's power lay at the root of this overall configuration in the Hellenistic times. The immense size of the stoas (exceeding 165 m in length) is perhaps due to their function, according to Polybios (5.8.4-8) as an exhibition space where the Aetolians could effectively display thousands of objects (weapons, statues etc.).[30] Due to their parallel arrangement, a *c.* 2400 m^2 open area was created, in which monuments were set up.[31] The combination of porticoes and open space generated an adhesive force, which attracted people, and a specific perceptual space, which directed focus to the ostentatious presentation of weapons and monuments, while it also directed circulation.

Not only movement but also sight was controlled: the porticoes, due to their linear arrangement on the site, allowed view only to the temples to the north and the

detected structures in the southern part. Sarris 2005: 15-17; Souli *et al.* 2005: 87-88.

[23] The region to the south of the theatre, interpreted as an Agora, was not considered.

[24] Cf. *naoi* in Yria, Samos, Sparta and Paestum.

[25] These identifications are based on Papapostolou 2014.

[26] Additional ephemeral and undiscovered structures cannot be ruled out.

[27] Papapostolou 2010.

[28] Indirect evidence of the assembly hall exists in connection with the killing of more than 550 League delegates by the Romans (168/167 BC), according to Livy 45.28.7. Estimates of the number of delegates suggest up to 1500 individuals (Funke 2015: 110).

[29] Papapostolou 2014: 183. The porch (13.6 x 5.3 m) of the entrance was perhaps designed as a propylon.

[30] The weapons would have been spoils of war (Scholten 2000). See also Dodona, where Pyrrhus, for example, dedicated war booty (Emmerling 2012: 118-119, 236; Moustakis 2006: 132-134), a common practice also known from Delphi and Olympia.

[31] Papapostolou 2014: 174–183.

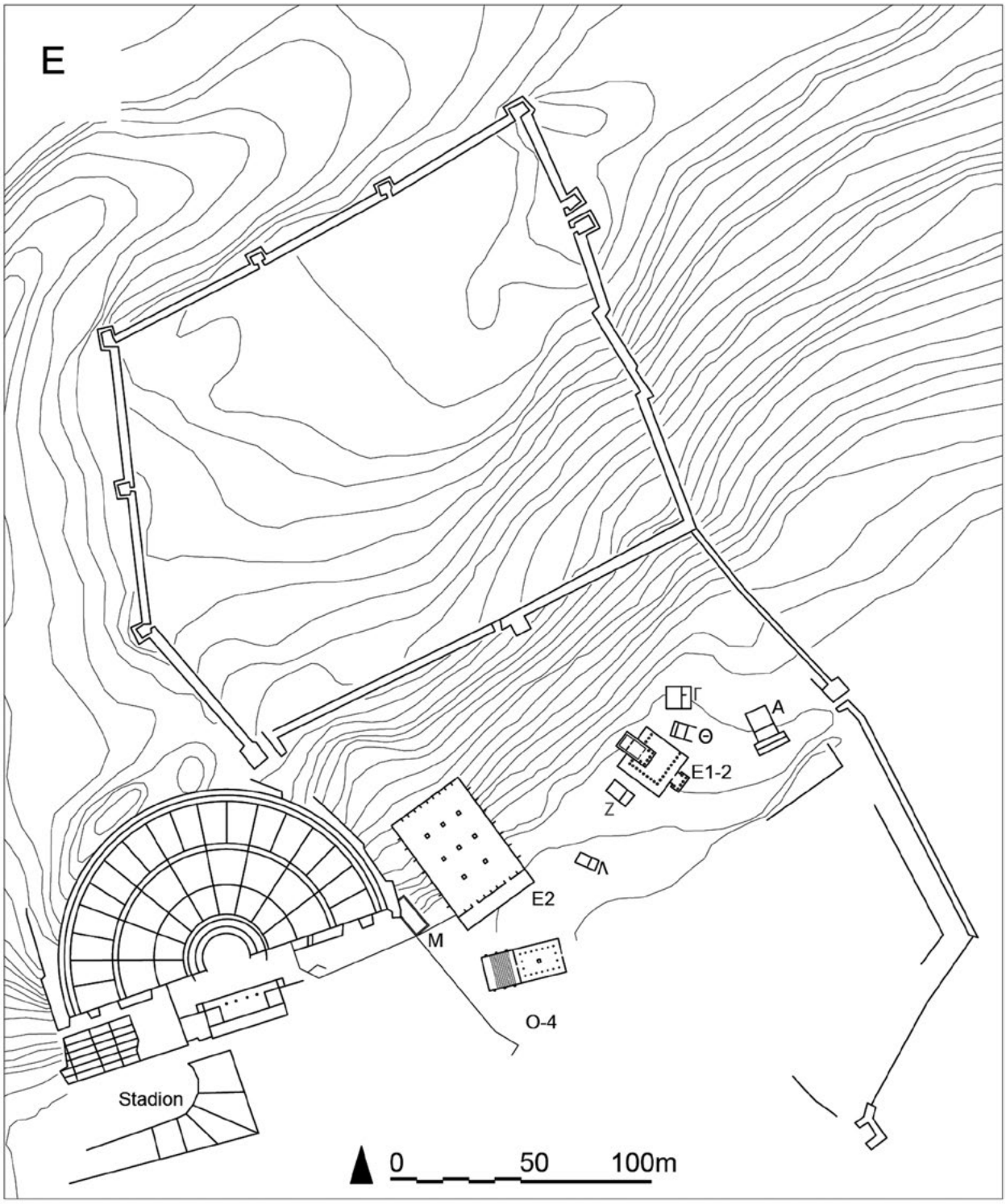

Figure 3. Dodona. E: 2nd century BC (drawing: C. Herbrik, M. Pfaff after F. Lang, based on Dakaris 1971).

bouleuterion to the south. In this axial system of *vistas*, the visitor functioned as a medium through which the diametrical locations of temples and the *bouleuterion* were associated as 'representatives' of the federal fields of activity: communal cult and assembly, as an important decision-making body.

Additional buildings can be presumed, because Polybios (5.8.4-8) mentions *oikoi* in the context of the partial destruction of Thermos by Philipp V (218 BC).[32] Here

[32] Twelve roofs are identified by means of roof terracottas; further investigation is awaited regarding their spatial-chronological distribution. Fiehn 1945: 2434; Papapostolou 2014: 227-229; van Buren 1973: 70-72; cf. also Dodona and Calydon.

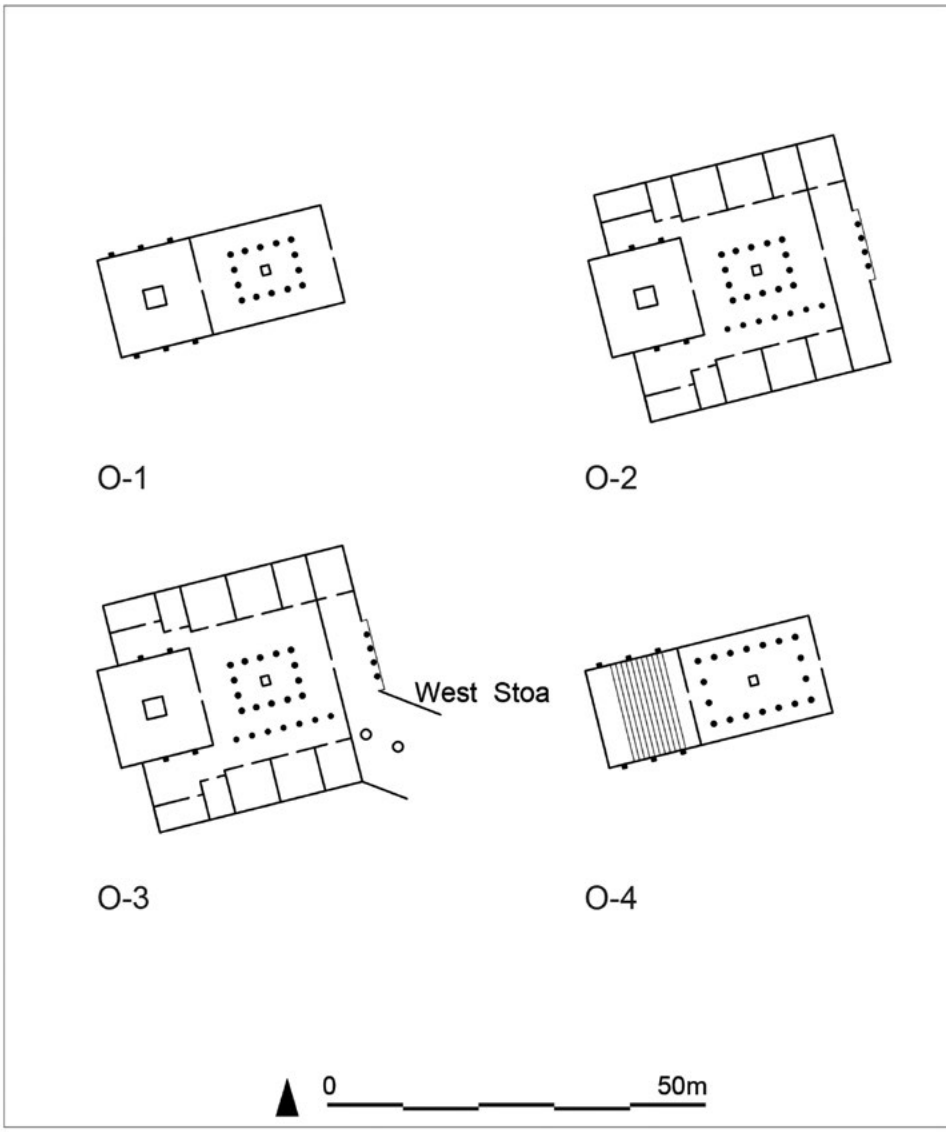

Figure 4. Dodona. Peristyle building O – four phases (drawing: M. Pfaff after F. Lang, based on Souli 2005).

foodstuffs[33] and valuable goods were stored, required for the *Thermika* during which the delegates of the Aetolian League and their guests convened annually for deliberation, voting, and also for markets and festivals.[34]

At the latest towards the end of the 3rd century, both stoas were destroyed. By contrast to the west stoa, the east portico was rebuilt[35] and provided with benches, which probably indicates a change in the purpose of this former exhibition space (FIGURE 5d).[36] Possibly in this phase the south stoa (8), which opens to the north, was erected. In addition, the terrain was surrounded by a wall (9) with towers, through which the site was now clearly defined (7.8 ha), and the previously unhindered access was now limited to two gates. Overall, these measures led to the dissolving of the linear arrangement and the staged axial *vistas*, whereas the military character, as well as the protective function, increased in importance.

Calydon

The situation in Calydon is utterly different (FIGURE 6; TABLE 2). Here, the sanctuary attributed to Artemis *Laphria* developed over an elongated hilly ridge in a number of increments; the *temenos* constituted the *terminus* of this site from the very beginning. During the Archaic period, *oikoi* (the buildings B1 and B2,[37]A[38], E)

[33] See Strabo (12.8.11) on the storing of crops and equipment in *oikoi*.
[34] Polybios 5.8; Funke 2013.
[35] Papapostolou 2014: 171.
[36] Chronology and the connection with the Macedonian or Roman destruction are vague. The east stoa was probably abandoned after 180 BC. Papapostolou 2014: 172-173.

[37] The building B2 covered B1 in the 6th century.
[38] Building A is interpreted as a temple of Apollo. Dietz 2011: 133; Dyggve and Poulsen 1948: 266, 295-300.

Table 2 (Thermos based on Papapostolou 2014; Calydon based on Dyggve and Poulsen 1948)

	architectural description	date (estimated)	size (m)		surface (square meters)	type	columns	primary use	denotation / function (*= denotation uncertain)
Thermos	building 1	late 7th	4.7	25.4	119	temple	12 internal	sacred	temple of Apollo *Thermios**
	reparation	5th							
	peristasis	3rd or 2nd	12.15	38.23	464	*peripteros*	5x15		
	building 2	6th	unclear			*oikos*		sacred	temple of Artemis*
	Prostylos	hellenistic	12.82	min. 6	min. 77	*Prostylos*	4 doric		
	building 3	6th	unclear			*oikos*		sacred	temple of Apollo *Lyseios**
	Prostylos	hellenistic	6.7	17.5	117	*Prostylos*	4		
	krene	late 4th – early 3rd						infrastructure	
	western stoa	3rd	164	13.5	2214		60 (external) 44 (internal)	multifunctional	
	destroyed	late 3rd							
	eastern stoa	3rd	173	13.5	2336		67 (external) 35 (internal)	multifunctional	
	repaired	first half 2nd		13.5	0				
	city wall	after 200 ?			7.8 ha	wall	(15 towers)	protection	
	bouleuterion	?	26	20	520			assembly	
	Propylon?		13.6	5.3	72				
	bathra	3rd (most middle 3rd c.)			0			cultic	
	altar of Angelochos	2nd half 2nd			0			cultic	
Calydon	building B1	end 7th	unclear			*oikos* reconstr. *antae*		sacred	
	building A	1st half 6th	min. 8.2	min.14	min. 115	*oikos* reconstr. *antae*	reconstr.2	sacred?	temple of Apollon or Dionysos*
	building B2	1st half 6th	unclear			*oikos* reconstr. *antae*	reconstr.2	sacred	
	buildings h. H. L	1st half 6th	unclear			*oikos*		cultic?	
	building E	1st half 6th	?	5.75		*oikos* reconstr. *antae*	reconstr.2	cultic?	
	building D	1st half 6th	12.6	7.5	95	apsidal		cultic?	
	building N	1st half 6th?	10.07	7.63	77	*oikos* reconstr. *antae*	reconstr.2	cultic?	
	building O	1st half 6th?	unclear			*oikos*		cultic?	
	building B3	early 4th	14.62	32.32	473	*peripteros*	6x15	sacred	temple of Artemis
	stoa F	early 4th	13.5	6.4	86	stoa	reconstr.4	multifunctional	
	propylon (C)	early 4th	min. 12.92	?	min 13	propylon	reconstr.2	access	
	altar? G	after early 4th	unclear			altar		sacred	
	temenos terrace	4th	28.3	10.3 high				multifunctional	
	building M. *peribolos*	after 400	unclear			*oikos* reconstr. *antae*	reconstr.2	cultic?	
	stair next to F	*c.* 300	1.5	----				access	

	architectural description	date (estimated)	size (m)		surface (square meters)	type	columns	primary use	denotation / function (*= denotation uncertain)
	stoa J and its terrace	3rd or 2nd	64	13.5	864	stoa	27 (external) 17 (internal)	multifunctional	
	building I	3rd or 2nd				*oikos*		unclear	
	building S	c. 200	11.34	10.55	120	*oikos*		cultic?	
	building K; terrace east side	hellenistic	min. 5	15	75	hall		multifunctional	

reconstructed as temples *in antis* stood here (zone 1), as did the apsidal building D (FIGURE 6a). At approximately 170 m to the north-east (zone III) additional *oikoi* (L, N) were built.[39] At the same time, a settlement, whose acropolis comprised an Archaic cult place, existed.[40]

In the early 4th century zone I was monumentalised (FIGURE 6b). The building B2 was replaced by a peripteral temple (B3, the so-called temple of Artemis), which -due to its scale- required a bastion-like terrace 10.3 m tall. Thereby a 6 m wide, paved space was gained around the new temple. On the opposite side, the *oikoi* D and E disappeared, with a portico (F) now standing on the border of the terrace. Building A continued to exist and, in front of it, a large altar (G) was probably erected. A wall with an inset propylon (C) now surrounded this area (4300 m^2).[41] With these alterations the sacred zone was clearly defined and brought up to date with contemporary architectural structures. In front of and around the temple open areas were gained, offering space for ritual activities. The entrance was prominently signalled by the propylon, whereby the previously unhindered access was made more difficult. The peripteral temple and terrace wall became landmarks with corresponding long-distance effect upon the landscape and down to the coast. In zone III, building L was replaced by building M, and building O was added.[42] Simultaneously, the *polis* of Calydon invested in the city-wall and a theatre with rectangular *koilon*, which was laid out to the east below the hill.[43]

The final phase of the Laphrion expansion occurred during the Hellenistic period (FIGURE 6c), affecting zone II, which until that time had remained open: the hill was extended by means of an artificial terrace into a large plateau (4600 m^2). The *risalit-exedra* stoa (J) dominated this plateau. At a distance of 4 m, building K was erected[44] and building I arose near the propylon (C). In zone III, three further *oikoi* were constructed, which -except for building S- functioned as tomb buildings (P, Q, R).[45]

Via this successive development, differing architectural arrangements of diverse density and spatial relations were created. To the visitor arriving from the west gate, the temple of Artemis announced itself as the concluding point. The visitor crossed through an open zone with solitary *oikoi* -in addition to tomb buildings-

[39] Most of the buildings are dated by their roof terracottas. The oldest ones belong to the late 7th century BC.
[40] Dietz 2011: 239–240.
[41] Dyggve and Poulsen 1948: 26-59.
[42] Dyggve and Poulsen 1948: 79-81.
[43] Dietz 2011: 65-76; Vikatou *et al.* 2014. A functional association with the Laphrion site, for example during the *Laphria* Games, requires clarification.
[44] Perhaps its entrance situation was similar to that of the building O-2 in Dodona.
[45] Dyggve and Poulsen 1948: 70-78, 84-86.

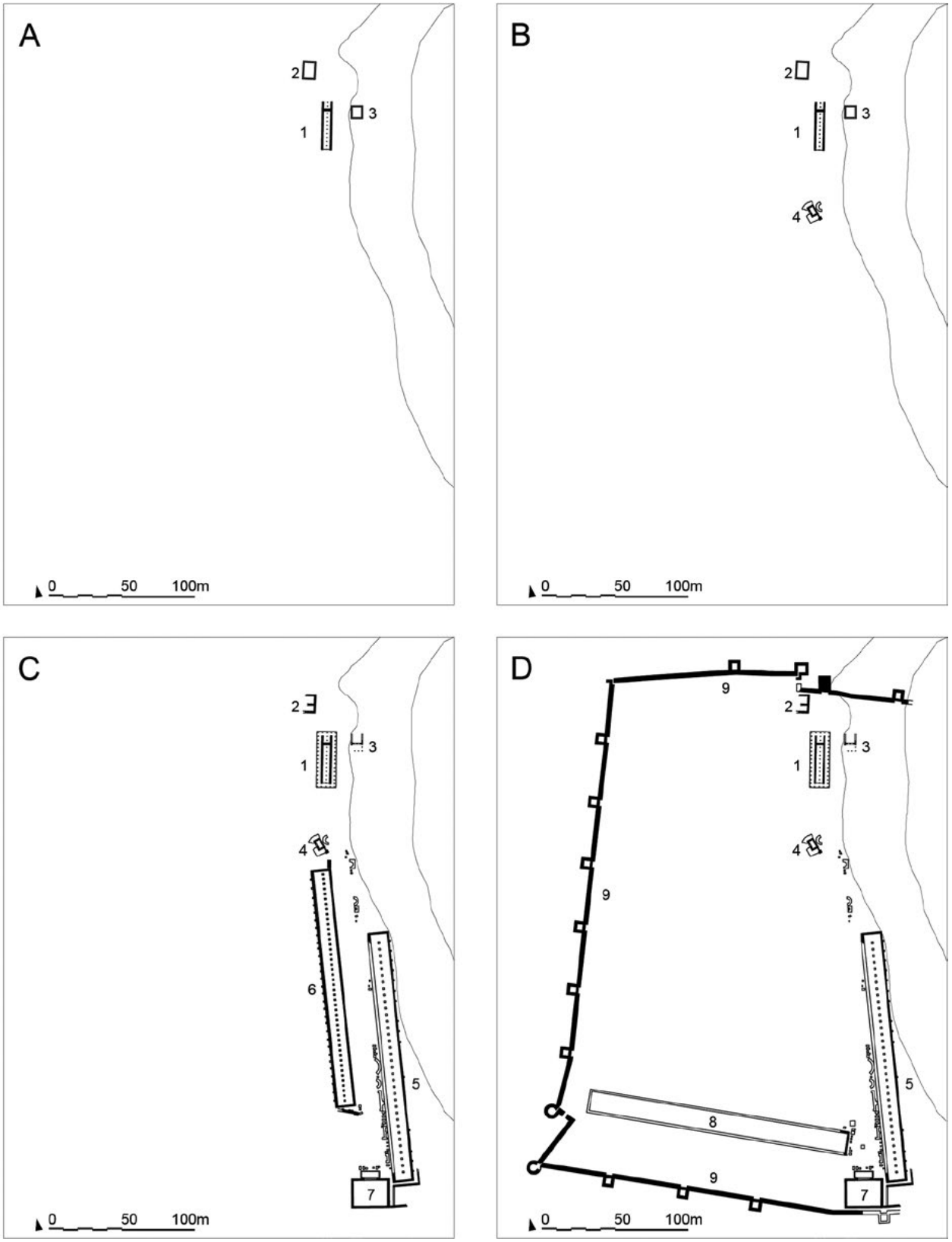

Figure 5. Thermos. A: 6th century BC; B: late 4th or early 3rd century BC; C: 3rd century BC; D: after end of 3rd century BC (drawings: C. Herbrik, M. Pfaff after F. Lang, based on Papapostolou 2014).

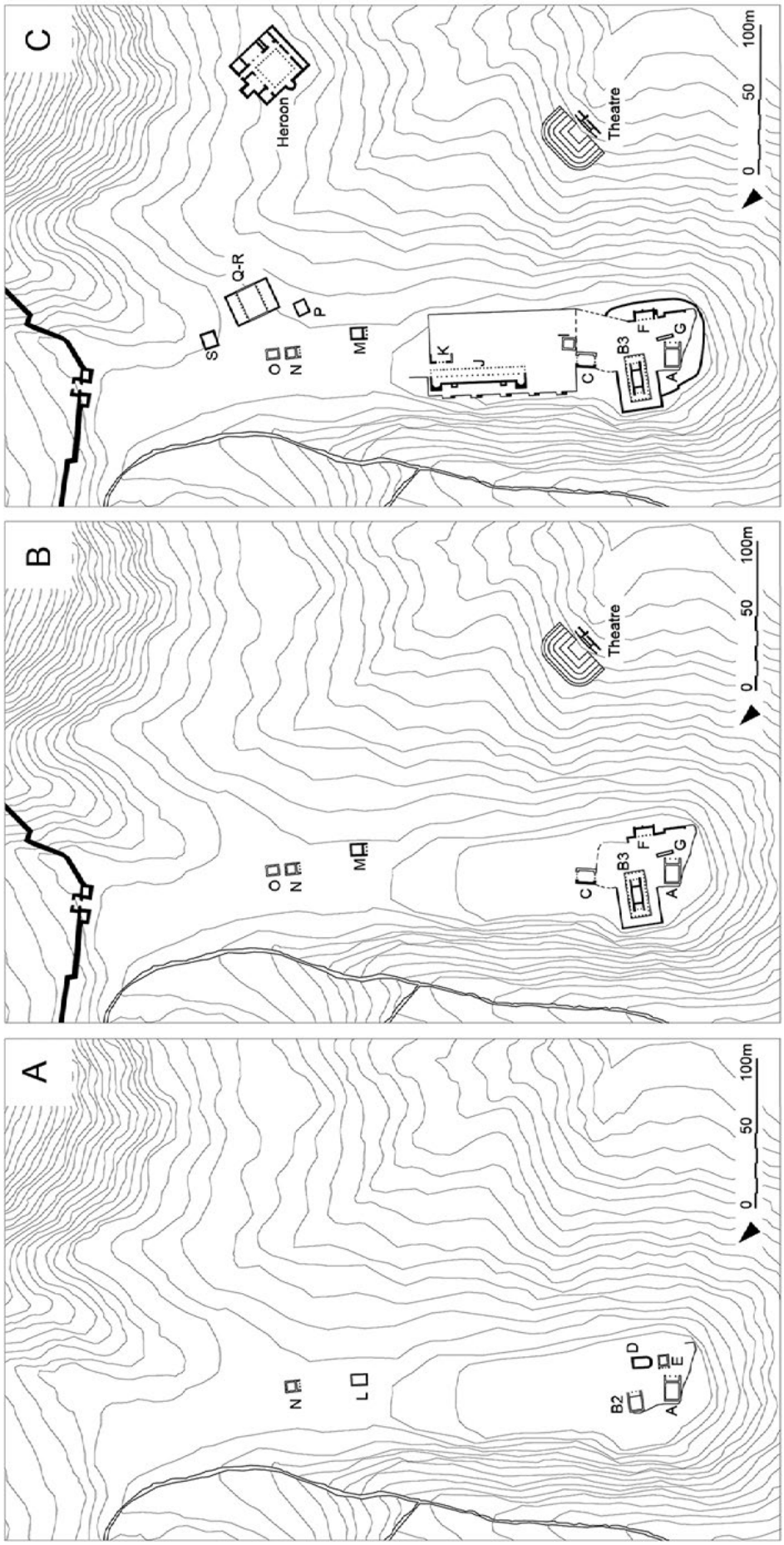

Figure 6. Calydon. A: 6th century BC; B: 4th century BC; C: Hellenistic (drawings: C. Herbrik, M. Pfaff after F. Lang, based on Dyggve and Poulsen 1948).

and arrived via a ramp at the large open space serving as the secular zone. Stoas J and K narrowed the access, which thereby could be regulated.[46] Alternatively, from the surrounding environment a visitor could climb up the steps of the retaining wall behind stoa J and arrive at the terrace either through the rear entrances into stoa J or directly to the south. At the end of the terrace and as a concluding focal point of the architectural staging, the propylon signalled the entrance into the sacred zone.

Architectural practice

Choice and selection

By analysing the architectural practice, we can describe the intentional selection of functions from all the available choices which were installed by the decision makers -substantiated through architecture- ultimately as a permanent and unalterable presence.[47] The available architectural repertoire, the concrete design of the buildings and their arrangement constituted the spaces of activity and interaction, and they can be defined as precise adaptation to local requirements in all three case-studies. In a revealing comparison of the concrete furnishings, the intrinsic logic of the site becomes evident, out of which distinctiveness emerges.

Fields of usage

Religious activities are attested through the worship of multiple divinities, as well as through sacred buildings. Peripteral temples were constructed at Calydon in the Classical period and at Thermos in the Hellenistic era. In Dodona, by contrast, a peristyle temple was designed. As an additional type of sacred building, the prostyle edifices emerged only in Dodona and Thermos. The presence of *oikoi* in all sites provides evidence of their universal usage in cultic context. All of these buildings are distinguished by their longevity.

The political field of activity can be well understood in the assembly buildings at Dodona and Thermos, yet this aspect is absent at Calydon. Whereas at Thermos *c.* 1500 delegates of the Aetolian League could be accommodated, the capacity at Dodona (E 2) is considerably larger (*c.* 2800 people); yet, the group of users cannot be precisely defined. Occasionally the Epirote League would have met there. The west room in building O at Dodona was also suitable for gatherings (*c.* 250 people) and, due to its exposed position, it probably accommodated official meetings of selected groups.

Architectural structures for cultural events existed in the form of theatre and stadium only at Dodona. The size of the buildings implies that the audience came from a broad area, and they may, for example, have visited the *Naia* Games,[48] known within and beyond the region. Comparable architecture for events near the cultic buildings is absent so far for the *Thermika* and *Laphria*,[49] which are also recorded.

During the Hellenistic period, the stoa generally emerged as the dominant space-shaping element, a phenomenon which is also observed at Calydon, Dodona and Thermos. Furthermore, this infrastructural expansion signifies an expansion in usage, which at Thermos, where the stoas took up an immense area, served for the display of monuments and weapons. At Calydon, the ground plan of the stoa, with its *exedrae* which might have served for the erection of statues, differs from the two-aisled stoas at Dodona and Thermos.

Possibilities for housing for the local residents were offered on the acropolis at Dodona and in the town lying near Calydon. At Thermos corresponding evidence is so far lacking.

A requirement for security existed at Dodona from its inception; here, the acropolis and the public buildings, except for the theatre and the stadium, were surrounded by walls. The late safeguarding of Thermos attests to a dramatically altered situation, in so far as one apparently had trusted the invulnerability of the site up until the 2nd century BC.[50] Connection with the civil war during that period remains to be investigated.

Configuration

Architectural arrangement and spatial setting differed in all three sites; what they have in common, however, is that they were successively expanded, and none of the sites was laid out in an axially symmetrical concept. At Calydon and Thermos a linear arrangement is encountered, while at Dodona most of the buildings in the southern area were set up in a circular arrangement. In all three case-studies one also is confronted with the fact that the sacred and secular areas were separated from each other, yet those at Dodona and Thermos were not architecturally separated. By contrast, the *temenos* at Calydon was surrounded by a wall and access to it was regulated by a propylon.

[46] A gateway probably existed here. Dyggve and Poulsen 1948: 285-287.

[47] Permanent and unalterable is here intended in a prospective sense.

[48] The *Naia* Games, known beyond the region, took place at the latest since the early 3rd century: Moustakis 2006: 125-126, 145-149.

[49] On *Thermika* see Funke 2013. On *Laphria* see Dyggve and Poulsen 1948: 336-338.

[50] The unprotected Thermos was believed to be invulnerable (Polybios 5.8.6). This myth was perhaps shattered by attacks, leading to the construction of the surrounding wall (Papapostolou 2014: 158).

Performance - attendance

Sanctuaries are important sites for representation, and their architecture results from those divergent means of design, which were available for their intended performance. In sacred architecture the peristyle, for which a variety of possibilities existed, enjoyed a certain popularity. In the pre-Hellenistic period it appeared only in the Classical *peripteros* at Calydon. After the 3rd century, a variety of successive derivations can be observed. In Dodona a *prostylos* pierced through the *peristasis* of the peristyle,[51] and the association of a peripteral temple façade was staged with the prostyle edifices. Finally Thermos offers an example of conversion whereby the Archaic temple subsequently received a *peristasis*, thus creating a peripteral temple of unusual proportions.

The invention of elaborate architectural terracottas in the Archaic period drew attention to the roof. Roofs of this type from Calydon and Thermos (late 7th century) belong to the earliest ones in Greece. Also in the 6th century polychrome metopes, triglyphs, *antefixes* and *acroteria* decorated the roofs' borders in an ornamental and decorative fashion.[52] The repertoire of motifs of the temple pediments, with Gorgon and animals, is similar to that on Corfu.[53] It should be emphasised that at Thermos the interior space was embellished with figurative terracotta plaques.[54]

Entrance areas, as important border elements in spaces for interaction, also received attention and quality. A specific architectural form in this regard was the propylon, which as an independent structure marked the entrance to the *temenos* in Calydon and, as a porch, it signalled the entrances to the *bouleuterion* at Thermos and to the peristyle temple at Dodona. In other ways, the entrance into stoas was also regulated: at Calydon and Thermos these were accessed by a number of steps, while access to the west stoa at Dodona was intentionally prevented by the presence of only a few sets of steps.

Agents – decision makers

The distinctiveness of the above three sites, as the result of processes of negotiation and usage requirements, can be deduced from the architectural evidence. In the background are various agents as decision makers, who are sporadically known from written sources. Due to its proximity to the town and restriction to the cultic-sacred sphere, responsibility for Laphrion lay with the *polis* of Calydon. Whether or not the expansion of the town and the *polis*-sanctuary in the early 4th century can be associated with autonomy from the Aetolian League, calls for further investigation.[55]

The initial preconditions in the federal sanctuary at Thermos are fundamentally different. Decisions lay with the heterarchically organised Aetolian League, in which each one of the individual member states was represented with its own identity, rights and interests. Thus, at this site which bestowed and secured identity, a collective acceptance between individual and federal concerns had to be produced, which was stabilised in an architecture reduced to the essential requirements. At the zenith of the League's power in the 3rd century, the architecture for unrestricted attendance dominated. The architecture of security and protection decays, perhaps as a reaction to Aetolia being shaken by civil conflicts.[56]

With the architectural shaping of Dodona, new, co-evolutionary fields of usage were created: residence, festivals, games, assembly. At the same time, Dodona preserved its significance, also beyond the events of daily politics,[57] as an oracle which received supra-regional -although in the majority individual- oracular enquiries,[58] whereby the sphere of personal religion is comprehensible.[59] From the concurrent presence of the fields of usage listed here, the heterogeneity of the interest groups, who collectively had to perform at Dodona, becomes evident. The continuous building activities and the oracle, as well as individual engagements in building investments,[60] suggest that the responsibility for the architectural decisions should not be limited to one group of agents or to supra-regional constellations of power. The architecture of assembly at the sites suited the convening of a variety of agents extremely well, and the Epirote League, as well as

[51] Cf. Megalopolis, Emmerling 2012: 85-87.
[52] Barletta 1983; Dyggve and Poulsen 1948: 287–288; van Buren 1973; Wilson Jones 2014: 33-63.
[53] Antonetti 2006.
[54] These terracotta plaques were reconstructed by Gerhild Hübner not as metopes but in the interior (Papapostolou 2014: 206-209). Compare the reconstruction in Kalapodi (Wilson Jones 2014: 44).
[55] Insightful is the probably politically motivated genealogical reinterpretation in the 5th century BC, whereby Aitolos, the son of the Calydonian king Oineus, venerated as a hero at Thermos, was now introduced as the son of the Elian king Endymion (Funke 2015: 81).
[56] Livy 41.25; Polybios 30.11. Further plundering and destruction in western Greece during the 3rd and 2nd centuries BC was caused by the Celtic raids, internal struggles, piracy, the Roman civil war and many other events. None of these events can be securely demonstrated in the archaeological evidence of the three case studies.
[57] The Aetolian *strategos* Dorimachos devastated (also?) cult buildings at Dodona in 219 BC (Diodoros 26.7; Polybios 4.67.3). On their destruction Philip V based his campaign of revenge against Thermos (218 and 206 BC). In 168/167 BC Roman excesses of violence swept over Epirus (Livy 45.34.1-6; Polybios 30.15; Strabo 7.7.3; Scholten 2000: 222-224, 229-233). The sources are silent about Dodona and the archaeological-historical material provides evidence of activities after 160 BC.
[58] Dakaris *et al.* 1999; Dakaris *et al.* 2013; Lhôte 2006; Moustakis 2006: 121–124.
[59] In sanctuaries of regions with segmented social structure other concepts than the *polis* religion model were applied. Eidinow 2011; Mili 2015: 6-16; Sourvinou-Inwood 1990; Sourvinou-Inwood 2000.
[60] On architectural donations see Moustakis 2006: 128.

the Molossian king Pyrrhus, were certainly active at Dodona in the late 4th and 3rd century, until they lost power in the course of the 3rd century.[61] Yet, the alterations in the architectural practice over more than 300 years suggest that here a former natural sanctuary was transformed into a town.

The distinctiveness of the sanctuaries resulted from the intrinsic logic of the individual sites. This was based on a relational framework of processes of negotiation and usage requirements, with the participation of a variety of decision makers, occasionally acting concurrently; this distinctiveness expressed itself via the divergent architectural practice, in spite of the similar building forms.

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Town and Sanctuary in Aetolia - Calydon in Context

Søren Dietz

Summary

Compared to many other areas in (especially eastern) Greece, the archaeological landscape of Aetolia is badly explored. New excavations and publications during the last decade, however, have slightly contributed to a better understanding of culture and society in the western frontiers. The present contribution analyses the development from the Mycenaean Age through the Iron Age in southwestern Aetolia and argues for different cultural and social developments (in the Iron Age) between central Aetolia around Thermos and the coastland around Calydon, Old Pleuron, Agios Elias and Stamna. In the latter area with clear cultural, social and economic continuity from the late Bronze Age to the Archaic period, a gradual development of urban structures can be followed in Calydon from the 8th century to the Archaic acropolis fortification of the late 6th century. It is suggested that the earliest cult building on the Calydon temple terrace is the apsidal building (D) probably constructed in the late 8th - early 7th century BC.

Περίληψη

Σε σύγκριση με πολλές άλλες περιοχές, ιδίως της ανατολικής Ελλάδας, το αρχαιολογικό τοπίο της Αιτωλίας δεν έχει εξερευνηθεί. Οι νέες ανασκαφές και δημοσιεύσεις της τελευταίας δεκαετίας έχουν κάπως συνεισφέρει στην καλύτερη κατανόηση του πολιτισμού και της κοινωνίας της δυτικής επικράτειας. Στην παρούσα εργασία αναλύουμε την εξέλιξη από τη Μυκηναϊκή περίοδο στην εποχή του Σιδήρου στη νοτιοδυτική Αιτωλία, και υποστηρίζουμε πως οι πολιτιστικές και κοινωνικές εξελίξεις κατά την εποχή του Σιδήρου ήταν διαφορετικές στην κεντρική Αιτωλία και γύρω από το Θέρμο, από ότι στην παραλιακή ζώνη γύρω από την Καλυδώνα, Παλαιά Πλευρώνα, Άγιο Ηλία και Σταμνά. Στην τελευταία περιοχή, με σαφή πολιτιστική, κοινωνική και οικονομική συνέχεια από την Ύστερη Εποχή Χαλκού έως την Αρχαϊκή περίοδο, μπορούμε να παρακολουθήσουμε την σταδιακή ανάπτυξη των αστικών κατασκευών στην Καλυδώνα, από τον 8ο αιώνα μέχρι την οχύρωση της Αρχαϊκής ακρόπολης στον ύστερο 6ο αιώνα π.Χ. Προτείνεται ότι το πρωιμότερο λατρευτικό οικοδόμημα στο άνδηρο του ναού της Καλυδώνας είναι το αψιδωτό οικοδόμημα (D), κτισμένο πιθανότατα στον ύστερο 8ο – πρώιμο 7ο αιώνα π.Χ.

Key Words

Landscape; urban; cult; continuity; west Greece.

The landscape

Southwestern Aetolia (FIGURE 1) constitutes the northern frame of the broad funnel-shaped opening of the Corinthian Gulf towards the Adriatic Sea. This position at the important for communication east-west corridor between the lands around the Aegean and *Magna Graecia* and, at the same time, an important bridge between the Mainland to the north (linking further to continental Europe) and the Peloponnese to the south, generated the agitated history of the land, conditioned the cultural peculiarity of the area and influenced the social and economic life of its inhabitants.

In the *Catalogue of Ships*, Aetolia is reported by Homer to have contributed to the Trojan War with forty ships from Chalkis, Calydon, Pleuron, Olenos and Pylene, all in the coastland, under the command of Troas. Olenos and Pylene are not identified, while the position of Chalkis is known. The Aetolian genealogical myths, however, are restricted to Calydon and Pleuron.[1]

In 427 BC the coastal area, Aeolis according to Thucydides, did not belong to the Aetolian territory and in 389 BC we learn that Calydon belonged to the Achaeans; however, it became part of the Aetolian territory shortly after 367 BC, when the Boeotians under Epaminondas 'liberated' the coastland. Chalkis and Molykreion were captured by the Athenians in the 5th century, and they remained Athenian strongholds until they were overrun by the Achaeans.[2] Thus, it is not until the 4th century that the towns in the coastland, including the sanctuary of Artemis *Laphria* in Calydon, became an integrated part of the Aetolian League. As an interesting aspect of this gradual integration, it has been pointed out that it was not until the 4th century BC that the Calydonian boar hunt became an established constituent of the Aetolian foundation myth, and not until the Hellenistic times that the under jaw of the boar and the lance of Meleagros were presented on official reliefs, seals and coins as symbols of the state.[3] In conclusion, it is important to emphasise, that sites

[1] Papapostolou 2012 discusses thoroughly the possible continuation from the Mycenaean age and the character of the leader of the Aetolians in the Trojan War.

[2] Bommeljé 1988.

[3] Jörden and Becht-Jördens 1994 cited in Funke 2013: 60.

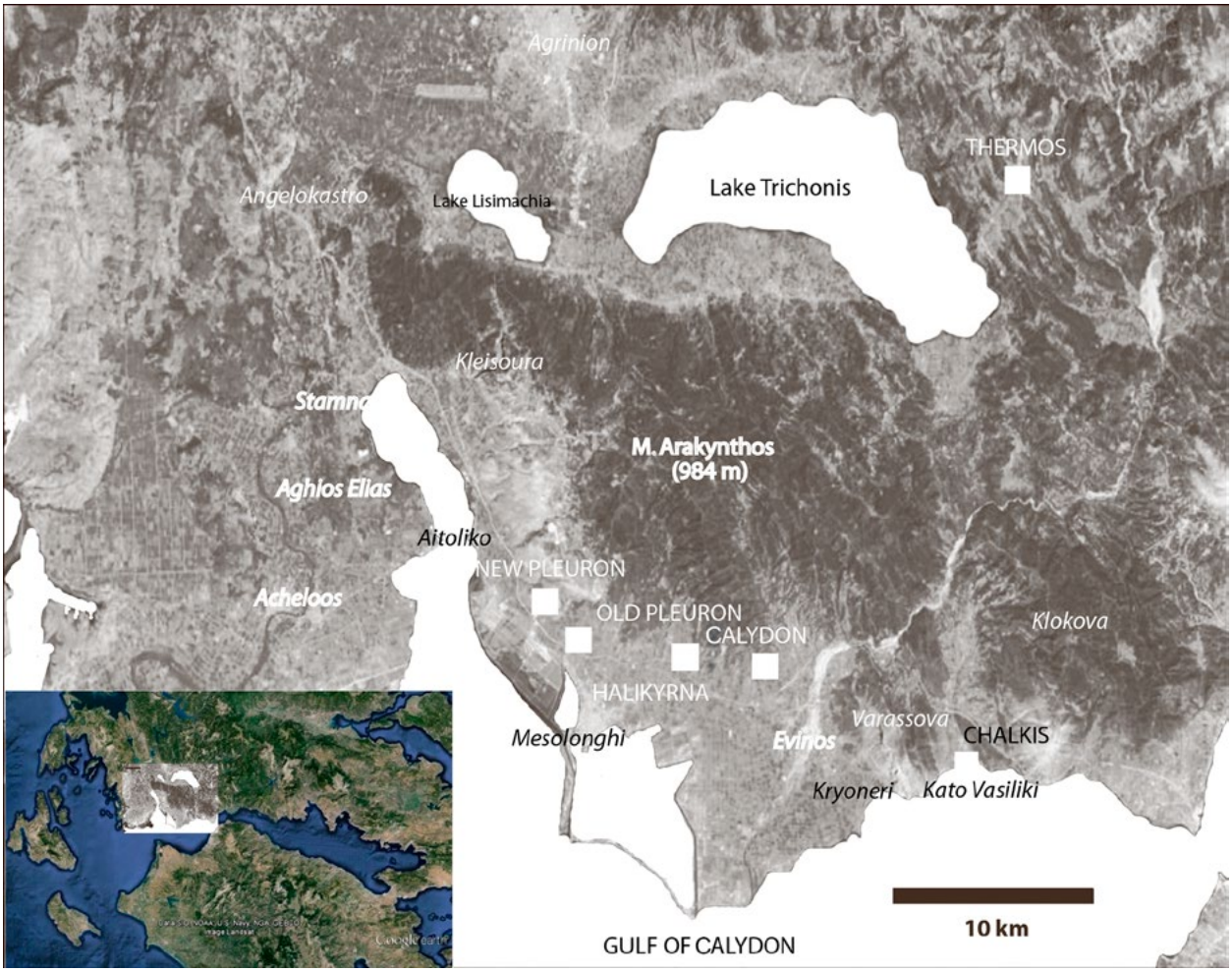

Figure 1. Southwestern Aetolia with important place names (map: S. Dietz).

in the Aetolian coastland (Aeolis) were, more or less, independent political units (Chalkis was under Corinth and later Athens) with some kind of formal or informal regional federal structure as evidenced by the joint performance under one joint command in the *Catalogue of Ships*.

Aetolia embraced, already before the establishment of the Aetolian league, two supra-regional sanctuaries, one in Calydon with the nearby (up-coming) *polis* and one of Apollo in Thermos, where no town was established. The latter became the centre of public cult and the political focus of the Aetolian league – even though the sanctuary of Artemis *Laphria* did not lose importance.[4] Ioannis Papapostolou expresses the most reasonable opinion that the southwestern coastland of Aetolia, with Calydon, Pleuron and Chalkis, including the un-identified sites of Olenos and Pylene, has its own mythical consistency and remained during the early periods a world on its own, separate from and rival to central Aetolia and Thermos.[5]

The landscape is modeled by mountain massifs with the highest points at about 1000 m above sea level, Arakynthos/Zygos, Varassova and Klokova/Taphiasos, the large inland lake Trichonis, the narrow gulf behind Aitoliko and, to the west, the broad river of Acheloos, which, in historical times, defined the border to the rival state of Akarnania. The land between Acheloos and the gulf of Aitoliko is lowland interrupted by soft hills. From the *limnothalassa* (lagoon) around Messolonghi to the characteristic steep landmark of Varassova the coastland strip together with the narrow fertile valley to the east of the mountain down to the modern village of Kato Vassiliki were important zones of habitation and cultivation.

Mount Klokova blocked the passage by land from the eastern Aetolian plains, so, direct communication was only possible by boat. As land around the river Evinos to the south of Calydon towards the sea was filled up by lagoons,[6] and the coast with shallow water was more than 100 m far from nowadays coastline, the only

[4] Funke 2013: 60
[5] Papapostolou 2012: 169-170.
[6] Dietz and Stavropoulou-Gatsi 2011: 37-46.

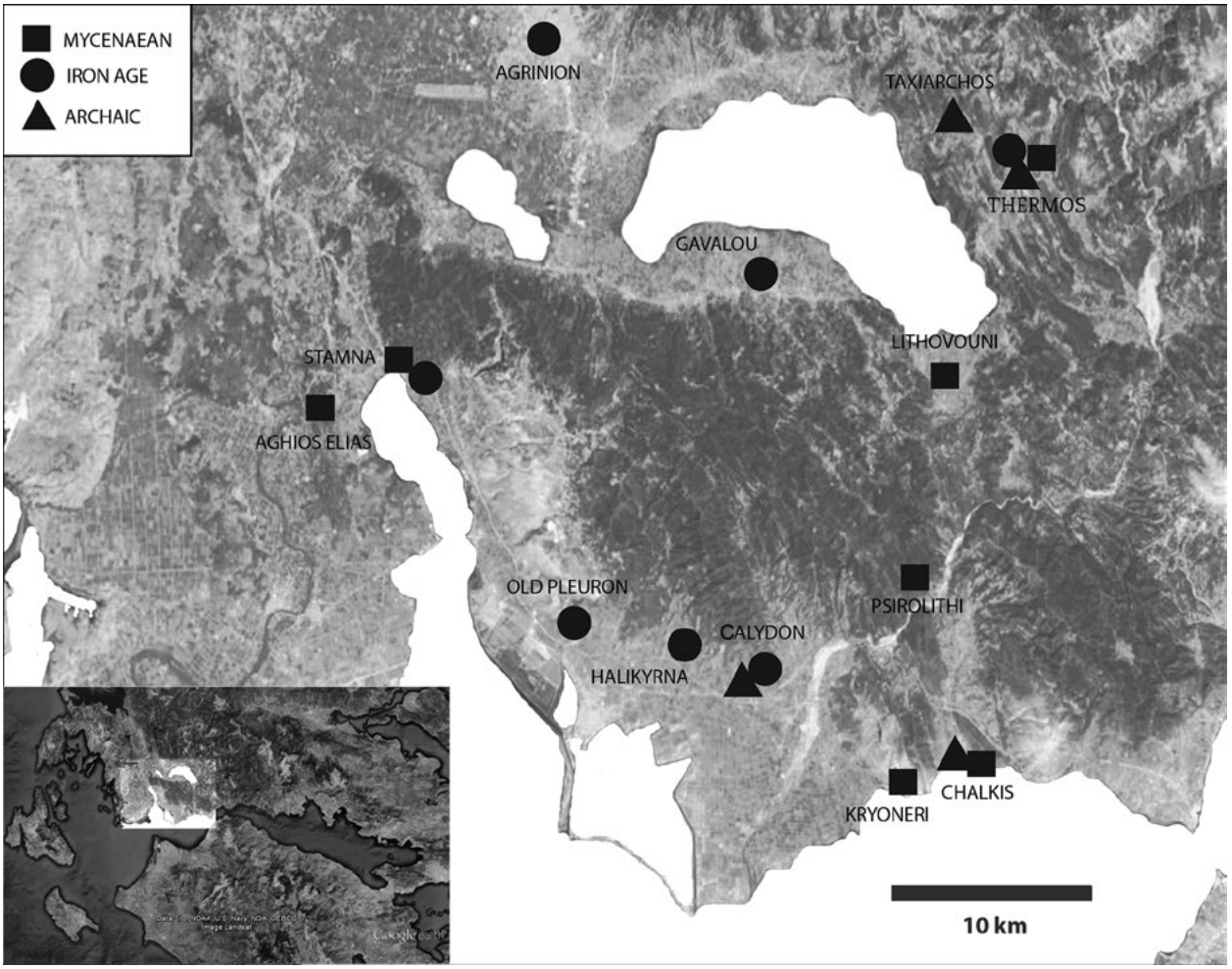

Figure 2. Mycenaean, Iron Age and Archaic sites in southwestern Aetolia (map: S. Dietz).

possible landing places for traffic from the east or from the opposite Peloponnesian coast was Kryoneri, at the foot of Varassova, or Chalkis with its well protected harbour. From the Aetolian coastland access to inner Aetolia went through the dramatic narrow passage of Kleisoura, bordered by steep vertical walls, to the lake Trichonis or over the saddle of Arakynthos behind Calydon.

Mycenaean communities and the Iron Age (FIGURE 2)

If we consult the *Catalogue of Ships* once more, there seems to be evidence for organizational social and political structures during the 8th and 7th centuries BC, which could promote the development of urban structures, at least in the coastland. Systematic surveys were carried out by a Dutch team in the early 1980s[7] but the results did not yield any patterns of changing settlements indicating habitation concentrations in the area; moreover, the number of sites was not impressive. More documentation material and information have been collected since then, primarily from excavations in Chalkis, Calydon, Stamna and Thermos, which shed additional light to the much debated question of the origin of sanctuaries and towns in the area (FIGURE 2).

The early excavations in Thermos conducted by Soteriades and Rhomaios showed the existence of significant Late Helladic habitation levels and building structures before the large *megaron* B was constructed in the early Iron Age.[8] The large apsidal *megaron* A was partly situated below *megaron* B and was perhaps in use until the end of the LHIIIC/Submycenaean period.[9] The building following the LHIIIC/Submycenaean destruction in the 11th century, first of all, *megaron* B itself, was constructed shortly after the destruction. The building might have been the seat of a chieftain,[10] the inventory, pottery and life style changed and a new cultural identity was introduced. In the 8th century

[7] Bommeljé and Doorn 1987.

[8] Papapostolou 2012: 20. Rather from the early Mycenaen Shaftgrave period to LHIIIA and later. Also see Dietz 2007.

[9] Possible cultic activities in LHIIIC Thermos are discussed by Papapostolou 2012: 92.

[10] Mazarakis Ainian 1997; Papapostolou 2012: 62-64.

the so-called 'ash-altar' was installed clearly signifying that cult activities were performed. During the time of *megaron* B, until the Apollo temple was constructed in the late 7th century, the area around Thermos and inner Aetolia was practically isolated from the coastland and an urban centre was never created in the neighbourhood of the sanctuary.

At the lower slopes of Agios Elias hill, four *tholos* tombs and a richly furnished chamber tomb were in use from LHIIB to LHIIIC and a possible prehistoric acropolis was situated on Agios Elias itself. Pottery was partly imported, partly locally produced. The tombs of Agios Elias/Ithoria make this part of the Aetolia the most important Mycenaean centre in the coastland,[11] a viewpoint substantiated by the existence of one more *tholos* at the nearby plain of Stamna.[12] Agios Elias is probably the closest we get to a centralised Mycenaean structure in Aetolia, even if a convincing 'palatial' power centre is still missing. Another important centre in Mycenaean times was Thermos, even though the evidence after the destruction in LHIIA is less clear.[13]

Close to Agios Elias, the cemetery of Stamna extends to an around 4 km long, broad track from the bend of the Aitolikon *limnothalassa* (lagoon) towards the low mounds further north, bordering the foothills of the Arakynthos mountains to the east. In the level fertile zone, around 600 graves were excavated, distributed in 30 groups.[14] From Gioulika Christakopoulou's unpublished dissertation and a few articles it is possible to get an overall impression of this extraordinary tomb complex. The graves are pits, cist graves built of vertical slabs, cist graves built of flat slabs, *pithoi* and urn graves (the urns are small globular jars, amphoras etc. not especially produced to be used as urns). One interesting complex consists of an ovoid (double-apsidal) cist with one badly preserved skeleton placed on its right side on the pebble-floor; close to the northeast wall, in an ash fill, a four-handled jar with an iron sword probably curved around the neck of the jar suggest this to be the tomb of a warrior.[15] Three other cremation graves were found in thick ash layers above the cist. Cremation was performed outside the cemetery and the urn with the ashes and offerings were then transported to the cemetery.[16] Several features in the construction of the graves and the offerings point to a tight connection with the end of the Mycenaean Age. The four-handled jar is actually Submycenaean and not early Protogeometric.[17] Three graves are richly furnished with bronze cauldrons, one with a tripod, rich equipment of bronze and iron and covered by layers of textiles produced in different fabrics and techniques. Radiocarbon dating indicates that none of the textiles can be later than the Submycenaean/very early Protogeometric horizon.[18]

Regardless of whether we speak of an early Protogeometric phase in Stamna contemporary with the Submycenaean period in Achaea[19] or a genuine Submycenaean phase in Aetolia it is important that, in the Agios Elias/Stamna area of southwest Aetolia, there is continuity from the late Mycenaean to the early Iron Age right down to after 900 BC.[20] The cemetery of Stamna provides evidence for the existence of social groups, rather than one large 'proto-urban' construction, with the richer graves indicating the existence of ranking societies, probably small chiefdoms with long-distance trade connections and craft specialization.[21] No settlement has come to light in Stamna until now.

Remains of Mycenaean occupation in the remaining part of southwest Aetolia are less impressive. In Chalkis Aetolias remains of Middle Helladic III / Late Helladic IA and LHIB are found in small deposits in the 'harbour area' to the west of Agia Triada. In the same area, a sealed context of LHIIIC/Submycenaean was excavated; the deposit includes 'local Geometric' as in Thermos.[22] A Mycenaean bronze hoard is reported from Psirolithi close to Calydon and Mycenaean tombs and sherds were found by Silvia Benton at Kryoneri. In Calydon itself only very few Mycenaean sherds were found - one, however, clearly dates to the Submycenaean period.[23] A few sherds are recorded from Old Pleuron.[24] Finally, another *tholos* tomb was excavated at the southern shores of the lake Trichonis at Lithovouni.[25] Besides Stamna, Protogeometric and Geometric tombs (but no settlements) were found at Agrinion (provenance uncertain), Gavlou, Calydon (south of the ancient town), Old Pleuron and Halikyrna.[26]

To sum up: Continuity from the Mycenaean to the Protogeometric times is attested in the western part

[11] Wardle 1972: 93. Papadopoulos and Kontorli-Papadopoulou 2003: 44, 46 and Stavropoulou-Gatsi 2008: 376 refer to further *tholoi* from west of river Acheloos - most important from Mila. Cf. Papadopoulos 2017.
[12] Kolonas 2018: 85, fig. 13 and drawing 2; Stavropoulou-Gatsi 2008: 377.
[13] Even if much more light is cast on the problem: Papapostolou 2012.
[14] Christakopoulou 2009.
[15] Chistakopoulou 2001.
[16] In Achaea, cremation graves were found by Moschos (phase 6a onwards = early Submycenaean)
[17] See Dietz 2016.
[18] Kolonas *et al.* 2017 and Kolonas 2018 with further references.
[19] Moschos phase 6b. See Moschos 2009a and 2009b.
[20] Dietz 2016. An assemblage of more than 100 Mycenaean sherds from the old excavations in Calydon, Artemis *Laphria* was recently detected by Dr. Signe Barfoed in the storerooms of the National Museum, Athens.
[21] For a survey of Mycenaean sites in Aetolia/Akarnania, see Stavropoulou-Gatsi 2008.
[22] Dietz 2007; Dietz and Moschos 2006. Moschos dates the Chalkis context to his Achaen phase 6a. See also Dietz 2016.
[23] Moschos phase 6b. Dietz 2016: fig. 2.
[24] Stavropoulou-Gatsi 2008: fig. 3f.
[25] Bronze objects depicted in Stavropoulou-Gatsi 2008: fig. 5b.
[26] One single vessel. Dekoulakou 1984: fig. 14 (see survey by Dietz 2016).

of the prehistoric landscape, where affluent chiefdom societies were established. In addition, a Protogeometric phase is attested from cemeteries but with no clear relation to the Mycenaean past. On transition to the Iron Age, the mountain zone around Thermos (where no Protogeometric pottery was found) was occupied by a new population evidently immigrants from the north,[27] while the coastal area (including Gavdou) became part of a western *koine*-version of the early Protogeometric culture/society comprising Achaea and the Ionian islands[28] - in these areas urbanization gradually developed.

The Archaic world

Based on the Dark Age evidence, we may suspect two different developments, one following the dynamic, stratified and out-turned social structures in the coastal and western part of the district, and another based on a rather rural, less progressive, traditional agricultural social structure and economy in inland Aetolia around Thermos. There is good reason to be cautious, since the situation in Thermos -besides the construction of *megaron* B- is not well understood, and the lack of early Protogeometric pottery groups could relate to lack of cemeteries.

The dynamic social and economic development in the 8th century, the late Geometric period, influenced not only the societies around the Aegean. The new creativity marked also the societies around the Corinthian Gulf, judging, for instance, from the breaking new appearance of an apsidal peripteral temple at Ano Mazaraki, a rather remote area of east Achaea, behind Aigion.[29] Whatever happened in Thermos between the final days of *megaron* B and the construction of the new temple of Apollo around 625 BC, the former isolation was replaced by vital contact with the surrounding world. Archaic temples of the northwest Greek tradition are found in Corfu and southwest Aetolia, in Thermos and nearby Taxiarchis and Zakonina,[30] and in Calydon. They are characterised by originality, colourful entablatures and rich narrative painting and ornaments – differing only slightly in execution. The Apollo temple C (around 625 BC) in Thermos with the 'daedalic' *antefixes* and the late 7th century (wooden?) temple accessories from Calydon are evidently locally produced, but most likely by Corinthian (and local) craftsmen; the core fabric is local clay, while the surface slip is of Corinthian clay, and inscriptions on terracotta slabs are in mixed Corinthian and local scripts. At any rate, Corinthian influence is strong and not to be neglected; yet, the execution is original and not found anywhere else in the Archaic Greek world.[31]

Chalkis Aetolias[32]

In Bommeljé and Doorn's survey report from 1987, only four sites with rather modest remains of Archaic habitation were mentioned from our area.[33] During the years 1995 to 2001 a joint Greek/Danish team excavated parts of the site of Chalkis, referred to as 'hard by the sea' by Homer in the *Catalogue of Ships*. The ancient settlement was situated on the low mound of Agia Triada projecting out in the gulf of Corinth, a few hundred metres east of modern village Kato Vasiliki and in the harbour area on the narrow strip of land along the western side of a small bay, west of the mound. In the late 6th century a substantial fortification wall was constructed surrounding the acropolis of approximately 7000 m^2 of the mound of Agia Triada.[34] Stratified remains of Archaic settlement layers were found primarily on the east terrace of the mound and along the coastline of the small bay, yet, Archaic material actually prevailed in the mixed fills everywhere on and around the mound.

The first settlers established the Archaic settlement both on the mound and in the harbour area, in around 700 BC, in the wake of the first and major colonizing enterprise towards the west.[35] About 50% of the pottery found in these layers was Early/Middle Protocorinthian or Corinthianizing fabrics - the rest was local but more or less produced in the Corinthian style. Especially in the harbour area, the stratigraphy is well preserved, with six chronological horizons covering the period from 680/660 to the late 6th century BC - during which period the site was abandoned at least three times.

Calydon - sanctuary and urbanism (FIGURE 3)

The sanctuary of Artemis *Laphria* was excavated during campaigns in 1926, 1928, 1932 and 1935/38, and published by Ejnar Dyggve in 1948. In the present context, the origin of cult and the first traces of the town will be examined, discussing also the problem of the first building constructed on the sanctuary terrace. We shall try to argue that the apsidal building D to the south of the temple of Artemis (temple B) is more likely to be the first building on the terrace, rather than the building H and the so-called 'red roof' (FIGURE 4), as Dyggve suggested.

[27] Dietz 2007; Dietz 2016.
[28] Summarised in Dietz 2016.
[29] Petropoulos 2001.
[30] Heiden 1987: 53; Rhomaios 1923.
[31] A good survey in Heiden 1987: 47-70. Lawrence 1983: fig. 100, after Dyggve 1948, depicts the roof tiles in Calydon from the late 7th to the early 5th century BC.
[32] The name was suggested to me by Richard Tomlinson, instead of Chalkis in Aetolia.
[33] A more comprehensive survey in Houby-Nielsen 2001: 257-271, esp. fig. 3 (sites of cult).
[34] Dietz and Kolonas 2016.
[35] The Archaic settlement is under publication: Houby-Nielsen 2018.

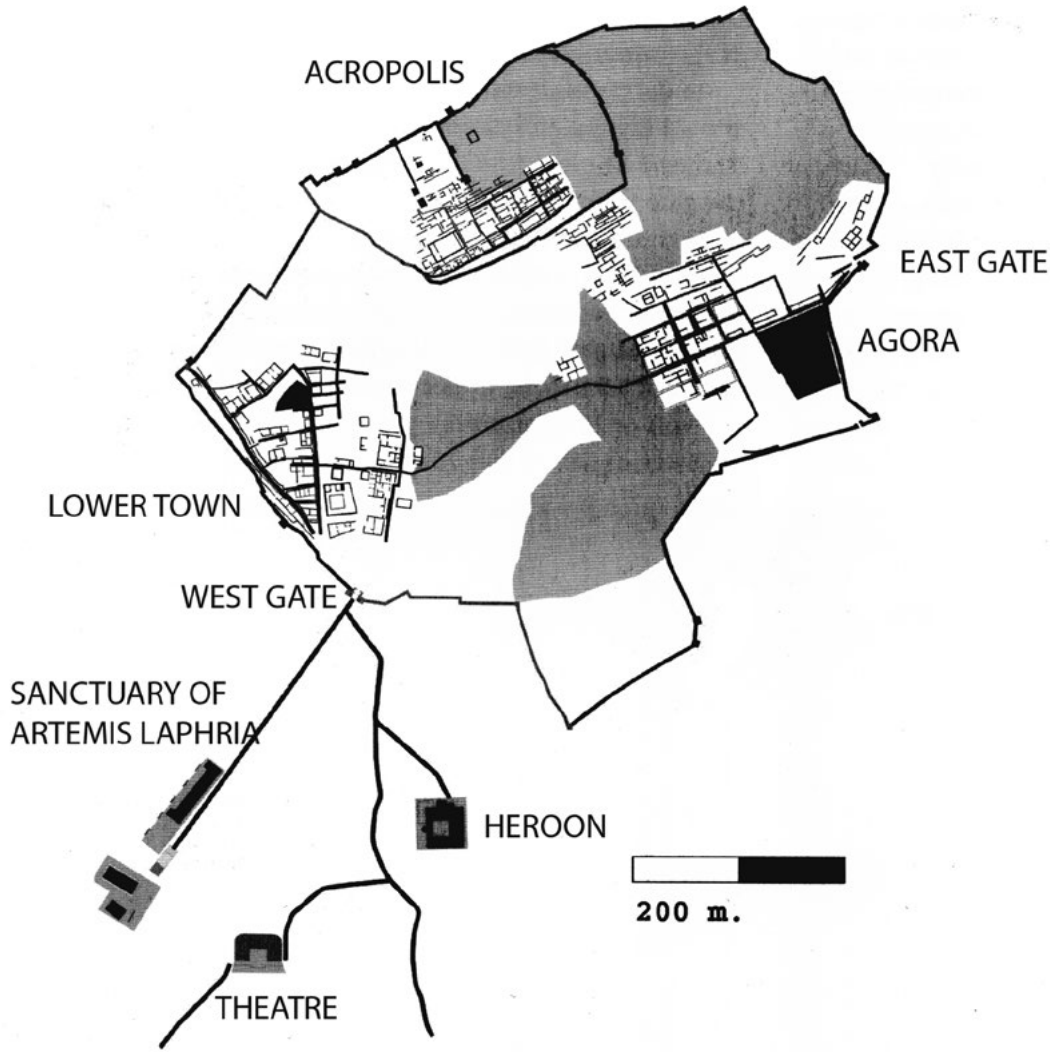

Figure 3. Calydon. Town and sanctuary (drawing: after Dietz and Stavropoulou-Gatsi 2011).

Building D measures 12.60 x 7.50 m and terminates in an apse to the southwest and a vertical gable front (?) to the northeast, where the entrance most likely was placed. The walls were built of large, square stone blocks, a tradition which, in our area, is usually traced back to the Middle Bronze Age (the definition of the Middle Bronze Age, Middle Helladic, in the area causes some problems). The construction of building D is closely related to the so-called Middle Helladic building to the south of Thermos.[36]

Dyggve's arguments for the dating of the apsidal building go as follows:

- The most ancient construction on the terrace should be building H, of which very little is preserved (FIGURE 4) but enough to reconstruct a small temple with *antae*.[37]
- It was suggested that this temple with *antae* was destroyed when the buildings D and E were constructed.[38]
- According to Dyggve, the so-called 'red roof' could (see below) have been placed on the small temple with *antae* H.[39] Stylistically the roof is closely related to the polychrome roof (*Buntes Dach*) of which it should be only slightly later (even 'if the house is older'), nevertheless, also related to Temple B2, 'the pale yellow roof'.
- Dyggve states three considerations to support the dating of building H before D and E, with the third consideration being the most important:[40] It was necessary to demolish and remove the buildings on the terrace -at any rate, building D- in order to construct building F, which dates to the early 4th century. In the foundation fill below building F 'I found more fragments of red

[36] Papapostolou 2012: fig. 32. As regards *megara* A and B, cf. Dyggve 1948: fig. 54.
[37] Dyggve 1948: 270.
[38] Dyggve 1948: fig. 253.
[39] Dyggve 1948: 270.
[40] Dyggve 1948: 271-272.

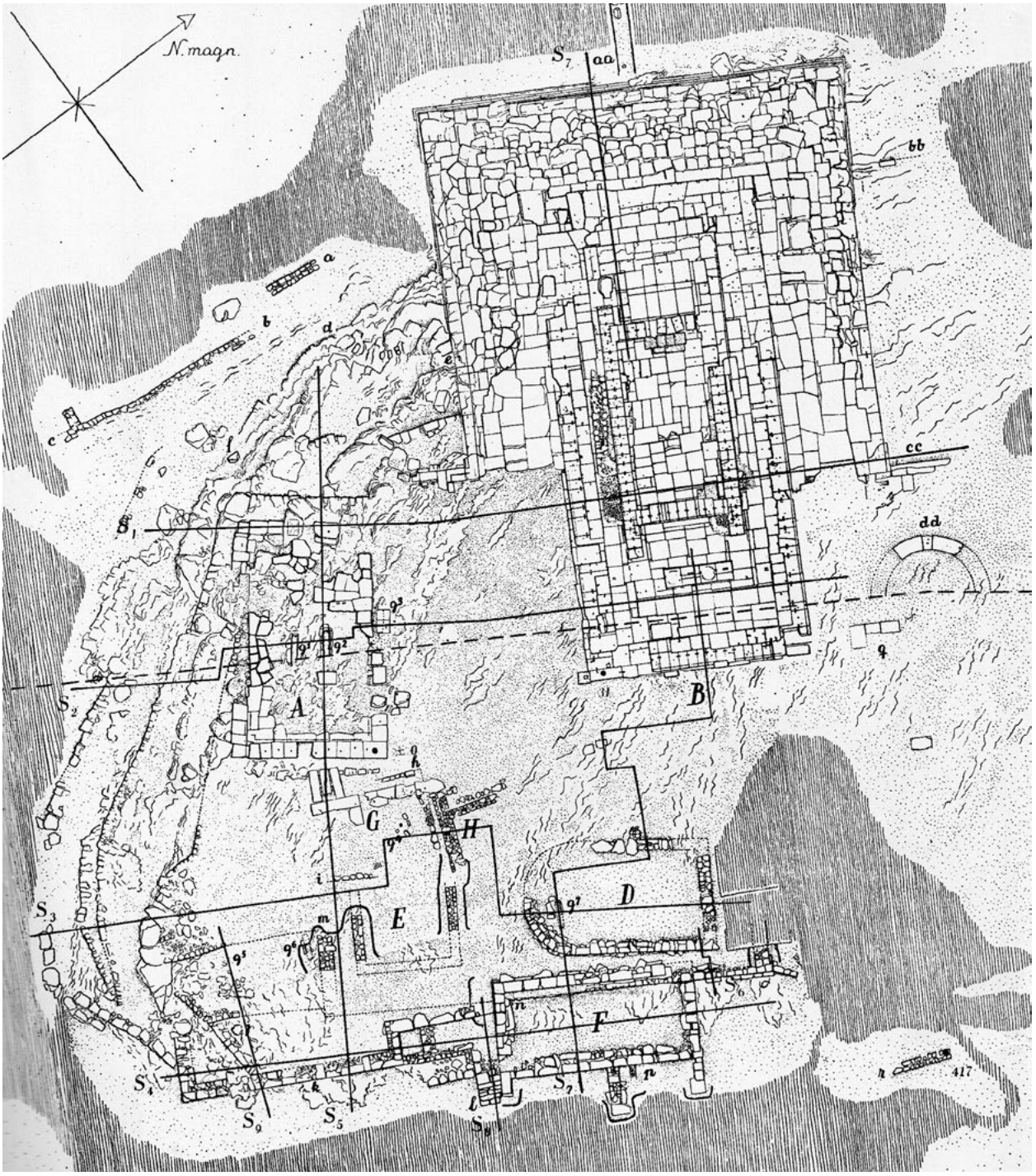

Figure 4. The southernmost end of the Artemis *Laphria* terrace (drawing: after Dyggve 1948: pl. I).

> painted roof tiles of Laconian type especially fitted for smaller buildings ... rounded buildings with an apse, like building D'. The whole argumentation evidently concerns the problem of finding a suitable building for the 'red roof'. To sum up, buildings D and E should date late in the 6th century BC.

The problem, however is, that the 'building with *antae*' H is a highly hypothetical re-construction, just like the stratigraphical relations between H and D/E, and the so-called 'red roof' itself.[41] In conclusion, we would suggest leaving the modest remains of 'building' H and the 'red roof' beyond consideration and propose the apsidal building D (FIGURE 5) to be the earliest building on the

[41] 'Thus there is no ground for restoring the ('non-existent') 'red roof' in this manner' (Dinsmoor 1950: 277). In Chalkis Aetolias red and black pan tiles cover the roofs of late-fourth/early-third century buildings on the east terrace of the mound.

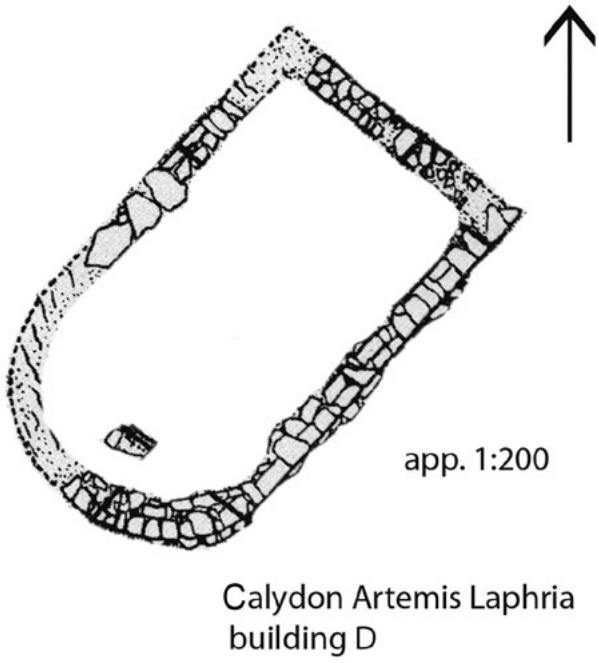

Figure 5. Artemis *Laphria* building D, 1:20 (drawing: after Dyggve 1948).

terrace, dating probably to the 8th or early 7th century BC, before the erection of the first wooden temple with the polychrome roof and the 'daedalic' *antefixes*.[42]

Most likely a hipped roof, probably made of reeds rather than tiles, covered the building with an entrance on the straight, gabled side; on the whole, it must have looked like the famous terracotta model from Perachora and the Apollo *Daphnephoros* temple Ed1 in Eretria.[43] The bay temple in Eretria was a much more fragile building than building D, which explains the curved walls (?). The Calydon building shows no traces of a porch, which could be justified by the monument's bad preservation, since the dimensions of the two buildings are approximately equal (Apollo *Daphnephoros* Ed1 measures: 11.50 x 7.50 m).

The later town of Calydon was surrounded by a huge fortification wall, probably built around 400 BC (FIGURE 3).[44] The north acropolis, consisting of a smaller upper section and a larger lower section, measures approximately 3.6 ha, roughly 10 % of the total size of the town. Both the central and the lower acropolis were fortified in the late 6th century BC (late Archaic / early Classical times).[45]

Prehistoric material was almost non-existent in the town; only a few Mycenaean sherds were found dispersed around,[46] two were of Submycenaean date. Protogeometric material derives from a cemetery to the south of the town (see above), while only one single sherd is found in the town. More Geometric material (all late Geometric) was recovered, all in mixed deposits, whilst Archaic material, closely related to the Corinthian-Orientalizing pottery of the period, was found scattered in the entire town.[47] A sealed deposit in the lower town derives from a well in the so-called peristyle building and consists of a fine assemblage of household wares of the 7th century (early Protocorinthian, middle Protocorinthian and transitional); the deposit does not reflect use/habitation while the acropolis was fortified. Most of the material from the acropolis compares to later 7th and 6th century Corinthian styles, with a few early Protocorinthian samples.

In the late 6th century a shrine was built on top of the central acropolis. Nothing is left of the shrine itself, but architectural terracottas and ritual objects clearly suggest the existence of a cult place. Remains of two Corinthian roof tiles,[48] a raking *sima* of the so-called Megarian type and a red/black/white painted ridge tile, in addition to fragments of metopes, 33 Archaic miniature vessels and 16 Archaic figurines mainly of the standing *korai* type date to the early 6th century BC.[49]

Recapitulation

By the 11th century BC, southwestern Aetolia became divided into a coastland zone with clear continuity from the Mycenaean past into the Iron Age, and an inland zone around Thermos with radically changing pottery styles and cultural expressions, probably introduced by immigrants from the north.[50] During the following centuries affluent societies develop, especially in the western part of the region, Stamna (unfortunately only known from graves) with developed social structures, external communication and specialised craft. It is probably of importance that the Mycenaean tradition

[42] In their preliminary report, Poulsen and Rhomaios mention finds from an apsidal construction with an *eschara* close to temple A with prehistoric and 'Geometric' sherds. A reference to Thermos is of importance, since this kind of pottery was well known to Rhomaios, and older than the Apollo temple C. The finds from the sanctuary were never published, due to the outbreak of World War II and Poulsen's death in 1950. Figurines and other material, currently kept in the National Museum in Athens, will be studied and published by Dr. Signe Barfoed.

[43] Coldstream 1977: 322-323; Lawrence 1983: 80; Mazarakis Ainian 1997; Verdan 2013.

[44] Dietz and Stavropoulou-Gatsi 2011.

[45] The suggestion that the wall around the lower Acropolis was fortified in the late 6th century (Dietz and Stavropoulou-Gatsi 2011: 81) has been substantiated by recent excavations (Vikatou and Handberg 2017: 203-204.

[46] Dietz 2016; Dietz and Stavropoulou-Gatsi 2011: 275.

[47] Dietz and Stavropoulou-Gatsi 2011: 62.

[48] Dietz and Stavropoulou-Gatsi 2011: 240, 311 and chapter 7, nos 29 and 42. On the metopes, nos 44a-d.

[49] Barfoed 2017.

[50] We have not dealt with the Dorian question; see, for instance, Schachermeyr in Deger-Jalkotzy 1983.

is strongest in this area, where the 'chiefdoms' that contributed with ships to the Trojan War were situated, and where towns developed in later times.

In the wake of the large colonizing movements in the 8th and the 7th centuries, a Corinthian stronghold was established at the natural harbour of Chalkis, east of Varassova, and Corinthian pottery was brought into households in Calydon, where the town was later to be founded; Geometric bronzes appeared in the sanctuaries of Calydon and Thermos. At the regional sanctuary of Artemis *Laphria*, visible from all over the coastland, and probably by now the religious and communal centre for the chiefdoms along the coastland, we have suggested that the rather large stone-built apsidal temple D (around 95 m^2) was the first cult building constructed on the terrace probably in the late 8th /early 7th century. The building almost equals in dimensions the so-called 'bay-hut' in Eretria from the same time; in form, it is comparable to the Perachora clay model. In the late 7th century the early temples in Thermos and Calydon with the head-*antefixes* were built, succeeded by a series of creative and original architectural constructions in the so-called northwestern Greek style, such as the extraordinary lion *sima* dating in 575 BC.[51] The Corinthian craftsmen working in inland Aetolia and Corinthian traders probably landed in Chalkis or Kryoneri (where no Archaic pottery has been reported), passed the Evinos river and moved to Calydon from where the road went over the saddle of Arakynthos to the lake Trichonis and up to Thermos. The construction of these early temples demanded considerable economic potential and it is likely that the centres of power at this time moved from the Stamna/ Agios Elias area to Calydon and Thermos, perhaps due to the existence of sanctuaries and better harbours. It is not fortuitous that the Homeric *Catalogue of Ships* was recorded when the greatest artistic achievements were accomplished; increasing wealth created a political need for defining identity in the coastland chiefdoms, without including Thermos (perhaps, as suggested by Ioannis Papapostolou, because no town had been founded in Thermos).

By the time the apsidal stone edifice and later the temples of Artemis and Apollo were built on the hill, scattered habitation grew in the area of the later town. Towards the end of the 6th century, both the acropolis of Chalkis and the much larger acropolis at Calydon were fortified. At the same time, it seems as if parts of habitation down the slopes were given up (this statement is only based on the well deposit in the lower town), whereas habitation shifted to the acropolis. It is difficult to say what kind of danger caused such a considerable effort in the late 6th century BC; the tension caused by the Persian expansion was probably not felt directly in our area, but evidently the danger came from the sea – apparently in Thermos there was no need for protection. The construction of the fortified acropolis (3.6 ha) gave the impulse to a growing urbanization not completed (with fortifications) until 200 years later.

[51] We prefer Dyggve's original dating over Dinsmoor's 1950. See also Heiden 1987: 66.

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Politics Reflected on Architecture: An Evaluation of the Aetolian, the Pergamene and the Roman Input to the Religious Landscape at Delphi

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Summary

Some innovative votive forms and their spatial arrangement in the sanctuary of Apollo can be revisited in the light of historic circumstances and the respective dedicators' profile. Hellenistic monuments at Delphi reflect contemporary political forces, namely the Aetolians-'saviours' in the 3rd century BC and the Pergamenes-'benefactors' in the 2nd century BC. Their choice to consecrate diametrically positioned porticoes is not their only common denominator. Archaeological finds suggest that these people manifested their role in politics by defining their own artistic identity in a panhellenic sanctuary. As opposed to the Romans, who rarely and haphazardly conducted restorations or refurbishment, the Aetolians and the Pergamenes marked the evolution of the sacred architectural setting at Delphi, also highlighting their progress in design and engineering. Sharply contradicting the traditional view gleaned from the flattering, ingratiating phrasing in fragments of imperial correspondence with the Delphi authorities, the actual finds do not nominate Roman emperors as commissioners of ambitious building programs within the borders of the sanctuary. They can only claim credit for repairs and maintenance operations.

Περίληψη

Κάποια νεωτεριστικά από άποψη μορφολογίας αναθήματα και η χωροθέτησή τους στο ιερό του Απόλλωνα αναψηλαφίζονται υπό το φως των ιστορικών συνθηκών και της ιδιοσυγκρασίας των αντίστοιχων αναθετών. Τα ελληνιστικά μνημεία των Δελφών αντικατοπτρίζουν τις τρέχουσες πολιτικές δυνάμεις και συγκεκριμένα τους Αιτωλούς 'σωτήρες' του 3ου αιώνα π.Χ. και τους Περγαμηνούς 'ευεργέτες' του 2ου αιώνα π.Χ. Η επιλογή τους να αφιερώσουν στον Απόλλωνα αντιδιαμετρικά τοποθετημένες στοές δεν είναι ο μοναδικός κοινός τους παρονομαστής. Τα αρχαιολογικά ευρήματα υποδηλώνουν ότι τα εν λόγω κράτη, σκιαγραφώντας την ιδιαίτερη καλλιτεχνική τους ταυτότητα μέσα σε ένα πανελλήνιο ιερό, διακήρυσσαν το ρόλο τους στο πολιτικό προσκήνιο της εποχής. Σε αντίθεση με τους Ρωμαίους, που σπάνια και περιστασιακά ανελάμβαναν αποκαταστάσεις ή ανακαινίσεις στους Δελφούς, οι Αιτωλοί και οι Περγαμηνοί άφησαν το αποτύπωμά τους στη διάπλαση του ιερατικού αρχιτεκτονικού τοπίου, αποδεικνύοντας παράλληλα την πρόοδό τους σε τομείς σχεδιασμού και στατικής μηχανικής. Στην παρούσα εργασία αντικρούεται μια παραδοσιακή θεώρηση: παρά τη διάθεση κολακείας και εξευμενισμού που διαφαίνεται σε αποσπάσματα αλληλογραφίας μεταξύ Δελφικών αρχών και Ρωμαίων αυτοκρατόρων, τα αρχιτεκτονικά κατάλοιπα δεν αναδεικνύουν τους *Σεβαστούς* ως αναδόχους μεγαλεπήβολων οικοδομικών αναπλάσεων εντός θρησκευτικού πλαισίου, παρά μόνο μεμονωμένων έργων επισκευής και συντήρησης.

Key Words

Hellenistic Delphi; benefactors; emperors; remodeling; architectural setting.

Changes in a panhellenic sanctuary reflect changes in the historical and political forefront, that is, changes in the prevalent, ruling forces. People who acted as protectors, defenders or benefactors of the Delphi oracle are worth investigating with reference to their potential influence upon architecture. Politics[1] were bound to have some bearing upon the layout of a sanctuary, where the god's prophecies allegedly forged the fortune of nations, in the same way as historic events and public affairs were echoed in the synthesis of the Amphictyonic council and certain highly esteemed city-states in it. Curiously, the eminent status of Thessaly in this religious confederacy was not proportionately reflected on the votive landscape at Delphi, by means of multiple Thessalian offerings, for example, or artistic trends and traditions distinctly identifiable as originating from that region, with the exception of the sculptural group dedicated by the family of Daochos.[2] In this paper we explore whether political circumstances impacted the architectural setting or the votive typology and whether some powerful states –and, later, the Roman emperors- left an imprint upon the monuments and the physiognomy of the site.

It is reasonable to associate prosperous city-states with sumptuous votive offerings.[3] The Naxian

[1] For the crucial role of politics in the floruit and the decline of the Delphic oracle, see Lentakis 2000: 43-44.

[2] Possibly sheltered in an *oikos*: Jacquemin and Laroche 2001.

[3] Ex-votos did not reciprocate favourable oracular responses and they should be distinct from any sense of repayment or bribery.

sphinx, a masterpiece of allegoric sculpture and an accomplishment of engineering in a privileged location near the oracular temple, commemorated the prominence of Naxos. In the course of centuries many people chose Delphi to make a statement in architectural or statuary form, thus collectively constructing ethnic and artistic identities. Regional 'homeland traditions' were declared especially via the treasuries, of which the diversity is unique and peculiar to Delphi. However, prior to the 3rd century BC we can hardly discern a specific trend marking the sanctuary in terms of design, morphology or layout, and attributable to a certain ethnic tradition. As opposed to Eleusis, where construction phases or projects were 'labeled' after contemporary politicians (Lycurgos, Kimon, Peisistratos), most building programs at Delphi were independent of sponsors or statesmen - though not anonymous: the expanded south precinct[4] is known as the *Hellenikon*, whereas repairs to the east precinct were referred to by use of the contractors' names, Euainetos, Agathon and Pankrates. Only one of the consecutive temples to Apollo was named after its sponsors, the Alcmaeonids. The fortification west of the Stadium was named after Philomelos, the Phocian military commander.

Asia Minor and the Aegean islands (Knidos and its colony, Lipara, Clazomenae, Siphnos, as well as Massalia, a colony of Phocaea) early introduced the Ionic-Aeolic order to Delphi.[5] In turn, the Athenians adopted the Ionic order in the exterior colonnade of their stoa. Also lining the Sacred Way, the semicircular niches commissioned by the people of Argos toned down the linearity of the processional path. At the same time, its trace was pronounced and enlivened by συντάγματα of bronze statues. The Peloponnese and Boeotia contributed significantly to the site-planning and appearance of the Delphi *temenos*,[6] yet their influence is not instantly recognizable as a certain local architectural tradition. By contrast, recognizable is the influence of the Aetolians and the Pergamenes, who in the 3rd and the 2nd centuries BC experimented with variations on types of architectural ex-votos and engineering. The architectural offerings of both these forces broadened the *temenos* showing forethought in site-planning.

The grand west portico is thought to have contained spoils from the Gauls, utterly defeated at Delphi in 279 BC, besides providing a shelter for the theatre's spectators in inclement weather. Its physical remains are scanty, other than the rear wall, where an inscription instigated its identification as an Aetolian dedication. Although its interpretation as an arsenal (*hoplotheke*) of the 4th century BC, known from building accounts, has not yet been eliminated, we have argued[7] for its erection by the Aetolians. The repulsion of the Gauls in 279 BC earned the Aetolians respect, high rank (and proportionate control) in the Amphictyonic council and privileged spots in the sanctuary to set up their dedications. In the 3rd century BC an influx of ex-votos were dedicated either collectively by the Aetolian League or individually by Aetolian families. In this context, in 245 BC they re-organized the *Soteria* Games at Delphi. Of all the allied mainland states, which joined forces against the Gauls' incursion, the Aetolians seem to have more conspicuously commemorated their success. The Boeotians set up a couple of private memorials in honour of two fallen warriors.[8] However, we have proposed[9] that the Boeotians' decision to transfer the cult of Zeus and Trophonios upon the hill of Prophet Elias at Levadeia, in a colossal temple, could be relevant to the events of 279 BC. Having fought bravely in this battle, too, the Phocians proved that the Amphictyony ought to forgive and forget their condemnation for sacrilege during the Third Sacred War. After all, they had paid off their fine, which propelled the reconstruction of Apollo temple.

Even if the Aetolians exaggerated their role in the expulsion of the Gauls from mainland Greece and even if their appearance as saviours of the oracle bestowed high esteem upon them on the political forefront,[10] yet their League had always been a considerable, mighty military power, which the Macedonians and Romans tried hard to subdue. To protect their territory from pirates, the Aetolians had constructed robust defense works, such as the fortification of Chaleion (modern Galaxidi) already in 300 BC. The rocky islet of Agios Demetrios in the gulf of Chrissa, operating as a naval base with a fort and a ship-shed,[11] is discussed as belonging to the same network. The Aetolians are plausibly responsible for the tower at Agios Athanassios,[12] wherefrom the so-called 'Delphi straits' were guarded.[13]

[4] Particularly for the southeast precinct, see Bommelaer 2011.

[5] Perhaps affecting also the interior of Apollo temple. Partida 2013: 479-483.

[6] Not only by commissioning votive offerings. A number of artisans employed in the fourth-century BC temple-rebuilding at Delphi originated from these regions, as inferred from building accounts. Partida 2011: 229.

[7] Partida 2015a: 37-38; Partida 2018: 367-368.

[8] Nachtergael 1977: 191 n. 281.

[9] Partida 2015a: 34-36. Ongoing study of the architectural remains at Levadeia, which we conduct jointly with C. Kanellopoulos, seems to corroborate this proposal.

[10] For the engagement of itinerant poets in the Aetolians' political propaganda via the poetic construction of a glorious mythical past, see Rutherford 2009: 244-248.

[11] Kyrou 2003: 80; Valavanis 2015.

[12] Valavanis 1980 expands Keramopoulos 1917: 51 n. 2. Also see Partida 2009b: 532; Partida 2015b: 878; Rousset 2002: 56-57.

[13] Unless that tower was part of Philomelos' fortification during the Third Sacred War. The vertical grooves dressing the tower's trapezoidal masonry could date in the 4th, as well as the 3rd century BC.

Figure 1. Three-dimensional render of Delphi in c. 330 BC by John Goodinson. Scientific advisor: Elena Partida (© Copyright John Goodinson).

It seems that monuments at Thermos commemorating the triumph of 279 BC were fewer than those commissioned at Delphi. Of course, significant decrees consolidating the Aetolians' position in the Amphictyony[14] were acknowledged by related inscriptions in the League's metropolitan shrine at Thermos. Shields collected as spoils from the Gauls were affixed to metopes of the temple of Apollo (cf. Mummius suspending shields on the temple of Zeus at Olympia), next to Persian shields on other sides of the entablature. Allegorically this equated the two victories against barbarians. Not far from the temple of Apollo stood the tripods dedicated by the Syracusan tyrants, the Deinomenids, to commemorate the victory of Sicily against Carthage, and the tripod-memorial of the battle at Plataea – all manifesting the panhellenic coalition against foreign adversaries. Accordingly the Aetolians set up most of their ex-votos in the vicinity of the oracular temple.[15]

Beside the pillar, which remained a popular votive type throughout the Hellenistic and the Roman period, the Aetolians rekindled the columnar ex-voto. Two triangular pillars -notably, with triangular dowel sockets- had been dedicated to Apollo of Delphi in the 5th century BC jointly by the people of Naupaktos and Messene, to celebrate the victory of these two towns over Calydon.[16] Their counterpart at Olympia, supporting the Nike of Paionios, was likewise offered by Naupaktians and Messenians.[17] The repetition of the same unusual architectural type at two different sites by the same commissioners and the presence of an equivalent triangular shaft in the sanctuary of Apollo at Thermos[18] (federal shrine of the League) reasonably ascribe this design to Aetolian architects. We have demonstrated[19] that the Aetolians brought about a remarkable change to the architectural setting of Delphi. One of the two triangular pillars on the south esplanade was made of dark, blue-black limestone,[20] coupling its -adjacent- counterpart in dazzling white marble and thus immediately becoming a visual centre point (FIGURE 1). Certainly the architect found a very efficient way of making his work stand out. In the 3rd century BC the bicolumnar monuments[21] consisted of two Ionic columns spanned by an epistyle[22] crowned by sculpted images of Aetolian commanders[23] or their families. Like the triangular shaft, they represent an idiosyncratic modality and mastery of engineering, given their height on sloping ground. Also favoured by the Aetolians, the *exedra*[24] as a pedestal for statues protracts the iconographic tradition of Miltiades and Lysander's συντάγματα.[25] As in most construction sites at Delphi, the teams of artisans employed in Aetolian projects were mixed,[26] recruiting indigenous stone-cutters, as well as invited architects, who taught something of their homeland tradition. Exchange of knowledge was always mutual, as also with the Pergamenes.

Between 220 and 197 BC, Attalos of Pergamon dedicated a complex of monuments at Delphi, on abruptly sloping terrain. Proximity to the oracular temple compensated for any difficulties in construction; besides, architects from Pergamon were familiar with steep slopes and terracing on dramatic hillsides, so the Phaedriades as a backdrop befitted their home landscape. Paying particular attention to scenery and perspective, while laying out the components of their votive installation, the Pergamenes introduced the use of vault in construction[27] and reinforced the superstructure with multiple clamps and thick roof-beams doweled on the entablature. They adopted the characteristic ashlar masonry with courses alternating in height. To prevent erosion, they raised a wall to support the conduit running behind the stoa and collecting rainwater. Physical remains suggest that this drain consisted of articulate stone-slabs, like the one behind the grand west stoa.[28] The application of similar practices already in fourth-century BC monuments at Delphi[29] and the use of local limestone from Prophet Elias (beside poros and conglomerate) in the Attalid offerings at Delphi, whereas in Pergamon they worked

[14] Such as the αποδοχή Σωτηρίων by Chios (Nachtergael 1977: 389, 436-440; Partida 2018: 369-370; Sánchez 2001: 270, 287-298, 300, 308) and, later, the recognition of the *Nikephoria* festival in Pergamon (Daux 1936: 269, 293). Chios owed the Aetolians its admission to the Amhictyonic council. Probably on this occasion was the Chian altar remodeled: Partida 2015a: 47-48.

[15] The sanctuary's authorities conceded prominent places to the Aetolians, such as the temple esplanade, which indirectly implies the contemporary availability of space: Partida 2009a: 297-299.

[16] Jacquemin and Laroche 1982: 192-207; Jacquemin and Laroche 2016: 85-103.

[17] Mallwitz 1971: 37, 39.

[18] Dedicated by Lykos from Pleuron, rather than Eurydamos: Jacquemin 1985: n. 32; Partida 2009a: 288, 296. See especially Stikas 1961: 175.

[19] On the Aetolians as commissioners who shaped the sacred architectural landscape, see Partida 2009a; 2012; 2015a; 2015b; 2018.

[20] Jacquemin and Laroche 2016: figs. 1, 5, 6.

[21] Analyzed by Partida 2009a: 273-300; 2013: 488-490; 2015a: 31-33. See also Partida 2012: 1087-1090 and especially Partida 2018: 365-367. It seems that no bicolumnar monuments were erected in the sanctuary of Apollo at Thermos.

[22] Cf. the *Ptolemaierbau* at Olympia, where two columns were spanned by means of a socle of *orthostates*.

[23] Πλείσταινος Ευρυδάμου possibly consecrated a gilded statue of Apollo, as inferred from the inscribed fragment of an Ionic stylobate. Amandry 1940: 65-70.

[24] For *exedras* in third-century BC Delphi, see Partida 2015a: 39-47; Partida 2018: 368.

[25] Reinach and Flacelière first compared the Aetolian *exedra* with Classical prototypes: Nachtergael 1977: 198 n. 308. For the statuary σύνταγμα dedicated by Naupaktos, see Bommelaer 2014.

[26] Details in the design of capitals of at least two bicolumnar monuments suggest the involvement of Parian architects. The statue of the personified Aetolia has also been discussed as created by the school of Skopas. Partida 2013: 488-490.

[27] Bouras 2000: 289-291.

[28] Partida 2015a: 30; Partida 2016: 306.

[29] In the limestone temple of Athena, the Theban treasury and the *xystus* they plausibly signify precaution after the experience of an earthquake: Partida 2017b: 244.

in trachyte,[30] bespeak the participation of indigenous Delphian artists, familiar with the peculiarities of both the topography and the construction material.

By proxy of King Attalos, Dameas from Pergamon and his compatriot, Herakleidas, supervised[31] the process of construction of the royal commissions. Later, in 140 BC, a mission of painters from Pergamon carried out conservation[32] of the painted panels –rather than murals- which decorated the stoa of Attalos. This stoa was regarded as the '*Poikile* of Delphi', which justifies the prohibition of lodging in it.[33] Some idiomatic technical details,[34] the mode of hanging the painted panels, the bastion-like east *oikos*[35] with coloured gables and the Phaedriades as a backdrop and, primarily, the vaulted *exedra* constitute novelties of the Pergamenes. Monumental propyla piercing the precinct were not customary at Delphi, so the Pergamenes opened a plain gate near their terrace, as well as a stairway to counteract the ground's inclination, and they installed lattice/grilles for the pilgrims' safety. Another gate was opened at *epitheatre*'s level.

Epigraphic evidence suggests that in 160 BC the Pergamenes contributed to repairs to the theatre of Delphi καί ἄλλων χορηγιῶν by dispatching craftsmen or specialized slaves.[36] J.-F. Bommelaer accepts[37] two construction phases of the theatre in the 2nd century BC. Because this monument was not included in the law of 380 BC prescribing certain tasks of the *hieromnemones* (cf. preparatory works for the Pythian Games during Dion's archonship, in 247 BC), he concludes that the theatre was not built, yet. On the other hand, C. Anti[38] locates an Archaic *odeon* adjacent to (the northeast of) the theatre. So, either an informal, non-monumental theatrical structure predated the theatre, or some other structure occupied this area. The eastern/Asiatic mode of masonry in the *epitheatre* with courses of alternating height,[39] the small columns preserving lead-pouring channels on their resting surface,[40] attributed to the stage-building and, more important, the vaulted substructure of the stage-building[41] strongly suggest that the Pergamenes were actually involved in the theatre's expansion or renovation. If a date in the 2nd century BC proves correct, then they participated in its original construction. Seeing that some ready-made elements were never assembled, G. Roux[42] estimates that the stage-building remained unfinished in its Hellenistic phase. The political backstage, however, of the worksite is even more intriguing. Eumenes indulged in helping after repeated petitions on behalf of Delphi. On the one hand, the Pergamenes systematically pursued the guise of ευεργέτες (benefactors). Epigraphically inferred[43] is that Eumenes, aside from providing craftsmen or slaves for the theatre, donated money for educational purposes ὑπέρ τᾶς τῶν παίδων διδασκαλίας; in return, teenagers participated in torch-relay racing (λαμπαδηδρομία) at Delphi[44] in his honour. On the other hand, as we shall see, the Pergamene king was indebted to the Amphictyony.

The victory of Acilius Glabrio in 191 BC and his appearance as liberator was a bitter strike for the Aetolians. Acilius[45] confiscated and redistributed properties of the Aetolians in the area of Delphi, on the pretext that Delphi ought to control at free whether 'foreigners' would be allowed to reside in their territory, the valley of Pleistos. By 'foreigners' he referred to the neighbouring Locri and Aetolians. Then the Aetolians lost control also of the famous *Doric Corridor*, the inland route leading from the Corinthian to the Maliac gulf. On the grounds of architectural evidence, however, we argue that their influence upon Delphi was protracted, since one decade later, in 182 BC, the Aetolians raised pillars crowned by statues in the prophetic sanctuary, to honour the eastern sovereigns, Prussias of Bithynia/Pontus and Eumenes II of Pergamon, as pious benefactors ἀρετᾶς ἕνεκεν καί εὐεργεσίας. The two pillars towering over the temple esplanade are regarded as stylistically similar and therefore contemporary.[46] Interestingly, both shafts were built in the Asiatic mode with courses of alternating height.

In that year, 182 BC, Eumenes sent ambassadors to Delphi, seeking acceptance of the *Nikephoria* festival and immunity/*asylia* of the sanctuary of Athena *Nikephoros*[47] in Pergamon. His imperialistic attitude, coveting expansion toward Phrygia and Thrace, had annoyed the Macedonians and the Romans, as well. However, the Amphictyony humoured Eumenes and granted his request[48] without previous consultation

[30] Roux 1987: 111, 132.
[31] Daux 1936: 499.
[32] Daux 1936: 509 n. 1; Roux 1987: 135.
[33] Roux 1987: 1.
[34] The lead-pouring channel carved on the column's resting surface and the unequal height of column drums. Roux 1987: 51-74.
[35] It sheltered the cult of Dionysos, particularly worshipped in Pergamon and Delphi (here as equal to Apollo). The shrine of Dionysos Σφαλεώτας (Διονύσιον) is theoretically restored in the area later occupied by the east *thermae*.
[36] Daux 1936: 501-502.
[37] Bommelaer 2002: 109-120.
[38] Anti 1947: 173.
[39] Partida 2015a: 30.
[40] And not on the stylobate. Roux 1987: 25, 56.
[41] Jacquemin and Laroche 1992: 249.
[42] Roux 1987: 95.
[43] Daux 1936: 686; Jannoray 1953: 86 n. 1.
[44] Such races were religious rites rather than athletic competitions. Partida 2017a: 210.
[45] Szemler *et al*. 1989. Acilius defeated the Aetolians. Later, in 168 BC, the Romans under Flamininus defeated the Macedonians.
[46] Atlas *416 and *524. Daux (1936: 269-273) dates the *stele* for Prussias in 197 BC. Courby (1927: 262-265, 276-277) proposes a date in 182 BC for both shafts. Bommelaer (1991: 175, 185-186) agrees. Cf. Jacquemin and Laroche 1986: 785-787; Partida 2018: 364 n. 23.
[47] Lefèvre 2002: no. 107.
[48] The relevant decree was engraved on the pillar honouring his father: 'ἀναγράψαι δε τό ψήφισμα ἐν Δελφοῖς εἰς τήν βάσιν τοῦ

with the Senate. Furthermore the Amphictyony in 182 BC commissioned a prism in honour of Eumenes, erected near that of his ancestor, Attalos I (set up in 197 BC), on the Pergamene terrace.[49] Reading the imprint of politics on site-planning, once again, let us note that the pair of pillars commissioned by the Aetolians for Eumenes and Prussias was set up in a most prominent *locus*, the temple esplanade.[50] Interestingly the League did not order the bicolumnar type (employed in private Aetolian dedications) but the widespread form of a tall pillar surmounted by a statue. Another pair of pedestals in honour of King Attalos II (159 BC) fringed the *Halos*, dedicated by the *demos* of Delphi.[51]

It becomes evident that the Amphictyony, so much as the town of Delphi, paid their respect to the Pergamenes. But why did the Aetolians do so? How did they benefit from the Pergamenes? It is possible that the Aetolians sided with Eumenes, to express their opposition to Rome. They both had joined the alliance against Philip V and, in 210 BC, Attalos as General of the Aetolian League funded the construction of fortification in Aetolia.[52] But a further thread connecting the Aetolians with the Pergamenes is the repulsion of the Gauls, since Pergamon also functioned as a bulwark of civilization against the barbarians. Probably that is why the Aetolian pillar for Eumenes II was set up near the Attalid terrace. The least known component of the Attalid complex at Delphi is an oblong pedestal in front of the stoa, engraved with a dedicatory epigram. Theoretically it supported statues[53] and trophies related to some battle with the Gauls (Γαλατομαχία). Presumably[54] the 'dying Gaul' and other statues, today exhibited in museums in Italy, copy the originals which stood on this very base at Delphi. Pausanias made no comment, apparently because the Romans had meanwhile converted the stoa of Attalos into a cistern.[55]

The battle at Pydna in 168 BC and the supremacy of Aemilius Paullus over the Macedonian king Perseus marked the beginning of the Roman occupation. The Romans suppressed every power with an ambition to rule and promised Delphi autonomy. Decisions were made by the Senate with the Amphictyony merely ratifying them. On one occasion, however, the council's reaction betrays a firm attitude, anything but docile or submissive. Shortly before the battle at Pydna, in defiance of the Romans' manifest against the alleged propagandist Perseus, the Amphictyony did not withdraw the Macedonian king's dedications (ancient authors refer to more than one pillars)[56] from the prophetic *temenos*. Eventually one of the pillars was 'usurped' by Perseus' opponent, Aemilius Paullus, who turned it into his own victory monument by crowning it with an equestrian statue and a sculpted frieze narrating the battle at Pydna, which ended with the Macedonians' defeat. This monument can be regarded as the pictorial signal for the beginning of the Roman domination.

The Romans had dedicated a golden crater to Apollo *Pythios*, placed inside the Massaliot treasury[57] at Delphi. Inscribed pedestals of the 2nd and the 1st centuries BC honouring dignified Romans[58] obviously aimed to appease and ingratiate with the Roman authorities and eventually to preserve privileges, such as the alleged autonomy. Unfortunately, the two centuries of the Republicans brought with them the incursion of Sulla with dismal consequences. The 1st century BC is described as the 'blackest period'.[59] According to Strabo, the Amphictyony κατελύθη (was abolished), as was the Achaean League (σύνταγμα τῶν Ἀχαιῶν), while the sanctuary was desperately poor (πενέστατον)[60] even during the reign of Augustus.

Setting aside the residential, industrial/commercial[61] and funerary sector, in the following paragraphs we try to assess the Romans' attitude and any pattern of consistent imperial intervention *on religious premises*. Archaeological documentation for the first two AD centuries consists of honourary decrees, inscribed pedestals and intensive correspondence[62] denoting frequent embassies between Delphi and Rome. The flattering language in the Delphians' letters to the emperors discloses a tendency to propitiate the conquerors. On the other hand, far more realistic and accurate is the account of Pausanias about intrinsic changes to the structure and synthesis

ἀνδριάντος τοῦ πατρός βασιλέως Ἀττάλου' [Lefèvre 2002: no. 107 lines 29-30].

[49] Daux 1936: 273. For reconstruction proposals, see Bommelaer 1991: fig. 70.

[50] Courby 1927: 262-263, 276-277, figs. 206, 207, 221.

[51] Bommelaer 1991: 147; Daux 1936: 500.

[52] Schmidt-Dounas 2000: 193, 197.

[53] This interpretation, forwarded by Roux, is challenged by Jacquemin and Laroche (1992: 234-236, fig. 13) who consider this structure to be an altar and restore its inscribed *orthostates* inside the eastern *oikos*, instead. We fail to see what purpose an epigram could serve there, and how an altar's fire could be compromised with the paintings inside the *pastas*.

[54] Roux 1987: 118-123; Stewart 2004: 206-213.

[55] Roux (1987: 125) assumes that the *pastas* was looted by the time of Pausanias and converted in the 4th century AD but Daux (1936: 498 n. 3) regards the conversion to be an imperial act.

[56] Miller 2000: 279 n. 119; Sánchez 2001: 386. One of them was probably uncompleted. For the monument's form and locality near the temple *pronaos*, see Jacquemin and Laroche 1982: 207-218, esp. 209-211; Jacquemin *et al.* 1995: 125-136; Partida 2009a: 278-281.

[57] Partida 2000: 243-244.

[58] See the honorific pedestal for Acilius Glabrio ἀρετᾶς ἕνεκεν καί εὐεργεσίας (Lefèvre 2002: no. 103) and the possibly two monuments with a Greek and a Latin epigram, respectively (rather than one bilingual monument), in honour of Minucius Rufus (Vatin 1967).

[59] Nachtergael 1977: 377-378 ns 383-384. The Pythian Games were not carried out because Greece was at war. On Plutarch's melancholy over such decadence, see Pouilloux 1980b: 202.

[60] Sánchez 2001: 421, 427 n. 6.

[61] For habitation in the late antiquity beyond the southeast precinct, see Déroche *et al.* 2014; Zachos 2016: 131-153, maps 5.1c and 12.

[62] Flacelière 1971: 168-185; Plassart 1970.

of the Amphictyony[63] (by the appointment of an *epimelete*[64] and the entry of Nikopolis as a member-state with preposterous voting power), which reflect the interfering, authoritative will of Emperor Augustus.[65] Despite the general assumption that Delphi was favoured by the Roman authorities, the extant architectural remains suggest no radical alteration or new building programs *within the sacred domain*, such as a podium temple, a monumental gateway or a magnificent *nymphaeum*.[66] Following Claudius and his anguish to re-populate[67] the area using land re-distribution as a lever, Nero allegedly donated[68] 100,000 *sestertii* but depredated 500 statues[69] and had the mouth of the prophetic crevice crammed shut[70] with corpses. His vanity to compete without rivals in a parody of the Pythian Games in AD 67 probably triggered the renovation of the theatre with a *pulpitum* frieze carved with the deeds of Heracles, unfluted columns for the stage-building and the paving[71] of the orchestra. The renovation, however, was neither Nero's initiative, nor financially undertaken by him.

Domitian in AD 84 was the first emperor to carry out repairs to the temple of Apollo commemorated[72] on adjoining marble slabs, which originate from obliterated monuments. Curiously neither Plutarch nor Pausanias comment on this rebuilding[73] and no masonry has been identified as relevant. Either the expenditure was disproportionate to the inscription's size (which expressed gratitude in an extravagantly flattering manner) or the operation was not as substantial as hypothesised. If the damage restored by Domitian had been caused by Sulla's onslaught[74] in 86 BC, this proves that earlier sovereigns completely neglected the seat of the oracle and that the temple remained unusable for two centuries! Yet, Strabo gives no indication of severe damage to the temple. The occasion for Domitian's aid might have been the earthquake[75] that shook Corinth in AD 77, if geologically this could have excited a landslide at Delphi. The chronology AD 79 is a *terminus post quem* for the toppling of the triangular pillar on the temple esplanade, provided by the latest inscriptions engraved on its shaft[76] during the reign of Titus. Yet, seeing the benefaction of Titus[77] in Demetrias and his proclamation as 'new Apollo' (Μάγνητες θεόν θεοῦ υἱόν Τῖτον Καίσαρα νέον Ἀπόλλωνα εὐεργέτην), we would expect him to have remedied damage at Delphi.

Acculturated in the Greek tradition, the philhellene Hadrian interfered with issues of the Amphictyony, such as the preparation and presiding of the Pythian Games. He declared his interest in the town's welfare,[78] being righteous to the Delphians[79] and settling matters to their advantage. His statue was set up[80] in the sanctuary of Athena *Pronaia*. Citizenship was granted to a soldier[81] of an Italian legion, supervisor (?) ἐπί τῶν ἔργων τῶν κατασκευαζομένων ὑπό τοῦ κυρίου Καίσαρος Τραιανοῦ Ἁδριανοῦ Σεβαστοῦ. Moreover, in a letter to Hadrian the Delphians acknowledge that he restored the town[82] (ὥρθωκας τήν πόλιν), apparently inflating his contribution since no revival or efflorescence is traceable among the stones of the sanctuary. New structures altering the architectural landscape or profound modifications to principal monuments of the two *temeni*, of Apollo and Athena *Pronaia*, cannot be affirmed, except perhaps for the renovation of the Gymnasium *xystus*. So, the question[83] is: what are the πολλά ἐπεκτισμένα τῶν πρότερον οὐκ ὄντων... πολλά δε ἀνειλημμένα seen by Plutarch? In the controversial passage (*De Pythiae Oraculis* 409 B-C) about the site's embellishment, the clarification *διά τῆς ἐντεῦθεν εὐπορίας* bolsters up the interpretation of the word καθηγεμών[84]as designating the Pythian god, rather than the emperor.

[63] Daux 1975: 354.
[64] Pouilloux 1980.
[65] His strategic tactics (analyzed by Bowersock 1965: 97-98 and dismissed by Daux 1975: 358) was to weaken the council by regulating its member-states' representation and disintegrating the age-old institution, to avoid potential threats to Rome. Correspondence between Delphi and the emperors was merely a façade.
[66] Yet, some second-century AD fountains in Greek sanctuaries, displaying cutting-edge architectural forms, are attributed to collective efforts by the emperor and individual elites holding priesthood. The high-priest Claudius Marcianus appears as (co-) dedicator of a monumental hydraulic edifice at Xanthos. Longfellow 2012: 149.
[67] In his letter (AD 54) the town is described as empty of citizens, deserted. Plassart 1970: 26-32, no. 286; Pouilloux 1971: 377.
[68] Dio Cassius 62.14.2; Homolle 1896: 712-713; Weir 2004: 93.
[69] Pausanias 10.7.1; Decker 1995: 49.
[70] Dio Cassius 63.14; Courby 1927: 116; Poulsen 1920: 149.
[71] Weir 1999: 397-404; Weir 2004: 141-145.
[72] '*templum Apollinis sua impensa refecit*'. Courby 1927: 116; Flacelière 1954: no. 120; Partida 2013: 478-479.
[73] Perhaps due to Domitian's *damnatio memoriae*: Suetonius *Domitian* 23; Weir 2004: 163.
[74] Undetermined is the extent of damage. Rather than totally consumed by fire, the temple was probably pillaged. Courby 1927: 116; Daux 1936: 392-397. Marcus Antonius in 42 BC was planning repairs (Nachtergael 1977: 377-378). Jones (1966: 65) advocates that the temple of Apollo *Pythios* measured out by Antonius was the one at Megara.
[75] Homolle 1896: 714 n. 1; Weir 2004: 156.
[76] Colin 1930: 28 draws from Homolle 1897: 620. The monument was not there by the time of Plutarch and Pausanias.
[77] In a dedicatory epigram concerning the renovation of the theatre after a devastating earthquake. Intzesiloglou 2010: 44; Theocharis 1960: 81. I am indebted to Charalambos Intzesiloglou for kindly providing these references.
[78] εὐδαιμονία και ἀκμή (Lefèvre 2002: no. 152). The emperor salutes the ancient and noble town, whose liberty, autonomy and other privileges he will safeguard (Plassart 1970: 67, 72-73, no. 301).
[79] Jannoray 1944/1945: 85; Pouilloux 1971: 379.
[80] Commissioned by the Amphictyony: Lefèvre 2002: nos 149-150; Pouilloux 1980: 290. Sacred money covered the expenditure (AD 117-119). Pouilloux (1971: 378) counts five dedications to Hadrian in the Delphic *temenos*.
[81] Flacelière 1954 : no. 98; Flacelière 1971: 170.
[82] Plassart 1970: no. 304. The text is lacunary with crucial words restored, e.g. [ηὔξησας τ]ά ἱερά τῷ Πυθίῳ Ἀπόλλωνι.
[83] Cf. Pouilloux 1980: 289.
[84] Flacelière identified Hadrian as καθηγεμών in Plutarch's text. Weir (2004: 158-163) suggests Domitian, instead. Jones (1966: 61-74) discusses καθηγεμών as an invocation of the god of Delphi. By analogy, we note the phrase 'προκαθηγεμόνι θεῷ Πυθίῳ' in imperial

Another Hellenized Roman, the so-called emperor-philosopher Marcus Aurelius also kept contact[85] with Delphi. The association of the Antonine dynasty with the paving of the processional way[86] (including the temple esplanade) is contradicted on the conjecture that this was effectuated by the early Byzantine inhabitants, although the Romans had taken up equivalent operations at Eleusis and Xanthos.[87] At any rate, the quantity of re-used blocks in the paved sacred way at Delphi suggests the obliterated/abandoned or ruined/dismantled condition of several buildings. Delphi did not share the architectural prosperity of other mystic sanctuaries highly respected by the Romans, like the one of Demeter at Eleusis[88] -exclaimed by Cicero (*De Legibus* 2.14) and ameliorated with monumental gateways and arches. Nor did Delphi share the generosity of Emperor Antoninus, praised by Pausanias[89] (8.43.4), if his dynasty's only project here was a pavement using *spolia*.

Despite the manipulation of the Amphictyony via the entry of member-states with extravagant voting rights, the other age-old Delphic institution, the Pythian Games, were regularly celebrated. Their spread[90] to more than twenty cities in the 2nd and 3rd centuries AD manifested the Romans' respect of Classical tradition in an abstract sense. Nevertheless, the stones tell us that the emperors' building activity was confined to the sanctuary's outskirts. The Roman Agora appears annexed to the *temenos* of Apollo, comprising shops in the form of cubicles arrayed off porticoes in the Ionic order. Allegiance to Rome was demonstrated here via imperial statuary. Of the two construction phases of the Agora, the earliest one was razed by fire[91] and what we see today (reconstructed in 1977 by the competent Ephorate) is the phase of the 4th century AD, after a re-assemblage and aggrandizement[92] composed largely of *spolia*.[93] Jannoray aptly remarked[94] that imperial architecture at Delphi recycled the ruins of older monuments. The same was practiced at Olympia,[95] as well as in the 'Julian colony' of Corinth, where the Roman builders re-assembled from Archaic structures seeking a visual connection with the Greek past.[96] An analogous classicizing tendency may have motivated the re-usage of elements from the double stoa at Thorikos.[97] At Delphi, however, architectural re-use simply saved the Romans quarrying anew; adoption of formal traits of an earlier era or reference to the Classical past was not among their intentions.

The same workshop[98] that erected the marble colonnade of the Roman Agora in the 2nd century AD was responsible for the peristyle mansion (Atlas *299, hypothesised to be a *prytaneion*) and for the refurbished *xystus* of the Gymnasium. The replacement of the Classical Doric façade of the *xystus* with an Ionic colonnade was either necessitated by a landslide[99] or driven by contemporary architectural predilections. All three complexes employed grey marble from Levadeia (used at Delphi no later than the end of the 3rd AD) and the same style[100] of Ionic design. A sensible context for this building program, corroborated by the capitals'[101] form, is the embellishment in AD 117-125, referred to by Plutarch.

From the available inscriptions we infer haphazard maintenance of infrastructure. Amphictyonic texts mention operations involving the grand polygonal terrace-wall[102] and a retaining-wall 'up to the postern'[103] (ἀνάλημμα μέχρι τῆς Πυλίδος ἐποίησαν) supervised by the *epimelete* Tiberius Claudius from Nikopolis (AD 64-67). Both inscriptions emphatically state that expenses were covered by the god's revenues, ἐκ τῶν τοῦ Πυθίου Ἀπόλλωνος τόκων καί προσόδων. Repairs (?) to a fountain -possibly Cassotis- were also epigraphically recorded[104] 'τήν κρήνην καί το ὑδραγώγιον καί τούς τοίχους ἐκ τῶν τοῦ θεοῦ προσόδων' on a re-used marble block, while Flavius Megaleinus served as *epimelete* of the Amphictyony in AD 87-91. The construction of a house for the Pythia[105] during the term of the *epimelete* Flavius Soclarus from Tithorea (AD 95-99) has been

correspondence (Plassart 1970: no. 332). Zagdoun (1995: 586-592) underlines the too many *lacunae* in the specific passage.

85 Plassart 1970: nos 311-327; Pouilloux 1971: 380.

86 Poulsen 1920: 149. Cf. Amandry 1981: 733-736, who proposes a date in the late antiquity. However, blocks from the Pergamene complex were strewn in the sacred way. Jacquemin and Laroche 1992: 258.

87 Here they replaced the slabs of a ceremonial path leading to the Letoon - a renovation possibly necessitated by the corrosive river action. Hansen and Le Roy 2012: 82-83.

88 Mylonas 1947: 130-146.

89 'Για τις χρηματικές χορηγίες προς όσους είχαν ανάγκη, Έλληνες και βαρβάρους, καθώς και για τα οικοδομήματά του στην Ελλάδα, την Ιωνία, την Καρχηδόνα και τη Συρία έχουν γράψει άλλοι με ακρίβεια.'

90 Founded throughout the eastern provinces, the *Isopythia* enjoyed great popularity. Weir 2004.

91 Déroche and Pétridis 1992: 709 and 1993: 643. Evident both in the stratigraphy and the adjacent heterogeneous masonries: Déroche 1992: 304-305.

92 Déroche and Pétridis 1994: 423.

93 Immured in one of the cubicles was the fragment of a coloured clay roof revetment, recovered in 2005. The stylobate is entirely constructed of blocks in second use. Amandry 1981: 724; Cabouret 1997: 147.

94 Jannoray 1944/1945: 84. Worth noting is the documentation of the construction of a house for the Pythia (Jacquemin 1999: 232 n. 123; Lefèvre 2002: no. 146, pl. X.1) on a fragment from the marble *sima* of the Alcmaeonid temple of Apollo.

95 Koenigs 1984: 6.

96 Frey (2015: 169) discusses the re-erected interior colonnade of Apollo temple at Corinth, in an exterior setting of the 1st century AD.

97 Miles 2015: 170.

98 Déroche 1992: 302, 309; Déroche 1996: 115; Déroche *et al.* 1989: 405-407.

99 Weir 2004: 102. But Déroche (1992: 309 n. 29) draws attention to painted texts on the rear wall, which would not have survived a collapse or dismantling.

100 Amandry 1981: 724; Déroche 1989: 405-406.

101 Déroche 1992: 309-310; Jannoray 1953: 84.

102 Lefèvre 2002: no. 140.

103 Lefèvre 2002: no. 139; Pouilloux 1980: 286 n. 25.

104 Lefèvre 2002: no. 141; Partida 2009a: pl. 39.1.

105 Homolle 1896: 720-721; Lefèvre 2002: no. 146; Pouilloux 1980: 289 n. 38.

connected with the peristyle mansion[106] on feeble evidence. Soclarus also supervised the construction or annexation (ἐποικοδόμησεν) of some undetermined στρουκτώριον[107] and a βιβλιοθήκη[108] potentially ascribable to the embellishment extolled by Plutarch[109] although not yet matched with physical remains. Because the inscription was recovered among blocks of the Gymnasium bath, the στρουκτώριον is taken to signify a dining-hall[110] or repairs to some terrace-wall in the Gymnasium. We do anticipate a library, too, on these premises, since the Gymnasium in the Hellenistic period evolved into a venue for intellectual activities,[111] where the youth exercised their mind besides their muscles. Funded by sacred money, too, and datable to the reign of Hadrian, were the epigraphically attested[112] but unspecified construction works in the *Asklepieion*.

A wall, 45m long, seems to contain the *Halos* terrace from the south. The wall is built in *opus incertum* and *opus mixtum* with brick lacing, resembling the masonry of Roman structures in the sanctuary's perimeter and it runs almost parallel to the retaining-walls that bracket the temple of Apollo. To interpret its function or to assess potential correlation with epigraphically attested works, we need more than a rough delineation of its ground-plan.[113] In circa AD 100 an extension[114] of the *Ischegaon*, the wall containing the temple plateau from the north, can be traced structurally. Worth noting is the veneering of the *Ischegaon* with a row of marble slabs crowned by a single cornice[115] and engraved with imperial edicts and decrees publicized here like the inscribed building accounts, which masked the *stereobate* of Apollo temple in the 4th century BC. The temple esplanade continued to be of paramount importance, the ἐπιφανέστατος τόπος, which justifies the location of the house of Antinous[116] facing the *opisthodomus*, nevertheless making use of *spolia* revetted in *opus testaceum*.

An equally prominent (*nobilissimus*) *locus* for the display of Roman statues was the *temenos* of Athena *Pronaia*, where Pausanias saw τῶν ἐν Ρώμῃ βασιλευσάντων οὐ πολλῶν τινων εἰκόνας inside the 'third temple' (10.8.6). Worth exploring is the proposed[117] restoration of statues in the intercolumnar bays of the *Tholos* peristyle. Its neighbour, the Massaliot treasury, is an alternative edifice for the exhibition of the Roman statues seen by the traveler. On these grounds and by analogy with the Cyrenean treasury at Olympia, which did shelter imperial ἀνδριάντες (Pausanias 6.19.10), the bench against the rear wall of the Massaliot treasury is discussed[118] as an addition of the 2nd century AD, even though its fine workmanship befits the original construction rather than an afterthought. Instead, the bench lining the rear wall of the limestone temple of Athena *Pronaia* employing re-used blocks possibly from a third-century BC *exedra* belongs[119] to some renovation during the 1st century BC or AD. Benches symmetrically restored as lining the interior of both the *pronaos* and the *opisthodomus* of Apollo temple[120] indicate that the particular element was not unusual and apparently functional.

The inscriptions documenting projects supervised by Flavius Soclarus, Tiberius Claudius and Flavius Megaleinus, under imperial regime, explicitly state that funding came from the god's revenues, pointing to Apollo's vault as the primary financial resource and –interestingly- corroborating Plutarch's dialogues. In his *Ἠθικά, Περί χρησμῶν Πυθίας* 409 B-C, the high priest of Apollo refers to an embellishment of the site carried out διά τῆς ἐντεῦθεν εὐπορίας. As in the reconstruction of the Classical temple of Apollo, now once again the cost burdens the vault of the sanctuary and the town[121] of Delphi. Despite its underrated role, the Amphictyony continues to perform its essential task, the maintenance of monuments. The council had always been manager and curator of the sanctuary - the difference being that, in the past, dedicators contributed actively (note the mission of Pergamene painters in 140 BC).

The meagerness of Roman interventions *to religious architecture* at Delphi makes even less sense, if

[106] Weir 2004: 99.
[107] Homolle 1899: 573-574; Lefèvre 2002: no. 148; Pouilloux 1980: 289 n. 40.
[108] Homolle 1896: 720; Lefèvre 2002: no. 147; Pouilloux 1980: 289 n. 39.
[109] Whether Hadrian commissioned this embellishment, remains disputable. Weir (2004: 158, 163) puts Plutarch's *Dialogues* in an earlier context (AD 90-95), identifying Domitian as καθηγεμών.
[110] Jannoray 1953: 84.
[111] By honourary decrees Delphi awarded proxeny to orators and erudite people, an epic poet and an astronomer (in AD 30). Porticoes and the Gymnasium held the intellectuals' audience. Jannoray 1953: 84-86.
[112] Lefèvre 2002: no. 154.
[113] Atlas *206. Partida 2000: figs. 4, 10, 13. The wall stretches from treasury *219 toward the east precinct (running vertical to it). Amandry 1981: fig. 57.
[114] Note the scaffolding sockets and the apsidal niche possibly to shelter imperial statuary. Courby 1927: 215. For the wall's eastward extension (Atlas *527 - *513), see Amandry 1981: 736.
[115] Jannoray 1944/1945: 86-93.
[116] Abutting against the west precinct is a 'chapel' with two compartments, wherein the statue of Antinous was recovered standing on its pedestal. Part of the chapel was built of re-used limestone blocks revetted in *opus testaceum* probably contemporary with the *thermae* in Krateros niche, of the end of the 2nd century AD (Courby 1927: 241-243). On the temple esplanade Courby (1927: 263, 270, 277-281, figs. 207, 212, 222) identified the column-base of an ex-voto in honour of Calligula's sister and elements of pillars probably supporting imperial statuary. For inscribed blocks of Prophet Elias limestone, attributed to a pillar probably in honour of Augustus, see Flacelière 1954: nos 87-119. For the so-called pillar for a Roman emperor (Atlas *421), see Jacquemin and Laroche 1986: 785, 788.
[117] Raptopoulos 2007: 13. Cf. Partida 2000: 245-246.
[118] Partida 2000: 230-247, esp. 241-244, pl. 33.
[119] Its off-centered position between the long *cella*-walls and the packing or stack, where the bench rests, suggest a Roman addition. Partida 2000: 242, pl. 34; von Thüngen 1994: 167-168, no. 151.
[120] Amandry and Hansen 2010: 282-284.
[121] Likewise the *demos*/municipality was the fundamental funding source in the *fora* of Roman Greece. Evangelidis 2010: 176.

compared to the extensive rebuilding conducted by Hadrian at Mysia and Bithynia.[122] The answer probably lies in a financial detail: in Asia Minor Hadrian funded temple-building by taxes collected from the respective provinces. Delphi was since 189 BC exempt[123] from taxation. Usually Roman emperors demonstrated their *euergetism* by acts of magnanimity after calamities. Diocletian carried out extensive repairs to the temple of Zeus[124] at Olympia. When the cities of Lycia and Caria, along with Cos and Rhodes, were overthrown by a violent earthquake (between AD 141 and 153), they were restored by Emperor Antoninus, who was keenly anxious to rebuild them and devoted vast sums to this task (Pausanias 8.43.4). Having renovated the theatre at Demetrias, probably after some natural catastrophe, we saw that Titus was proclaimed 'new Apollo'. Inscriptions from Larissa[125] refer to actions taken by Octavian Augustus and Tiberius towards the rebuilding of the theatre, following an earthquake that razed the area between 60 and 27 BC. Common denominator -and probably a calculated gesture- is the emperors' concern for heavily trafficked venues related to spectacles and congregations, evident also in Patras with the amphitheatre ascribable to Domitian or Hadrian. Obviously the Roman notables pursued a liaison with Classical religious centres, a policy reminiscent of Demetrios the Besieger and his re-founding of Sicyon.

The above *comparanda* further sharpen the situation at Delphi, where the absence of active imperial engagement can be juxtaposed to cases of private patronage by indigenous individuals, such as the restoration (?) of *thermae* due to the generosity of Μηνογένης[126] from Delphi. The *ephebes* are thankful[127] to another Delphian benefactor 'οἱ νέοι καί οἱ ἔφηβοι τοῦ Ἡρακλείου γυμνασίου Διόδωρον Φιλονίκου Δελφόν τόν ἑαυτῶν εὐεργέταν Ἀπόλλωνι Πυθίωι', while it can be inferred from the phrasing that the Gymnasium was established by Heracleios.

Pausanias' visit to Delphi sets a *terminus post quem* for the fire set -by accident or by political/religious opponents- to the temple of Apollo. Severe damage to the columns' fluting (restored in plaster), the despoliation of the architraves' soffit, the shattered stone surfaces, the reworked or mended column-drums and *abaci*, the iron girders fastening parts of the entablature and possibly also the reworked *toichobate* moulding are the implications[128] of a ravaging conflagration. The above traces of an equally substantial restoration[129] are likely to correspond to the project taken up by Claudius Leonticus, proconsul and corrector for Achaea province during the reign of Septemius Severus and Caracalla (AD 198-211), attested in a fragmentary inscription[130] on two *orthostates:* Ὁ Λεοντικός ... πῦρ... ἀνανεωσάμενος τόν ναόν τοῦ Ἀπόλλωνος καί ὠροφῆς. The Delphians accordingly praised Leonticus as renovator 'λαμπρότατον ὑπατικόν ἐπανορθωτήν τῆς Ἑλλάδος, σωτῆρα τῆς πόλεως... πάτρωνα και εὐεργέτην...'[131] in the epigrams of more than one dedications in his honour.

If Leonticus was the second milestone (after Domitian) in the AD architectural history of Apollo's temple, a third milestone was the oracular response delivered to Οριβάσιος, ambassador of Emperor Julian in AD 362. The response has been interpreted[132] as referring to another prophetic centre, in Antioch. To the arguments challenging[133] such an interpretation let us add that Cassotis at Delphi, rather than Castalia, was the spring connected to the process of divination, as demonstrated by the ancient architects' effort to ensure (via underground drains) its welling up in the rebuilt 4th century BC temple of Apollo. We have suggested[134] that a clogging of Cassotis could plausibly result from a geological process activated by a severe earthquake, like the one that tumbled the east Mediterranean in AD 365. The information provided by chronicler Kedrenos[135] is much more revealing than that of Philostorgios, as it includes in the oracle delivered to Orivasios the salient clause 'ἀνεγεῖραι τόν ναόν' wherefrom we learn about the collapsed or, at least, damaged state of the temple. This matches up with the fragmentary inscription[136] about a high-priest of Apollo lamenting in AD 342-44 over some unspecified disorder. Despite the prophecy's indirect urge, no reconstruction took place and the oracle to Orivasios has been discussed[137] as *a posteriori* fabricated or fictional. The preponderance of religious symbols

[122] Gülbay 2016: 403-417.
[123] In a letter by General Spurius Postumius to the Amphictyons, the Senate confers ασυλία, ανεισφορία, αυτονομία, ελευθερία to the town of Delphi, the sacred land and the port. Lefèvre 2002: no. 104; cf. Szemler *et al*. 1989.
[124] A previous renovation, in 40 BC, is credited to Agrippa. Mallwitz 1999: 246.
[125] I am indebted to Athanassios Tziafalias for making the content of these unpublished epigraphs available to me.
[126] Cabouret 1997: 147.
[127] Vatin 1972: 261. For eminent Delphian families and the local elite class (Julius Αντιγένης, the town's ambassador to emperors), see Pouilloux 1971: 378.
[128] Amandry 1981: 686; Amandry and Hansen 2010: 14-26, 35-36, 425-427; Courby 1927: 117.
[129] Courby (1927: 89-90) dates the event in 300 BC and the roughest (less diligent) repairs later. Since the temple was systematically pillaged, repairs are very difficult to trace (Courby 1927: 116-117). Likewise, traces of fire or other catastrophes are difficult to date or ascribe to a particular incursion.
[130] Plassart 1970: no. 331.
[131] Flacelière 1954: nos 269-271.
[132] By Vatin 1962: 235-238, who also points out the absence of inscriptions honouring Julian at Delphi. Interestingly, almost half a century earlier, C. Kavafis in his poem *Εἰς τά περίχωρα τῆς Ἀντιοχείας* (Collection 1897-1933) relates Julian to the oracle of Apollo at Daphne, Antioch.
[133] Déroche 2005: 237 citing H.W. Parke and M. Bowra.
[134] Partida 2017b: 246-248.
[135] Cabouret 1997: 152.
[136] Déroche 1996: 117.
[137] For the historicity of this last oracle and Julian's questionable involvement in temple restoration, see Déroche 2005: 236-239.

and rituals over the (fallen) monuments[138] stands out. However, the dedicatory epigram on the pedestal for Valens and Valentinian[139] (364-371 AD) in the Roman Agora commemorating some nebulous εὐεργεσία might perhaps refer to the temple restoration, regardless of the earthquake in AD 365, since the temple was already in a bad condition when Orivasios visited Delphi. The frequency of earthquakes[140] throughout the 4th century AD (beside the incursions) allows no certainty.

Interestingly, archaeological evidence from the Roman Agora fits this context. Its reconstruction in the 4th century AD is presumed[141] to have been a moderate re-assemblage because, unlike Eleutherna and Courion, damages to the site of Delphi in AD 365 were supposedly remediable. However, if remedy reached down to the stylobate, as indicated by the disturbance noticeable in photos from the excavation, then the operation was more extensive than assumed. All the above are in accordance with the large-scale repairs during the 4th century AD, detectable[142] in the east *thermae* and plausibly with signs of repairs[143] on the stylobate of the peristyle mansion, in the same sector.

It can be inferred that the Romans' involvement in the sacred architectural landscape was restricted to haphazard maintenance and repairs by systematically recycling[144] elements from obliterated monuments. This contravenes with the flamboyant but probably just rhetorical[145] edict by Maiorianus in AD 460, which forbade the dismantling of ancient monuments and commanded the prosecution of offenders. Roman building programs *on religious premises* at Delphi are not traceable and the beautiful marble column-capital with lotus-and-*acanthus* leaves[146] is an isolated find, non attributable to any particular edifice, so far. Monuments of the Hellenistic period, with a strong impact upon the physiognomy of the *temenos*, sharpen the absence of Roman religious architecture. The Macedonian dedication 'usurped' by Aemilius Paullus in 168 BC foreshadowed the Romans' attitude. So, we are talking about Greek creations in imperial regime.[147] The situation is not much different at Olympia, where no Roman influence is observed[148] in the field of construction. Among private patrons, who perpetuated the notion of dedicators, Herodes Atticus stands out. Acknowledged as ὑιός Ἑλλάδος,[149] Herodes in AD 166-177 monumentalized the Stadium at Delphi by adding a triumphal triple-arched entrance, unique by the standards of Greek stadia (as opposed to the κρυπτή-tunnel adopted at Nemea and Olympia), an *exedra* for the adjudicators, a curved racing track (σφενδόνη), a vaulted fountain and stone seats. Yet, the Stadium displays the clarity and austerity of the Greek architectural design, free of complex mouldings or relief parapets.[150] Granted the re-organization by the Aetolians of the *Soteria*, which were celebrated as pompously and ostentatiously as the Pythian Games, the Aetolians are likely to have refurbished the Stadium[151] before Herodes.

In the imperial period the *temenos* of Apollo (like the *temenos* of Zeus at Olympia) was encircled by secular/profane installations, residential and commercial quarters, workplaces, private and public *thermae*. While the related amenities were being laid out, certain votive monuments were secularized although nothing suggests they were obsolete or unusable. At the expense of its front colonnade, the grand west portico sheltered *thermae*,[152] as did the niche of Krateros bordering the temple of Apollo. The stoa of Attalos was converted into a cistern wherefrom water was channeled into the east *thermae*, a public facility of the mid-3rd century AD.[153] The particular conversions seem to convey a political statement about the Roman supremacy on a sacred site never ceasing to attract people, with the Pythian Games (celebrated with imperial sanction) still being a cornerstone of its radiation.

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[138] Libanios (cited by Vatin 1962: 232) remarks that despite the poverty of sanctuaries, all rites could still be performed. Cf. Cabouret 1997: 141, 157.
[139] Vatin 1962: 238-241.
[140] Partida 2017b: 246-248.
[141] Pétridis in the course of the *Ancient Phocis* conference (March 30 - April 1, 2017, Deutsches Archäologisches Institut at Athens), proceedings in press.
[142] Déroche 1992: 312.
[143] Déroche 1992: 306; Déroche *et al.* 1989: 407.
[144] Jannoray 1944/1945: 84.
[145] Bauer 2011.
[146] Partida in press.
[147] Unlike the 'Julian colony', Corinth, where Roman builders seem to demonstrate their engineering skills by lifting and maneuvering considerable weights, thus emulating ancient Greek masons. Frey 2015: 161-164, 169.
[148] Mallwitz 1988: 43.
[149] Declared by the βουλή of Corinth. Bousquet 1964: 611.
[150] Aupert 1979: 215-216; Aupert 1992: 67-71.
[151] Partida 2015a: 48; Partida 2018: 369-370.
[152] Amandry 1981: 732; Déroche and Rizakis 1984: 861-866.
[153] Déroche 1992: 310; Déroche 1996: 116.

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From the Valley of the Muses Via the Kabeirion of Thebes to the Ptoion: The Theatres and Sanctuaries of Boeotia

Marco Germani

Summary

Boeotia is one of the areas of the ancient world most densely furnished with theatres. Some of these theatres demonstrate close ties with sanctuaries, even though not physically connected with them. In most cases, the link between the theatre and the sanctuary can be established by the performance of games and competitions in honour of the principal deities of the *polis*. Although from an architectural viewpoint there is little or no difference in planning between the theatre-sanctuaries and the more common urban theatres, noteworthy is the complex network of connections that emerges between some of the urban theatres and the main civic and panboeotian sanctuary areas. The aim of this article is to reconstruct, using epigraphic and archaeological evidence, the connections between the theatres and sanctuaries of Boeotia. The restoration -or the neglect of restoration- reflect the continuous development of cult and of buildings serving the purpose of performances: customs, new architectural practices and the *mores romanorum* affected both the architecture and the landscape, thereby giving new meaning to one of the key architectural structures of the Greek *polis* and the Roman *urbs*.

Περίληψη

Η Βοιωτία είναι μία από τις επικράτειες του αρχαίου κόσμου, κυριολεκτικά κατάσπαρτη με θέατρα. Μερικά από τα αρχαία θέατρά της φανερώνουν στενούς δεσμούς με ιερά, παρ' όλο που δεν συνδέονται απτά με αυτά. Στις περισσότερες περιπτώσεις ο σύνδεσμος μεταξύ θεάτρου και ιερού τεκμηριώνεται από την τέλεση αγώνων προς τιμήν των βασικών θεοτήτων της πόλης. Μολονότι από αρχιτεκτονικής άποψης υπάρχουν μικρές ή καθόλου διαφορές στο σχεδιασμό μεταξύ ενός 'θεάτρου-ιερού' και ενός πιο συνηθισμένου αστικού θεάτρου, αξιοσημείωτο είναι το περίπλοκο δίκτυο συσχετισμών που προκύπτει ανάμεσα σε ορισμένα αστικά θέατρα και στα κύρια πολιτειακά και παμβοιωτικά ιερά κέντρα. Σκοπός της παρούσας εργασίας είναι να ανασυνθέσει, χρησιμοποιώντας επιγραφικά και αρχαιολογικά τεκμήρια, τη σύνδεση μεταξύ θεάτρων και ιερών της Βοιωτίας. Η αποκατάσταση –ή η αμέλεια αποκατάστασης- ανακλούν τη διαρκή εξέλιξη της λατρείας καθώς και των κτιρίων που στέγαζαν τα δρώμενα: έθιμα, νέες αρχιτεκτονικές πρακτικές και τα ρωμαϊκά ήθη επηρέασαν τόσο την αρχιτεκτονική όσο και το τοπίο, δίνοντας έτσι νέο νόημα σε μία από τις κομβικές αρχιτεκτονικές δομές της ελληνικής αλλά και της ρωμαϊκής πόλης.

Key Words

Cultic theatres; urban theatres; *agones*; public space; planning.

Boeotia was among the smallest regions of ancient Greece, though in the course of the centuries its territory was changed more than once through the annexation and exclusion of border cities. For instance on the southern side, bordering with Attica, the interesting sanctuary area with theatre Oropos[1] is to be found, often contested by the two regions.[2] In antiquity, however, Oropos was not the only area in Boeotia where a theatre was located next to the temple. Over the centuries the archaeological digs carried out in the region, starting from the earliest, in the area of the Valley of the Muses' sanctuary,[3] have enabled the uncovering of information that has helped identify close links between some sanctuaries and theatre structures. While in some cases the theatres were built within the sanctuary areas themselves, in others the epigraphic and literary sources attest to the existence of bonds of ritual nature between urban theatres and cults. Although documents referring to the need to carry out part of the ceremonies in a theatre do exist, in some *temeni* there seems to be no trace of permanent structures that could have been used for that purpose. This is the case, for instance, with Akraiphia where, despite the inscriptions' references[4] to ceremonies held inside the theatre, the excavations conducted in the *extra*-urban sanctuary of Apollo *Ptoios* have brought no associable traces to light.[5] Here it seems likely that the

[1] Bressan 2009: 69-75.

[2] Pausanias in his *Description of Greece* (1.34.1) claimed that by his time the city and sanctuary of Oropos had belonged to Attica for roughly six centuries, that is, since the end of the 4th century BC. In the light of the various literary and epigraphic sources available to us, the situation connected with Oropos' annexation to the territory of Attica is actually not so clear. On this subject see Hutton 2006: 73-74. The same argument might be applied to the definition of boundaries between Boeotia and Locris and to other bordering areas. Cf. Buck 1978: 1-32; Heine Nielsen 2002.

[3] Decharme 1868: 169-181; Decharme 1869.

[4] *IG* VII: 2712; *IG* VII: 4148.

[5] Germani 2015: 351-365.

Figure 1. Orchomenos. View of the theatre (photo: M. Germani).

games in honour of Apollo *Ptoios* were held in the urban theatre of Akraiphia.[6] The hypothesis which some have argued for,[7] that recourse was still made to the *ikria* system until as late as in the Roman era, becomes rather doubtful. Instead, the use by urban and *extra*-urban sanctuaries of theatre structures, sometimes distant from the individual *temeni* but set in any case within the city's jurisdiction, seems to be widely attested.[8] In Orchomenos too, the sanctuaries of Dionysos and of the *Charites* (Graces), not yet identified[9] with complete certainty but without doubt unconnected with the urban theatre in direct terms, availed of the theatre for carrying out some competitions. From the city of Orchomenos originate a series of inscriptions, which attest *Agrionia* and *Charitesia* taking place in the urban theatre (FIGURES 1 and 6). A contrasting case is that of Thebes[10] where, in the Kabeirion,[11] excavations have led to the discovery of a *telesterion* within which, in the space intended for the stage building, there is a cultic structure of rectangular plan with *pronaos* and *naos* (FIGURE 2), having substituted for the older circular *tholoi*.[12] In this case, the theatre's *skene* turned out to be occupied by the temple edifice, which imposed itself on the other side of the orchestra like a central element of the whole ceremony.[13] Between the *koilon* and the temple, at the centre of the orchestra, the altar is found. The presence of six circular structures which, over the centuries, have seemed to dominate the whole sanctuary area as a standout and entirely original element, conforms to the function of sites designated

[6] In the modern centre of Akraiphia/Akraifnion, surface surveys and studies of the city plan seem to have identified, in a central sector of the city, the plot destined for the Agora; close nearby, in a deep natural depression, the urban theatre appears to be recognizable. We should bear in mind also that a well-known cylindrical altar with the representation of *bucrania* and wreaths, dated to the mid-2nd century BC, was found in the area where we hypothesise the Agora. On the shaft of the altar an inscription is engraved with a dedication on behalf of the *agonothetes* Megakles: Feyel 1955: 422 n. 2, fig. 2; Manieri 2009: 129-130, n. 26.

[7] Manieri 2009: 80; Müller 1995: 445-467.

[8] For more information about the distance between Greek theatres and sanctuaries see also Frederiksen 2002: 84-87; Tomlinson 1976: 95.

[9] The identification of some structures associated with temples in both urban and *extra*-urban areas is still controversial. The dating of the competitions' inscriptions is of particular interest, seeming to indicate an almost exclusive connection of the theatre with the sanctuary of Dionysos until the 2nd century BC, while from the 1st century BC the *Charitesia* begin to be attested (Manieri 2009: 199-207). This coincidence fits the archaeological situation evident through the discoveries made by Aravantinos in the locality of Giftitsa in Orchomenos (Aravantinos *et al.* 2014: 45-68; Bonanno-Aravantinos 2016: 459-470; Morgan 2007-2008: 52). Here a sanctuary of the *Charites* seems to have been identified, active between the 7th and 2nd centuries BC, then abandoned and perhaps transferred to the Akidalia spring, an area close to the theatre. From the epigraphically provided date, we may assume that this later sanctuary took advantage of the theatre's proximity to institute a new competition, which replaced the older *Agrionia*.

[10] Aravantinos 1997: 569.

[11] Oikonomou 2013a: 55-61.

[12] Batino 2006: 195-208.

[13] Unfortunately, due to the ceremony's secrecy, it is impossible to follow the phases and procedure in detail of the rite. Diodoros (5.48.4-49.5) and Ovid (*Ars Amatoria* 2. 601-604) recall, for instance, that it was forbidden to all initiates to speak of the ceremony. Even the god's names had to remain secret or, as Strabo (10.3.21) says, to be pronounced in silence. Pausanias himself in book 9, dedicated to Boeotia, reveals nothing about the nature of the rite or the divinities involved (9.25.5). Cf. Jaccottet 2011: 1-16.

Figure 2. Thebes. View of the cultic building in the Kabeirion (photo: 1956. Archive of the Ephorate of Antiquities of Boeotia).

for banqueting and of spaces intended for sacrifice[14] as remarked by Cooper and Morris.[15]

The case of the sanctuary in the Valley of the Muses[16] would seem to offer a contrast. As early as in the 4th century BC the valley must have hosted the *Mouseia*, which presupposed a venue for the competition in the area, this time far from the stoa and the altars built in the sacred area. These cultic structures must in any case have remained in view for the spectator who sat in the *koilon* since, prior to the building of the *skene*, they represented, together with the valley's landscape, the scenic backdrop of the theatre. Manieri,[17] in her study of the *agones* of Boeotia, underlined that the *Mouseia* were one of the most important competitions in Greece after the contests of Delphi. Epigraphic sources relating to this *agon* allow us to follow its fortunes[18] across roughly six centuries. The revealed inscriptions suggest that the competition ran between the 4th century BC and the 2nd century AD. A *cavea* then must have existed well before the building of the permanent *skene* furnished with the Doric *proskenion* discovered by Jamot. The waste water that in recent times flowed in the area, according to Roux, would have destroyed part of the terracing on which the stage building was set, and carried the remains of the *skene* towards the valley.[19]

The recovery of part of the walling and of architectural elements of the *proskenion* has proven to be of definite interest, above all, in view of the model of *proskenion* that emerged from the excavations. The theatre's *proskenion* was rather narrow according to a model of *logeion* widespread in theatres of the 3rd century BC and from which similar instances of contemporary stage buildings did not deviate at all. The presence of such a scenic plan highlights, as in the case of Oropos,[20] the need for a thoroughgoing theatre different from that of the Kabeirion. In the *Amphiaraion*, in fact, from the 3rd century onwards, the ceremony no longer required the centrality of the temple, inasmuch as the representation taking place there was linked to athletic and musical contests[21] rather than rites for the celebration and revelation of the divinity.

The rectilinear theatre of the Classical period,[22] also identified in the sacred area of Oropos (FIGURE 3) and perhaps mentioned in an inscription celebrating the *thymelic* games,[23] seems to be a different case. If we

[14] On this topic, see Batino 2006: 195-208; Cruccas 2014: 72-83.
[15] Cooper and Morris 1990: 66-85.
[16] Oikonomou 2013b: 63-67.
[17] Manieri 2010: 313-340.
[18] The changed fortunes of the *agones* of Thespiai relate also to a decree of 87-86 BC speaking of honours to be bestowed upon a Roman magistrate during the new *Erotideia*, in honour of Rome, and the old *Mouseia*. The inscription also includes an interesting reference to the theatre of the Valley of the Muses and its *proedreia*. Cf. Manieri 2010: 401-402; Roesch 2007: 34, 40-41.
[19] Roux 1954: 36.
[20] Reference is made to the theatre of the 3rd century, although an inscription (*IG* VII: 4255.29) may attest to the presence of an older, rectilinear theatre to be identified underneath the curvilinear *cavea*. Cf. Anti 1947: 110; Hollinshead 2012: 46 n. 51.
[21] These two kinds of contest are jointly attested epigraphically (*IG* VII: 414-420).
[22] Goette 1995: 253-260.
[23] The question of the presence of a rectilinear set of tiers intended for spectators as early as in the ripe Classical period is controversial. Excavations have brought to light two different rectilinear *koila*. The first, and probably older, was discovered near the temple's altar;

Figure 3. Oropos, *koilon* of the theatre. View of the four rectilinear tiers (photo: M. Germani).

Figure 4. Chaeronea. View of the theatre (photo: M. Germani).

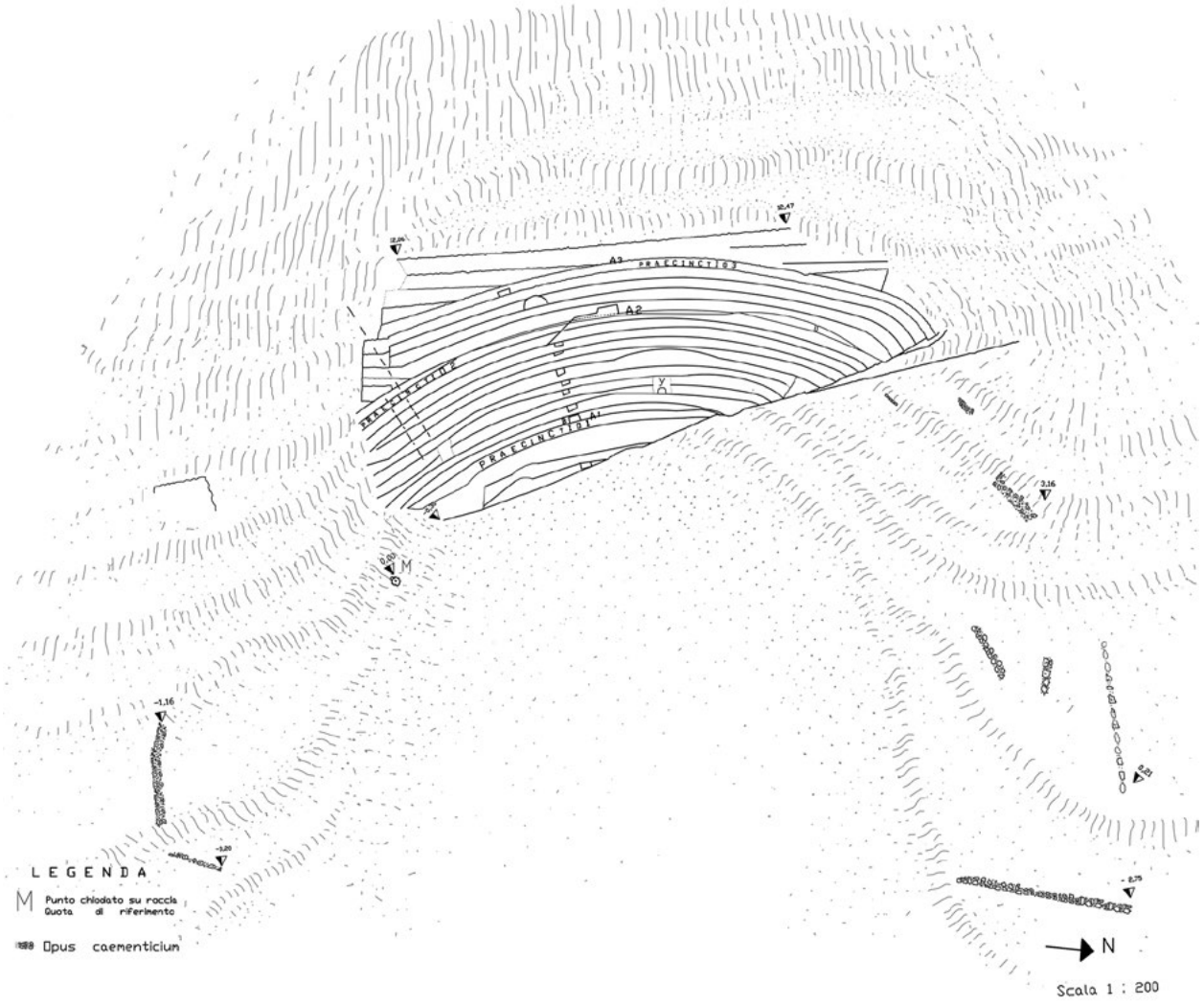

Figure 5. Chaeronea. Plan of the theatre (drawing: M. Germani 2017).

bear in mind the tier near the altar, and if we consider the four rectilinear tiers uncovered beneath the semicircular theatre, it becomes clear how the scenic space must have been planned, in both cases, around symbolic spots of the cult (altar and temple).[24] From the absence of experimentation in the architecture of stage buildings, it may be inferred that the space in front of the *skene* actually required the constant presence of elements linked to the cultic sphere (altars and temples), and that, as the years went by, this relationship was lost, perhaps corresponding to new forms of rite and to reorganization in view of the subsequent peak of the *agones*, which necessarily entailed suitably structured stage buildings. In fact, the 3rd century BC marked, for the Boeotian *agones*, the moment of greatest openness and splendour, the fervour being supported by the regional federation and that of Delphi. Akraiphia too, with the support of the Delphic Amphictyony, established a competition in that period: the *Ptoia*, a festival to be celebrated in the sanctuary of Apollo *Ptoios* every four years. In the Kabeirion of Thebes, differently from the site-planning at Oropos, the theatre remained closely linked to the ritual function; therefore the old *tholoi* were substituted not by a stage building but by a new bigger temple with rectangular plan. Not even in the 1st century AD, when the restructuring of the whole *cavea* was undertaken,[25] did the need for a *skene* seem to have been felt. This highlights that the original purpose of the building, serving cult rather than entertainment, appears in no way to have been undermined. Instead, in the theatre of the Valley of the Muses, the building of a *skene* with

of the other, four tiers remain under the steps of the *cavea* of the semicircular theatre, built at the end of the 3rd century BC. Sear 2006: 402-403.

[24] The cult of Amphiaraos earned momentum from the mid-5th century BC onwards. Pausanias 2.34.

[25] Ciancio Rossetto and Pisani Sartorio 1994 (volume II): 306.

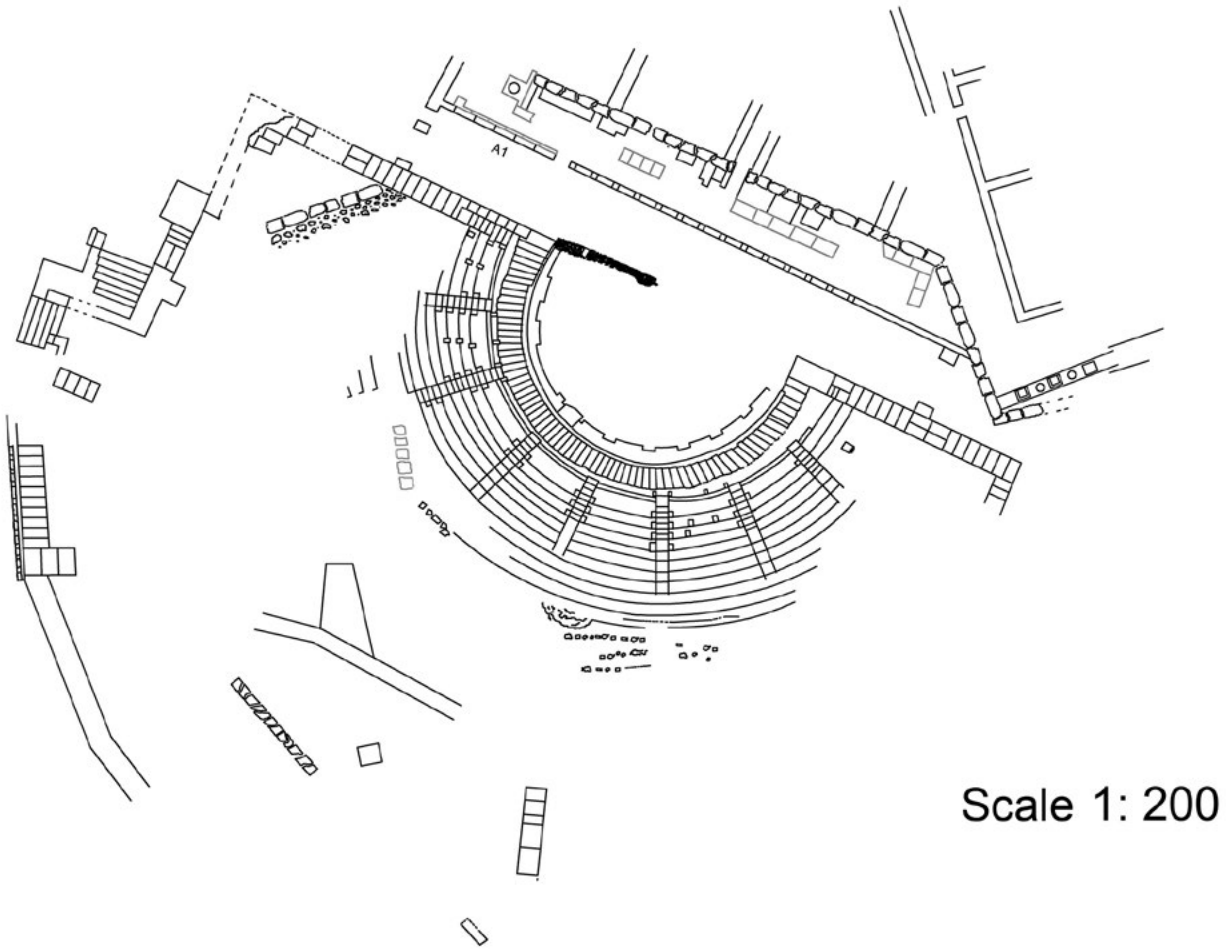

Figure 6. Orchomenos. Plan of the theatre (drawing: M. Germani 2018).

Doric *proskenion* was judged necessary as early as in the 3rd century BC.

At the end of this brief article, intended to distinguish between simple theatres and cultic theatres and to look for a chronological-evolutionary line that might be traced among the Boeotian archaeological sites, some remarks are necessary. The first regards the spread of the theatres and the number of *koila* extant in the region. To the current number, if we also consider those theatres reported in epigraphy or literature, the region boasts nine, including the *telesterion* of Thebes. For instance, if we compare the territorial extent of Messenia and Laconia with that of Boeotia, and the number of theatres featured in the three regions, it seems clear that the theatres of two much more extensive territories like Laconia and Messenia, put together, come to a markedly lower number than that traceable in Boeotia. The region's political and cultural situation is behind the reason why the Boeotian *poleis* felt such a strong need to provide themselves with theatres, sometimes well before other mainland regions. If, from a cultural viewpoint, the long musical, poetic and singing tradition in Boeotia[26] was a strong influence upon the birth and proliferation of theatres, from a political viewpoint, as Sordi has highlighted,[27] the urban dignity attained by the *poleis* did not allow the development of the *synoecism* typical of Attica. In Boeotia the historical and political situation had powerfully stimulated the independence of each city.[28] Even a smaller *polis* like Chaeronea, which would experience a period of particular development in the Roman age, had already since the 4th century BC provided its public spaces with structures intended for the entire community, including a theatre (FIGURES 4 and 5).[29] The regional community outside the urban space would come together in theatres common to all the inhabitants of the region and beyond; these are the great theatres established in the sanctuaries/*temeni*. For these reasons, far from belonging to one *polis* rather

[26] Germani 2015: 253; Manieri 2006: 345-358.
[27] Sordi 1994: 14.
[28] For an interesting examination of the spread of theatres in relation to the respective region's administrative patterns, see Frederiksen 2002: 65-124.
[29] Germani 2017: 48-62; Germani 2018: 97-105.

than another, these structures, even when present in the territory of a specific *polis*, did not constitute endowments representing the level of *dignitas* of the *polis* itself. For instance, even though a theatre is present in the Valley of the Muses, in Thespiai,[30] the new exploration by Bintliff has led to the identification of an urban theatre, fundamental for the recognition of this centre's status as a *polis*. Thus, the presence of several theatres in the same territory is not so much imputable to demographic factors, implying the building of structures of size proportional to the city's population,[31] or to the diversity of functions fulfilled by theatres. With the exception of the *telesterion* of Thebes, which obviously had a different purpose, all the other theatres -including those on religious premises- performed the same function as the simple urban theatres. In them, *agones* linked to cults, as well as meetings for the organization of the ceremonies were held alike. Depending on the type of competition, the respective events and meetings were attended either by the inhabitants of the *polis* or by the regional citizens.

Another aspect calling for consideration is that of the cultural and cultic activities carried out in the theatres. This peculiarity must not have escaped the makers of the policies of Romanization to which Boeotia was being subjected. Due to the renewal of old cults, their adaptation to the new requirements[32] and the establishment of new *agones* in the 1st century BC, a notable reinvigoration of the theatre's spatial function was accomplished. The institution of new *agones* and the transformation of the old ones -accompanied by a new contest, the *epinikeia*, setting out to celebrate the greatness of Rome[33]- provided an impetus for construction work everywhere, to adapt accordingly the theatres and sanctuaries where this contest was being carried out. These changes are easy to observe, for instance, in Orchomenos where, although the epigraphic sources relating to competitions cease at the 1st century BC, the stage building of the theatre, following the contemporary experimentation in the field of architecture, underwent a large-scale rework before its complete structural transformation in the 2nd century AD.[34] The evidence that may be collected over the next years from the cities of Akraiphia, Plataea, Thespiai and also from the sacred city of Lebadeia will potentially offer a more complete regional picture, one capable of providing more information on the territorial displacement of these structures and their function in the context of regional politics, as well as highlighting any architectural divergences and permitting a more detailed study of the formation and spread of the theatre model in Boeotia.

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[30] Differently from what Frederiksen believed, the exploration carried out in the area of Thespiai resulted in the identification, within a natural hollow, of the urban theatre, of which the existence seems sustained by the recovery in the area of some *bathra* of a *koilon*. Cf. Bintliff *et al.* 2007; Frederiksen 2002: 79.

[31] On this topic, see the case of the urban theatre of Thebes, where the *analemma* (retaining-) walls define an area of 110 m in diameter. Germani 2012: 985-998.

[32] On this issue, see Mylonopoulos 2008: 76.

[33] Manieri 2009: 39.

[34] Germani 2016: 789-798.

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Observations on the History and Topography of Two Major Sanctuaries of Poseidon and Zeus in Aigialeia of Achaea

Dora Katsonopoulou

Summary

The panhellenic Ionian sanctuary of Poseidon *Helikonios* located in Helike, the capital city of ancient Achaea, on the southwestern shore of the Gulf of Corinth, was the political and religious seat of the country from its foundation in the Mycenaean period until its destruction in 373 BC. From the Archaic times on, it seems that rivalry arose between Helike and its neighbour city of Aigion over the seat of the Achaean *koinon*; the two major sanctuaries of Poseidon *Helikonios* and Zeus *Ho(a)marios* or *Homagyrios* both claimed primacy. Finally, Helike's economic and political collapse after the earthquake of 373 BC, offered its rival city of Aigion the opportunity to win chairmanship among the Achaeans and take exclusive control over Amarion, the sanctuary of Zeus where the Achaean League's meetings were held. In the present article, I attempt to more clearly identify the history and topography of these two important sanctuaries in the region, first, by reviewing the available ancient sources and, secondly, by interpreting and synthesizing the new archaeological evidence from our research and excavations in the major Helike area in recent years.

Περίληψη

Το πανελλήνιο ιωνικό ιερό του Ελικωνίου Ποσειδώνος στην Ελίκη, πρωτεύουσα πόλη της αρχαίας Αχαΐας στη νοτιοδυτική ακτή του Κορινθιακού κόλπου, υπήρξε το πολιτικό και θρησκευτικό κέντρο της περιοχής από την ίδρυσή του στη Μυκηναϊκή περίοδο μέχρι την καταστροφή του το 373 π.Χ. Από τους αρχαϊκούς χρόνους και μετά, φαίνεται πως ανταγωνισμός ανέκυψε ανάμεσα στην Ελίκη και τη γειτονική της πόλη του Αιγίου σχετικά με την πρωτοκαθεδρία στο Κοινόν των Αχαιών, με ισχυρή διεκδίκηση από τα δύο σημαντικότερα ιερά της περιοχής: του Ελικωνίου Ποσειδώνος και του Ο(α)μαρίου ή Ομαγυρίου Διός. Τελικά, η οικονομική και πολιτική πτώση της Ελίκης, συνεπακόλουθη του σεισμού του 373 π.Χ., έδωσε την ευκαιρία στον ανταγωνιστή της, την πόλη του Αιγίου, να κερδίσει την ηγεμονία ανάμεσα στις αχαϊκές πόλεις και να αποκτήσει τον πλήρη έλεγχο του Αμαρίου, δηλαδή του ιερού του Διός όπου ελάμβαναν χώρα οι συναθροίσεις του Κοινού των Αχαιών. Με την παρούσα εργασία, επιχειρώ να προσδιορίσω με μεγαλύτερη σαφήνεια την ιστορία και τοπογραφία των δύο αυτών σημαντικών ιερών, πρώτον με την επανεξέταση της διαθέσιμης αρχαίας φιλολογικής μαρτυρίας και δεύτερον με συνθετική προσέγγιση και ερμηνεία της νέας αρχαιολογικής μαρτυρίας από τις έρευνες και ανασκαφές της ομάδας μας στην ευρύτερη περιοχή της Ελίκης τα τελευταία χρόνια.

Key Words

Achaean *Koinon*; Aigion; Helike; Poseidon *Helikonios*; Zeus *Ho(a)marios* or *Homagyrios*.

Introduction

The geographical region known today as Achaea did not occupy the same territory in antiquity. Achaea, as a unified country in historical times, occupied mainly the coastal zone extending between Sicyon (east) and Araxos (west), the Sythas and Larissos rivers being the boundaries to the east and west correspondingly. Its ancient easternmost part between Sicyon and Aigeira, today belongs to Corinthia and the narrow zone south of Araxos to Elis. To the south, it did not include the Kalavryta area which then belonged to northern Arcadia. Homeric Achaea differed even more, occupying only the region extending between Pellene (east) near modern Xylokastro and Aigion (west) in the same location where the contemporary town lies. In other words, Homeric Achaea occupied mainly the land corresponding to contemporary Aigialeia in Achaea, still preserving the very ancient name of the country (Pausanias 7.1.1-5; Strabo 8.7.1). Homeric Achaea formed the westernmost part of the Mycenaean kingdom of Agamemnon consisting of eleven cities between Argos and Aigion on the southwestern coast of the Gulf of Corinth. Only four cities of the later known historical Achaea are listed in the Homeric *Catalogue of the Ships* (2.573-575): Pellene, Hyperisie (later Aigeira), Helike and Aigion. To these, we may be justified to add Aigai, a city located east of Helike and mentioned in the epics as a cult place of Poseidon together with Helike (*Iliad* 8.203-204).

The most important among these cities was, no doubt, Helike, holding of old and down to the time of its destruction in 373 BC the first place among all Achaean cities, as noted by Diodoros (15.48.3): ὧν τὴν Ἑλίκην συνέβαινε μέγιστον τῶν κατὰ τὴν Ἀχαΐαν πόλεων ἔχειν ἀξίωμα πρὸ τοῦ σεισμοῦ. The site of Helike, wrongly considered for over a century to have been lost in the depths of the Corinthian Gulf, was recently found on land, in the coastal plain about 7 km southeast of Aigion (FIGURE 1), thanks to the systematic geoarchaeological

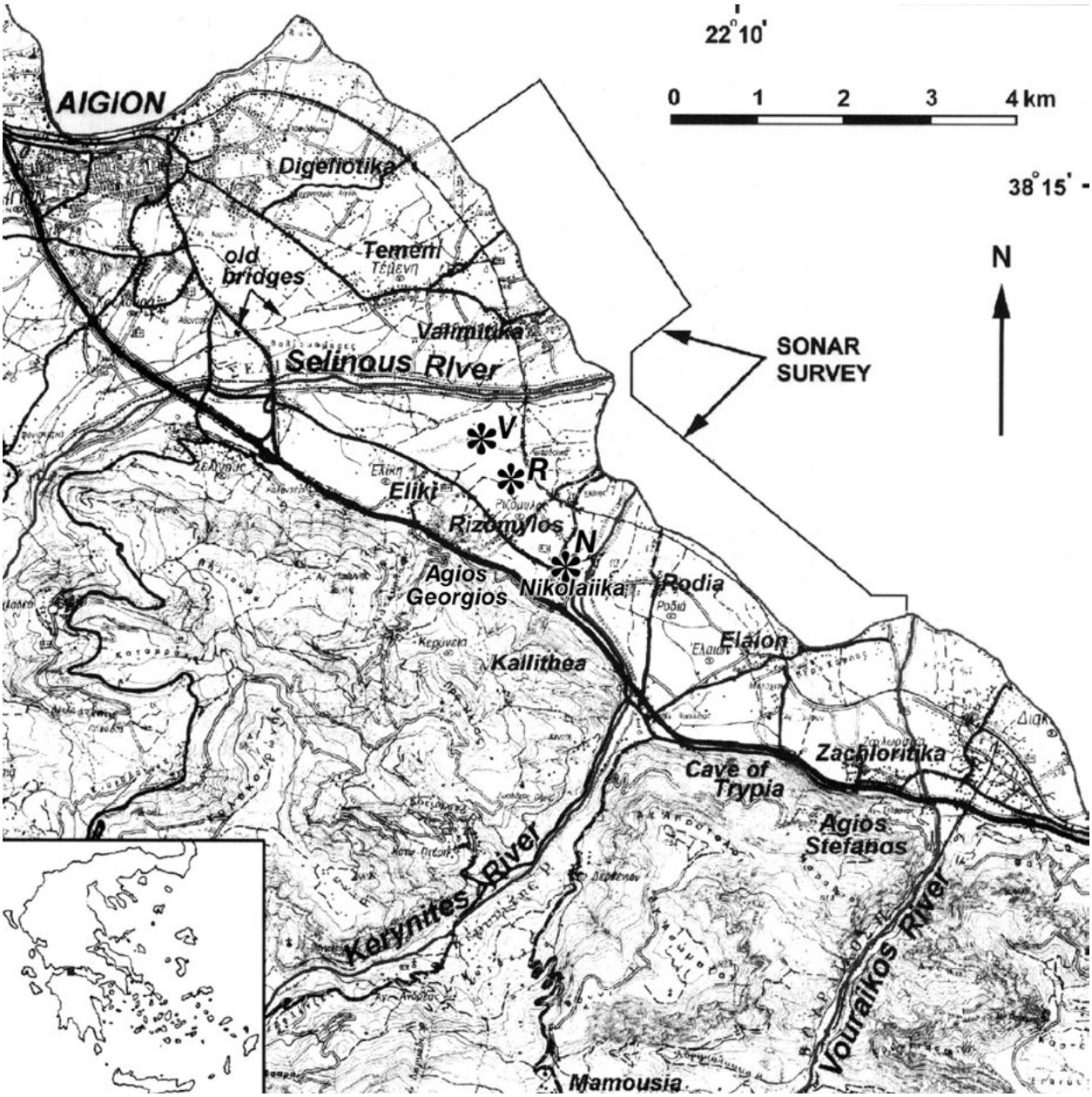

Figure 1: The environs of the Helike search area, including the 1988 sonar survey. Asterisks indicate the archaeological sites discussed in the text: N stands for the Mycenaean-Geometric/Archaic site in Nikolaiika, and V for the Hellenistic site in Eliki/Valimitika (Adapted from the Greek Army Geographic Service 1:50,000 map).

investigations and excavations of the Helike Project since 1988 onwards.[1]

Helike and Poseidon *Helikonios*

In Helike was located the most antique cult of Poseidon *Helikonios*[2] since Mycenaean times, when the Ionians lived in the region. Homer, our first authority for Poseidon's cult epithet, knows Helike as a centre of this worship (*Iliad* 8.203-204; 20.403-405). The cult of *Helikonios* was later transferred to the coast of Asia Minor by Ionians expelled from this region, among

[1] This work, under the direction of the author, has resulted in the discovery of rich ancient remains covering a broad chronological range from the early Bronze Age to late Roman times, buried under the Helike plain between 2 to 5 m, mainly concentrated in the zone between the Selinous and Kerynites rivers about 7 km southeast of Aigion. On the results of the Helike Project research and excavations see especially the proceedings volumes of the International Conferences on Ancient Helike and Aigialeia: Katsonopoulou, Soter and Schilardi 1998; Katsonopoulou, Soter and Koukouvelas 2005; Katsonopoulou 2011b; Katsonopoulou 2017a, published by the Helike Society.

[2] My interpretation of the cult epithet *Helikonios*, links the name with the location Helikon in Helike instead of the mountain in Boeotia, as suggested in the past; see Katsonopoulou 1998a: esp. 252-255.

other, after its conquest by the Achaeans at the end of the Mycenaean era (Diodoros 15.49.1; Pausanias 7.24.5; Strabo 8.7.2). In Helike, however, Poseidon's cult remained equally strong under the Achaeans and the change of the country's name into Achaea.[3] Helike was considered by the ancients the ancestral cult place of Poseidon, the tribal deity for the Ionic race. Pausanias in his journey through the region in the 2nd century AD refers to the lost Classical city of Helike (7.24.5), where the ἁγιώτατον ('holiest') sanctuary of the Ionians was situated of old times. Diodoros, who tells the story of the Ionian mission to Helike (15.49.1-3), emphasises that there were the ancient ancestral altars of Poseidon's cult for all Ionians. In the Hymn of Kallimachos (*Delos* 100-105), Helike is presented as companion of Poseidon – Ποσειδάωνος ἑταίρη.

The cult and sanctuary of Poseidon *Helikonios* in Helike goes back in history and bears particular meaning for the Ionic race. Homer's reference to the sanctuary more than once, indicates the importance and fame it enjoyed among the Greeks who offered 'many and beautiful gifts' (*Iliad* 8.203-204) and bull sacrifices (*Iliad* 20.403-405), in honour of the god.[4] Similar sacrifices were performed by the Ionic race in the land of Priene, during the festival of *Panionia*, until late times; and the Prienians themselves were said to have come from Helike: ἐπει καὶ αὐτοὶ οἱ Πριηνεῖς ἐξ Ἑλίκης εἶναι λέγονται (Strabo 8.7.2). Indeed, the close ties between Priene and Helike are eloquently shown on 3rd century BC coinage from Priene, depicting on the obverse the head of a helmeted Athena and bearing on the reverse the inscriptions ΠΡΙΗ and ΕΛΙΚ.[5]

The prevalence of Poseidon's worship in Helike is conspicuous throughout the city's long and thrived life, even in the very way it was destroyed in 373 BC. The location of the city itself in a high seismicity zone would support Poseidon's particular worship in this region as god of earthquakes and waters. Indeed, earthquake phenomena have occurred repeatedly since prehistoric times, as shown by our investigations in the area.[6] The god's capacity of the Earth Shaker (ἐνοσίχθων, ἐννοσίγαιος) in Helike is symbolized by his main attributes - the trident and the dolphin – portrayed on the city's coinage. The trident flanked by two dolphins swimming upwards, is depicted on the reverse of the four known coins of Helike, three bronze

Figure 2: (a) bronze coin of Helike, Münzkabinett, Staatliche Museen zu Berlin, (b) silver coin of Helike, auction 15 October 2013 (Image courtesy of Gorny and Mosch GmbH).

ones (FIGURE 2a) and a lone silver (FIGURE 2b), the entire representation drawn within a laurel wreath tied at the bottom.[7] On the obverse, a diademed fine head of Poseidon in a Classical manner is shown to the left with inscription ΕΛΙΚ written retrograde. As I have proposed elsewhere,[8] the rare Helike coins of Poseidon were most probably struck in connection with his cult and the inscription ΕΛΙΚ indicates his cult epithet *Helikonios* rather than the ethnic name of the city. The coins are traditionally dated to the early 4th century BC, mainly on account of Helike's natural destruction in 373 BC. However, a thorough recent study suggests a date of *c.* 300 BC for their production.[9]

Helike and Aigion

In light of the new *post*-earthquake date proposed for the Poseidon coins, one would naturally wonder how a lost city could mint coins almost 70 years after its remarkable catastrophe. A careful examination of the history and archaeology of Helike and Aigion, its old rival and close neighbour to the west, may in fact prove enlightening. Aigion, like Helike, was one of the old cities in Aigialos (prehistoric Achaea) mentioned in the

[3] However, the old name of the country Aigialos/Aigialeia remained in use until later times: Pausanias 7.1.4; Strabo 8.7.1.
[4] Homer's mention of the bull sacrifices to Poseidon *Helikonios* had divided already the ancients between two opinions, one in favour of Helike as the place of origin of the cult, and the other in favour of Priene where it was later transferred (Strabo 8.7.2). Pausanias (7.24.6) interprets the Homeric reference to Poseidon *Helikonios* in connection with his worship in Helike.
[5] Head and Poole 1892: no. 126.
[6] Katsonopoulou 2016: esp. 149-152 ; Katsonopoulou and Koukouvelas 2019: esp. 74-76.
[7] Besides the two long known bronze coins in the Berlin Museum, a third bronze coin of the same type was acquired through an auction in Zurich in 2006 and a fourth silver coin even more recently (2014) through another auction in Munich.
[8] Katsonopoulou 2013a: 37.
[9] Weir 2017.

Figure 3: Trench T63, Nikolaiika: (a) remains of Geometric walls in the eastern section of the trench, from the east, (b) Geometric walls in the northern section, from the south (photos: The Helike Project: D. Katsonopoulou, 2012).

Homeric *Catalogue of Ships*. Its principal deity, Zeus, was strongly associated with the Achaeans and the royal house of Mycenae. According to tradition, Zeus was the father of Tantalos, father of Pelops, father of Atreus, founder of the royal house of the Atreids and father of Agamemnon. The king of Mycenae himself is said to have summoned the Greek leaders at the sanctuary of Zeus in Aigion to deliberate on the expedition against Priam and Troy (Pausanias 7.24.2). Although such a correlation of Agamemnon with the sanctuary in Aigion would seem tardy, since the area at the time was occupied by the Ionians, it may reflect some early Achaean presence in Aigion, more strengthened after the entire Aigialos was conquered by the Achaeans under the leadership of Tisamenos, grandson of Agamemnon. Poseidon, on the other hand, was the powerful god of the Ionians, father of Neleus and, according to one source,[10] father of Selinous, the last king of the Aigialeians and father of Helike, the princess whom Ion, the leader of the Ionic race, married and her name was given to the newly founded capital city of the country.

Following the settlement of the Achaeans in the region and the expulsion of a large part of the Ionic population, Helike remained the leading city of the new regime. And as it happened before with the Ionians, whose division of the country in twelve territories was kept by the newcomers (Herodotos 1.145), it now became the capital of the Achaeans. Similarly, the sanctuary of Poseidon *Helikonios* continued to function as the religious and political seat in the area, as before. Helike's early flourishing from its foundation in the Mycenaean period onwards is supported by recent archaeological finds from the area. Excavations carried out by our team in the eastern part of the Helike plain near the Kerynites river, in the contemporary village of Nikolaiika (FIGURE 1, N), brought to light significant architectural remains of buildings (FIGURE 3a,b) and rich associated pottery and other finds from the Geometric period (FIGURE 4a-c). In the same area, the remains of an apsidal late Geometric temple, where a deity related to horses and chariot races seems to have been worshipped, possibly Poseidon, were also uncovered during salvage excavations.[11] In the same location, Mycenaean occupation is indicated by archaeological finds from the excavations of the Helike Project[12] and rescue excavations carried out in recent years.[13]

[10] Stephanos Byzantios *s.v.* Ελίκη.

[11] Kolia 2011.
[12] Tsokas *et al.* 2017.
[13] Kolia 2015.

Figure 4: Geometric pottery from Nikolaiika: (a, b) pottery shards from trench T63, (c) Geometric skyphos from trench H59 (photos: The Helike Project: D. Katsonopoulou, 2013).

From the Archaic times on, however, when the unified Achaea emerged after the birth of western Achaea, it seems that quarrel arose between Helike and Aigion over the seat of the Achaean *koinon*. Aigion, on the one hand, would claim oldness as one of the cities of Aigialos mentioned in the Homeric epics, which had also hosted, in the precinct of Zeus, the gathering of the Achaeans under Agamemnon before the expedition to Troy (Pausanias 7.24.2). Helike, on the other, would claim that it was older than Aigion and the capital of the region since the time of the Ionians, and that in its territory was located the famous sanctuary of Poseidon, the religious and political seat of the country. Further, the heroic leader of the Achaeans Tisamenos was buried in Helike (Pausanias 7.1.7-8).[14] The city's allegation of supremacy among the Achaeans was further strengthened when a new group of Mycenaeans, expelled from their homes by the Argives in the early 5th century BC, sought refuge near their stock in Achaea and settled in the mountainous community of Keryneia (Pausanias 7.25.5-6) located in Helike's territory. Earlier, the prince of Mycenae Orestes had founded in Keryneia the sanctuary of the Eumenides including wooden

[14] Later, it is said that the Helikaeans allowed the Spartans to transfer Tisamenos' bones to Sparta (Pausanias 7.1.8).

images of the goddesses and stone statues of their priestesses set up at the entrance (Pausanias 7.25.7). The settlement of the Achaeans in highland Keryneia, apparently with the consent of the Helikaeans, was certainly a politically motivated action. This way, any problems that might arise from the settlement of a new Achaean population in the city's centre in the coastal plain were avoided and the status of the city itself, as capital of all the Achaeans, was additionally supported.

Aigion and Zeus *Ho(a)marios* or *Homagyrios*

Pausanias (7.24.2), in his account of the seaside sanctuaries in Aigion, mentions Zeus *Homagyrios* as the fourth in a row of sanctuaries from west to east, immediately after the sanctuaries of Aphrodite, Poseidon, and Kore. He also explains that the epithet of the god, meaning 'of the assembly', was due to the gathering here of the Greek leaders under the king of Mycenae Agamemnon, to contemplate on the expedition to Troy. Further, he notes (7.24.4) that in his days the place of the Achaean assembly was the city of Aigion, without associating though explicitly the assembly place with the sanctuary of Zeus *Homagyrios* near the sea. In Strabo's *Geography* (8.7.3), it is stated that the meeting place for the Achaeans, as before for the Ionians, was Amarion.[15] Furthermore, in the description of the Twelve Cities of Achaea, the geographer mentions (8.7.5) that in his days the places of Helike and Amarion/Hamarion, i.e. the sanctuary of Zeus where the Achaeans met, belonged to the territory of Aigion. It is evident from these accounts that a sanctuary of Zeus *Ho(a)marios* or *Homagyrio*s functioned as the meeting place of the Achaean assembly, at least from the period of the Achaean League's re-constitution *c.* 280 BC on, if not before. But it is not clear whether these are two different sanctuaries or one and the same.

The inclusion of Amarion and Helike in the territory of Aigion by Strabo favours the position of the sanctuary of Zeus originally within Helike's territory.[16] Most probably such a place would lie in the western part of the Helike plain toward the river Selinous, constituting the natural boundary between the two cities. Remains of Roman bridges in Stafidalona immediately to the northeast of contemporary Aigion (FIGURE 1) suggest that Selinous, at least in the Roman period, run close to the city. The same proximity to Aigion is noted by Pausanias in the description of his journey through the region (7.24.5). In addition, Strabo's mention (8.7.5) of the river flowing in his days through the territory of Aigion, confirms this position of Selinous even earlier, at least since the 1st century BC. In *post R*oman times, the course of the river shifted southward during episodic intervals and today enters the sea at about 2 km south of its earlier position.[17]

Enumeration of Amarion in the *post*-earthquake period among Aigion's possessions also suggests that the sanctuary after 373 BC passed under Aigion's control, since the remaining land of Helike after the catastrophe was divided by the Achaeans among its neighbours (Herakleides of Pontos, in Strabo 8.7.2). Given that the neighbouring city to the east of Helike, Boura, was also destroyed by the same earthquake, the neighbours mentioned by the ancient author must be the people of Aigion. The location of the sanctuary of Zeus in Helike's territory before 373 BC and its control by the Helikaeans seem to be further supported by Strabo's mention of Amarion as the assembly place, first of the Ionians and later of the Achaeans (8.7.3): Ἀμάριον, ἐν ᾧ τὰ κοινὰ ἐχρημάτιζον καὶ οὗτοι (the Achaeans) καὶ Ἴωνες πρότερον. Given that Homer knows only the sanctuary of Poseidon *Helikonios* in Helike as the religious/political seat in the area, any possible relation of the Amarion with its function as a meeting place, first of the Ionians (mentioned only by Strabo) and consequently of the Achaeans, should postdate the Mycenaean period. Further, as its association with the Achaeans could only be linked to Achaea's unification, occurred probably during the Archaic period, it would be reasonable to assume that its establishment as a common meeting place for the Achaean *koinon* took place in the Classical period. This chronological horizon is also indicated by Polybios' reference (5.93.10; 2.39.6) that in the 5th century BC the *Homarion* (Amarion) was the assembly place of the Achaeans.[18] Given the sanctuary's history and geographical position in Helike's territory, a shared control by both cities, Helike and Aigion, during the Classical period and at least until 373 BC would be highly probable. After this date, control would have naturally passed over to the city of Aigion, prevalent as the new capital of the country.

According to the above, it would appear that the function of the famous sanctuary of Poseidon *Helikonios* as the seat of the League in its early history, was since the Classical period limited to Helike's territory while Amarion was becoming the new assembly place for the *koinon* of the Achaeans. In this respect, new evidence from our work suggesting that Poseidon *Helikonios* continued to be worshipped in Helike in the *post*-earthquake period, becomes of particular importance.

Helike and Poseidon *Helikonios* after 373 BC

Indeed, the results of geoarchaeological and excavation work by our team in the western part of the Helike

[15] It is also emended to *Hamarion/Homarion*. Polybios (2.39.6) mentions the sanctuary of Zeus *Hamarios* as the meeting place for the Achaean colonies of Kroton, Sybaris, and Caulonia in South Italy.

[16] Such a location has been proposed in the past by Aymard 1938: 284 -293.

[17] Katsonopoulou 2016: 19-20.

[18] It is so considered also by Larsen 1968 and Walbank 2000.

Figure 5: Aerial view of the Helike Delta, looking southeast, between the Gulf of Corinth (left) and the mountains of the Peloponnese (right). Three rivers cross the delta: the Selinous (foreground), Kerynites (midground) and Vouraikos (background). The blue circle indicates the approximate location of the ancient lagoon.

plain (FIGURE 1, V) have shown that only a few decades after the 373 BC catastrophe, life returned in the area and a new settlement was established by the early 3rd century, its earlier occupation phases dating back to the second half of the 4th century. Among the various structures brought to light so far, a rare large building complex probably of dye-works with rich associated finds is included.[19] Excavation of a number of well constructed tile-covered graves of the late 4th - 3rd centuries BC showed that the settlement's cemetery lay in its southwestern area.[20]

In all, the evidence suggests that the site of Helike was never entirely lost and abandoned, as believed until now. On the contrary, it soon recovered and flourished again, its life continued down to late antiquity as other finds from our excavations in the area indicate.[21] Interestingly, this different picture emerging from the archaeology of the Helike area, well agrees with new archaeological evidence from Asia Minor regarding the early location of the *Panionion* and its later transfer in the late 4th century BC[22] and with numismatic evidence via the new date of *c.* 300 BC recently proposed for the known Helike coins of Poseidon.[23] The same picture also emerges from a new interpretation and dating of the reported Ionian mission to Helike in the late 4th instead of the early 4th century BC, put forward in one of my recent publications.[24]

In light of the new data, some fresh observations can be made on the history and topography of these two important sanctuaries in the area. No doubt, in the period following the 373 BC catastrophic event, Helike was politically weakened and its predominance over the Achaean cities seriously shaken. The neighbouring Aigion, a rival of old, having taken advantage of the situation was finally able to overcome Helike and take its place in the chairmanship of the *koinon*, upon the reconstitution of the Achaean League *c.* 280 BC. However, regarding Poseidon's antique cult, it seems that Helike maintained the exclusive control even though the sanctuary was most probably seriously destroyed in 373 BC. The story of the ambassadors sent from Ionia to Helike and their request to offer a sacrifice at Poseidon's

[19] Katsonopoulou 2005a: esp. 35, 39-40. On the Hellenistic Dye-works site in Helike see Katsonopoulou 2011a.
[20] McConnan Borstad *et al.* 2018: esp. 4.
[21] Katsonopoulou 1998b; Katsonopoulou 2005a: esp. 37-38 and Katsonopoulou 2013b; Tsokas *et al.* 2009.
[22] Lohmann 2017; Lohmann and Özgul 2017.
[23] Weir 2017.
[24] Katsonopoulou 2017b: esp. 26-28.

altar in order to transfer its sacred relics to Ionia, as brilliantly interpreted by Brunel in the past,[25] could only make sense if, despite the 373 disaster, the god's cult remained alive in its original place of worship. Equally, the reported attitude of both the Helikaeans and of the Achaean council against the Ionians from Asia Minor (Diodoros 15.49.1-3; Strabo 8.7.2), becomes more understandable.

It is, thus, likely that, after the destruction, Poseidon's cult place was transferred by the surviving Helikaeans to the area of the destroyed city that was not seriously affected by the earthquake, naturally inland away from the shore and in the western-southwestern part of the plain, near or on Helike's acropolis[26] identified a long time ago with the hill of Agios Georgios rising above the contemporary village of Rizomylos (FIGURE 1).[27] The fact that Helike survived the 373 destruction and soon recovered, as our work suggests, allowed the Helikaeans to mint the known coins of Poseidon by highlighting the claim over the god's cult, contrary to the reported disappearance of the city most probably advanced by the neighbouring Aigion for political reasons as proposed in the past.[28] Helike's survival as a political entity, despite the heavy blow of the earthquake, was obviously the main reason for Aigion to take almost 100 years to become the new capital in the region. Its final prevalence after 280 BC, led apparently to the production of Achaean League coinage showing a fine laureate head of Achaean Zeus on the obverse, following on the type of the earlier Helike coins displaying the diademed head of Ionian Poseidon.

Conclusion

Consideration of the available literary evidence on Poseidon's sanctuary at Helike presented above and the recent geoarchaeological and excavation results from our work in the area suggest that its location lay, in all probability, in the eastern part of the Helike plain toward the Kerynites river. Ancient remains ranging from the Mycenaean through to Geometric-Archaic times including the ruins of a late Geometric temple, discovered in the contemporary village of Nikolaiika (FiIGURE 1, N), indicate that Helike's early phases were developed in the eastern part of its territory (χώρα). The Mycenaean sanctuary was most probably located in the same place, as suggested by the discovery of good quality Mycenaean pottery layers underlying the Geometric in our excavations in this area.[29] However, it should be noted that there has been no evidence so far to possibly identify the location of the late Geometric temple with the site of the famous Classical sanctuary of Poseidon *Helikonios*. According to ancient reports,[30] the sanctuary was buried under the flood of the sea in 373 BC, thus suggesting a place of lower elevation toward the sea and most probably included within the area occupied by the ancient lake/lagoon discovered by our team between Rizomylos-Nikolaiika in recent years (FIGURE 5).[31] Further, based on the discovery of destroyed Classical walls[32] found buried in the ancient lagoon, a proper location for the Classical sanctuary would lie probably north-northwest of the Geometric site in Nikolaiika. A different location suggested of a cult place that may have replaced the destroyed Classical sanctuary in the plain in the *post*-earthquake period, should be probably sought further west-southwest, near or on the hill of Agios Georgios above Rizomylos.

In the opposite direction from Poseidon's sanctuary, i.e. in the western part of the Helike plain toward the river Selinous, would be more likely for the sanctuary of Zeus to have been located. The clear reference by Strabo to Amarion as the assembly place for the Achaean League in his days and its placement in the territory of Aigion, together with the site of Helike, suggests that the sanctuary was originally situated in Helike's western territory neighbouring the city of Aigion. Combining Strabo's mention with Herakleides' report, contemporary with the seismic event (in Strabo 8.7.2), that this part of Helike's land was allotted to the neighbours after 373, we can infer that Amarion became the property of the city of Aigion after Helike's catastrophe. Correctly, therefore, the interest of earlier scholars in the site of the sanctuary turned to the area north-northeast of modern Aigion,[33] that is, to the eastern side of the ancient river Selinous (Helike's original land). However, to this day no concrete archaeological evidence has come to light from this general region to possibly identify Amarion with a certain location, thus leaving still open the question of the identification of the two sanctuaries – the Amarion and the *Homagyrios* - as one and the same, or two different sanctuaries. Taking into account the available literary and archaeological evidence so far, it seems more likely that the sanctuary of Zeus *Homagyrios* listed by Pausanias among the seaside temples in Aigion, is not the same as the Amarion, whose location should

[25] On a key interpretation see Brunel 1953; also Katsonopoulou 1998a: 255-257.

[26] Katsonopoulou 2017b: 27.

[27] Katsonopoulou 1998c: esp. 45-47 with relative references and bibliography therein. On the results of a more recent geophysical survey conducted on the hill, see Soter and Katsonopoulou 1998.

[28] On the political disappearance of Helike see Faraklas 1998: esp. 214-215.

[29] The Mycenaean finds were unearthed at the Demopoulos Field in Nikolaiika neighbouring the plot where the late Geometric temple was later found. For a first mention of these finds see Tsokas *et al.* 2017.

[30] For a full account of the relative literary sources see Katsonopoulou 2005b: Appendix 26-29.

[31] Soter and Katsonopoulou 2011. On the lagoon's various chronological phases see Koutsios 2009.

[32] Katsonopoulou 2002: esp. 207.

[33] Anderson 1954: 81; Aymard 1938. Curtius 1851: 465 showed particular interest in the area of contemporary Temeni whose place name is synonymous of *temenos* (sanctuary).

not have been coastal since it escaped destruction in 373 BC. Moreover, its original position in Helike's land to the east of and outside the city of Aigion cannot be identical to that of a sanctuary in the seaside area of the city itself. Otherwise, we should assume – although it is not mentioned in the ancient sources - that the older Amarion was also destroyed or seriously damaged by the earthquake in 373 to have become non functional and thus to have to be later transferred in the city of Aigion.

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The Organization, Planning and Architectural Design of the Sanctuary of Zeus at Mount Lykaion, Arcadia

David Gilman Romano

For Richard Tomlinson,
one of the pre-eminent architectural historians of ancient Greece

Summary

Archaeological evidence for activity in the area of the altar of Zeus at Mount Lykaion goes back as far as the Neolithic period with additional evidence from the Early and Middle Helladic periods, although the nature of this early activity is not yet completely understood. In the Late Helladic period, the mountaintop became a Mycenaean shrine arguably to Zeus, as there is continuity of cult from the Mycenaean to the Hellenistic periods. There is no architecture to speak of at the altar of Zeus except for column bases that once supported the columns of Zeus as described by Pausanias. Earliest evidence from the lower sanctuary dates to the late 7th century BC and a major building program of the sanctuary occurs in the middle of the 4th century BC when a formalised athletic festival site is constructed including hippodrome, stadium, stoa, fountain houses, administrative building, seats or steps and bath facility. The masonry of the buildings and structures are characterised by polygonal in combination with ashlar and trapezoidal masonry and the sanctuary is artificially terraced for these new constructions. This fourth-century construction program was likely associated with the newly founded Arcadian Confederacy in 371 BC. Pausanias also describes a sanctuary of Pan in the lower sanctuary that has yet to be discovered.

Περίληψη

Τα αρχαιολογικά τεκμήρια δραστηριότητας στην περιοχή του βωμού του Διός στο όρος Λύκαιον ανάγονται στη Νεολιθική περίοδο με επιπλέον αποδείξεις από την Πρώιμη και τη Μέση Ελλαδική περίοδο, μολονότι ο χαρακτήρας εκείνων των πρώιμων δραστηριοτήτων δεν έχει ακόμη κατανοηθεί πλήρως. Κατά την Υστεροελλαδική περίοδο η κορυφή του βουνού έγινε ένα Μυκηναϊκό ιερό, θα μπορούσαμε να ισχυριστούμε για το Δία, καθώς υπάρχει συνέχεια της λατρείας από τη Μυκηναϊκή ως την Ελληνιστική περίοδο. Δεν υπάρχει κάποια αρχιτεκτονική να αναφερθεί στο βωμό του Διός εκτός από τις βάσεις που κάποτε έφεραν τους κίονες του Διός, όπως περιγράφει ο Παυσανίας. Οι πρωιμότερες ενδείξεις από το κάτω ιερό χρονολογούνται στον ύστερο 7ο αιώνα π.Χ. ενώ ένα μείζον οικοδομικό πρόγραμμα εκτελείται στο ιερό περί τα μέσα του 4ου αιώνα π.Χ., όταν κατασκευάζεται ένας επίσημος χώρος για τις αγωνιστικές εορτές συμπεριλαμβάνοντας ιππόδρομο, στάδιο, στοά, κρήνες, διοικητικό κτίριο, έδρανα ή βαθμίδες και λουτρά. Η τοιχοποιία των κτιρίων χαρακτηρίζεται από πολυγωνική δόμηση σε συνδυασμό με το ισόδομο και το τραπεζιόσχημο σύστημα, ενώ τεχνητά άνδηρα διαμορφώνονται στο ιερό, ακριβώς για να φιλοξενήσουν αυτές τις νέες εγκαταστάσεις. Το οικοδομικό πρόγραμμα του 4ου αιώνα π.Χ. πιθανότατα σχετιζόταν με τη νεοϊδρυθείσα Αρκαδική Συμπολιτεία το 371 π.Χ. Ο Παυσανίας επίσης περιγράφει ένα ιερό του Πανός στο κάτω ιερό, το οποίο δεν έχει ακόμη αποκαλυφθεί.

Key Words

Arcadia; Greek; sanctuary; architecture; planning; Zeus.

Recent excavation and research at the sanctuary of Zeus at Mount Lykaion have revealed details of the organization, planning and architectural design of the mountain top sanctuary in Arcadia.[1] Known as the birthplace of Zeus by Callimachos (*Hymn to Zeus*) and Pausanias (8.36.3), the sanctuary was first excavated by the Archaeological Society of Athens beginning in the late 19th and early 20th centuries.

From our recent excavations and study we now know that the area of the ash altar at the southern peak of the mountain (1382 m above sea level) exhibits activity from the Neolithic period and including the Early Helladic and the Middle Helladic periods, although the nature of the activity of those periods is still under consideration.[2] Continuous cult use from the

[1] The Mount Lykaion Excavation and Survey Project is a co-operation between the Ephorate of Arcadian Antiquities and the University of Arizona, under the auspices of the American School of Classical Studies at Athens. The directors of the project are Dr. A. Karapanagiotou, Director of the Ephorate of Arcadian Antiquities, and Dr. D.G. Romano and Dr. M.E. Voyatzis of the University of Arizona. The project website is http://lykaionexcavation.org. Earlier work at the site was carried out by K. Kontopoulos and mostly by K. Kourouniotis, both working in the late 19th and early 20th centuries for the Archaeological Society of Athens.

[2] The preliminary report of results from the altar, 2007-2010, is found in Romano and Voyatzis 2014.

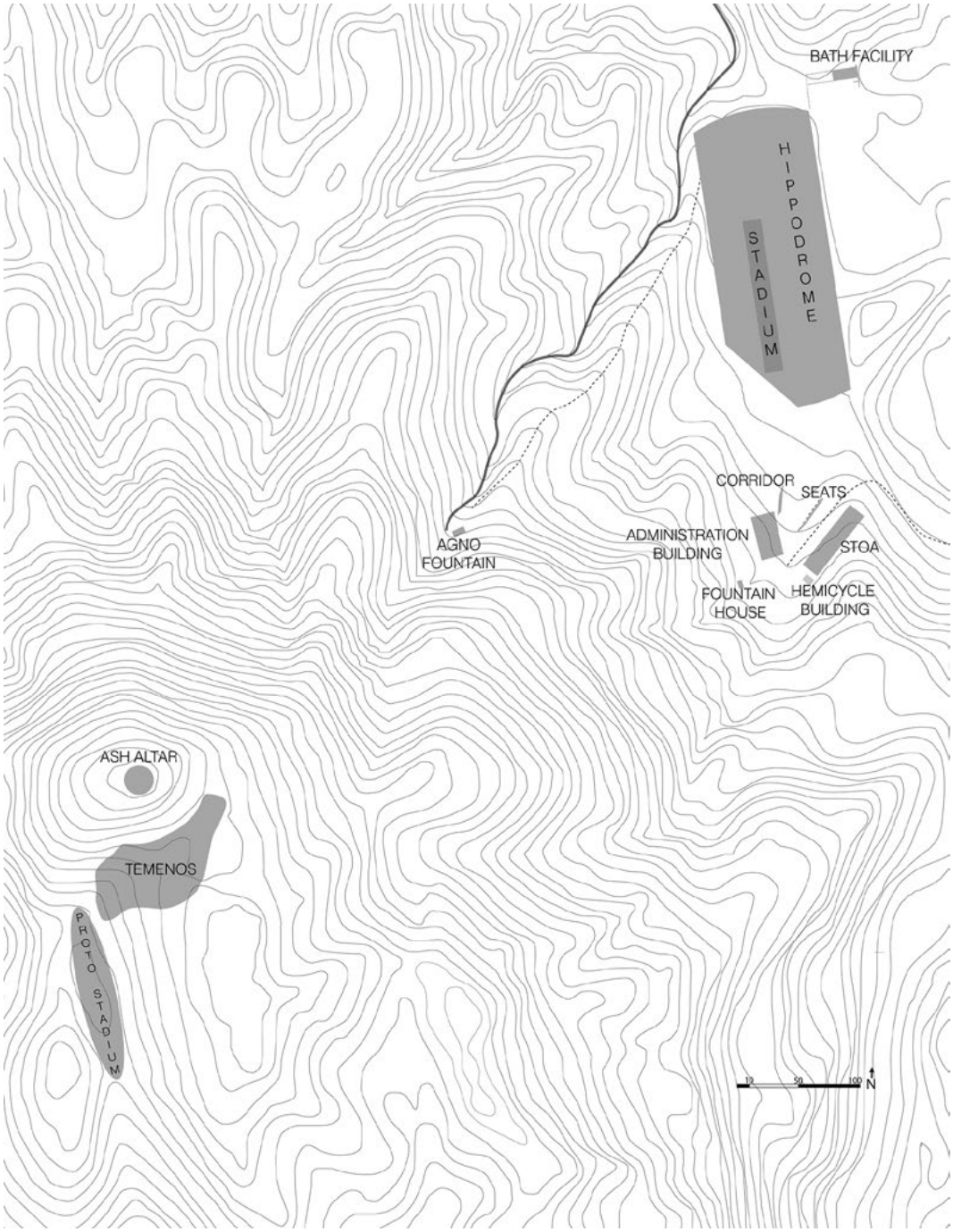

Figure 1. Plan of the sanctuary of Zeus at Mount Lykaion
(Courtesy of Mount Lykaion Excavation and Survey Project).

Mycenaean through to the Hellenistic period seems likely with the establishment of a Mycenaean shrine at the altar from *c*. 16th century BC.[3] A nearby *temenos* at a slightly lower elevation (25 m) and the possibility of an adjacent proto-stadium compliments the altar at the southern peak. In a lower mountain meadow, at an elevation of 1182 m, is the location of the 4th century BC athletic and administrative centre where the Lykaion games were celebrated.[4] The area includes a stadium, hippodrome, stoa, seats or steps, fountain, administrative building, bath facility and entrance corridor. Yet to be discovered, but confirmed to be in the area by Pausanias (8.38.5), is a sanctuary of Pan.

[3] This date is based on the radiocarbon (C^{14}) dating of heavily burned femur fragments from the lowest bedrock level. See Romano and Voyatzis 2014: 614-615; Starkovich 2014: 644-648.

[4] The preliminary report of results from the lower sanctuary, 2006-2010, is found in Romano and Voyatzis 2015.

Approximately halfway between the altar and the lower sanctuary is the fountain of Agno, also described by Pausanias (8.38.3) (FIGURE 1).

Archaeological evidence suggests that the buildings and structures of the lower sanctuary, including Agno, were probably constructed roughly at the same time in the middle of the 4th century BC. It is very likely that this was a rebuilding of an earlier sanctuary on the site of the lower sanctuary, the earliest archaeological evidence at the site indicating a seventh-century BC date. The location, orientation and elevation of the fourth-century buildings suggest a planning strategy that was likely well thought out and executed during what may have been designed as a single building program.

The results of a computerised architectural survey at the sanctuary of Zeus at Mount Lykaion begun in 1996 and continuing to the present, has meant that the buildings, monuments and structures of the sanctuary of Zeus at Mount Lykaion have been accurately mapped and studied. [5]

Altar and *Temenos*

The earliest element of the sanctuary is the ash altar itself on the southern peak of Mount Lykaion. The altar, defined as the bedrock area at the mountaintop, is roughly circular in shape and *c.* 30 m in diameter (FIGURE 2). The ash altar was created directly on bedrock and was formed by the remains of the burned dedications of animals to Zeus, mostly sheep and goats. There is also the evidence of fragments of burned femurs suggesting the ritual of burning animal dedications began as early as the 16th century BC, in the early Mycenaean period, and continued without interruption to the Hellenistic period, *c.* 300 BC.[6] Pottery, metal objects, and other dedications were uncovered at the altar together with small and medium sized stones. To date, there is only the suggestion of one man made feature as a part of the surface of the altar itself, a single line of fieldstones, near the highest part of the mountaintop, oriented in a north-south direction. Although roof tiles have been found in the fill of the altar there is no evidence of an architectural structure in the vicinity.[7] There is a large rubble retaining-wall that was built on the western side of the altar extending in an arc to the south and to the north bordering the ash fill dating to the 7th century BC. It is now known that there is a geological fault that encircles a large portion of the altar at a lower level.[8]

The southern peak of the mountain falls precipitously to the northwest, north and northeast. However, to the south, at an elevation 25 m below the southern peak, is a natural, irregularly shaped, large flat plateau. Kourouniotis working in the early 20th century measured the area that he identified as a specific enclosed sacred space, the *temenos*, as 55 m wide by at least 120 m long and that was surrounded on two or three sides by a low wall of stones. He identified several stone bases at the eastern edge of the *temenos*, two of which he has identified as the bases that supported the columns that held the golden eagles of Zeus as described by Pausanias (8.38.7). In our recent work we have defined an area that is polygonal in shape and approximately 140 x 60 m at its greatest extents. Kourouniotis, and more recently our current team, dug within the *temenos* and found virtually nothing. Geophysical remote sensing has revealed no buildings or monuments in the area.[9]

At an elevation 15 m below the *temenos* and immediately adjacent to the southwest is a long flat area, extending north-south, 15 x 155 m, that has rising slopes to the east and west. We have identified this area as a possible proto-stadium, where the earliest contests may have been held at the mountaintop sanctuary of Zeus.[10] Between the altar, the *temenos* and the proto-stadium, all the necessary facilities for the festival were available at the southern peak of the mountain.

Agno fountain

The Agno fountain is found on the eastern slope of the mountain at 1234 m above sea level, approximately half-way between the altar and the lower mountain meadow (FIGURES 1, 2, 3). This is the fountain that Pausanias (8.38.3) describes as being 'like the Danube River, flows with an equal volume of water in winter just as in the season of summer'. The structure, a portion of which has been cleaned by the Archaeological Service during the recent campaigns, measures approximately 10 x 6 m and will have originally been a portion of the fountain house associated with a spring on the mountainside. Although few architectural details are available, and no archaeological dating evidence, it would appear that the Agno fountain-house was likely constructed in the middle of the 4th century BC, when the other elements of the lower sanctuary were constructed.

The topography of the mountainside suggests that there was a path that led from the northwest area of the hippodrome in the lower plateau and followed a prominent ridge that led directly to the Agno fountain (FIGURES 1, 3). The streambed of Agno would have been immediately to the north of this ridge route. From the Agno fountain, the path up to the altar may have taken a more zig-zag path.

[5] Romano 2005: 381-391; Romano and Voyatzis 2015: 260-262.
[6] Romano and Voyatzis 2014: 630-632.
[7] Sapirstein in Romano and Voyatzis 2014: 624.
[8] Davis 2009; Davis 2017.
[9] Sarris 2014: 635-637.
[10] Romano and Voyatzis 2014: 629-630.

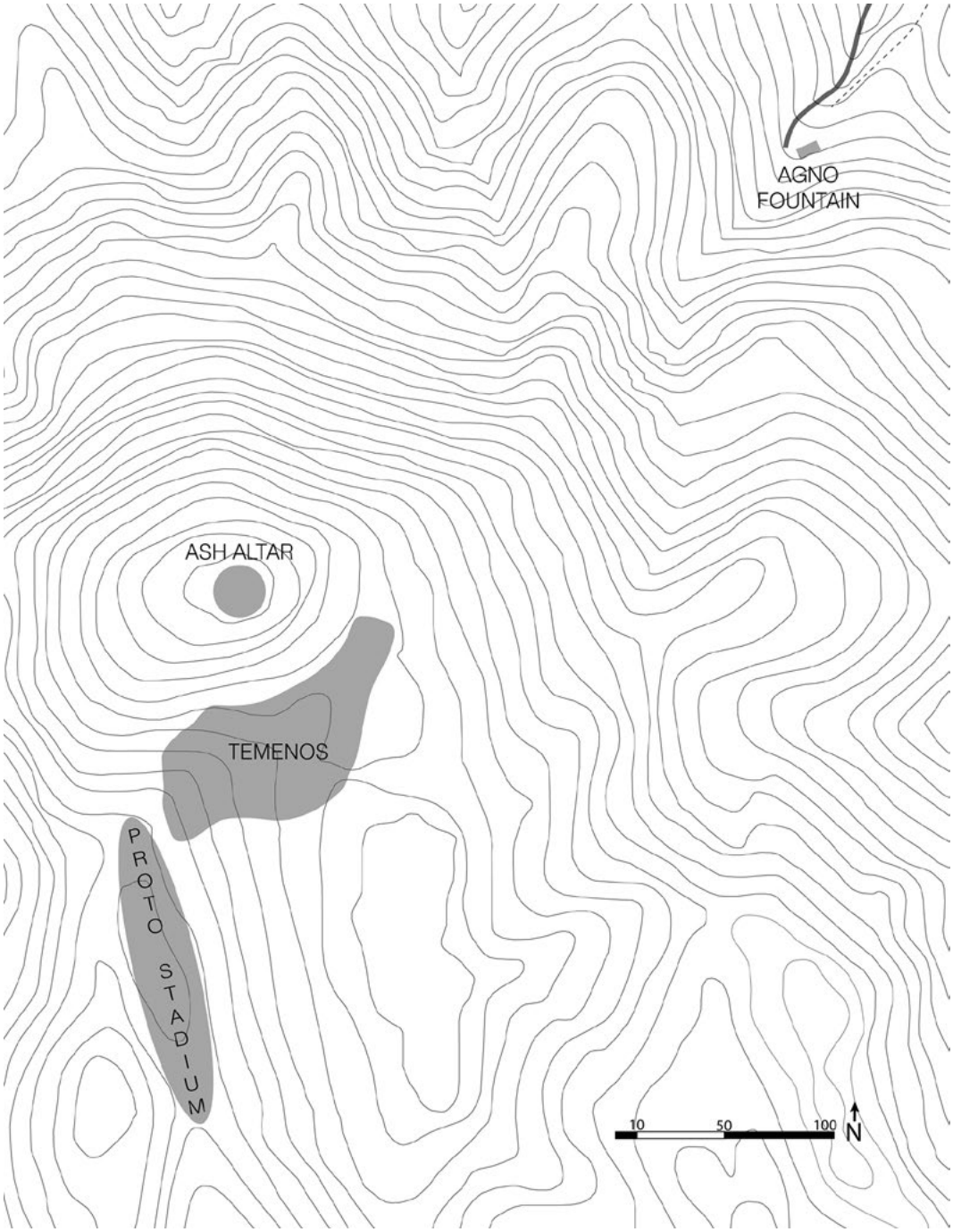

Figure 2. Detail of the upper sanctuary of Zeus (Courtesy of Mount Lykaion Excavation and Survey Project).

Lower sanctuary

In the lower area of the sanctuary, some 200 m lower in elevation from the altar, there exists a cluster of buildings and structures that were likely related in chronology and design; a stoa, the seats or steps, the area of monuments, an administrative building, a corridor, a second fountain-house, the hippodrome, a stadium and a bath facility (FIGURE 3). Many of these buildings and monuments show common characteristics of masonry style and orientation. Furthermore, they work together to form the administrative and athletic centre for the sanctuary.

Stoa, seats or steps, area of monuments, hemicycle building, administrative building, corridor and fountain-house

This is a cluster of buildings and monuments that are found in close relationship to one another at the south end of the mountain meadow. To the north, most of the meadow is occupied by the hippodrome, stadium and

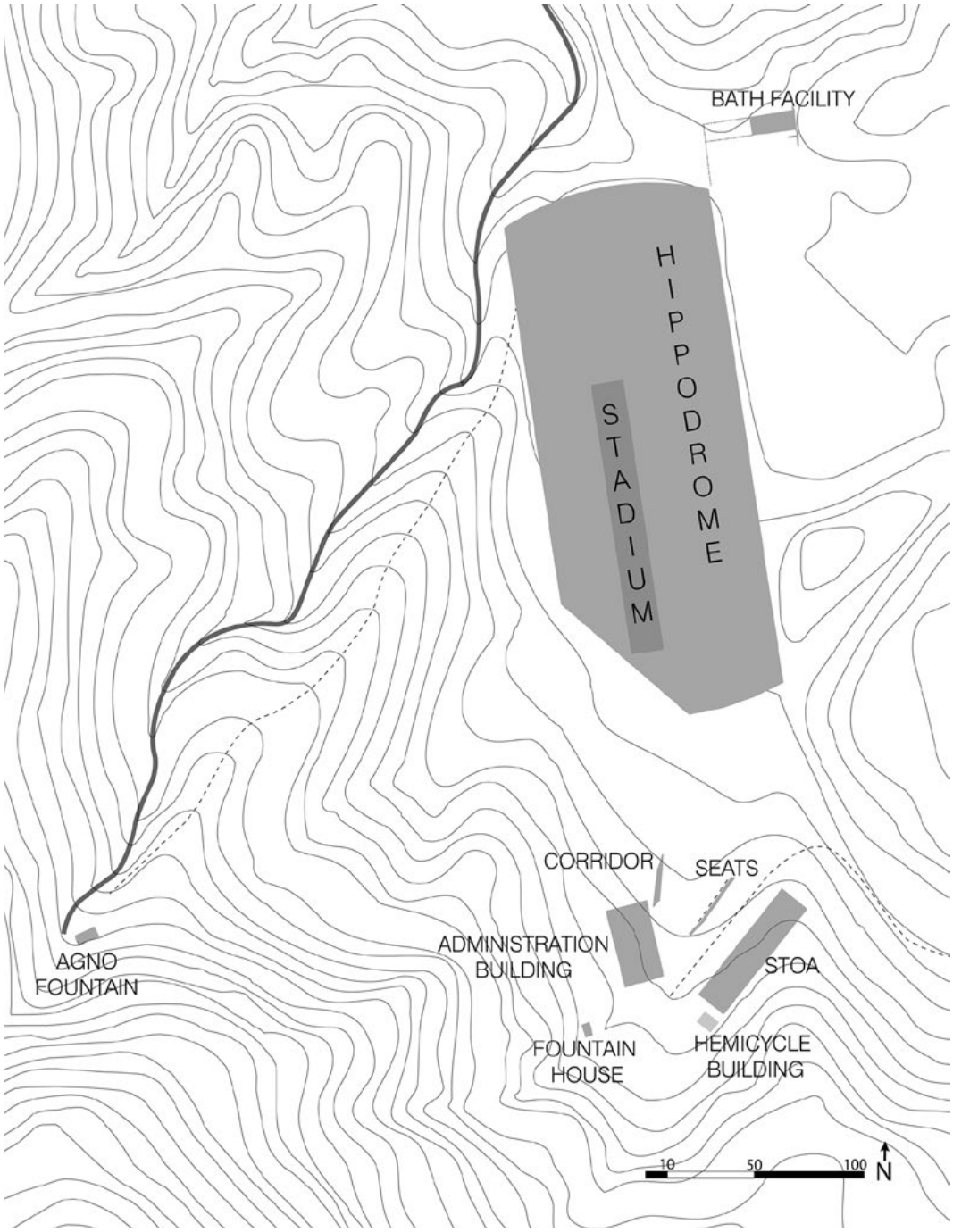

Figure 3. Detail of the lower sanctuary of Zeus (Courtesy of Mount Lykaion Excavation and Survey Project).

the bath facility, immediately to the northeast of the hippodrome.

Stoa

The stoa measures 67.08 x 13.70 m and is found built adjacent to a geological fault (FIGURES 1, 3). It faces northwest and is likely to have been a Doric building with both an external and internal colonnade. It was built of the native limestone quarried from the neighbouring slopes of Mount Lykaion. The building is characterised as having a stone retaining-wall behind the back wall of the stoa and against the fault of the mountainside, and there exists a narrow channel 1.44 m wide between the two walls.[11] The back and western walls have survived in part, as has the front foundation. The back wall, preserved for approximately 45 m, is comprised of ashlar limestone blocks. Kourouniotis

[11] Romano and Voyatzis 2015: 261-269.

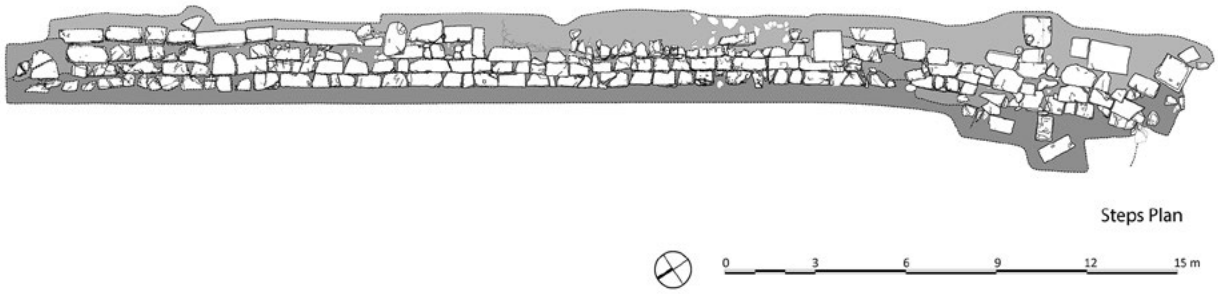

Figure 4. Actual-state drawing of the seats and/or steps (Courtesy of Mount Lykaion Excavation and Survey Project).

reported that he found large mud bricks on top of these. The retaining wall is characterised by trapezoidal and polygonal masonry with large blocks of cut local stone at lower elevations and capped with a string course at the top of the wall. The west wall (11 m preserved) also shows a combination of trapezoidal and polygonal masonry. The eastern wall of the building has not survived although several small rooms are intact at the eastern end of the building. Based on the ground level present at both the eastern and western ends of the building it appears that the stoa may have been built on several different levels.[12]

Seats or steps

Twenty meters in front of the stoa to the north, but at a slightly lower elevation, is an area of fieldstone blocks that are characterised as lying flat on the surface of the ground and in graduated elevations, in three and at times four rows (FIGURES 1, 3, 4). The total length of this series of blocks is *c*. 39 m. The orientation of these blocks are roughly parallel to the line of the stoa above, and the direction of the blocks is straight with a slight curve of the blocks to the north at the very west end. The blocks may have been used as seats or as standing blocks for viewers to look north or south as well as a retaining-wall for the terrace that lies immediately behind the courses of blocks.[13] This terrace is likely to have served as the access path to the sanctuary from the east, passing between the stoa above and the seats or steps below and extending to the west towards the area of the lower fountain and the administrative building entrance. Within the area of the seat or step blocks are a number of monument bases and statue bases. Deep below the level of the seats or steps was found evidence of activity from the 7th century BC, indicating earlier activity in this part of the site.

Area of monuments

Immediately to the east of the seats or steps is an area of monument bases. This is a cluster of bases of various kinds that must signify an area of concentration from antiquity and must be related to monuments that celebrated the victories won in the Lykaion games.[14] Somewhere in this vicinity and in front of the long series of seats or steps, Kourouniotis discovered a series of finely cut blocks, of a high quality stone and workmanship, which have yet to be discovered in our modern campaigns.

Hemicycle building

Immediately to the west of the stoa, Kourouniotis discovered a small rectangular prostyle building with a north-facing Ionic colonnade.[15] The overall dimensions of the building were 6.8 x 5.8 m. It was situated near the southwestern corner of the stoa and its walls were made of large *orthostates* that in places were found to be raised to 2.5 m by smaller stones. Kourouniotis found a marble cornice, epistyle blocks and a *tympanum*. The back wall of the building, parallel to the back wall of the stoa, was semicircular. The front of the building included six Ionic columns on two steps that continued 2.5 m on its east and west sides. Two statue bases were found in front of the building along with a marble *stele* with the inscription *Lykaionikon*. The structure was discovered during the 2018 excavation campaign.

Administrative building

To the west of the stoa and seats is a large rectilinear building with overall dimensions of 38 x 20 m that Kourouniotis identified as a '*xenon*' or hostel. The structure is characterised by massive trapezoidal and polygonal masonry on the three exposed exterior walls and the western limit of the building appears to have been built into the mountainside. The building has a

[12] A study of the terracotta roof tiles of the building is currently underway by Ph. Sapirstein.
[13] Boatright (2015: 54) suggests that the series of blocks were used for standing.
[14] Romano *et al.* 2015: 432-435.
[15] Kourouniotis 1909: 197-198.

single doorway on the south side 2.65 m wide, leading to an interior corridor and, according to Kourouniotis, there were several rooms inside as a part of a multi-level plan. The corridor leads to the north to the interior where there is a square courtyard, approximately 5 m on a side, towards the centre of the building. Several rooms are accessed from the corridor to the east and west and to the north and south of the courtyard. One of the interior rooms discovered by Kourouniotis, with a floor at a lower level than the rest of the structure, has two basins with pipes that allowed the entry and exit of water from the area. Kourouniotis noted that the northern part of the building has a floor level that is 1.5 m higher than the floor level in the western part of the building.[16] In one of the northern rooms were found the two victor inscriptions that relate to the Lykaion Games.[17] We have renamed this building the 'administrative building' as we think that it was more likely to have been the administrative centre for the sanctuary and its religious festivals.[18]

Corridor

A stone corridor with polygonal walls, largely subterranean, connects the area in front of the northeast corner of the administrative building with the general direction of the hippodrome and stadium and possibly a lower terrace.[19] The polygonal walls taper slightly to the north and vary in interior dimensions between 1.82-1.62 m wide. The total length of the corridor as excavated is *c*. 31 m leading from a series of nine limestone stairs at the southern end to a limestone arch found at the north end. It is not yet clear if the corridor was roofed. Any direct connection with the administrative building has yet to be demonstrated. I propose that this corridor was the passageway for athletes who would be moving from the area of the heart of the lower sanctuary towards the stadium and hippodrome and is similar, in some ways, to other passageways and vaults that connect a sanctuary with nearby stadia for instance the vaulted entrances at Olympia, Nemea and Epidauros.[20] The corridor at Mount Lykaion would, however, precede the date of these examples and would be more similar to the open-air corridor at Isthmia or Halieis.[21]

Fountain house

Approximately 20 m to the southwest of the administrative building, Kourouniotis discovered a fountain house 6.97 x 3.83 m with an additional 3 m long channel from the west that brought water from a subterranean spring to the mountainside (FIGURES 1, 3, 5). Based on our investigations of this structure, we believe that there were probably several phases to its construction. This stone water channel funneled water through the back polygonal wall into three basins. The basins were separated from the entrance to the fountain house by a low parapet wall and the overflow water was directed underneath the floor slabs of the fountain interior to an exit to the east. The front and side walls of the fountain house are built mostly of limestone *orthostate* blocks and several *pi*-clamps are still found *in situ* connecting the horizontal joints of the blocks.[22] Kourouniotis found roof tiles in the area of the fountain house and it is likely that there originally was a colonnade as a part of its east façade supporting a roof above.[23]

Hippodrome and stadium

To the north of the cluster of buildings described above, the stoa, hemicycle building, administrative building, corridor, fountain house, seats or steps and area of statue bases is the area of the hippodrome, stadium and bath. These athletic facilities lie side-by-side on parallel terraces, of different elevations, in a roughly north-south orientation. The hippodrome, a facility for equestrian athletic events, measures approximately 250 m in length and 50 m in width. It is unique in the Greek world as it is the only example that can be seen and measured (FIGURES 1, 3). Immediately to the west of the hippodrome terrace is the higher stadium terrace where the *dromos* of the stadium is located and immediately to the east of the hippodrome is a lower terrace where the bath facility is located. The hippodrome is limited on its east side by a hill and the stadium is limited on its west side by low hills. Certain portions of the hippodrome were filled in while portions of the *dromos* of the stadium show indications that the stone bedrock was cut down to smooth the surface. The north end of the hippodrome and stadium terraces is characterised by a 'tongue' of land that projects towards the north.[24]

[16] Kourouniotis 1909: 192-196.

[17] The inscriptions are *IG* V ii 549 and 550 and they provide information relating to the organization of the religious festivals, naming priests of the gods and victorious athletes, their events, and their hometowns.

[18] Romano and Voyatzis 2015: 210-217.

[19] Kourouniotis (1909: 194) describes a ramp at the northeastern corner of the building.

[20] See Mallwitz 1972: 200-203; Miller 1997: 62-83.

[21] For Isthmia, see Broneer 1972: 47-55. For Halieis, see Romano 1993: 34-35.

[22] Romano and Voyatzis 2015: 229-230.

[23] Glaser (1983: 33-34, fig. 60) includes a reference to the Lykaion fountain that he identifies as 'unterhalb der Hagnoquelle'. A fountain-house in Phigaleia (Glaser 1983: 32-33) has some similarities to this facility.

[24] Previously (Romano and Voyatzis 2015: 245-258) it was suggested that the *dromos* of the stadium was located inside the hippodrome and that the equestrian events would have taken place around the *dromos*. The situation is now better understood as two separate terraces, one for the hippodrome and the other for the *dromos* of the stadium.

Figure 5. Actual-state drawing of the fountain house (Courtesy of Mount Lykaion Excavation and Survey Project).

With respect to the hippodrome, Kourouniotis found the component parts for two stone turning posts, including the two bases, on the surface of the fields during his work at the site. Most of these stone blocks have now been measured and studied, and they have been reconstructed as two stone columns, composed of three tapering unfluted limestone drums, each 2.94 m in total height. Kourouniotis found the bases to be 60 m apart from one another on the surface of the hippodrome. The floor surface of the hippodrome has been discovered in several areas and is characterised as a hard clay surface. Deep below the surface of the hippodrome, towards the middle of the terrace, we discovered an area of intense burning with organic material that is dated to the 7th century BC.[25]

Immediately adjacent to the hippodrome terrace to the west is found a *dromos* for a stadium that was used for human athletic events. Seven individual starting-line blocks have been found, characterised by two parallel grooves and several post holes. Most of the blocks were found towards the middle of the stadium terrace, roughly in line, and they likely indicate the northern end of the racecourse. The preserved starting-line blocks indicate a preserved length of 8.43 m. The southern starting line has not been discovered but the low terrace that borders the hippodrome to the southwest would interfere with the *dromos* at a distance of approximately 138 m. The situation of a hippodrome next to a stadium in a sanctuary is reminiscent of the situation at Olympia.[26]

Bath facility

Located immediately adjacent to the northeast corner of the hippodrome is found a bath facility that includes

[25] Romano and Voyatzis 2015: 254.

[26] Pausanias 6.20.10.

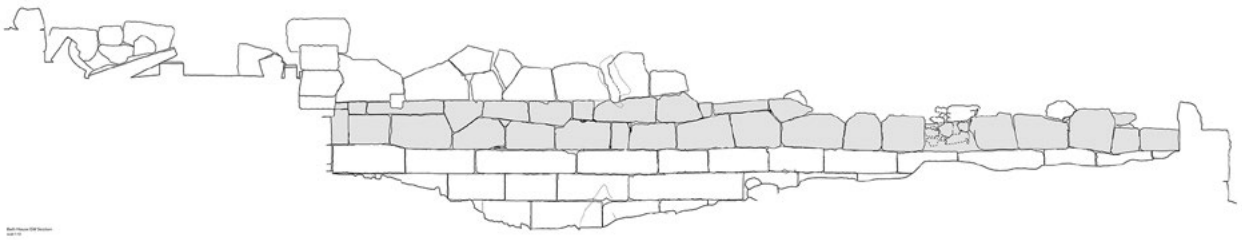

Figure 6. Actual-state drawing of the north wall of the reservoir (as much as is able to be drawn) of the bath facility showing several courses of ashlar masonry below, and two distinct areas of polygonal masonry above (Courtesy of Mount Lykaion Excavation and Survey Project).

a large rectilinear reservoir, 17 x 10 m, as well as a room with several bathtubs. To the west there is an additional area that appears to be connected to the structure although it has not yet been studied. The total east-west dimension of this structure is approximately 49 m and it may be only a portion of a much larger facility to the south that may have been similar to a *palaestra* or gymnasium. The existing structure is built of regular ashlar and polygonal masonry with some trapezoidal walls.[27]

General organization and planning

There are several phases of activity at the sanctuary of Zeus at Mount Lykaion beginning with the Neolithic and prehistoric phases at the location of the altar of Zeus on the southern peak of the mountain. It is clear that by the 7th century BC a retaining system was needed to hold the fill of the ash and dedications of the altar itself. By the same time there is activity in the lower sanctuary in the area of the later seats or steps and the later hippodrome although nothing is known of the architectural makeup of the sanctuary from this date. From literary accounts it is known that the sanctuary as the site of the Lykaion Games existed in the Classical period and so there must have been an architectural phase of the lower sanctuary that is associated with this time.[28] It is later, in the second quarter of the 4th century BC, when a reorganization of the lower sanctuary took place in the period immediately following the foundation of Megalopolis in 371 BC, when the new Arcadian Confederacy likely had control of the pan-Arcadian sanctuary of Mount Lykaion.[29]

It would appear that there was a specific plan for the sanctuary that was executed that included the buildings and structures that comprise the lower sanctuary. There are several reasons to suggest this conclusion. First, the buildings and structures are mostly built in relation to one another and the actual orientations of several of the buildings are very close. For instance, the orientation of the stoa and that of the seats or steps some 3 m below is within a few degrees.[30] The same is true for the orientation of the administrative building and that of the nearby fountain house. The orientation of the hippodrome and the *dromos* of the stadium, is also within a few degrees as is the orientation of the bath facility.

Second, there is a similarity in the masonry styles of several of the structures, stoa, fountain house, administrative building and bath facility. All include polygonal, in combination with ashlar, masonry with some trapezoidal masonry utilised. The use of polygonal masonry must have been employed to give the sanctuary the appearance of an older and more established site and one that had a long and important tradition for Parrhasian and Arcadian history.[31]

Third, the planners of the sanctuary utilised the existing slopes of the mountainside and designed a series of artificial terraces for the buildings and structures. The stoa was constructed on one terrace, the back wall of which was, in fact, the line of the geological fault running through the sanctuary and at the same elevation as the fountain house and the administrative building. Below the stoa was the line of the seats or steps, and between the two was the likely roadway or path that was the major access to the fountain house, the administrative building and the zone that Kourouniotis has suggested to be the location of the sanctuary of Pan.[32] This therefore would have been the

[27] Romano and Voyatzis 2015: 259-260.

[28] Pindar *Nemean Ode* 10.45; Pindar *Olympian Ode* 7.84; Pliny *Historia Naturalis* 7.205; Plutarch *Caesar* 61; Pausanias 8.21.

[29] From the construction level of the polygonal walls of the corridor comes perhaps the best dating evidence for the construction date of the associated buildings and monuments of the sanctuary in the second quarter of the 4th century BC. See Rotroff 2015: 269. For the control of the sanctuary by the Arcadian Confederacy see Mahoney 2016: 156-172.

[30] Romano and Voyatzis 2015: 260-263.

[31] Lawrence and Tomlinson (1983: 290) discuss the revival of decorative polygonal masonry in the Hellenistic period.

[32] Kourouniotis 1909: 199-200. Our recent excavation during the summers of 2016 and 2017 include a trench in the space between the administrative building, the fountain house and the stoa where a Google Earth image has indicated a circular shape in the landscape, *c.* 22 m in diameter. This area is really the focal point of the buildings and structures of the lower sanctuary and could be the location of the

major access to the heart of the sanctuary. Both the fountain house and the administrative building were built into the side of the mountain. The seats or steps are also built into the slope of the terrace itself.

The orientation of the stoa and the seats is worthy of note. The prominent mountain ridge that connects the northwest area of the hippodrome with the Agno fountain-house is roughly parallel to the long axis of the stoa as well as to the long axis of the seats or steps. Since it is likely that this mountain ridge would likely have been used as a means of communication between the lower sanctuary and the Agno fountain-house, and possibly the route of a processional way, the stoa orientation would have made it possible for spectators to view the procession and in so doing have a connection with the Agno fountain, and the rites that took place there, although the fountain itself would have been out of view.

In conclusion, it appears that in the mid-4th century BC, probably in the 360s, the architectural plan of the lower aspect of the sanctuary of Zeus at Mount Lykaion was greatly expanded (on top of earlier remains) with an organised plan built into the slopes of the lower mountain meadow. Likely built by the new Arcadian Confederacy, immediately after the foundation of the new city, the sanctuary was already the premier pan-Arcadian sanctuary. Its architecture, characterised by polygonal in combination with ashlar and trapezoidal masonry, reflected the important status of its buildings and structures.

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Reconstructing Building Height: The Early Hellenistic *Hestiatorion* Propylon at Epidauros

Jari Pakkanen

Summary

The extensive building at the southern part of the sanctuary of Asklepios at Epidauros is often referred to as a Gymnasium, but it is more likely a Banqueting Hall (*hestiatorion*); partial restoration of its monumental Propylon was finished in 2009. In the restoration proposal the estimate of the building height was based on three factors: the average height of the column drums, the height of the wall blocks and a proposed foot-unit of 0.3018 m. This paper demonstrates that the suggested height of the Doric column of 7.1677 m can be questioned. Using computer-intensive statistical methods for determining the 95% confidence intervals for the column drum and wall block height plus analysing the column shaft profile, it is possible to show that the more likely range for the column height is 7.84–7.92 m and that the shafts were constructed with a slight *entasis*. It can also be demonstrated that the foot-standard of 0.3018 m identified as the basis of the structure's overall dimensions is statistically insupportable. The proportional height of the column becomes 6.5–6.6, rather than 5.9, lower column diameters, which is more in keeping with other Doric buildings from the early Hellenistic period.

Περίληψη

Το εκτενές συγκρότημα στο νότιο τμήμα του ιερού του Ασκληπιού στην Επίδαυρο συχνά αναφέρεται ως Γυμνάσιο, όμως πιθανότερα πρόκειται για μια αίθουσα συμποσίων, ένα εστιατόριο. Μερική αποκατάσταση του μνημειώδους προπύλου του ολοκληρώθηκε το 2009. Στην πρόταση αποκατάστασης η εκτίμηση του ύψους του κτιρίου βασίστηκε σε τρεις παραμέτρους: τον μέσο όρο ύψους των σπονδύλων, το ύψος των λιθοπλίνθων του τοίχου και τον πόδα μήκους 0.3018 μ. Η παρούσα εργασία αποδεικνύει ότι το προτεινόμενο ύψος 7,1677 μ του δωρικού κίονα μπορεί να αμφισβητηθεί. Χρησιμοποιώντας στατιστικές μεθόδους υψηλών αριθμητικών υπολογιστικών απαιτήσεων, προκειμένου να προσδιορίσουμε τα διαστήματα ασφαλείας 95% για τον σπόνδυλο του κίονα και το ύψος της αγελαίας λιθοπλίνθου, καθώς και για να αναλύσουμε την πλαγιοτομή του κορμού του κίονα, καταλήγουμε ότι η πιθανότερη εμβέλεια ύψους του κίονα είναι 7,84-7,92 μ και ότι οι κορμοί εμφάνιζαν αμυδρή ένταση. Επίσης μπορεί να καταδειχθεί ότι ο εμβάτης-ποῦς 0.3018 μ, που αναγνωρίστηκε ως η βάση/αφετηρία για να εξαχθούν οι συνολικές διαστάσεις του οικοδομήματος, στατιστικά δεν έχει έρεισμα. Αναλογικά, το ύψος των κιόνων ανέρχεται σε 6,5 έως 6,6 κάτω διαμέτρους -αντί 5,9- και έτσι εναρμονίζεται καλύτερα με άλλα δωρικά οικοδομήματα της πρώιμης Ελληνιστικής περιόδου.

Key Words

Hellenistic Doric; foot-unit; proportions; shaft profile; digital technologies.

Introduction

The large, rectangular building (75.36 × 69.53 m) at the southern edge of the excavated area of the *Asklepieion* at Epidauros was first discovered by P. Kavvadias at the end of the 19th century.[1] The main features of the early Hellenistic building are a monumental propylon in the north-western corner and a large peristyle court surrounded by several large and also smaller backrooms (FIGURE 1). In the Roman period, an *odeon* was constructed within the peristyle court. Kavvadias identified the original building complex as a gymnasium but, as R.A. Tomlinson has convincingly argued, the building is more likely a ἑστιατόριον, a banqueting hall.[2] L. Palaiokrassa's recent excavations at the site support this identification and, on the basis of the pottery and coins, the building can be dated to the end of the 4th century BC.[3] K. Danali-Giole's excavations at the Propylon show that the monumental entrance is later than the foundations of the north wall of the *Hestiatorion*, but this seems to be only a different phase of the same construction programme: archaeological finds and architectural characteristics support that the Propylon should also be dated to the end of the 4th century BC.[4]

In connection with the proposal to partly restore the Propylon, V.E.E.S. Kyriaki has carefully studied and published the remaining architectural material.[5] In her reconstruction the main building of the Propylon has six prostyle Doric columns on the northern façade with short flank walls on the east and west (FIGURE 2).

[1] Kavvadias 1900: 143–154; see also Kavvadias 1891: 26; 1892: 55; 1899: 105, pls 5–6; 1901: 49–51; 1904: 61–62, pl. A.
[2] Tomlinson 1969: 106–112.
[3] Palaiokrassa 1988: 22–23, 32.
[4] Danali-Giole 1988: 36–37; Kyriaki 1988: 44.
[5] Kyriaki 1988: 64–158.

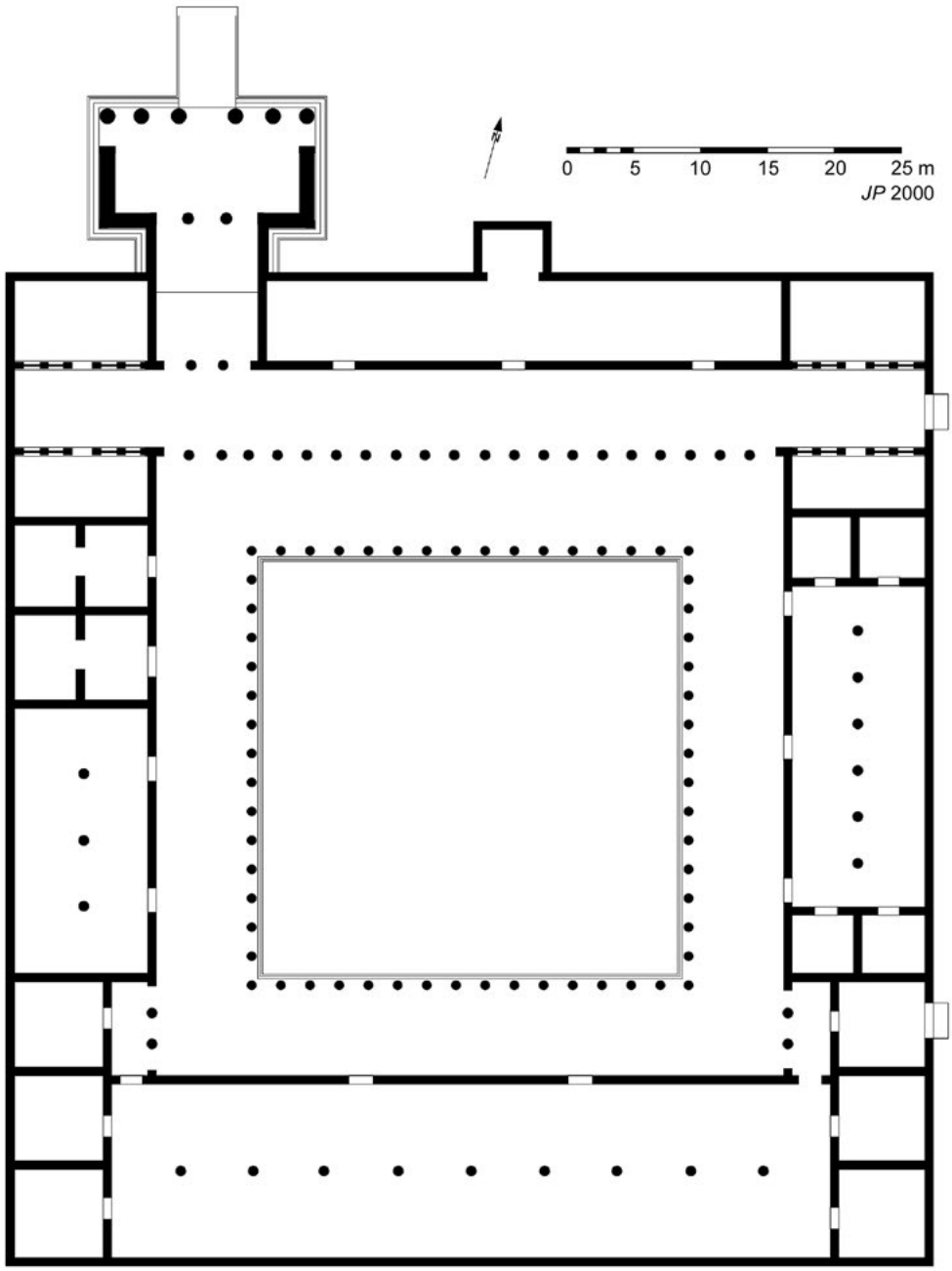

Figure 1. *Hestiatorion*, Epidauros. Restored plan (drawing: Jari Pakkanen based on Committee for the Preservation of the Epidauros Monuments 1988: pl. 8; Kyriaki 1988: pls 73, 90).

The building is entered via a ramp passing through the central bay of the colonnade, which is widened to three metopes instead of two, like at the Propylaia of the Athenian Acropolis. This main porch of the Propylon is separated from a narrower vestibule to the south by two Ionic columns.[6] The recently completed restoration project includes reconstructing two of the exterior Doric columns and part of their entablature (FIGURE 3).[7]

Even though Kyriaki's reconstruction of the Propylon height is challenged in this paper, I wish to stress that the conclusions presented here would not have been possible without her exemplary fieldwork. Her published numerical data is entirely the basis of this study, and the new building reconstruction is directly generated from that data. This paper will also critically examine some of the methods which have traditionally been used to determine the sizes of various elements of Greek buildings. Again, it is Kyriaki's thorough study and precise data that allows the application of analytical statistical and computer-intensive processes,

[6] Kyriaki 1988: 64.
[7] Kyriaki 1988: 159–162, 165–169, pls 102–110.

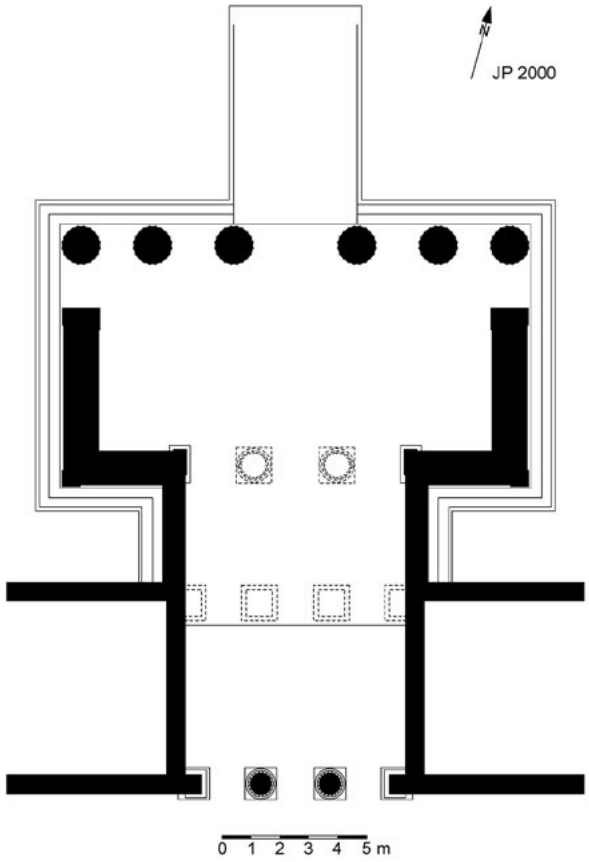

Figure 2. *Hestiatorion*, Epidauros. Restored plan of the Propylon
(drawing: Jari Pakkanen based on Kyriaki 1988: pl. 90).

which in this case prove to give a significantly different result than those previously achieved.

Determining the building height

Kyriaki's estimate of the building height is based on the average height of the column drums, the height of the wall blocks and Kavvadias' foot-standard of 0.3018 m.[8] In the following arguments the relevance of these three different components are scrutinised in detail and a fourth element, the analysis of the shaft profile, is introduced.

Column height

At the site there are 16 extant poros limestone drums, which can be used in the column reconstruction. Their dimensions are given in TABLE 1; the diameter measurements listed are the smaller drum diameters measured between recesses of two opposite flutes.[9]

[8] Kyriaki 1988: 121, 150 n. 55.

[9] The drums at Epidauros are very fragmentary, so measuring between the recesses of opposing flutes gives more reliable data than attempting to extrapolate the dimensions of the broken *arrises* of Doric column drums.

Table 1. Column drum dimensions. Based on Kyriaki 1988: 155 table 3.

No.	UD	LD	H
4099	0.920	0.935	0.574
4451	0.920	0.940	0.568 (0.566–0.569)
4261	0.92	0.95	0.612
4340	0.93	0.96	0.616
4569	0.940	0.966	0.629
4338	0.943	0.968	0.602 (0.600–0.604)
4060	0.96	0.994	0.609
4084	0.972	1.000	0.625
4249	1.013	1.035	0.582 (0.580–0.583)
4144	–	1.055	0.616
4307	1.034	1.056	0.646
4098	1.049	1.066	0.613 (0.610–0.615)
4147	1.056	1.075	0.591 (0.590–0.592)
4146	1.093	1.113	0.614
17017	1.121	1.141	0.596
4508	1.144	–[1]	0.634

[1] Even though 1.166 m is given as the lower diameter in the table, it is clear from Kyriaki 1988: 118 that the dimension could not be measured, it is only estimated on the basis of average drum diminution – a method which is only valid if the shaft did not have *entasis.*

The drums vary in height, which gives rise to the main problem of establishing the order height: the variation is significant with the shortest being 0.568 m and the tallest 0.646 m. If the shafts consisted of 11 drums, as Kyriaki proposes,[10] 24% of the original 66 drums have been preserved; if the columns were taller with 12 drums, 22% of the shafts' 72 drums have been located at the site. As we shall see below, the height variation and the limited number of preserved drums makes it impossible to precisely determine the column shaft height.

Instead of trying to calculate the shaft height based on the average drum height, which is the usual approach in studies of Greek architecture, classical statistics could be used to construct a confidence interval, or probable range, for the shaft height. However, there are two conditions which must be met before this may be attempted: the original population must be normally distributed – in other words, the drum height distribution should follow the bell-shaped Gaussian curve – and the sample must be random.[11] Unfortunately, in the case of the *Hestiatorion* columns neither of these conditions is satisfied. We have no certain indication if the original drum heights were normally distributed, and the group of surviving drums

[10] Kyriaki 1988: 118.

[11] See e.g. Siegel and Morgan 1996: 322.

Figure 3. *Hestiatorion*, Epidauros. Photograph from north-west of the Propylon after restoration (photo: Jari Pakkanen 2011).

cannot be regarded as a random sample because the preservation of column drums at Epidauros or anywhere else is never a random process.[12] There are, however, computer-intensive statistical approaches, which can be used in cases of non-normal and non-random data. One of these, the bootstrap-*t* method,[13] is employed in this study to determine the height ranges for different architectural elements.[14] D. Scahill has criticised the use of bootstrap confidence intervals since it produces a wider size range for the studied elements than the traditional means of deriving the height of a building.[15] However, this criticism misses the principal reason why the use of computer-intensive statistical methods should be advocated: their advantage lies in avoiding the false precision, which is most often inherently part of the traditional approaches.

The 95% bootstrap confidence interval for the drum mean height can be calculated as 0.596–0.617 m; with the 95% confidence interval we can be 95% sure that the mean drum height is within defined range.[16] The column height range of the shaft with 11 drums is *c.* 7.07–7.30 m and with 12 drums *c.* 7.67–7.92 m.[17] Kyriaki's suggestion

[12] Cf. Shennan 1997: 61: 'It is obvious that no archaeological sample can be considered a random sample of what was once present'.

[13] B. Efron, the inventor of the bootstrap method, describes the etymology of the term as follows: 'The use of the term bootstrap derives from the phrase *to pull oneself up by one's bootstrap*, widely thought to be based on one of the eighteenth century Adventures of Baron Munchausen, by Rudolph Erich Raspe. (The Baron had fallen to the bottom of a deep lake. Just when it looked like all was lost, he thought to pick himself up by his own bootstraps.)' The *t* in the name of the bootstrap-*t* method refers to Student's *t* intervals; Efron and Tibshirani 1993: 5, 158–162. The basic principle behind the bootstrap techniques is that the existing samples provide the best guides to the population distributions (here all the original drums and wall blocks of the Propylon); technically, this means taking several random resamples of the samples with replacement in order to approximate, in this case, confidence intervals for the drum and block heights.

[14] Bootstrap methods should be tested before they are used in new applications; on the bootstrap-*t* method, see e.g. Efron and Tibshirani 1993: 160 n. 1; on the bootstrap methods in general, see e.g. Manly 1997: 58–59. I have used computer simulation to evaluate the performance of bootstrap-*t* intervals in connection with column drum data; see Pakkanen 1998a: 52–56 for a discussion of classical and computer-intensive statistical methods, their applicability to architectural studies, and further references to statistical studies. For a recent overview of the archaeological use of bootstrap, including an evaluation of the Tegea column analysis presented in Pakkanen 1998a: 53–54, see Baxter 2003: 148–153. A reply to Baxter's noted discrepancy of 2 mm at Tegea is in Pakkanen 2013: 64 n. 52.

[15] Scahill 2012: 95 n. 133. Pfaff 2003: 84 discusses the various methods of determining the column height of the Classical temple at the Argive Heraion, including bootstrap confidence intervals, and he accepts that the specific height used in the restoration drawings is 'impossible to prove decisively'.

[16] On applying the method, see Pakkanen 1998a: 53–54. The formula used to calculate the *t*-statistic is $T_B = (\bar{x}_B - \bar{x}) / (s_B / \sqrt{n})$, where $\bar{x}_B$ and s_B are calculated from each bootstrap sample; $\bar{x}$ is the sample mean (= 0.6079 m), and *n* is the sample size (= 16). The minimum of the generated 5,000 t_B values is –4.1897 and the maximum 5.4430; the values limiting 95% of the distribution are $t_{\alpha/2}$ = 2.4704 and $t_{1-\alpha/2}$ = –1.9915. The confidence interval can thus be calculated as

$$\bar{X} - t_{\alpha/2} \, (s/\sqrt{n}\sqrt{(N-n)/N}) < \mu < \bar{X} - t_{1-\alpha/2} \, (s/\sqrt{n}\sqrt{(N-n)/N}),$$

where *s* is the sample standard deviation (= 0.02154) and *N* is the population size (= 66). Since the *t*-statistic T_B was calculated without using finite population correction factor, it is justified to introduce it in the confidence interval calculations; on the factor, see Pakkanen 1998a: 52 n. 8. On random numbers used in the generation of the t_B values, see Pakkanen 1998a: 54 n. 15.

[17] The lower limit of the column height with 11 drums can be

for the column height 7.1677 m[18] is expressed in far too many significant digits (it is not possible to reconstruct the height of an ancient column with the precision of even a millimetre), but it is within the first range. However, based on the preserved drums, the height of the column cannot with any statistical validity be defined more precisely than the above ranges.

Wall height

A reconstruction of the building height can also be attempted on the basis of the wall blocks. The entablature carried by the columns turns at the corners to form the top part of the flank walls, and, therefore, the wall height below the architrave is necessarily the same as the column height. The lower part of the wall comprises an *orthostate* course and a number of ashlar wall block courses. None of the *orthostates* preserve their full height, but the height can be reasonably well derived from other parts of the *Hestiatorion* wall as 1.11 m.[19]

Kyriaki gives the height of 47 wall blocks: their height varies between 0.380 m and 0.417 m.[20] Based on the available information, the 95% bootstrap confidence interval for the mean wall block height can be determined as 0.396–0.401 m.[21] The height range of the wall with 15 courses and the *orthostate* is *c.* 7.05–7.12 m, with 16 courses *c.* 7.45–7.52 m, and with 17 courses *c.* 7.84–7.92 m.

FIGURE 4 presents a summary of the column and wall height analysis: the confidence intervals determined for the 11-drum column and 15-block wall reconstruction are partially overlapping (7.07–7.12 m), and the height range with 17 wall block courses (7.84–7.92 m) is completely within the confidence interval of the 12-drum column shaft. It is within one of these two ranges that the Propylon column and wall height is most probably situated. It should be noted that the currently proposed restored height of 7.1677 m does not fall within either of these ranges.

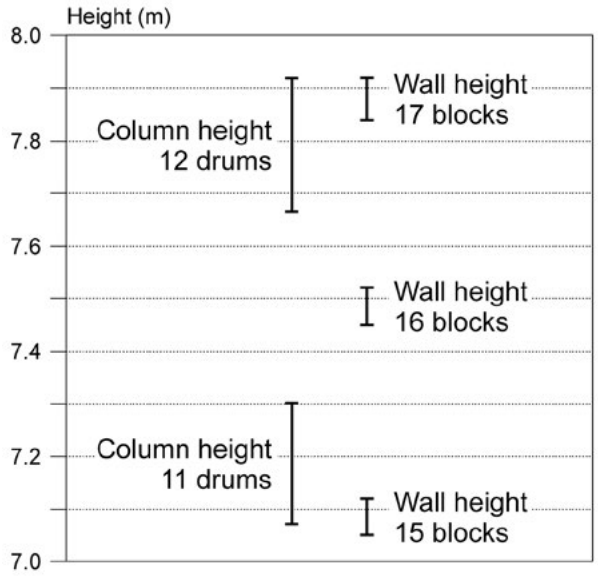

Figure 4. *Hestiatorion*, Epidauros. Propylon column and wall height ranges (Jari Pakkanen).

Foot-unit

Kyriaki's 'exact' column height of 7.1677 m is based solely on Kavvadias' foot-unit: expressed in terms of the 'constructional ποῦς' of 301.8 mm it is $23\frac{3}{4}$ feet.[22] The critical factor in this calculation is the reliability of Kavvadias' suggestion for the foot-standard, but the length of this unit is accepted as *given* by Kyriaki. It is clearly different both from the traditional 'Ionic foot' of *c.* 294 mm and the 'Doric foot' of *c.* 326 mm. W.B. Dinsmoor argues that only these two were used in Greek architecture,[23] but this should by no means taken as granted. J.J. Coulton's skeptical remark makes the point clear: 'As far as measurement is concerned, the assumption that only two foot-standards were used throughout the Greek world needs to be proved, not just accepted, and the chaotic situation in other branches of Greek metrology suggests that this is unfounded'.[24] Therefore, Kavvadias' proposal should be given more careful consideration.

In his monograph on the sanctuary published in 1900, Kavvadias derives the length of his foot-unit from the length of the stadium *dromos*, which is known to be 600 feet. On two sides he measures it as 181.08 and 181.30 m and, on the basis of four preserved distance markers, it can be calculated as 180.95 m. Kavvadias then uses the average of the minimum and maximum values to

calculated as 11 × 0.5964 + 0.511 (capital height; Kyriaki 1988: 118) ≈ 7.071 m, and the upper as 11 × 0.6173 + 0.511 ≈ 7.301 m. The drum height range for a column with 12 drums can be calculated using the formulae above (footnote 16): the slight increase in the population size *N* from 66 to 72 does not significantly alter the drum height range. 12 × 0.5962 + 0.511 ≈ 7.665 m; 12 × 0.6174 + 0.511 ≈ 7.920 m.

[18] Kyriaki 1988: 121.

[19] Kyriaki 1988: 121–129.

[20] Kyriaki 1988: 156–158. Wall block 4268 with a height of 0.359 m (TABLE 7) is omitted from the calculations because it is clearly an outlier.

[21] The following values can be substituted to the formula above (footnote 16): $\bar{X}$ = 0.3984 m, n = 47, $t_{\alpha/2}$ = 1.9624, $t_{1-\alpha/2}$ = −2.1181, and s = 0.00825. There were probably alternatively 29 and 30 blocks in each course (the estimate is based on the percentages of preserved wall blocks given in Kyriaki 1988: 125). In the calculations the following values are used for the total number of blocks *N:* 15 courses *N* = 442, 16 courses *N* = 472, and 17 courses *N* = 501.

[22] Kyriaki 1988: 121.

[23] Dinsmoor 1961: 355–368.

[24] Coulton 1974: 62; Coulton 1975: 85–89. For a recent critical evaluation of Greek foot-standards and their use in architectural studies, see Pakkanen 2013: 11–12.

calculate the foot-length as 301.8 mm[25] (actually, the correct result is closer to 301.9 mm). Kavvadias reports the dimensions of the *Hestiatorion* (or 'Gymnasium') as 75.57 × 69.53 m. He recognises its length as 250 stadium feet because, according to his calculations 250 × 0.3018 = 75.58 m, a discrepancy of a mere centimetre.[26] In reality, the discrepancy between the two dimensions is much larger, 0.12 m, due to a multiplication error: the correct product of 250 × 0.3018 m is 75.45 m. In an excavation report published one year later, Kavvadias corrects the building length to 75.36 m but does not comment on the foot-standard.[27] It is obvious that even if Kavvadias has correctly derived the length of the stadium foot-unit,[28] the connection between this unit and the *Hestiatorion* cannot be established as easily as Kavvadias suggests.

In general, is it possible to establish the length of the foot-standard from the major dimensions of the *Hestiatorion*? It is completely feasible that the length and width of the building were designed to be round numbers of feet, because there are no immediate factors limiting its size in the sanctuary.[29] The exterior walls of the complex are plain and the design of its major dimensions does not include the intricacies of laying out a surrounding colonnade.[30] However, we should remember that the correct discovery of such a foot-unit is doubly clouded by the possibility of imperfect execution of the original building design[31] together with the inevitability of modern measurement error.[32] Therefore, I have adopted an error estimate of ±25 mm[33] for the measurements, which transforms the single figures into ranges (length 75.335–75.385 m, width 69.505–69.555 m).

A single statistical figure, sum of squared discrepancies, can be used for evaluating how well a suggested foot-unit fits to the data. For example, the closest fit for Kavvadias' foot-length of 301.8 mm is given by 250 by 230 feet. However, both of these are clearly off the mark: 250 × 0.3018 = 75.450 m, which is 65 mm more than the upper value of the measurement range of 75.385 m, and 230 × 0.3018 = 69.414 m, which is 91 mm short of the lower limit of 69.505 m. The sum of squared discrepancies can be calculated as $65^2 + (-91)^2 = 12{,}506$ mm^2. The usefulness of the approach becomes apparent when the measurement fit is calculated for all the 'foot-unit' lengths within the range 280–360 mm and the result is drawn as a graph (FIGURE 5). The step used in the calculations is 0.1 mm, so that the first unit is 280.0 mm, the second 280.1 mm, and so on until 360.0 mm is reached.[34]

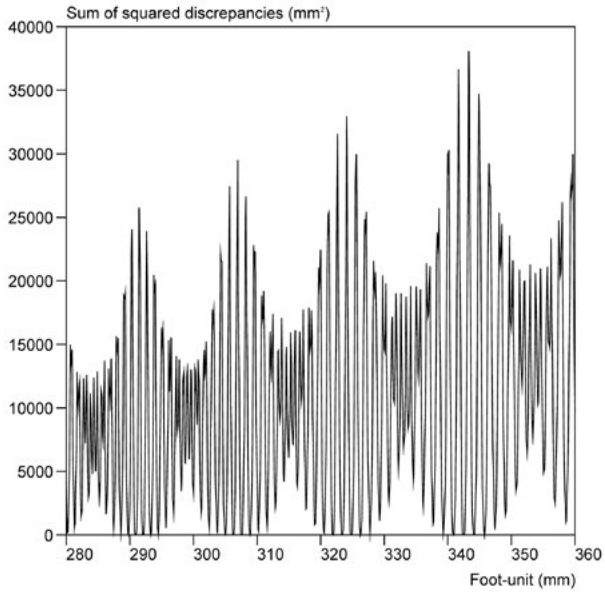

Figure 5. *Hestiatorion*, Epidauros. 'Foot-unit' fit calculated on the basis of length and width. Full feet, measurement error margin ±25 mm (Jari Pakkanen).

In FIGURE 5 the best fitting foot-units are indicated by zero discrepancies, or where the curve actually touches the *x*-axis: the first is just to the left of 290 mm and the last at *c.* 346 mm. Kavvadias' foot-unit with a sum of squared discrepancies of *c.* 12,500 mm^2 is among the poorly fitting units. The best fitting cases with zero discrepancies are presented in TABLE 2. It is interesting that only a 'foot-unit' of *c.* 290 mm produces a round number for both the length and the width, 260 by 240 feet. However, since we cannot be sure that the architect designed the building plan using round numbers, the question of the *Hestiatorion* foot-unit remains open. What is certain is that Kavvadias'

[25] Kavvadias 1900: 108–109.
[26] Kavvadias 1900: 143 n. 1.
[27] Kavvadias 1901: 49; 75.36 × 69.53 m are also the dimensions given in Palaiokrassa 1988: 21.
[28] Rather than giving a single figure for the stadium foot-unit, it would be more correct to give a range based on the minimum and maximum lengths of the stadium: the length of the unit can thus be defined as 301.6–302.2 mm (180.95 / 600 ≈ 0.3016 m; 181.30 / 600 ≈ 0.3022 m).
[29] See Tomlinson 1983: fig. 4 for a general plan of the sanctuary with the most prominent geographical features.
[30] Cf. Dinsmoor 1961: 356.
[31] Coulton 1975: 89–98.
[32] Kavvadias' two values for the *Hestiatorion* length differ by 0.21 m over the length of *c.* 75.5 m; the variation is *c.* 1/360, where good modern surveying should reduce the measurement error to less than ±5 mm (*c.* 1/7500).
[33] ±25 mm (*c.* 1/1500) is still moderately good traditional surveying.
[34] Even though a step of 0.1 mm is used in determining the possibly fitting foot-standards, I do not suggest that the unit could be determined that accurately: rather, minimizing the length of the step makes certain that no possibly fitting units are omitted from the analysis. I implemented the program used in the foot-unit analysis on top of statistical program Survo 98. I have recently advocated the use of cosine quantogram analysis in the study of archaeological metrological patterns and proportions (see Pakkanen 2011 and 2013 for case studies and references to earlier publications). However, using the sum of squared discrepancies is also a perfectly valid method of evaluating the question at hand.

stadium foot-standard of 301.8 mm cannot be used to establish the exact height of the column.

Shaft profile

As we have seen above, based on the column drum and wall block heights, there are two possible ranges for the column height (7.07–7.12 m and 7.84–7.92 m; see also FIGURE 4). In this section the column shaft profile is analyzed in order to see whether one of the height ranges should be preferred over the other. Whether the column shafts had *entasis* or not, is certainly among the most important factors involved in reconstructing a Doric column.[35] As background it should be noted that *entasis* is a regular feature of 4th-century Doric architecture in the Peloponnese and Delphi: in fact, the columns of all buildings which are preserved well enough for the matter to be evaluated have *entasis*. There is also a tendency to place the maximum projection of the *entasis* in the middle of the shaft.[36]

FIGURE 6 presents on the left the shaft profile based on Kyriaki's suggested reconstruction:[37] the height of the shaft is modified so that the total height of the column is within the range determined for the 11-drum and 15-wall-block reconstruction (7.07–7.12 m; the shaft height of 6.58 m in FIGURE 6 corresponds to a 7.095 m high column with the capital). The *x* and *y* axes are drawn at different scales in order to make the profile more discernible: the scale for *x* axis is ten times greater than for *y* axis. The five missing drums are indicated by dotted lines in the drawing, and their average height, 0.595 m, is approximated by dividing by five the gap left by the preserved drums.[38] The shaft profile is slightly S-shaped, which is due to the method of reconstructing the two missing bottom drums: the tendency of the top nine drums is quite clearly curving, but the bottom drums force the curve back to almost a straight line.

The unlikelihood of the 11-drum shaft profile is easily corrected by adding one drum to the bottom of the shaft. Kyriaki uses the drum 4508 with an upper diameter of 1.144 m for her second shaft reconstruction,[39] but there is no reason why it could not be from the first. The lower diameter of this drum cannot be measured, so Kyriaki's estimate is based on the average drum diminution of 22 mm.[40] If the shafts had *entasis*, however, the diminution is not constant: the taper is slight in the lowest drums and gradually increases towards the top of the column. In fact, it is not necessary to make any assumption about the amount of diminution, since enough information is provided by the preserved drum dimensions to establish, in the first place, that the shaft profile was curving, and in the second, the mathematical formula of the best-fitting curve to the data; for the latter, a method called non-linear regression can be used. The measured drum dimensions used in the estimation of the curve formula are plotted as circles in FIGURE 6; the 12-drum shaft height of 7.37 m on the right of the figure corresponds to the mid-point of the column height range 7.84–7.92 m with the capital height (0.511 m) subtracted, and the average height of the missing drums is estimated as *c.* 0.627 m.[41] When a parabola is fitted to the data,[42] the lower diameter of the bottom drum can be calculated as 1.160 m,[43] a dimension 6 mm less

Table 2. Best fitting foot-units and *Hestiatorion* main dimensions.

foot-unit (mm)	dimensions in feet
289.8	260 × 240
290.9	259 × 239
291.0	259 × 239
292.1	258 × 238
293.3	257 × 237
305.0	247 × 228
306.3	246 × 227
306.4	246 × 227
307.6	245 × 226
322.0	234 × 216
323.4	233 × 215
323.5	233 × 215
324.8	232 × 214
324.9	232 × 214
340.9	221 × 204
342.5	220 × 203
342.6	220 × 203
344.1	219 × 202
344.2	219 × 202
345.8	218 × 201

[35] Kyriaki does not introduce *entasis* to the taper of her straight 'ideal column', so the curving profile of the shaft is not taken into account in the reconstruction proposal, perhaps for simplicity's sake; Kyriaki 1988: 118, 155 table 3.

[36] The 4th-century *Tholos* at Delphi, the 4th-century temple of Athena at Delphi, the *Tholos* at Epidauros, the temple of Athena *Alea* at Tegea, the temple of Apollo at Delphi, the treasury of Cyrene at Delphi and the temple of Zeus at Nemea; see Pakkanen 1997: 323–344. Scahill (2012: 99–105) shows that the columns of the South Stoa at Corinth were also constructed with *entasis*, even though the fragmentarily preserved drums do not allow for a precise evaluation of its characteristics.

[37] Kyriaki 1988: 155 table 3, 165.

[38] [6.58 – 0.568 (drum 4451) – 0.602 (drum 4338) – 0.582 (drum 4249) – 0.646 (drum 4307) – 0.591 (drum 4147) – 0.614 (drum 4146)] / 5 = 0.5954 m.

[39] Kyriaki's second column reconstruction is not discussed in detail in this paper, since there hardly is enough evidence for a reliable reconstruction: from the middle of the shaft five out of six drums are missing; Kyriaki 1988: 155 table 3, 165.

[40] Kyriaki 1988: 118.

[41] Average height of the missing drums: [7.37 – 0.568 (drum 4451) – 0.602 (drum 4338) – 0.582 (drum 4249) – 0.646 (drum 4307) – 0.591 (drum 4147) – 0.614 (drum 4146) – 0.634 (drum 4508)] / 5 = 0.6266 m. The average height is slightly greater than in the 11-drum reconstruction (0.595 m).

[42] In the regression I have used the estimate-operation of the statistical software Survo 98: ordinary least squares approximation is used in the estimation process and the Davidon-Fletcher-Powell variable metric method in the minimization of the residual sum of squares; see Mustonen 1992: 178–196.

[43] The data points used in the non-linear regression can be presented

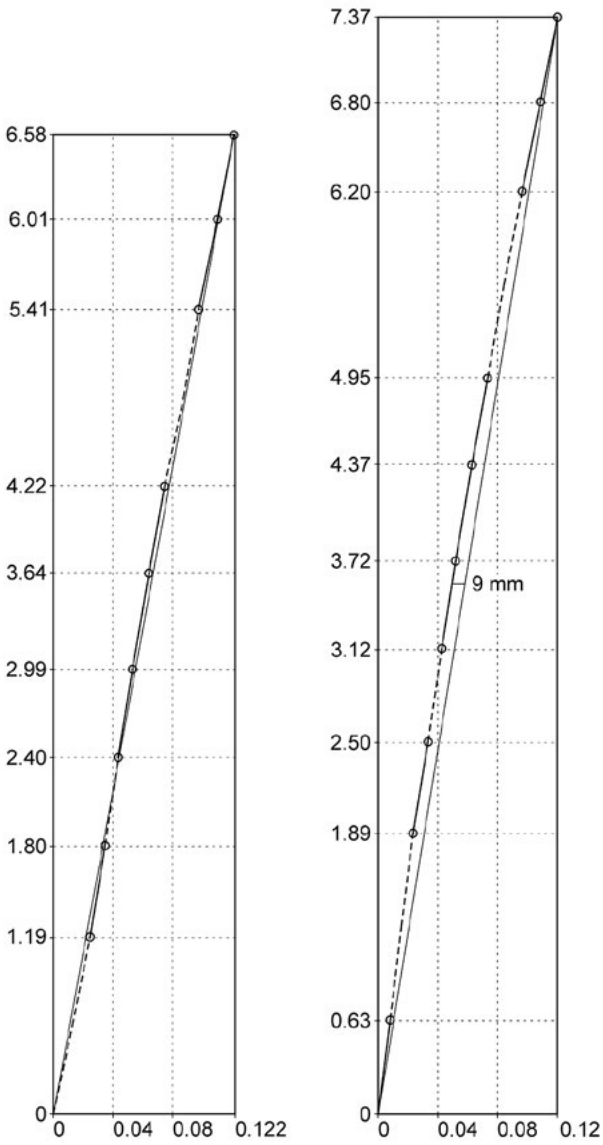

Figure 6. *Hestiatorion*, Epidauros. 11-drum (left) and 12-drum (right) reconstructions of the shaft profile (Jari Pakkanen).

than Kyriaki's suggestion. The 12-drum reconstruction of the shaft produces a smoothly curving profile with an entirely plausible maximum *entasis* of *c.* 9 mm in the middle of the shaft.[44]

Comparison of the 11- and 12-drum shaft profiles strongly suggests that the taller reconstruction should be preferred over the shorter one. The S-curve of the 11-drum alternative (on the left in FIGURE 6) could be corrected by reconstructing two more slender lower drums, but this leaves no place for drum 4508 in the scheme. The possibility that the drum would belong to a thickened angle column is quite likely excluded by the preservation of a corner capital which has the same diameter as the four top drums.[45] With the 12-drum column and 17-course wall favoured, the height of the *Hestiatorion* Propylon column and the wall below the architrave can be established as 7.84–7.92 m, which is the overlapping range of the 95% bootstrap confidence intervals of these two elements. This is 0.67–0.75 m higher than the previously proposed reconstruction of 7.1677 m.[46] FIGURE 7 presents the elevation of the building façade restored with these 12-drum columns. The new height also changes significantly the proportions of the building.

Column proportions

Column dimensions and proportions of some 4th and 3rd-century Doric buildings are listed in TABLE 3. The lower diameter of the Propylon column at the *arrises* can be estimated as *c.* 1.20 m (if the depth of the fluting is correctly reconstructed as 20 mm,[47] the lower diameter can be estimated as 1.16 + 2 × 0.02 = 1.20 m).[48] The new proportional height of 6.5 to 6.6 lower diameters is significantly different from Kyriaki's suggestion of 5.94 lower diameters,[49] but it is perfectly normal in 4th and 3rd-century Doric contexts (see col. *G* in TABLE 3).[50]

as coordinate pairs; the *x* coordinate is the drum diameter and the *y* coordinate is the approximated shaft height. The pairs are as follows: (1.144, 0.634); (1.113, 1.888); (1.093, 2.502); (1.075, 3.129); (1.056, 3.720); (1.034, 4.366); (1.013, 4.948); (0.967, 6.202); (0.942, 6.804); (0.920, 7.372). The estimated model is parabola $(y - y_0)^2 = a \times (x - x_0)$, and the estimated parameters are x_0 = 1.2626 (standard error 0.0112), y_0 = −8.9193 (0.6732), and a = −772.84 (39.68). The bottom diameter x can be calculated as 1.160 m by solving the above model equation with respect to x and giving y = 0; correspondingly, the missing drum diameters can be estimated as 1.129 m (top diameter of the second drum, y = 1.261) and 0.991 m (ninth drum, y = 5.575). The bottom diameter of the shaft is not notably dependent of the estimated conic section. I have tested this by fitting an arc of a circle to the data: the fit is poorer, but the result is different only by a millimetre (1.161 mm).

[44] The amount and position of maximum *entasis* is calculated by fitting a curve to the shaft profile points and locating its greatest distance from the line connecting the bottom and top of the shaft; on the method, see Pakkanen 1997: 323–336; Pakkanen 1998a: 62–67.

[45] Kyriaki 1988: 118, 149 ns 40–41, 155 table 3. Drum 4508 was actually excluded from the finished anastylosis of the two corner columns (see FIGURE 3).

[46] In the light of the conclusions of this paper, some questions regarding the executed restoration of the two Propylon columns and entablature can be raised: the first is whether the 8 cm range for the column height would have been precise enough for restoration purposes and the second is whether there was enough original material for restoring the columns. The new 12 drum-reconstruction also diminishes the proportion of surviving material. These issues were brought to the attention of the restoration team in 2000. The physical restoration finished in 2009 at Epidauros uses 11 drums in the column shaft and 15 wall blocks between the *orthostates* and the architrave level.

[47] Kyriaki 1988: 118.

[48] This could perhaps leave space for an additional 13th drum at the bottom of the shaft, since the width of the top of the stylobate is 1.265 m (Kyriaki 1988: 149 n. 42) and the maximum lower diameter of the hypothetical drum can be calculated as 1.200 + 0.016 (taper of the lowest drum in the 12-drum reconstruction) = 1.216 m. The possibility is not considered further in this paper because no traces of a larger drum have been discovered at the site.

[49] Kyriaki 1988: 120; due to the new lower column diameter of 1.20 m, Kyriaki's suggestion should be modified to 5.97 lower diameters.

[50] When I wrote this footnote in 2000, it read as follows: 'It is rather the unusually robust columns of the South Stoa at Corinth which require explanation, suggesting that further fieldwork is perhaps required to determine whether the columns of the building have

Table 3. Column dimensions and proportions of mid-4th to early 3rd century BC Doric architecture. Dimensions in cols *A–F* are given in meters.

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Epidauros, *Tholos* (11/12 drums)[1]	6.9 / 7.5	6.5 / 7.1	0.998	0.772 / 0.750	0.01	3.4 / 3.4	6.9 / 7.5	3.5 / 3.5	0.15 / 0.14	0.48–52
Tegea, t. of Athena *Alea*[2]	9.544–80	8.952–77	1.55	1.21	0.011	4.3–4.7	6.16–18	3.79–80	0.12	0.48–53
Delphi, treasury of Cyrene[3]	3.86	3.64	0.556	0.458	0.008	2.0	6.94	2.69	0.22	0.56
Nemea, t. of Zeus[4]	10.33 (9.55)	9.70 (9.00)	1.63 (1.404)	1.307 (1.112)	(0.013)	(4.6)	6.342	3.33	(0.14)	(0.51)
Pergamon, t. of Athena *Polias*[5]	5.25	4.95	0.754	0.605	0.008	2.6	6.96	3.01	0.16	0.53
Epidauros, *Hestiatorion* Propylon	7.84–92	7.33–41	*c.* 1.20	*c.* 0.955	0.009	3.6	6.5–6	3.3	0.12	0.49
Corinth, South Stoa[6]	*c.* 6.4	*c.* 6.0	0.96	0.794	*exists*		6.7	2.8		
Lindos, t. of Athena *Lindia*[7]	5.60	5.24	0.87	0.685			6.4	3.5		
Delos, Dodekatheon[8]	4.62	4.37	0.69	0.566	0.005	2.2	6.7	2.8	0.11	0.51
Thasos, NW Stoa[9]	5.16	4.85	0.742	0.595			7.0	3.03		

A. Column height
B. Column shaft height
C. Lower diameter of the shaft at the *arrises*
D. Upper diameter of the shaft at the *arrises*
E. Maximum *entasis*
F. Height of maximum *entasis*
G. Proportional height of the column: *A* / *C*
*H.*Taper of column shaft (%): 100 ´ (*C* – *D*) / *B*
I. Proportional emphasis of maximum *entasis* (%): 100 ´ *E* / *B*
J. Proportional position of maximum *entasis* in the shaft: *F* / *B*

[1] Pakkanen 1997: 327–329.
[2] Pakkanen 1998: 73, appendix D.
[3] For dimensions in cols *A–D*, see Bousquet 1952: 46–48; for *entasis*, see Pakkanen 1997: 332–334.
[4] *Pronaos* column dimensions used to calculate the *entasis* proportions are given in parentheses. For dimensions in cols *A–D*, see Hill and Williams 1966: 9–10, 22; for *entasis* of the *pronaos* column, see Pakkanen 1997: 334–336.
[5] For dimensions in cols *A–D*, see Bohn 1885: 11; for *entasis*, see Pakkanen 1998b: 155–156. Radt 1988: 22, 179 dates the building to *c.* 330–320 BC on historical reasons, but traditionally it has been dated to the early 3rd century; see e.g. Gruben 2001: 464.
[6] Broneer 1954: 30–32; Scahill 2012: 86–99. For the date of *c.* 300 BC, see Scahill 2012: 286–289; Williams and Fischer 1972: 171.
[7] Dyggve 1960: 87, 110.
[8] On the column reconstruction, see Pakkanen 2000.
[9] Martin 1959: 14–17, 47.

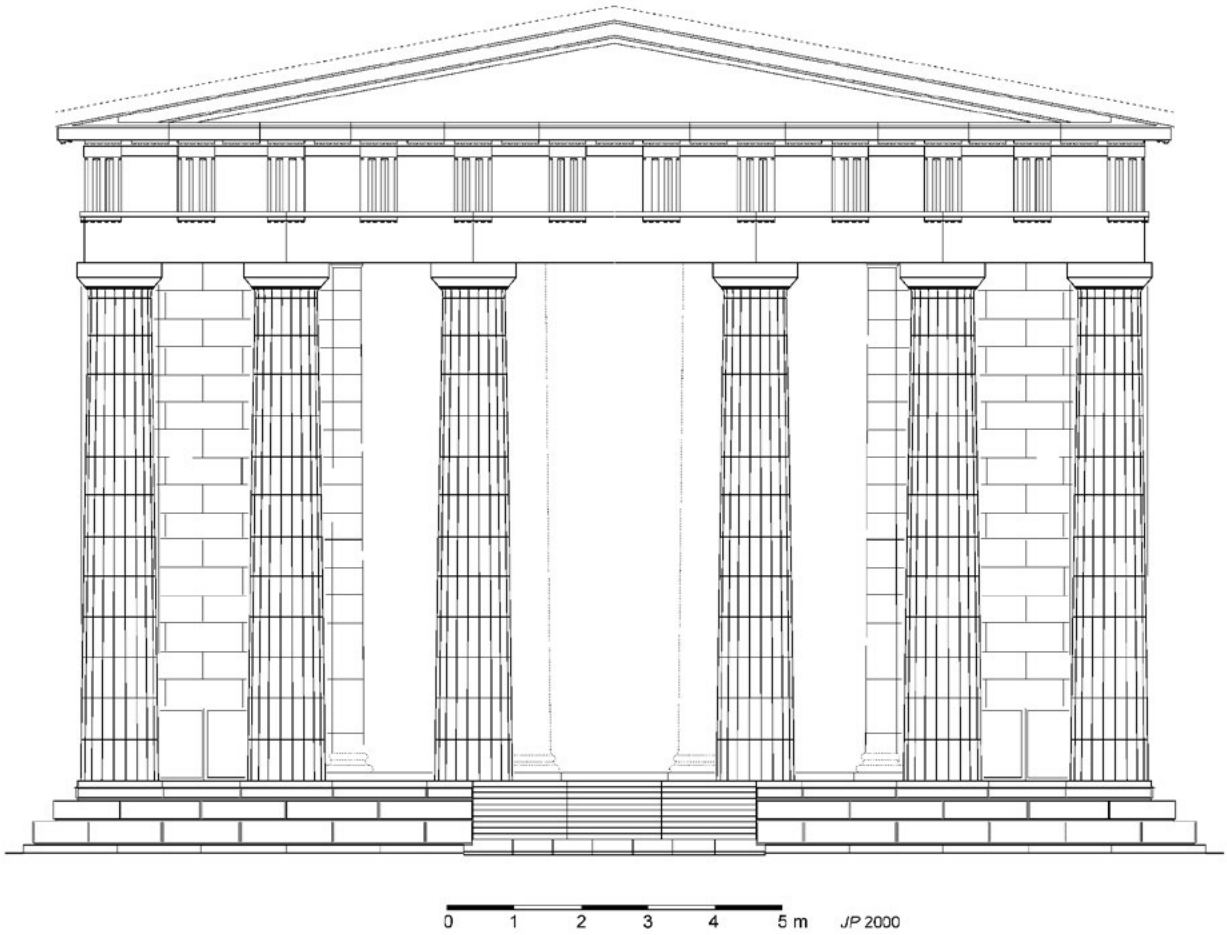

Figure 7. *Hestiatorion*, Epidauros. Reconstruction of the Propylon façade with 12-drum columns (drawing: Jari Pakkanen).

Also the taper and *entasis* proportions of the *Hestiatorion* Propylon columns fit well to comparative material from other Doric buildings (see cols *H–J*).

Conclusions

Using statistical analysis of the preserved architectural block dimensions together with mathematical modelling of the column shaft curve, it has been demonstrated that the column of the *Hestiatorion* Propylon at Epidauros should be restored with 12 rather than the executed anastylosis with 11 drums. Due to the small number of preserved blocks, the height of the column and the wall below the architrave cannot be defined more precisely than as being within the range 7.84–7.92 m. The previously restored *exact* height of the column of 7.1677 m is determined solely on the basis of a predefined foot-standard of 0.3018 m: it can be shown that Kavvadias' argument connecting this unit to the *Hestiatorion* is invalid and, therefore, it cannot be used in the column height reconstruction. Furthermore, in the age of highly advanced digital technologies for three-dimensional reconstructions it can be questioned whether physical anastylosis programmes of ancient architecture should proceed in cases where the material is as fragmentary as at Epidauros.

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The first drafts of this paper were written as long ago as in 1999–2000. I gave the manuscript to the Committee for the Preservation of the Epidauros Monuments and after discussions with V.E.E.S Kyriaki and Vasilis Lambrinoudakis I agreed that before proceeding with the publication I will give them time to finalise the studies on the Propylon and publish the final restoration proposal. Only details of the paper have been changed in the final editing and some references added.

I wish to thank Richard Anderson for thoroughly reading and discussing the first manuscript of this paper. Also, the comments I received in 2000 from

been correctly reconstructed.' Broneer's (1954: 30–32) column height is only 5.71 m, but as Scahill's (2012: 85–99) recently published work on the Stoa demonstrates, the height should be restored most likely as *c.* 6.4 m (and in any case as more than 6.0 m).

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Interpretation of the Current State of the Treasuries Retaining Wall at Ancient Olympia Through Staged Historical Back Analysis

Dimitrios Egglezos

Summary

The aim of this study is to interpret the current state of the Treasuries retaining wall from a structural pathology viewpoint, using the staged historical analysis method. In order to apply this method reliably and model the structure in historical stages, data from different scientific fields were collected (historical-archaeological, architectural, geological, geotechnical-structural etc.). The analyses provide a satisfactory picture of the current state of the retaining wall, the critical impact factor in its pathology (water action), and the time period when the current condition was largely formed (7th century AD). Finally, the measures recently implemented to address the adverse effects on the retaining wall and ensure its permanent protection are presented.

Περίληψη

Στόχος της παρούσας εργασίας είναι η ερμηνεία της υφιστάμενης κατάστασης του αναλήμματος των Θησαυρών από άποψη δομικής παθολογίας, βάσει μηχανικής ανάλυσης σε στάδια, αντιπροσωπευτικά της ιστορίας του αναλήμματος. Η αξιόπιστη εφαρμογή της ανάλυσης σε ιστορικά στάδια βασίστηκε στη συλλογή δεδομένων από ποικίλα επιστημονικά πεδία (ιστορικά-αρχαιολογικά, αρχιτεκτονικά, γεωλογικά-γεωτεχνικά, σεισμικά κ.ο.κ.). Από τις αναλύσεις προκύπτουν: η εικόνα τρέχουσας δομικής παθολογίας, ο κρίσιμος παράγων για την πρόκλησή της (δράση του νερού από όμβρια ή/και πλημμύρες) και η χρονική περίοδος κατά την οποία παγιώθηκε εν πολλοίς η εικόνα της τρέχουσας κατάστασης (7ος αιώνας π.Χ.). Τέλος, παρουσιάζονται τα μέτρα προστασίας, τα οποία υλοποιήθηκαν πρόσφατα, προκειμένου να αντιμετωπισθούν σε μόνιμη βάση οι δυσμενείς παράγοντες για την ευστάθεια του αναλήμματος.

Key Words

Ancient Olympia; World Cultural Heritage monument; dry masonry; ancient retaining wall; staged historical analysis; interpretation of structural pathology; soil-structure interaction analysis; geotechnical engineering; slope stability; stabilization measures; restoration.

Introduction

The object of this paper is an effort to interpret the current state of the Treasuries Wall as a product of successive impacts throughout its lifetime. These impacts, of various natures, comprise (not exclusively) actions with a clear mechanical effect upon the wall (natural hazards, floods, earthquakes, etc.), geotechnical impacts (natural filling, archaeological revealing, earth pressures, landslides), alterations in nearby geostatic conditions (excavations or fillings, construction or demolition/collapse of manmade structures), human activities (modifications to the wall structure, strengthening and/or repair interventions), or aging effects (changes in the natural and/or mechanical properties of the wall materials). This interpretation is achieved by a staged historical analysis, based on the appropriate modelling of the wall and its surroundings (geometry, actions and material properties) at every stage of the complex analysis. The data used for the staged analysis of the Treasuries Retaining Wall, the process of analysis and the final results are presented in the following paragraphs.

Historical data. Brief description of the ancient retaining wall

Historical data

The retaining wall of the treasuries at the sanctuary of Olympia (FIGURES 1 and 2) forms the north part of the sanctuary enclosure and retains the soil of the Kronion Hill slope. The blocks of the retaining wall are made of bioclastic/oolithic limestone from the wider area of the archaeological site (the main construction material of the monuments of Ancient Olympia). From the published architectural-archaeological evidence,[1] the wall was approximately 110.00 m long. The wall incorporates 18 transverse buttresses (numbered A-Σ using Greek letters), spaced 5.60 – 5.90 m apart. The wall is built in coursed dry masonry and has always been uncoated. It consists of over 10 courses of blocks including the foundation.

The length of most of the blocks ranges from 1.26 to 1.31 m. The typical height of the blocks is 0.35-0.37m

[1] Herrmann 1999.

Figure 1: Plan view of the Treasuries of the Ancient Olympia sanctuary. The top wall corresponds to the retaining wall in question and protects the buildings from the Kronion Hill earth pressures (after Herrmann 1999: 368, fig. 192).

Figure 2: View of part of the retaining wall from Treasury IX (see FIGURE 1). Behind is the Kronion Hill. Several sliding sites can be seen on the hill (photo: D. Egglezos).

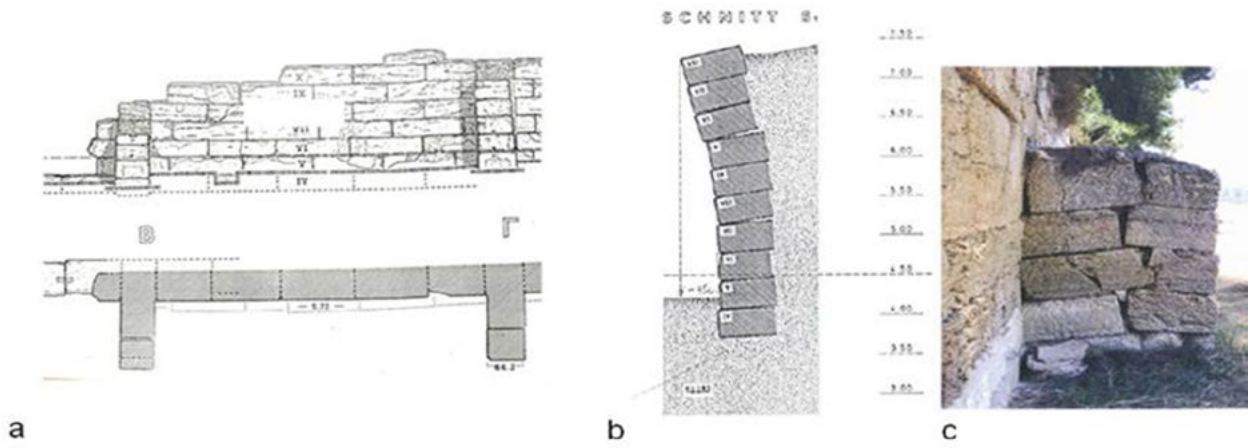

Figure 3: Pathology of the retaining wall: a) horizontal displacements (after drawing from the Archive of the Directorate for the Restoration of Ancient Monuments - *ΔΑΑΜ*, Hellenic Ministry of Culture and Sports), b) permanent rotations (after Herrmann 1999), c) fractured stones (photo: D. Egglezos).

with an average width of 0.60-0.65 m. The blocks were originally fastened by metal clamps (not preserved).

For the foundation of the retaining wall wider stones were used, irregularly and haphazardly laid. The fragmentary state of preservation of the buttresses means that their precise original height is unknown. It is very likely, however, that their crown did not reach the topmost course of the retaining wall. The transitional backfill consisted of the soil material at the site of the retaining wall, and did not include a drainage system; nor did the earth fill behind the retaining wall.

The structure of the wall is typical of ancient Greek design. In ancient Greece, retaining walls were built of coursed stone blocks in dry masonry. Metal clamps fastened the blocks in some cases. Wherever necessary, external buttresses reinforced the construction.

The design of the walls, as gravity walls, was generally based on the aspect ratio of width B to height H ($0.20<B/H<0.5$). Their foundation was usually set on one or two courses buried in the earth. The low aspect ratio in the case of the Treasuries Wall ($B/H\leq0.20$) clearly demonstrates the need for the additional structural strengthening provided by the buttresses.

From the pathology of extant ancient retaining walls, it is evident that they generally functioned satisfactorily in geostatic conditions; however, problems could emerge after an earthquake or heavy rainfall.

The construction of the wall probably dates to the second half of the 4th century BC. In segment O-P a repair due to collapse cannot be dated accurately. The buttresses, too, underwent several repairs up to Roman imperial times, attributed mainly to landslides. Following the abandonment of the sanctuary, landslides and the flooding of the river Kladeos gradually covered all the ancient monuments with silty soil, including the retaining wall of the Treasuries. The wall was revealed during the excavations of the German Archaeological Institute in 1875-1881. Additional investigations were undertaken by H. Knackfuss in 1916, mainly consisting of earth removal and cleaning of the monuments. That was when the Roman conduit pipe (behind? segment Θ-I of the retaining wall) was revealed. No extensive investigations or maintenance of the retaining wall have been carried out since then, except for rescue operations to temporarily support some wall segments, trial trenches and research projects on the study and documentation of intervention proposals for the protection and enhancement of the monument.

The current state

Today, the retaining wall receives the thrust of the soil from the steep upslope of the Kronion Hill. The soil thrust and landslides (primarily) and tree root action (secondarily) have caused permanent deformations to the original geometry of the retaining wall and extensive damage to the building material. In particular, they have permanently shifted and/or overturned the upper courses of the wall and the buttresses as a whole, and caused cracks and fractures in the stone blocks (FIGURE 3).

The effect of water action is also apparent, with extensive erosion and areas of biological deposits found on a large number of blocks. The rising moisture has caused partial weathering of the lower courses of the retaining wall (up to and including the 6th course).

In order to address the problem arising from the root system of the trees on the Kronion Hill, the trees were felled and uprooted in the recent past. Since 2000, a

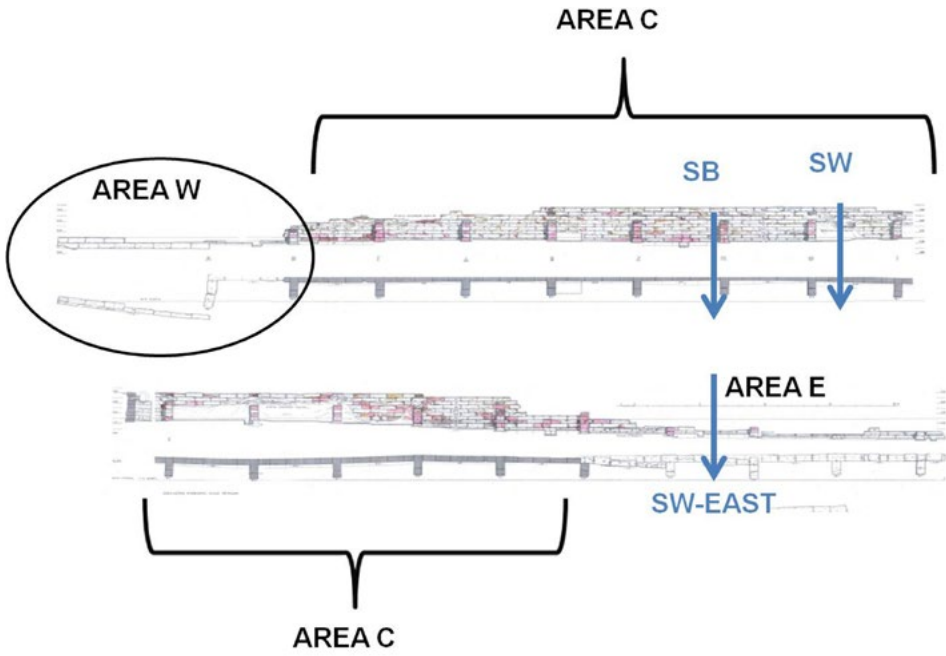

Figure 4: Plan and front view drawing of the retaining wall (drawings: Archive of the Directorate for the Restoration of Ancient Monuments, Hellenic Ministry of Culture and Sports), showing the pathology of the monument in three characteristic areas (W, C and E).

Figure 5: Collapse of east segment and horizontal displacement jump (photos: D. Egglezos).

completely reversible bracing system of stainless metal has been set in place to prevent the retaining wall from overturning.

In summary, based on the available archaeological data,[2] three characteristic areas of more or less uniform structural pathology are observed along the retaining wall (west to east, stadium area) (FIGURE 4):

1. The west end (AREA W: buttresses A-B) and the east end of the retaining wall (AREA E: buttresses O-Σ) have collapsed. The east end in particular presents a horizontal displacement jump of >1m (FIGURE 5).
2. The west segment (buttresses B-E) and the east segment (buttresses N-Ξ) present: partial collapse (of the upper courses), horizontal displacement, fracturing and cracking of blocks due to mainly mechanical stress and outward rotation.

[2] ΔΑΑΜ and Z' ΕΠΚΑ 2013: 5-29.

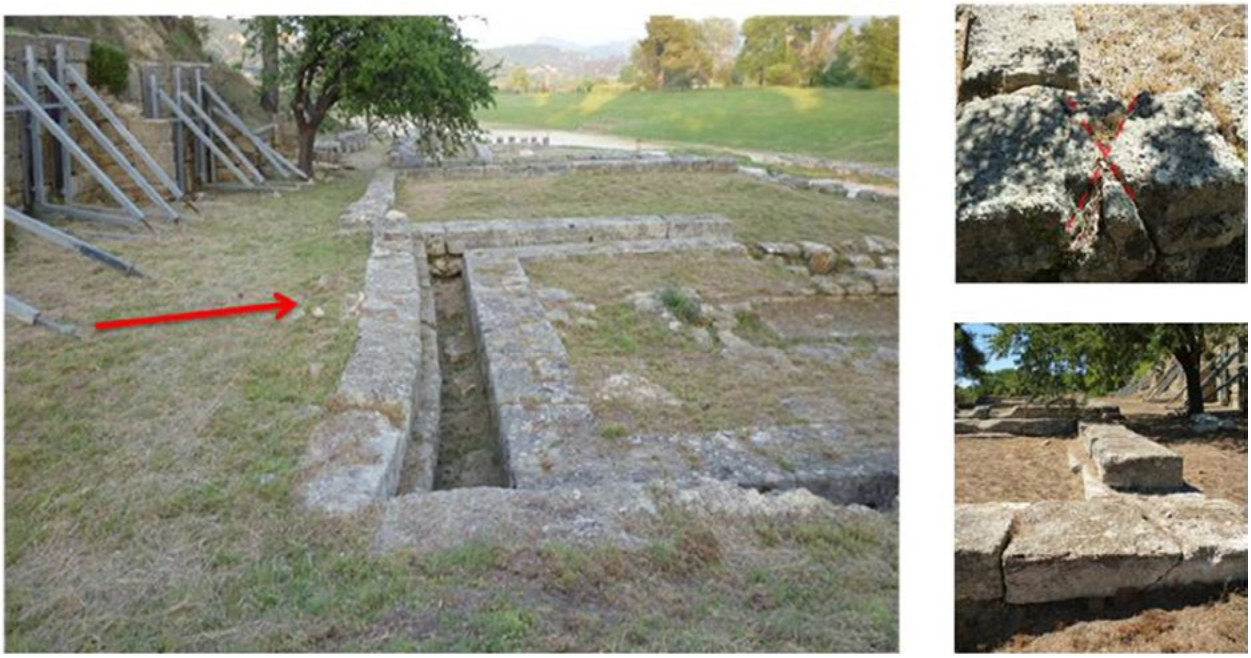

Figure 6: a) Horizontal displacement (0.05-0.25 m) of foundation blocks of north segment of easternmost Treasuries (left), b) Characteristic shear fracture of the NE cornerstone of the Treasury foundation (near buttress Ξ) (top right), c) indirect tension fracture due to soil thrusts on the transverse foundation (bottom right) (photos: D. Egglezos).

3. The central segment of the retaining wall (AREA C: buttresses E-N) presents: partial local collapse (of the upper course: buttresses E-N), horizontal displacement, fracturing of blocks due to mainly mechanical stress, and outward rotation (displacement 0.10 to 0.50 m of crown[3] in relation to the base).

Moreover, apart from the obvious failure of the retaining wall (resulting from its inability to receive geostatic-geoseismic thrusts), the following macroscopic observations made in the area of the retaining wall denote a limit state of deep slope instability:

1. Extended sliding on the slope of the Kronion Hill (above the provincial road).
2. Extensive elevations (swelling) of the soil in the space between the retaining wall and the treasuries.
3. Collapse of the east segment (buttresses Ξ-Σ) with a jump of around 1 m (FIGURE 5) and the west segment (area west of buttress B) of the retaining wall.
4. Horizontal displacements (0.05-0.25 m) of the foundation blocks of the north part of the four easternmost treasuries in area K-Σ of the retaining wall (near the Stadium area) (FIGURE 6a).
5. In one of the Treasuries to the east (near buttress Ξ of the retaining wall), in addition to the displacement, one can also observe: a) a characteristic shear fracture of the NE cornerstone of the foundation, which is in contact with the transverse stone of the east part of the foundation (FIGURE 6b), and b) a fracture, also in the NE cornerstone of the foundation, resulting from indirect tensile stress due to the soil thrusts on the transverse foundation (FIGURE 6c).
6. Indications of sliding are observed in the area between the provincial road and the north slope of the stadium.

The above observations (FIGURE 7) strongly indicate sliding (or marginal conditions for sliding initiation), passing under the retaining wall, with a crest below the upwards roadway and foot on the north boundary of the foundations of the treasuries. This conclusion is compatible with the archaeological-historical evidence of repairs to parts of the retaining wall following landslides in antiquity.[4]

A staged historical analysis of the Treasuries retaining wall

The present picture of the structural pathology and state of preservation of the Kronion retaining wall, like that of any monument, records the mechanical (and physicochemical) impact it has been subjected to throughout its life.

[3] ΔΑΑΜ and Z' ΕΠΚΑ 2013: Παράρτημα Ι.

[4] ΔΑΑΜ and Z' ΕΠΚΑ 2013: 5-29.

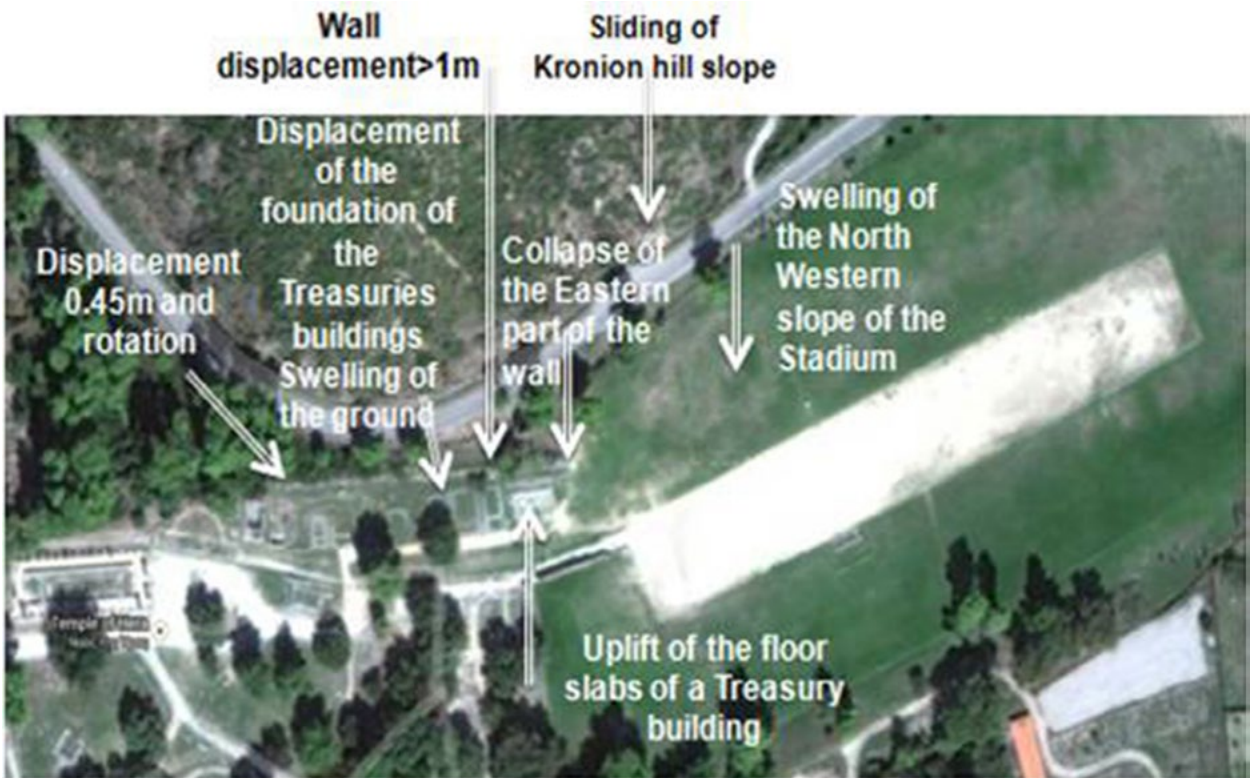

Figure 7: Overview of geotechnical instability in the wider area of the retaining wall (Google Earth view).

In theory, the geostatic analysis of a sufficient number of ancient stages can effectively reproduce the current state, on the following conditions:

A. It should include the basic factors (mechanically significant events) of the historical mechanical actions on the monument, if possible in the correct chronological order.
B. It should take into account any anthropogenic intervention – building phases, repairs – as evidenced by the current state and the historical, archaeological and architectural evidence.
C. It should provide reliable data on the properties of the materials that constitute the monument (e.g. stone blocks) or interact with it (e.g. retained soil), taking into account properties that alter over time (e.g. aging phenomena).

These conditions are fulfilled by the systematic investigation and collection of data on the monument in question.

More specifically, these data, arising from an interdisciplinary approach, must include (not exclusively) the following:

- Archaeological and historical data emphasising specific point in time and/or periods of interest of the monument
- Architectural documentation of the structural-morphological development of the monument
- Reliable estimation of the mechanical and natural properties of the materials
- Appropriate modelling of the monument and the interacting surroundings (geometry – constitutive behaviour of the materials – actions)
- Geometric recording of the current state and structural pathology
- Collection of all data on powerful natural phenomena (e.g. earthquakes, floods, fires) which have certainly or probably affected the monument during the course of its history
- Modern observations of the monument by the bodies responsible for its protection, conservation and promotion (from its excavation onwards) regarding its response to clearly recorded actions (e.g. powerful seismic events).

The term 'stage' in a historical back analysis signifies a 'mechanical event', a situation that alters the stress field of the structure as a result of external action (e.g. slope sliding, excavation, etc.), or a change in the durability of the construction materials and the interactive external environment (e.g. aging of materials). The term 'interpretation of the current state' indicates the attempt to correlate the current condition either to an important 'historical mechanical' event or to the cumulative effect of the sequence of 'mechanical events'. In other words, an attempt is made to relate

cause to effect and – where possible based on the historical-archaeological data – the time of the event.

The methodology described above, with geostatic back analysis in historical stages, has been successfully applied to the interpretation of the current state of areas of the north segment (falling of cornices in the middle of the North Wall)[5] and the south segment of the Athens Acropolis Circuit Wall (permanent deformation of areas of the South Wall *et al.*).

It is worth mentioning that staged historical analysis is a powerful tool that not only applies to the documentation of a monument's history, but also serves to calibrate the monument's mechanical parameters. The latter is extremely important since, as a rule, the availability of authentic samples from the monument's structure for destructive testing is more or less limited.

Consequently, staged historical back analysis is used here to interpret the extensive permanent deformations (horizontal displacements, rotations, fall of the crown blocks) of an extensive segment of the retaining wall (AREA C), as well as the collapse of the west and east segment of the retaining wall (with a simultaneous horizontal jump (>1-2 m) in the case of the east segment).

Data for the staged historical analysis

The scientific data collected for the interpretation of the current state of the Treasuries retaining wall are derived from different scientific fields, systematically presented below.

1. HISTORICAL AND ARCHAEOLOGICAL DATA on the date and course of construction of the retaining wall (with the aim of protecting the treasuries) and the treasuries themselves.[6] These data are used to draw up characteristic historical back analysis stages and the geometry of the retaining wall, the natural ground and the surrounding monumental structures during the excavation of the retaining wall. More specifically, the data provide the date of construction of the treasuries and the retaining wall,[7] references to seismic events and subsequent repairs[8] to the structures on the site, the date of abandonment of the archaeological site (7th century AD), the filling of the area of the retaining wall due to the flooding of the river Kladeos (7th-19th century AD), and finally the date of excavation of the monument (19th century AD).
2. ARCHITECTURAL DATA regarding the geometry and structure of the retaining wall. These data are used for the geometric modelling of the monument when it was originally built. The data provide the geometry and the structure of the retaining wall between buttresses and in the area of the buttresses. They also show the distorted geometry of the retaining wall following its excavation.
3. TOPOGRAPHICAL DATA (Elis Ephorate of Antiquities) showing the current surface/relief of the terrain and the current geometry of the retaining wall (photogrammetry).[9] These data are used to model the current state of the natural ground and the retaining wall.
4. GEOLOGICAL DATA:[10] Briefly, the following geological formations are found in the environs of the Olympia archaeological site (FIGURE 8):
   - VOUNARGOS FORMATION: In the area of the Kronion Hill, the Vounargos geological formation predominates, with many (mainly surface) sliding and creep zones. The Vounargos formation consists of alternating marls, clay silicates, muds and mudstones in a complex vertical and horizontal stratigraphy.
   - OLYMPIA TERRACE: The area of the archaeological site (Kladeos river valley) consists mainly of thick alluvial deposits from the flooding of the Kladeos, consisting chiefly of muddy sands, clayey sands and unconnected conglomerates.
   - The HILLY FORMATIONS surrounding the archaeological site consist mostly of marly formations, strongly weathered or soilified on the surface with creep behaviour, and moderately weathered marls to a greater depth (stiff clays – soft rocks).
5. GEOTECHNICAL SURVEY DATA – STRUCTURAL DATA: The geotechnical data are drawn from a geotechnical study comprising three boreholes (G1=20 m, G2=10 m, G3=12 m), as part of a study to plan protection measures for the retaining wall[11] (FIGURE 9a). A piezometer pipe was installed in borehole G3 (to measure the water table level) and an inclinometer pipe was installed in G1 to measure any instability in progress. In addition to the boreholes, three trial pits were dug by the Archaeological Service to establish the geotechnical conditions of a) the soil at the back of the ancient wall (two pits) and b) the foundation soil in front of the wall (one pit).

[5] Egglezos and Moullou 2011.
[6] Curtius and Adler 1896.
[7] ΔΑΑΜ and Ζ' ΕΠΚΑ 2013: 5-29.
[8] Partida 2016.
[9] ΔΑΑΜ and Ζ' ΕΠΚΑ 2013: Παράρτημα ΙΙ.
[10] Mariolakos 2002.
[11] Egglezos 2013a.

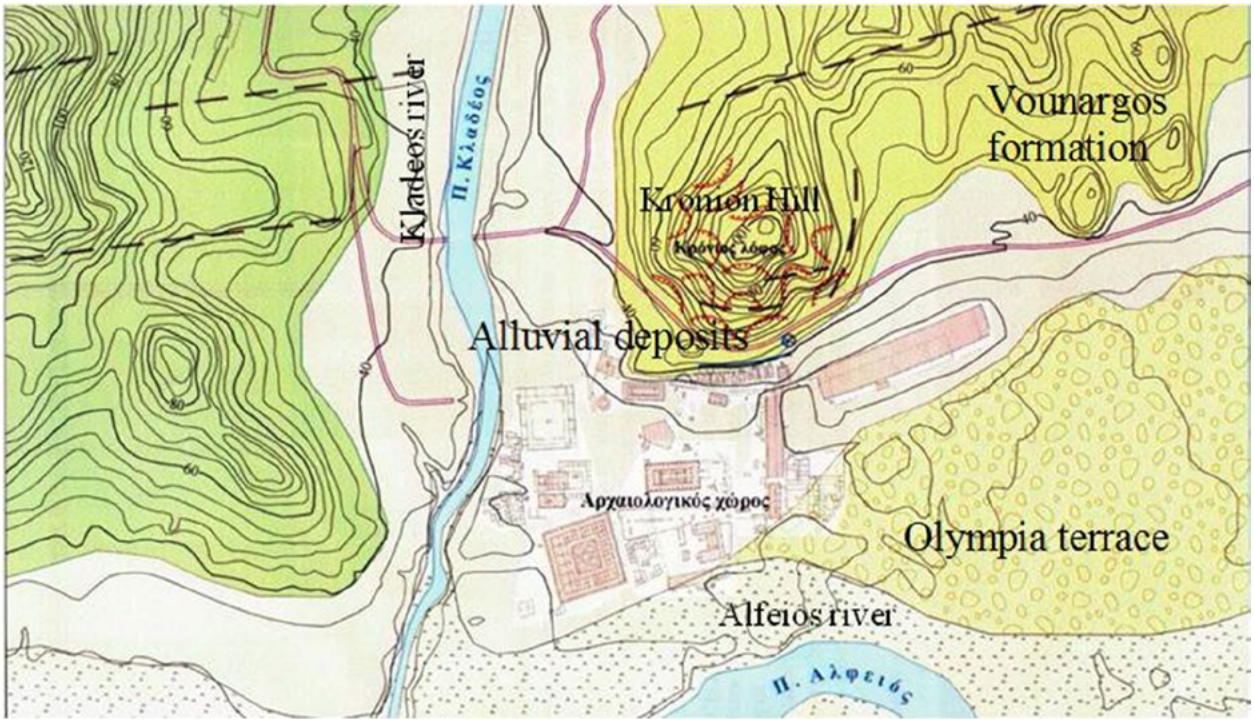

Figure 8: Part of geological plan view (Mariolakos 2002).

Samples were taken from the boreholes for laboratory analysis. Fragments of fallen structural material were also sampled (with the permission of the Archaeological Service) for laboratory testing to determine the mechanical properties of the structural geomaterial.

Soil stratigraphy

Based on the geotechnical survey data[12] four geotechnical units (I-IV) were defined in the wall area (clay materials on the surface resulting from marl weathering [units I-III] and marly soft rock formations deeper [unit IV]).
Three representative geotechnical sections (sections I – III) were prepared for the staged historical analyses. Indicatively, the geotechnical section in the approximate centre of the retaining wall (Section II) is presented in FIGURE 9b.

Water table determination

The water table level was determined in spots by piezometer readings (borehole G3), by measuring the level when drilling the other two boreholes and from the water level in a well relatively close to and in front of the retaining wall, within the archaeological site.

Evaluation – Geotechnical parameters

The values of the natural and mechanical parameters of the geotechnical units in the project area, based on the evaluation of the geotechnical survey data, are presented in TABLE 1 below.

6. SEISMIC DATA

The available archaeological-historical data and relevant seismic back analysis for the interpretation of the collapse of the Temple of Zeus[13] show that seismic events have impacted the archaeological site of Olympia and damaged its monuments.[14] Seismic back analyses have also shown that the collapse of the Temple of Zeus is most probably due to a strong earthquake.[15] The available historical seismic data[16] were systematically collected for use in staged historical mechanical back analysis. Empirical seismic relationships were used to determine accelerations from historical seismic

[12] See n. 11.

[13] Alexandris *et al.* 2008.
[14] Partida 2016.
[15] See n. 13.
[16] Mariolakos 2002; Papazachos and Papazachou 2003.

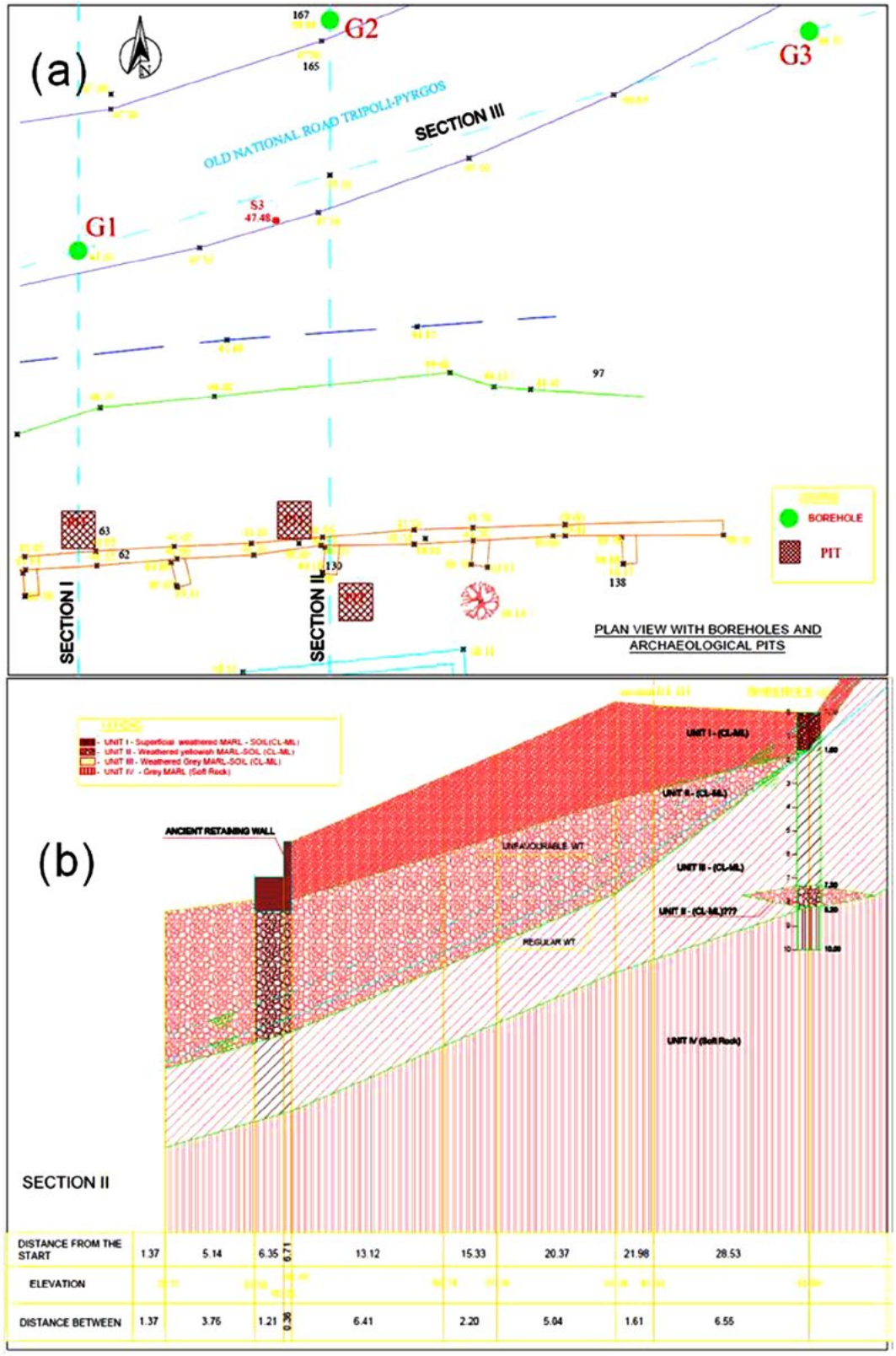

Figure 9: (a) General plan view with indicative borehole sites and (b) Geotechnical section in approximate centre of the retaining wall (Section II) (Egglezos *et al.* 2013).

Table 1. Geotechnical unit parameters

	I	II	III	IV	Vα[1]	Vβ[2]
Classification (AUSCS)	CL-ML	CL	CL-ML	Marl	Stones	Stone joints
γ (kN/m^3)	20	19.5	21	22.2	25	-
c (kPa)	2	5	7	60	80	-
φ(°)	28	28	33	34	45	30
φ_{res}(°)	24	24	24	-	-	25
cu (kPa)	80	100	150	-	-	-
GSI	-	-	-	70	50	2
E_i (MPa)	10	20	30	175	3250	-
σ_{ci} (MPa)	-	-	-	1	10	-
E_{RM} (MPa)	-	-	-	125	1000	-
σ_{cRM} (kPa)	-	-	-	180	600	-
$\sigma_{cRM,tx}$ (kPa)	-	-	-	240	1600	-
σ_{tRM} (kPa)	-	-	-	10	20	-
ν[3]	0.3	0.3	0.3	0.3	0.25	-

Index i: intact rock, Index RM: rockmass, σ_c, σ_t: compressive-tensile strength, respectively, (1): stone blocks, (2): stone blocks interfaces, (3): estimated

Table 2: Major historical earthquakes in the wider area of Ancient Olympia

YEAR	EPICENTRE	DISTANCE (km)	MAGNITUDE ML	PGA(g)[1]	PGA(g)[2]	PGA(g)[3]	SOIL CLASS	S (EC-8)	aT (EC-8)	a_{eff} (g) [(1)]
401 B.C.	OLYMPIA	21.5	6.0	0.068595	0.121283	0.089389	B	1.2	1.2	**0.066**
373 BC	ELIKI	79.9	6.8	0.033685	0.051049	0.055189	B	1.2	1.2	**0.032**
551	NAUPACTOS	73.7	6.5	0.027299	0.04442	0.043514	B	1.2	1.2	**0.026**
1752	CYLLENE	50.0	6.8	0.059968	0.093093	0.09155	B	1.2	1.2	0.058
1783	GORTYNIA	15.5	6.1	0.105908	0.174899	0.133206	B	1.2	1.2	**0.102**
1785	PATRAS	62.7	6.4	0.030118	0.050586	0.0466	B	1.2	1.2	0.029
1791	CYLLENE	62.6	6.8	0.045625	0.070284	0.072024	B	1.2	1.2	0.044
1804	PATRAS	51.6	6.4	0.038175	0.064577	0.057376	B	1.2	1.2	0.037
1806	PATRAS	51.6	6.2	0.03103	0.05481	0.046169	B	1.2	1.2	0.030
1820	CYLLENE	50.0	6.9	0.066515	0.101047	0.102058	B	1.2	1.2	0.064
1873	CYLLENE	47.7	6.6	0.051585	0.083675	0.077423	B	1.2	1.2	0.050
1886	FILIATRA	74.0	7.3	0.062301	0.085252	0.103444	B	1.2	1.2	**0.060**
1899	CYPARISSIA	48.9	6.5	0.045166	0.074842	0.06769	B	1.2	1.2	0.043
1919	CYPARISSIA	39.5	6.3	0.047386	0.081943	0.068142	B	1.2	1.2	0.045
1939	CYLLENE	61.5	6.3	0.027758	0.047683	0.042618	B	1.2	1.2	0.027
1947	PYLIA	75.6	7.0	0.044387	0.064701	0.072844	B	1.2	1.2	0.043

data.[17] TABLE 2 presents the most important historical earthquakes that may have affected the archaeological site of Ancient Olympia, as well as estimated peak and effective acceleration from empirical attenuation relationships.[18]

7. HISTORICAL STAGES

The above data on the Treasuries retaining wall were used to establish the chronological sequence of 'mechanical events', in order to determine the stages for the historical back analysis. The historical stages are presented in TABLE 3 below.

Staged historical analysis

The method of mechanical analysis in historical stages is used below for the interpretation of the current state of the Treasuries retaining wall. The analyses include a) basic geostatic staged analyses, with wall-soil interaction and b) general stability analyses of the slope and the wall. The analyses were carried out using PHASE-2 software by Rocscience.

[17] Kolliopoulos *et al.* 1998; Rinaldis *et al.* 1998; Skarlatoudis *et al.* 2003.
[18] See n. 19.

Table 3. Stages for a historical back analysis of the Treasuries Wall

STAGES	Historic event	Date (Estimated)	Relative Literature	Notes	Estimated macroseismic effective acceleration $a_{eff}(g)$
1,2	*HILL(Natural initial conditions)*			Typical initial stage	
3	Treasuries Construction	600-450πX			
4,5,6	Kronion Wall Construction	350πX			
7	*Heavy Rainfall*			Realistic	
8	Typical geostatic conditions			Normal conditions	
	Roman times soil surface		Curtius Ernst (1896)		
12	Byzantine times soil surface		Curtius Ernst (1896)		
9,10	Seismic event (M=6.5, R=70)	551	Papazachos (2001)		0.026
11	Treasuries Collapse				
13	Kladeos River flood-Filling of the Wall-RAINFALL	7th			
14	*Typical geostatic conditions*	7th - 19th century		Normal conditions	
15	Seismic event [1]				0.1
16	Excavation	End of 19th century			
17	Seismic event [2]	1879/1880			0.06
18	*Heavy Rainfall*			Realistic assumption	
19	*Typical geostatic conditions*	1880-2010		Normal conditions	
20	Seismic event [3]				0.045
(1) see table 3: 1752-1873, (2) see table 3: 1886-1947, (3) estimated					

Organisation of analyses

The analyses were organised based on the following data:

- **Two types of analysis** were used: a) Soil-Structure - Interaction (SSI) geostructural analysis with finite elements (FE) for the assessment of the permanent displacements and the stress state of the wall, and b) stability analysis with finite elements (FE) using the successive shear strength reduction method to calculate general slope and wall stability.
- **2-D analysis** of characteristic sections of the retaining wall, to limit computational cost given that the wall, with an unvarying lengthwise cross-section, is subject to plane strain conditions. It should be noted that the 2-D calculations[19] take into account the effect of the buttresses on the change in soil thrust distribution due to the arching effect (increased thrust at the buttresses, reducing with distance from them).
- **Three characteristic sections** were examined. The geometric modelling was based on

[19] Egglezos 2014.

architectural[20] and photogrammetric data[21] for the wall and topographical data (Elis Ephorate of Antiquities) for the upslope. Furthermore, the available geotechnical sections[22] were used to model the soil stratigraphy. The three sections represent characteristic areas which describe the basic typical structural pathology of the retaining wall:

Section SW: characteristic of the wall and the relief of the slope in the central part of the wall (typical modelling for section of wall between buttresses Γ and N, where large permanent displacements – rotations and/or partial collapses of the upper courses are observed).

Section SB: section corresponding to previous one but at a buttress.

Section SW-E: representative of the ends of the wall (areas between buttresses A-Γ to the west and N-Σ to the east), between buttresses. The slopes at the ends are steeper than in the central part of the wall. The wall also presented total collapse and a horizontal displacement jump (especially at the east end). The section selected for analysis (based on a relevant architectural drawing)[23] is at the east end of the retaining wall. Sections SW and SB present significant structural failures (collapse of upper course, horizontal displacement, rotation). Based on the architectural data,[24] their geometry is depicted both in the original undistorted state (original structure) and in the present (distorted) state. In the case of section SW-E its geometry is presented in the original undistorted state (original structure), while in the current state this area of the wall has collapsed and also presents significant horizontal displacement (>1-2 m).

The examined sections are presented in FIGURES 1 and 4.

- The materials were modelled with elastoplastic FE analysis, according to the Mohr-Coulomb failure criterion for soil materials (units I-IV) and the Hoek-Brown failure criterion for rocky structural geomaterials. The joints between the wall stones and between the wall and the soil were modelled with distinct elements to account for the discrete nature of the wall structure. In order to take into account any differences in the mechanical properties of the soil units in different areas of the slope, two property states were examined parametrically: a) with the values in TABLE 3 ($\varphi > \varphi_{res}$) and b) with residual shear strength angle $\varphi=\varphi_{res}$
- The actions involved in the analyses include: the own weight of the materials, the geostatic balance condition, the earthquake (by pseudostatic analysis) and strong water action (with increased pore water pressure: RU=0.2 for unit I).

  Note that the SSI seismic analysis was carried out by pseudostatic analysis with active seismic acceleration (a_{eff}). This acceleration for each historical stage was calculated based on empirical seismic correlations[25] and is presented in TABLES 2 and 3. As the author has shown in other cases,[26] this analysis is particularly appropriate and effective for the calculation of permanent shifts in retaining walls.
- The analyses were carried out in 20 stages representative of the history of the monument, according to the data in TABLE 3.

Based on the above, 12 analyses were carried out (= 2 types of analysis x 1 geometry (2-D) x 3 sections x 2 sets of mechanical properties).

Analysis results

The main results of the staged historical back analysis of the Treasuries wall are: a) the permanent displacements, b) the stress values on the wall blocks (applied stress to strength ratio), and c) the state of deformation of the blocks (cracks-fractures in brittle materials such as the stone blocks of rocky origin). The stability analyses also provided the general slope-wall stability safety coefficients.

A. Permanent displacements:

The analyses show that the computed permanent displacements of sections SW and SB are a good qualitative match for the current picture of the retaining wall (and also a quantitative match, particularly taking into account the data choices covering a period of 2500 years).

More specifically, the permanent horizontal displacement and rotation away from the original geometry is shown (FIGURES 4 and 3b), as it is actually observed *in situ*. It is also worth noting that the displacement differences observed in parts of the retaining wall with similar structural and slope geometry are satisfactorily interpreted by the different residual shear strength values of the retained soil (see TABLE 4 above). Quantitatively, the computed relative displacement $\Delta h,rel$ of the crown to the base in the sections analysed (TABLE 4) matches the relevant

[20] Herrmann 1999.
[21] ΔΑΑΜ and Z' ΕΠΚΑ 2013.
[22] Egglezos 2013a.
[23] Curtius and Adler 1896.
[24] Herrmann 1999.
[25] Skarlatoudis *et al.* 2003.
[26] Egglezos *et al.* 2013.

Table 4. Permanent displacements and damage index (DI) of the examined wall sections

SECTION		H(m) [1]	Δh,top-ini (m) [1]	Δh,bot-ini (m) [2]	Δh,top-fin (m) [3]	Δh,bot-fin (m)	Δh,rel (m) [4]	DI-ini%	DI-fin%		FS [7]		DI%	
PL=EL, $\phi=\phi_{res}$														
SW-E		4.085	0.19	0.0205	0.48	0.06	0.42	4.149327	10.28152		0.86		0-1%	No damage
SW		3.13	0.015	0.0075	0.38	0.04	0.34	0.239617	10.86262		0.995		1-2%	Light Damages
									W	B				
SB	w [5]	3.13	0.018	0.006	0.3	0.05	0.25	0.383387	7.98722		1.55		1-5%	Middle Damages
SB	b [6]	2.33	0.012	0.006	0.2	0.05	0.15	0.257511	6.437768					
PL<EL, $\phi>\phi_{res}$													5-10%	Heavy Damages
SW-E		4.085	0.285	0.025	1.12	0.14	0.98	6.364749	23.99021		0.86			
													10-15%	Structural Failure
SW		3.13	0.045	0.0075	0.72	0.08	0.64	1.198083	20.44728		0.995			
									W	B			>15%	Collapse
SB	w	3.13	0.025	0.011	0.67	0.11	0.56	0.447284	17.89137		1.47			
SB	b	2.33	0.018	0.011	0.53	0.11	0.42	0.300429	18.02575					

(1) wall height, (2) Δh=displacement, top=wall top, bot=wall base, ini=initial stage, (3) fin=final stage, (4) Δh,rel = relative displacement between top amd base
(5) w = top is considered on the wall crown, (6) b = top is considered on the butress crown, (7) FS=safty factor for stability analyses

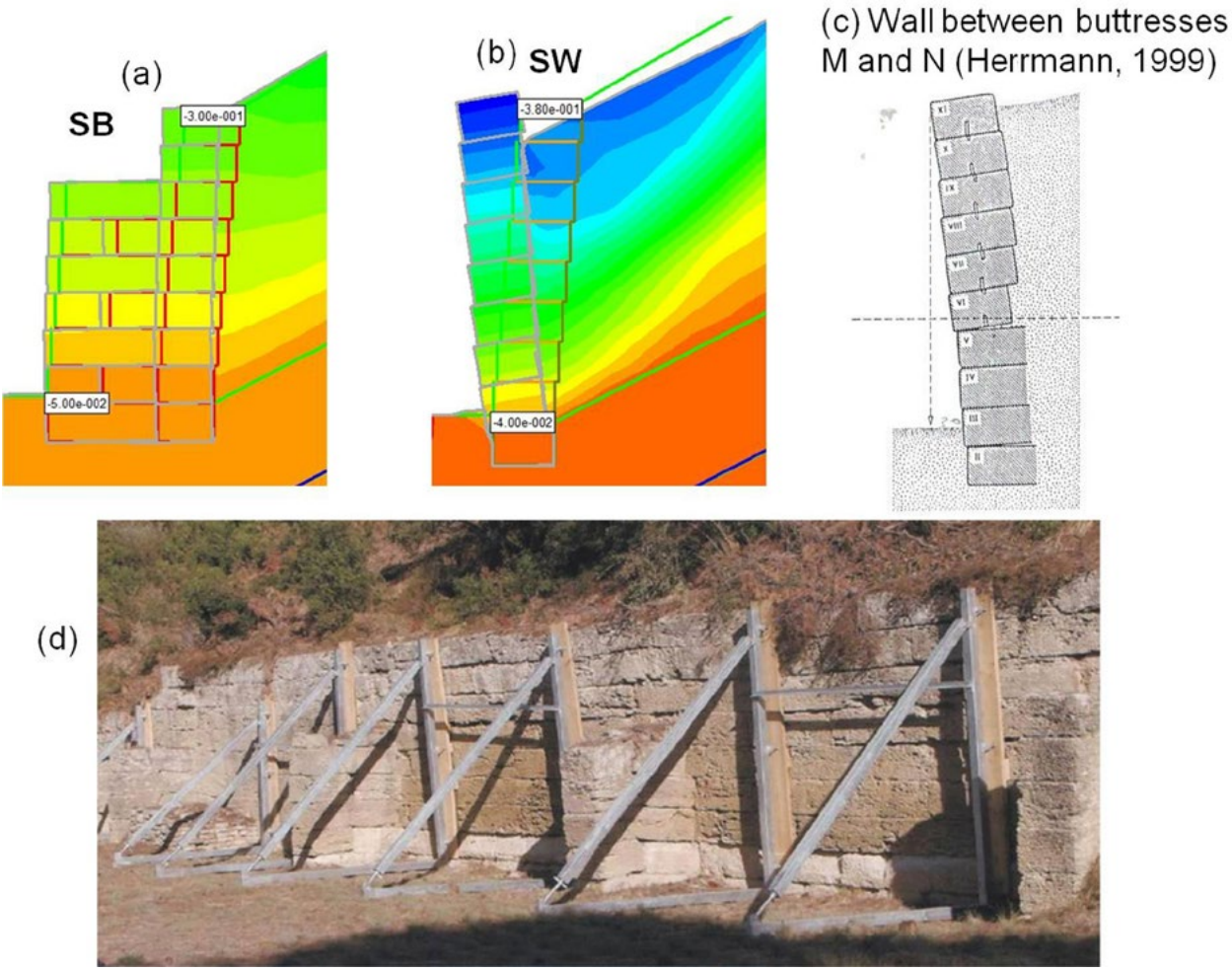

Figure 10: Analytical permanent displacements in the central part of the Treasuries Wall (AREA C) – (a) area of buttress (section SB), (b) area of wall (section SW), (c) architectural documentation of the current geometry of the area of the Wall between buttresses M and N (Herrmann 1999), (d) comparison to the current state (photo: Directorate for the Restoration of Ancient Monuments, 2013).

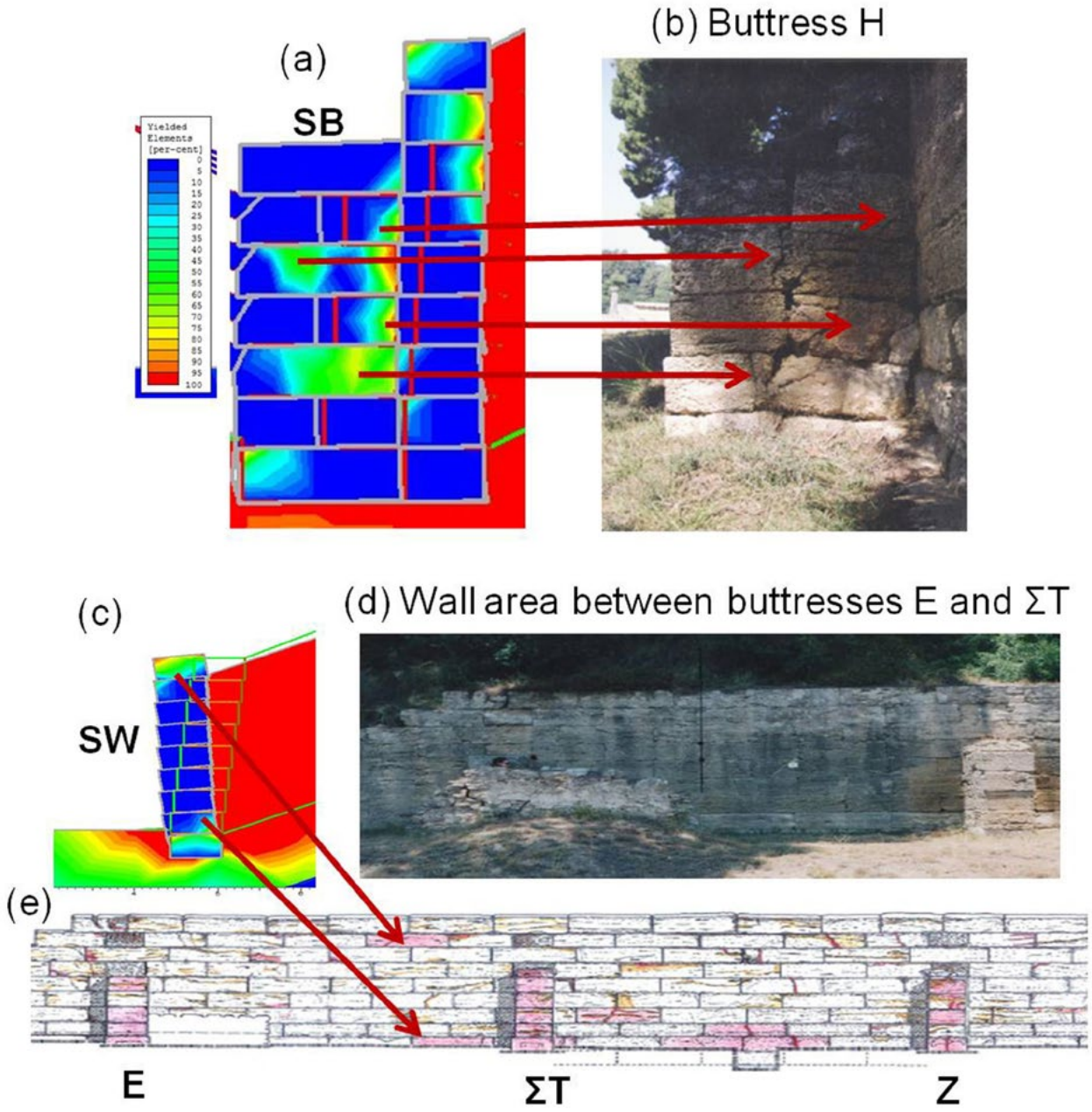

Figure 11: Comparison of analytical results and observed fractures (in the current state) of the Treasuries Wall. (a) section SB, (b) photo of buttress H (ΔΑΑΜ, 2013), (c) section SW, (d) photo (ΔΑΑΜ, 2013) of the wall in the area between buttresses E and ΣT, (e) area of the wall with fractures (pink) between buttresses E and Z (ΔΑΑΜ, 2013).

displacements observed *in situ* (0.10-0.50 m) in the centre of the wall (area of buttresses Γ-Ν).

TABLE 4 also presents the Damage Index (DI) (ratio of relative displacement of the crown to the base and the free height of the wall) for the examined sections, which is a suitable value for calculating the stability of retaining structures.

Computed permanent displacements of sections SW and SB (AREA C), compared to the displacements observed *in situ*, are systematically presented in FIGURE 10.

B. Stress magnitudes

The analyses show that the (computed) strength factor of the stone blocks of the wall, for all the sections analysed, matches the state of preservation of the blocks (intact or cracked/fractured).

Figure 12: Results of the analytical collapse and general sliding (FS=0.86) at the eastern part of the Treasuries Wall (SW-E section). Comparison to the current state (photo: D. Egglezos).

C. State of deformation of the stones

Following on from the paragraph above, the analyses indicate areas of cracking in the blocks (exceeding the 'yield' limit of the material). There is a good match between the calculations and *in situ* observations for all the sections. The relevant comparison for sections SW and SB is presented in FIGURE 11.

D. Cause of observed structural pathology

The examination of the analysed stages of the sections examined shows that the permanent displacements and structural failures of the stones arose cumulatively over time until reaching their present state. It is also clear that the critical stage at which the maximum displacement and failure is observed is where the main action is water action (heavy rainfall and/or flooding with soaking of soil materials leading to reduction of soil shear strength). The stages with estimated seismic stress show limited impact on the accumulation of permanent displacements and/or damage. Based on the above, it appears that the picture that emerged from the *DAI* excavations (1875-1881) was largely formed during the period of abandonment of the archaeological site and the burial of the retaining wall due to flooding of the river Kladeos (7th century AD).

E. Stability of upslope – retaining wall

The safety against general sliding of the slope and retaining wall at the sites of the examined sections is presented in TABLE 4. The safety factors provided in the Table indicate sliding of the SW-E section, which explains the total collapse of the west and east ends of the wall. This sliding is attributed to the reduced shear strength of the soil under water action conditions (heavy rainfall-flooding). No computed sliding is observed in the other two sections (SW, SB). This is in line with the fact that the structure of the central part of the wall is preserved (in spite of the significant permanent displacements-deformations and mechanical structural damage). Indicatively, FIGURE 12 presents the computed collapse and general sliding of the wall (compared to the east end of the wall).

The above results show that the collapses at the eastern part of the wall are mainly attributable to general sliding due to heavy rainfall. This matches the results

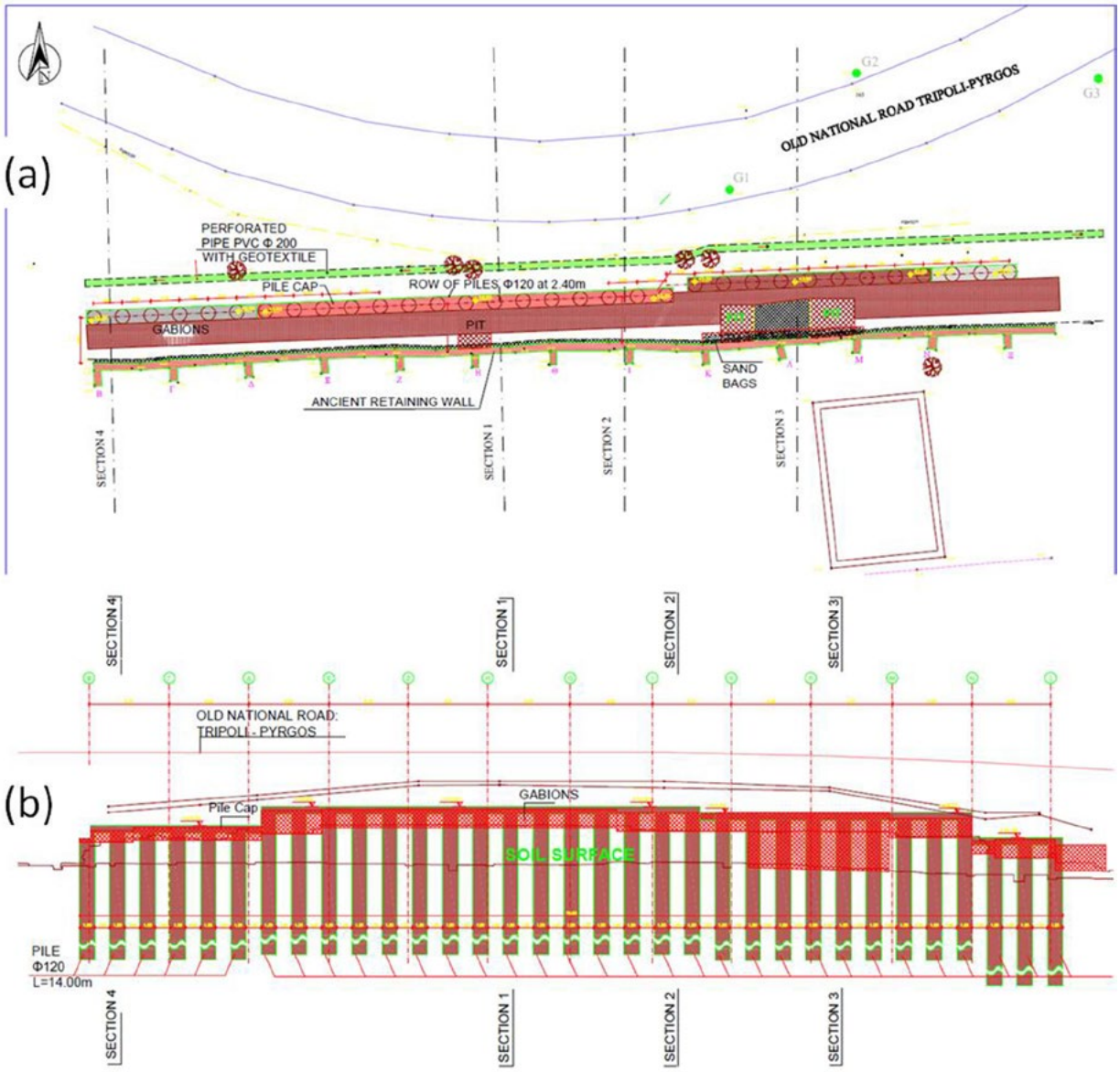

Figure 13: (α) Plan view and (b) Front view of retaining wall stabilization measures (Egglezos 2013b).

of the stability analyses. Failure due to seismic action is not confirmed by the computed results.

Conclusion

The staged historical back analysis and supplementary analyses led to the following basic conclusions concerning the Treasuries retaining wall.

1. Staged historical back analysis can satisfactorily reproduce the current state of the retaining wall. This applies to all the characteristic sections examined in the present study.
2. The permanent deformations-displacements practically observed across the whole fully or partially preserved expanse of the wall (area between buttresses Γ and N) are attributable to the impact of heavy rainfall. More specifically, the permanent deformations-displacements are due to increased thrusts of the retained soils, due to the temporary reduction of the shear strength of the soil when soaked.
3. The collapsed areas of the wall (west and east end), where the slope is steeper, are attributable to general sliding phenomena. This conclusion is supported by the stability analyses and observations of repairs following sliding phenomena.
4. Based on the historical seismicity data, seismic action is not confirmed as a critical cause of permanent deformations-displacements and/or collapses.

5. The state of the retaining wall appears to have been largely formed during the abandonment of the Ancient Olympia archaeological site and the subsequent burial of the wall under alluvial deposits due to the flooding of the river Kladeos (7th century AD).
6. The design of the wall, with a narrow base relative to its height, rendered it vulnerable to static functional failure from the outset (permanent deformations from the time it was built). This demonstrates that a sufficient number of buttresses to ensure its stability must have been an element of the original structure, or were added shortly after its completion, when the first structural failures appeared (even in normal geostatic conditions).

To summarise: the case of the Treasuries retaining wall demonstrates that staged historical mechanical analysis, if based on appropriate reliable interdisciplinary data, can be a useful tool in documenting the history of the monument under examination. It can also contribute significantly to the appropriate decisions concerning the restoration of the monument and safety measures, highlighting its basic vulnerabilities.

To that end, the use of staged historical back analysis should be encouraged as part of an interdisciplinary approach to the documentation of monument history.

The future of the Treasuries retaining wall - design of stabilisation measures

Design of retaining measures

In order to address the adverse effects on the retaining wall of the Treasuries, a geostructural study[27] for the design of protection measures was conducted, dealing with all the factors with a potentially unfavourable impact upon the stability of the Treasuries wall: sliding phenomena, high geostatic thrusts (significantly increased during the phase of strong seismic shock or rainfall), the activity of tree root systems, and soil erosion due to surface water action. In this context, the following measures were proposed (Egglezos 2015):

1. Row of concrete piles to stabilise the upslope against sliding phenomena (Ø120/2.40 m).
2. Installation of 3-metre-wide gabions between the piles and the retaining wall, levelled with the top of the retaining wall, in order to relieve any remaining geostatic thrusts on the ancient wall.
3. A drainage system to relieve the retaining wall from the potential effect of hydrostatic pressures (on the surface, above the piles to drain surface rainwater, and at the base of the gabions to drain water moving underground in the soil mass of the slope).
4. Strengthening of the existing temporary metal retaining system to safely bear any additional thrusts on the retaining wall due to heavy worksite machinery (for project implementation).

The above proposal is fully compatible with restoration practices in Greece, which are based on the general principles of the Venice Charter (Articles 9, 10, 11, 12, 13, 14, 15). The overall layout of the stabilization measures is depicted in the plan view and front view shown in FIGURE 13.

Project implementation

The project for the stabilisation of the upslope and the ancient retaining wall was based on the above proposal. Stabilisation measures were recently (2016) implemented successfully, ensuring the desired safety level. The reduction of geostatic actions upon the ancient retaining wall (and hence the significant relief of the wall, which is no longer the only means of retaining the slope), with the prospect of future restoration work on the monument itself, according to our proposal, ensures the safety of working crews and visitors along the base of the slope. Moreover, the restoration proposal contributes to the safety of antiquities beyond the retaining wall (treasuries remains), as well as to the stability of the upper road, preventing potential sliding from the crown of the hill downwards.

Since the protection measures project has been completed, all that remains is the permanent realignment of the retaining wall in order to attain its original geometry.

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[27] Egglezos 2013b; Egglezos 2015.

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Sacred Architecture in Roman Laconia

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Summary

The sanctuaries of Archaic, mainly, Laconia have been studied systematically by eminent researchers, among whom Professor R.A. Tomlinson stands out. This is not the case, however, for the sanctuaries of the Roman period. The aim of this contribution is to present, for the first time in a combined way, the sanctuaries which were in use during the Roman period, depending on the available direct or indirect evidence, albeit scarce. New architectural creations of the Roman times are presented together with the oldest ones, which, although reformed, remained in function. Both composed the *nuclei* of devotional life of the Spartans and the *Eleutherolacones*. The typology of the sanctuaries is considered as a means of classification and in order to highlight phenomena of localism and of archaism or diachronicity. The traditionalism of Laconian cult and the deeply rooted hero-cults especially in Sparta, combined with the geographic isolation of the place before the Roman conquest and the museum character of Sparta after that, compose the conservative, 'centripetal' forces that shaped the sacred architecture in Laconia during the Roman period. In contrast stand the progressive and 'centrifugal' forces, which could be summarized in the more dynamic development of the sanctuaries of the *Eleutherolacones* after the reign of Augustus, the introduction of imperial cult and finally the cosmopolitanism which appeared by the integration of the Laconian ports into the Roman sea routes.

Περίληψη

Αν και τα ιερά τής αρχαϊκής, κυρίως, Λακωνίας έχουν τύχει συστηματικής μελέτης από επιφανείς ερευνητές, ανάμεσα στους οποίους ξεχωρίζει η μορφή του τιμώμενου καθηγητή R.A. Tomlinson, δεν έχει συμβεί το ίδιο για αυτά της ρωμαϊκής περιόδου. Η παρούσα συμβολή έχει στόχο να παρουσιάσει, για πρώτη φορά συνθετικά, τα ιερά που χρησιμοποιούνταν στα ρωμαϊκά χρόνια, εφ' όσον διατίθενται για αυτά άμεσα ή έμμεσα αρχιτεκτονικά δεδομένα, έστω και περιορισμένα. Παρουσιάζονται τόσο οι νέες αρχιτεκτονικές δημιουργίες των ρωμαϊκών χρόνων όσο και οι αρχαιότερες που αναμορφωμένες βρίσκονταν ακόμη σε λειτουργία και από κοινού με τις πρώτες συνέθεταν το πλέγμα των πυρήνων της λατρευτικής ζωής των Σπαρτιατών και των Ελευθερολακώνων. Εξετάζεται η τυπολογία των ιερών, προκειμένου να κατηγοριοποιηθούν ως προς αυτήν και να αναδειχθούν φαινόμενα τοπικισμού και αρχαϊσμού ή διαχρονικότητας. Η παραδοσιακότητα των λακωνικών λατρειών και η βαθιά ριζωμένη ηρωολατρεία, κυρίως στη Σπάρτη, σε συνδυασμό με τη γεωγραφική απομόνωση του τόπου πριν από τη ρωμαϊκή κατάκτηση και τον μουσειακό χαρακτήρα της Σπάρτης ύστερα από αυτήν, συνθέτουν τις συντηρητικές, 'κεντρομόλες' δυνάμεις της ιερής λακωνικής αρχιτεκτονικής στα ρωμαϊκά χρόνια, σε αντίθεση με τις προοδευτικές και 'φυγόκεντρες', που θα μπορούσαν να συνοψιστούν στην πιο δυναμική ανάπτυξη των ελευθερολακωνικών ιερών μετά τα χρόνια του Αυγούστου, την εισαγωγή της αυτοκρατορικής λατρείας και, τέλος, τον κοσμοπολιτισμό που προκάλεσε η ένταξη των λιμανιών τού Λακωνικού κόλπου στους ρωμαϊκούς θαλάσσιους δρόμους.

Key Words

Laconia; Sparta; sanctuaries; Roman Empire; hero-cults.

Pausanias mentions many temples, altars and other buildings necessary for the cult in Laconia (book 3). However, the majority of them are earlier than his time.[1] The purpose of this contribution is, firstly, to gather and briefly present the available architectural remains of the Laconian sanctuaries dated to the Roman period (FIGURE 1), and secondly, to highlight the functions of the sacred architecture in Roman Laconia (1st-4th centuries AD) and its limitations resulting from the historic circumstances, the local peculiarities and the character of the Laconian cults.

[1] For general accounts on sanctuaries in Roman Greece, see Alcock 1993: 172-214; Alcock 1994 (rural sanctuaries); Pedley 2005: 205-207.

Completing Pausanias' picture

Sparta

The theatre

The theatre of Sparta is certainly the place for various religious activities, including those related to the imperial cult.[2] It has three main Roman phases.[3]

[2] Pausanias 3.14.1; Bressan and Bonini 2010: 18-21, fig. 8a-8b; Cartledge and Spawforth 2002: 128, 185; Di Napoli 2013: 199-201 (with all relevant bibliography); Hupfloher 2000: 173-174.

[3] Di Napoli 2010: 254 n. 10; Di Napoli 2013: 86-93, figs. 37-38, pls 30-31; Waywell *et al.* 1998. About the old theatre (Herodotos 6.67.12-15), which was probably at the same site, see Kourinou 2000: 125; Walker and Waywell 2001: 292; Waywell 2002: 247.

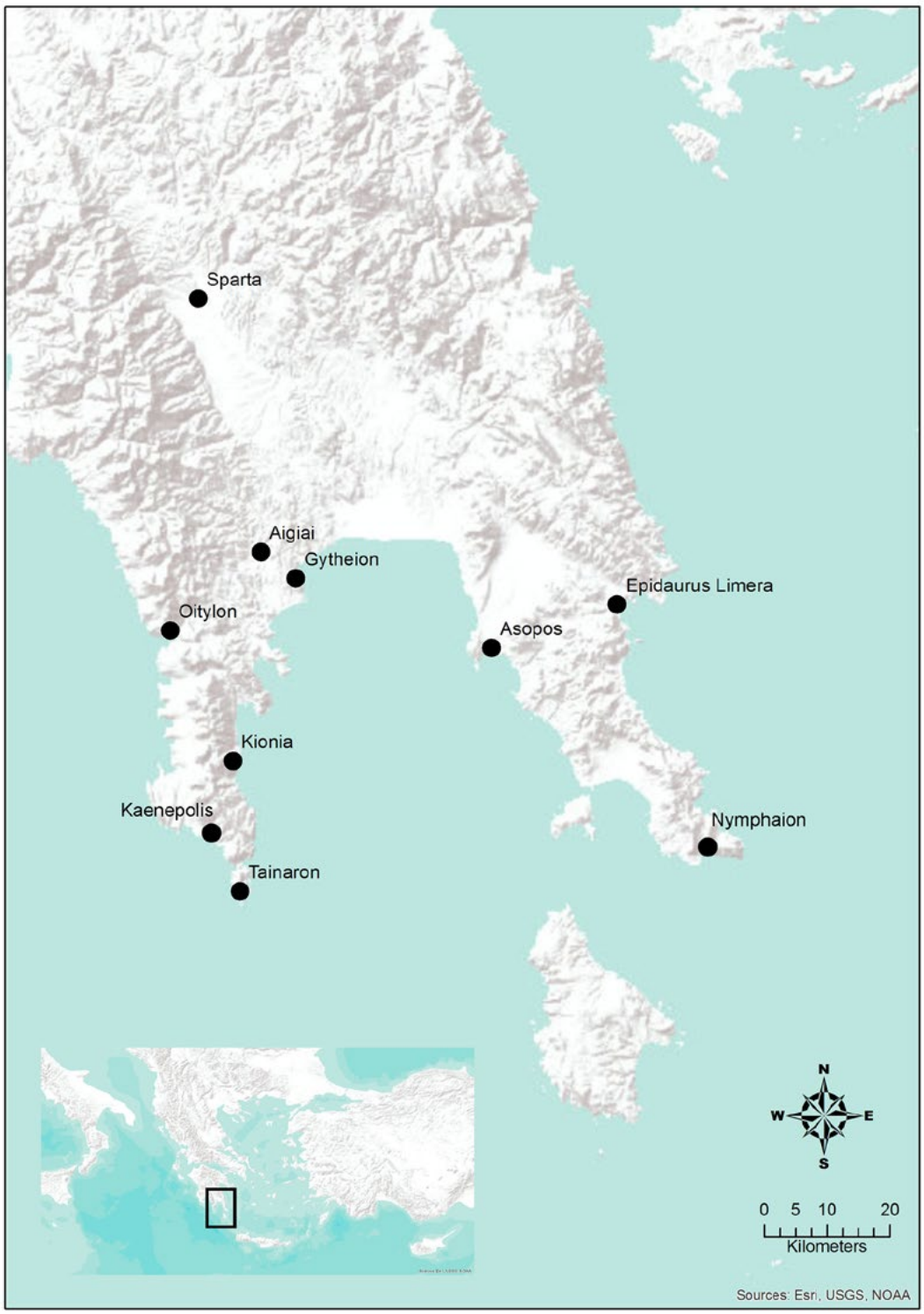

Figure 1. Laconia. Places where sanctuaries were reformed or built during the Roman period.

The first dates to the years of power of Gaius Julius Eurycles, who was Augustus' favoured Spartan leader.[4] This architectural phase is characterised by the Doric order, which was selected for the stage building (Doric capitals of local marble) and the *porticus in summa cavea* (Doric capitals and columns of Pentelic marble[5]), as well as for the movable *skene*.[6] The second phase dates to Vespasian's reign.[7] It is characterised by the prominence of the Corinthian order: composite capitals

[4] About Eurycles, see Cartledge and Spawforth 2002: 97-101; Steinhauer 1988; Steinhauer 2010.

[5] Walker and Waywell 2001: 288.

[6] Waywell *et al.* 1998: 97-108.

[7] *IG* V 1: 691; Walker and Waywell 2001: 294; Waywell 2002: 248.

of local marble on top of columns of Troadic marble surround the central pair of Corinthian capitals made of Pentelic marble on top of two fluted columns of Pentelic marble, as well.[8] The third phase dates at the turn from the 2nd to the 3rd century AD. It includes the construction of buttresses on the south wall of the stage-building and the repair and remodeling of its upper floor, using Corinthian capitals with *acanthus* leaves, and others with *acanthus* and lotus leaves.[9] Some larger capitals with *acanthus* and lotus leaves found in the area and initially considered to be of a later period -even Byzantine- must belong to the same phase.[10] Subsequent architectural activity at the theatre must have been undertaken during the 4th century AD, but this has not yet been securely identified.[11]

The sanctuary of Artemis Orthia

While there is no evidence for building activities taking place at the sanctuary of Athena *Chalkioikos* during the Roman times,[12] this is not the case for the sanctuary of Artemis *Orthia*, which indeed appears to be the most important and vigorous Spartan sanctuary during Pausanias' time (FIGURE 2a).[13] The temple's roof tiles were restored, the altar was rebuilt and the place was paved. The most striking addition, however, was the construction of a small peripheral building, made of small stones, *spolia* and mortar, which 'embraced' the temple and surrounded the altar. The construction resembles the form of an amphitheatre, due to its ground-plan. On the other hand, the horseshoe-shaped structure can be compared to the shape of a theatre, with the ancient, respected temple itself positioned on the spot where the stage-building should be. These additions and modifications of sacred space took place around the end of the 3rd century AD.[14]

An Asklepieion?

A trefoil-shaped structure has been excavated at Agidos street, where two main roads of ancient Sparta cross. The peculiar building can be dated to the Roman times, but it was probably remodeled in the Byzantine period. A bath function has been attributed to it, due to the traces of a hypocaust and the carefully plastered walls, which were excavated. This fits well with its hypothetical connection to the 'most famous' of the Spartan *Asklepieia*, according to Pausanias (3.15.10), after the interpretation of the marble head of a beardless young man, recovered there, as that of Asklepios.[15]

The 'Spartan heroa'

Three early shrines belonging to a common Spartan type were repaired and modified during the Roman period (FIGURE 2b).[16] These elongated buildings, founded on graves and associated with heroic cult,[17] resemble similar buildings mentioned by Pausanias. These buildings have also been interpreted as clubs (*leschai*), an interpretation compatible with their sacred and heroic character.[18] All three of them, oblong, oriented northeast-southwest, with the entrance on their southern long side, were founded on the eastern slopes of the Spartan acropolis. During the Roman period, two of them were repaired, enlarged and divided into separate vaulted rooms, with walls built of small rubble stones, large pieces of limestone blocks in second use and a few tiles, with ample use of mortar.[19] On the contrary, the third one was replaced by a smaller building, 1.50 x 2.20 m in size, placed 0.30 m above the older construction, directly on top of the underlying ancient grave, and perhaps surrounded by an enclosure 2 m far apart.[20]

The so-called 'altars'

Repairs and alterations have been identified at the so-called 'altars', which are buildings probably related to

[8] Waywell *et al*. 1998: 108-111.
[9] Waywell *et al.* 1998: 111; Waywell 2002: 248; Woodward 1928-1930: 175-176, 190 fig. 13.1 and 205-206.
[10] Doulfis 2016: 30-31 no. 14.
[11] There are at least two inscribed epistyles. See, respectively, Schörner 2003: 122, 421 no. 754; *SEG* 32.400 and Woodward 1928-1930: 214 no. 3, fig. 21; *SEG* 11.850.
[12] On the cult during the Roman period, see Hupfloher 2000: 195-201. It is not yet entirely clear whether there was any building activity at the Amyklaion during the Roman period. A large late Roman building is of uncertain purpose (Vlizos 2015: 97-98).
[13] Constantinides 1988: 112, 148, 149-150, 173-174, 205; Hupfloher 2000: 71-74; Kõiv 2015: 44-48; Solima 2011: 183-190, fig. 29.
[14] Baudini 2013: 196-198 (second half of the 3rd century); Cartledge and Spawforth 2002: 123, 221 no. 38 (around AD 300); Dawkins 1929: 36-49, figs. 21-26 (after *c*. AD 250).
[15] Dickins 1905-1906: 435-436, fig. 2 ('quatre-foil shape'); Raftopoulou 1998: 125-127, fig. 12.2-3 ('trefoil-shaped'); Steinhauer 2009: 274, 276.
[16] About one case of intensive activity during the Roman period, although without architectural interventions, see Tosti 2011. The same happens at Zeus *Messapeus* shrine at Aphyssou near Sparta (Catling 1990). For *heroa* and their place in the Roman town, see Steinhauer 2009: 275 n. 35.
[17] About the cult at Leonidas and Pausanias' tombs during the Roman period, see Chaniotis 2011: 13, 39; Gengler 2009. About the graves and their position in the residential tissue, in both Sparta and Gytheion, see Zavvou *et al*. 2018: 351.
[18] Kourinou 2000: 150 n. 495; Nafissi 1991: 332-333 *contra* Stibbe 1989: 89-92; Sirano 2000: 445-448.
[19] Building block 104 (G. Laskaris' property, length 22.20 m): Delivorrias 1969a: 137 (the reportedly calculated dimensions are not given); Demakopoulou 1966: 154-155, pl. 148α-δ (initially considered as part of the city walls); Demakopoulou 1967: 202 (wrong orientation). See also Kourinou 2000: 150 n. 495; Nafissi 1991: 333; Stibbe 1989: 89-92. The monument is now backfilled.
Building block 101 (Stavropoulos' property, length 29.20 m, width 5.15 m): Delivorrias 1968a: 151-152, pl. 103α-ε (the building was initially considered as an altar); Delivorrias 1968b: 41, figs. 1-3; Delivorrias 1969b: 134-135, fig. 1, pl. 132α-β (the retaining-wall of the road is considered as an enclosure, cf. Themos 2001-2004: 226 n. 104); Spyropoulos 1980: 135 (the polygonal masonry is dated to the 4th century BC); Zavvou *et al.* 2006: 38-40; Zavvou *et al.* 2014: 66-67. See also Kourinou 2000: 150 n. 495; Nafissi 1991: 332; Stibbe 1989: 89-92.
[20] Labour houses (property no. 4): Steinhauer 1972: 246-248, fig. 2, pl. 183γ. See also Kourinou 2000: 150 n. 495; Nafissi 1991: 326, 328, 332; Stibbe 1989: 89-92.

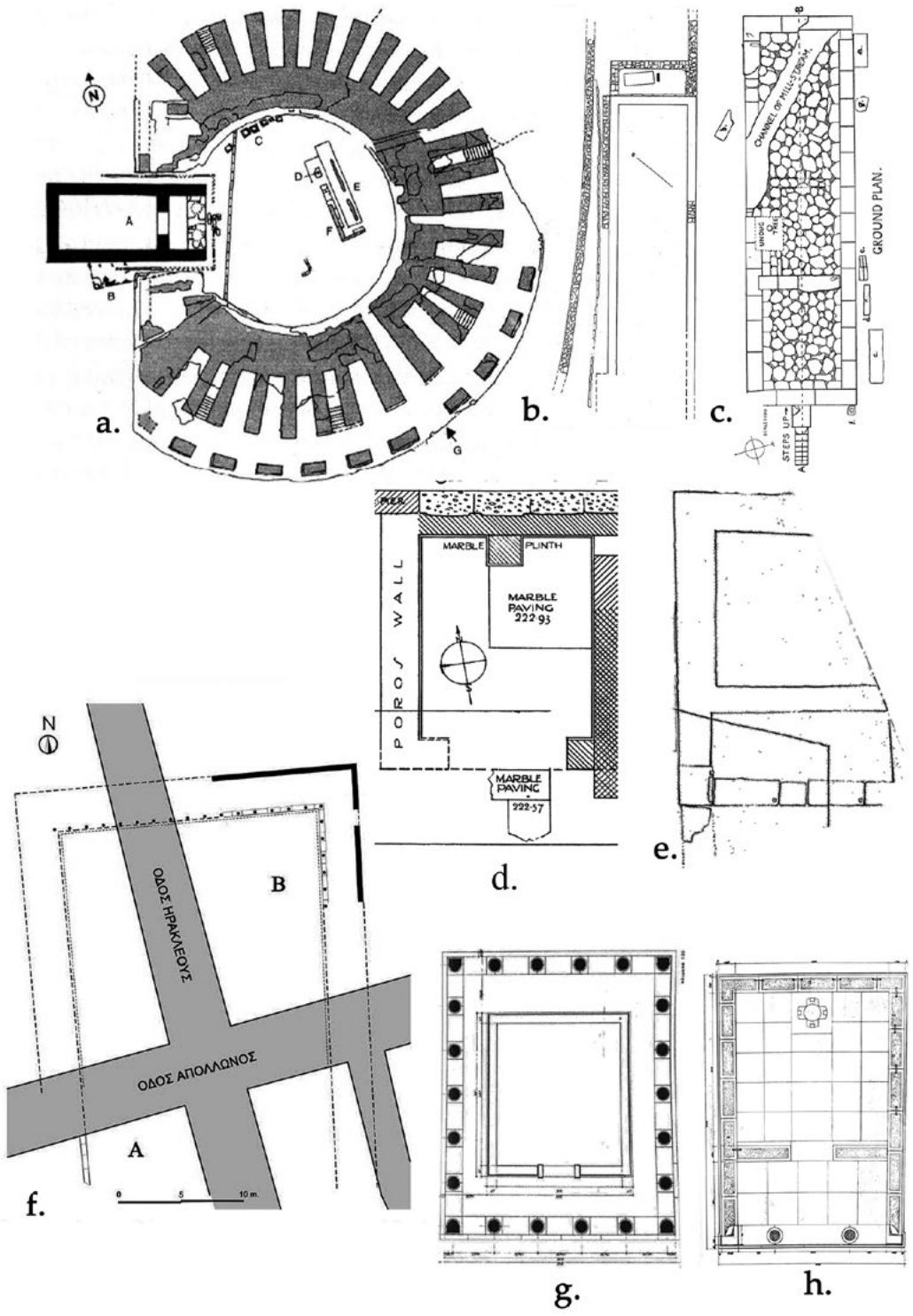

Figure 2. Sacred architecture in Roman Laconia: typological examples out of scale.

Figure 2a. Sparta, sanctuary of Artemis *Orthia* (Solima 2011: fig. 29).
Figure 2b. Sparta, 'Stavropoulos'' *heroon* (Delivorrias 1969b: fig. 1).
Figure 2c. Sparta, Great Altar near Eurotas or 'Lycurgos' Altar' (Dickins 1905-1906: fig. 3 / courtesy of the British School at Athens).
Figure 2d. Sparta, temple-like building (Woodward 1926-1927: pl. 3 / courtesy of the British School at Athens).
Figure 2e. Gytheion, temple-like building (Steinhauer 1973-1974: fig. 5).
Figure 2f. Gytheion, Portico of the Agora, where the *Caesareum* was probably attached (Kanellopoulos and Zavvou 2014: fig. 1 / courtesy of Chr. Kanellopoulos).
Figure 2g. Kionia, distyle *in antis* temple (Moschou and Moschos 1979: pl. 16).
Figure 2h. Kionia, peripteral temple (Moschou and Moschos 1988: pl. 51.1).

heroic cult, as well. In the middle of the *pi*-shaped altar at Psychikon (17.60 x 14 m), a Roman tomb has been revealed along with a statue base found *in situ*. These finds were interpreted by the excavator as a cenotaph apparently associated with hero cult.[21] At the so-called altar of Lycurgos (23.60 x 6.60 m), whose ground-plan and orientation resemble those of a temple (FIGURE 2c),[22] a second transverse Roman wall was added to the east, converting the structure into a tripartite one.[23] However, a recent reexamination of the monuments by the local Ephorate has clarified that at least the 'altar' at Psychikon is an impressive early Roman burial monument.[24]

The temple-like building to the west of the theatre's nymphaeum

During the Tetrarchy, a *nymphaeum* and an attached temple-like building replaced the theatre's *skanotheke* (FIGURE 2d). The temple-like building (4.20 x 3.45 m) had a marble paved floor and, similarly to the *nymphaeum*, was open to the south. A marble statue base, just opposite to the entrance, most probably supported the statue of a deity or hero,[25] or that of the *nymphaeum's* patron. However, the display of sculpture in the lateral rooms of *nymphaea* is not necessarily indicative of their sacred character.[26]

The temples of Caesar and Augustus

Pausanias' account on the temples of Caesar and Augustus (3.11.4), is to be added to the identified sacred edifices. These provide further evidence on the architectural activity during the Roman period, since they 'should probably be interpreted as a building complex for imperial cult',[27] that is, probably a complex consisting of two independent temples built next to each other.[28]

A domestic shrine

A building of considerable interest was recently excavated at 54 Orthias Artemidos street.[29] The linear wall's painted decoration, a square clay structure built in one of the rooms and the large number of terracotta figurines, busts and masks, along with a life-size terracotta statue of Dionysos, led the excavator to interpret it as a domestic shrine.[30]

Regional Laconia

Gytheion

The theatre

The theatre of Gytheion[31] dates back to the early Roman period and is associated with imperial cult,[32] according to the town's Tiberian sacred law. The complex stage-building consists of the *skene*, the *logeion*, the *hyposkenion*, the *scaena frons* and auxiliary rooms. The *scaena frons* has two storeys with three openings.[33] The building's Doric entablature includes a terracotta cornice with lion-head gutters.

Temple-like buildings

It is unclear when exactly the temples of Asklepios and Aphrodite *Migonitis* were built or if they were modified during the imperial period.[34] The identification of a large Roman apsidal building (11 x 6 m) as the temple of Athena mentioned by Pausanias, and of another apsidal building, excavated at 1896, as an unnamed temple are also obscure.[35] During the late Roman times a small temple-like edifice was built, partly destroying the wall of an earlier villa's bath (FIGURE 2e). The building was made of limestone blocks and consisted of an almost square *cella* with a *prodomus* fenced by rails. The excavation finds, limited to *terra sigillata* and plain ware sherds, do not provide any additional evidence on the building's nature. However, funerary use should be excluded, as *intra muros* burials were not common at Gytheion. Its interpretation as a temple seems much more convincing. Such a hypothesis is endorsed by the

[21] Christou 1962: 116-121; Nafissi 1991: 333; Sirano 2000: 418.
[22] Zavvou *et al.* 2014: 65.
[23] Dickins 1905-1906; Zavvou *et al.* 2014: 63-65, with picture. Cf. Pausanias 3.16.6.
[24] Maltezou and Giannakaki 2010: 431.
[25] Walker 1979: 212-213; Woodward 1926-1927: 6-15, pl. 3. For a temple of *Σεβαστοί αυτοκράτορες* in connection with the theatre of Stratonicea, see Price 1984: 137, 262 no. 73.
[26] Aristodimou 2012: 37; Burrell 2006.
[27] Camia and Kantiréa 2010: 390-391 n. 115. See also Alcock 1993: 182; Hupfloher 2000: 173. On the possible identification of one more imperial cult building, dedicated to Hadrian as Zeus *Olympios*, see the relevant discussion in Cartledge and Spawforth 2002: 109-110 and Hupfloher 2000: 159-162. About the monument wrongly identified as the circular building that housed the statues of Zeus *Olympios* and Aphrodite *Olympia*, mentioned by Pausanias (3.12.11), and about its subsequent connection with Hadrian's cult, see Kourinou 2000: 114-127, who has correctly identified it as the *Choros*.
[28] Evangelides 2008: 130-132, 139-140, 142.
[29] Building block 115, P. Stavropoulos' plot.
[30] Tsouli 2010c: 456-461, figs. 20-24; Tsouli 2012a: 413-417; Tsouli 2014.
[31] Efstathiou 1996; Skias 1891: 71-85; Versakis 1912. See also Bressan 2009: 144, 147; Christou 1963: 84; Ciancio Rossetto and Pisani Sartorio 1994: 218; Di Napoli 2004: 137, 141-143; Forster 1903-1904: 180 no. 1; Forster and Woodward 1906-1907: 225; Giannakopoulos 1966: 110-116, figs. 22-25; Papachatzis 1976: 407, figs. 414-415; Sear 2006: 398. The more recent and complete study by Di Napoli 2013: 83-86, fig. 36, pl. 31.1-7 (with relevant bibliography).
[32] Di Napoli 2013: 197-199.
[33] Di Napoli 2013: 84 n. 13.
[34] Giannakopoulos 1966: 144 reports without details that the temple of Aphrodite *Migonitis* lies beneath the modern cathedral; cf. Forster and Woodward 1906-1907: 224 (without reference to Patsourakos); Patsourakos 1902: 15.
[35] Tsouli 2012b: 123.

building's northeast-southwest orientation with the entrance on the northeast side.[36] The ashlar limestone blocks may be in second use, originating from a Hellenistic building.

The exedra at the Agora (the Caesareum?)

An *exedra*, dedicated by individuals to the imperial cult (3rd century AD), was attached to the peristyle 'Agora' of Gytheion (2nd century AD) (FIGURE 2f).[37] Its exact location within the 'Agora' complex is still uncertain. However, part of or the entire peristyle may be identified as the *Caesareum*,[38] attested in the Tiberian sacred law of Gytheion.[39] Apart from the Hellenistic and Asia Minor features applied to the peristyle, such as the lotus-and-*acanthus* capitals,[40] some impressive Roman style features are also found: the columns' *entasis* (a bulge along the middle of the shaft), the possible use of dark red Tainarian (*antico rosso*) marble,[41] the proportions of the Roman Corinthian order (column height equaling 10 lower diameters) and the possible use of Roman module units for the monument's design.[42]

Oitylon

According to Pausanias, the only 'worth-seeing' sanctuary at Oitylon is that of Serapis (3.25.10).[43] Thus, the column capitals (FIGURE 3a-b) found in various places at Karavostassi, have already been associated with this sanctuary.[44] These are Ionic capitals with *calyces* and Heracles' knot, and they probably date to the second half of the 2nd century BC. Nevertheless, their notable size, the monumental character of their extraordinary composition altogether and the presence of Heracles' knot, all suggest their association with sacred architecture.[45]

Figure 3a-b. Oitylon, capital from the sanctuary of Serapis, front and side view (Gytheion Archaeological Collection, inv. no. ΣΓ Β795) (photos: G. Doulfis).

Asopos

At Asopos a temple probably built in the 1st century AD and dedicated to imperial cult, is mentioned by Pausanias (3.22.9).[46] A Roman relief of Heracles, the hero protector of quarrymen, was carved within a shallow square niche in a chamber of the quarries of Asopos, where a *perirrhanterion* (sprinkler) was also found. The chamber was probably made to accommodate the

[36] Steinhauer 1973-1974: 292-294, fig. 5.

[37] Kanellopoulos and Zavvou 2014; Zavvou *et al.* 2018: 349-350. Cf. Price 1984: 140-146.

[38] *IG* V 1: 1208; Kouyeas 1928: 30. See Benoist 2011; Camia and Kantiréa 2010: 376-377, 382-383; Evangelides 2008: 137; Hänlein-Schäfer 1985: 160-162.

[39] *IG* V 1: 1448; Kantiréa 2007: 204-205.

[40] After Kanellopoulos and Zavvou's publication (2014), we were able to attribute two more column capitals and a pilaster capital to the peristyle of the Agora of Gytheion: Archaeological Collection at Gytheion, inventory nos 853 (column capital), 988 (pilaster capital), and archaeological site of the Acropolis basilicas, inventory no. 21 (column capital). As they are the first identified complete ones, they confirm Kanellopoulos' proposed reconstruction.

[41] The usage of Tainarian marble indicates imperial involvement in the construction of the 'Agora' complex, an observation that I owe to Prof. Kanellopoulos. About the Tainarian marble, see Kokkorou-Alevras *et al.* 2014: 192 no. 699, with relevant bibliography.

[42] Kanellopoulos and Zavvou 2014: 364-365, 373 comparing with the Giants' Façade at Corinth.

[43] Papachatzis 1976: 359 n. 6 notes on Pausanias 3.14.5 (the 'newly built sanctuary of Serapis at Sparta') that the cult of Serapis was imported into Sparta in the Hellenistic or early Roman times. About a possible priest of Serapis at Roman Sparta, see Hupfloher 2000: 184-185. One more sanctuary for this god is attested at Boiai (Pausanias 3.22.13). About the cult of Isis, with references to that of Serapis in the Peloponnese, see Veymiers 2014: 145.

[44] Morritt, an English traveler, who visited Oitylon in 1795, saw and described the extraordinary capitals (see Avramea 1983: 7-8). Two almost intact capitals are preserved in the church of *Soter* (Saviour) at Oitylon and fragments of others in the 'old school'. One more almost intact capital, near the church of Saint George, has been transferred to the Archaeological Collection at Gytheion (inventory no. ΣΓ Β795, diameter 0.35 m). All of them are mentioned by Avramea 1983: 11-12, fig. 1. The fragment of a capital from the same edifice is now in the Sparta Museum (temporary inventory no. Λ 2154), while one more fragment is still immured in the church of Dormition at Niamitsa (Tsouli 2010a: 560; Tsouli 2010b). Capitals of the same type can be found in the Sparta Museum, the Archaeological Collection of Gytheion and, beyond Laconia, in Corinth (the basilica at Lechaion, see Pallas 1959: fig. 113α; Pallas 1961-1962: 73, fig. 83γ), Messene (*Artemision*, see Chlepa 2001: 48-49, 59-61, figs. 40-43, 51) and Delos (Hypostyle hall, see Leroux 1909: 65, fig. 94). This capital-type, along with the rest of capital production at Roman Laconia, is being studied by the author. Maria Tsouli, archaeologist at the Ephorate of Laconia, is studying the sanctuary of Serapis at Oitylon.

[45] Heilmeyer 1970: 80, pl. 20.4.

[46] Camia and Kantiréa 2010: 390-391 n. 115, who suggest that the temple was part of Eurycles' program, because he was the patron of Asopos, among other *Eleutherolaconian* cities.

shrine of a tutelary deity during the period of extensive activity at the quarries.[47]

Nymphaion

Nymphaion, a small harbour mentioned by Pausanias (3.23.2) and located close to ancient Boiai, is identified with the modern site of 'Vouro-Giorgis Kleftavlako'. A Roman building's corner has been found there. Its masonry consists of roughly worked stones, bricks and binding mortar. While the building's south and west sides are submerged, the north and east ones are still preserved, measuring 16.70 x 0.90 m and 7 x 0.60 m, respectively. The walls are preserved to a maximum height of 1 m. More architectural remains are preserved around the building. Among the finds, mainly Roman sherds and glass vases, a fragment of marble revetment and part of a Roman figurine's head are mentioned. The finds and the building's size and orientation led the excavator to assume its religious function.[48]

Kionia

There are two Doric temples at Kionia, Kourno.[49] A small (FIGURE 2g) distyle *in antis* (5.09 x 7.24 m) temple with a *pronaos* and *cella* is built in ashlar isodomic masonry. However, since Le Bas and Laundron's expedition, the capitals have been missing. The archaistic profile of the *echinos* in Laudron's documentation is reexamined by Moschou and Moschos. The flat profile moulding at the base of the stylobate, the proportions of the architrave to the frieze and of the entablature height to the lower diameter, the central interaxial span (*c.* 4.65 lower diameters), the slanting top surface of the *taenia* in front of the triglyphs and the upward sloping soffits of *taenia*, *regulae* and *guttae*, the cornice soffit and the cornice crown, all find close architectural parallels to the west of the Adriatic Sea. Taking into account the architectural parallels, as well as the historic circumstances, such as the detachment of the *perioikic* towns from Sparta and the establishment of the *Koinon* of the Lacedaemonians in 146 BC, the small temple at Kionia could be dated around 100 BC.[50]

A much larger, peripteral temple (6 x 7 columns; 8.40 x 9.96 m)[51] at Kionia is even more Roman in style (FIGURE 2h). The proportions of the architrave to the frieze and of the entablature height to the lower diameter (as in the small temple), the slope of the top of the *taenia* that begins immediately in front of the metopes, the proportionally tall and narrow triglyphs of the exterior frieze, and the overall style of the triglyphs, in both the exterior and the wall friezes, the cornice soffit (as in the small temple, too), the base moulding of the column shaft and the round plinth beneath the *torus* at the column base constitute common features of the Italic Doric order. An interesting exception, however, is the proportions of the Kionia peripteral temple and the combination of piers with engaged half-columns at the corners of the *peristasis*, which resemble the temple at Cape Zephyrion near Alexandria in Egypt.[52] Furthermore, several Ionic features can be identified, such as the relation of the *cella* to the surrounding *peristasis*.[53] Lauter argues that this temple does not function as an old-fashioned Greek *naos* but apparently as an architectural shell for the exhibition of the cult statue, judging from the compound quadrate *cella* that looks like a cover for the statue.[54] In any case, the peripteral temple at Kionia can safely be dated in the 70s BC.[55]

Greek architectural elements are not absent from both temples at Kionia. Tomlinson has already recognised at the 'humble temples of Kourno (...) the loyalty of the Greeks to the styles they knew best'.[56] Also Moschou and Moschos have noticed that beside their innovations, the two temples preserve and continue the Classical tradition, mainly in terms of the construction techniques applied.[57] However, the aforementioned features testify in the best possible way the Roman-Italian influence in Greek architecture and the Romanizing Doric tradition, while by taking into account the Alexandrian influences, the perhaps unexpected eclecticism attested in the Laconian monuments cannot be easily neglected.

[47] Kokkorou-Alevras *et al.* 2009: 171-173, figs. 17.4-17.6.
[48] Zavvou 2002: 217-218, figs. 8-11.
[49] Büsing 1970: 51; Dinsmoor 1950: 268, 270; Forster 1906-1907: 254; Franck 2014: 75-79, 114-115; Lawrence 1973: 208; Moschou and Moschos 1979; Moschou and Moschos 1988; Sirano 2000: 420; Tomlinson 1963: 134, 143; Winter 2006: 24; Winter and Winter 1983; Winter and Winter 1984. The most thorough research is that by Moschou and Moschos 1979 (with relevant references) and 1988. However, the most convincing dating for both temples, and the one I adopt here, is, in my opinion, provided by Winter and Winter 1983.
[50] For a different dating in the Augustan or Tiberian period, see Moschou and Moschos 1988: 142-143. Some scholars have dated the temples even earlier because of the presence in the area of two disc *acroteria*, nowadays lost (Cooper 1988: 71; Lauter-Bufe 1974: 216-218 fig. 3).
[51] According to Forster 1906-1907: 254, the structure is about 15 m^2. His statement does not even agree with his own plans and is obviously mistaken. Moschou and Moschos 1988: 143 corrected this as follows: *euthynteria* 8.40 x 9.96 m, stylobate 8.05 x 9.60 m, *toichobate* 5.20 x 5.61 m.
[52] For parallels to this feature, see also Moschou and Moschos 1988: 144 n. 6.
[53] Sioumpara 2015: 198-201, 207-208, figs. 3, 13.
[54] Together with the temple of Artemis *Limnatis* at Mavromati, Messenia; see Lauter 2016: 175-176 and the relevant note by the editor.
[55] For a different dating in the second half of the 2nd century BC and, in any case, after 146 BC, see Moschou and Moschos 1988: 143, 147, who also suggest the possible interpretation of the building as a *megaron* or *telesterion* for the cult of Demeter.
[56] Tomlinson 1963: 143.
[57] Moschou and Moschos 1988: 146-147.

Table 1.

A	B	C	D	E
ἁ πόλις	*Ν̣ει̣κ[ία]ν̣ Ν[ε]ικία*	*καὶ Ἀλέξανδ*	*ρον Ὀνησίμ̣[ο]υ*	*τοὺς*
π̣[ο]λείτας	*ἀ̣ρ̣[ετᾶς χάρ]ιν*	*καὶ τᾶς εἰς [α]ὐ*	*τὰν εὐνοίας· τὸ*	*ἀ̣ν̣ά̣λωμα*
τ̣[οῦ] ν̣α̣οῦ	*[καὶ τῶν ἀνδρ]ι̣ά̣ν̣*	*τω<ν> ἐκ τῶν*	*ἰδίων δαπαν*	*ήσαντος*
			Ἀλεξάνδρου	

Aigiai

The wall remains found in association with lamp sherds dated to the Roman period indicate, according to the excavator, construction activity during the Roman times at the Archaic sanctuary of the hero Timagenes, whose cult eventually was assimilated with that of Artemis.[58]

Epidauros Limera

At Epidauros Limera, just inside the city walls, an almost square roofed edifice (4.93 x 4.50 m), with a mosaic floor and plastered walls imitating marble revetment, has been unearthed.[59] A square niche is formed on the north wall. A complex monument base is built of six limestone blocks, which were originally topped by a row of three moulded blocks. Five, out of the six, limestone blocks are inscribed (TABLE 1).

Both the letter form and the mosaic have been dated to the late 2nd century AD. The use of the site, judging by the pottery, seems uninterrupted until the 4th century AD, while the layers above destruction reach into the 6th century AD.

Although the building has not been systematically excavated, it seems that the most important feature of the entire edifice was the niche with the base, a kind of *exedra*. This means that the inscription accompanied the dedication of some statues within an edifice called 'the temple'. As already noted by Jameson, the word *ἀνδριάς* is rarely used for statues of gods. I do not think, however, that the portraits of two individuals could have been the most important elements of a temple. Therefore, the existence of the *ἀνδριάντες* inside a temple luxuriously decorated, may lead one to conclude that they were imperial statues in a building dedicated to imperial cult.[60] This hypothesis is reinforced by the fact that at a short distance, a base of three statues bearing a dedication for Julia Domna, the wife of Septimius Severus, was found.[61]

Kaenepolis

Remains of a monumental building of Roman times have been found at Kastro or Agios Sotiras, near modern Kyparissos, where ancient Kaenepolis is located. The building has been identified as the *megaron* for Demeter mentioned by Pausanias (3.25.9).[62]

Tainaron

Although the topography of the sanctuary of Poseidon at Tainaron, as also the interpretation of the relevant literary testimonies, is obscure, it is quite possible that there was construction activity at the sanctuary during the imperial period.[63] This is primarily indicated by two Ionic capitals that have been reused in the chapel of Agioi Asomatoi, which, due to their large size, could belong to a public building and may be attributed to the sanctuary. Their date, however, ought to be reexamined.[64]

Conclusions

It becomes obvious that the available evidence concerning sacred architecture in Roman Laconia is poor and the monuments still obscure. Thus, any preliminary conclusions can only be drawn cautiously. Nonetheless, it can be said that the sacred architecture of Laconia can be separated into two sections. On the one hand, sacred architecture of Sparta, similarly to other regions of Roman Greece, is rather conservative, due to traditional cults ('Spartan' *heroa* and maybe the one of the so-called 'altars'),[65] with only one but impressive exception (domestic shrine) and maybe one

[58] Bonias 1998: 32, fig. 3, pl. 7. See also Solima 2011: 157-158.

[59] Jameson 1953: 148-171, pl. 52.2; Zavvou 1997: 199.

[60] About *exedras* and their connection to imperial cult, sometimes dedicated by individuals inside a public building, like at nearby Gytheion, see Kanellopoulos and Zavvou 2014: 374-375. Cf. Vitruvius 5.1.7-8; Price 1984: 143. For a building similar to that in Epidaurus Limera, see Evangelides 2008: 134, 138, 140.

[61] An apsidal building lies closer to the find-spot of the base. Stroud and Stroud (1995) have supposed that the base lies *in situ* and it is connected to a wall behind. However, as the base is still unearthed, we cannot be certain of its original locality.

[62] Moschou 1999: 195, fig. 52. Forster and Woodward (1906-1907: 245-246) had placed the *megaron* at the church of Dormition, seeing an Ionic cornice block immured in the south wall.

[63] Cummer 1978; Mylonopoulos 2003: 229-240; Mylonopoulos 2006: 140-146.

[64] Cummer 1978: 40-41, fig. 5, pl. 19.2, dates the capitals in the Hellenistic or early Roman period. This is quite unlikely because, besides the severe erosion, it is clear that the eyes of the volutes are higher than the bottom of the capital. Moreover, the *abacus* is irregularly connected with the rest of the capital. Both of these are features of quite later capitals, dating probably in the second half of the 2nd or the 3rd century AD (cf. Beykan 2012: 40-42, fig. 22, nos 31-32).

[65] For example, see Alcock 2002: 101 n. 3. About Sparta's traditional and new cults cf. Cartledge and Spawforth 2002: 193.

more (trefoil-shaped building). On the other hand, in regional Laconia, which was reorganised by the Romans firstly into the *Koinon* of the Lacedaemonians and later of the *Eleutherolacones*, cult edifices were founded (Gytheion, Nymphaion, Kaenepolis?), sometimes with innovative architectural ideas (Oitylon) or with strong architectural influences from the west of the Adriatic sea ('Agora' of Gytheion, Kionia), in order, *inter alia*, to meet the new religious needs of the *Koinon* (Asopos, Tainaron).

There are exceptions to the rule, but not without a reason. Thus, when the edifices relate to spectacular religious traditions, even those with ancient roots in Sparta, the architectural design interferes with the building of new structures or the remodeling of old ones, following the Roman norms (theatre of Sparta and sanctuary of Artemis *Orthia*). Conversely, where the cult is heroic, the practice attested in Sparta was followed, namely the maintenance of the existing architectural works with conversions (Aigiai).

The Roman initiative is expressed in the theatre of Sparta via the transition from the Doric style of Eurycles' architectural design to that of the Vespasian's *Romanitas*[66] and to the 3rd century's eclecticism. Likewise, the Roman design is obvious in the 'amphitheatre' of *Orthia*, owing to the selection of the building type and its dominance over the sacred space, a concept almost touristic.[67] Moreover, the 3rd century interventions in the aforementioned cases may belong to the same architectural program and the revival of the Lycurgan *Agoge* in a Romanised way.[68]

A common feature of sacred architecture, both in Sparta and in the rest of Laconia, involves the edifices for imperial cult. Unlike the usual practice of rededicating ancient buildings to imperial cult, attested in the Peloponnese, too,[69] in Laconia new temples are built (temple-like building? at Sparta, the *Caesareum* at Gytheion, the temples at Asopos and Epidauros Limera), potentially following Roman architectural patterns (possibly the two adjacent? temples at Sparta[70]).

Detailed research and published studies on the sacred architecture of Laconia are still missing. However, the dual character of this architecture, Spartan-conservative and *Eleutherolaconian*-progressive, which are either typical Greek or common imperial, respectively, demonstrates the complex conditions that sacred architecture had to serve in Laconia during the imperial period.

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Reference to building blocks, followed by a number, conforms to modern Sparta's city plan.

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[66] Already noticed by Walker and Waywell 2001: 294.
[67] Already noticed, as well, by Alcock 1993: 225-226 and Constantinides 1988: 152. See also Cartledge and Spawforth 2002: 192-193, 208-210; Chrimes 1971: 174, 248; Forrest 1968: 19.
[68] Baudini 2013: 196; Woodward 1925-1926: 205-206, 208. Cf. Cartledge and Spawforth 2002: 121-122.
[69] Camia and Kantiréa 2010: 379-381.
[70] Evangelides 2008: 140-141.

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More Corinthian on Samothrace

Bonna D. Wescoat

Summary

The Sanctuary of the Great Gods on Samothrace is justly famous for its inventive use of the Corinthian order in the interior gallery of the Rotunda of Arsinoe II and on the west façade of the Propylon of Ptolemy II. We now know that these splendid Ptolemaic monuments were not the only Hellenistic buildings to incorporate the Corinthian order on Samothrace. In honour of a scholar who has done much to sharpen our understanding of the Greek orders and architectural achievements in northern Greece, I present evidence on the island for the use of Corinthian in two additional major Hellenistic buildings. A set of small-scale Corinthian components may well belong to an interior gallery in the central chamber of the 3rd century BC banquet hall dedicated by a woman from Miletos (Building M). In addition, a large-scale Corinthian corner pilaster capital, found at the site of an early Christian church near the ancient harbour, signals a major marble building for which we currently have no additional evidence. Collectively, these monuments underscore the importance of Samothrace as one of the most productive -as well as creative- centers for the deployment of the Corinthian order in the Hellenistic period.

Περίληψη

Το Ιερό των Μεγάλων Θεών στη Σαμοθράκη δικαίως φημίζεται για την εφευρετική εφαρμογή του Κορινθιακού ρυθμού στο εσωτερικό της Ροτόντας της Αρσινόης Β' και στη δυτική πρόσοψη του Προπύλου του Πτολεμαίου Β'. Τώρα πλέον γνωρίζουμε πως αυτά τα εξαιρετικά πτολεμαϊκά μνημεία δεν ήταν τα μόνα ελληνιστικά κτίρια που ενσωμάτωσαν τον Κορινθιακό ρυθμό στη Σαμοθράκη. Προς τιμήν ενός ακαδημαϊκού που συνέβαλε ουσιωδώς στο να κατανοήσουμε τους ελληνικούς αρχιτεκτονικούς ρυθμούς και επιτεύγματα στη βόρεια Ελλάδα, παρουσιάζω τεκμήρια στο νησί για τη χρήση του Κορινθιακού ρυθμού σε δύο επιπλέον μείζονα ελληνιστικά οικοδομήματα. Ένα σύνολο από Κορινθιακά στοιχεία μικρής κλίμακας πιθανώς ανήκουν στο εσωτερικό του κεντρικού θαλάμου ενός δειπνητηρίου (αίθουσας συμποσίων) του 3ου αιώνα π.Χ. που ανέθεσε μία γυναίκα από τη Μίλητο (Κτίριο Μ). Επιπρόσθετα, ένα μεγάλης κλίμακας γωνιαίο πεσσόκρανο Κορινθιακού ρυθμού, που βρέθηκε στο χώρο παλαιοχριστιανικής εκκλησίας κοντά στον αρχαίο όρμο, σηματοδοτεί ένα μείζον μαρμάρινο οικοδόμημα για το οποίο, προς το παρόν, δεν έχουμε άλλες αποδείξεις. Εν συνόλω αυτά τα μνημεία υπογραμμίζουν το σημαντικό ρόλο της Σαμοθράκης, ως ενός από τα πλέον παραγωγικά -και ταυτόχρονα δημιουργικά- κέντρα υιοθέτησης του Κορινθιακού ρυθμού, κατά την Ελληνιστική περίοδο.

Key Words

Samothrace; Corinthian order; Hellenistic; pilaster; engaged column; window mullion.

The Sanctuary of the Great Gods on Samothrace is justly famous for its inventive use of the Corinthian order in the interior gallery of the Rotunda of Arsinoe II and on the west façade of the Propylon of Ptolemy II. We now know that these splendid Ptolemaic monuments were not the only Hellenistic buildings to incorporate the Corinthian order on Samothrace. In honour of a scholar who has done much to sharpen our understanding of the Greek orders and architectural achievements in northern Greece, I present evidence on the island for the use of Corinthian in two additional major Hellenistic buildings. A set of small-scale Corinthian components may well belong to an interior gallery in the central chamber of the third-century BC banquet hall dedicated by a woman from Miletos (Building M).[1] In addition, a large-scale Corinthian corner pilaster capital, found at the site of an early Christian church near the ancient harbour, signals a major marble building for which we currently have no additional evidence. Collectively, these monuments underscore the importance of Samothrace as one of the most productive -as well as creative- centers for the deployment of the Corinthian order in the Hellenistic period.

Small-scale engaged Corinthian order

The small-scale components gathered here have been known for some time, but their scattered provenience and sporadic discovery had not previously suggested a connection. During their 1923 and 1927 excavations of the Western Hill, the French-Czech team uncovered at least one window mullion in the east wall of the Byzantine fort, immediately west of Building M, also known as the '*Temple Ionique*', 'Milesian Dedication', 'Building of the Milesian Woman', or 'the Milesian Banquet Hall'.[2] That block survives today in two joining fragments as it was recorded in 1927 (our M15/M23;

[1] A preliminary notice of this material appeared in Wescoat 2015: 41-42.

[2] Bouzek and Ondřejová 1985: 71, 76, figs. 41.4-5.

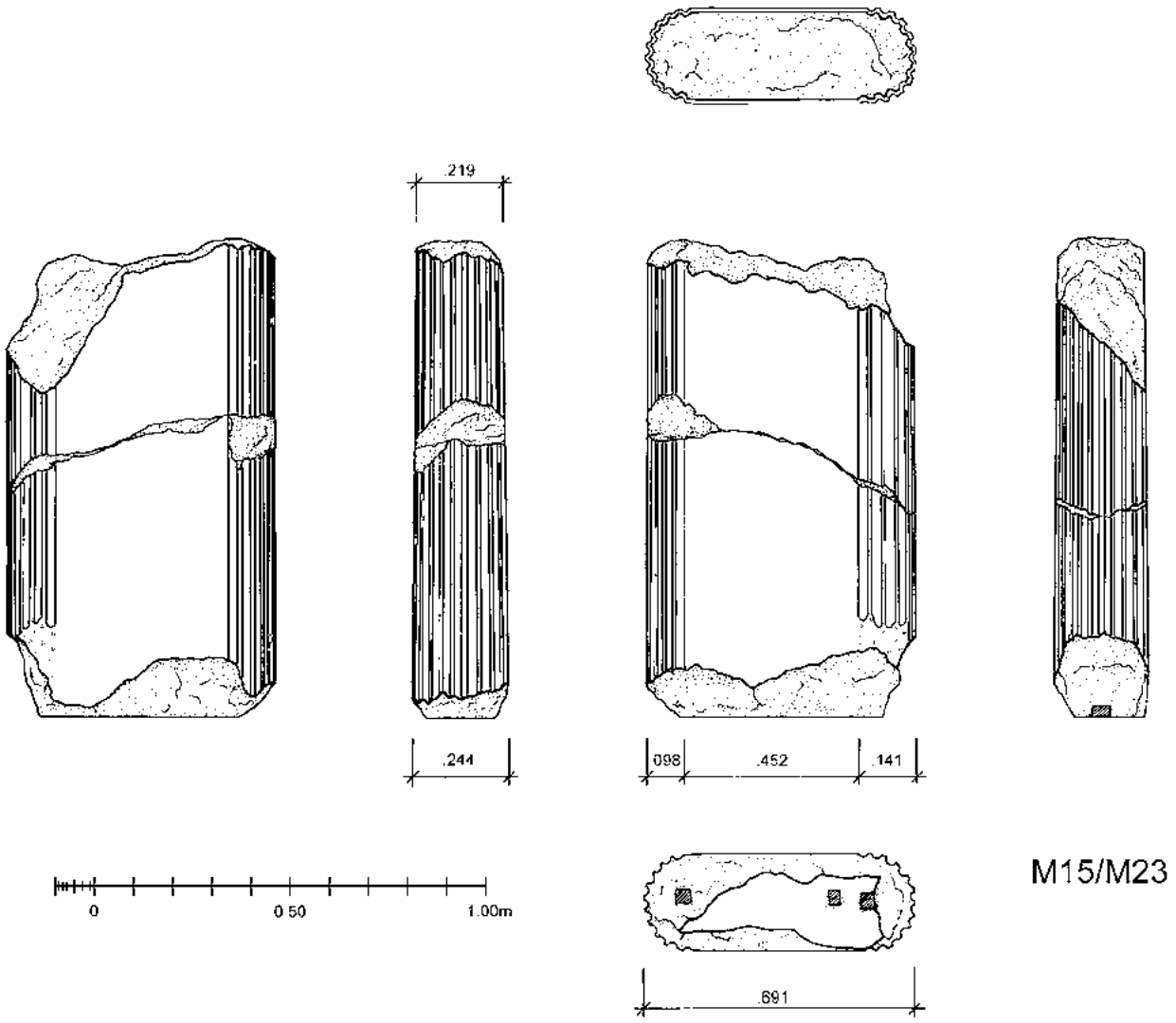

Figure 1. Window mullion M15/M23 (drawings: American Excavations Samothrace / A. Chang).

FIGURE 1). It consists of a pillar decorated on each short side with Ionic/Corinthian half columns bearing 12 flutes separated by narrow fillets. The partially preserved bed surface has three dowel holes, which joined the mullion to a separately carved base. The shaft is incomplete to a height of *c.* 1.22 m. An additional small fragment found in the area must also belong to this or a similar block.

In 1971, a small fragment of a Corinthian marble capital preserving the bed surface and part of three *acanthus* leaves was recovered in surface cleaning of the area immediately south of the west chamber of Building M (71.789; FIGURE 2). The fragment is easily distinguished from the Corinthian capitals of the Rotunda of Arsinoe by its smaller scale, differently styled leaf stems, and termination at the base of the *acanthus*.[3] An additional fragment, found in 1985 among the small marbles gathered on Building M's foundations, preserves the hawksbeak moulding of a small Corinthian column shaft and thus provides the link between the earlier finds (85.43; FIGURE 2). The terminal hawksbeak crown moulding is similar to those found on the Corinthian shafts of the Rotunda and Propylon of Ptolemy II.[4] The preserved flutes match the dimensions of those on the window mullion, which is appropriate in scale for the fragment of Corinthian capital 71.789 found in the vicinity. The likelihood that the capital, crown, and shaft belong together is confirmed by the curve of the *scamillus* on the bed surface of the capital, which flattens out along the side of the fragment, indicating that the capital rested over an oblong support rather than a column.

Collectively, the fragments make a pillar decorated with Corinthian half columns, whose restored height, if calibrated to the proportions of the Rotunda's

[3] Cf. McCredie *et al.* 1992: 63-64, 125-132, figs. 39, 42, pls XXXV-XXXVIII.

[4] Frazer 1990: 156-157, figs. 66, 68, pl. LIII; Rotunda, see above, n. 3.

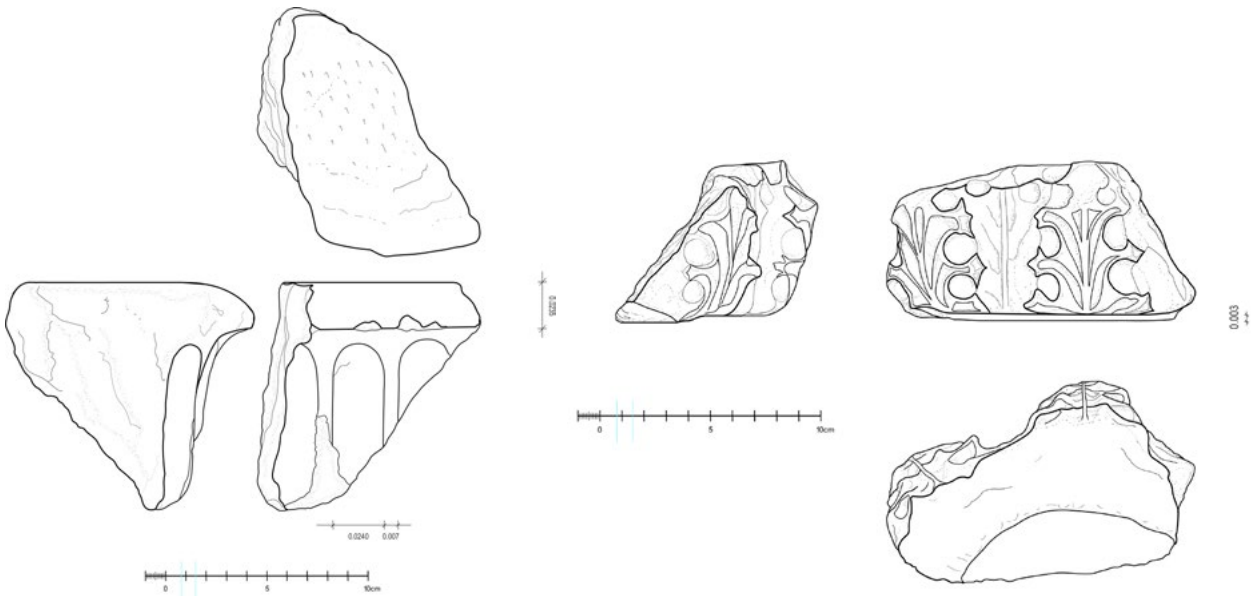

Figure 2. Left: Corinthian column crown moulding 85.43 (drawing: American Excavations Samothrace / R.H. Levitan); Right: Corinthian capital fragment 71.789 (drawings: American Excavations Samothrace / R.H. Levitan).

Corinthian gallery, would be *c.* 2.0 m. Pillars with double-sided columnar decoration were frequently employed in Hellenistic architecture to open walls or add strength to more diminutive orders in upper storeys; using the Corinthian rather than the Ionic order makes the Samothracian example distinctive.[5] It is close in scale to the Ionic double columned pillars set on tall pedestals that form the inner peristyle of the Great Altar of Pergamon, which W. Hoepfner likens to windows onto the Telephos frieze.[6] Lacking the pedestals, the Samothracian pillar is best suited for dividing a large window rather than a passageway or colonnade.[7]

The findspots of all fragments in the immediate vicinity of Building M suggest that the window belonged to that structure, which is the only major marble building on the Western Hill.[8] On visual inspection, both the Corinthian capital fragment and the fragments of the Ionic capitals belonging to Building M appear to be of a finer-grained marble than the Thasian used for the less intricate courses of the building.[9] The building, which consists of a central Ionic hexastyle prostyle pavilion flanked by side chambers, matches the three-room configuration of dining suites found in Hellenistic palaces and elite houses, although here monumentalised into a freestanding structure. The side chambers are appropriately scaled to hold 15 couches. The temple-front Ionic façade, spacious dining chambers, and marble construction make Building M the fanciest of the several dining facilities within the sanctuary. Therefore, in our original reconstruction, we felt justified in assigning the building southward-facing windows divided by elegant Corinthian mullions to the side wings. For the lintel, we used a block with two *fasciae* matching the back face of the epistyle (M158).[10]

However, two additional Corinthian half-capitals of similar scale, which we had not initially factored into the reconstruction, further complicate the story. The capitals entered the *apotheke* in 1961 from very different locations. One capital (61.483) was recovered from the ruined church of *Mandal' Panagia* near the village of Profitis Ilias, on the south side of the island (FIGURE 3).[11] Despite its distance from the sanctuary,[12]

[5] For the Ionic double half column in Hellenistic architecture, see especially Schmidt-Dounas 2005, who refers to the form as '*Doppelsäulenpfeiler*'. The English translation, 'double columned pillar', is less elegant. For earlier discussion of the type, see Büsing 1970: 52-56; Coulton 1976: 125-128; Rumscheid 1994: 310.

[6] Hoepfner 1997: 55, fig. 27, foldout 4. See Büsing 1970: 54-55, figs. 61-64; Schmidt-Dounas 2005: 85-88, with further references.

[7] For other Hellenistic windows, note the Stoa of Philip V at Delos: 1.95 m high Doric mullions, Vallois 1923: 40-42, figs. 44-47, 99-100, pls IV-V, VII; Pergamon Library: 2.76 m high mullions with Doric half columns; Hoepfner 1997: 43-44, fig. 20, foldout 2; Pergamon North Stoa, Sanctuary of Athena, Ionic window mullions: Hoepfner 1997: 55.

[8] For on-going work on Building M, Wescoat 2015: 132-134. Building A was abandoned at the level of the stylobate. The *Neorion* has windows made of the same limestone as the walls; Wescoat 2005: 163, fig. 10.

[9] I thank Yannis Maniatis and Dimitris Tambakopoulos for these observations. For the combination of Thasian with finer grained marbles in Samothracian buildings, see Maniatis *et al.* 2012.

[10] Wescoat 2010: 88-90, fig. 7.25.

[11] Diary 1961: 103-104, and information on attached tag.

[12] Finely decorated marble blocks from the sanctuary were reused in shrines across the island, e.g., the necking drum from the Hall of

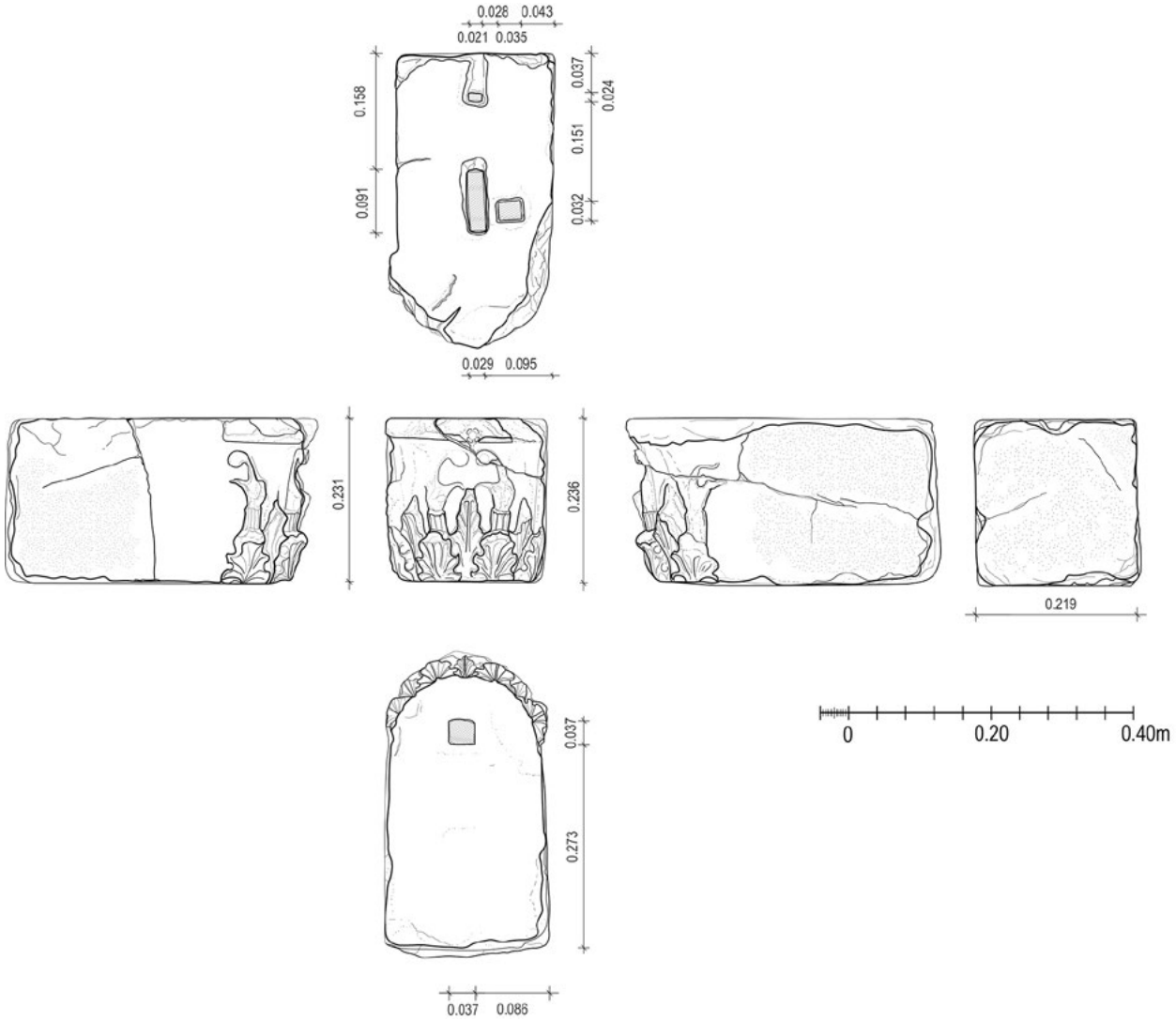

Figure 3. Corinthian engaged capital 61.483 (drawings: American Excavations Samothrace / R.H. Levitan).

the origin of the capital was secured by a second one (61.517a,b) found within in the Sanctuary of the Great Gods (FIGURE 4). Unfortunately, the precise findspot of the capital 61.517a,b is difficult to pinpoint because the catalogue records only that it came 'from the 'KALA' marble field of the excavation'. We can exclude the immediate vicinity of Building M, which would have been described as 'the site of the '*Temple Ionique*''. In 1961, excavation centered on the *Anaktoron* due east of Building M, but we cannot fully exclude other areas excavated by the Lehmanns, including the *Hieron*, Altar Court, or Rotunda of Arsinoe.

Shared material, scale, design and technical treatment indicate the two capitals must belong to the same monument. In scale and general design (as far as it is preserved), they are similar to the Corinthian fragment 71.789, and like it, are made of a fine-grained marble. Their treatment, however, indicates they were not freestanding but fully engaged within a wall. Both capitals consist of a rectangular block whose short end is decorated with a Corinthian half capital. Both sides are lightly picked rather than smoothly finished. The blocks differ in depth, but they were both originally joined to a backing block with a *pi*-clamp; their rough back surfaces indicate the joint was not closely worked. The capitals were lifted into place with a lewis iron (surprising, given their small scale) and doweled to the course above and below. Again using the proportions of the Rotunda, the height of these capitals suggests a restored height of *c.* 2 m for the engaged column.

Although the decorated surfaces of the capitals are badly worn, the basic design is clear. The lower section of the *kalathos* is decorated with two tiers of *acanthus* leaves, four on the lower tier and three interleaved above. Rather thin, ribbed *caules* emerge between the

Choral Dancers reused in the altar table of *Agios Georgios* near Mikro Vouni; Matsas and Bakirtzis 2001: 116.

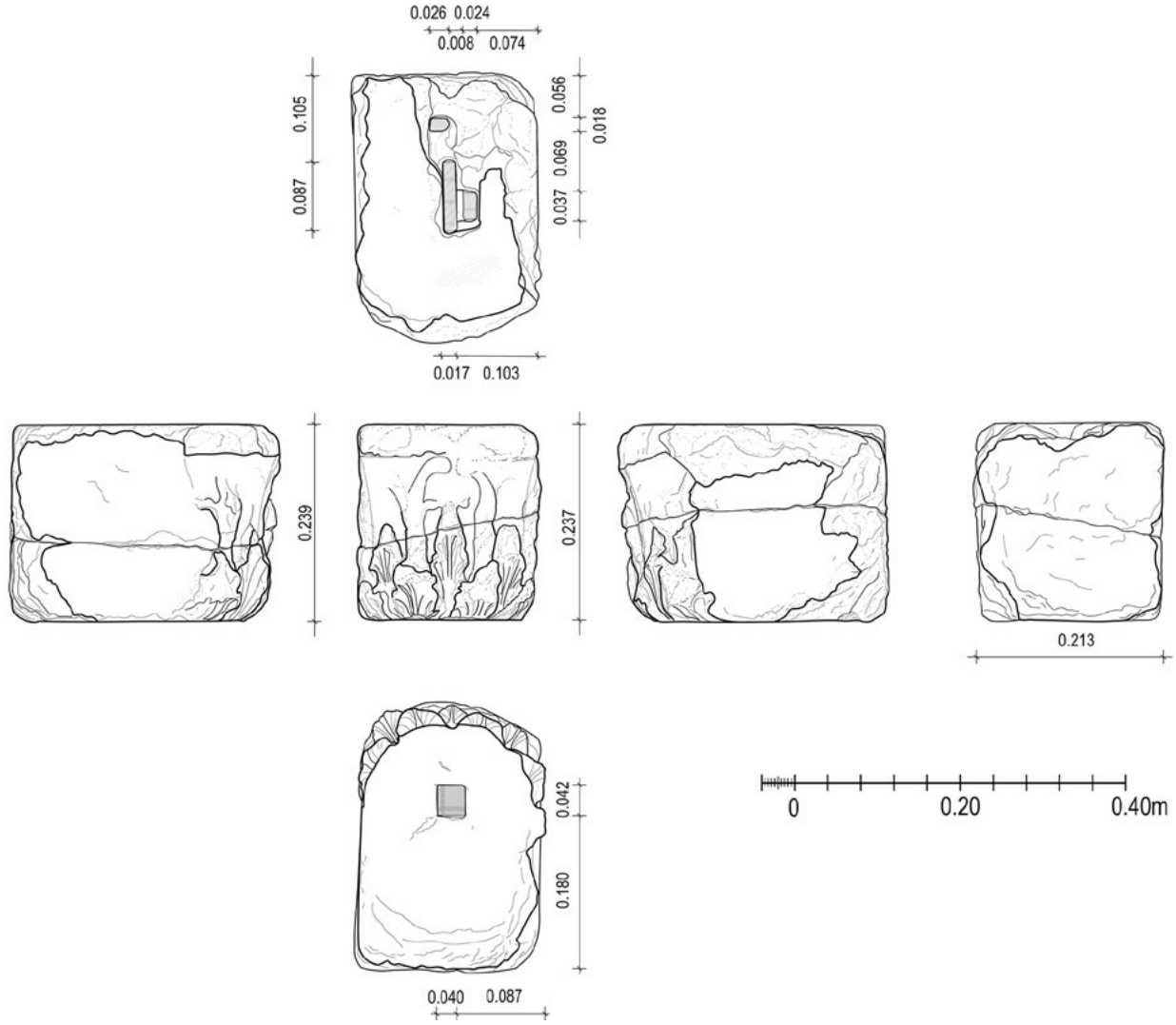

Figure 4. Corinthian engaged capital 61.517a,b (drawings: American Excavations Samothrace / R.H. Levitan).

leaves of the second tier; two on the front and one on each side. The front pair open in a *calyx* of leaves that curve over the central *acanthus* leaf. The inward turning *helices* rise up nearly to the level of the *abacus*, which bore a *fleuron*. A second outward turned *calyx* and *helix* emerge from the lateral *caules* to decorate the side of the capital. The diagonal volutes, which must have emanated from the *caules*, do not survive. Although badly damaged, the *abacus* appears not to have a *cavetto* profile; the crown moulding is lost. The design of the capitals is similar to that of the Rotunda of Arsinoe and Propylon of Ptolemy II, although the *calyx* emerging from the *caules* now plays a larger role. All three embrace the so-called 'normal' design that came to dominate Corinthian production.[13]

Within the three preserved capitals under consideration, which match in scale and general design, it remains a curiosity that the execution of the *acanthus* leaves in all of the capitals differs slightly. Fragment 71.789 has a central stem with lateral offshoots, and spiky leaves with lobes separated by circular eyelets. On capital 61.483, the leaves have more vertical stems and less pronounced eyelets. The stems of the leaves on capital 61.516 have a more linear quality than those on capital 61.483. Much of the surface of all three, however, is worn; some of the perceived variations may be the result of weathering.

Acknowledging these differences, the similarities suggest that all three capitals ought to belong to the same monument and most probably should be assigned to the same course. The securely documented findspots of the window pillar (M15/M23), its crown moulding (85.43) and Corinthian capital fragment (71.789) continue to make Building M the most likely candidate.

[13] Bauer 1973: 119; Cavalier 2015: 319-321; Frazer 1990: 172-179; Lauter 1986: 268; Roux in McCredie *et al.* 1992: 126-132.

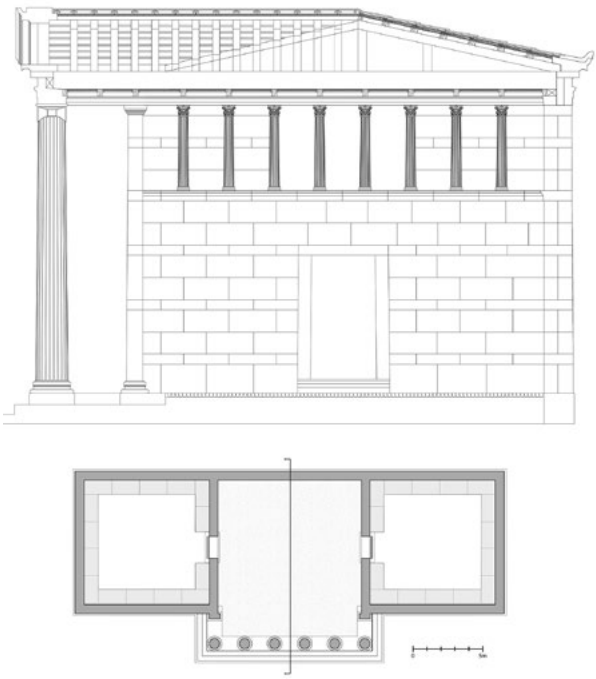

Figure 5. Preliminary reconstruction of the Corinthian gallery cum windows in Building M (Milesian Banquet Hall) (drawings: American Excavations Samothrace / L. Solk).

Tentative reconstruction

To incorporate all the material within the same course on Building M, we must imagine a blind gallery interrupted by windows that light the side chambers. The scale suggests it most likely belongs on the interior. Two options are possible. The gallery could decorate the upper wall of the side chambers, opening to windows on the south side as earlier proposed. However, the alternative, an internal Corinthian gallery wrapping the interior walls of the main Ionic hexastyle chamber and punctuated with transom-like windows opening into the side chambers is a more attractive possibility (FIGURE 5).[14] This arrangement has the further advantage of coordinating with the back side of the epistyle, which could continue around the interior of the central chamber to form the entablature of the gallery.

Using an engaged order to articulate the upper zone of the wall is a familiar architectural motif in the sanctuary.[15] The Corinthian gallery tentatively assigned to the interior of Building M -if correct- surely draws architectural inspiration from the Rotunda of Arsinoe's splendid interior Corinthian gallery. In this instance, however, it provides real window openings to light and ventilate the dining chambers. Further work is required to confirm these associations, but we can say with confidence that the Corinthian gallery cum windows offers yet another remarkably innovative deployment of the order in the Sanctuary of the Great Gods.

Large-scale Corinthian corner pilaster capital

The second Corinthian monument to which we turn is indicated by a single, elegantly designed corner pilaster capital that has, for 150 years, been hiding in plain sight amid the ruins of an early Christian church near the harbour of the ancient city (FIGURE 6).[16] With a height of 1.010 m, the capital is roughly 25% larger than the capitals of the Propylon of Ptolemy II, and it is more richly ornamented. Its adjacent decorated faces bear two rows of tightly grouped *acanthus* leaves; the taller five leaves defining the center and corners of the capital are interleaved with the four shorter leaves, two per side, forming the lower row. Although their turnovers are broken, the leaves clearly occupied less than half the height of the capital. The volutes and *helices* spring directly from the *acanthus* leaf collar rather than *caules*. In the center of the capital, a wavy stem emerges from a *calyx* of *acanthus* leaves; it passes between the addorsed *helices* to end in a rosette, from which spring lateral *rinceaux* with up-turned tendrils emerging from richly articulated sheathes. Additional tendrils, now very worn, decorate the sides of the volutes. A sharp fillet defines the upper edge of the *kalathos*. The concave *abacus* is crowned with a fillet and *ovolo* moulding. A narrow *fleuron* likely decorated the *abacus*, but all that is left today is a thin, roughly defined boss where it has broken off.

The capital is L-shaped, with joint faces cut to a thickness of *c.* 0.55-0.60 m to receive the adjacent wall blocks, to which the capital was joined with pairs of *pi*-clamps on each side. The top surface has a diagonally positioned lewis-cutting of Hellenistic shape.[17] Square sockets with lead-pouring channels secured dowels to the architrave, while an additional rectangular dowel cutting may have been used to fasten the architrave backer. On the well-preserved left joint face, two pry holes 0.18-0.21 m from the bed surface of the block likely were used to help guide the block into position. The bed surface has not been fully examined, but the remains of at least one square dowel hole near the right joint face indicate that the block was secured to the pilaster below. Visual inspection suggests the marble is

[14] I am grateful to the late Barbara Tsakirgis for discussing the various options with me and for drawing very useful comparisons with dining architecture that led to this idea.

[15] Rotunda of Arsinoe: McCredie *et al.* 1992: 56-65, 116-148, pl. LXII; Doric Rotunda: McCredie *et al.* 1992: 267, pls XCI-XCII; *Hieron*: Lehmann 1969: 138-142, 204-212, pl. CV.

[16] I thank the Ephorate of Evros for permission to work on this capital. It was first mentioned by Deville and Coquart 1867: 271; noted by Lehmann-Hartleben 1939: 142.

[17] I thank William Aylward for expert evaluation of the lewis hole.

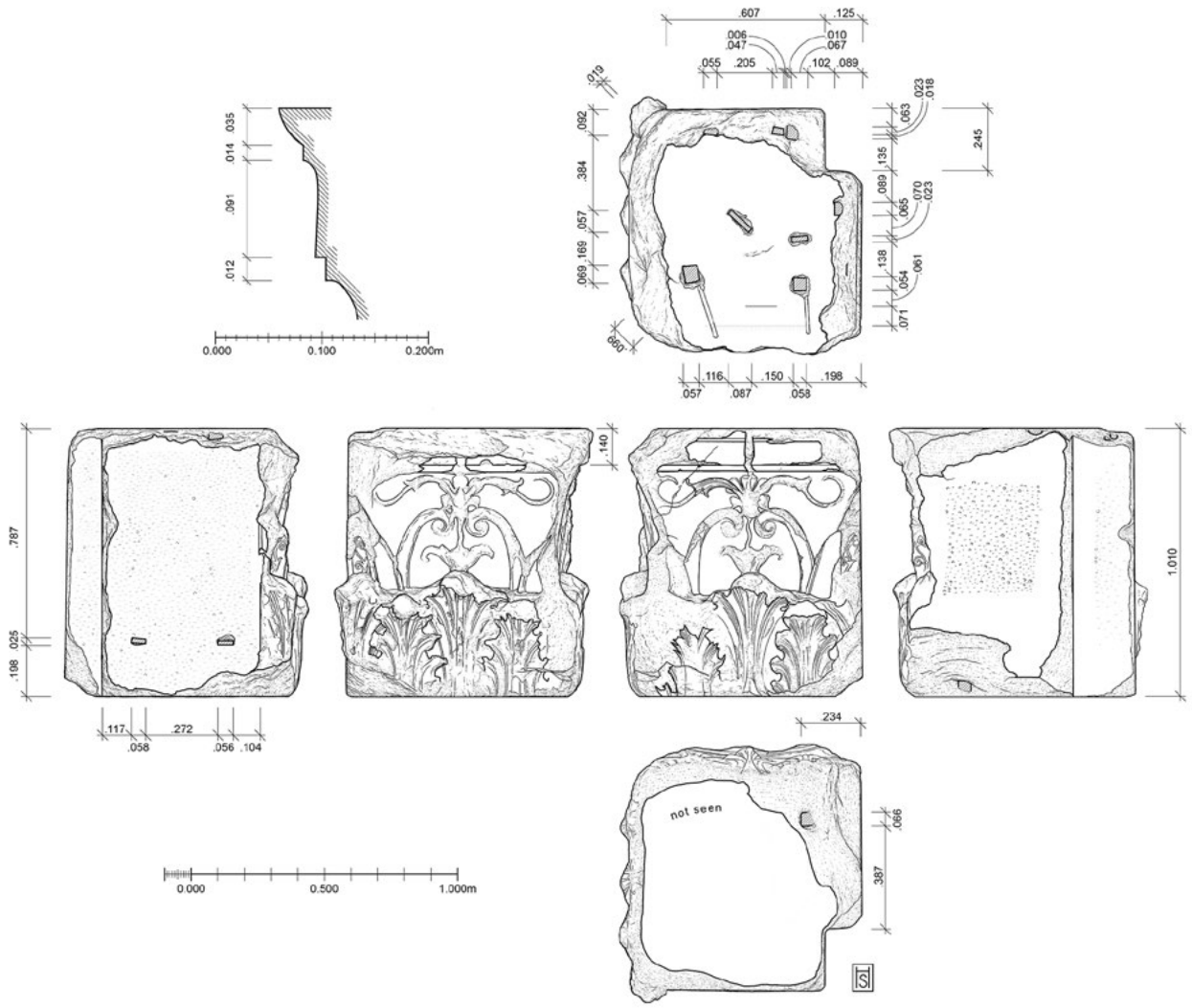

Figure 6. Corinthian corner pilaster capital found in the ruins of the early Christian church by the harbour of the ancient city (drawings: American Excavations Samothrace / S. Holzman).

finer-grained than Thasian marble, but it has not been scientifically tested.

Several features distinguish the pilaster capital from the other Corinthian capitals on Samothrace, including the lack of *caules*, the tight massing of *acanthus* leaves in the lower half of the capital, the elegant floral composition in the center of the *kalathos*, and the tendrils decorating the underside of the volutes. The *calyx* of *acanthus* leaves from which the wavy stem springs is unusual in this position on a Corinthian capital, although it is a common motif elsewhere.[18] Other features find strong counterpart among the diverse Corinthian examples of Ptolemaic Egypt.[19] The lower collar of *acanthus* leaves is consistent to the region.[20] Most strikingly, the lateral, upcurving tendrils that spring from the petals of a rosette have parallels in the capitals from Hermopolis Magna or Chatby Tomb A in Alexandria.[21] The desire to fill the zone above the *helices* with floral ornament is not exclusive to Alexandrian monuments (note, e.g., the capital from the Laodike Monument, with its wavy stem and additional tendrils ending in buds[22]). Nor does the corner pilaster capital on Samothrace have the *helix* emerge from its own *caulis*, a distinctive feature of several capitals within the Alexandrian

[18] On free-standing capitals, the stem more typically springs from a single *acanthus* leaf, but on *anta* capitals of the sofa type, a *calyx* of *acanthus* leaves is more common. For the *calyx* motif on the Ionic capitals and sides of the Corinthian *anta* capitals of the Propylon, see Frazer 1990: 157-167, pls LI, LV, LVII. For the decoration of sofa-style capitals in Asia Minor, see Rumscheid 1994.

[19] Fragaki 2015: 288-292; McKenzie 2010: 56-61, 83-89, 95-96, both with earlier bibliography.

[20] Fragaki 2015: 288-292.

[21] McKenzie 2010: 56-57, figs. 76-78, 114, 134.

[22] Cavalier 2015: 326; Rumscheid 1996: 30-31, no. 163 (with bibliography), pls 105.6-7. See Lauter 1986: 268, for possible Alexandrian influence.

orbit.[23] Nevertheless, the distinctive rosette and tendril combination argue for an Alexandrian connection and a date in the mid-3rd century BC. If correct, these conclusions are striking in two regards: first, the pilaster capital bears a closer resemblance to Alexandrian architecture than the capitals of the two monuments known to have been dedicated by Ptolemaic royalty; and second, the pilaster capital falls chronologically within the sequence of Samothracian capitals but outside the prevailing 'normal' design trajectory.

Knowing more about its original architectural context will surely help clarify the relationship of the pilaster capital to Samothracian Corinthian. At this point, we know only that the capital originally belonged to the exterior corner of a marble building that was significantly larger than the Propylon of Ptolemy II. Using a ratio of capital to pilaster of between 1:9-1:9.25 (the range of the Rotunda and Propylon), yields a reconstructed height of the roughly 9.09-9.34 m. The range makes the reconstructed pilaster comparable to the height of the columns of the Belevi mausoleum.[24] The material and workmanship matches the finest marble buildings within the sanctuary. An expensive construction like this one would require a wealthy patron, perhaps one with connections to Ptolemy III *Euergetes* and his half-brother Ptolemy Andromachos, who gained control of Thrace in 243 BC.[25] We would expect such a building to be set within the international visual arena of the sanctuary, but there is no place for a building of this scale within the densely built *temenos*, at least as we know it. Nor have foundations for such a structure been identified in the largely unexcavated ancient city. However, the lower courses of the Gattilusi towers, which perch on the cliffs immediately above the area of the Christian church, have a considerable number of repurposed ancient marble blocks belonging to Doric and Ionic structures that likely came from the ancient city.[26] Certainly, the ancient city was more opulent than we currently imagine. There is one other possibility. Given its findspot near the ancient harbour, we cannot entirely rule out that the capital travelled to the ancient city of Samothrace from elsewhere, either on the island or from abroad (although it must be said there are few places that deploy the Corinthian order as remarkably as Samothrace). At this stage, we must await the discovery of additional material (either on or off the island) to secure the location of the building.

In the mean time, we may speculate on the kind of structure we should be looking for. Corner pilasters often articulate the back side of prostyle or amphiprostyle structures, such as the Doric *Hieron* and Stoa on Samothrace, or the Temple of the Athenians on Delos.[27] Greek Corinthian prostyle designs are rarer, but there is the later example of the Temple of Augustus at Philae in Egypt, as well as many later occasions when pilasters complete the colonnade of early imperial temples.[28] They can articulate the corners of an *adyton* (e.g., the exterior west wall of the Temple of Apollo at Didyma), or take the place of *antae* in a truncated design (e.g., the *opisthodomus* of the Temple of Asklepios at Acragas).[29] Corner pilasters give a strong visual accent to the corners of the Hellenistic council house (e.g., *Bouleuterion* at Miletos), commercial building (e.g., Market Hall, Miletos), or palace (e.g., Qsar il-'Abd at 'Iraq el-Amir).[30] And there are smaller structures such as the Laodike Monument at Miletos, whose corner Corinthian pilaster capitals are well preserved, but whose design and function remain uncertain.[31] Surely, a splendid Corinthian building lies in our future.

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[23] E.g. capitals from Hermopolis Magna (McKenzie 2010: figs. 76-78); engaged capital in the Greco-Roman Museum, Alexandria (Fragaki 2015: fig. 15); or the capitals of Qasr il-'Abd (McKenzie 2010: figs. 155-156).

[24] Praschniker and Theuer 1979: 20-25, 177-180, figs. 18-21, 27, 49a, 50-52.

[25] By defeating and executing the local Seleucid-backed dynast Adaios, who also may have been active in the Sanctuary of the Great Gods; see Psoma *et al.* 2008: 234-238.

[26] Note also the remains of a marble *sima* said to be from an excavation in the ancient city conducted by Nicholas Phardys and now in the Louvre; Hamiaux 1998: 258, nos 304-314. For fragments of Doric and Ionic architecture found in excavation of the site of Αη Γιώργης within the ancient city, see Karadima 1998: 488-491.

[27] *Hieron*: Lehmann 1969: 42-43, 46, 48, 50, fig. 41, pls XXII-XXIII, CVII; Stoa: Wescoat 2010: 98-99, fig. 7.35. Temple of the Athenians: Büsing 1970: 29, 73-74, figs. 43-44.

[28] Temple of Augustus: McKenzie 2007: 166-168, figs. 286-289. For corner pilasters in early imperial design, note the well preserved Temple of Augustus and Livia at Vienne.

[29] Didyma: Hamiaux 1998: 264-266, no. 321; Acragas: Büsing 1970: 29, pl. 3b.

[30] Miletos: Büsing 1970: 19, fig. 27; Magnesia: Büsing 1970: 19-20, fig. 28; 'Iraq el-Amir: Étienne 2015: 269-272 (with bibliography), figs. 4-5. For smaller scale on tombs, note Hermel: Büsing 1970: fig. 33.

[31] Rumscheid 1994: pl.106.3; Weber 1989. See also another unassigned Corinthian corner pilaster capital from Miletos: Rumscheid 1994, no. 167, pl. 107.4.

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The Sanctuaries on the Island of Lesbos from an Architectural and Topographical Perspective

Yannis Kourtzellis

Summary

The island of Lesbos, sizeable geographically, features the largest state division on an island in the ancient Greek world. This study presents the sanctuaries of Lesbos, arranged in broad categories (Aeolian, pan-Lesbian, urban, *extra*-urban, rural, hydro-therapeutic, oracular, *temeni* etc.). The paper focuses on the island's most representative sanctuaries, laying emphasis on their topographical distribution, architectural form and development from their establishment up to the Roman times. In addition, we consider several key-factors (the Mycenaean settlement, the first colonization, contact with peoples of the East, heroes and ancestors' cult, the natural environment etc.), which determined the formation of religious worship, as well as these factors' connection –wherever this can be traced- with outstanding personalities of the island.

Περίληψη

Η Λέσβος, νησί με μεγάλη γεωγραφική έκταση, παρουσιάζει τη μεγαλύτερη πολιτειακή διαίρεση εντός νησιού στον αρχαίο ελληνικό κόσμο. Στο άρθρο τα ιερά παρουσιάζονται ομαδοποιημένα σε γενικές κατηγορίες (Αιολικά, παλλεσβιακά, εκτός πόλεων, αγροτικά, υδροθεραπευτικά, αστικά, μαντεία κ.ά.). Η μελέτη επικεντρώνεται στα πλέον αντιπροσωπευτικά ιερά, δίνοντας έμφαση κυρίως στην τοπογραφική κατανομή, αρχιτεκτονική μορφή και εξέλιξη αυτών από την ίδρυσή τους έως τους ρωμαϊκούς χρόνους, παρουσιάζοντας ταυτόχρονα τους παράγοντες εκείνους (Μυκηναϊκή εγκατάσταση, πρώτος αποικισμός, επαφή με τους λαούς της Ανατολής, ηρωολατρεία - προγονολατρεία, φυσικό περιβάλλον κ.ά.) οι οποίοι συνέβαλαν καθοριστικά στη διαμόρφωση της λατρείας, καθώς και στη σύνδεσή τους -όπου αυτό είναι δυνατό- με σημαντικές προσωπικότητες της Λέσβου.

Key Words

Lesbos; Pan-Lesbian; urban; *extra*-urban; rural; healing sanctuaries; *temeni*; Orphic oracle.

Introduction

By way of introduction, to guide the reader, it should be noted that the creation of the Lesbian sanctuaries is the result of a combination of situations and factors. The island throughout its long history constituted a bridge between the East and mainland Greece. Indications for close connections with Asia Minor and its people are already offered by the Hittite clay tablets,[1] the relations with Phrygia, Lydia and the Persian Empire[2] and this was the first, formative element of the island's religious worship. A second element, as indicated by recent archaeological research, was the establishment of a Mycenaean settlement since the 14th century BC (LHIIIA1, 1430-1360 BC).[3] The early history of Lesbos was then marked by the arrival of settlers from Achaea and other regions of the Peloponnese and mainland Greece. All evidence points to the conclusion that, together with the island's indigenous inhabitants, these arrivals created a distinctive cultural union, broadly known as the 'Aeolian civilization'.[4] As a result, cult in Lesbos is a combination of early deities, worshipped during the Mycenaean era,[5] the local religious traditions and the importation of eastern deities.[6]

[1] Buchholz 1975: 129 n. 306; Dimopoulou-Piliouni 2015: 31-33; Mason 2008: 57-62.

[2] Indicatively, Dimopoulou-Piliouni 2015: 74-82; Lobel and Page 1963: fragments 98, 132 (Sappho) and 69 (Alkaios). On the spread of Cybele's worship on the island of Lesbos, see Roungou 2013: 48-57, n. 218, 62-65, 112-118 with extensive bibliography.

[3] Indicatively, Archontidou-Argyri 1994b: 655; Archontidou-Argyri 1997: 907-908; Axiotis 2011: 5-21; Buchholz 1975: 127-137; Charitonidis 1961-1962: 265; Lamb 1936: 65-72, 136-138, 204-207, 212.

[4] Strabo 13.1.3; Bayne 2000: 133-135; Bérard 1959: 1-28; Dimopoulou-Piliouni 2015: 33-39; Hertel 2007: 97-122, pl. 9; Kontis 1978: 106-107; Spencer 1995a: 269-306.

[5] The co-worship of Zeus and Hera at the sanctuary of Messon relates to the origin of the first settlers of the island from the *Atreids*, according to local myths (Caciagli 2010: 227-256; Kontis 1978: 406; Nagy 2016: 449-492). The adjective Ὁμολώιος (= ομό-βουλος, as evidenced in Eresos) refers to Zeus as worshipped also in Boeotia and Thessaly, regions wherefrom the Aeolians began their colonization (Shields 1917: 22).

[6] For example, Dionysos *Omastes*, eater of raw flesh (Alkaios fragment 129) represents the local religious tradition of inhabitants of the island prior to the Aeolians' arrival. The main characteristic of his worship was the savage ceremonies including the consumption of an animal alive. On the relations between the island and the eastern populations and how this affected, in particular, the rituals and sacred architecture, see Tomlinson 1976: 122. For the worship of Dionysos, see also Simon 1996: 285-297.

Figure 1. Map of the territories of Lesbos, indicating the cities and sanctuaries mentioned in the text. To the right, the island of Lesbos in relation with major cities of Asia Minor
(map: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

Already from the early historic period the island was divided into six city-states (*poleis*), representing the largest state division on an island in the ancient Greek world[7] (FIGURE 1). The Lesbian cities (especially Mytilene), since the end of the 8th century BC[8] founded the first colonies on northwestern Troas, ultimately obtaining notable growth in the 7th and 6th centuries BC. A second aspect, no less important, is the natural environment, the micro-geography, the island's geology[9] and especially the unprecedented nature and biodiversity, factors that as it seems played a determining role in the creation of the Lesbian culture and in issues of the establishment and development of the ancient sanctuaries.

Literary sources - epigraphic and numismatic testimonies for the Lesbian sanctuaries

Epigraphic[10] and numismatic evidence[11] together with the archaeological data bear important witness for the ancient worships and the Lesbian shrines. Of the literary sources, the poems of the lyrical poets Sappho and Alkaios,[12] and also Thucydides' text of the Mytilenean

[7] For the Lesbian cities and their territories see Herodotos 1.151; Dimopoulou-Piliouni 2015: 25 n. 1, 47-55, 307; Kontis 1973: 15-23; Kontis 1978: 125-350; Labarre 1996: 191-201; Spencer 2002: 68-70.

[8] Alkaios fragments 7, 38a, 129; Thucydides 3.50.3 and 4.52.3. Kontis 1973: 23-25; Kontis 1978: 58-67, 76-100, 143-154; Mason 1993: 226-229.

[9] For the geological structure of Lesbos, see Thomaidou 2009: 38-186.

[10] For the 'building inscriptions' found on Lesbos and their correlation with the foundation of the temple of Asklepios in the city of Mytilene and the temple at Messon, see *IG* XII 2: 10, 11; Heisserer 1988: 111-132; Kontis 1937: 483-492; Kontis 1978: 430 n. 815; Labarre 1996: 255-259. With reference to some prominent sanctuaries in Mytilene, including that of Asklepios, *IG* XII 2: 4, 15 and Suppl. 25. On the sanctuary of Artemis *Aithiopis* see *IG* XII 2: 92. On Demeter *Karpophoros* (harvest bringer) *IG* XII 2: 212, 213, 232, 258 and Suppl. 691; Kalliontzis 2000-2003: 255-258; Shields 1917: 46. For sacred laws on matters of worshipping in Lesbian sanctuaries *IG* XII 2: 72, 73, 498, 499 and Suppl. 126; Sokolowski 1962: 124, 125, 127, Suppl. 82. Generally on the issue, Dimopoulou-Piliouni 2015: 334-343.

[11] Bodenstedt 1981: 321-323; Lazzarini 2010: 83-111; Wroth 1894. For the coinage of the Lesbian *Koinon* during the reign of Marcus Aurelius and Commodus (2nd century AD), see Archontidou-Argyri and Labarre 1996: 119-140; Vavliakis and Lyrou 2010: 113-125.

[12] Lobel and Page 1963.

Figure 2. The cave 'Spilios' in the rural area of modern Antissa. It has been proposed as a possible location of the *Baccheion* or the grave of Orpheus (photo: © Copyright Tzeli Hadjidimitriou, fine art photographer).

revolt are particularly noteworthy.[13] However, none of these testimonies includes any specific reference to the exact position of a shrine. Even the references of Roman writers to shrines, local worship, or *heroa* are not particularly helpful. For example, Pausanias' graphic description for the worship of Dionysos *Phallen* in Methymna[14] and Stephanus' reference to a *heroon* dedicated to the Homeric hero Tantalus in Polion, located in the southeast territory of Mytilene,[15] do not provide any clear topographical information.[16] The well-known oracular sanctuary of Apollo *Napaios* is identified with the sanctuary at Klopedi, in the middle of the island, with conclusive indications recently excavated, including a fragment of clay plate with an engraved inscription ...ΛΩΝΟΣ.[17] Another characteristic example is the *Baccheion* or grave of Orpheus in the territory of Antissa. According to the ancient sources, after the Thracian Maenads had savaged and dismembered Orpheus, his head reached Antissa, where it continued to speak in riddles, while his lyre was taken to the sanctuary of Apollo in Mytilene.[18] Over the years, the *Baccheion* gained panhellenic recognition and rivalled even the Delphic sanctuary of Apollo.[19] Ioannis Kontis believed that the sanctuary should be sought within the borders of the ancient city of Antissa.[20] However, the case has been made for a very interesting (alternative) point of view for the placement of the oracle inside a cave named *Spilios* in the rural area of modern Antissa[21] (FIGURE 2). To support this proposal, however, archaeological research is required and, also, if we accept the above proposal we would need to agree that the oracle of Orpheus in the cave did not comprise any monumental architectural configuration but remained indissolubly linked to nature throughout its historical evolution.

[13] Thucydides 3.3.

[14] Pausanias 10.19.3. Dimopoulou-Piliouni 2015: 375; Kontis 1978: 410-411 ns 718-722; Shields 1917: 59-61.

[15] Stephanus Byzantius *s.v.* Πόλιον and Tantalus; Kontis 1978: 434; Shields 1917: 84.

[16] There is evidence for the cult of *Δίας ὕπατος παντεπόπτης* (*IG* XII 2: 115; Kontis 1978: 407; Shields 1917: 23) in a temple or merely an altar on mountaintops. From an inscription on a coin (*Θεοί ἀκραῖοι Μυτιληναίων*) the coexistence of altars or temples on the same coastal hill is assumed in the city of Mytilene or its territory (Kontis 1978: 407; Shields 1917: 23-24). Another inscription *Ζεύς Βουλαῖος* on a coin dates in the 3rd century BC (Kontis 1978: 407; Shields 1917: 24; Wroth 1894: 201, no. 177). The cult of *Μυρικαίου Ἀπόλλωνος* (of the tamarisk) in the territory of Mytilene refers to the god's prophetic attribute (Μυρίκη = αλμυρίκι). We may assume it also implies a seaside shrine, taking into account that tamarisk grows on the coast (it is mentioned by Alkaios, cited in a *scholion* to Nikander's *Theriaca*, 1. 613a9; Kontis 1978: 418; Shields 1917: 5; Ustinova 2009: 106).

[17] Douloumbekis 2014: 50; Roungou 2014: 60. The identification of the sanctuary of Apollo *Napaios* is further increased by the portable finds and mostly by the fragment of a standing bronze kouros figurine (Kossyfidou 2014: 54).

[18] The myth is known by a fragment of Alkaios' poem (Voigt 1971: fragment 45), which was fully developed in the Hellenistic and Roman periods in the poems of Phanocles, Virgil, Ovid, Conon, and Lucian (Bernabé and Cristóbal 2008: 183-184).

[19] For references to Lucian, Aristides Rhetor, Eustathios and Philostratos, see Shields 1917: 59-60, 80-82 n. 27.

[20] Kontis 1978: 410-411, 416, 434, ns 715-716, 720, 836.

[21] Charisis *et al.* 2002: 68-73; Ustinova 2009: 106-107.

Temeni – rural shrines

On the island of Lesbos an important category of sanctuaries are the *temeni*, religious sites of great antiquity linked closely with their natural environment, as happens in the rest of the Greek world.[22] Epigraphic evidence suggests that important *temeni* existed in the area of Mytilene, Gera, Methymna, Eresos, Lisbori[23] and in the central part of the island, the best known example being that at Messon, to which we shall refer in detail further below. There is archaeological evidence for a *temenos* in the area of Rachonas, between the settlements Petra and Bapheios in the territory of ancient Methymna.[24] The *temenos* was defined by boundary stones (*horoi*), carved in volcanic rock *stelae* or on the natural rock. Only recently has a volcanic *stele* been detected, north of Bapheios, inscribed with ΟΡΟΣ|ΤΕΜΕ|ΝΟΣ in three lines.[25] If we combine the other sites of the same area, in which *horoi* had been found, it transpires that the Bapheios *temenos*, located at the foothills of Lepetymnos, occupies a large mountainous area, covered mainly with oak forest. A *temenos* founded on the slopes of mountain Lepetymnos, the highest mountain of Lesbos, is rather reminiscent of the famous Homeric shrine-*heroon* of Lepetymnos,[26] Trambelos and Lampetos.[27] The existence of rural shrines in the region of Mytilene during the Roman period (1st century AD) is suggested by a rectangular altar with an inscription to the god Silvanus, a god of the forest but also a protector of the rural houses and fields.[28]

> Ti(berius) Claudius
> Felix
> Silvano sacrum

Lastly, the information recorded in the pastoral novel by Longus, which celebrates the youthful love between Daphnis and Chloe, is of interest. This evidence dates to the second half of the 2nd century AD.[29] Although this is a novel, which does not necessarily record precisely the island's topography, it speaks in detail about the nature of Lesbos and could be used as indirect information for the existence of rural shrines even in the late Roman period.[30] In many passages in the text reference was made to the cave of the Nymphs, with stone statues both of the Nymphs and of Pan the Soldier, to whom the young couple gave a temple to live instead of the pine-tree.[31] There is also reference to an altar dedicated to Eros the Shepherd,[32] and the presence of Dionysos in the story is widespread. The Lesbians' preference for rural shrines may be explained by the island's massive scale, the immersive nature and the geographic division of the island into many territories.

Early cult buildings

Buildings of the early Iron Age in Lesbos, with peculiar architectural form, like the apsidal or oval ground plans, dating from the Proto-Geometric period seem to have served either partly or wholly religious purposes. The most well-known is that of the ancient city of Antissa.[33] Apsidal, oval or ellipsoidal buildings have been found respectively in Mytilene,[34] Pyrrha,[35] Methymna,[36] and recently in Klopedi[37]. These buildings, even though some points remain to be clarified, can be interpreted as dwellings of the elite class members, which served for cult activities and rituals[38] - an interpretation seemingly more suitable to the case of Lesbos. On several occasions in prominent sanctuaries of the ancient world, such early structures constituted the first cult building, to be embedded in the foundations of later monumental structures.[39]

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[22] Alcock 1993: 155-165; Burkert 1993: 193-198; Horster 2010: 435-458; Tomlinson 1976: 17. For the relation of cult to the environment, particularly on the island of Lesbos, see Kourtzellis 2017: 377-392; Paraskevaidis 1984: 1-16.

[23] *IG* XII 2: 79: 'χω(ρίον) Λευκὴ ἀκ[τ]ὴ σὺν τεμένει' (Charitonidis 1968: 29-30; Kontis 1978: 361-362; Spencer 1995b: 20, nos 92-93).

[24] Based on an inscription immured in the church of Saint Panteleimon in Methymna (*IG* XII 2: 524; *IG* XII Suppl.: 524), H. Buchholz assumes the existence of a *temenos* dedicated to Agdistis (Buchholz 1975: 52 n. 122; Labarre 1996: 218 n. 100; Shields 1917: 56). For another three *horoi* found in the area, see *IG* XII 2: 521; Kontis 1978: 278-281; Spencer 1995b: 45-46, no. 218.

[25] Inventory no. E1. The block is roughly worked all around. Its width ranges from 0.30 to 0.42 m, height 0.94 m, depth: 0.15 m.

[26] Antigonus Carystius ch. 17; Shields 1917: 80.

[27] Kontis 1978: 278, 414, 434 ns 740, 837; Shields 1917: 80, 84.

[28] *IG* XII 2: 122 and Suppl. 31; Dimopoulou-Piliouni 2015: 559; Evangelidis 1920-1921: 106-107; Kontis 1978: 239, n. 444; Shields 1917: 75.

[29] Hunter 1983: 31-38; Morgan 2004: 1-2.

[30] On the subject, see Green 1982: 210-214; Mason 1979: 149-163.

[31] Longus 4.39: 'οὗτοι] καὶ τὸ ἄντρον ἐκόσμησαν καί εἰκόνας ἀνέθεσαν καὶ βωμὸν εἵσαντο Ποιμένος Ἔρωτος, καὶ τῷ Πανί δὲ ἔδωσαν ἀντὶ τῆς πίτυος οἰκεῖν νεών, Πᾶνα Στρατιώτην ὀνομάσαντες'.

[32] On rural cults, the cult of Dionysos, Pan and the Nymphs especially by the rural classes and the -relatively- formal cult of Demeter on the island of Lesbos, see Kontis 1978: 413-415, ns 728-736; Shields 1917: 44, 62-73.

[33] Coldstream 1977: 263-263; Lamb 1931-1932: 44-45, 47; Mazarakis Ainian 1985: 29; Mazarakis Ainian 1997: 84-85, with extensive bibliography; Roungou 2013: 114-116; Spencer 1993: 76-78. Initially only one end of the building at Antissa (dating in the late 9th – early 8th century BC and measuring 17.25 x 5.60 m) was apsidal. In the 8th century BC an apse was added to its west side, resulting in an oval ground plan (14.00 x 6.10 m). The walls of this building set the oldest example of 'Lesbian masonry'. The conversion (second phase of construction) was dated by Lamb in the 8th century BC, whilst other scholars propose a date in the 7th century BC.

[34] Spencer 1993: 80-81. For a building with apsidal ground plan in the area of Mytilene's municipal swimming pool, at the south of the acropolis, which presents similarities with the above mentioned building, see Kourtzellis 2012b: 215-217.

[35] Roungou 2013: 114-115; Schiering 1989; Spencer 1993: 79.

[36] Archontidou-Argyri 1989: 406, plan 7, pls 229γ, 230a.

[37] Roungou 2014: 30-36, 58-60; Roungou and Kyriakopoulou (in press).

[38] Mazarakis Ainian 1985; Mazarakis Ainian 1988: 105-119; Mazarakis Ainian 1997 and, more recently, the example of Geometric building (end of the 8th century BC) in ancient Helike (Kollia 2011: 201-246).

[39] The following examples from the rest of Greece are indicative: Nichoria in Messenia, Vronda, Kastro, Vrokastro and Smari on Crete, Zagora on Andros and Emporio on Chios, as well as the cases at Aigeira in the Peloponnese, Eretria etc. Mazarakis Ainian 1988: 105-119; Mazarakis Ainian 1997; Mazarakis Ainian 2016: 15-30.

Figure 3a-b. The curvilinear building of the 7th century BC, indicated as Cybele's sanctuary in the city of Mytilene (photos: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

The curvilinear building in the area of the former 'Palliative care for children Foundation' in the city of Mytilene dates at least in the 7th century BC. The early building was identified as Cybele's sanctuary due to a headless statue of the goddess, found reused as building material in a wall of the Roman period[40] (FIGURE 3). The second curvilinear building, dated to the Geometric period (9th-8th century BC) in the city of Mytilene, was found further north, to the west of Euripos, a location allowing us to associate it with the sanctuary of Apollo *Maloeis*, also stated by Thucydides, in fact, as the most prominent sanctuary of Mytilene.[41]

Many offerings were found inside the apsidal building of Pyrrha leading the excavators to identify it as a sanctuary dedicated to Artemis.[42] In the apsidal building of Antissa, which is considered the earliest example of Lesbian masonry in Lesbos, local and imported pottery[43] was also found. In the apsidal building at Klopedi the head of a primitive clay idol (0.17 m high) provides firm evidence for the building's cultic nature.[44] From all the above, only the apsidal building at Klopedi (measuring 13.50 x 8.50 m) definitely evolved into a monumental temple, firstly in the 7th[45] and subsequently at the end of the 6th century BC, when the so-called Aeolic 'temple B' was erected.[46]

As regards spatial organization:

- Cybele's sanctuary is situated on the west borders of the Archaic settlement of Mytilene;
- the sanctuary of Apollo *Maloeis* was outside the settlement (*extra* urban)[47];
- the Geometric apsidal building at Pyrrha was located on the top of the acropolis;
- the Antissa apsidal building was located at the foot of the acropolis and inside the early city's fortification;
- the apsidal building at Klopedi is located on the boundaries of two territories (Methymna and Arisbe). In the case of Methymna, further excavation is required, in order to establish the relation of the apsidal buildings with the Archaic settlement founded on their building remains. In any case, the apsidal buildings occupy the foot of the acropolis.

With regard to *periboloi* (enclosures), these have been found only in the case of the apsidal building at Klopedi[48] and that of Mouzala plot in the city of Mytilene.[49] Yet, this may have more to do with the incomplete investigation of the ancient cities and, consequently, our limited view on the early cities' topography. It must therefore be concluded that apsidal buildings on Lesbos are found in various positions, inside or outside of the early settlements. Their dimensions are almost equal,[50] but their construction presents heterogeneity

[40] Imported and local fine pottery has been found inside the curvilinear building and -more recently- a terracotta figurine of a goddess or female suppliant, dated to the 7th century BC. Chatzi 1973: 515-517, plans 10-11, pls 481, 483-486; Kontis 1978: 431-432 n. 825; Kyriakopoulou 2015b: 28-31; Roungou and Kyriakopoulou (in press); Spencer 1993: 80-81, fig. 2.4; Spencer 1995: 296-299. For the worship of the Great Goddess or *Magna Mater*, see Burkert 1993: 375-380.

[41] Thucydides 3.3-5; Archontidou-Argyri 1986: 200; Archontidou-Argyri 1987: 477, pls 284-286; Kyriakopoulou 2015a: 26-27; Mazarakis Ainian 1997: 99 n. 569; Spencer 1993: 32-40; Spencer 1995a: 279.

[42] Mazarakis Ainian 1997: 84-93; Roungou 2013: 114-115 n. 609; Schiering 1989: 346-399; Spencer 1995a: 283.

[43] Lamb 1931-1932: 51-62; Spencer 1993: 50-52; Spencer 1995a: 285.

[44] Roungou 2014: 58 on the interpretation of the figurine as a representation of the Great Mother or a goddess related to nature, such as *Potnia Theron* (Mistress of the Animals).

[45] Douloumbekis and Kossyfidou 2014: 37-39; Kossyfidou 2014: 51-56; Roungou 2014: 30-60 (esp. 33 picturing the idol).

[46] Betancourt 1977: 82-87.

[47] Polignac 1995: 40.

[48] Roungou 2014: 30, 36.

[49] Kourtzellis 2012b: 215-217. Cf. above, n. 34.

[50] Pyrrha: the building's dimensions are not known, as only part of

Figure 4. The Archaic (first half of the 6th century BC) terrace-wall in Apotheka, known as *Kalochtistos* (well-built) or *Rodotoichos*. The wall is the best preserved example of Lesbian masonry on the island of Lesbos (photo: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

or diversity. For example, Lesbian masonry[51] has been used for the construction of the walls at the sanctuary of Cybele,[52] of *Maloeis* Apollo and that of Antissa. On the other hand, rather 'freestyle' masonry of small dimensions was used in the case of Methymna, while the walls at Pyrrha were constructed almost in the isodomic system.

Kalochtistos or *Rodotoichos* in Apotheka

The Archaic (most probably in the first half of the 6th century BC) terrace wall in Apotheka is clearly the best preserved example of Lesbian masonry on the island[53] (FIGURE 4). It is located at the southeastern edge of the territory of Eresos, close to its borders with Antissa and close to the entrance of the gulf of Kalloni.[54] Of impressive dimensions (55.51 m in length and 5.10 m maximum height[55]), the structure is known to the locals as *Kalochtistos* (well-built) or *Rodotoichos* because of its beauty. We have neither any ancient written record nor any reference to the monument in ancient literature. Its interpretation as a sanctuary's terrace-wall or enclosure was proposed already by Robert Koldewey, the first scholar to study the monument, and it can

the apse is preserved. Maximum width of the apse 6.60 m. (Schiering 1989: 346-377). Antissa: 17.25 x 5.60 m. Mytilene: sanctuary of Cybele 8.30 or 15 x 5.50 m (Chatzi 1973: 515-517, pls 483-486; Roungou 2013: 112 n. 596). For different renderings of the ground plan of the apsidal building of the sanctuary of Cybele: Mazarakis Ainian 1985: 28-29, fig. 12; Mazarakis Ainian 1997: 89-91, figs. 354-355; Spencer 1995a: 296-299, fig. 11. The latest measurements provided by the excavators are 13.40 x 5.70 m and maximum preserved height 1.85 m (Kyriakopoulou 2015b: 29).

[51] The Lesbian masonry (Aristotle *Nicomachean Ethics* 1137b. 29-32) was largely used on the island from the 8th to the middle of the 4th century BC, as a complex mode of construction, mostly in facades, strong retaining-walls etc. In no case shall it be associated solely with religious buildings and sanctuaries. On this topic, see also Spencer 1995b: 53-64; Spencer 1995d: 32-33.

[52] Chatzi 1973: 516-517, pl. 483; Kyriakopoulou 2015b: 29; Roungou 2013: 113.

[53] Koldewey 1890: 38, 43-44, 87, pl. 15.1-4; Kontis 1973: 57-61, 79-83; Kontis 1978: 336-338; Schaus and Spencer 1994: 416-417; Spencer 1993: 112-114; Spencer 1995b: 28, no. 130 with extensive bibliography. Scholars refer to the presence also of glazed red and black pottery, suggesting the site's long life. It should be pointed out, however, that no excavation has been conducted as yet, to help us better understand the monument.

[54] For the establishment of religious centres during the Archaic period, in conjunction with the determination of a city-state's geographical and political boundaries, see Hägg *et al.* 1988; Marinatos and Hägg 1993; Mazarakis Ainian 1988: 105-119; Morgan 1990; Morgan 1994: 105-142 and 129-139 (regarding the sanctuary of Hera at Perachora); Polignac 1984; Polignac 1994: 4. For the importance the sanctuary at Klopedi bore for Arisbe in that early period, in order to secure its territorial integrity against the threat of Methymna, see Roungou and Douloumbekis 2014: 24-25. On boundaries between the city-states of Lesbos during the Archaic period, in relation to populations residing on the island, as well as the relation between elite groups and people who lived in the *chora* and the *asty*, see Spencer 1995d: 28-42.

[55] Chatzistamatis and Anagnostopoulos (in press).

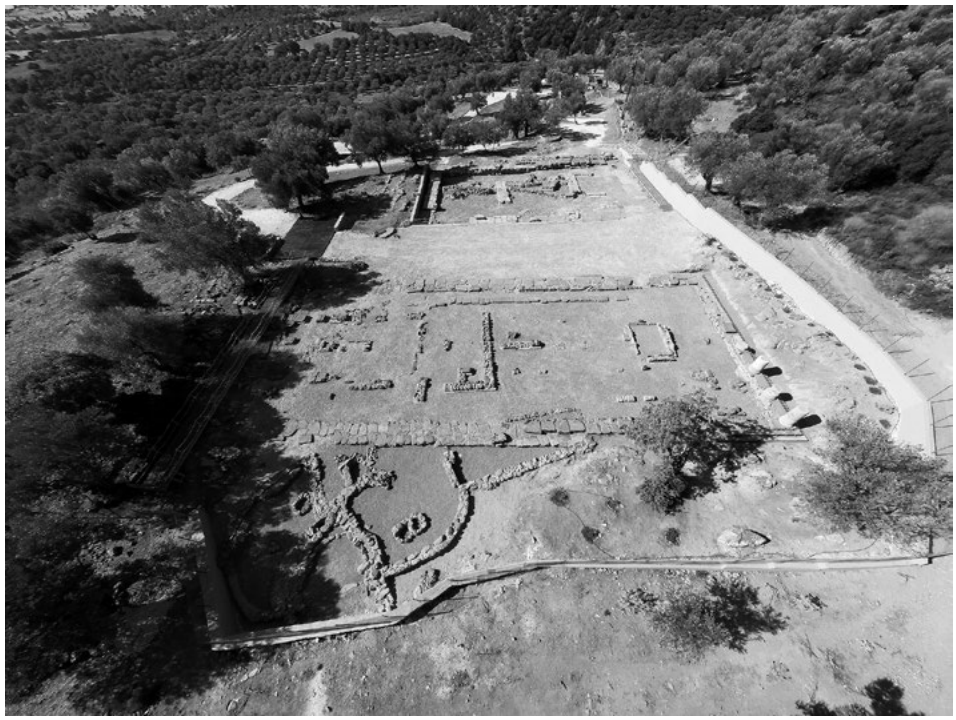

Figure 5. Aerial photograph of the Aeolian sanctuary of Apollo at Klopedi. From the foreground to the background, the apsidal building, 'Temple B' and 'Temple A'
(photo: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

be accepted on the basis, *inter alia*, of the structure's monumentality (reminiscent of the respective terrace-wall of the temple of Apollo at Delphi or the western section of the south wall of the temple of Athena's podium at Smyrna, *c.* 630 BC[56]), the existence of a 9 m wide ramp and an about 42.00 m wide platform. Koldewey, who had a clearer view of the site, had noted the existence of remains of a square building, 41 x 45.5 m, divided into four spaces, the first of which delineates a kind of *prodomus* (15 m wide), while the second was identified as the main space (21.5 m wide). The rest of the spaces, of smaller dimensions, are usually interpreted as auxiliary.

The Aeolic sanctuary of Apollo at Klopedi

Νάπη, πόλις Λέσβου. Ἑλλάνικος ἐν δευτέρῳ Λεσβιακῶν. ὁ πολίτης Ναπαῖος, καὶ Ἀπόλλων Ναπαῖος
(Stephanus of Byzantium *s. v.* Nape)

The Aeolic sanctuary at Klopedi appears to have started its historic development as a *temenos*. Recent archaeological investigation brought to light residential remains of the late Bronze Age, on which, according to all indications, the first religious building of it was founded in the 8th century BC (FIGURE 5). The *temenos* at Klopedi together with that at Messon prove the establishment of early shrines on sites where Mycenaean and Proto-Geometric habitation pre-existed; the sanctuary's first two-partite apsidal building (8th century BC) was founded on remains of the Mycenaean settlement, stretching below and to the north of the late Archaic temple B. These diachronic connections could be associated with hero or ancestors' cult (a funerary monument with a *peribolos* was recovered below the temple A, with funeral fire and offerings to the dead, namely two locally produced grey kraters with impressive relief and inscribed decoration, dating also in the 8th century BC).[57]

The sanctuary's excavators rightly consider that the sanctuary's establishment could be very much related to *polis* boundary issues and the security of the small

[56] Akurgal 2007: 132, 134, pl. 15.3.

[57] Roungou 2014: 30-36, 58-60. For the symbolic character of the ancestors' graves in the early sanctuaries and cult practices in cities under creation during the 8th century BC, see Antonaccio 1994: 74-104; Antonaccio 1995: 245-268; Polignac 1984: 128–149; Snodgrass 1980: 37–40. In addition, note the space outside the walls of Troy, known as 'a place of burning' (Aslan 2011: 381-429). For a possible early (late Geometric to early Archaic) *temenos* in 'cemetery I' for ancestor worship at Antissa, see Spencer 1995c: 51-62. For the *tumuli* in the northwestern (Sigeum and Troy-Ilium's vicinity) and center parts of Troas and how they were linked to the Homeric heroes' graves already since the 7th century BC, while the area was under Lesbian control, see Rose and Körpe 2016: 373-382.

Figure 6. 'Temple B' (west side) of the Aeolian sanctuary of Apollo at Klopedi, after recent restoration works by the Ephorate of Antiquities of Lesbos (photo: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

territory of Arisbe,[58] although its establishment in the late Bronze Age links also to the Aeolians' immigration.[59]

The two temples (A and B) in the sanctuary of *Napaios* Apollo are within the finest examples of the Aeolic architectural order in Greece and the whole ancient world.[60] Temple A, measuring 29.20 x 18.70 m,[61] dates in the middle of the 6th century BC and temple B, 38.15 x 16.90 m,[62] around the end of the century.[63] The architectural form of temple B is better known (FIGURE 6). The building's ground plan presents the typical proportions of the oblong Archaic temples with a *pteron* of 8 x 17 columns. The peripteral building had an entrance on the east and a three-stepped *krepis*. Within a short distance from the *pteron* two more foundations are preserved, one for the *toichobate* of the single-spaced *cella* and another for the *pi*-shaped inner colonnade. To the *cella's* west, a built rectangular structure 4.10 x 3.45 m in Lesbian masonry with small orthogonal stones has been interpreted as an altar, with its Lesbian part probably being a remnant from the first monumental temple of the 7th century BC, which was probably later utilised inside the *cella* of the new temple, as the base of the cult statue.[64]

The Aeolic columns, of local volcanic stone, have bases with *torus*, where the lowest part of the shaft's drum was set. Column-shafts are not monolithic; they consist of drums of unequal size, tapering gradually from 0.712 m to 0.56 m. The topmost drum ends in a large, projecting *torus*-like convex moulding, flanked by two smaller ones. This element was placed immediately below the Aeolic capital, with its characteristic vertically rising volutes. The advanced form of the Aeolic capital shares similarities with the capitals of the temple at Neandria.[65] The Aeolic capital has no *abacus*; its flat top carried the epistyle.

Betancourt represented the temple's entablature with a three-*fasciae* architrave crowned by an egg-and-dart moulding, dentils and *sima*.[66] The recent recovery of fragments of lesbian *cymas*, flat slabs with relief decorative themes and 'fragments of a possible

[58] Roungou and Douloumbekis 2014: 24-25. Particularly interesting is Herodotos' reference (1.151.2) to the violent destruction of Arisbe by Methymna at the turn of the 8th to the 7th century BC. See also Whitley 1988: n. 54.

[59] Bérard 1959: 1-28.

[60] Macrobius *Saturnalia* I.17.45; Stephanus Byzantius *s.v.* Νάπη; Strabo 9.426. Betancourt 1977: 58-98, especially 82-87 for a description of the sanctuary at Klopedi; Koldewey 1890: 44-46, pls 16-17; Kontis 1973: 45-53; Kontis 1978: 267, 295-299, 415-416; Roungou and Douloumbekis 2014, with detailed bibliography. Shields 1917: 3-4 (Apollo *Napaios* means 'god of the glen'); Farnell (2010: 223 n. 192) proposed that the sanctuary was a foundation of the early Aeolian immigrants.

[61] Douloumbekis 2014: 41-50.

[62] Kossyfidou 2014: 51-56.

[63] Betancourt (1977: 82) considers a peripteral temple with *prodomus* and *opisthodomus* or *adyton* constructed at the end of the 7th – early 6th century BC. This temple was completely destroyed and its remnants were later embedded in the foundation of 'Temple B'. Part of it can be seen in the altar, constructed in Lesbian masonry.

[64] Kossyfidou 2014: 54.

[65] Betancourt 1977: 83. For the capitals from the temple at Neandria, see Betancourt 1977: 63-73, figs. 25, 26.

[66] 'since both use marginal borders at the edges of the whorls and palmettes that rise from inverted teardrop motifs': Betancourt 1977: 82-87, figs. 39-42, pl. 49.

terracotta frieze' encourage a revision of Betancourt's proposal for a potential combination of wooden and clay architectural member on the entablature. Moreover, the last excavation campaign has brought to light new fragments of *antefixes* decorated with *helices* and a central *anthemion*.[67] Finally, as regards the question whether the temples at Klopedi set unique examples of Aeolic-order architecture on the island of Lesbos, the answer is negative. Aeolic capitals are also known from the city of Eresos[68] and from the acropolis of Mytilene.[69] In particular, the capital found in the acropolis of Mytilene (currently area of the Ottoman castle) and later (at the end of the 19th century) transferred to the Archaeological Museum of Istanbul, may be considered as an explicit indication for the existence of an Aeolic temple in that area of the city, an area considered to have been the initial residential nucleus of Mytilene. Besides, in an excavation recently carried out by the author in the coastal zone south of the castle of Mytilene, a partially preserved base of an Aeolic column (*torus* carved in one piece with the lower part of the shaft's drum) was found.[70] The dimensions of the base, compared to those of an equivalent member from the temple of Klopedi (*torus* height 0.15 m, lower diameter 0.82 m), suggest a temple slightly smaller than the one at Klopedi.

The pan-Lesbian sanctuary of Messon

Λέσβιοι
...]....εὔδειλον τέμενος μέγα
ξῦνον κά[τε]σσαν, ἐν δὲ βώμοις
ἀθανάτων μακάρων ἔθηκαν,

κἀπονύμασσαν ἀντίαον Δία,
σὲ δ' Αἰολήιαν [κ]υδαλίμαν θέον
πάντων γενέθλαν, τὸν δὲ τέρτον
τόνδε κεμήλιον ὠνύμασσ[α]ν
(Alkaios fragment 129.1-3)

The island's best known *temenos*, a ritual center for all the Lesbian city-states already since the 6th century BC, was the sanctuary of Messon.[71] Alkaios refers to it as a large *temenos*, that can be seen from afar and as common ground for all the Lesbians (εὔδειλον τέμενος μέγα ξῦνον).[72] Worshipping took place around great open-air altars and the worshippers suspended votive offerings on the sanctuary's trees. Sappho also refers to the sanctuary in an invocation to Hera while describing an episode of the Achaeans' *nostos* (return) to the Mycenaean palaces of the Peloponnese, in the aftermath of the Trojan War. Sappho narrates that the Achaean kings Agamemnon and Menelaos had visited the seaside precinct and sacrificed to the immortal blessed gods (ἀθανάτων μακάρων), in order to be shown the safest way for the homeward journey.[73] Thus, the establishment of cult in the sanctuary is connected with the Achaean kings and the first Aeolian settlers.[74]

The new archaeological discoveries, and especially the pottery and an early bronze *fibula* inside the rectangular altar (3.90 x 3.40 m), which was found close to the east side of the temple,[75] seems to confirm the above-mentioned literary sources regarding the sanctuary's foundation in the sub-Mycenaean period (1100-1050/1025 BC). The immortal blessed gods were identified by scholars with 'the Aeolian glorious goddess, mother of all' Hera, Zeus *Antiaos*[76] (suppliant) and Dionysos *Kemelios*. These three constituted the so-called 'Lesbian triad'.[77] Reference to Zeus Suppliant in a sanctuary used as a refuge is noteworthy,[78] however, the Aeolian mistress, famed mother of all, is the deity who would grow to be most important in the whole island.[79]

[67] Kossyfidou 2014: 54.

[68] Betancourt 1977: 88, fig. 43, pl. 51. The capital from Eresos dates toward the end of the 6th century BC (Kontis 1946-1948: 29-30, figs. 1, 2) and it clearly should be attributed to a funeral or votive structure, due to its small size (resting surface 0.295 m). It was immured in a modern house, so the position of the original building where it belonged cannot be spotted.

[69] Betancourt 1977: 87, pl. 50.

[70] The base (stone 7) was found in the Mouzalas plot, embedded in wall TX 3. Lower diameter 0.38 m, preserved height 0.28 m (including base and lower part of the drum), *torus* height 0.10 m. Made of reddish volcanic stone, not too hard. For further information on the excavation of Mouzalas plot, see Kourtzellis 2012β: 215-217.

[71] *IG* XII Suppl.: 136, 139; Labarre 1992: 52; Robert 1969: 300–315. The Greek words *ἐν τῶ ἰρω τῶ ἐμ Μέσσω* refer to 'the midpoint' or 'the center' of the island.

[72] Alkaios fragment 129.1-3 (Lobel and Page 1963); Treu 1963: 142-144.

[73] Sappho fragment 17 LP-V (Lobel and Page 1963) compared to Homer *Odyssey* 3.141–175 (Nagy 2016: 449-492).

[74] Dimopoulou-Piliouni 2015: 33-39; Treu 1958: 237.

[75] In 2003 a bronze *fibula* (inventory no. M87) was found, dating to 1100-1050/1025 BC. Comparable examples in Kilian 1975: 20-21, pls 1n, 8, 11, 12.

[76] Alkaios found refuge in the sanctuary after his dispute with Pittacus (Alkaios F 130 col. ii LP).

[77] Alkaios F 129 (LP); Athenaios *Deipnosophistae* 12, 610; Kontis 1978: 405-406; Labarre 1992: 53 ns 111-115; Robert 1960: 292, 300; True 1958: 237; True 1963: 142-144. The worshipping of gods in groups must have been widespread on Lesbos. Aphrodite, Peithó and Hermes were co-worshipped at altars (Kontis 1978: 427 n. 793). Note also Demeter, Kore Persephone and Cybele (Bodenstedt 1981: 321-323; Kontis 1978: 429 n. 811), Aphrodite and Adonis (Kontis 1978: 425 n. 780), the cult of *Θεοὶ ἀκραῖοι Μυτιληναίων* (Kontis 1978: 407 n. 706), Pan, Nymphs, Dionysos and Demeter (Kontis 1978: 413-415 ns 728-736). The most comprehensive inscription mentioning many deities is the so-called 'Bresus inscription' of the time of Tiberius (*IG* XII 2: 484; Dimopoulou-Piliouni 2015: 623-626). The co-worshipping of Demeter, Kore-Persephone and Cybele was suggested in the sanctuary unearthed by the Canadian Archaeological Institute in the castle of Mytilene, by a roof tile with graffito MA TPOO[N], i.e. 'metroon', dated to the 3rd century BC, and a few fragmentary clay figurines depicting Cybele: Cronkite 1997: 218-225; Roungou 2013: 117, 168; Shields 1917: 44-48; Williams 1988: 136-138, pl. 2. In the sanctuary of Cybele, her co-worship together with Apollo is suggested at least since the Classical period (Roungou 2013: 115; Spencer 1995a: 298).

[78] Labarre 1996: 42-50; Lobel and Page 1963: fragment 129.5; Robert 1960: 285-315.

[79] Boedeker 2016: 188-207; Burkert 1993: 284-293; Caciagli 2010: 227-256; Caciagli 2016: 424-448; Kontis 1978: 409 n. 714; Lobel and Page 1963: fragment 129.7. In addition, the *Penthilidai*, royal lineage

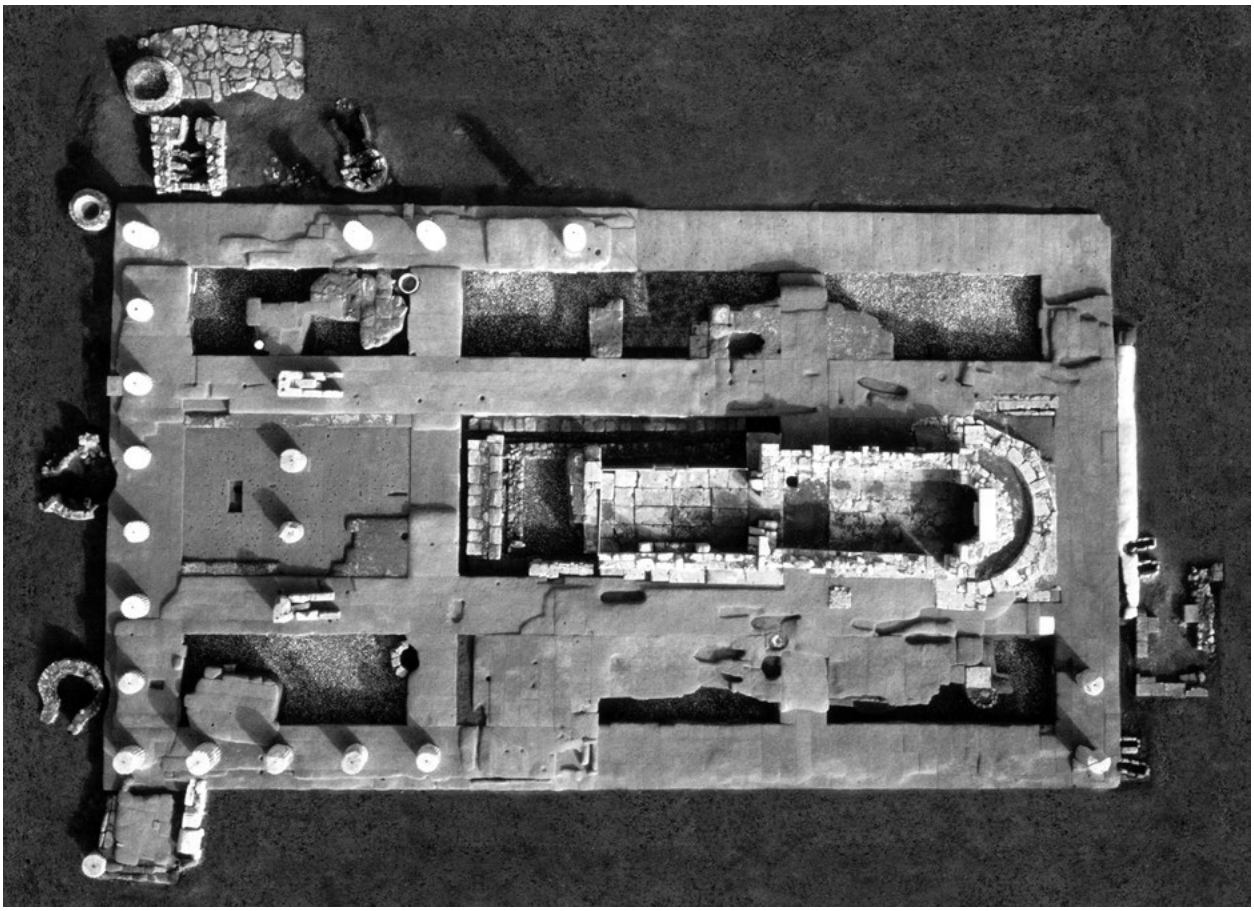

Figure 7. Ground-plan of the late Classical pseudo-dipteral double *in antis* Ionic temple of the sanctuary of Messon, after recent restoration operations by the Ephorate of Antiquities of Lesbos. The temple is preserved to its foundations. In the central part and the area of the *prodomus* the remains of the first Archaic temple are visible
(photo: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

According to Alkaios, beauty contests and dances took place annually in the *temenos*, with young girls acting as a reminder of the island's noble families' common origin.[80] Later, in the Hellenistic times, poets envisioned the young girls dancing and singing for Hera at the 'glorious *temenos* of the goddess Hera', while Sappho accompanied them playing her lyre.[81] The sanctuary's identified coins could be an indirect testimony to its recognition not only by all the Lesbian cities but also by Aeolian and Ionian cities of the Asia Minor coast, such as Antandros, Phocaea, Pergamon, Alexandria Troas and the island of Chios.[82] In the first half of the 2nd century BC the sanctuary was the seat of the Lesbian *koinon* with political, military and judiciary institutions, a development intended to unite all the Lesbians.[83]

During the Archaic period the first religious building was erected, with an oblong rectangular ground-plan (preserved dimensions 24.50 x 6.50 m) (FIGURE 7). The building was constructed with big, almost rectangular volcanic (trachyte) blocks, while at a short distance from its inner face a wall of rubble stones was constructed in parallel. Interpretation is not easy, given the partial state of the evidence.[84] The building's ritual function is suggested not only by the existence of an almost circular clay altar (diameter 1.15-1.20 m), in the form of a shallow bowl within the building, but also by its incorporation in the complex foundation of the subsequent monumental temple (central part and *prodomus*).

of Lesbos in the 8th century BC, claimed to be a descendant of Agamemnon, Orestes and Penthilos, in other words, of Homeric heroes (Alkaios fragment 70.6 V).

[80] For the issue of offerings to the Archaic sanctuaries, which control many territories, by the elite, see the example of Olympia (Morgan 1990). An interesting proposal is that beauty contests in the sanctuary of Hera had absorbed elements of the Near Eastern goddess of sexuality (Bachvarov 2016: 329).

[81] *Anthologia Palatina* 9.189; Caciagli 2016: 424-448.

[82] The Chian coin dates in 431(?)-412 BC, whilst the oldest coins of Lesbian cities recovered in the sanctuary date between 400 and 350 BC. Some originate from the city of Mytilene (Acheilara 2004: 47-49; Acheilara 2010: 201-216).

[83] *IG* XII Suppl.: 136, 139; Acheilara 2004: 50-51; Dimopoulou-Piliouni 2015: 307-334 with extensive bibliography.

[84] Acheilara 2014: 20-21.

Figure 8. Three-dimensional digital reconstruction of the pseudo-dipteral double *in antis* Ionic temple of the sanctuary of Messon. View from the east
(photo: © Copyright Yannis Kourtzellis and John Goodinson).

In the second half of the 4th century BC an Ionic temple was erected (FIGURE 8) on the same location, characterised by a few innovative aspects. The pseudo-dipteral double *in antis* temple, measuring 41.55 x 23.78 m, with 8 x 14 columns on the *pteron*, is one of the earliest known temples of the type, unique in this particular geographical region of Greece.[85] A special architectural feature is the plain entablature with dentils on the *pteron*, a combination which appears almost simultaneously in the temple of Messon and two other well know late Classical buildings: the choragic monument of Lysikrates in Athens and the Philippeion at Olympia.[86] The temple has clear Peloponnesian influences, indicated in different ways. Firstly, the horizontal *sima* on the temple long sides has an elaborate floral decoration of spear-shaped leaves that spout from *calyxes* and end in scrolls sharing similarities with the famous temples of Athena *Alea* at Tegea and Zeus at Nemea. The ramp in front of the east façade of the temple is yet another Peloponnesian feature. On the other hand, the detailed rendering and the variety of its relief decorative elements, like on the capitals balusters, rank it among the most elaborate buildings of Ionic architecture.[87]

The temple was built of different materials, giving a sense of polychromy to the building: the frieze, gable and walls of the main temple (*cella*, *prodomus* and *opisthodomus*) were made of rosy volcanic stone, whilst the lion-head spouts, *antefixes* and *acroteria* with floral decoration[88] (palmettes?) were made of marble. The rest of the entablature, the *peristasis* and the *in antis* columns were made of white volcanic stone. In the *prodomus* and the *opisthodomus* the architect placed two columns *in antis*, slightly smaller than the columns of the *peristasis* but with a similar Ionic base and capital. They have 24 flutes ending in sharp ridges, which is a characteristic of Doric columns. The combination of an Ionic base and capital with a Doric shaft is understood as an archaism. The temple of Messon shares common features with some of the most important cult buildings of the ancient Greek world, like the temple of Athena in Priene, the temple of Artemis *Leukophryene* at Magnesia on the Maeander, the Maussolleion of Halikarnassos, the temple of Athena at Pergamon, the temple of

[85] Acheilara 2004: 25-35; Koldewey 1890: 47-61, pls 18-26; Kourtzellis 2012a: 309-380 with extensive bibliography.
[86] Kourtzellis 2012a: 350 n. 883.
[87] The quality of rendering is not the same in all the capitals. The first scholar who ever studied the temple, R. Koldewey, characterised workmanship as poor or careless in some cases, which might perhaps be a indication of later execution (Koldewey 1890: 1-18, pl. 25).
[88] Acheilara 2004; Kourtzellis 2012a: 329-366.

Dionysus in Teos, the temple of Apollo at Didyma, the temple of Zeus in the Carian city Labraunda and mostly the temple of Apollo *Smintheus* in Chryse of the Troas,[89] which nevertheless dates in the middle of the 2nd century BC[90] or in its last decades.[91]

The pseudo-dipteral ground plan poses a riddle in the history of ancient architecture. Vitruvius mentions that the architect Hermogenes was the inventor of this type of temples.[92] The precise date of Hermogenes' activity is still under debate. Most probably he worked during the middle of the 2nd century BC. The attribution by Vitruvius of the invention of the pseudo-dipteral plan to Hermogenes is not certain, since similar ground-plans occur in earlier Doric temples in Sicily and the Greek mainland since the Archaic period (see temple G in Selinous, of Hera Lacinia dating in 450 BC and temple B in Agrigento in honour of Olympian Zeus, which are pseudo-dipteral only on the long sides). Another example is the temple of Artemis in Corfu, an almost pseudo-dipteral double *in antis* Doric temple with 8 x 17 columns and dated to the first quarter of the 6th century BC. A possible interpretation of the conundrum is that Hermogenes was not the inventor of the pseudo-dipteral ground-plan but the architect who made it popular and discussed its importance for public and ritual buildings in his writings.[93] In conclusion, the pseudo-dipteral temple of Messon, which seems datable in the end of the late Classical period or the first decades of the 3rd century BC but definitely not in Hermogenes' period of activity, was perhaps created by an architect contemporary of Pytheos, the architect, *inter alia*, of the temple of Athena at Priene.[94]

Although the sanctuary is physically located in the territory of Pyrrha and close to the borders of Mytilenean and Methymnean territory, its construction is believed to have been supported by all the city-states of Lesbos, representing an age-old space directly linked with their ancestral and heroic past and also with the primeval cults of the island.[95] Spatially the sanctuary shares features in common with other sanctuaries of Hera, being located in a plain, with a river running into the sea.[96]

Having examined the two prominent sanctuaries of the island, namely that of Apollo at Klopedi and that at Messon, a few conclusions can be drawn. Both are located outside the cities, in rural areas at the heart of the island. Both seem to enjoy pan-Lesbian recognition. Also, the prominence of Hera's worship in the sanctuary of Messon eliminates the possibility of another -equally important- sanctuary for her, established elsewhere on the island of Lesbos.[97]

The sanctuary of Apollo at Klopedi assumes a monumental form in the 6th century BC, with the two temples (A and B), as opposed to the sanctuary of Messon, which is monumentalised at the end of the 4th century BC.[98] The historic development of both sanctuaries starts almost at the same time; however, the sanctuary of Apollo seems downgraded in the Classical period, maybe as an indirect result of the reduction of the political power of Methymna, in whose territory the temple fell after the subjugation of Arisbe (at the end of the 8th - beginning of the 7th century BC). Subsequently the sanctuary of Messon became the prominent ritual place and served as the official seat of the Lesbian *Koinon* from the first half of the 2nd century BC to the end of the 2nd century AD.[99]

Temple of Dionysos *Bresagenes* on the cape of Saint Phokas

Βρῖσα, ἄκρα Λέσβου, ἐν ᾗ ἵδρυται Διόνυσος Βρισαῖος
(Stephanus of Byzantium, *Ethnica* B186.2)

The establishment of the sanctuary of Dionysos *Bresagenes* is attributed to Makar, the mythical first settler of Lesbos.[100] Dating to the 1st century BC, its

[89] Hellström and Thieme 1982; Kourtzellis 2012a: 318-328. See Winter 2006: 12-14 for a comparison between the two temples, discussion of their date and the pseudo-dipteral ground plan in the Hellenistic period.
[90] Webb 1996: 52-54.
[91] Winter 2006: 12-14.
[92] Vitruvius 3.3.1-10; Hoepfner and Schwandner 1990.
[93] Gruben 2000: 433-434; Hoepfner and Schwandner 1990; Labarre 1992: 52; Kourtzellis 2012a: 315-318; Pollitt 2004: 304, 395 n. 8; Robert 1960: 302-303. Labarre (1996: 49-50) has proposed that the construction of the monumental temple should be connected with the Macedonian kings.
[94] Of particular interest is Hellström and Thieme's (1982: 45-56) opinion on the role of *Bauhütten* (teams of master builders, sculptors and masons) in the architectural production of Asia Minor in the second half of the 4th - beginning of the 3rd century BC.
[95] On how politics affect neighbouring city-states and the creation of a network of *extra*-urban sanctuaries, important is the example of Arcadia (Jost 1994: 217-230) and Achaea (Gadolou 2017: 279-291).
[96] Shields 1917: 27-28; Simon 1996: 43-72, esp. 48-49. Other examples are the Heraia of Argos, Samos, at Foce del Sele (at the mouth of river Sele to the north of Paestum), at Adria and Olympia. At the Heraion of Samos the sacred tree (*Lygos*) is 'a clear indication of a nature cult assimilated by the Greeks to their cult of Hera' (Tomlinson 1976: 124). On Hera's association with the sea -as maritime goddess during the Archaic period- and the existence of harbours near her sanctuaries, see Boedeker 2016: 200-203. For the connection between Hera's sanctuary at Lesbos and the Heraion of Argos, see Nagy 2016: 449-492.
[97] Kontis 1978: 405-406, 409.
[98] Excavation at both sanctuaries has been limited to revealing only the religious buildings. As a result, we do not know the overall picture or whether other monumental structures, such as stoas or Propylaea, existed. Only in the sanctuary at Klopedi, has the last excavation campaign revealed part of a small Hellenistic stoa preserved to a length of 28 m along the south side of Temple A (Douloumbekis 2014: 57).
[99] Dimopoulou-Piliouni 2015: 564-565, 639-643; Labarre 1994: 415-446. Agrippina, the wife of Germanicus, and her namesake, the wife of Claudius, were identified with the harvest-bearing Aiolian goddess worshipped in the sanctuary of Messon or -according to another opinion- in the sanctuary of Artemis *Thermia* (Hahn 1994: 132-138, 186-92).
[100] *IG* XII 2: 478; Shields 1917: viii, with reference to ancient

small marble Doric temple with two columns *in antis* is a special case architecturally.[101] The temple erected on top of the rocky promontory is rather known from the epigraphic and literature sources and by Robert Koldewey's study[102] of its scattered architectural members. Of special interest is the fragment (0.545 m wide, 0.415 m high, 0.545 m thick) of an architrave without a backer, bearing the representation in relief of a standing figure, probably a warrior. The rendering of sculptural decoration on the front face of an architrave is not common in ancient Greek architecture, with the notable exception of the late Archaic Doric temple of Athena at Assos.[103]

A healing sanctuary. The sanctuary of Artemis *Thermia*

Ἀρτέμιδι τῇ Θερμίᾳ

The island of Lesbos has some of the most important mineral springs in Greece,[104] known since antiquity. The extramural sanctuary of Artemis *Thermia*[105] was the most significant healing center on the island, located close to the coastal site of Pyrgi Thermis and the hotel Sarlitza Palace.[106] We have at our disposal many epigraphic references[107] on votive pedestals (marble bases) with the names of priests, *agonothetai* (sponsors of the games) and *panegyriarches*,[108] which clearly reveal the remarkable growth of the sanctuary during the reign of Tiberius, Caligula and Claudius and later (in the 2nd and 3rd centuries AD), as well as remains of auxiliary structures, baths and probably a sacred way.[109] However, the temple itself has not yet been found. Even the architectural members kept in an open-air depot near the chapel of Saint Constantine Chorafa, cannot be attributed with certainty to a monumental ritual building.[110]

The only members that could be attributed to a medium-sized Ionic temple (FIGURE 9) most probably of the 2nd century BC are two Ionic column-drums with 24 flutes, the first 1.50 m high and the second 1.25 m, maximum diameter 0.70 m. Their bases consist of a square plinth (1.00 m long, 0.20 m high), an overlying single *trochilus* and a *torus* (height 0.24 m, diameter 0.84 m on the upper side). To the same monument probably belongs a three-*fasciae* architrave crowned by a plain lesbian *cyma* (overall dimensions of the architrave: height 0.45 m, preserved length 0.99 m, maximum thickness 0.69 m). A massive marble block (0.825 x 1.34 x 0.62 m) with a socket could be identified as the end of an *anta* pilaster, suggesting also the thickness of the *cella* walls. As regards other fragments, a marble entablature block (architrave and frieze carved in one piece 1.58 m long, 0.55 m high and 0.555 m thick) may be attributed to some monumental building of the 2nd-3rd century AD.

A block of a curvilinear entablature (again, architrave and frieze carved in one piece) dated to the 2nd century AD is built into the east wall of the Ottoman bath, as a lintel, just above the main gate of the women's sector. The block may be attributed to some elegant round peripteral building of the Roman period.[111]

Special characteristics of the Lesbian sanctuaries

From the evidence available so far, it appears that all Lesbian cities and, above all, the island's most important city, Mytilene, engaged in a conflict with Athens during the second half of the 5th century BC and the Peloponnesian War, the siege of Mytilene[112] (428-427 BC) and the events that followed, failed to enrich their sanctuaries with monumental temples and buildings.[113] A 'monumentalizing' phase occurred after the island's liberation by Alexander and the peace concluded by a series of decrees including the Mytilenean decree on Concord[114] and the Exiles decree.[115] The assignment

testimonies.

[101] Kontis 1978: 364-365, 409-410 n. 715; Spencer 1995b: 17, no. 74. For a different viewpoint, not accepted by scholars, see Quinn 1965: 391-393, pls 128-129. Chatzi (1972: 596-599, plan 15, pls 548-550) in the early 1970s found traces of habitation to the south of the promontory and pottery sherds of the Mycenaean period.

[102] Koldewey 1890: 63-64, pl. 28.1-17, esp. 28.14 for a drawing of the architrave. The block itself is lost. For the latest excavation campaigns in the sanctuary's area, having not yet located the temple, see Chatzi 1972: 596-599, plan 15, pls 548-550. Chatzi, in her report, mentions that she found a fragment of the architrave, 0.53 m in height and 0.64 m thick, inscribed with *TIBE* on its front face.

[103] Wescoat 2012: 127-172.

[104] Digidikis 1999: 231-255; Gavriilidis *et al.* 1996.

[105] Kallipolitis 1950: 206-211; Kontis 1978: 235-238.

[106] Digidikis 1999: 283-295, 319-330.

[107] *IG* XII Suppl.: 26, 27; Evangelidis 1920-1921: 105-106.

[108] *IG* XII 2: 243, 244, 246, 247, 248, 249, 251, 252; Hodot 1976: 17-81; Labarre 1996: 126-127 nos 39, 40.

[109] In 1993 and 1994 an extensive investigation of the area in front of Sarlitza Palace hotel revealed a built tank and an unmade road, oriented north-south, preserved length 47 m and width 5.00 m (Archontidou-Argyri 1993: 419; Archontidou-Argyri 1994α: 653-655, plan 12, pl. 204a-b).

[110] West of the Turkish bath, toward the chapel of Saint Constantine, an octagonal structure and buildings of the Hellenistic and Roman periods had already been revealed since 1960. To the area's southeast, Charitonidis reports the recovery of thousands of clay figurines, also of the Hellenistic and the Roman period. 260 heads of them formed an *apothetes* (repository). The figurines represent women and young girls (*paidiskai*) and can thus be associated with the cult of Artemis *Thermia* (Charitonidis 1963: 267, pl. 308a), referred to in inscriptions: *IG* XII, 2: 101, 103, 105, 106, 108; *IG* XII Suppl.: 26. On the inscription in the Byzantine chapel of *Panagia Trouloti*, see Charitonidis 1960: 236, pl. 208b; Charitonidis 1968: 26, pl. 9e; Digidikis 1999: 319-330.

[111] Inside the Ottoman bath (men's section) a Hellenistic Ionic column and its capital most probably from the above mentioned temple have been re-used in the room's built central pier.

[112] Thucydides 3.15.1; Gillys 1971: 38-47; Quinn 1981: 24-38, 50-56.

[113] For the relations between Athens and Mytilene during the 4th century BC, see Brun 1988: 373-384; Pistorius 1913. For the cessation of the Acropolis building program, as a result of the war between Athens and Sparta, and the increased financial difficulties of many Greek cities in 406-340 BC, see Tomlinson 1976: 23-34.

[114] *SEG* 36: 750 on the Mytilenean decree on Concord (323-322 BC). Dimopoulou-Piliouni 2015: 250-254, especially 252-253 ns 162-163 on Zeus *Omonoios* and other deities involved in the decree; Heisserer and Hodot 1986: 109-128.

[115] *SEG* 36: 752 on the Exiles Decree of Mytilene (after 324 BC).

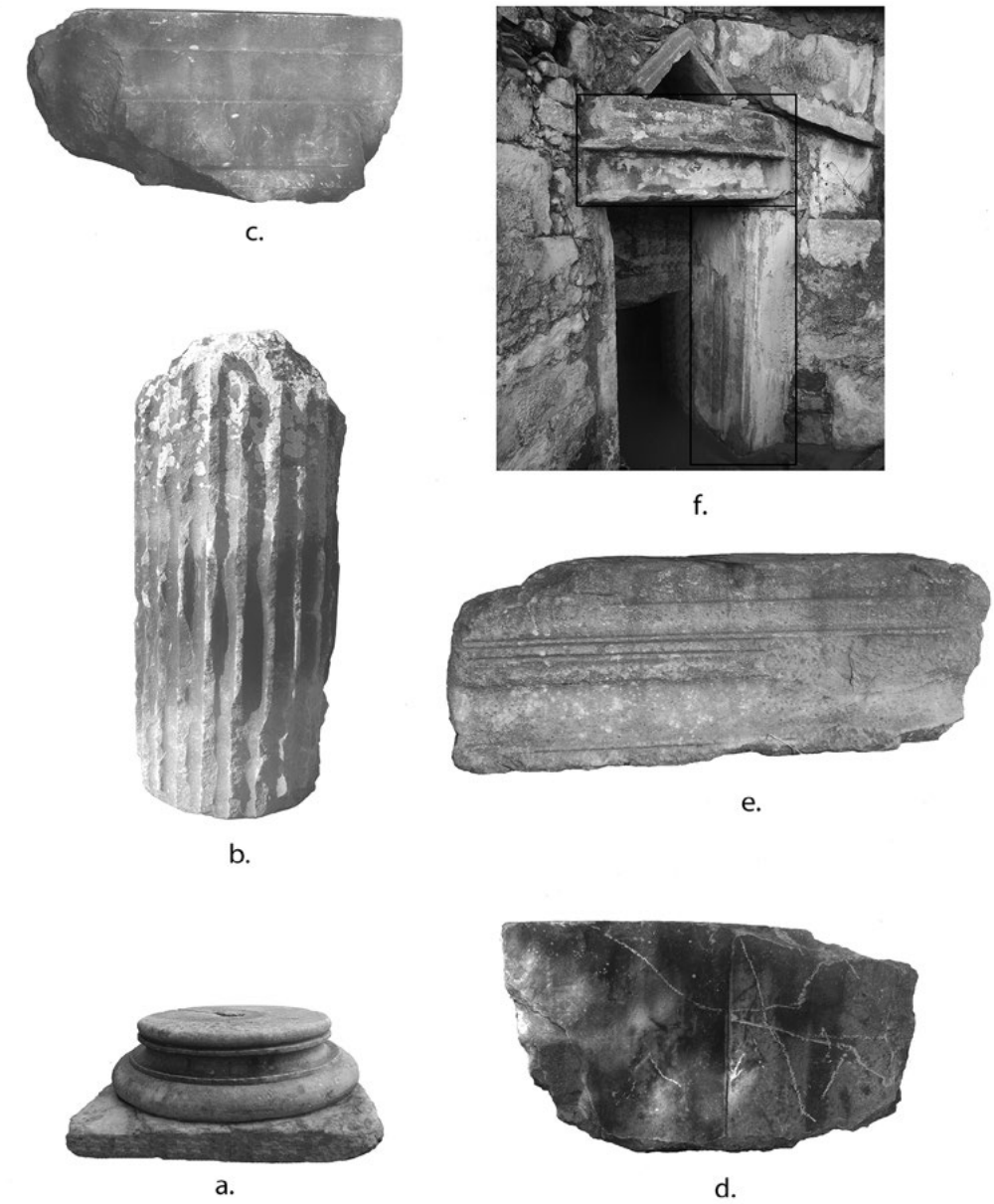

Figure 9. Marble architectural members possibly attributable to the sanctuary of Artemis *Thermia* (photos: © Copyright Hellenic Ministry of Culture and Sports, Ephorate of Antiquities of Lesbos).

of the late Classical temple of Messon to a prominent architect also reflects the coalition of all Lesbian cities for the first time, after a very long period.[116] However, while the Ionians built disproportionately large temples in order to honour their deities, on Lesbos the temples remained, throughout antiquity, of relatively modest dimensions,[117] a fact possibly associated with the economic potential of the Lesbian cities but also with the island's geomorphology.

Another crucial feature of the Lesbian temples is the absence of architectural sculpture on friezes and pediments. An explanation of that could be the extensive use of volcanic stones and also the specific characteristics of the Lesbian grey-blue marble.[118] The only exception is the relief frieze of the Archaic temple A in Klopedi, carved by a local workshop.[119] In the

Dimopoulou-Piliouni 2015: 254-267 n. 181 on its date; Worthington 1990: 194-214.

[116] Dimopoulou-Piliouni 2015: 307-334 with bibliography; Kourtzellis 2012a: 313-314 n. 788.

[117] For example, the temple of Apollo at Didyma measures 109.34 x 51.13 m, the temple of Hera at Samos 112.20 x 55.15 m, the temple of Artemis at Ephesos 105 x 59 m. By contrast, the temple at Messon, probably the biggest temple ever built on Lesbos, measures only 41.55 x 23.78 m (Gruben 2000: 354-371, 385-415 with bibliography; Kourtzellis 2012a: 333-366; Winter 2006: 14 with many examples of small-scale temples, across different geographical areas, dated to the 4th century BC).

[118] Lazzarini *et al.* 1999: 125-129; Millar and Williams 1993: 211-224.

[119] For a local sculpture workshop and the rather few fragments of

sanctuary of Messon the marble decorative elements (lion-head spouts, *antefixes, acroteria*) were carved in imported marble, considered to originate either from Thasos or Asia Minor.[120] The existence of pedimental sculpture is inferred from the revelation of a fragment of a raking *sima* top, bearing a rectangular socket for the insertion of the central *acroterion.*[121]

The Lesbian marble of grey/blue hue was not extensively used in monumental architecture during the Archaic and the Classical period. Given the architects' preferences for aesthetic reasons in every era, the use of volcanic stones seems to be particularly widespread on Lesbos. At Messon the Ionic columns of the *peristasis* are made of whitish andesite[122] and at Klopedi the columns are made of rosy andesite[123] - both volcanic rocks. Only from the 2nd century BC and in the Roman period was Lesbian marble used for local monuments, as also for monuments in many sites of the Mediterranean.[124] The above remarks concerning structural materials and the absence of architectural sculpture also apply to the Hellenistic and Roman *intra muros* temples of Mytilene[125] and Eresos,[126] for which both epigraphic testimonies and fragmentary architectural remains have been preserved.

Archaic sculpture found on the island of Lesbos, see Kourtzellis 2012b: 213-228; Roungou 2013: 100-105.

120 Acheilara 2004: 32; Petrakos 1967: 100, pl. 81b.

121 Acheilara 2004: 33; Koldewey 1890: pl. 26, plans 10-11; Kourtzellis 2004: 50.

122 Acheilara 2004: 36, 53 (map, sites 2 and 3).

123 Chatzi 1971: 457 n. 20; Kokkorou-Alevras *et al.* 2014: 16.

124 Lazzarini *et al.* 1999: 125-129; Matarangas 2013: 53-72.

125 The sanctuary of Demeter and Persephone in the core of the ancient city (today occupied by the castle) has also been identified as a *Thesmophorion*. By contrast to the humble structures of its Archaic phase, monumental votive buildings appeared in the late Classical and Hellenistic period (Cole 1994: 199-216 n. 62; Cronkite 1997: 40-50, 65-68; Roungou 2013: 25, 38, 43; Williams and Williams 1991: 175-191). Inscribed architectural members immured in the walls of the Ottoman castle or transferred there over the centuries, along with others in the city's archaeological museum help us identify the sacred buildings. Let us note the monolithic three-*fasciae* Ionic architrave with a crown (inventory no. ΜΜ 1095, height 0.23 m, maximum length 0.55 m, thickness 0.314 m) inscribed along two lines: Ο δάμ[ος] [_ _] ΙΑ Ἀφροδίτας [_ _ _] (Charitonidis 1968: 24, fig. 6, pl. 8b). Also noteworthy is the fragment of a bilateral Ionic architrave of Lesbian marble, carved on either side with three *fasciae* and frieze. The upper *fascia* (height 0.09 m) bears the inscription [_ _ _ _ Ἐ]τηφί[λα _ _ _ _] (Charitonidis 1968: 24, 25 fig. 8, pl. 9c). For a partial documentation of architectural members, see Williams and Whitbread 1984: 31-76, esp. 61-62, fig. 10, pl. 5.2 regarding a late 2nd – early 3rd century AD architrave (preserved length 0.85 m, height 0.745 m).

126 From the evidence of the city of Eresos it can be inferred that, although many sanctuaries are known from inscriptions, coinage and literary testimonies, and even though salient deities are concerned, such as Aphrodite (*IG* XII Suppl.: 126), Athena *Polias* (the *Athenaion IG* XII Suppl.: 120), Apollo *Lykeios*, Apollo *Eresios* (Hesychios *s.v.* Eresios; *IG* XII 2: 526; cf. *IG* XII 2: 534; *IG* XII Suppl.: Addenda 693; Kajava 2002: 89-197; Shields 1917: 27, 35, 48, 55; Zachos 2010: 224-226), none of them has been revealed through excavations, as yet. Of particular interest is the inscription *IG* XII Suppl.: 124, dated after AD 14. It refers to the establishment of a *temenos* and a temple in the area of the Agora, a temple in the area of the commercial harbour and a *temenos* and temple on private land owned by some laureate (Kajava 2002: 91-107; Zachos 2010: 224, n. 15 with bibliography).

Conclusion

The above study aims to point out the main factors behind the establishment of the Lesbian sanctuaries. Recent archaeological investigation seems to confirm the myths of the arrival of the Aeolians and their deities to the island of Lesbos and also the thereafter establishment of sacred places dedicated to the mythical Mycenaean ancestors, the first settlers and the local heroes. The island's connection with the East is virtually unavoidable particularly in view of the age-old contact between the two shores.

Just like the island's modern inhabitants, the ancient Lesbians appear to have been increasingly attached to the pan-Lesbian sanctuaries (of Messon, of Apollo at Klopedi, of *Thermia* Artemis, of Dionysos at the promontory of Saint Phokas, the possible sanctuary at Apotheka), which were established -perhaps also for political reasons (heroic and ancestors' cult)- on emblematic locations on the borders between territories and in any case outside urban centers of the Lesbian cities.

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Shaping the Ancient Religious Landscape at Kato Phana, Chios

Lesley A. Beaumont

Summary

The sanctuary of Apollo *Phanaios* lies today some 300 m inland from the sandy shores of Kato Phana, ancient *Phanai*. However in 2006 the extraction and analysis of deep soil cores at a number of points between the sanctuary and the present-day shoreline, demonstrated that in antiquity the sea reached to the very foot of the natural knoll of land on which the sanctuary stood. At the same time, recent excavations unearthed evidence at the site of ancient landscape architecture in the form of the large-scale movement of earth and the associated construction of successively expanding *temenos* walls, which both defined and monumentalised sacred space and also protected the sanctuary from the encroachment of the sea and from seasonably turbulent riverine flooding. Built first in the 7th century BC, these walls were rebuilt some three times, reaching their most extensive form in the Archaic period when they possessed a minimum thickness of 2 m. This paper traces the early morphology of the sanctuary at ancient *Phanai* as a coastal foundation, and the considerable lengths to which its architects went to artificially enhance this natural setting.

Περίληψη

Το Ιερό του Φαναίου Απόλλωνα βρίσκεται σήμερα σε απόσταση 300 μ. περίπου από τη θάλασσα στα Κάτω Φανά. Δειγματοληψίες σε ικανό αριθμό θέσεων στην περιοχή ανάμεσα στη σημερινή ακτογραμμή και το ιερό έδειξαν ότι κατά την αρχαιότητα η θάλασσα έφτανε έως τους πρόποδες του λόφου, στον οποίο είχε τη θέση του το ιερό. Πρόσφατες ανασκαφές έφεραν στο φως ενδείξεις για μετακινήσεις χωμάτων σε μεγάλη κλίμακα και για την κατασκευή περιβόλων με όλο και μεγαλύτερη περίμετρο που όριζαν την ιερή περιοχή και την προστάτευαν από πλημμύρες. Ο πρώτος περίβολος χτίστηκε στον 7ο αιώνα π.Χ., ενώ παρατηρούνται στη συνέχεια τρεις ανακατασκευές. Κατά τα αρχαϊκά χρόνια αποκτά το ιερό την πιο μεγάλη έκταση, ενώ ο περίβολος έχει το ελάχιστο πάχος των 2 μ. Το άρθρο αυτό ανιχνεύει την πρώιμη μορφολογία του ιερού και τις επεμβάσεις των αρχιτεκτόνων που αποσκοπούσαν στην τεχνητή ενίσχυση του φυσικού περιβάλλοντος.

Key Words

Chios; Kato Phana, sanctuary of Apollo *Phanaios*; *temenos* walls; landscape architecture.

As an undergraduate student at the University of Birmingham, I had the privilege of enjoying Richard Tomlinson's well-crafted and riveting Greek history lectures, and learned from him a love not only for Greek and Roman architecture but also for Athenian vase painting. In 1982 I joined Richard's fieldwork team excavating the monumental circular rainwater collection tank above the Heraion at his beloved Perachora.[1] In 1997 and 1998 Richard joined me at Kato Phana, where I was most grateful to have his expert advice and input in examining the architectural foundations and *spolia* of the sanctuary of Apollo *Phanaios*. It is, therefore, my pleasure to offer him this modest tribute concerning the shaping of the religious landscape at ancient *Phanai*.

The sanctuary at Kato Phana was a long-lived coastal foundation, located on the south west shores of the east Greek island of Chios. Established probably already in the LHIIIC period, it flourished especially during the late Geometric and Archaic periods.[2] In the 5th century AD the construction of a large Christian basilica atop the pagan remains bears witness to its revived fortunes until it apparently fell out of use in the 7th century AD, perhaps as a result of the mid-century Arab raids on the island. Today, with the small chapel of Agia Markella crowning the ancient sacred remains, the site is now located some 300 m inland from the sandy shoreline of the sheltered and deeply inset bay mentioned in antiquity by Strabo (14.1.35) (FIGURE 1). In working at and around the site from 1997 onwards, I however quickly came to suspect that this had not always been the case, and that as a result of both natural and human actions the religious landscape at Kato Phana had undergone dramatic reshaping over time. This paper therefore presents an overview of the results of the archaeological and geomorphological investigations into this matter conducted between 1997 and 2006.

Traversing the southern flank of the Kato Phana Valley, the visitor now encounters the sanctuary perched on a low hill spur that projects onto the valley floor as it widens towards its seaward end: the present-day ground surface of the central part of the knoll stands at a little over 8 m above sea level (FIGURE 1). A quick evaluation

[1] Tomlinson and Demakopoulou 1985.
[2] Beaumont 2011.

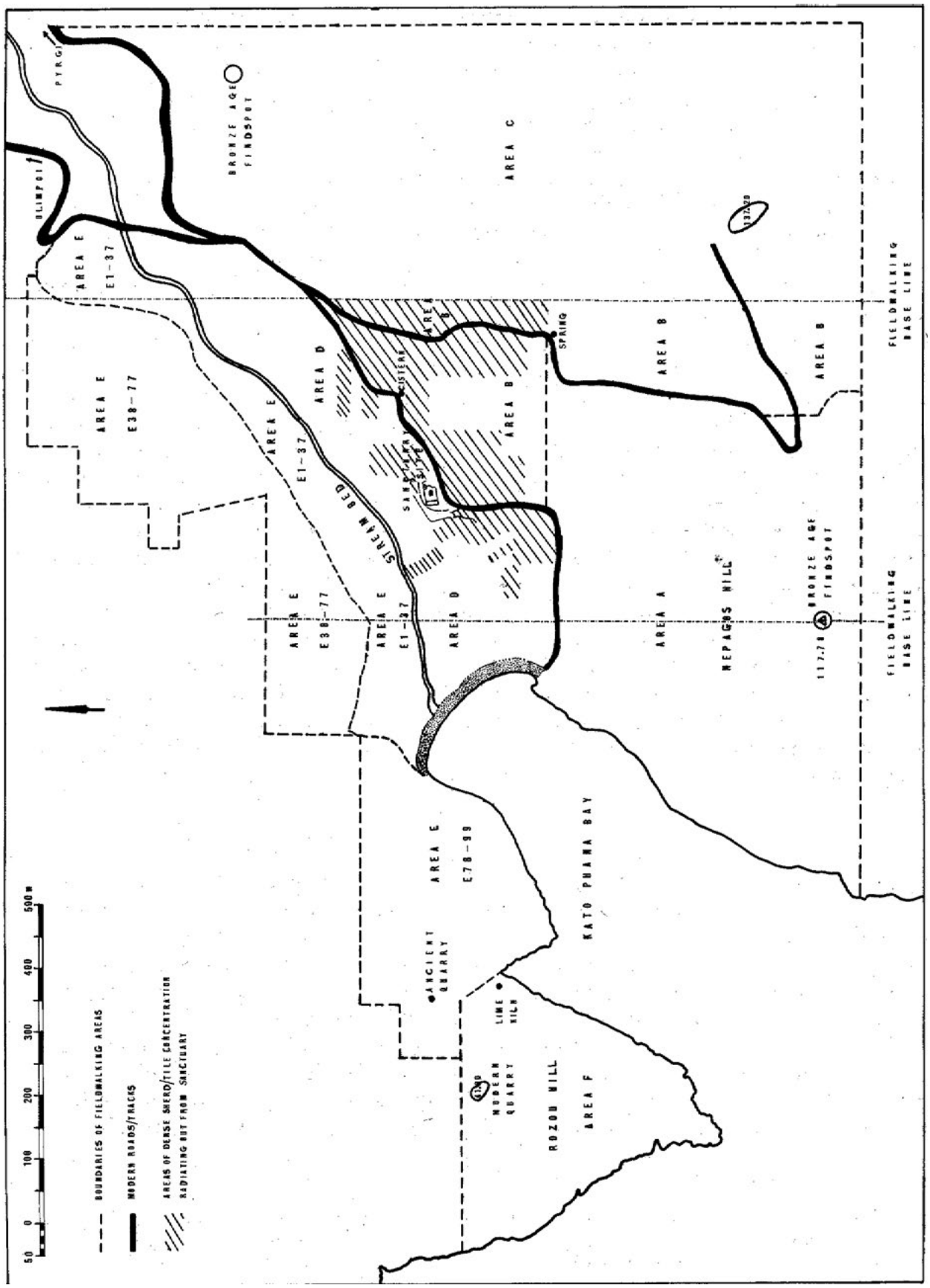

Figure 1: Kato Phana: map showing location of ancient sanctuary site in relation to the present-day coastline and water course. The archaeological surface survey areas walked in 1997 and the recorded dense sherd/tile concentrations are also shown (drawing: L. A. Beaumont).

of the visible ancient remains reveals that this earth mound was architecturally defined by two sequentially constructed monumental terrace walls of Archaic period date, which gave access to the sanctuary via a double staircase on the north (FIGURE 2). Excavations conducted in 1999-2001 and 2005, as a collaborative venture undertaken by the British School at Athens and the 20th Ephorate of Prehistoric and Classical Antiquities, were successful in peeling back the layers underlying this artificial shaping of the sanctuary's topography to reveal its earlier natural form and the first human attempts to modify this (FIGURE 3).[3]

The results of this work revealed that until the 7th century BC the site appears to have been home to an open-air cult centre, at which sacrifices were made, ritual feasting and drinking conducted, and votive offerings dedicated. In the 7th century BC a stone *peribolos* was constructed, defining the seaward edge of sacred space, and also furnishing ascending access through the *peribolos* wall and onto the raised ground of the sanctuary via an eight stepped staircase, built of limestone slabs 1 m wide (FIGURE 4). This staircase rises just under 1.2 m, from 6.01 m above sea level (a.s.l.) to 7.19 m above sea level. The *peribolos* wall, constructed in terrace fashion from irregular limestone blocks, was traced by our excavations for a short distance running south and north from the staircase but its original, full extent remains uncertain. The rise in bedrock level from 5.5 m above sea level at the bottom of the staircase on the west to 6.38 m above sea level behind the staircase on the east, and also the rise in bedrock level in front (5.28 m a.s.l.) and behind (5.92 m a.s.l.) the terrace wall adjoining the staircase on its north side, suggests that the steps gave access to a natural knoll of land that was demarcated and given emphasis by the construction of the terrace wall.

The 6th century witnessed massive remodelling of the site's topography via a programme of land reclamation. This involved artificially extending the natural land mass by constructing a monumental wall whose outer face was situated approximately 11 m west of the earlier *peribolos* (FIGURE 2). The space between the two structures was filled with earth though, notably, the 7th century staircase that provided access into the sanctuary was deliberately left uncovered. The new monumental *peribolos*, which has a *terminus ante quem* of the second half of the 6th century BC, was constructed from closely packed, medium sized, semi-worked limestone blocks. What appears to be its preserved original top surface was located at 5.13 m above sea level, standing to a height of 1.67 m. Its great thickness surprised us, varying along the roughly 13 m stretch we uncovered from a minimum of 1.82 m to 2 m, 3 m and even 4 m (FIGURE 3). While our excavations focused only on a relatively small area in the southwest corner of the ancient sanctuary site, earlier 20th century archaeological fieldwork undertaken by Konstantinos Kourouniotis and Winifred Lamb had previously traced the line of this wall further to north and east (FIGURE 2).[4] We therefore know that the wall described an arc from southwest to northeast, defining and monumentalising the expanded sacred territory. It was supplied with two entrances: that on its western seaward side accessed the sanctuary via the carefully maintained pre-existing 7th century staircase, while on the north side a new stepped entrance was now constructed, bonding with the *peribolos* wall and consisting of a double and symmetrically opposed staircase of seven steps 1.64 m wide, ascending to a crowning central platform 1.6 m wide that led into the sanctuary. It was at this time, too, that the first stone temple may have been erected within this enlarged sacred space.[5]

Perhaps it was the Persian invasion and depredation of Chios in 493 BC that catalysed the next refurbishment of the sanctuary. Even though the previous massive earthwork and *temenos* wall construction project can have been little more than about fifty years old, a new stone *peribolos* was now built to west and north of the earlier perimeter wall and the space between the two was filled with earth, thus hiding the earlier monumental structure from view (FIGURES 2 and 5). Such, however, was not the fate of the 7th century staircase, to which access from the west was carefully maintained via what must by now have been a narrow walled *dromos* over 15 m long. While the 6th century *peribolos* had followed a curved ground plan, the new *temenos* wall was laid out in rectilinear fashion. Thus, while in the area of our excavations on the west side of the sanctuary the distance between the outer faces of the two structures measures only some 4 m, further to north where Kourouniotis and Lamb revealed additional surviving stretches of the walls this distance increases as the lines of the curvilinear and rectilinear forms diverge. This reshaping of the site therefore brought within the sanctuary's boundaries considerably more reclaimed territory. For the first time the boundary wall was now faced with fine large limestone ashlar blocks, furnishing the cult centre with an impressive exterior façade. Like its predecessor, it too was a massive construction, varying in thickness between 2-3 m, and was supplied on its north side with a monumental double and symmetrically opposed staircase climbing to a central platform 1.8 m wide that gave access into the sanctuary.[6]

[3] Beaumont and Archontidou-Argyri 1999; Beaumont and Archontidou-Argyri 2004.

[4] Kourouniotis 1915: 72-85; Kourouniotis 1916: 190-212; Lamb 1934-1935.

[5] Beaumont and Archontidou-Argyri 1999: 280-281.

[6] This stepped entrance is indicated on Winifred Lamb's 1934 plan of the sanctuary: Lamb 1934-1935: pl. 27.

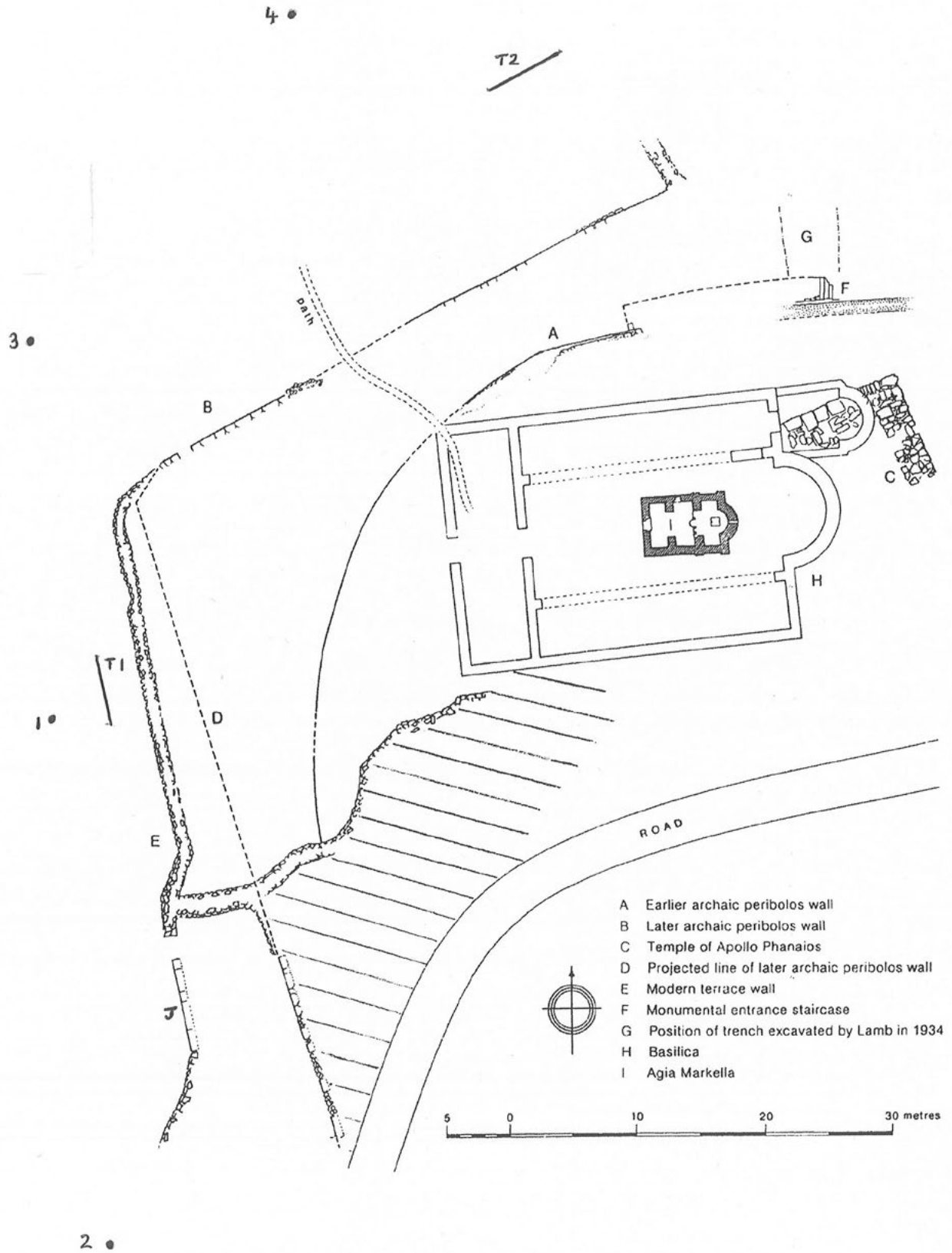

Figure 2: Actual state plan of the sanctuary of Apollo *Phanaios*, marked with deep soil cores 1-4 and backhoe trenches T1 and T2. Deep soil core 5, located 64 m west of the northwest corner of the outermost *peribolos* wall (here marked 'B' and 'D'), is not included on this plan. The 1999-2001 and 2005 excavation area is indicated by hatching. 'J' marks the line of unexcavated ashlar blocks situated to west of the sanctuary's outermost *peribolos* wall (drawing: N. Fradgley).

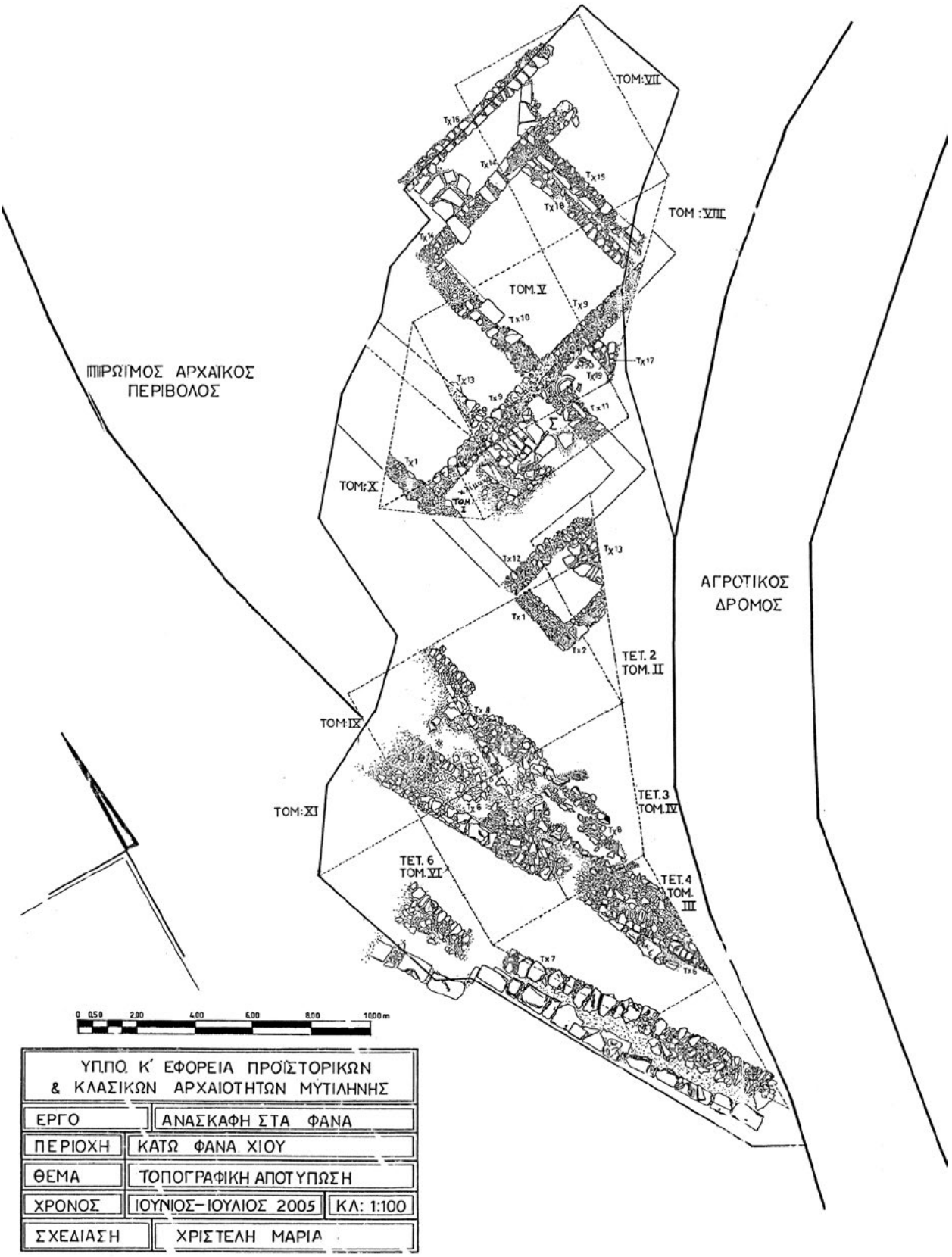

Figure 3: Plan of trenches and architectural features excavated in the southwest quadrant of the sanctuary between 1999-2001 and 2005. Trench numbers are indicated by 'TOM' plus a Roman numeral. 'Σ' indicates the 7th century staircase. The earlier Archaic *peribolos* wall is labelled 'Tx6' and the later Archaic *peribolos* wall is 'Tx7' (drawing: M. Christeli).

Figure 4: View from the west of the 7th century limestone staircase. A small section of the *peribolos* terrace wall is visible to the right (photo: L. A. Beaumont).

The great thickness of the earlier and later Archaic *peribolos* walls surprised us since they seemed to exceed the dimensions required to withstand the pressure of the earth fill deposited behind them and therefore, we conjectured, the walls must also have been designed to serve an additional purpose. A clue to this additional function was the presence of a rock and boulder strewn water course that runs down the centre of the Kato Phana Valley (FIGURE 1). While completely dry in summer, this channel is dramatically transformed each year into a river by winter rains. Its waters, running from the island's interior towards the delta at Kato Phana, frequently overflow the edges of the water course and spread out across the valley floor where they deposit the heavy silt they carry. Indeed, geophysical testing conducted at Kato Phana in 1997 by the Fitch Laboratory of the British School at Athens, confirmed the presence of sedimentary structures that have formed over time between the river bed and the sanctuary.[7] It was therefore possible to reasonably conclude that the coastline at Kato Phana has receded since antiquity. In view of this, we pondered whether the massive thickness of the sanctuary's Archaic *peribolos* walls might suggest that the sea had once reached as far as the foot of the sanctuary itself and that the great walls had therefore been constructed to protect this sacred spot from high tides and sea damage?

In order to answer this question, and also to shine light on the location of the ancient harbour at Kato Phana, we consulted with Dr Yannis Bassiakos of the Group for Palaeoenvironmental and Ancient Metals Studies of the Archaeometry Laboratory of the Greek National Centre for Scientific Research 'Demokritos', and in July 2006 together undertook a programme of deep soil coring (FIGURE 2).[8] The work conducted involved the drilling of five deep soil cores on the valley floor to west and north of the sanctuary's latest and outermost *peribolos* wall. Cores 1 and 2 were sunk to west of the sanctuary at a distance from this wall of approximately 11 m west and 21 m south west respectively.[9] Cores 3 and 4 were placed to north of the sanctuary at a distance from the outermost *peribolos* of approximately 15 m and 25 m respectively.[10] Core 5 was located 64 m west of the north west corner of the outermost *peribolos* wall, along the line that constitutes the shortest distance between the sanctuary and the present-day coastline.[11] Each of the cores was drilled via the rotary technique to a depth of between 6-8 m and was extracted 'blind', that is without any exposure to light, in order to allow for subsequent laboratory-based optically stimulated luminescence (OSL) dating of the sub-surface deposits. Laboratory analyses of extracted core samples also included quantitative macroscopic and microscopic morphological examination of the soils via polarising optical microscopy and scanning electron microscopy, and also micropaleontological analysis of the deposits.[12] In order to facilitate direct visual inspection of the sub-surface strata and the recording of natural radioactivity measurements, two trenches each 5 m long, 0.9 m wide and 4 m deep were dug by mechanical backhoe in successive 20 cm spits. Trench 1 was opened to west of the sanctuary, some 3.5 m east of Core 1 and approximately 6 m west of the outer *peribolos* wall. Trench 2 was situated to north of the sanctuary, approximately 14 m north of, and parallel with, the outer *peribolos*. Some 50 soil samples were taken from the backhoe trenches for later soil, microfauna and other analyses.

The results generated by this fieldwork differed markedly between the areas tested to west and to north of the cult centre. On the west side, Trench 1 and Core

[7] See the report on this work by Ian Whitbread in Beaumont and Archontidou-Argyri 1999: 286-287.

[8] In addition to L.A. Beaumont and Y. Bassiakos, the deep soil coring team comprised Demokritos researchers C. Athanassas and M. Kaparou, and coring technicians directed by mining engineer and drilling specialist C. Zervantonakis. Only a brief outline of the coring work and the results generated are presented here, as the full reporting of this data is to be undertaken by Y. Bassiakos and his collaborators.

[9] Location co-ordinates for Core 1: N38°12'25.2", E25°55'48.3". Location co-ordinates for Core 2: N38°12'23.8", E25°55'48.6".

[10] Location co-ordinates for Core 3: N38°12'26.3", E25°55'47.9". Location co-ordinates for Core 4: N38°12'27.2", E25°55'49.0".

[11] Location co-ordinates for Core 5: N38°12'25.0", E25°55'46.1".

[12] Full reporting of the micropaleontological analyses will be undertaken by M. Triantaphyllou and colleagues at the University of Athens.

Figure 5: View of excavation area from the south. The later Archaic *peribolos* wall, an ashlar construction backed by limestone rubble, can be seen in the foreground. The earlier Archaic *peribolos* wall, constructed from closely packed, medium sized, semi-worked limestone blocks, can be seen in the middle ground (photo: L. A. Beaumont).

Figure 6: Unexcavated stretch of wall constructed of large ashlar blocks, located some 8 m west of and approximately parallel to the outermost *peribolos* wall on the west side of the sanctuary (photo: L. A. Beaumont).

1 produced marine sediments from depths of 1.5 m and deeper below present ground level. These sediments consisted of sea sand containing maritime microfossils and fragments of sea shells.[13] Furthermore, in the course of digging Trench 1 we uncovered beach rock, or fossilised coastline, at a depth of 2.0-2.2 m below present ground level and at a distance to west of only some 6 m from the sanctuary's outermost *peribolos* wall. Not surprisingly in view of this Core 5, located further to west between the sanctuary and the present day coastline, also produced sea sand and maritime microfossils.[14] The evidence of Trench 1 together with

[13] Core 1 samples from 2.25-2.3 m and 3.3-3.5 m below present ground level gave OSL dates respectively of 2400 ±380 years ago and 2750 ± 600 years ago.

[14] Core 5 sample from 3.5-3.6 m below present ground level gave an

the OSL dated Core 1 and Core 5 samples thus allows us to conclude that at least between the 2nd millennium BC and the 4th century BC (and probably for some time thereafter) the sea reached to the foot of the artificially extended raised knoll of land on which the sanctuary was located.

Core 2, located approximately 41 m south of Core 1, reached flysch slope formations below the overlying sedimentary deposits at a depth of 5 m below present ground level, thus identifying the original edge of the valley floor at this point. It was drilled directly to the west of a stone terrace wall that had been noted in our 1997 archaeological surface survey of the Kato Phana Valley as running south along the edge of the present day flood plain just beyond the exterior of the south west corner of the sanctuary.[15] For much of its course this wall marks an apparently natural change in ground level, with the upper terrace lying approximately 2 m above sea level. Although for much of its length the wall is of dry stone construction, incorporating a number of reused architectural elements from the cult centre, it ends on the west side of the sanctuary in large grey limestone ashlar blocks with dimensions 1.05 x 0.71 m, laid some 8 m west of and approximately parallel to the sanctuary's outermost *peribolos* wall (FIGURES 2 and 6). Since land ownership issues prevented us from digging here in our 1999-2001 and 2005 excavations seasons, it is still uncertain whether *in situ* foundations underlie these ashlar blocks. However, two pieces of evidence are suggestive. First, this stretch of ashlars lies on the same north-south axis as Trench 1, some 19 m to north, where we uncovered fossilised coastline. Second, in our 1997 surface survey recorded sherd counts were, with very few exceptions, very low across the floor of the Kato Phana Valley. This, however, was not the case immediately to either side of the ashlar wall and its continuation in dry stone construction to the south.[16] I would, therefore, like to tentatively suggest that this line of ashlars may represent the remains of an external wall built beyond the sanctuary's outer *peribolos* on its west and seaward side. As such, it would have both afforded the sanctuary additional protection from high tides and stormy seas and is likely to have also functioned as a harbour installation where boats were moored and pilgrims came ashore to enter sacred territory via the eight-stepped limestone staircase that had been constructed in the 7th century BC.

To north of the sanctuary, Core 4 produced fluvial sediments, as also did Trench 2 throughout its whole depth.[17] The swampy nature of these deposits indicates the presence here in antiquity of a delta. This was confirmed by the results of Core 3, situated further to west and on the same north-south axis as both Trench 1 and also the previously discussed line of ashlar blocks beyond the outer *peribolos* on the west side of the sanctuary. Both the soil morphology, comprising sand and loose pebbles, and also the micropaleontological analyses identified the existence here during the 1st millennium BC of shallow coastal conditions in a paralic to backshore environment. The Core 3 OSL dated samples also produced dates inconsistent with their stratigraphy: that is, a sample taken from 2.3-2.4 m below present ground level gave an earlier date than that given by a sample taken from 3.3-3.35 m below present ground level.[18] This suggests that in antiquity the water course running down the Kato Phana Valley and emptying here into the sea witnessed episodic turbulence, resulting in the removal and redeposition of sediments brought down by the river. In this context, our visual observation of the ruins of what appears to be a now largely buried wall extending parallel to the water course and located between the latter and the sanctuary, may suggest the construction here of a protective installation against riverine flooding. This would have been particularly desirable once the earlier and later Archaic monumental stepped entrances to the sanctuary had been constructed on its north side.

The composite picture that thus emerges as a result of the archaeological and geomorphological investigations conducted at Kato Phana is that of a sanctuary for which an immediate relationship with the sea was central to its character and functioning, catalysing over time the investment of huge labour and expense in re-shaping and enhancing the natural landscape in order to achieve a monumental maritime presence. The very reason for the siting of the original foundation of the sanctuary, probably as early as the LHIIIC period, was indeed most likely the coastal location of this spot, where a low raised knoll of land at the base of a hill spur sat at the head of a deeply cut and thus well sheltered natural harbour on the southerly tip of the island.[19] This was therefore an ideal landing and stopping off place, where both locals and mariners travelling from further afield could meet and interact. By the late 8th and into the 7th century BC, when the first actions were taken to give architectural form to the raised knoll by enclosing it within a stone *peribolos* wall through which a limestone staircase ascended to what was probably still an open air shrine, the rich votive offerings deposited indicate close communication, trade and exchange with Samos, Old Smyrna and

OSL date of 3200 ±610 years ago.

[15] See Beaumont and Archontidou-Argyri 1999: 279-280.

[16] See Beaumont and Archontidou-Argyri 1999: 279-280 and fig. 2.

[17] Core 4 sample from 2.0-2.05 m below present ground level gave an OSL date of 4760 ± 960 years ago.

[18] Core 3 samples from 2.3-2.4 m and 3.3-3.35 m below present ground level gave OSL dates respectively of 5000 ± 1110 years ago and 2000 ± 230 years ago.

[19] We learn from Livy (36.43.11, 44.28.15, 45.10.1) that the bay at ancient *Phanai* was sufficiently large and protected to accommodate the Roman battle fleets that took shelter here in 191 and 168 BC.

Phrygia.[20] In the 6th century BC the significance of this flourishing sanctuary was recognised and marked by its expansion and monumentalisation via a first phase of land reclamation and the construction of a massive *peribolos* terrace wall. It may also have been at this time that the first stone temple was built. While the expansion of sacred space could presumably have been more easily effected to south and east of the existing sanctuary area, it is of particular note that the Chians went to great expense and effort in order to expand the sanctuary's territory west, in the direction of the sea. They repeated this costly investment of time, labour and materials only a half century or so later, when the monumental *peribolos* terrace was expanded even further to west and now enclosed by impressive ashlar masonry. The rich, diverse and often exotic nature of the votives now deposited in the sanctuary during the Archaic period confirm the importance of the sanctuary as a recipient of local and foreign goods: Chian, East Greek, Corinthian and Athenian ceramics; Egyptian faience figurines and faience and stone scarabs; amber beads and pendants; ivory and bone pieces; bronze *fibulae* and pins, arrowheads, belts, jewellery and cauldrons decorated with griffin and horse protomes; gold and silver jewellery and other items.[21]

Perhaps, in closing, it is not too fanciful to picture at least some of these gifts to the gods being brought ashore from boats that had been tied up against the previously suggested harbour wall, located some 8 m to west of the sanctuary's outer *peribolos*. Today, however, standing at this now landlocked, deserted, quiet and ruinous spot, it is hard to imagine the noise and activity of the ancient harbour and to visualise the lost grandeur of ancient *Phanai*.

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[20] See Beaumont and Archontidou-Argyri 2004: 216-231.
[21] See Beaumont and Archontidou-Argyri 2004: 201-255; Kourouniotis 1915: 72-85; Kourouniotis 1916: 190-212; Lamb 1934-1935.

Topographical Study of Ancient Cos: New Data from the Western District

Giorgio Rocco

Summary

New investigations south of the Western Baths at Cos led to a re-examination of the remains brought to light between 1936 and 1940. The area is occupied by structures attributable to several building phases from the Hellenistic up to the Christian period; in particular, the Hellenistic and Imperial remains originally interpreted as private dwellings could, instead, be interpreted differently. *Inter alia* the identification of a Hellenistic Doric stoa, associated with a large building opening out to a courtyard, and the presence of a temple to the north, near the *plateia*, lead to the conclusion that all the structures can be attributed to a Hellenistic sanctuary located near the entry of the *cardo* into the *plateia,* thus constituting a counterpoint to the Agora in close connection with the athletic and agonistic complexes of the western part of the city. In the Imperial age the complex was altered, while maintaining its functions. Around the mid-3rd century AD the *plateia* was transformed into a colonnaded street determining the interruption of the *cardo* and the resulting deviation of the carriage route that branches off from the *cardo* towards the southwest, bypassing the western edge of the Imperial porch. Notwithstanding the consequent abandonment of the sanctuary buildings, the temple continued to play an important role in the religious life of the *polis*, at least until the end of the century.

Περίληψη

Νέες έρευνες νοτίως των Δυτικών Λουτρών στην Κω οδήγησαν σε μια επανεξέταση των καταλοίπων που είχαν έρθει στο φως μεταξύ 1936 και 1940. Η περιοχή καταλαμβάνεται από κτίσματα αποδιδόμενα σε σειρά οικοδομικών φάσεων από την ελληνιστική έως τη βυζαντινή περίοδο. Ειδικότερα τα ελληνιστικά και ρωμαϊκά αυτοκρατορικά κατάλοιπα που είχαν αρχικά ερμηνευθεί ως ιδιωτικές κατοικίες μπορούν τώρα να ερμηνευθούν διαφορετικά. Μεταξύ άλλων, η ταύτιση μιας ελληνιστικής δωρικής στοάς, η οποία σχετίζεται με ένα μεγάλο κτίριο που οδηγεί σε αύλειο χώρο, και η παρουσία ναού στα βόρεια, κοντά στην πλατεία, οδηγούν στο συμπέρασμα πως όλες αυτές οι κατασκευές μπορούν να αποδοθούν σε ένα ελληνιστικό ιερό κοντά στο σημείο εισόδου του *cardo* (διασταύρωση βασικών οδικών αξόνων της πόλης) στην πλατεία, συνιστώντας έτσι το αντιστάθμισμα της Αγοράς, στενά συνδεδεμένης με τα αθλητικά και αγωνιστικά συμπλέγματα στο δυτικό τομέα της πόλης. Κατά την αυτοκρατορική περίοδο το σύμπλεγμα τροποποιήθηκε, αν και διατήρησε τις λειτουργίες του. Γύρω στα μέσα του 3ου αιώνα μ.Χ. η πλατεία μεταμορφώθηκε σε δρόμο με κιονοστοιχίες, επιβάλλοντας τη διακοπή του *cardo* και την παρέκκλιση της αμαξιτής οδού από το *cardo* προς νοτιοδυτικά, παρακάμπτοντας τη δυτική παρυφή του αυτοκρατορικού προστώου. Παρά τη συνακόλουθη εγκατάλειψη των κτιρίων του ιερού, ο ναός συνέχισε να παίζει σημαίνοντα ρόλο στη θρησκευτική ζωή της πόλης, τουλάχιστον μέχρι το τέλος του αιώνα.

Key Words

Cos; Hellenistic architecture; Roman architecture; sanctuary; stoa.

The resumption of investigations in the area south of the Western Baths (FIGURE 1), with new observations aided by cleaning works and new surveys, led to a re-examination of the remains brought to light by Italian archaeologists between 1936 and 1940.[1] General surveys of the excavated area had been only partially conducted, in still ongoing digging, by the topographer Captain Virgilio Brighenti in 1938, on a 1:200 scale, and were completed in 1987 by the author and Monica Livadiotti, on behalf of the Italian Archaeological School of Athens.[2] Recently, in order to obtain a more detailed documentation for the sake of a more precise interpretation of the remains, new surveys in the southwest corner of the same district, on a 1:50 scale, were made in the Summer of 2015[3] (FIGURE 2).

The area south of the Western Baths[4] is occupied by a series of structures representing building phases from the early Hellenistic up to the late Christian age; in particular, the remains of the Hellenistic and the Imperial period were interpreted by Italian archaeologists as private dwellings,[5] even though their architecture was never systematically studied because

[1] About the results of the Italian excavations in the Western Districts, at that time known as '*Porta Nuova*', see Baldini and Livadiotti 2014: 123-137; Laurenzi 1931: 612; Livadiotti 2016; Livadiotti and Rocco 1996: 134-136, 144-148; Morricone 1950: 224-227, 234-236; Rocco 2000.

[2] The new survey was published in Livadiotti and Rocco 1996: 135, fig. 309.

[3] The new survey of the *Porta Nuova* district is still ongoing as regards the eastern part of the excavation and the area of the so-called *decumanus*, corresponding to the Hellenistic central *plateia*.

[4] On the monument see Baldini *et al*. 2012; Baldini and Livadiotti 2014: 146-153; Livadiotti 2004; Livadiotti and Rocco 1996: 141-144.

[5] Morricone 1950: 227.

Figure 1. Cos, general map of the Hellenistic town. The area discussed in this paper is highlighted (plan: after Rocco and Livadiotti 2011: fig. 1).

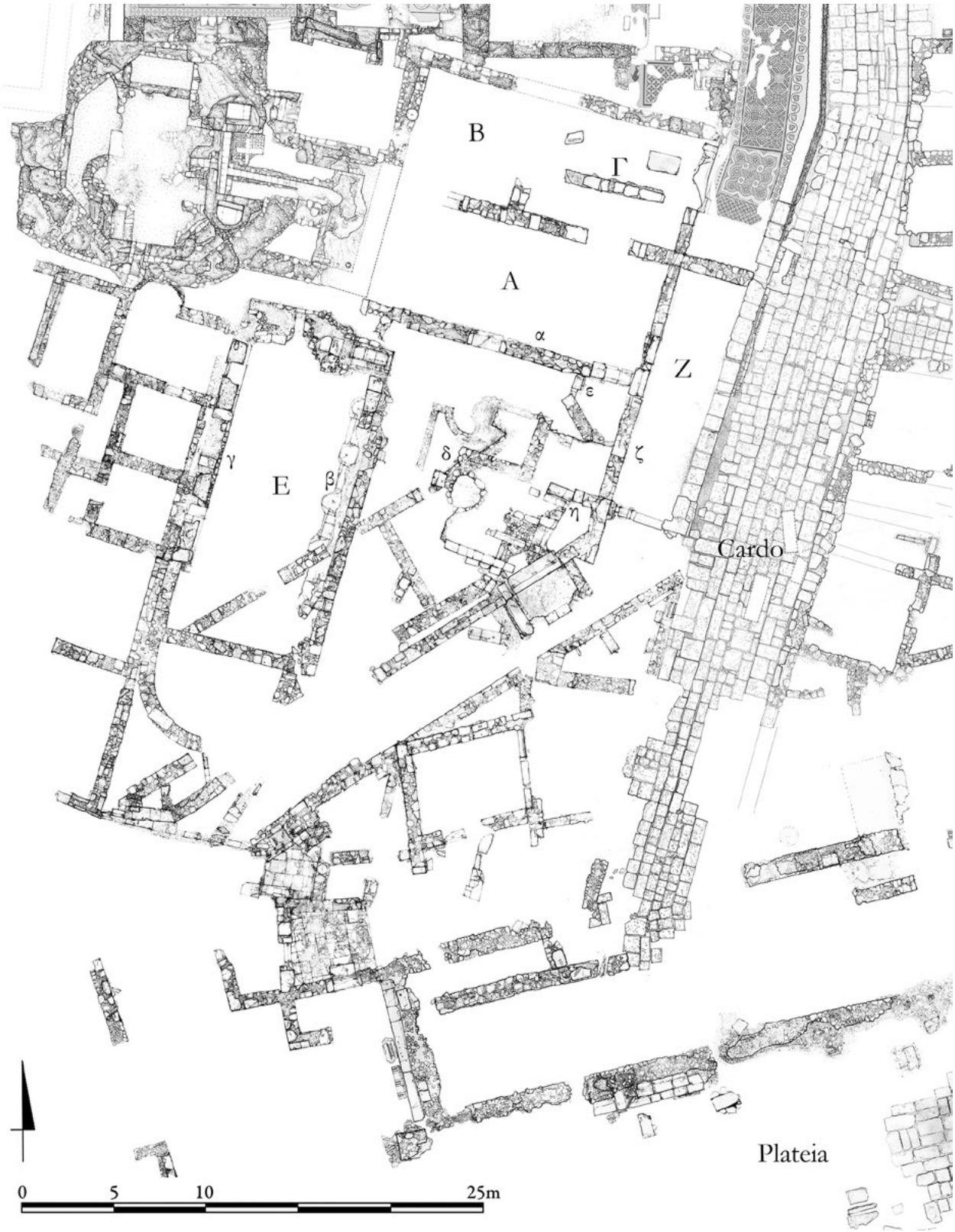

Figure 2. Cos, area south of the Western Baths. New survey (drawing: G. Loiudice, M. D'Aprile, A. Labbattaglia and I. Leone, Polytechnic School of Bari 2015).

Figure 3. Cos, area south of the Western Baths. View from the south of room E in a photo by L. Morricone (photo: Scuola Archeologica Italiana di Atene archive, after De Matteis 2004).

they were regarded as of lesser significance, compared to the nearby *thermae* or the monumental early Byzantine religious complex built on top of the ruins.[6]

The identification of Hellenistic compartments particularly recognizable in a large structure (rooms A-B-Γ) leading south to an open courtyard (Δ), by a double-faced wall (α) oriented northwest/southeast and characterised by a well-worked *opus quadratum* exterior wall of *mavropetra*,[7] had suggested in the past the presence of housing facilities, partially refurbished in the Imperial period (room E) and then forming part of the early Christian residential complex (rooms a, b, c, d) connected to the Christian basilicas built on top of the Western Baths. The analysis of the ruins after cleaning, however, allowed some significant observations, which may drastically change the interpretation of the structures in the area. The cleaning of room E (FIGURE 3), originally considered to be an integral part of an Imperial *domus* installed upon a former Hellenistic house, revealed some quite interesting peculiarities:

- The northwest boundary wall (γ) of room E is articulated on its west face by engaged half-columns,[8] projecting from the wall about 15 cm; the half-columns were crowned by Doric capitals made of *amygdalopetra*.[9]
- The walls connecting the half-columns are very thick (about 0.83 m),[10] but they do not rise at full-height: in fact, from a certain level up, the wall gives way to deep niches, as evidenced by the same half-column capital, presenting a lesser depth than the entire thickness of the wall (only 0.88 m) and a unworked rear face; behind the niches, a second, thinner wall (θ, about 0.60 m), is the actual western limit of the hall.
- Cleaning the southeast boundary-wall (β) of the same room E, which, from Brighenti's survey, seems to reflect the half-columned articulation of the corresponding wall γ, an *amygdalopetra* stylobate of the Hellenistic period has been revealed. In the room's Imperial phase this

[6] The last Byzantine phase is relevant to an episcopal residential building, connected with two churches and a baptistery built in the 5th-6th century AD on the ruins of the Imperial period: Baldini *et al.* 2012; Baldini and Livadiotti 2014: 154-172, 182-195.

[7] *Mavropetra* is dark grey limestone frequently used at Cos in combination with the local travertine (*amygdalopetra*) or with white marble: Livadiotti 2010: 30.

[8] The presence of engaged half-columns was already been highlighted in the survey led by Virgilio Brighenti and then verified and completed in 1987; but these data did not lead to a full reflection on the compartment architectural configuration and its relationships with the surrounding structures.

[9] *Amygdalopetra* is a local sedimentary travertine, of which the quarry was identified near the modern village of Pyli, west of Cos town: Poupaki 2004: 170-172.

[10] The thickness of the entire foundation is 0.98 m.

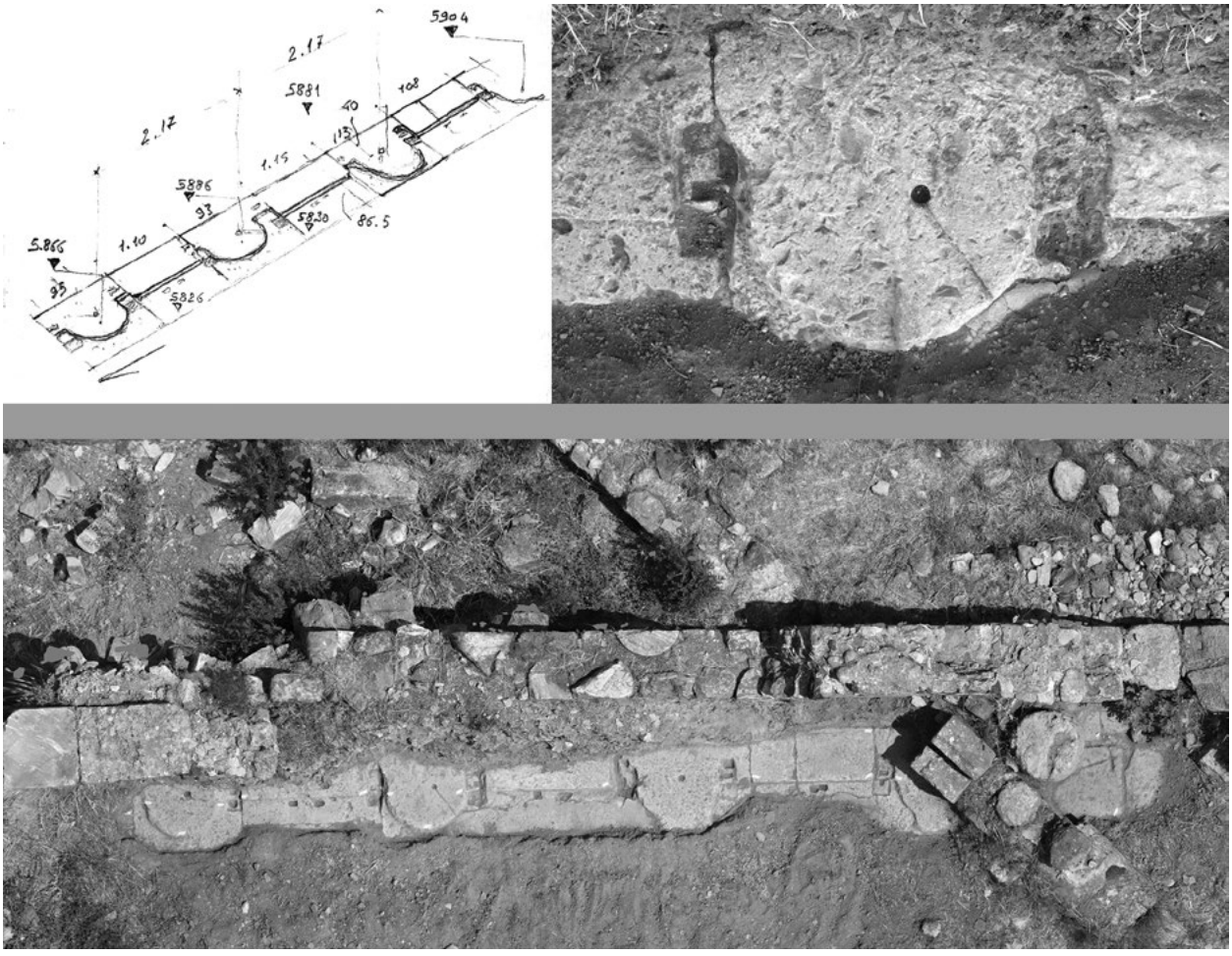

Figure 4. Cos, area south of the Western Baths, room E, east side. On the left, the stylobate sketched by the author; on the right, detail of the traces of a half-column (photos: A. Fino).

structure was articulated with a colonnade with intercolumniations measuring about 2.21 m[11] and closed by doors, as evidenced by the traces of jambs and pivots clearly discernible on the stylobate (FIGURE 4).

- The southwest limit of the hall is less clear: traces of a balustrade that closed the opening between two columns creating an aperture above an *exedra* which formed the southern end of room E, are clearly visible on the southwest corner pillar, last in the sequence of the half-columns of wall γ.
- The northeast limit of the same room could coincide with the extension of wall α, thus allowing us to restore wall γ, which should consist of five half-columns and six niches.
- Finally, the level of the room, suggested by the remains of a mosaic floor and the stylobate, was equal to *c.* 5.83 m above sea level, almost 70 cm higher than the east courtyard level (*c.* 5.20 m above sea level), to which the hall E was connected via a three-stepped *krepis*.

To the same phase belongs some transformation of the courtyard Δ, with the inclusion of a basin (δ) and the construction of the eastern boundary of the same indoor space (ε), maybe another porch, and its back wall (ζ). The southern limit of the courtyard during this period seems aligned with the southern limit of room E, on the extension of γ, as evidenced by the wall with the threshold η found during cleaning immediately west of the early Christian monumental entrance but already marked in Brighenti's drawings.

This building phase (FIGURE 5b), which, on the grounds of the building technique,[12] can be dated to the early Imperial age, shows a partial continuity with the previous Hellenistic building, of which spaces A-B-Γ and the open courtyard Δ continued to be used with few

[11] In the early Imperial age, the original layout of the Hellenistic columns was altered, as evidenced by the still visible traces of a double fastening system on the surface of the stylobate; the new columns had a wider interaxial spacing (from 2.17 to 2.21 m).

[12] On this argument see Livadiotti 2005.

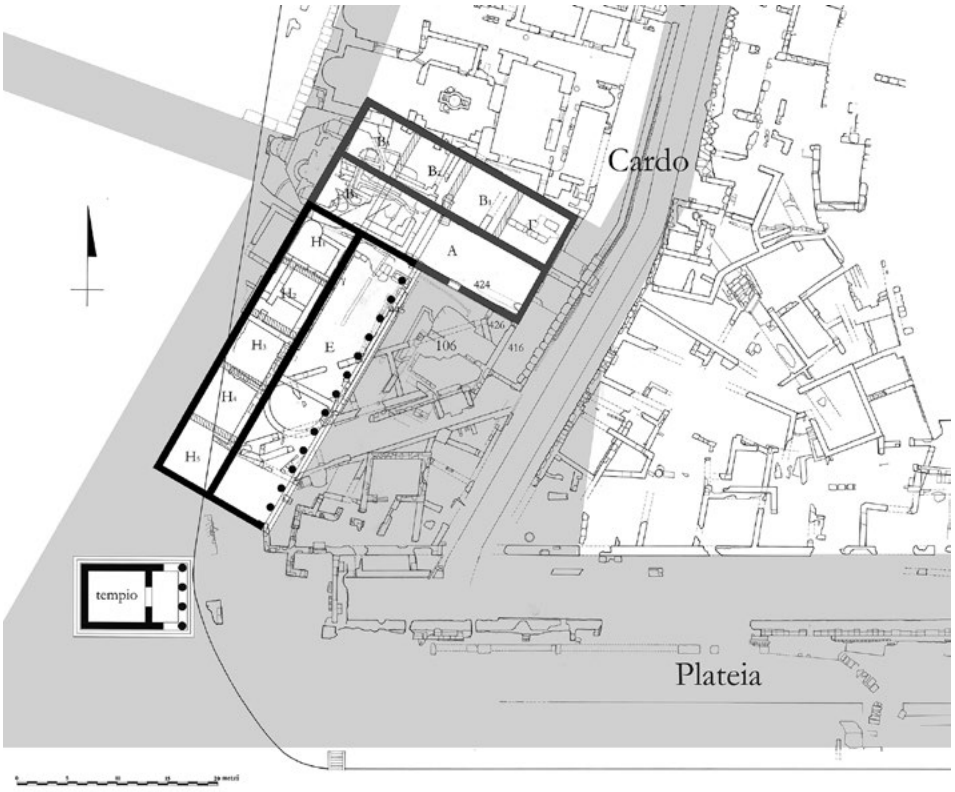

Figure 5a. Cos, area south of the Western Baths (3rd-2nd century BC). Restoration of the different phases (drawing: G. Rocco).

transformations. From a typological aspect, it seems improbable to interpret the complex as a rich dwelling -the hall E, in particular, does not seem planned to function as private premises- while the assumption of continuity in the intended use of the building with the previous Hellenistic phase could better explain the architectural features. A deeper knowledge of the Hellenistic phase (FIGURE 5a) could therefore be particularly important for our understanding of the subsequent interventions that took place in a certainly crucial area, located at the intersection of the *plateia*/ *decumanus* with the so-called *cardo*.

As regards this phase, the available data revealed during the recent survey appear to be very significant. The stylobate and the *krepis*, both in *amygdalopetra* and reused during the early Imperial transformations, must be in fact recognised as the survival of an older remarkable structure. In particular, the stylobate, placed at a height of about 5.88 m above sea level, is raised on a *krepis* made of three blocks, each 29 cm high, on a foundation of local tufa, the so-called *malakopetra*;[13] the upper surface of the stylobate clearly shows evidence of an older colonnade and successive transformations dating in the Imperial times (FIGURE 4). Consequently it is possible to restore, to a good approximation, the architecture of room E as a Hellenistic stoa, undoubtedly composed of Doric columns with a diameter of 75 cm, arranged at an interaxial spacing of 2.17 m.

Traces of four columns are still visible *in situ* but their number was certainly higher because the stylobate continues both to the north, where there is room for two interaxial bays (i.e. one more column) before intersecting with room A, and to the south, where it could still continue before interfering with the *plateia*. Here a structure only partially unearthed by Morricone and identified as a temple[14] could have played a significant role in the area, affecting the southward extension of the porch. This stoa could therefore be restored with ten to thirteen columns between *antae*; although the former value seems more congruent with the southern limit of the building in the early Imperial period[15] the latter appears more consistent with the structures on the site (FIGURE 6).

Under wall γ, dated to the early Imperial age, the presence of a foundation of *malakopetra*, parallel to the stylobate β of which the upper surface (at a height of 5.825 m above sea level) is compatible with the level of the stylobate, confirms the identification of the original

[13] About *malakopetra* at Cos see Chiotis 2001; Poupaki 2004: 173-174.

[14] Morricone 1950: 224-227, 234-236.

[15] See the above mentioned early Imperial phase.

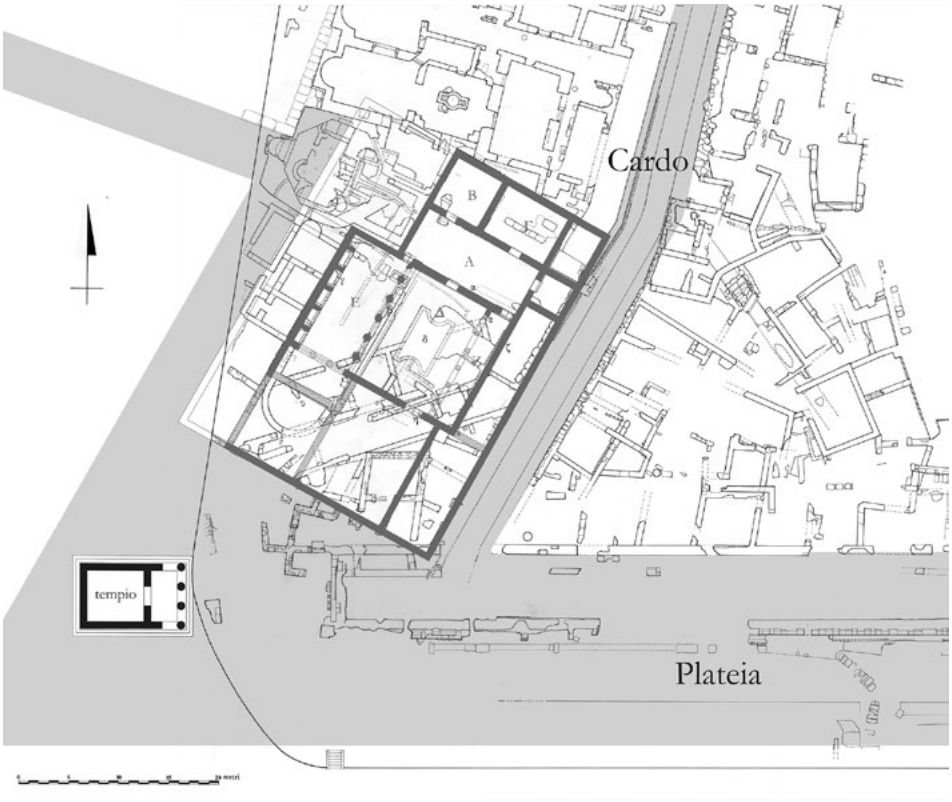

Figure 5b. Cos, area south of the Western Baths (1st century AD). Restoration of the different phases (drawing: G. Rocco).

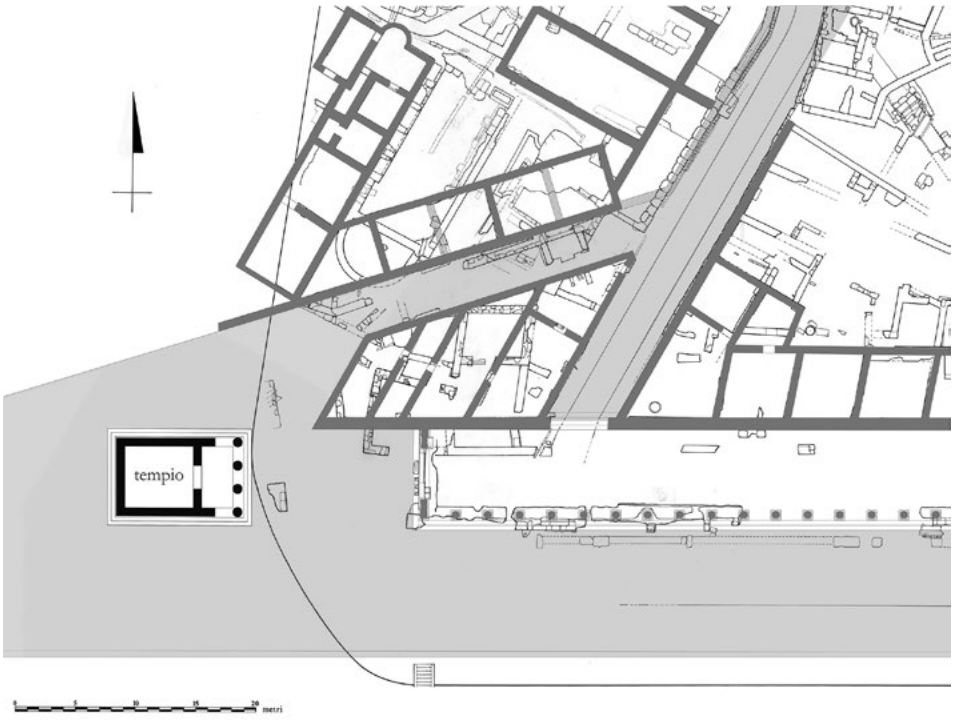

Figure 5c. Cos, area south of the Western Baths (3rd century AD). Restoration of the different phases (drawing: G. Rocco).

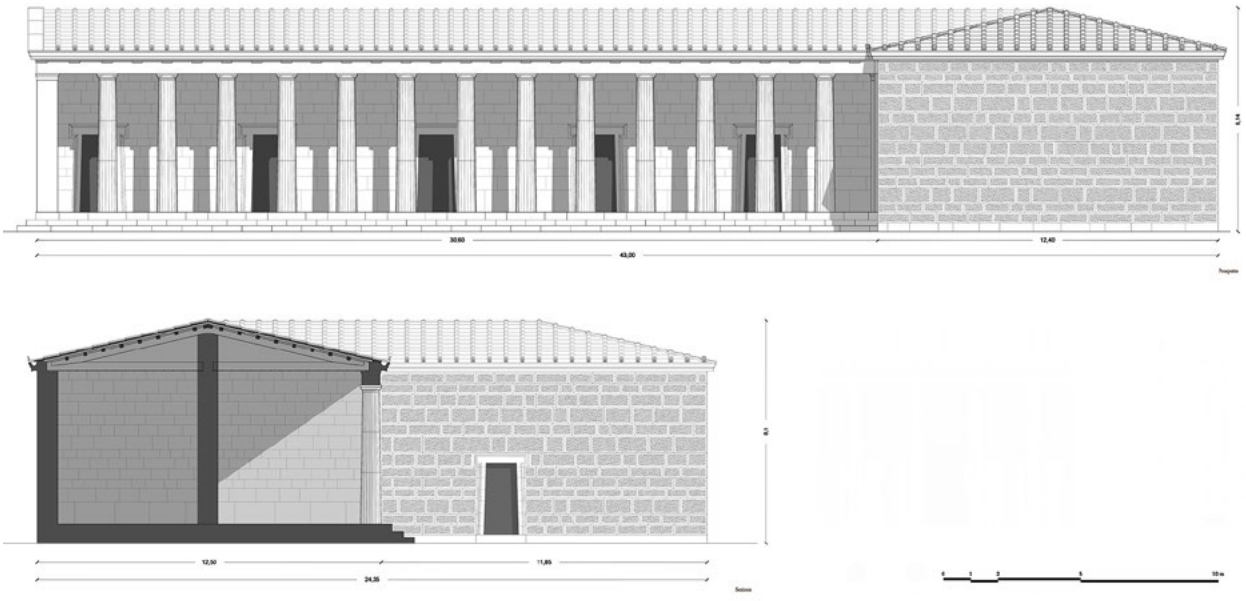

Figure 6. Cos, South-West Stoa. Drawn reconstruction of the north-west and south-east elevations in the 2nd century BC (drawing: M. Gentile based on G. Rocco's hypothesis).

building as a stoa of considerable dimensions. It is also possible that some blocks of yellowish limestone, still *in situ* or reused during the Imperial phase between the half–columns, originally belonged to the same back wall, as the jambs of a Doric portal of similar material, reused in the building of the Imperial phase in the easternmost door opened through wall α.

The jambs possibly belonged to the structure and their presence suggests the existence of rooms behind the back wall, moreover confirmed by the same *malakopetra* foundation of the aforementioned back wall. In fact, the area occupied by the stoa is raised above the surrounding zone by just over 70 cm, a value determined by the presence of the already described *krepis*. However, the *malakopetra* foundation of wall γ runs at the same level both on the east and the west extremity, where the original level was even lower; however, since the foundations should not have been visible, we must conclude that the floor level behind the stoa back wall was aligned with the high level of the surrounding structures, which could be better explained, if we assumed the presence of rooms closely related with the stoa just beyond the foundation of wall γ.

Unfortunately the intense alterations of the area, due to the AD 142 earthquake and well recognizable in some structures built during the Imperial period and still visible *in situ*, have profoundly changed the picture, covering up the older lower level and removing the remains of the original western edge of the stoa; only a *malakopetra* block,[16] located on an alignment (ι) parallel to wall γ, reused during the transformation of the Imperial age, could actually be an indication of the stoa's western boundary.

In the leading role played by the building within its surrounding space, an important function is performed by the *krepis* that once linked eastward the stylobate to the open courtyard Δ on which the north room A overlooked, placing the stoa in a dominant location. The *malakopetra* foundation of the *krepis* has been recognised, together with some *amygdalopetra* steps still *in situ*, pertaining to the lower row, about 20 cm high. It is also possible to recognise the original columns of the stoa in some *amygdalopetra* drums still *in situ*, apparently reused in the late Imperial and early Christian structures; due to material and morphological peculiarities, these can hardly be ascribed to a date later than the 3rd century BC.

The A-B-Γ structure would have been added to the stoa possibly in the 2nd century BC; this building is longitudinally divided by a central wall and shows a southern façade through which a door framed by Doric jambs leads into the inner rooms. The façade was built in a typically Hellenistic way: its exterior, facing the open courtyard, features ashlar masonry of very well-cut square *mavropetra* blocks having their surface dressed

[16] The block was obviously relevant to a foundation; it is compatible with an elevation at 5.89 m above sea level, evidently consistent with the paving of the rear compartments of the stoa, which had to be taller than the stylobate by about one step.

with a pick for decorative purposes, while the inner side was built with smaller, irregular stones, concealed beneath a layer of plaster.[17] It is difficult to deduce much about the inner division of the building, apart from the attestation of a passage in the easternmost section of the central wall κ. Such a complex of rooms, with northwest/southeast orientation, was then leaning against the northern boundary wall of the stoa; the Γ-shape of the entire building was thus suitable to defining an open area, a square, coinciding precisely with the junction between the so-called *cardo* and the *plateia* and immediately in front of the temple found by Morricone and probably in connection to this open place.

The temple, identified by the Italian archaeologist in 1940 at the southwest borders of the archaeological area of *Porta Nuova* and known only from unpublished notes[18] and a few old photographs (FIGURE 7), could be particularly helpful in our understanding of the buildings which mark the junction between the *plateia/ decumanus* and the *cardo*. The building, unearthed on its eastern side for a length of 7.38 m, is characterised by a *krepis* made of *mavropetra* on a *euthynteria* made of *amygdalopetra*. If the monument, oriented to the cardinal points, could actually be identified as a temple, which seems credible,[19] the adjacent structures would naturally acquire a clearer meaning.

The impossibility to take advantage of direct evidence, due to the building's obliteration below the modern enclosure wall of the archaeological area, constitutes the greatest problem and forces us to proceed through scrutiny of old photographs, in which the temple is visible, and by comparison with the current situation. In this way it is possible to locate the northeast corner of the building on the northern edge of the *plateia*, about 23 m west of the western boundary of the *cardo*. The second problem lies in the necessity to determine the size of the building; to this end, the only available data is the information provided by Morricone, proving that the east side measures no less than 7.38 m. If the building was a temple, we could possibly compare with the known dimensions of other prostyle tetrastyle or distyle *in antis* temples known in Cos,[20] which leads us to conclude in favour of a width of the east front ranging between 8 and 9.5 m, and a length between 14 and 16.50 m.

Figure 7. Cos, south-west corner of the archaeological site of the Western District. Remains of the north-east corner of a Hellenistic building, maybe a temple, found by L. Morricone in 1940, seen from north (photo: after Livadiotti and Rocco 1996: fig. 312).

These important data reveal that, given the size of the building, its location near the northern limit of the *plateia* aimed at acquiring a significant position without interrupting the route of the processional road, which, being about 20 m wide, did not suffer too much by the narrowing imposed by the presence of the temple.[21] The location of the religious building was, in some way, a counterpoint to the monumental central Agora with its shrines and altars, thus constituting a cult pole, perhaps in close connection with the large athletic and agonistic complexes that dominated the western part of the city, set on the margins of the built up area, as evidenced by the research recently carried out to the southwest.[22]

[17] See Livadiotti 2005.

[18] About this finding see Livadiotti and Rocco 1996: 134, fig. 312.

[19] It is not possible to absolutely exclude the possibility of a stoa, open to the *plateia* from the north, but the presence of a *krepis* on its east side would suggest a prostyle type of porch, a rare solution that finds no parallel in stoas of Cos.

[20] The two temples dedicated to Aphrodite *Pandamos* and *Pontia* in the harbour district of Cos measure about 8.80 x 14.10 m (Rocco 2004; Rocco 2009), the Attalids temple in the southern part of the Agora measures 9.60 x 16.60 m (Livadiotti and Rocco 1996: 122-125), the temple B of the *Asklepieion* measures 8.78 x15.07 m (Herzog and Schazmann 1932: 34-39), the temple of *Omonoia* at the *Asklepieion* of the Isthmus is 6.60 x 13.65 m large (Livadiotti and Rocco 2001), the temple of Asklepios and Hygeia in the same sanctuary is 8.50 x 13.90 m large; finally, the temple of Apollo at Halasarna measures 9.30 x 16.49 m (Kokkorou-Alevras *et al.* 2006: 31-38).

[21] The *plateia* as a processional route in Cos and its importance through times is the topic of a forthcoming study. About its topography see Livadiotti 2016.

[22] Some observations in the area southwest of the *decumanus*, crossed by the mid-Imperial age aqueduct, allowed us to ascertain that in this quadrant of the city the urban grid underwent significant changes,

It is also highly probable that the sacred complex was closely related to processional activities that characterised the worship rituals in the Hellenistic and Imperial Cos;[23] rituals which, besides the main shrines, had their principal poles of reference in the Agora and the athletic complexes, connected to each other by means of the *plateia*, the principal east-west street, and the main north-south roads, the one east of the Agora and the so-called *cardo*. In this sense, the position of the temple and the correlated sacred complex within the *plateia/decumanus* and at the intersection with the *cardo* which, as already stated, because of its width was ranked among the privileged roads in Cos, appears strategic, beyond any doubt.

The temple, whose dating could be traced back to the 3rd century BC, if not before, as the building materials seem to suggest,[24] contrary to Morricone's opinion[25] seems to have lived long; this is attested by the pavement which bordered the building to the north, visible in the old excavation photos and probably dating to the early or middle Imperial phases.

Around the mid-3rd century AD a significant change occurs in the area: the conversion of the *plateia* into a colonnaded street involves the interruption of the *cardo* resulting in a deviation of the carriage route; the impact upon the area is anything but secondary[26] (FIGURE 5c). In fact, the northern portico built on the *plateia* passing in front of the intersection with the *cardo* interrupted the paved road, continuing for another 10 m eastwards, to end just about 13 m from the front of the temple with an unusual architectural solution: a large arch seems to have replaced the lateral east wall of the porch, scenographically framing the building's façade. The construction of a new road that branches off from the *cardo* towards south-west, bypassing the western edge of the porch and the temple, merging with the *plateia* at 40 m further west, confirms that the temple was still standing and continued to play an important role in the religious life of the *polis*.

The destiny of the other structures of the sanctuary, however, was different; the realization of the northeast/southwest road, with a series of rooms along its northern side, led necessarily to the obliteration of the open courtyard Δ and the hall A, with most of the auxiliary rooms. Only the building A-B-Γ survived the restructuring, even though we ignore its intended use in that period.

In the light of the above observations, we may conclude that the structures just northeast of the temple (the stoa, the annexed building A-B-Γ and the open area Δ) in the Hellenistic period probably established a large complex in correspondence with the entry of the *cardo* into the *plateia* and they are to be interpreted as part of a unique sanctuary. In support of this interpretation, there are also some architectural fragments identified in the area, some reused in later construction and others dispersed. Among the first group, a marble pediment, attributable to a good-sized *naiskos* (2.40 m wide), appears to be of special interest; it was embedded in a late wall not far from the Hellenistic stoa and it apparently belonged to some building in the nearby area. Let us add a second pediment, smaller and again attributable to a *naiskos*, this time a stray find, recovered to the east and beyond the *cardo*, along with some small votive altars. All these finds denote the proximity of a cult area of some importance and antiquity, a fact which contributes to a comprehensive re-evaluation of the *Porta Nuova* district, as also the new studies of the northernmost area of the neighbourhood seem to indicate.[27]

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while the road network appears to thin out, probably as a result of a different use of this district, mostly occupied by orchards and gardens, rather than residential blocks.

[23] About religious life in Cos see Paul 2013 with previous bibliography.

[24] In fact, the combined use of *amygdalopetra* and *mavropetra* seems to indicate a date prior to the 2nd century BC. On the particular taste for bichromy in the Hellenistic architecture of Cos, see Livadiotti 2010: 25-28.

[25] Morricone found the temple *krepis* partially dismantled and obliterated by a floor made of marble chips, in his notes generally attributed to Roman times (Livadiotti and Rocco 1996: 134).

[26] For further details see Rocco and Livadiotti 2017.

[27] See, in this volume, M. Livadiotti's contribution on the so-called Tufa Stoa, at the northeastern limit of the same excavated area.

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The Tufa Stoa in Cos: A Hypothesis on Its Identification

Monica Livadiotti

Summary

Discovered by Luigi Morricone after 1936, during the period when the Dodecanese was under Italian Government and having remained unpublished since then, the stoa is situated in the Western District of the *post*-Classical and Hellenistic town, near the Western Gymnasium. Its rear wall serves as a retaining wall of the acropolis hill and the building was built on an intermediate terrace of its west slope, overlooking with its Doric porch an important urban street; this was the so-called *cardo* of the Italian excavations, which connected the main central *plateia* with the harbour. The stoa was dated by Morricone in the second half of the 4th century BC; the austere 'Carian' character of its architecture, the material of its construction, a local tufa, and the building techniques confirm this chronology. As for its function, some peculiarities in the architectural layout permit us to exclude a commercial purpose and open an interesting hypothesis about its relationship with the nearby Western Gymnasium, to which it is tied by a possibly religious function.

Περίληψη

Η στοά ανακαλύφθηκε από τον Luigi Morricone μετά το 1936, κατά την περίοδο της ιταλοκρατίας των Δωδεκανήσων, και έμεινε από τότε αδημοσίευτη. Βρίσκεται στο δυτικό τμήμα της μετα-κλασικής και ελληνιστικής πόλης κοντά στο Δυτικό Γυμνάσιο. Ο τοίχος στο βάθος της στοάς λειτουργεί συγχρόνως ως αναλημματικός τοίχος του λόφου της ακρόπολης και το κτίριο κατασκευάστηκε σε ενδιάμεσο τεχνητό άνδηρο στη δυτική της πλαγιά, ψηλά πάνω από το λεγόμενο *cardo* των ιταλικών ανασκαφών που συνδέει την κύρια κεντρική πλατεία με το λιμάνι. Η στοά χρονολογήθηκε από τον Morricone στο δεύτερο μισό του 4ου αιώνα π.Χ. Η χρονολόγηση αυτή είναι σύμφωνη με τον αυστηρό 'Καρικό' χαρακτήρα της αρχιτεκτονικής της, με το υλικό δομής που είναι τοπικός τόφφος και με τις κατασκευαστικές τεχνικές. Σε ό, τι αφορά τη λειτουργία της στοάς, μπορούμε - λόγω ορισμένων ιδιαιτεροτήτων της αρχιτεκτονικής της μορφής - να αποκλείσουμε την εμπορική χρήση. Τίθεται το ερώτημα της σχέσης της στοάς με το Δυτικό Γυμνάσιο που βρίσκεται σε κοντινή απόσταση και με το οποίο συνδέεται έχοντας πιθανώς λατρευτική λειτουργία.

Key Words

Cos; Italian archaeology in Dodecanese; Hellenistic architecture; stoa; Doric order; Western Gymnasium; shrine.

In Cos, the Italian research started soon after the military occupation in 1912 but took on a systematic character only after the arrival of L. Laurenzi. The archaeologist had been appointed Inspector of the branch office of Cos of the *Royal Superintendence of Dodecanese* and remained on the island until 1934, when he was called to Rhodes to run the head office. Afterwards, and until 1941, the archaeological research was carried out by L. Morricone.[1]

In the south-west outskirts of the medieval town, Nerantzia, where Laurenzi began the first excavations, there was a little settlement, known as *'Porta Nuova'* district, located along one of the routes from the *chora* to the hinterland. It appears on the city map drawn by the Italian Military Geographical Institute (IGM) in 1926,[2] before the earthquake of 1933, which imposed the application of a Master Plan that radically changed the character of the area.[3]

In 1930, Laurenzi's search in the district led to the discovery of the *caldarium* of an Imperial bath building, since then known as Western Baths.[4] Due to the presence of Turkish private dwellings, the exploration was abandoned and resumed years later by Morricone, when the earthquake of 1933 made possible the demolition of some damaged buildings.

In 1936, the area north of Laurenzi's first excavation was thus deeply explored, completing the investigation of the Western Baths[5] and finding a paved road in excellent condition, the so-called *cardo*.[6] To the east of the street, a monumental latrine-*nymphaeum* was

[1] Livadiotti and Rocco 1996: 77-96, 189-208; M. Livadiotti, in Baldini and Livadiotti 2011: 72-77; M. Livadiotti, in Baldini and Livadiotti 2015: 123-137; M. Livadiotti in Rocco 2018c: 71-84; Rocco 2000.

[2] Livadiotti 2016.

[3] Livadiotti and Rocco 2012.

[4] Laurenzi 1931: 616; M. Livadiotti, in Baldini and Livadiotti 2015: 127-129.

[5] Morricone 1950: 227-230.

[6] M. Livadiotti, in Livadiotti and Rocco 1996: 141; M. Livadiotti, in Baldini and Livadiotti 2015: 126-134; Morricone 1950: 230-231.

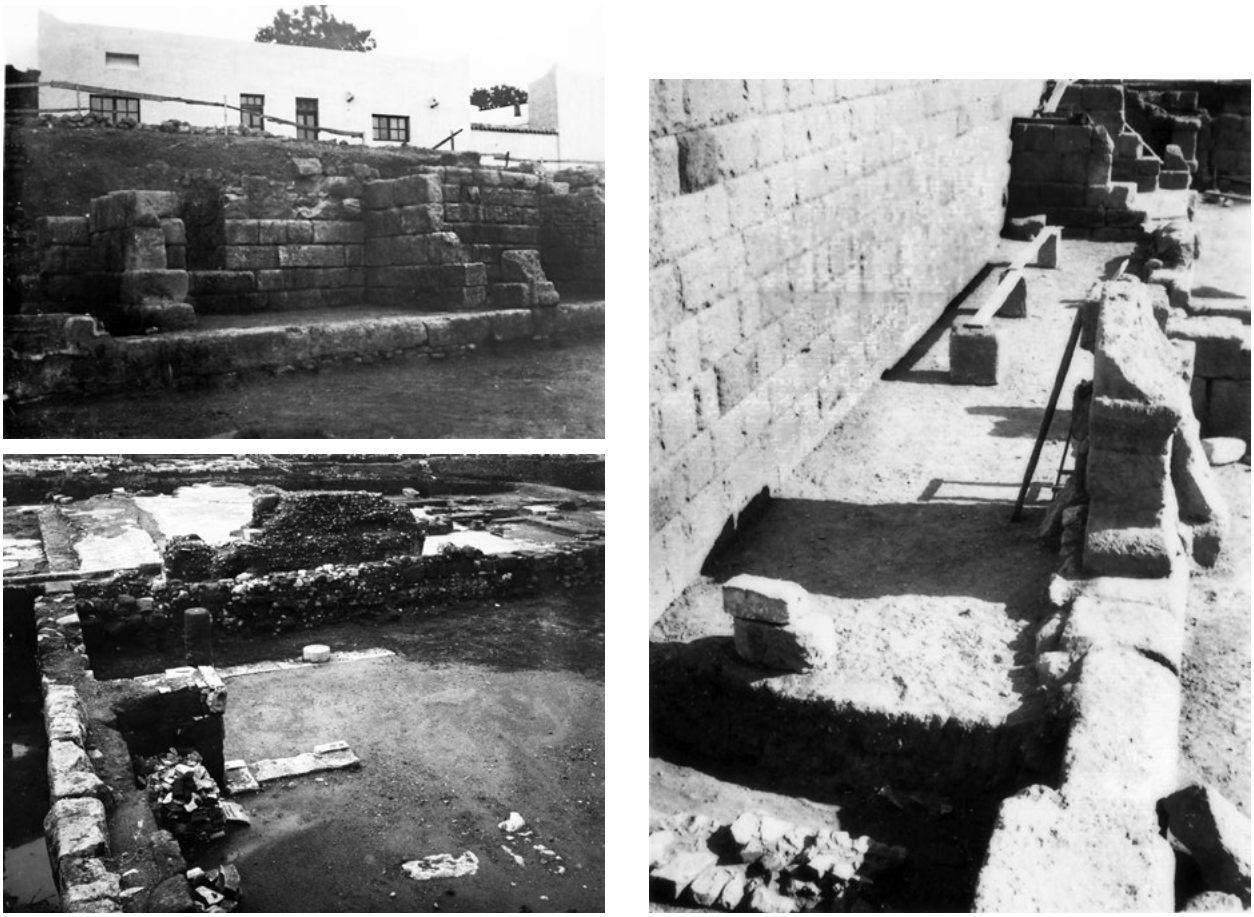


Figure 1a-c: Cos, Western District, the Tufa Stoa after the excavation: a) view from west of the rear rooms, where the level was raised, compared to the environs at the front; b) the same rear rooms viewed from north, after the restoration of the acropolis retaining wall; at bottom left side, a pre-existing structure found in a trench; c) the south sector of the stoa viewed from east, with the columns still *in situ* on the stylobate (photos: Morricone, SAIA Archive, nos. M763, M774, M686).

also discovered[7] and, north of it, a vast porch, which Morricone named 'Tufa Stoa' (FIGURE 1a-c).[8]

To complete the Master Plan, which meanwhile had effectuated modern living quarters in the surrounding areas, restoration works were undertaken throughout the archaeological areas. The restoration activities also involved the Tufa Stoa, where the rear wall, corresponding to the retaining wall of the acropolis hill, was extensively rebuilt (FIGURE 1c).[9] The work was however interrupted in 1943 because of the war, which also marked the end of the Italian archaeological research in the area.

The recent resumption of studies on the topography of Cos allowed a better understanding of the city founded in the mid-4th century BC (FIGURE 2) and confirmed Morricone's hypothesis that the Tufa Stoa belongs to the first building period (end of the 4th – beginning of the 3rd century BC). The stoa (FIGURE 2.1) was built in an area sloping from east to west: the highest level, to the east, coincides with the top of the acropolis hill (FIGURE 2.2), site of the Archaic settlement of Cos Meropis.[10] The western slopes were steep to such a degree that, since the earliest stages of the urban layout, the natural slope was exploited as the seating section of a stadium north of the Tufa Stoa (FIGURE 2.3); this affected the orientation of the entire Western District, which diverged from the general north-south orientation of the southern and eastern quarters (FIGURE 2).[11]

In front of the Tufa Stoa, the Imperial *cardo* (FIGURE 2.4) was a later phase of a broader Hellenistic road, 5.90 m wide (20 attic feet of 29.6 cm). Within the framework of the newly founded city, planned in the Hippodamian

[7] A. Merletto, in Livadiotti and Rocco 1996: 148-152; Merletto 2001; Merletto 2004; Morricone 1950: 231-233.
[8] Morricone 1950: 232.
[9] M. Livadiotti, in Baldini and Livadiotti 2015: 137.
[10] Kantzia 1988; Kantzia 1994; Sherwin-White 1978: 47-58.
[11] Rocco 2006; Rocco and Livadiotti 2011; G. Rocco, in Lippolis and Rocco 2011: 292-295; G. Rocco, in Baldini and Livadiotti 2015: 1-11; Rocco 2018c: 17-24.

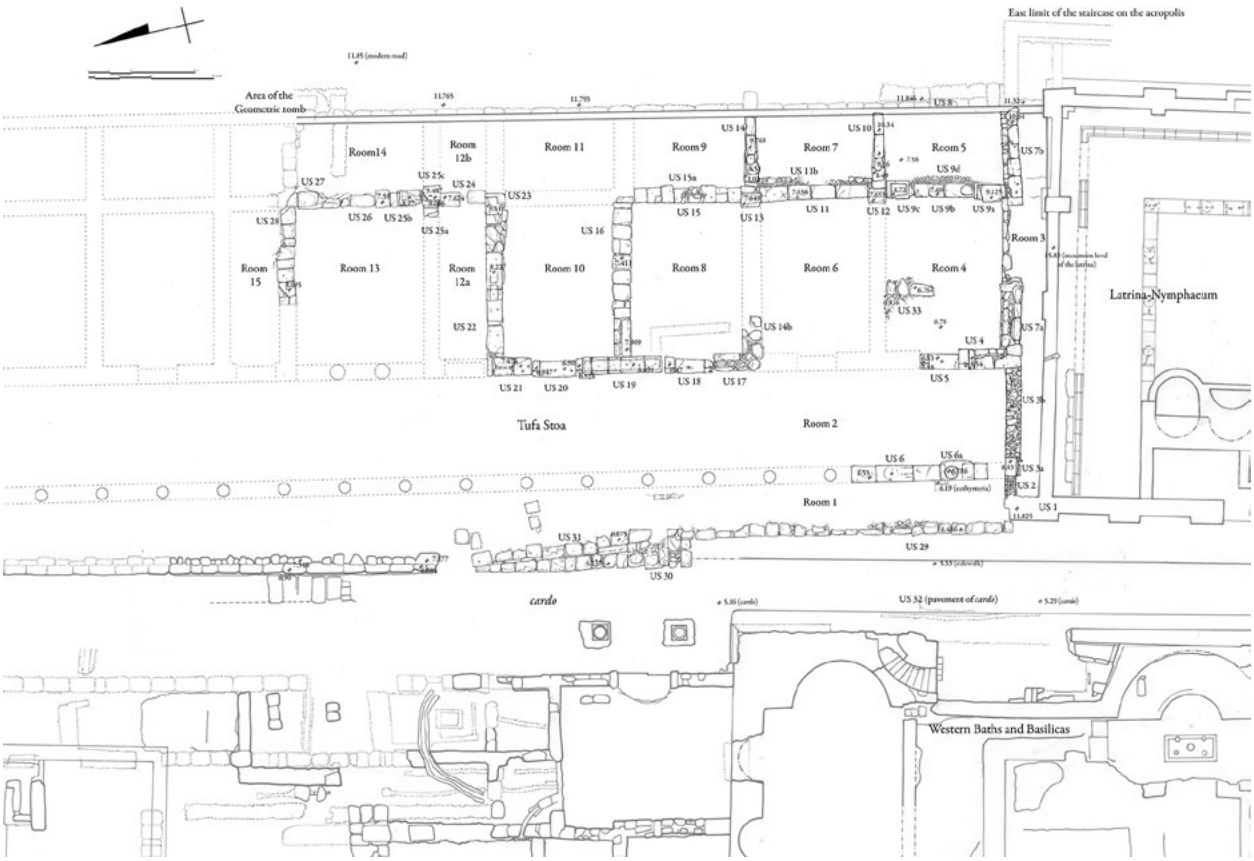
Figure 2: Cos, general map of the ancient town: 1) Tufa Stoa; 2) acropolis; 3) stadium; 4) *cardo*; 5) Hellenistic building; 6) Western Gymnasium; 7) Western *Palaestra*; 8) Western Baths; 9) main *plateia*; 10) South Agora; 11) Central Gymnasium; 12) Northern Gymnasium (plan: from Rocco and Livadiotti 2011: fig. 1).

system, in which it is possible to identify hierarchies between the main thoroughfares, this was a road of some importance, because it was wider than a normal *stenopos* (4.44 m).

Along the western side of the road and in front of the stoa, the Italian excavations brought to light buildings of the Hellenistic period (FIGURE 2.5), with important Imperial and proto-Christian phases; to the west of it, during the 2nd century BC, a huge porticoed square (approximately 100 x 200 m) was built (FIGURE 2.6);[12] the monument was an expansion of an earlier and smaller *palaestra* (fig. 2.7),[13] located to the north and

[12] Rocco 2018a, with previous bibliography.

[13] About the Italian investigations: Morricone 1950: 222-224; G. Rocco, in Livadiotti and Rocco 1996: 144-148. Other sectors of the huge complex have been recently investigated by the Greek Archaeological Service and allowed us to appreciate its dimensions (G. Rocco, in



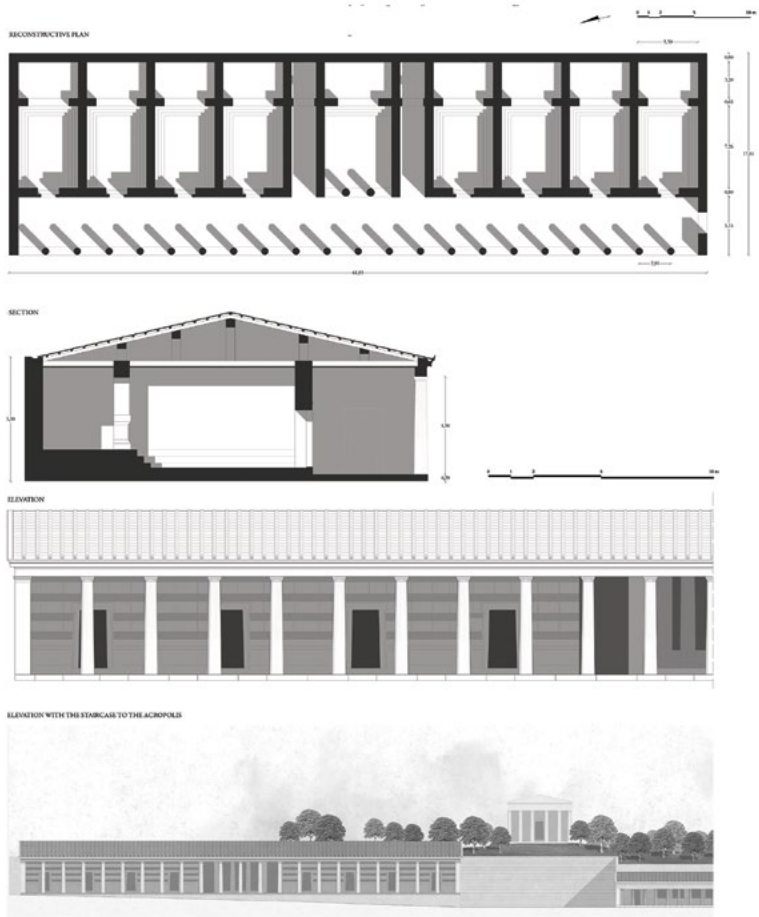


Figure 3a,b: Cos, Tufa Stoa: a) new survey on a 1:50 scale of the actual state. In grey, the latrine-*nymphaeum* and the east sector of the Western Baths; in dotted line the structure drawn by Captain V. Brighenti after the excavations and today no longer visible (drawing: A. Fino on the map of the western area by G. Rocco and M. Livadiotti, 1986); b) reconstruction of the Tufa Stoa, plan, cross-section, detail of the elevation and elevation with the staircase to the acropolis (drawings: F. Carrieri, R. Chilla, M. Gentile, L. Giorgini, M.T. Lence, C. Tagarelli, based on a hypothesis put forward by M. Livadiotti, 2017).

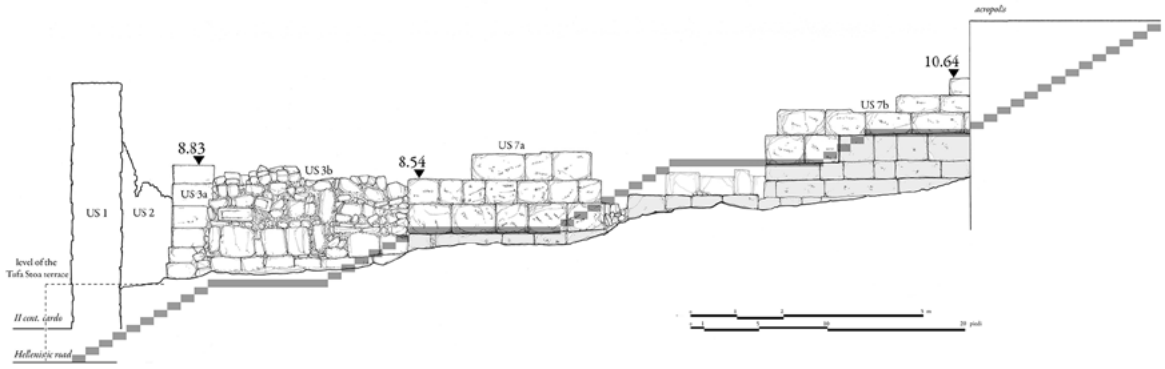


Figure 4: Cos, Tufa Stoa, elevation of the south wall, on a 1:50 scale (drawing: A. Fino, 2016); the *malakopetra* blocks are coloured in light grey; in dark grey is the hypothetical stairway.

parallel to the stadium,[14] and was built in a period of general renovation of all the major public buildings of Cos.[15] The new extension, with its different orientation, parallel to the old *palaestra*, generated a conflict with the adjacent blocks to the east, which were partly cut by the east portico of the new *piazza*. This is therefore the origin of the trapezoidal shape of the blocks, as early as in the 2nd century BC. In this irregular space, since the second half of the 1st century AD, *thermae* had been built, the so-called Western Baths of the Italian excavations (FIGURE 2.8).[16]

Morricone attributed the Tufa Stoa (FIGURES 3a, 3b) to the first construction phase of Cos because of the building materials: local tufa known as *malakopetra* (imbrignite), and local white travertine (called *amygdalopetra*) used in combination with a greenish stone, a sort of rhyolite (called *prasinopetra*), showing a taste for bichromy well attested in that period,[17] as testified by the contemporary Eastern Stoa of the Harbour.[18] Judging from old photographs (FIGURE 1b) and from the first survey carried out after the excavation (dotted in FIGURE 3a), the monument had been preceded by older structures, similarly orientated; their lack of consistency, however, does not allow us to speculate on their function. At the north-east corner of the excavated area, in 1937 a deep trench revealed an important Geometric grave, obliterated by the retaining wall of the acropolis and by the stoa compartments (FIGURES 3a and 1b).[19]

The recent analysis of the monument allowed us to distinguish several phases of transformation until the final destruction perhaps during the 4th century AD. However, the allotted extent of this paper allows me to consider only the initial phase of the monument.

Morricone discovered the building at an overall length of 35 m, but it continues northwards under the modern town. The edifice consisted of a portico with rear rooms (see the plan in FIGURE 3b), built on a terrace situated at 6.48 m above sea level, adjacent to the street but approximately 1.80 m above its level (FIGURE 4).[20]

The porch was 5.12-5.18 m deep; only 6.40 m of the travertine stylobate are preserved (FIGURE 1c), with the lower drums of two Doric columns found still *in situ*[21] and the circular sockets for metal dowels[22] on the surface of the stylobate enabling us to calculate an interaxial spacing of 2.81/2.82 m (9.5 attic feet of 29.6 cm). The column shafts had a lower diameter of 0.62 m; they were made of local travertine, with the outer surface of the lower drums worked with twenty facets, according to a model well-attested in other

Baldini and Livadiotti 2015: 8; Rocco 2018a; Skerlou 1997).

[14] Morricone 1950: 222; G. Rocco, in Livadiotti and Rocco 1996: 153-154; Rocco 2018c: 52; Valavanis 1999: 119-141.

[15] Livadiotti 2010; Rocco and Livadiotti 2011; Rocco 2018c.

[16] Baldini *et al.* 2012; M. Livadiotti, in Livadiotti and Rocco 1996: 141-144; Livadiotti 2004; M. Livadiotti, in Baldini and Livadiotti 2015: 146-153.

[17] Livadiotti 2010. As regards the stones (lithotypes) quarried in Cos in antiquity: Chatzikonstantinou and Poupaki 2002; Chatzikonstantinou and Poupaki 2004; Chatzikonstantinou and Poupaki 2009; Chiotis 2001; Lazzarini and Malacrino 2010; Poupaki 2004; E. Poupaki, in Kokkorou-Alevras *et al.* 2014: 31-33.

[18] Coulton 1976: 248; M. Livadiotti, in Livadiotti and Rocco 1996: 120-121; Morricone 1950: 64-65; G. Rocco, in Rocco and Caliò 2016; Rocco 2017; Rocco 2018c: 50.

[19] Morricone 1978: 14, 354-356.

[20] This is the difference between the level of the terrace and the Hellenistic street (4.67 m above see level), because in Imperial times the road was paved and its level raised to the actual 5.13 m above sea level, measured in front of the stoa. The terrace had to be supported by a retaining wall since its first phase, but the present wall, made of reused blocks, belongs to some later rebuilding. However, traces of a possible original phase are visible at its northern extremity.

[21] The northern drum is no longer in its correct position, but in the photos taken after the excavation (FIGURE 1c) it appears on the stylobate. A third travertine drum rests in the space between the latrine-*nymphaeum* and the south wall of the stoa.

[22] This fastening system, with a central cylindrical metal dowel, is also typical of the 4th-3rd century BC architecture of Cos (Rocco 2018c: 66).

Figure 5: Cos, the latrine-*nymphaeum* during the reconstruction in 1938-1939. On the upper part of the inner front a series of *prasinopetra* blocks, clearly architrave-frieze elements, were mounted. On the rear they have recesses for the beams of a roof irrelevant to the latrine-*nymphaeum* (photo: L. Morricone, SAIA Archive, no. M934).

stoas of Cos.[23] The excavation also highlighted a drum of a *prasinopetra* column, which the old photos (FIGURE 1c) show mounted on the travertine drum currently *in situ*.[24]

The proportions typical of the period, approximately seven lower diameters, give an estimated overall height of the column of 4.34 m (4.30 if we consider 14.5 attic feet: see the elevation in FIGURE 3b). It has not been possible to identify with certainty Doric capitals attributable to the porch, nor to verify that the *prasinopetra* blocks composing an architrave with a simple crowning *fascia* and a shallow Ionic frieze - reassembled during the Italian reconstruction of the adjacent latrine-*nymphaeum* (FIGURE 5) - actually belonged to the Tufa Stoa. Morricone found these lintels in the collapsed latrine-*nymphaeum* and reused them as a crowning edge for the roof. In fact, some of them bear at the back recesses for roof beams, but it could have been the roof of the Tufa Stoa, because the vaulted system of the latrine-*nymphaeum* needed no such elements. In fact, the archaeologist thought that they could be consistent with a previous phase of the latrine-*nymphaeum*, but it was built in the Imperial period, when such stone for lintels could hardly have been used; furthermore, the epistyle/frieze blocks are intermixed with door-jamb elements made of the same material, also taken from older buildings. The size of the epistyle/frieze elements corresponds approximately to the interaxial spacing of our porch, but a more accurate control to define the question is at any rate necessary.

The Doric columns, together with the Ionic frieze of the possible entablature, confirm the early adoption of an architectural language, characterised by the coexistence of Doric and Ionic elements, well-attested in Cos since the 3rd century BC.[25] Assuming then an order with Doric columns and Ionic entablature, the overall height could have been 5.62 m (19 attic feet), equal to the height of the retaining wall of the acropolis, facilitating in this way the construction of the roof, probably a pitched one (see the cross-section in FIGURE 3b).

As regards the corner solution, even if, judging from the building technique,[26] the current *anta* (US 3a: FIGURES

[23] Livadiotti 2010: 36; such a surface treatment was also noted in the lower drums of the western agora columns of Miletos (Coulton 1976: 112).

[24] Notable in Hellenistic Cos (Rocco in press) is the frequent recourse to this particular solution in the column drums assembling, characterised by the positioning of a lower *amygdalopetra* element surmounted by higher drums of a more irregular material, *prasinopetra* or a less compact quality of limestone, and completed at the top by *amygdalopetra* capitals.

[25] Rocco 2018c: 45-55.

[26] In Cos, the use of blocks taken from earlier Hellenistic buildings, bonded with lime mortar, is typical of the early Roman period, before

3a-4) belongs to a later transformation of a similar element in the early Roman period, we can exclude a corner column because prostyle stoas are unknown in the area; besides, there is no sufficient space for a heart-shaped pillar. So, we reconstruct an *anta* wall (FIGURES 3b, 6a), but we need to assume the presence of a door. In fact, south of the external east-west wall of the stoa, in the narrow and closed space between the stoa and the latrine-*nymphaeum*, the south side of the structure shows a noticeable difference in materials (FIGURE 4): the upper part has been built by travertine blocks while the bottom shows rough *malakopetra* elements. As in this period the aforementioned stone is used mostly for foundations,[27] this lower part of the wall must have been hidden behind another structure; besides, the level of the horizontal joints shows some discontinuity and the *malakopetra* blocks are higher to the east. All these data lead to the hypothesis of the existence of a staircase, leading from the *cardo* to the acropolis: it is possible that, due to the presence of the terrace and the lack of adequate space for a front staircase, the stoa was accessed from the south through a door opened in this lateral passage. This large staircase to the acropolis (about 21.32 m) was largely obliterated by the latrine-*nymphaeum* during the second half of the 2nd century AD, but, in order to guarantee ascent to the hill, a narrow portion of it was maintained on the south side of the new building. The latter, continuously repaired with reused blocks, remained in use until the early Byzantine period.[28]

We have no secure data about the presence of a sacred *temenos* on the south-western area of the acropolis, except for a suggestion by Morricone, who found some architectural structures near a demolished Old Mosque, maybe related to a temple.[29] Then, there was on the western side of the hill a monumental ascent to the acropolis, a scenic arrangement (FIGURE 3b, bottom) similar to those of the main sanctuaries of the period, like the *Asklepieion* of Cos, the acropolis of Rhodes, the sanctuary of Athena in Lindos and that of Athena *Polias* at Kameiros.[30]

Returning to our stoa, rooms behind the porch were formed by a wider compartment (5.20/5.50 m of length; 7.26 m of width) and a second smaller room (equal in length but only 3.20 m in width), directly abutting on the retaining wall of the acropolis (FIGURE 3a-b); like this one, all the walls were built in ashlar masonry of tufa blocks.[31]

From the porch, through doors about 1.88 m wide, it was possible to enter the external rooms and, therefrom, the internal ones, of which the floor was 0.80 m higher. The inner rooms communicated with the outer ones through very large openings (3.60 m), framed by walls with moulded bases, clearly intended to create an adequate pedestal for something inside (statues?). Today these openings have no threshold, but an internal thickening of the wall, made of small stones which should not have been visible (FIGURE 3a, US 9d, 11b), suggests that thresholds did exist.

Because of the difference in level between the external and internal compartments (0.80 m plus the threshold), it is necessary to assume the existence of a staircase of about three steps, which would have hidden some irregularities in the construction of the wall, visible on the lower part of the US 9, 11, 15 (FIGURE 1a).

The wall base presents simple and rather rough base and crowning mouldings - an inclined surface, like a schematic *ovolo*, with a *fascia* - framing a row of *orthostate*s (FIGURE 1b); the pattern is similar to the interior walls of the contemporary Eastern Stoa of the Harbour,[32] which recalls the simplicity of some profiles typical of ancient architecture of the Carian coast.[33] On the base, the upper part of the external walls were made of smaller greenish tufa blocks[34] and an inner filling, as shown by traces on the upper surface of the base, while the elevation of the walls of the inner rooms is entirely built in ashlar masonry of *malakopetra* (FIGURE 1a-b).[35]

The excavation revealed four sections consisting of an outer and an inner compartment, all approximately of the same size. Towards the north, a fifth room (FIGURE 3a, Room 13) is wider (5.94 m) and separated from the adjoining room by a narrow vestibule (2.20 m: FIGURE 3a, Room 12a). If this larger room was the centre of a symmetrical set, then the Tufa Stoa would have consisted of nine compartments, the central one being

the use of *opus incertum*, characteristic of 2nd century AD buildings (Livadiotti 2005). In fact, the façade of the latrine-*nymphaeum*, built in *opus incertum*, abuts on the *anta* of the stoa, evidently older (FIGURE 4).

[27] Livadiotti 2005.

[28] A recent check of the levels of the few original steps confirmed a coincidence with the levels observed along the southern edge of the Tufa Stoa and marked in FIGURE 4. A wall drawn after the excavation to the east of the latrine and today no longer visible (FIGURE 3a, dotted) might be interpreted as the culmination of the stairs, which therefore had a length from east to west of about 22 m. This also explains the greater depth of the latrine-*nymphaeum* with respect to the retaining wall of the acropolis, which at this point presented a substantial interruption.

[29] Morricone 1950: 316.

[30] On this topic see Rocco 2018b.

[31] All surfaces were to be plastered, but no trace of any coating has survived. The white plaster with dark red panels on the inner side of the east-west wall (US 7a) belongs to a later phase.

[32] Livadiotti 2005: 178-179; Rocco 2017.

[33] Rocco 2018b: 40-41; Triantaphyllidis *et al*. 2017.

[34] A *prasinopetra* block pertaining to the ashlar masonry of the upper part of the walls has been identified inside the monument. Its dimensions are: length 0.67 m, height 0.34 m, width 0.20 m.

[35] M. Livadiotti, in Baldini and Livadiotti 2015: 141; Rocco 2018c: 34, 61.

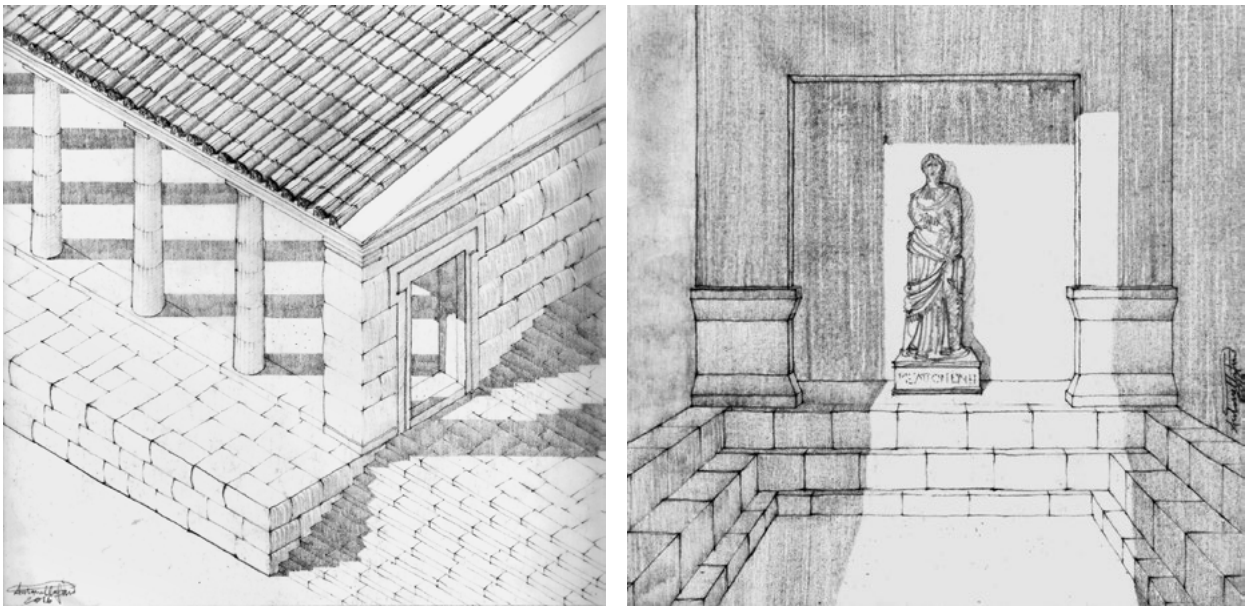


Figure 6a-b: Cos, Tufa Stoa. a) Hypothetical sketch of the south-western corner and the stairs to the acropolis; b) Hypothetical sketch of the inner arrangement of the rooms (drawings: A. Fino on a hypothesis of M. Livadiotti's, 2016).

wider (maybe an *exedra* opened on the porch[36]) and flanked by two narrower aisles; if so, the monument would have had an overall length of 58.00 m with a depth of 17.00 m (196 x 57.5 attic feet) (FIGURE 3b).

Because of this particular arrangement of the compartments, a commercial use of the stoa must be excluded; besides, even if its position on an important route would have been favourable in this sense, its location above a narrow terrace makes it less accessible. It is, instead, necessary to emphasise the proximity of the building to an important public complex, the Western Gymnasium and the stadium, the latter being a substantial part of the Greek athletic institution.[37] In Cos there were three gymnasia,[38] but the Western one was probably the oldest. The presence of the stadium in the only suitable area to host it leads to the hypothesis that here was also the stadium and the gymnasium of the Classical town, outside its wall. The area was also close to the main cemeteries of the city, located just outside the southern and western fortification, and this factor too may have influenced the choice of the site. The presence of important burials is in fact well attested in gymnasia, as an important element in constructing the identity of young citizens.[39] The assumption is therefore that the Tufa Stoa, which obliterated an important Geometric burial, was constructed in a vast area belonging to the Western Gymnasium and that it was an important part of it.

In Cos, like in the other Greek *poleis*, training in gymnasia was interlaced with the religious activity that accompanied every expression of social life.[40] For the Coan Gymnasium, epigraphic documents attest, for example, the cult of Athena *Alsaia* and Zeus *Alseios*, mainly located in connection with the Northern and Western Gymnasium,[41] and the cult of Apollo and the Muses.[42] The latter were also linked to the cult of the dead,[43] which confirms the importance of the Geometric grave under the stoa rooms and justifies the opening of a niche in the rear wall, directly in connection with the natural rock behind (FIGURE 1a, room 7). In addition, some *Mouseia* rised around heroic cults[44] and for Cos it has been assumed that the poet, scholar and teacher Philitas, born in Cos in 340 BC and tutor of Ptolemaios *Philadelphos*, was honoured as a hero in a *Mouseion.*[45] Some *Mouseia* housed images of eminent poets and philosophers,[46] and I have already stressed

[36] Two drums of stuccoed Doric columns with a diameter of 0.74 m (Cat. nos. 3782, 3783), still laying in the room, could be attributed to a colonnaded front on the porch. Their vertical surface shows holes for a metal fence.
[37] Delorme 1960: 444-445.
[38] For the Central Gymnasium (FIGURE 2.11) see Livadiotti 2017a and Livadiotti 2017b; for the Northern Gymnasium (FIGURE 2.12), see Livadiotti 1994; Morricone 1950: 221-222.
[39] Caruso 2016; Trombetti 2013: 25, 153-159.
[40] Paul 2013: 300-304.
[41] Livadiotti 1994; Paul 2013: 130-133, 300.
[42] S. Paul emphasises the role of Apollo in the maturation process of adolescents to adulthood (Paul 2013: 302-303).
[43] Caruso 2016; Mojsik 2013.
[44] Delorme 1960: 214, 449; Harland 2014; Trombetti 2013: 25, 153-159, for the *Mouseion* of Thera.
[45] Hardie 1997: 21, 33-35. About Philitas and his importance for Cos see Sbardella 2000.
[46] Hardie 1997: 23.

the particular configuration of the stoa back rooms, very suitable for this purpose.

The existence in Cos of a sanctuary dedicated to the Muses is attested by epigraphic documents:[47] a cult calendar of a gymnasium dated to the second half of the 2nd century BC refers to the Muses and to a procession in their honour;[48] an inscription dated to the 2nd-1st century BC refers to a musical competition of *paides* in a gymnasium and the dedication of the instrument to the Muses;[49] a dedication to Apollo and the Muses after a similar musical competition is mentioned in another document dated in the same period.[50] These dedications constitute evidence sufficient to suggest that the gymnasium of Cos housed a *Mouseion*[51] and my proposal is to recognise this sanctuary in the Tufa Stoa, located in the Western Gymnasium and along a major road, very suitable for processions, that connected the stadium, located further north, to the great east-west *plateia* which led to the agora.[52]

As widely known, shrines dedicated to the Muses rarely include a temple,[53] but they are often equipped with porches, where collections of books could be kept or educational activities could be held, in connection with athletic institutions. In this regard, comparison with the environments of the *Mouseion* in Alexandria, recently reconstructed by A. Caruso, could be very interesting.[54] In the extant rooms, pertaining to a later phase, she identifies auditoria for musical activities and she suggests that even their Hellenistic facies had a similar configuration and served the same purpose.

As already stated, the compartments of the Tufa Stoa of Cos had steps, or seats, along the inner walls and the function of steps as 'participatory architecture' has been underlined.[55] The inner arrangement of these rooms (FIGURE 6b) can be compared to the Alexandrian auditoria, confirming the link with the dedications to Apollo and the Muses after musical competitions (see above). S. Sherwin-White and A. Hardie emphasise the close relationship between the Ptolemies and the gymnastic institution of Cos[56] and this further link with the Lagides capital would seem to confirm their assumption. Besides, it has been noted that the cultural renaissance noticeable in Rhodes and Cos in the 4th-3rd centuries BC is strongly linked to Alexandria.[57]

A further worth mentioning striking detail is that, in the building located on the west side of the *cardo*, just in front of the Tufa Stoa and strictly connected with the huge porticoed square of the 2nd century BC gymnasium, the main room had been decorated in the Imperial age with a mosaic floor depicting Apollo and the Muses.[58] The building dates back to the Hellenistic period and its typology is unclear. Its characteristics in ground-plan recall a private house, with an *andron* and an *aule*, but the typology could be not so different from the seat of a philosophical school, within a gymnasium and in connection with a *Mouseion*, as in the case of Athens, where the Academy and the Lyceum since the 4th century BC represent the model of such an institution.

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[47] For a synthesis: Caruso 2016; Paul 2013: 161-162.
[48] *IG* XII 4: 281, ll. 23-45; Paton and Hicks 1891: no. 43; Paul 2013: 162; Segre 1993: 40-41; Epigraficum Decretum 45.
[49] Maiuri 1925: 155, no. 445; *IG* XII 4: 5. See also Paul 2013: 161-162, who underlines the relevance of these documents to the gymnasium.
[50] *IG* XII 4: 593; Paton and Hicks 1891: no. 59; Sherwin-White 1978: 421.
[51] As already argued by A. Hardie (Hardie 1997: 21-23) and A. Caruso (Caruso 2016).
[52] On this argument see Caliò 2017; Rocco and Caliò 2016; Rocco and Livadiotti 2017. See also G. Rocco in this volume, who reconstructs a *piazza* at the junction with the so-called *cardo* and the *plateia*, where processions coming from the gymnasium could be rearranged before proceeding towards the agora.
[53] Romizzi 2005.
[54] Caruso 2011.
[55] Hollinshead 2015: 81.
[56] Hardie 1997; Sherwin-White 1978: 83–85, 90-102. For the Central Gymnasium see Livadiotti 2017a.
[57] Craik 1980: 81; see also Hardie 1997.
[58] Mosaic of the Judgment of Paris: De Matteis 2004: 33-53, 186-190. For the scholar, the entire iconography of the mosaic refers to the values of *paideia* and reveals a strong link with the gymnasium.

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Medicine, Urbanisation and Religion in Classical Cos

Luigi M. Caliò

Summary

The recent investigations in the city of Cos by the *Politecnico* of Bari have increased our knowledge of the plan and the architectural pattern of the urban centre. The review of epigraphic evidence and ancient sources offers insight into people's life and the social background of the *polis*. This analysis, however, refers only incidentally to physicians and the school of medicine of Cos, which were tightly related to the *synoecism* of Cos. Despite of this, we are not sure about the location of the school and where the physicians practiced their art. The school was probably provided with a library, *iatreia* and teaching places, but at the moment none of these has been discovered. As regards medical practice in Cos, but also in other Greek *poleis*, adequate evidence suggests the involvement of physicians in the gymnasia. In Cos we know of at least three gymnasia, the most important for the extension (*synoecism*) being the Western gymnasium, which occupied a very large area within the urban tissue. These public areas served most of the major festivals of the *polis*, accommodated important events in the urban life and they were probably also involved in medical practice. Ancient sources record a wide use of public medicine practiced by Hippocratic physicians in Athens and other *poleis*, which concerns the health of the city and the *prophylaxis* (precaution) from epidemics. The pertinent spaces where medicine was practiced, as well as the teaching and research activity, may have been related to the gymnasia.

Περίληψη

Οι πρόσφατες έρευνες στην πόλη της Κω από το Πολυτεχνείο του Bari έχουν βελτιώσει τις γνώσεις μας, όσον αφορά τον αρχιτεκτονικό ιστό του αστικού κέντρου. Η επισκόπηση των επιγραφικών κειμένων και των αρχαίων πηγών επιτρέπει να αντιληφθούμε τη ζωή των ανθρώπων και το κοινωνικό υπόβαθρο της πόλης. Ωστόσο, μόνο στο περιθώριο αυτής της ανάλυσης βρίσκονται οι ιατροί και η σχολή ιατρικής της Κω, μολονότι ήταν άρρηκτα συνδεδεμένοι με τον συνοικισμό του νησιού. Επιπλέον, δεν είμαστε σίγουροι για τη θέση όπου έδρευε η σχολή και ασκούνταν η ιατρική. Πιθανότατα η σχολή ήταν εφοδιασμένη με βιβλιοθήκη, ιατρεία και χώρους διδασκαλίας, όμως μέχρι στιγμής τίποτε από αυτά δεν έχει αποκαλυφθεί. Στην Κω, αλλά και σε άλλες ελληνικές πόλεις, υπάρχουν επαρκείς ενδείξεις για την εμπλοκή των ιατρών στα γυμνάσια. Στην Κω γνωρίζουμε τουλάχιστον τρία γυμνάσια, με πιο σημαντικό το δυτικό που κατελάμβανε μεγάλη έκταση εντός του αστικού ιστού. Αυτοί οι δημόσιοι χώροι εξυπηρετούσαν τις περισσότερες μεγάλες εορτές της πόλης, φιλοξενούσαν σημαντικές εκδηλώσεις της αστικής ζωής και πιθανότατα σχετίζονταν επίσης με την άσκηση της ιατρικής. Οι αρχαίες πηγές αναφέρουν τη δημόσια ιατρική που εξασκούσαν μαθητές του Ιπποκράτη στην Αθήνα και σε άλλες πόλεις, με στόχο την υγεία των κατοίκων και την προφύλαξη από επιδημίες. Οι σχετικοί χώροι, μαζί με τη διδασκαλία και έρευνα, πιθανότατα στεγάζονταν στα γυμνάσια.

Key Words

Cos; Caria; medicine; Hecatomnids; *Asklepiadai*.

The foundation of Cos in 366 BC is an extraordinary event related to the development of a new urban centre. The planning of a new city in connection to the Carian coast has to be understood in relation to the political and geographical network of this region of Asia Minor. In a more general view, it is necessary to examine the intrinsic forces that led to the foundation of late Classical Cos, on a supra-regional scale. The creation of a new city on the northern coast of the island is, in fact, functional to the economic growth of Maussolus' reign, but at the same time, made possible by the participation of one of the major *gene* (clans) in Cos, the *Asklepiadai*.[1]

In order to understand the reasons of the birth of the new city, we have to examine the causes. The specific features of the 4th-century foundation show an urban pattern paying particular attention to the sanctuaries and public buildings and drawing a new model of urbanisation with monumental arrangement especially of the public spaces. In this paper we are considering the involvement of the *Asklepiadai* in the development of the new *polis* of Cos, the relationship between the *Asklepiadai* and the royal family of the Hecatomnids, and the identification of the sanctuary of the Muses, located, according to M. Livadiotti, in the urban tissue near the Western gymnasium, as the centre of the medical school of Cos. To understand this phenomenon, we have to analyse the relationship between medicine and urbanisation and to identify what motivated the physicians to be involved in political and urban theories.

The oath of Hippocrates

G. Pugliese Carratelli has remarked that the incipit of the oath quoted Apollo *Iatros*, Asklepios and Hygieia

[1] Pugliese Carratelli 1957; Pugliese Carratelli 1967. About the *monarchos*, cf. Vallarino 2009. An account about the foundation of Cos in Caliò and Interdonato 2005: 81-91 and in Caliò 2012: 352-359.

as the gods guaranteeing the oath. Reference to Apollo first suggests that this formula predates the establishment of Asklepios as the main god of the island. This observation not only allows to date the Hippocratic oath before the foundation of Cos, but also gives us some elements to consider, regarding the political and cultural nature of the *synoecism* of Cos.[2]

The process of *metoikismos*[3] of the new city was conducted probably by the aristocratic families of the *damos* of Astypaleia, as Pugliese Carratelli argued, and perhaps the family of the *Asklepiadai* was the most important one. Presumably the medical school of Cos was located in the ancient *damos* of Astypaleia until the unification of the Coan state and only after this event was it moved to Cos. The importance of the *Asklepiadai* for the *synoecism* and during the formation of the new constitution of the state and the organisation of a common *pantheon* for the entire island can be demonstrated by the high rank of god Asklepios. Furthermore, the passage from the *damos* of Astypaleia to the city of Cos signifies the transformation of the *genos* from an aristocratic house to a *koinon* of professionals. The Hippocratic Oath states the membership to the *genos*, which has been reorganised by abandoning the usual aristocratic practices. However the restructuring of the medical school did not happen without conflicts.[4] In a Delphic decree, in fact, the members of the *genos* were honoured, but only after having proven their biological belonging to the family.

Another aspect to be considered regarding the role of the *Asklepiadai* in the *metoikismos* of Cos is the relationship between Coan physicians and the ruling family of Caria. This could imply an involvement of the Carian dynasty in the determination of the new state and the *ktisis* of the city of Cos. Links between Hecatomnus and Coan physicians are testified by ancient sources; Hippocratic physicians were active in the Persian capital cities.[5] Dexippos,[6] a pupil of Hippocrates, was at the court of Hecatomnus to attend his sons. The third letter of the *Hippocratic Corpus* mentions the presence of Dionysos, another Hippocratic physician, in Halikarnassos in the same period.[7] The relationship between physicians and the Persian kingdom is well known. The ancient sources speak of Hippocrates' refusal to go to the court of the Great King, for the sake of the Persian army where a plague had broken out, and to the Illyrians and Paeonians, also affected by the epidemic. On the contrary, scientists as Democedes of Crotone in the 6th century BC, Apollonides of Cos at the time of Artaxerxes I. (465-424 BC), and Ctesias of Knidos at the end of the 5th century BC were received at the court of the Great King.[8]

The link between the medical practice and the eastern world was closer than the presence of Greek physicians in the capital cities of Achaemenids. The Greek medical schools were deeply involved in Asiatic medicine. The use of books about *pharmaka* and the knowledge of the use of medicinal plants was a privilege of physicians organised in clans or *gene*. In the library of Assurbanipal in Nineveh, about 600 tablets on medical topics were found. This library constituted the base of the medical experience for Asians and Greeks. Probably the use of several oriental drugs and Asian *pharmaka* by Greek physicians is the consequence of this exchange of knowledge. Similarly, the organisation of the medical school and the co-optation of new physicians by a sort of adoption act in the family of the *Asklepiadai* is an east-bound custom. The families of Babylonian physicians, *Asû* or *Sipu*, trained their pupils inside the clans and handed down the medical knowledge from one generation to another.[9]

The foundation of Cos

The *metoikismos* referred to in ancient sources is dated to 366 BC. The new city is founded facing the Carian coast and on the shipping routes linking the Bosphorus area to Egypt. This geographic sector is very important for the control of the commerce between Asia and Europe with particular regard to the grain trade. During the same period, a wide number of cities was reorganised along the Carian coast. Building activity, restoration or new foundations are attested to in the Satrapy of Caria, such as Myndos, Mylasa, Halikarnassos, Theangela, Heracleia by Latmus, Kaunos, Keramos, Iasos, Knidos, Priene, Miletos and, in the hinterland, Alynda, Alabanda, Amyzon. Rhodes underwent a process of *synoecism* in 409 BC, but a new city was probably not built before the middle of the 4th century BC.[10]

The foundations of Rhodes and Cos occurred necessarily in the new economic situation that led to Idrieus, the brother of Maussolus and his successor, to be considered as the richest man in the Aegean.[11]

Reading Herodotos, we gather that Cos was already under the influence of the Carians during the first half of the 5th century BC, when the daughter of Lygdamis, tyrant of Halikarnassos, conquered the island:

[2] Pugliese Carratelli 1999.
[3] We intend as *metoikismos* a conurbation from different villages that has the purpose to found a new capital city, as it is the case for Halikarnassos in the same period. Very different from *synoecism*, testified in ancient sources only as a political cohesion. On the question cf. Caliò 2012: 371-373.
[4] Pugliese Carratelli 1991.
[5] Jouanna 2007: 8-9.
[6] *Suda, s.v.* Dexippos. Cf. Sherwin White 1978: 41, 278-279 and Wellmann 1905.
[7] Letter 13: Littré 1861: 333.
[8] Nutton 2004: 40.
[9] Beaulieu 2006: 8-9, particularly n. 18; Geller 2004: 13. cf. Finkel 1997.
[10] Caliò 2012: 309-378.
[11] Isocrates 5.103.

'Artemisia was her name, and she was the daughter of Lygdamis; on her father's side she was of Halikarnassian lineage, and on her mother's Cretan. She was the leader of the men of Halikarnassos and Cos and Nisyros and Kalymnos, and provided five ships'.[12]

From a geographical and economic point of view, Cos and Halikarnassos traditionally belonged to the same district. Cos had trade relations with Theangela and other Carian cities[13] and the Pseudo-Skylax mentions Cos among the Carian *poleis*.[14]

Another reason to include Cos in the cities of Caria, regards the urban pattern conceived by ancient Greeks themselves. The new foundation of the city of Cos is seen by the ancient sources as a novelty in the urban Greek system and, consequently, a new term was coined to indicate it: *theatroeides.*[15] This neologism is not related to the *polis*, but to the image of the *polis* architecturally, that is, the urban centre or *asty*. Significantly the *theatroeideis* cities mentioned by ancient authors are all comprised within the area under Carian influence: Knidos, Cos, Halikarnassos, Rhodes. This is not the place to discuss the relationship between Hippodamic and *theatroeideis* cities, but we can speculate that the latter are more monumental and urbanised than the cities of the 5th century BC.

Medicine and urbanisation

Ancient Greek medicine has known an important development between the 5th and the 4th centuries BC, coinciding with the urbanisation of Greece. From the middle of the 5th century philosophers and physicians had been involved in the formation process of the Greek towns. New urban centres needed to establish rules to meet the difficulties related to a different hygienic and bacteriological situation. Perhaps the first example of this relationship between medicine and urban practice is testified in Agrigento around the first half of the 5th century.[16] Indeed, the Harbour stele found in Thasos and dated to *c.* 500 BC tells us about street cleaning within the urban area and indirectly conveys the necessity of implementing hygiene in a city.[17] The experience of Agrigento, however, is more explicit about the role of physicians during the building process of the new city. Empedocles of Agrigento was an important figure of the 5th century city and was famous for resolving some epidemic outbreaks in Sicily. The growth of urbanisation in the island right after the battle of Himera in 480 BC established a new type of urban centres and constituted a novelty in the *poleis* panorama of Sicily. The early Classical cities – Syracuse, Agrigento, Naxos, Catania, Camarina – presented a complex urban scenography, with regular patterns organised by terraces set against the natural landscape. It is very likely that the hygienic difficulties in the cities did arise immediately, particularly regarding the water management, the purity of air, and the general pollution or *miasma*.

Diogenes Laertius relates several episodes about Empedocles' commitment to these issues: the resolution of an epidemic event at Selinunte or the proposal to lower the Rupe Atenea to help the wind circulation.[18] His pupil, Acron, was an important physician and the son of a physician. His attempt to build a public tomb for his father is a sign of the importance of his family in Agrigento. Acron died in Athens struggling against the plague of 431 BC and probably his presence was favoured by his experience of city health, acquired in Sicily.[19]

The spread of disease marked the beginning of a new social behaviour and a different way of living in the city, requiring therefore new health habits. At the same time, health facilities were to be implemented in order to ensure effective water management. The development of medical research in the Hippocratic circles derived from these needs and public doctors operated to safeguard the hygiene of the *poleis* inside the communities.[20] Hippocratic medicine is essentially an environmental medicine: the higher frequency of social relations, and consequently of epidemics, were a cause of mortality and social stress. So, the development of urban medicine grows just as a cultural response to the new urbanised society. It encodes a semantic framework within which a number of important pathological events could be organised - a scheme of arrangement yet unknown to the Greeks.

Physicians and the building of the city

Thanks to the Hippocratic tradition, there has been a profound change in medical science, through prognosis, applied not only to the individual but to the whole community. This involves an assessment of all the environmental and social conditions. The medical literature of the *Hippocratic Corpus* in some passages seems indeed to consider the city as a physical entity, whose health must be safeguarded. Studies on the settlement location, exposure to the winds, the type of waters, are useful to the doctor in order to formulate

[12] Herodotos 7.99.2. On Artemisia I. cf. Munson1988.
[13] Benedum 1977: 233.
[14] Pseudo Skylax 99.
[15] On the *theatroeideis* cities cf. Caliò and Interdonato 2005; Caliò 2012: 309-378, particularly for the meaning of the term 374-378. Cf. also Musti 2008: 65-66.
[16] Cf. L.M. Caliò in Brienza *et al.* in press.
[17] Duchêne 1992.
[18] Diogenes Laertius 8.51-77.
[19] Plutarch, *Iside et Osiride*, 79.383d; *Suda*, *s.v.* Acron. Cf. De Miro 2003: 80-81; Longrigg 2000: 60-61; Nutton 2000: 68.
[20] On public physicians cf. Caliò 2009; Caliò 2012: 169-198; Cohn Haft 1956.

a general prognosis of diseases to which the people may be exposed. The single patient then falls into a larger pattern that involves all citizens and invests in the urban structure. It is to be noted that these studies were produced at a time when some villages seemed to develop into more complex urban areas and new foundations were being planned.[21] Hippocratic medicine was connecting to the science of urban planning and, on the other side, the theorists of the city, such as Hippodamos of Miletos, amplified their range of knowledge about the city through a multidisciplinary approach which comprised social and political sciences, mathematic and geometry, natural and environmental sciences and medicine. Between the 5th and the 4th centuries BC, the city planner, exemplified in the figure of Hippodamos, became more articulate and, according to Aristotle, merged with the legislator, the philosopher and the scholar of Nature. Obviously, Hippodamos considers the city not only from the urban and architectural point of view but in a holistic way.[22] The issue could become very complex, but briefly we can assume that in the first phase of urbanisation the medical approach was important, and not only from the point of view of diseases. The Hippocratic theory about the humour and its equilibrium could be applied to the physical and social *polis*, which was a common feature of any attempt made - from Hippodamos to Plato - to fit the social body proportionately into the *polis*. It is not easy to determine the exact contribution of medicine to the pattern of new settlements in the Classical era, yet we can note an increase in the importance of medical science during this period as can be seen, for instance, in the citizens' education.

During the Imperial period, the Hippocratic physicians thought that the architectural structures of the cities were barriers to the movement of the winds and therefore the cause of unhealthy air; Sabinus, a physician writing in the 2nd century AD, proposed various planning rules to be followed while building cities.[23] Those built in a plain must be oriented according to the cardinal points, the streets must be straight without interruptions to facilitate the distribution of the winds; conversely, in the case of settlements constructed on slopes, it is preferable to have an irregular streets pattern, in order to control the ventilation of the upper areas. At this time, physicians involved meteorology in the urban planning, providing rules for the new urban patterns based on their hygienic theories or criticising those of existing settlements. Plato, in the *Laws*, had already warned that, at the time of founding a new city, the legislator must take into account the nature of the wind, the water, and the soil fertility; elsewhere, he advised to give particular attention to the city healthiness.[24] Xenophon argues that a military leader was to build the camp, paying attention primarily to the healthy air and observing the physical constitution of the inhabitants and their complexion to see if the location was appropriate or not.[25] The observation of the inhabitants recalls the medical practice as illustrated in *Prognostic*, and the prognosis activities on the environment related to the diseases in *Airs, waters and places*.

So, according to Plutarch, the sanctuaries of Asklepios are located neither in the cities nor in their immediate vicinity: 'Was it because they reckoned it a more wholesome way of living beyond the city than within? For the Greeks have placed the edifices belonging to Aesculapius for the most part on high places, where the air is pure and clear. Or is it that they suppose this God was fetched from Epidauros? For the temple of Aesculapius is not close by that city, but at a great distance from it.'[26] This passage again marks the dichotomy between a country residence and a walled city in the sense of an opposition between healthy and unhealthy environment; it also draws attention to the fact that, contrary to the cities, the choice of location for the foundation of a sanctuary is to be based on hygienic considerations.

Public physicians

In the Classical and Hellenistic eras, inscriptions indicate the presence of numerous public physicians paid by the cities themselves; however, the role of these professionals, which mainly appears in the oldest sources, is not yet fully understood.[27]

In the Persian court the presence of medics is highly attested since the early Classical period. The courts of the Greek *tyrannoi* and the local aristocracy had as a model the Persian royalty system, from which they borrow a set of practices and public behaviour. The presence of physicians in the Persian king's entourage for the care of the royal family is well documented. These also had a particularly honourable social position.

It could be stated that the Persian medical system constitutes a model for the medical organisation that was being structured in Greece, thanks to the *Asklepiadai* of Cos. Moreover, the practice of public physicians was created following the professional medical experience in the cities of the southern Aegean.

[21] Caliò 2009.
[22] On Hippodamos and the new cities of the 5th century BC there is a vast bibliography. Cf. Caliò 2012: 105-126, with bibliography. On Hippodamos' Athenian cities (Piraeus and Thurii) cf. also Caliò 2012: 231-258. More recently on Piraeus cf. Longo 2014.
[23] Oribasius, *Coll. m.* 9, 15-20. Cf. Nutton 2000: 69-70. On the relationship between new cities and healthiness cf. Borca 2000.
[24] Plato, *Leges*, 5.747d-e.
[25] Xenophon, *Cyropaedia*, 1.6.16.
[26] Plutarch, *Quaestiones Romanae*, 94. Translated by W. W. Goodwin.
[27] Cf. n. 20.

The first evidence of public doctors in Greece dates back to the founding of Thurii, in 444 BC. Diodorus' statement about the laws of the city, attributed to Charondas of Catania, but probably due to Protagoras, is particularly challenging for a number of suggestions.[28] According to Diodorus, Charondas has stated that there has to be public health care and public education. Although the professional medical figure was primarily defined at Cos, the few examples of public doctors from the 5th to the 4th centuries BC are all Athenians, except perhaps a case from Argos. Ancient sources, epigraphic and literary, insist to link public medicine to the Attic metropolis which certainly, due to its urban and social structures, exceeded at this time other Greek cities.

Physicians and religion

At this stage, the medicine practiced in the city is also that of the shrines of Asklepios: in fact, the development of the cult of Asklepios is coeval to the scientific development of the medical discipline, between the late 5th and early 4th centuries.[29] In Athens the cult, having arrived in 420-419 BC, was practiced together with that of Hygieia in the sanctuary under the Acropolis, and the sanctuary in the port of Zea was also dated at the same time. The worship of the healing god is perhaps placed since its early stages under state control, although the first traces of such control have only appeared in 340 BC.[30] At the end of the century we are witnessing, in relation to the birth of new health emergencies, the development of healthy deity cults, not only those of Asklepios. In the next century, these cults increase in the Greek world under the protection of the *poleis*.

Although the relationship between Hippocratic culture and Asklepios ritual practice is still under debate, there does not seem to be any substantial conflict between the two phenomena.[31] In Athens public physicians offered a half-yearly sacrifice in the sanctuary of Asklepios, and in Cos the *Asklepiadai* were related to the medical god and its *extra*-urban shrine. The *hieron* of Asklepios in Athens testifies several examples of devotion by physicians: a bas relief with six characters identified by name, engraved within garlands below the figurative panel, is dated between 400 and 350 BC: in the panel there are the Athenian physician Mnesitheus and the son of another physician, Dieuches.[32] This and other dedications show a strong interaction between the scientific tradition and the cult of Asklepios, which in turn take the symbols and prestige of secular medicine; thus it is possible to explain both the presence of various medical instruments offered to the god in an inventory in the sanctuary of Asklepios at Piraeus[34], and the representation of similar objects behind the figure of the god in the monument of Telemachos, founder of the cult of Asklepios in Athens.[35] Here, in the second half of the 4th century, some interesting honourary decrees begin to appear: of the four known, two are related to physicians and the inscriptions clearly indicate that the *stelai* had to be erected in the sanctuary of Asklepios *en Astei.*[36] Similarly in Cos inside the *Asklepieion,* several dedications of doctors were found, which could testify analogous involvement between sacred and Hippocratic medicine.[37]

Likewise, the rise in Thasos of a cult of Asklepios, testified from the 4th century and celebrated with public festivals, the Great *Asklepieia*, is contemporary to the clinical observations of Hippocratic physicians, which constituted the base to the books I and III of the *Epidemiae*.[38] The relationship between thaumaturgic (miraculous) practice and Hippocratic culture is closer than one might think. Scientific medicine and healing deities' cults are different responses to arising health problems that emerge in the early 5th century in Sicily and in the late 5th century in Greece; the spread of some kind of epidemic diseases drew the disease out of the private sphere.

New deities in the Dodecanese

The dynasty of Caria during the 4th century influences deeply the religious and political structures. Several clues point to an assimilation of the dynasty with Halios through his mythical ancestor, the first Maussolus, son of the sun itself. The quadriga on the roof of the Maussolleion seems to be going in the direction of an *apotheosis* of Maussolos as Apollo *Halios* and it was argued that the tragedy composed by Theodectes on the occasion of his funeral may have had this topic.[39] The substitution of the divine couple Athana and Zeus that continued to be worshipped on the Acropolis of the older (prior to *synoecism*) *poleis* with the new deity, Halios, is symptomatic of a radical change in Rhodes.[40] An unresolved question is related to the enactment of the Rhodian constitution. Despite the testimony of *Sympoliteia* dated to 409-408 BC, according to studies of Pugliese Carratelli, the constitution does not go back in

[28] García Quintela 2000.
[29] Nissen 2009: 251-259.
[30] On the *Asklepieion* of Athens cf. Aleshire 1989; Melfi 2007: 313-433; on the arrival of Asklepios in Athens cf. Nutton 2004: 105; Parker 1996: 175-181; on the involvement of Sophocles in the cult cf. Jouanna 2007: 76-90.
[31] Interdonato 2013: 153-159.
[32] *IG* II 2: 4359.
[33] Nutton 2004: 11.
[34] Samama 2003: 111-112.
[35] Beschi 1967-1968; Parker 1996: 184.
[36] Melfi 2007: 337. On the relationship between the sanctuary of Asklepios and physicians cf. Wickkiser 2008.
[37] Interdonato 2013: 153-156; Sherwin White 1978: 275-278.
[38] Salviat 1958: 251-252.
[39] Caliò 2012: 318; Hownblower 1982: 261, 335.
[40] The relationship between Maussolus and Halios in Rhodes is testified by a fragmentary inscription that mention *Maussolia*, a festival dedicated to the satrap, celebrated during the festivals of Halios. Cf. Zervoudakis 1983.

the time beyond the age of Alexander.[41] Indeed, there are no older epigraphic or literary sources, according to the scholar.

Conversely, P.M. Fraser[42] argued that the establishment of the laws has taken place at an earlier time than 380 BC and most likely around 395 BC, when the *Diagoridai* were expelled from the philo-Athenian faction. Neither of these viewpoints, however, considers the Carian presence in the Dodecanese during the 4th century. The deep political, social, religious and economic changes which occurred in Rhodes during this period could include also the administration of the state and the new *nomos* (law).

The religious change after the *metoikismos* in Cos offers an interesting comparison. The new state is now governed by a *monarchos* as eponymous magistrate, and Asklepios becomes the main deity. The *monarchos* is a magistrate attested only in Cos, whereas, in the pre-*synoecism* period, he was a kind of priest magistrate from the *demos* of Astypaleia and linked to the *genos* of the *Asklepiadai*.[43] The rise of the *genos* brings about a quick transformation of the political and social structures of the *polis* and the membership of the Carian district, probably changed the economical configuration of wealth as well.

The public and private practice of medicine and the gymnasia

The physicians were strictly involved in the management of the new state. Their role did not end with the foundation of the city, and Pugliese Carratelli's observation about the *monarchos* opens up an interesting perspective. The medicine school was yet another important development following the foundation of the city of Cos. If the Hippocratic Oath was the founding act of the school, the development of a systemic corpus of medical books must probably be dated after the *metoikismos*. According to V. Di Benedetto, the organisation of a first corpus under the name of Hippocrates is attributed to the cultural climate of the *post-synoecism* period, and in particular to the director of the school, Praxagoras.[44]

Since the last two decades of the 5th century medical knowledge has spread beyond the more specialized sphere, and medicine is recognized as *techne* included among the fundamental human knowledge.

It is possible that gymnasia could also offer medical service. Frequently a masseur worked with athletes, but sometimes there were also physicians. These were mentioned as staff of the gymnasium in an honorific decree from Priene, dated in the early 1st century BC.[45] An inscription of the 3rd century BC from Sparta mentions an *Asklepiades Nebridas iatros*; the text is a list of people belonging to a public *koinon* or a gymnasium.[46] In the Imperial period, a physician is present in the gymnasium of Sparta,[47] and another one is mentioned in a funerary inscription from Thyatira as *archiatros tou sympantos xystou*.[48] The school of medicine in the Classical era was organised around a *daskalos* of medicine and teaching physicians. In the Hellenistic era, the organisation of the *Mouseion* in Alexandria under the patronage of the Ptolemies leads to a new development of the medical schools. The organisation of the research structures in Alexandria was the base to increase the experimental and scientific knowledge and establish better structured forms of transmission of knowledge.[49]

Medical research found its most suitable location in the *Mouseion* of Alexandria. It is likely that the principal activity inside this establishment was speculative inquiry rather than teaching. According to A. Caruso, there was an important presence of physicians inside the *Mouseia* in Alexandria, Antioch and also in Crotone, where the *Mouseion* is inside the gymnasium. In Alexandria also, the *Mouseion* is related to the gymnasium, even though they are separate. And this is the way it might be in Cos, according to M. Livadiotti, and perhaps also in Rhodes. The scientists present in the *Mouseia* were probably comparable to modern researchers, and their activity was mainly experimental. The medical body inside the *Mouseion* was extremely cohesive and had a corporative behaviour. Medics were organized in hierarchies with *exegetes* and *epistates*, and they behaved as a *koinon*, organising public festivals and skill competitions concerning medical practice. The *koinon* dealt with public and private affairs and safeguarded the interests of its adepts.[50]

Next to this category of doctors-scientists, confined within academic circles, there were physicians, who carried out teaching activities in public, and were paid by the state. A physician from Cyzicos came to Istros to give lectures about his art and was invited to remain in the city. The episode confirms us that in Istros there was an adequate space to promote medical studies and to train physicians, in the gymnasium and probably the annexed *Mouseion*.

The case of Diocles introduces the theme of doctors in *Mouseia* of gymnasia, a theme waiting to be better

[41] Pugliese Carratelli 1949.
[42] Fraser 1952.
[43] Pugliese Carratelli 1957; Vallarino 2009: 182-183.
[44] Di Benedetto 1986: 81.
[45] Samama 2003: 10-11 and n. 226, 347-348.
[46] Samama 2003: n. 37, 141-142.
[47] Samama 2003: n. 38, 142.
[48] Samama 2003: n. 229, 350-351.
[49] Samama 2003: 22-23; Vegetti 1995: 67-94; von Staden 1994: 28-30.
[50] Caruso in press.

contextualised. This appears to be the case in Crotone, where the *Mouseion* founded by Pythagoras was supposed to be within the gymnasium; such a consideration stems from the relationship of Pythagoreanism with medicine. Body health, considered to be a form of physical and moral harmony, is pursued also through medicine; the Pythagorean medical practice is also linked to musical performances and their therapeutic value. In Crotone, physical exercise, music and medicine were different aspects of the aim of the activities in a gymnasium: the achievement of harmony.

Famous physicians were Pythagoreans, as, for instance, Democedes. The latter is a key figure linking medicine, the *Mouseion* and the gymnasium, theorising the use of athletics as a fundamental exercise for health; he was Head of the *ephebes* during the Cylonian conspiracy, an episode that took place in the *Mouseion* of the gymnasium.

The architectural pattern *Mouseion*-gymnasium emerges from Caruso's research as a typical ensemble of the Hellenistic period meeting the new cultural needs of the great capital cities. Since the 3rd century BC, Rhodes knew a priest of the Muses and, consequently, a *Mouseion*, and since the 2nd century, this priest was merged with that of Dionysos. On the slope of the Acropolis of Rhodes the gymnasium complex included also a library and an *odeon*, constituting one of the major cultural complexes of the eastern Mediterranean.

The location of the *Asklepiadai* in Cos

The presence of a public library and a *Mouseion* in Cos, presumably in connection with the Western gymnasium, as argued by Livadiotti in this volume, are elements not yet evaluated, as regards the precise locality of the seat of the medical school of Cos. Xenophon, physician and learned man, takes part in both aspects of the *Mouseion*, that is, the scientific research and the practice of literature. On the other hand, there is no sufficient evidence to sustain a medical school located in the *extra*-urban sanctuary of Asklepios,[51] and it is likely that the function of sacred medicine was quite different from that of Hippocrates' medicine. In this case, physicians could have a public role in Cos or other cities, and stipulate a contract between themselves and the *polis*. The duties of these physicians were probably related to the healthiness of the city and its inhabitants, with an attention to the illness rather than the sick people.

The arrival of Asklepios as a deity combining many guises is an important element of other new foundations in the Hellenistic era, too, such as in Messene. The god of health deals not only with illnesses but also with the social well-being in the *polis*, as shown by some epigraphs in Messina in Sicily. Plato often insists that politicians are the physicians of the *polis* and Socrates himself might have thought about the social health of the *polis*, when he offered a cock to Asklepios, just before he drank the poison.[52]

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[51] Interdonato 2013: 156-158.

[52] Plato, *Phaedo*, 66, 118. Cf. Brickhouse and Smith 2004: 265-273; Edelstein 1945: 130-131; Mitscherling 1985; Most 1993; Petersen 2003; Pugliese Carratelli 1990: 328-329; Santilli 1990. Perhaps for similar reasons, in the last comedy of Aristophanes, Charmylos sends Ploutos to heal in the *Asklepieion.*

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Temple and *Hestiatorion*. The Combined Edifice on Mount Çatallar Tepe (Turkey)

Frank Hulek

Summary

During the survey of Mycale (modern Dilek Dağları in western Asia Minor), H. Lohmann and his team discovered the ruins of an Ionic temple, dating to the middle of the 6th century BC. Since illegal excavations threatened it, a rescue excavation of the temple was carried out in three annual campaigns from 2005 to 2007. During this excavation, the entire remains of the temple were uncovered. With a length of 28.8 m (approximately 100 feet) and a width of 8.6 m the temple, facing east, is a *hekatompedos.* The unique layout of the building combines a *pronaos* with eight interior columns in two rows with an almost quadrangular *naos*, which has two columns (centred above an older *naiskos*) and a large room in the western part of the building with three columns along the longitudinal axis. The west room was not accessed through the *pronaos* and *naos*, but directly from outside through a door at the western end of the southern wall. Based on this layout and the finds, the west room is interpreted as a room for banqueting. Thus, this building can be described as a combined building, uniting a temple and a *hestiatorion* under one and the same roof. In this paper, the building is compared to other examples of combined buildings in Archaic Greek architecture, in order to better understand its unique layout and its functions.

Περίληψη

Κατά τη διάρκεια επιφανειακής έρευνας στη Μυκάλη (σημερινή ονομασία Dilek Dağları στη δυτική Μικρά Ασία), ο H. Lohmann και η ομάδα του εντόπισαν τα ερείπια ιωνικού ναού των μέσων του 6ου αιώνα π.Χ. Για να αποσοβηθεί ο κίνδυνος λαθρανασκαφής, διεξήχθη σωστική ανασκαφή του ναού σε τρεις ετήσιες περιόδους, από το 2005 ως το 2007, οπότε και αποκαλύφθηκαν πλήρως τα κατάλοιπά του. Έχοντας μήκος 28,8 μ (περίπου 100 πόδες) και πλάτος 8,6 μ, ο ναός, προσανατολισμένος ανατολικά, είναι εκατόμπεδος. Η μοναδική κάτοψη αυτού του οικοδομήματος συνδυάζει πρόναο με οκτώ εσωτερικούς κίονες διατεταγμένους σε δύο σειρές με έναν σχεδόν τετράγωνο ναό, ο οποίος έχει δύο κίονες (διατεταγμένους κεντρικά πάνω από έναν αρχαιότερο ναΐσκο) και ένα μεγάλο δωμάτιο στο δυτικό τμήμα του κτιρίου με τρεις κίονες κατά μήκος του μακρού άξονα. Το δυτικό αυτό δωμάτιο δεν είχε πρόσβαση από τον πρόναο και το ναό μα απευθείας από έξω, διά μέσου θύρας στο δυτικό άκρο του νοτίου τοίχου. Βάσει αυτής της κάτοψης και των ευρημάτων, το δυτικό δωμάτιο ερμηνεύεται ως αίθουσα συμποσίων. Ως εκ τούτου, το οικοδόμημα δύναται να περιγραφεί ως σύνθετο, συνενώνοντας ναό και εστιατόριο κάτω από την ίδια στέγη. Στην παρούσα εργασία, το κτίριο αυτό συγκρίνεται με άλλα παραδείγματα σύνθετων κτιρίων της Αρχαϊκής ελληνικής αρχιτεκτονικής, προκειμένου να κατανοήσουμε καλύτερα τη μοναδική του κάτοψη και τις λειτουργίες του.

Key Words

Asia Minor; Archaic temple; Greek *symposium*; Ionic order; Mycale.

In his 1969 article on the Perachora *hestiatorion*, Richard Tomlinson established the feasting- and dining room as a feature of Greek architecture.[1] Correcting his approach, he later dated the building to the end of the 6th century BC and thus preponed the evolution of *hestiatoria* to the Archaic period.[2] This and other papers by the same author were an inspiration to my work on the sixth-century architecture of the temple on Çatallar Tepe.[3] Accordingly, I feel greatly honoured to be invited to present part of this work in this volume.

On the western shore of the Anatolian mainland, directly opposite to the Greek island of Samos, the promontory of Samsun (or Dilek) Dağları stretches as a steep ridge into the Aegean Sea. Those are the mountains called 'Mycale' by the ancient authors, famous for the battle between the Persians and the Greeks in 479 BC. Since the first European travellers came to this region, archaeological interest was focused on two sites, Kelebeş (modern Doğanbey), south of the ridge, where the ruins of the ancient city of Priene were identified and soon excavated, and Çanlı (modern Güzelçamlı), on the northern side, where the common sanctuary of the twelve Ionian cities, the *Panionion*, was assumed to have been situated. In the 1950s, G. Kleiner, P. Hommel, and W. Müller-Wiener excavated different

[1] Leypold 2008: 6; Tomlinson 1969.

[2] Tomlinson 1990. Cf. Bergquist 1973: 44, fig. 6; Bergquist 1990: 29; Börker 1983; Goldstein 1978: 296–299.

[3] The architecture of this temple has been the topic of my PhD dissertation at the University of Bochum (2014). See Hulek and Kirchner 2016; Hulek 2017a; Hulek 2017b; Hulek 2018. My dissertation was funded by a doctoral scholarship of the Ruhr University Research School (DFG GSC 98/1) and a scholarship for a one-year-stay in Greece by the German Academic Exchange Service (DAAD).

Figure 1. Çatallar Tepe. Archaic temple, ground plan (CAD-drawing: G. Kalaitzoglou).

sites around Güzelçamlı and identified a sanctuary on the hill Otomatik Tepe, as the *Panionion*.[4]

The survey of Mycale, undertaken in 2001 by H. Lohmann and his team, could resolve many questions concerning the topography of the region in antiquity.[5] Among other things, archaeologists discovered the remains of an Archaic Ionic temple high up in the mountains, on the slopes of Mount Çatallar Tepe.[6] It had been vandalised and was threatened by illegal digging; therefore the General Directorate of Museums and Antiquities of the Republic of Turkey permitted a rescue excavation at the site. This was carried out in three campaigns from 2005 to 2007 under the auspices of the museum of Aydın. During this excavation, the entire remains of the temple were uncovered.[7]

The temple is 28.8 m (approximately 100 feet) long, thus, it seems appropriate to call the building a *hekatompedos*. Its width is 8.6 m (*c.* 30 feet) and it is oriented towards the east. The layout of the building combines a *pronaos* with eight interior columns in two rows with an almost quadrangular *naos*, which has two columns (centred above the remains of an older *naiskos*) and a large room in the western part of the building with three columns along the longitudinal axis. The building lacks a *krepis* and a *peristasis*; there is not even a prostyle front or a continuous step in front of the *pronaos* (FIGURE 1).

Not long after its construction, a disastrous fire destroyed the temple. The destruction layer in the western room contains the collapsed roof on the floor covered by the clay of the walls. The clay was partly reddened by the fire. The pottery sherds on top of the floor date to the first half and the middle of the 6th century BC; the fine wares, such as the Attic imports and especially a black-figured bowl (*kylix*) by the Tleson-painter, date the destruction to the decades around 550 BC.[8] A. Busching and Ö. Özgül have shown that the roof-tiles and the style of the lion-head *antefixes* further corroborate this date.[9] In my opinion, the same holds true for other architectural features of the building. We may thus conclude that, based on the archaeological

[4] Herda 2006; Herda 2009; Hulek 2017a: 47 f; Kleiner *et al.* 1967; Lohmann 2014.
[5] Hulek 2007: 118; Lohmann 2005b; Lohmann 2009: 70; Lohmann and Hartung 2014; Lohmann *et al.* 2007; Lohmann *et al.* 2017: 52–62; Tomlinson 2017.
[6] Lohmann 2004; Lohmann 2005a; Lohmann 2007; Lohmann 2012; Lohmann 2017; Lohmann and Özgül 2017.
[7] Büsing 2006; Büsing 2007; Kalaitzoglou 2007; Lohmann 2007; Lohmann 2013; Lohmann *et al.* 2017: 58–60.
[8] Heesen 2011: 183–186, 293 pl. 78e no. 270; Kalaitzoglou 2007: 151–156, fig. 37; Lohmann 2012a: 46, fig. 4.10; Lohmann *et al.* 2017: 158, 613.
[9] Busching 2013: 55–61; Özgül 2013: 160–163. Cf. Hulek 2017b: 85; Hulek 2018: 14-15, 149-150; Hulek and Kirchner 2016: 4; Ohnesorg 2016.

record, both the construction and the destruction of the temple are dated within narrow margins. The temple on Mount Çatallar Tepe can therefore be seen as a point of reference for the evolution of sacral architecture in Archaic Greece and especially in Ionia.

A singular feature of the building is the west room. It was neither accessed through the *pronaos* and *naos*, nor from the rear side of the building but, instead, through a door at the western end of the southern wall (FIGURE 1). It is of rectangular shape, 10.5 m long and 7.6 m wide. There were three columns along the room's longitudinal axis. A rectangular room, a row of columns along the long axis, and an off-centred door on the longer side are typical features of Archaic *hestiatoria* from the 7th century BC onwards.[10] In the Greek world communal meals were usually taken in a reclined position. This helps explain the off-centred position of the door, which allowed for the couches (*klinai*) to be arranged along the walls.[11] Furthermore, doors in banqueting halls in Near Eastern context are placed next to the end of the wall as well, with this feature interpreted as obstructing curious onlookers.[12] This might have been the reason to position the door of the west room close to the western end of the wall.

Just like the door of the *naos*, the entrance to the west room was adorned with a monumental marble doorframe adjusted into the clay walls, the latter being proportionally smaller but better preserved. In front of the inner wall lay two clamped slabs. Sockets for the pivots and the bolt are cut into them. These slabs form the inner threshold, located behind the doorframe proper. Fragments of the doorframe have been identified and they help us reconstruct its shape and most of its measurements (FIGURE 2). During excavation, H. Büsing had considered two stone slabs, found *in situ*, to have abutted on the doorframe;[13] during my work, however, these turned out to be exterior supports of the threshold.

The door opening was nearly 2 m wide and therefore probably more than 3 m high. The threshold, jambs and lintel were smooth marble beams with rectangular cross-sections and without any ornament. One could close and lock the door with two wooden leaves, which were joined with door hinges and pivoted at their upper and lower ends; fragments of the iron hardware have been identified. The lower pivots were set into sockets in the inner threshold. The upper pivots were supported by iron pivot hinges, fastened to the marble

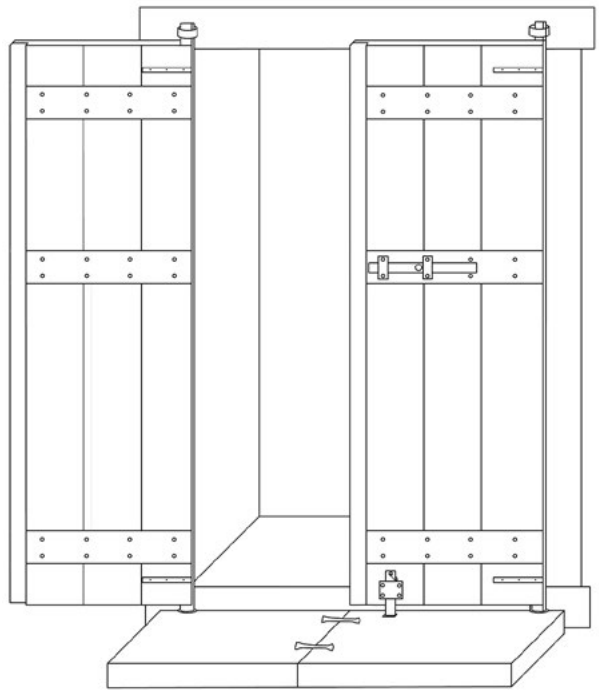

Figure 2. Çatallar Tepe. West room, graphic reconstruction of the door with a vertical bolt (drawing: F. Hulek).

lintel by means of lead. This iron hinge was found during excavation next to the door. So far, the only contemporary parallels had been known from the Near East.[14]

Those entering the west room saw the three marble columns standing on the longitudinal axis. They were base-less and unfluted; some had not yet been smoothed out by the time the temple was destroyed. Tools appropriate for this task have been found next to the position of one column during excavation.[15] The capitals in the west room differed from those in the *pronaos* and probably also in the *naos*. While the latter had volutes of a rather peculiar composition, *torus* capitals without *abaci* lay on top of the columns in the west room.[16] Their *tori* are horizontally fluted and 16 cm high (FIGURE 3). These *tori* cannot be explained as parts of column bases because the diameter of their top surfaces (*c.* 48 cm) is considerably smaller than that of the broadest drums. Moreover, their top is coarse and therefore suitable for bearing wooden beams, rather than marble column drums. This type of capital can be found e.g. on nearby Samos and in the Cyclades.[17] Two types of capitals are to be found at the fourth Samian

[10] Bergquist 1990: 27–37; Hellmann 2006: 220; Leypold 2008: 184; Lohmann 2012b: 108–112; Tomlinson 1990: 97–99.
[11] Börker 1983: 12–13; Goldstein 1978: 303; Leypold 2008: 152–156; Lohmann 2012a: 43; Lohmann 2012b: 101.
[12] Boysan-Dietrich 1987: 106; Naumann 1971: 171.
[13] Büsing 2007: 163, figs. 48, 49; Lohmann 2007: 136; Lohmann 2012a: 44; Lohmann 2012b: 102.
[14] Damerji 1973: 201, 239, figs. 78, 79; Unger 1913: 10, fig. 1.
[15] Büsing 2007: 158, fig. 49; Kalaitzoglou 2007: 150, 153, fig. 36; Lohmann 2012a: 40, fig. 4.2.
[16] Büsing 2007: 163.
[17] Hendrich 2007: 28; Kienast 1992: 177.

Figure 3. Çatallar Tepe. *Torus* capital, fragmented (Inv. PA-S17, photo: H. Lohmann).

Heraion.[18] There, the round capitals were probably set on the inner columns, thus taking into account the changing angle of view under which they were seen. The same type of capital has been presumed to be used also at the other two Archaic Ionian *dipteroi*.[19] Therefore, the two different types of capitals employed for only thirteen columns at the temple on Mount Çatallar Tepe were appropriate to the different requirements of the front part of the building (*pronaos*, *naos*) and the west room, respectively.

The identification of the west room as a *hestiatorion* is corroborated by finds from inside the room, which can be described as typical *symposium* equipment:[20] The fragments of about 300 ceramic vessels have been found in the room. There were sieves, *amphorae* (both for storage and pouring), *hydriai*, jugs, bowls, and one-handled cups; yet, the vast majority were plates and drinking bowls (*kylikes*).[21] Oil lamps have also been found and had probably been lit during banquets at night time. A perforated bronze sheet has been identified as a grater, which, in the context of wine consumption, was probably used to add spices or even cheese to the rather rich beverage.[22] Two ivory fragments may possibly be interpreted as parts of appliqués for wooden furniture like *klinai*.[23] Overall, this assemblage of vessels and objects clearly suggests that, in the west room, a community enjoyed feasting, drinking and conversation in a cultic context.

The great number of recovered vessels leads to the assumption that the room also functioned as a storeroom. The plates and bowls were probably used when the majority of the cult community ate and drank outside of the building.[24] But, as argued above, this was not the primary function of the west room, which is also much bigger than necessary for the storage of the items found in it; nor were the ceramics in question or the other finds of value that would have justified the construction of a sizable and rather lavish separate room.

There were at least eleven iron spearheads and a ferrule, as well as bronze sheets, which originally had been appliqués on wooden shields and linen (or leather) breastplates. All these weapons and their parts have been found next to the inner base of the walls, having fallen during the destruction by fire. They were probably fixed (or at least leant) onto the wall and were thus on display in the west room. This martial decoration provided an atmosphere appropriate for a society where status was -to a substantial extent- based on military skills.[25] These weapons, too, might have

[18] Volute capitals and capitals with egg-and-dart. Cf. Gruben 2001: 362; Hendrich 2007: 36; Reuther 1957: 50; Rumscheid 1994: 307.
[19] Ohnesorg 2007: 112; Schneider 1996: 80, n. 10, fig. 5.
[20] Kalaitzoglou 2007: 150–155; Lohmann 2012a: 46; Lohmann 2012b: 104–107. Cf. Bentz and Bumke 2013: 285; Ekroth 2017: 1401; Sommer 2009: 523.
[21] Lohmann 2012a: 46; Lohmann 2012b: 104. On inventories of *hestiatoria*, cf. Tomlinson 1980: 221–224; Tomlinson 1990: 99.
[22] Homer, *Iliad,* 11.632–641; Lohmann 2012b: 105, 118, fig. 5. Such graters have also been found in the *Artemision* at Ephesos (Klebinder-Gauß 2007: 186, 274, pl. 93 nos 945, 946) and in the sanctuary on 'Taxiarchis hill' at Didyma (Bumke 2013: 342). Therefore, they were not as rare in western Asia Minor as Lohmann (2012b: 105) supposed.
[23] Lohmann 2007: 137.
[24] Ekroth 2017: 1391; Goldstein 1978: 8.
[25] Fehr 1971: 29, 138, 195, n. 169, nos 10, 11, 12, 15; Kalaitzoglou 2007:

been votive offerings to the deity venerated in the temple.[26]

The front part of the building has the form of a simple temple with columns *in antis*. It consists of the -compared to the west room- relatively small and nearly square *naos* (8.05 m × *c.* 7.60 m) and a deep *pronaos* with eight columns (8.65 m × *c.* 7.60 m). Comparable *pronaoi* are a well-known element of the Ionic *dipteroi* and of some smaller Ionic temples.[27] At Mount Çatallar this number of columns was not necessary for the building's stability, as a static analysis has shown.[28] The number of columns seems, instead, to have metaphorically emphasised the prominence of the temple. In addition, it attained an imposing approach to the *naos*.

The above mentioned ground-plan combines two building types in an unparalleled way, because here the temple and the *hestiatorion* constitute separate units combined under one and the same roof.[29] *Hestiatoria*, as much as temples, are constitutive components of many Greek sanctuaries. Until the 7th century BC, benches, fireplaces and finds indicate the celebration of cultic meals inside some temples.[30] In the 6th century however, the temple and the *hestiatorion* have become separate types of buildings.[31] Surprisingly, this is not the case at Mount Çatallar, where both functions are united under one roof, although not in the same room.

There are other examples of the combination of a temple and a banquet hall in the 6th century: the temple (of Apollo?) at Aliki on Thasos and building A in the sanctuary on Despotiko near Antiparos. In the Thasian temple, a hearth in one of the rooms attests to the preparation of cultic meals in the building; both rooms are adjacent and accessed through a shared colonnade.[32] The excavators have interpreted one of the recently excavated buildings with two rooms on Despotiko as the temple of Apollo (FIGURE 4). Another unit of this building complex, which was attached later, has three rooms for *klinai*.[33] Here too, there was a colonnade in front of the rooms. These examples

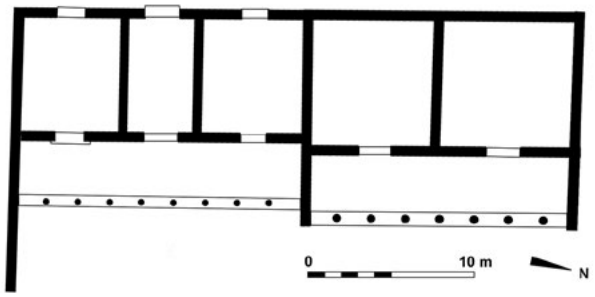

Figure 4. Despotiko (Cyclades). Building A, ground plan (after Kourayos *et al.* 2012: 100 fig. 7, drawing: A. Ohnesorg – S. Papagrigoriou – K. Papayanni).

illustrate that having cultic meals in a room closely linked to the temples was also desirable elsewhere. They also show that this requirement could be met in different ways.

As Tomlinson has put it,[34] Ionic architecture of the 6th century BC was very innovative in exploring new forms, both in architectural details and in ground-plans. Viewed from outside, the Archaic temple at Didyma seemed to be a large temple-building. But the interior was instead a ceremonial court, which united different venerated objects: the shrine with the cult image, the sacred laurel and the holy spring. In addition to housing these objects, the court also served cultic functions, for example, the oracle.[35] According to the excavator, A. Bammer, something similar may have occurred at Ephesos.[36]

Abutting their *oikos* in the Delian sanctuary (FIGURE 5), the Naxians constructed a propylon in the mid-6th century, which was rebuilt in the late Archaic times. Later on, but still in the 6th century, they added a stoa.[37] The resulting complex of buildings consisted of three building types with at least three different functions, which, however, had not been planned as a unit but added over time.

According to A. Ohnesorg, the late Archaic propylon at the sanctuary of Yria on Naxos is a different matter. There, at the western limit of the sanctuary, a complex consisting of two dining rooms and a gate was constructed as one combined building, with a stoa added at a later date.[38] This late Archaic building

151, 153, fig. 36; Lohmann 2012a: 46; Lohmann 2012b: 106, 118–121, figs. 6-11. Stein-Hölkeskamp 1989: 114–116.

[26] Baitinger 2011: 128–130. Cf. the findings at Kalapodi (Niemeier 2013: 39) and Kythnos (Mazarakis Ainian 2005: 90–99; Mazarakis Ainian 2016: 20, fig. 2.3).

[27] Gruben 1996: 420–426; Gruben 2014, 174; Held 2000: 58–63; Tomlinson 1995: 30. Cf. Hennemeyer 2016: 329.

[28] Hulek 2018: 156-157. I thank J. Chatheril (Bochum) for his help with the calculations.

[29] A presumed parallel, the temple of Apollo at Halieis, was refuted by Bergquist 1990: 27–29, fig. 3 (but this was later contradicted by Mazarakis Ainian 1997: 164).

[30] Barletta 2001: 23; Martini 1986: 23–36; Mazarakis Ainian 1997: 340–349; Mazarakis Ainian 2016: 21.

[31] Of the vast bibliography on this topic, see Lambrinoudakis 2005: 84; Schuitema 2008: 137–139; Sinn 2005: 87.

[32] Börker 1983: 14, 24, fig. 7; Leypold 2008: 161–163, fig. 107; Servais 1980: 10–72; Schuller 1985: 358–361.

[33] Kourayos 2008: 388; Kourayos *et al.* 2012: 99–104, 116–124, 129–132.

[34] Koenigs 2007: 675; Tomlinson 1982; Tomlinson 1995: 28.

[35] Gruben 1963: 172; Slawisch 2013: 57, fig. 10; Tölle-Kastenbein 1994: 45–48; Tuchelt 1991: 86, fig. 1.

[36] Bammer 1993: 138–166; Bammer 2008: 451–454, figs. 2, 4. Cf. Bumke 2011: 255–260; Kerschner and Prochaska 2011: 108–117; Mohr 2013: 24; Slawisch 2016: 188.

[37] Courbin 1980: 40, 61, 128, 132; Gruben 1997: 301–307, 350–356, 366, figs. 5, 21.

[38] Gruben 1997: 354, 397, fig. 70; Lambrinoudakis 2005: 83; Mazarakis

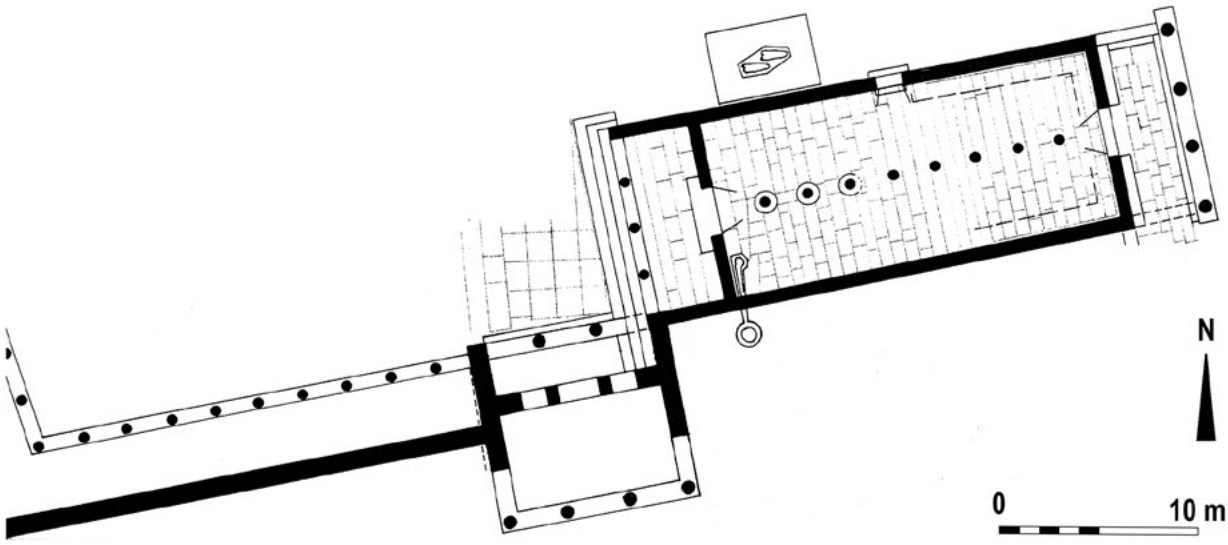

Figure 5. Delos (Cyclades). *Oikos* of the Naxians and adjoining buildings (drawing: after Gruben 1997: 309, fig. 22).

program joined in one complex functions necessary on the site, which had until then been served by several earlier buildings; this complex consisted of buildings of different types (propylon, *hestiatorion*). The same holds true also for the middle Archaic temple on Mount Çatallar Tepe, which is a combined building consisting of a temple part and a *hestiatorion*.

Thus we see that the architects of the period and especially in Ionia were not limited by a set of architectural rules but, instead, they could freely choose the ground plan most appropriate for the requirements of the cult. Different functions and cult places were integrated into one combined structure. In the temple at Mount Çatallar Tepe, an important site was the place of the older *naiskos* of the 7th century BC, which served as a temple and a place for feasting. The *naos* of the temple of the 6th century is centred above the remains of the older structure, overlaying it with reverence. As we know from at least three hearth sites found in and around the old *naiskos* and the analysis of both ceramic finds and faunal remains, meals were also an important part of the cult of the 7th century.[39]

In the sanctuary of the 6th century, however, a certain group of people claimed a special, representative place for their cultic meals and their community, directly linked to the house of the god. According to H. Lohmann's reasoning, these were the representatives of the Ionian *poleis* when gathering at the *Panionion*.[40] Be that as it may,[41] we can suppose that they belonged to the aristocratic society of the 6th century BC.

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Ainian 2016: 27; Ohnesorg 2005: 138, fig. 3; Ohnesorg 2013: 231, pls 31, 32.
[39] Lohmann and Özgül 2017: 68-69; Obermaier 2013: 213.
[40] cf. Lohmann 2004: 41; Lohmann 2005a: 86; Lohmann 2012a: 49; Lohmann 2014: 5; Lohmann 2017: 52; Lohmann *et al.* 2017: 106.
[41] For a dissenting view, see Herda 2006; Herda 2009; Herda 2013: 427; Hoepfner 2011: 29; Rumscheid 2009: 191. On a discussion, see Hulek 2017a: 47; Lohmann 2014: 77; Mac Sweeney 2017: 395; Paganoni 2014: 48–50; Slawisch 2016: 188; Tomlinson 2017: 432.

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The Role of Carians in the Development of Greek Architecture

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Summary

It is quite convincing after the recent research that Carians were not only soldiers but they also played some role in the building activities outside Caria, especially in Egypt and Philistine since the early Iron Age. Although there is no solid excavation evidence, the earliest architectural members of the region seem to be Aeolic capitals, which started to be produced in the 7th century BC. The number of members belonging to monumental architecture in the region is increasing after the new research or excavations. Today, we have examples from 18 sites in Caria and according to dates, measurements or styles, they should belong to at least 35 different buildings or monuments. These architectural members relate to four different phases and show continuity till the early Classical period. The Archaic period in Caria becomes more understandable thanks to this increasing amount of architectural members and the other finds and buildings in the region. When one looks at the architectural members and building remains, it is evident that not only the quantity but also the quality of the members with some unique features suggest the local architectural progress, which had a certain impact upon Greek architecture.

Περίληψη

Είμαστε πλέον πεπεισμένοι, ύστερα από τις πρόσφατες έρευνες, ότι οι Κάρες δεν ήταν μόνο στρατιώτες αλλά επίσης έπαιξαν ρόλο στις οικοδομικές δραστηριότητες πέραν της Καρίας, ειδικότερα στην Αίγυπτο και Παλαιστίνη ήδη από την πρώιμη Εποχή του Σιδήρου. Μολονότι δεν υπάρχουν απτά ανασκαφικά ευρήματα, τα πρωιμότερα αρχιτεκτονικά μέλη της περιοχής φαίνεται να είναι αιολικά κιονόκρανα, τα οποία άρχισαν να κατασκευάζονται στον 7ο αιώνα π.Χ. Ο αριθμός μελών προερχόμενων από μνημειακή αρχιτεκτονική στην περιοχή αυξάνεται μετά τις νέες έρευνες και ανασκαφές. Σήμερα έχουμε δείγματα από 18 θέσεις στην Καρία, τα οποία, όπως προκύπτει από τις χρονολογήσεις τους, μετρήσεις και στυλιστικά κριτήρια, πρέπει να ανήκουν σε τουλάχιστον 35 διαφορετικά κτίρια ή μνημεία. Αυτά τα αρχιτεκτονικά μέλη σχετίζονται με τέσσερις διαφορετικές φάσεις και δείχνουν αδιάσπαστη συνέχεια μέχρι την πρώιμη κλασική εποχή. Η αρχαϊκή Καρία καθίσταται πιο κατανοητή χάριν στον αυξανόμενο αριθμό αρχιτεκτονικών μελών, καθώς και άλλων ευρημάτων και κτιρίων στην περιοχή. Λαμβάνοντας αυτά υπ' όψιν, είναι προφανές ότι όχι μόνο η ποσότητα αλλά και η ποιότητα των μελών με κάποια μοναδικά χαρακτηριστικά, υποδηλώνουν την τοπική αρχιτεκτονική παράδοση που υπήρχε, εξελισσόταν και μάλιστα ασκούσε επιδράσεις στην ελληνική αρχιτεκτονική.

Key Words

Caria; Archaic period, Iron Age; architecture; Ionic; Aeolic.

The ancient region of Caria in the south-western part of modern Turkey has attracted researchers since the earlier periods, but the interest in Caria and its cultural progress increased especially in the last decades casting more light onto this supposedly well-known region. Together with the excavations at Kaunos, Iasos, Knidos, Labraunda, Nysa, Emecik, Burgaz, Pedasa, Myndos, Stratonikeia, Lagina, Euromos, and Alabanda, several limited excavations on some other sites started or were accelerated. This interest also resulted in several field surveys on specific sites or certain parts of the region. Beside these excavations and surveys many PhD dissertations have been conducted about ancient Caria and enhanced our knowledge.[1] Finally, many symposia on Caria were organised and helped to attract attention to ancient Caria and to share knowledge between the scholars.[2] Nevertheless, every new investigation has actually proven how little we know about this supposedly well-known region.[3] The main topic of this paper is the progress of monumental architecture of Caria and the possible role of Carians in the development of Greek architecture. Contrary to common opinion, the process of Hellenization of the region did not start with the Hecatomnids in the 4th century BC. The evidence which will be summarised below clearly proves that Caria was always part of the Hellenic world with its own traditions.

The region has been settled since the Neolithic period and even though research on earlier periods is limited, continuous habitation[4] is traceable especially through

[1] For example my PhD dissertation on Archaic architectural members, O. Henry on tombs of Caria, S. Gümüş on Lelegian *tumuli*, Z. Gider on Doric architecture of Caria and many more.

[2] In spite of the annual Excavations symposium of the Turkish Ministry of Culture, *Die Karer* at Berlin, *Hellenistic Caria* at London, *Euploia* at Bordeaux, *Labraunda* at Uppsala, *Iasos* symposium at Istanbul and *Karia Arkhaia* at Istanbul.

[3] It must be kept in mind that most of what we know about Caria is based on meagre evidence and new research shows that any part of our knowledge is still debatable.

[4] Diler 2015a: 148 and related bibliography; Günel 2014: 243-256; Oğuzhanoğlu 2015: 19-28; Yaylalı 2006: 1-20.

small finds found mostly in graves in many parts of the region. In spite of these finds or graves, the early remains unfortunately were mostly destroyed or reorganised by later habitation in many sites. For this reason, the early Iron Age architectural remains in the Halikarnassian peninsula[5] are quite important and definitely indicate the existence of local architectural progress in Caria. One of the most important remains are the so-called 'Lelegian *tumuli*', which started to be used since the Protogeometric period. It is reported that more than 70 *tumuli* have been identified around Pedasa.[6] Their resemblance to Mycenaean *tholoi* is evident and most probably the builders of these monuments had known or seen Mycenaean *tholoi*. The existence of possible Mycenaean *tholoi* in Çömlekçi[7] and of platform tombs around Termera, Pedasa and Madnasa[8] might support this view. On the other hand, the technical achievement is a different matter and most probably the difficulty of carving local limestone made the builders invent new forms. Lelegian *tumuli* are like Mycenaean *tholoi* on the outside but the difficulty of building a dome with local limestone must be the reason for the invention of the stone *tumulus* form. First they built a chamber with a false vault and a *dromos* and thereafter they filled the top and the space around with stones in different sizes. The outer face of the filling stones was aligned so as to form a curved wall with a dome. This makes the terminology a bit confusing because, while the outer alignment suggests a *tholos* or a round chamber tomb, the fillings suggest a *tumulus*. The similarities between Mycenaean *tholoi* and Lelegian *tumuli* should be considered as a sign of continuation and, more importantly, as a sign of transmission of technical know-how.[9] Apart from the Mycenaean chamber tombs at Müsgebi, the so-called platform tombs around Pedasa most probably played a role in this development. They consist of square cists sealed by big blocks and covered by heavy stone fillings on and around. These stone heaps were mostly placed on slopes, with their outer edges, especially the lowest parts, arranged as walls, which gave them the shape of a platform. It definitely reminds the technique of *tumuli* and there are also certain examples in round forms which recall the form of Lelegian *tumuli*. The earliest content of such tombs was dated to the LHIIIC period and emphasized to be local production.[10] Even though the use of platform tombs in the period between the 12th and 7th centuries BC shows their co-existence with the *tumuli*, they were probably earlier. The chronological sequence of these monuments remains to be resolved by means of future research. The other architectural enigma in the peninsula is the so-called compounds[11] which are believed to be farm houses. None of them has been excavated and dated with certainty but they are believed to belong to landowners who have been buried in *tumuli* nearby.[12] The building techniques of the compounds, platform tombs and *tumuli* are quite similar and should be contemporary.

The ruins of fortifications and buildings especially in the Halikarnassian peninsula can very well be connected to the earlier practices but unfortunately these remains do not provide solid dating criteria in most of the cases.[13] Additionally, on many sites the identification of the buildings' remains is not easy because the settlements usually existed on the same spots and later buildings destroyed the earlier levels down to bedrock which is usually not so deep for the sake of stability.[14] Even though the dating is not easy, the technical details of the fortifications might help us understand the connections with other sites and date them. Especially, the use of gates with corridors in the fortifications of Pedasa, Alazeytin, Çilek and Girel in Caria is a quite interesting feature.[15] We see this type of gates, which then becomes common especially in the Classical period, at Gordion, Sardis and Kerkenes in the 7th century BC.[16] It was previously stated that there is a certain technical connection between the fortifications of Sardis, Phocaea, Kerkenes, Göllüdağ and Akalan dated to the end of the 7th century BC and most probably Carians played a significant role in this building activity under Lydian rule.[17] The use of gates with corridors might endorse the dating of the fortifications to the 7th century BC but a certain date has not yet reached via excavations. On the other hand, the architectural development of the region is better understood after the discovery of architectural members in different sites. In most cases these members are not connected to known buildings but they can be dated by stylistic comparison with securely dated examples from elsewhere. We can identify Aeolic and Ionic architectural members from different sites and the number of the members increases

[5] Diler 2015a; Radt 1970.
[6] Diler 2015a: 163; Diler 2016: 455-474; Radt 1970: 215.
[7] Boysal 1969: 10-14, figs. 21-23.
[8] Diler *et al.* 2014a: 353, figs. 11-12; Diler 2015a: 165, fig. 30; Diler 2016: 464-465, figs. 29-34.
[9] Against the earlier thoughts the new research shows that Mycenaean culture retained or transformed to new forms in many sites down to the early Iron Age. See Deger-Jalkotzy 2014 and related bibliography.
[10] Diler *et al.* 2014a: 353, figs. 11-12; Diler 2015a: 165, fig. 30; Diler 2016: 464-465, figs. 29-34.
[11] Diler 2015b: 24-27; Radt 1970: 145-211.
[12] Diler 2016: 465.
[13] The mortar remains on some of the wall remains at Pedasa, Alazeytin etc. call for a re-examination of their date. Unfortunately even the excavations may not help date the remains because of later repairs or rearrangements, for example the building remains inside the acropolis of Pedasa are entirely from the Byzantine period.
[14] Kaunos has been excavated for 50 years and is a good example of this situation. Even though there are many finds starting from the 8th century BC, there is no structure dateable to the Archaic period except for a well in the *palaestra* terrace and some possibly fortification sections. On the other hand, a few architectural members like votive bases and altar volutes suggest the existence of monumental architecture on the site. See Çörtük 2017: 94-110.
[15] Baran 2017: fig.1; Radt 1970: fig. 14.
[16] Baran 2017: 121-129 and related bibliography.
[17] Baran 2016: 79.

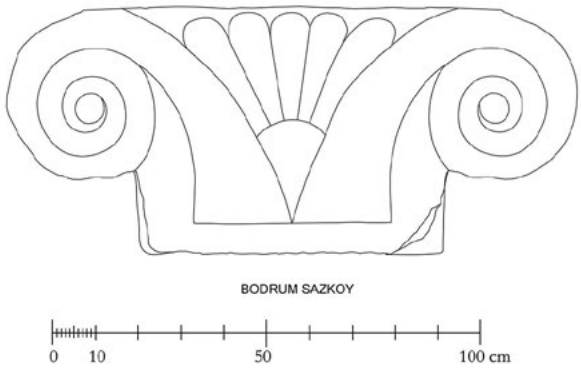

Figure 1: Aeolic style capital from Sazköy (drawing: Baran 2013: fig.6).

every year as a result of the new investigations.[18] On the grounds of comparison with securely dated parallels, the architectural members in question can be grouped and attributed to four different phases.

The earliest group consists of Aeolic style capitals.[19] Even though, as we see with regard to the Alazeytin capitals, the existence of Aeolic capitals in Caria has been known since the 19th century,[20] they did not attract much attention in scientific studies. However, ten examples of Aeolic capitals which belonged to at least seven different buildings in the region deserve attention. The well-known buildings 30 and 31 from Alazeytin were dated by W. Radt after 540 BC based on historical circumstances.[21] An Aeolic pilaster capital from Sazköy near Bodrum[22] (FIGURE 1) is found used as a tombstone in a modern cemetery. No evidence for its original use is available but the resemblance to the capitals of Building 30 from Alazeytin is striking. The capitals from Datça Körmen[23] and Euromos[24] are also known by previous publications. A door console in Aeolic style from Halikarnassos was also published by Radt,[25] but its original location is not known. Another new Aeolic pilaster capital was found in the environs of the Athena sanctuary of Pedasa during recent research by A. Diler.[26] The capital is very interesting and important with its *cymatium* below the bolsters. The form of the *cymatium*, which gives it a unique character, suggests a date around 550 BC. Although it is known from Alazeytin, where a painted Ionic *cyma* and Aeolic capitals were used in the same building, the existence of a *cyma* on this pilaster capital might lead us to question the relations between Aeolic and Ionic capitals and the origins problem.

At this point, the datings of Carian examples must be discussed because stylistically they belong between the Palestine and Aeolian capitals and most of them were dated on insecure grounds. The so-called Proto-Aeolic examples from the Palestine area were collected in two groups which were dated to *c.* 850 BC and 700 BC based on recent research.[27] However, the earliest Aeolic capitals from Anatolia were dated after 600 BC.[28] Stylistically, Aeolic capitals in Caria fall between the earlier Palestine capitals and developed examples of Aeolian sites, so, this early form should be considered as chronologically between the Palestine and the Aeolian examples. At this point, it might be useful to look at the past of the Carians and their connection to eastern cultures. The use of masons' marks in Carian alphabet from the 9th century BC in Palestine[29] and the hypothesis that Carians developed their own alphabet in the 9th century BC independently of the Greeks and that the Greeks even borrowed certain elements from the Carian alphabet,[30] offer considerable grounds for discussing the cultural evolution of the Carians. It is known that Carians were in contact with eastern cultures since the earlier periods and the idea that they played a role in the transmission of such things as the alphabet, architectural knowledge, etc. is acceptable. The existence of architectural tradition in Caria, even though there are not many definitely dated examples, supports this statement. If we accept the dating of Carian masons' marks in Palestine in the 9th century BC, it becomes the earliest known architectural project in which Carians were involved. There is also another important point to be taken into consideration: that those buildings were mentioned as having different structural techniques and were built using a different unit of measurement, which is the Egyptian short cubit.[31] This Egyptian influence brings to mind that the Carians might have played a more important role than being stonemasons in this building activity. It is known that Carians were not only soldiers but also skilled stonecutters and masons in Egypt,[32] but there is not enough evidence for the earlier periods, yet.[33] However,

[18] See Baran 2009a, for a comparison of the numbers of architectural members.
[19] As we still have not enough evidence to define the architectural order, it is called 'Aeolic style' as previously suggested by Baran 2013: n. 1; Betancourt 1977: 4.
[20] Paton and Myres 1896: 199-200, fig. 2.
[21] Radt 1970: 237-259, figs. 22-24, pls 39-42.
[22] Baran 2013: 53-66.
[23] Bean and Cook 1952: 178-179, 188, fig. 4, pl. 38e.
[24] Serdaroğlu 1982: 352, fig. 5. Recently two more fragments at Euromos were mentioned by Ateşlier 2011a: 127-128, fig. 8 and then the excavation team found some more fragments, which seem to belong to at least two different capitals. They will be more understandable after the publication.
[25] Radt 1996: 307, figs. 1-7.
[26] Diler 2015a: 161.
[27] See Baran 2013 and related bibliography for the discussions on the dates.
[28] Betancourt 1977: 58.
[29] Franklin 2001: 107-116.
[30] Herda 2013: 458, 463-467, fig. 20a-b.
[31] Franklin 2008: 45-58.
[32] Gosline 1992: 43-50.
[33] The earliest known inscriptions of Carians in Egypt were dated to the 7th century (Avishur and Heltzer 2003: 87). Carian masons'

it seems quite convincing that Carians were working on Egyptian projects in earlier periods and that they brought their experience to the above mentioned building project in Palestine. It is possible that they were not only stonemasons and maybe the architect was also a qualified Carian.

Carians are seen in other building projects in Smyrna, Sardis, Ephesos and Persia. The existence of a Carian inscription at Smyrna[34] in the late 7th century BC might also be a sign of Carians being involved in a building project in Aeolia. As previously mentioned, Carians most probably worked in the building projects of Lydians in the 7th century BC[35] and Carian masons' marks at the western city gate of the fortifications of Sardis from Kroisos' period[36] show the continuity of this involvement. The marks in the marble quarries near Belevi which were used for building the Ephesian Artemis temple[37] indicate another project where Carians were involved. Carian masons and sculptors worked in Persian projects[38] during the 6th century BC, after the Persians conquered Lydia. All this evidence makes it very clear that Carians were not only soldiers[39] but also worked in many building projects in the eastern and neighbouring regions, where they learned and also practiced their knowledge acquired during earlier periods.[40] The above-mentioned, possible Mycenaean influence on the so-called Lelegian *tumuli* and contemporary monuments might support this idea. Caria is a stony place and most of the existing ruins which are made of local stone indicate that Carians adapted themselves to this geology and became specialists in stone architecture. After the possible Mycenaean influence in the 2nd millenium BC, they travelled to Egypt most probably in the beginning of the 1st millenium BC not only as soldiers but also as skilled masons and then they were involved in building projects in the Philistine region as more qualified masons and possibly as architects. Their roles in the other projects in Anatolia and Persia in the Archaic period definitely support this idea.

It is not easy to prove yet, but it seems that the Carians were the first ones in Anatolia to use Aeolic style and that at least the Alazeytin and Sazköy examples (FIGURE 1) should be dated to the 7th century BC.[41] It seems likely that the Carians appreciated this capital form while they were working in the building projects in the Philistine region and that some of them returned to Caria and used this capital form in building projects in their homeland. The Carian inscription at Smyrna might be accepted as an indication that Carians introduced the Aeolic style to other regions most probably in the 7th century BC via the Athena temple of Smyrna. The role of the Carians in the development of the Aeolic style needs to be studied by further research but it makes one consider the possibility of changing the term 'Aeolic' in future research.[42]

The use of *ovolo* and astragal profiled undecorated blocks in Building 30 in Alazeytin[43] is acceptable as the earliest use of Ionic members in Caria. Another early Ionic material is the fragment of a *cymatium* block found in the debris of an unidentified monumental building in the Lelegian settlement on Kaplandağ near Bodrum[44]. The *ovolo* form is comparable with examples from 550-530 BC[45] but is quite possible to be even older, because the curled ornament on the bottom side -which is a unique feature- can be compared to very early examples.[46] The situation might be similar for the Pedasa Aeolic capital with a *cymatium* on its bolster but this should be discussed after the final publication by the excavation team.

The second group of architectural members is dated between 550-530 BC and suggests a contemporary building activity in the region. Pedasa is the first 'member' of this group and an Ionic corner capital fragment and *cymatium* fragments which are dateable to *c.* 530 BC found in the Athena sanctuary, should belong to the temple or its altar.[47] Another building was identified in Halikarnassos with a *cymatium* block used as a threshold of a modern house (FIGURE 2) and it is

marks in Egypt are dateable to the 4th century BC (Gosline 1998: 75). However, Gosline doubts about the dating of the Khanum temple terrace which has masons' marks and indicate the possibility of being from an earlier phase.

[34] Adiego 2007: 29.

[35] Baran 2016: 79.

[36] Gosline 1998: 68; Herda 2013: 458.

[37] Herda 2013: 459 and related bibliography; Kerschner and Prochaska 2011: 129.

[38] Franklin 2001: 112-113; Herda 2013: 460.

[39] For a recent study resuming discussion on the identification of Aegean mercenaries in Egypt, whether they were aristocrats or laymen, see Iancu 2016: 9-29.

[40] A bone figurine carved in Syrian style found in the sanctuary of Athena at Pedasa dated to the third quarter of the 7th century BC is another indication of interconnections. Bulut 2013: 125-132.

[41] Baran 2013: 58.

[42] The term 'Aeolic' was first used by Koldewey 1890: 45, because the first examples were found in the Aeolia region. At this point it is vital to point out the possibility of Carian connections via Lelegians with other places which have Aeolic style capitals. For example, many sites in the Troad and the Aeolis, Smyrna and Phocaea were mentioned by Strabo as having Lelegian origins. This would be a quite impressive explanation to attribute the Aeolic style capitals to Carians which includes Lelegian people but unfortunately we still have little information even about the existence of this people. For detailed discussion see Baran 2013.

[43] Radt 1970: 52-53, fig. 3d, pl. 16.2,4.

[44] Radt 1970: 259–262, pl. 42.3,7. The possible early date for the *cymatium* and the connection of the Aeolic style capital from Sazköy needs further evaluation. See Baran 2013: 54.

[45] Baran 2010: 89-90.

[46] For example the Phoenician Ahiram Sarcophagus dated around 1000 BC (Markoe 1990: figs. 9-10), Zincirli, 9th century BC (Wesenberg 1971: 89, figs. 184-187), Archanes, Crete, 7th century BC (Wesenberg 1971: 45-47, fig. 87).

[47] They are not published yet, but they were seen while I was working at Pedasa.

Figure 2: Halikarnassos crown block (photo: A. Baran).

dateable to *c.* 530 BC. A crown block from Bargylia[48] with an Ionic *cymatium* is dateable to *c.* 530 BC and relates to the early phase of the site. We have further building activity from the same period at Iasos. Besides the well-known frieze block from Iasos,[49] two other frieze fragments were recently found[50]. Although they feature the same arrangement, their different directions suggest at least three different frieze fragments; two bead-and-reel fragments from the same period most probably come from the same building at Iasos.[51] Beçin is another important place with many architectural finds.[52] Two crown blocks[53] with flat mouldings above a *cymatium* are dateable to *c.* 530 BC (FIGURE 3). There are also two fragments of blocks which have *fasciae* on the sides, one fragment ends in a socket and the other has a lion *protome* at the front. Although these are not easy to investigate because the fragments were used as *spolia* in the castle wall, the *fasciae* and the general appearance suggest their interpretation as corner architrave blocks (FIGURE 4). This corner architrave can be dated to the same period as the crown blocks judging by the style of the lion *protome*. It is not easy to reconstruct the form of the building they belonged to but the architrave should be used at the corner of a building *in antis*.[54]

Figure 3: Beçin crown block (photo: A. Baran).

The third group of architectural members found in the region is relevant to building activity in the last quarter of the 6th century BC. Beçin is the first 'member' of this group with three Ionic capital fragments of similar size and arrangement and five fragments of undecorated frieze blocks[55] (FIGURE 5) with a *cymatium* on their upper edge dateable to the last quarter of the 6th century BC. A lion statue reused as *spolium* in the medieval fortification is also dateable to the same period and should be connected with the same building. The subterranean rooms and the stairs in front at Beçin have not yet been excavated but after our research with O. Henry the rooms can definitely be interpreted as a tomb chamber, confirming an older proposal.[56] It seems important to emphasize again that the existence of a temple and possibly an altar at Beçin was proposed previously on the basis of architectural members[57] and still there is no evident connection of the architectural members with the existing remains. Theangela seems to be a new site with an Archaic Ionic architectural

[48] It was seen in the depot of the Milas museum during my PhD research in the region. Baran 2010: 81-82.
[49] Laviosa 1972: 397-418, figs. 1-8.
[50] Berti 2011: 479, fig. 9; Spanu 2014: 577, fig. 5.
[51] Berti and Masturzo 2000: 223-224, fig. 139.
[52] Baran 2004: 19-38; Baran 2009a: 306-311, figs. 5-6; Baran 2010: 119-136.
[53] The details of the *cymatium* differ in both fragments but it is known that details of the architectural members are usually different in Archaic buildings. The tongue-like shaping of the leaves between the eggs on one of the *cymatium* blocks is a unique arrangement for its period.
[54] Baran 2009a: 39, fig. 6a. c; Baran 2010: 71-72, 82-84, 121-131, pls 63-64, 76-79.
[55] These undecorated frieze blocks from Beçin can now be definitely called frieze blocks thanks to the photo of the similar block with lion relief shown by F. Rumscheid in the *Karia Arkhaia* symposium.
[56] Baran 2004: 24-38; Henry 2009: 135.
[57] Baran 2004: 30.

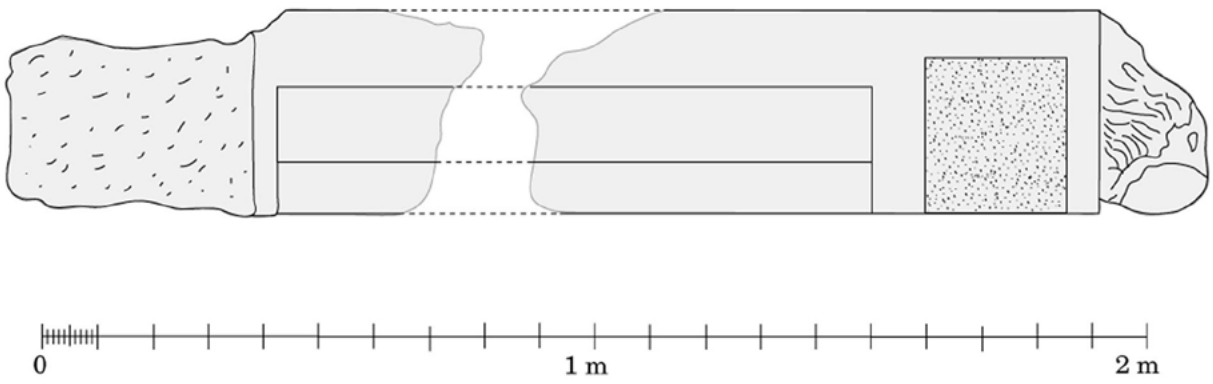

Figure 4: Beçin architrave block with socket ending and lion *protome* (drawing: A. Baran. The measurements given are by approximation because the blocks were out of reach).

member. A. Diler[58] recently found fragments of a crown block with an Ionic *cymatium* in pits dug illegally on the site. It seems to date in the last quarter of the 6th century BC. Cos was part of Caria since the earlier periods. From there we know fragments of an *anta* capital[59] and an *ovolo*[60] of the last quarter of the 6th century BC. A group of architectural members from Iasos is identifiable with six fragments of *cymatium* blocks and three fragments of an undecorated frieze or epistyle blocks[61] dated to the last quarter of the 6th century BC, but it is not certain which building they belonged to. There is also an *anta* capital fragment[62] which was dated to *c.* 500 BC, but the find-spot and date suggest that it belonged to some different building at Iasos. The Archaic phase of the temple of Zeus *Labraundos* near Mylasa is the only example in Caria where the ground-plan can be delineated. The detailed investigations by P. Hellström and T. Thieme made it clear that there was an earlier *in antis* phase of the temple.[63] The *cymatium* blocks, single blocks of a dentil row, a column drum with 36 flutes and a possible column neck fragment might be attributed to the temple[64] (FIGURE 6) with their measurements and dates falling between 520-500 BC. An Ionic capital from Labraunda smaller in size than the column drum of the temple is dateable to *c.* 500 BC and most probably belonged to a different building or monument on the site.[65] There are also some new unpublished *cymatium* fragments found by A. Kizil in Mylasa. They were used as *spolia* in different walls at modern Milas and they are dateable to the end of the 6th century BC. The existence of terracotta revetments in the region is also a sign of architectural progress. At least two buildings in Euromos,[66] three buildings in Hacıbayramlar and three buildings in Koranza[67] were suggested by the studied fragments. Amyzon[68] is another site with a single example of terracotta revetment, but remains have not been found, yet.

The last group of architectural members dates in the first half of the 5th century BC. We identify three different buildings in Halikarnassos. The first one is represented by two column necks,[69] dated to the first quarter of the 5th century BC. One of them is missing today. The second one is represented by an Ionic capital found in Bodrum and published earlier.[70] It is also datable to the same period but the diameter is smaller than that of the other members. It belongs apparently to some other building or monument. On the other hand, the existence of the temple of Apollo in Halikarnassos inside the Bodrum castle was previously suggested by P. Pedersen[71] on the grounds of some inscriptions and early Classical architectural members in the upper part of the castle. Although most of the members were used as *spolia* in the walls of the castle and they are difficult to investigate, it could be seen that two *spirae*, many unfluted column drums, a column-neck fragment and two Ionic capitals fit each other in terms of dimensions and general arrangement (FIGURE 7). The *spirae*, column neck and Ionic capitals with Samian type bolster betray strong influence from the Samian Hera temple and should be dated to the first quarter of the 5th century BC. Although the remains are not easy to locate, some cuttings on the visible parts of the bedrock in the topmost part of the castle suggest the

[58] Diler *et al.* 2014b: 433-434; Diler 2015a: n. 86.
[59] Shoe 1950: Kat. 5.9, 347, 356, fig. 5.9, pl. 109.2.
[60] Shoe 1950: 341, 346, 354, Kat. 4.1, pl. 108.1.
[61] Berti and Masturzo 2000: 222-225, figs. 137, 138.
[62] Berti and Masturzo 2000: 225-227, figs. 140-143; Laviosa 1978: 1097, pl. 349.9.
[63] Baran 2006: 1-46; Hellström and Thieme 1982: 39-43; Thieme 1993: 50; Westholm 1963: 90-92, 105-106.
[64] Baran 2009a: 301-304, fig. 3; Baran 2010: 113-118.
[65] Thieme 1993: 47, 49, figs. 1-2, pl. IX,1-2.
[66] Ateşlier 2011b: 279-290.
[67] Akkurnaz 2013; Akkurnaz 2015: 45-70.
[68] Åkerström 1966: 117, pl. 59.2.
[69] Pedersen 1994: 29-30, fig. 27.
[70] Bean and Cook 1955: 169-171, fig. 15, pl. 12a-b.
[71] Pedersen 1994: 30; Pedersen 2013: 33-64.

Figure 5: Undecorated frieze block from Beçin (photo: A. Baran).

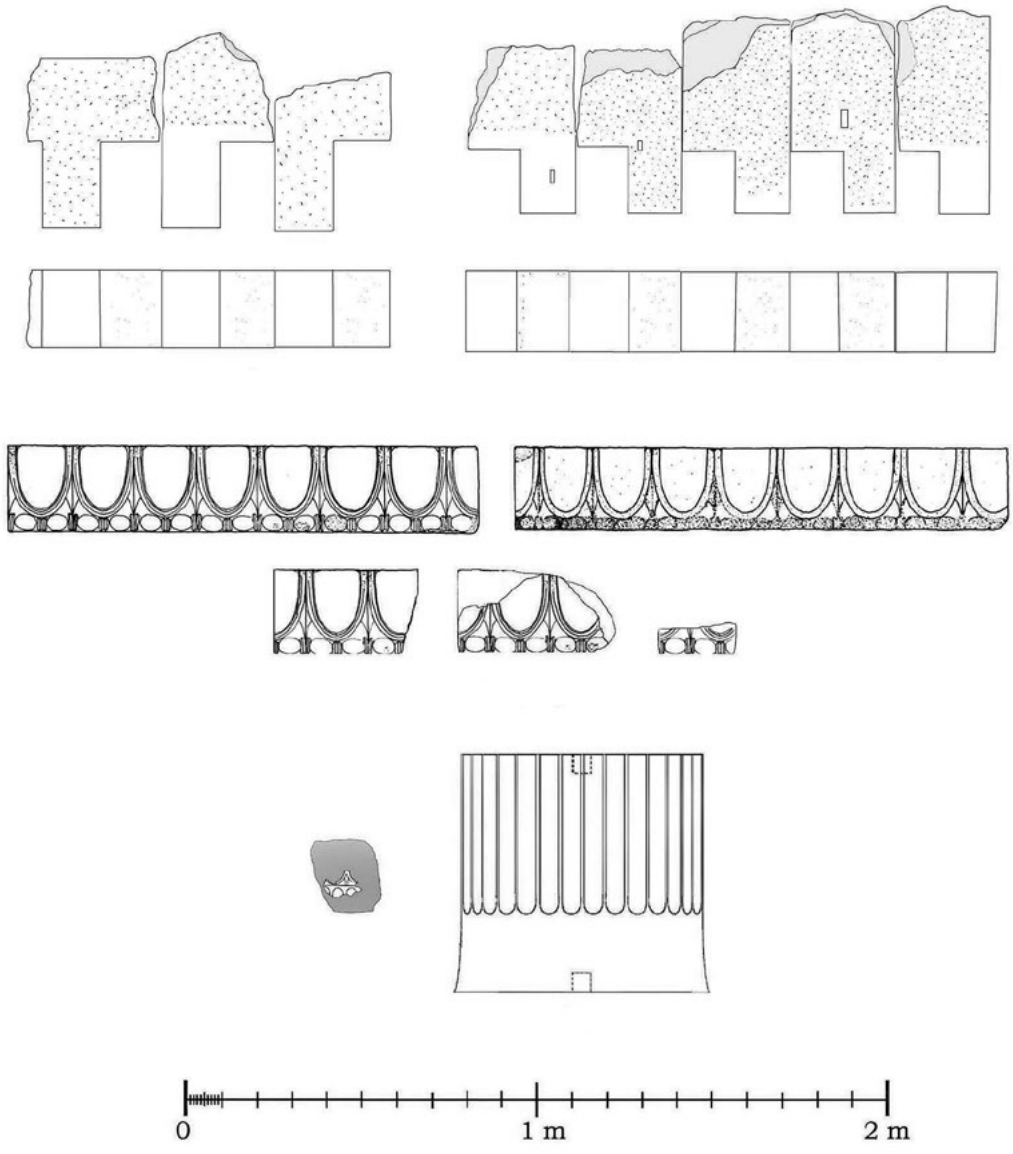

Figure 6: Archaic architectural members from Labraunda, temple of Zeus (drawings: Baran 2009a: fig.3).

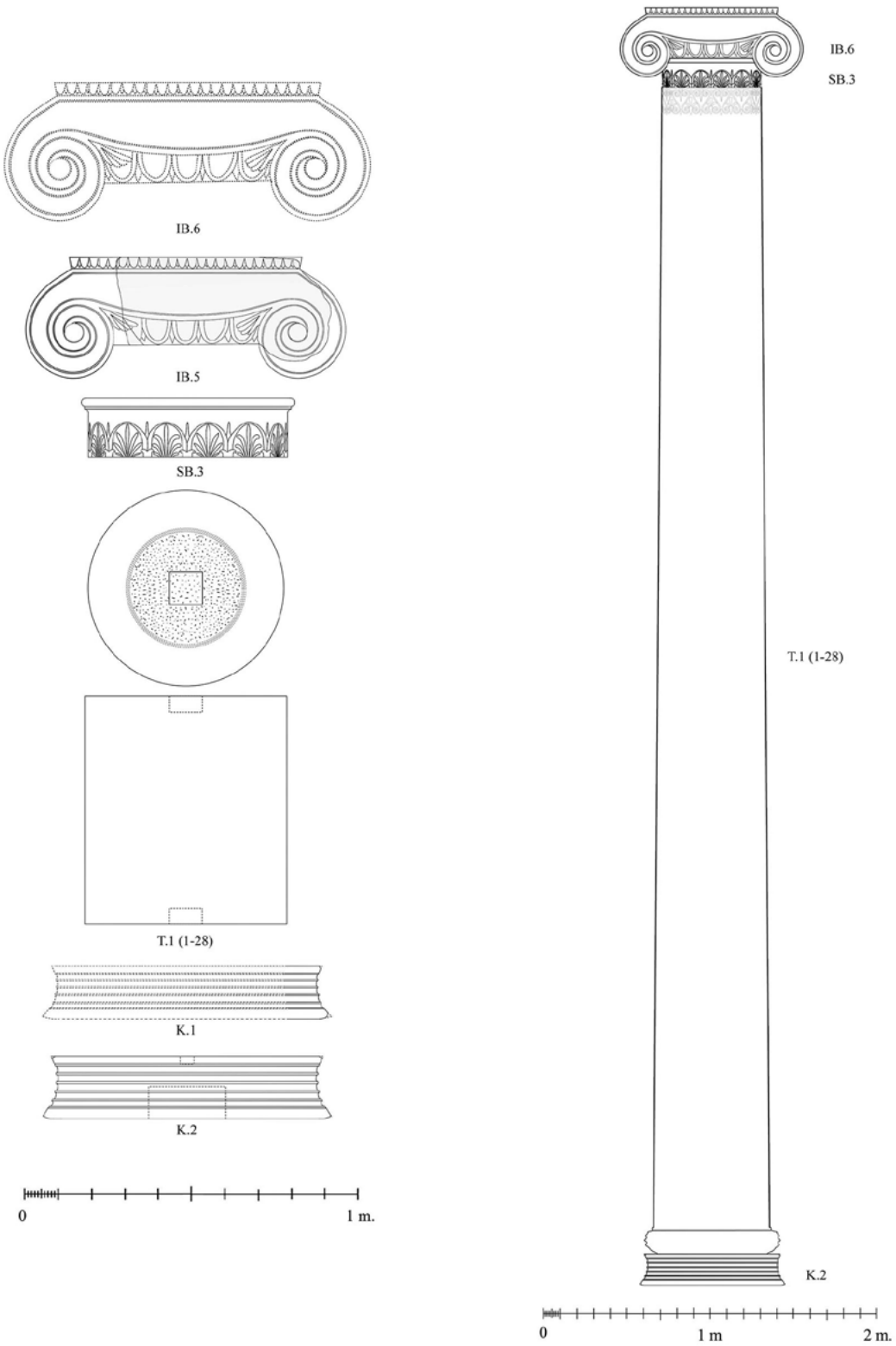

Figure 7: Architectural members attributable to Apollo temple, Halikarnassos (drawings: Baran 2009a: fig.1).

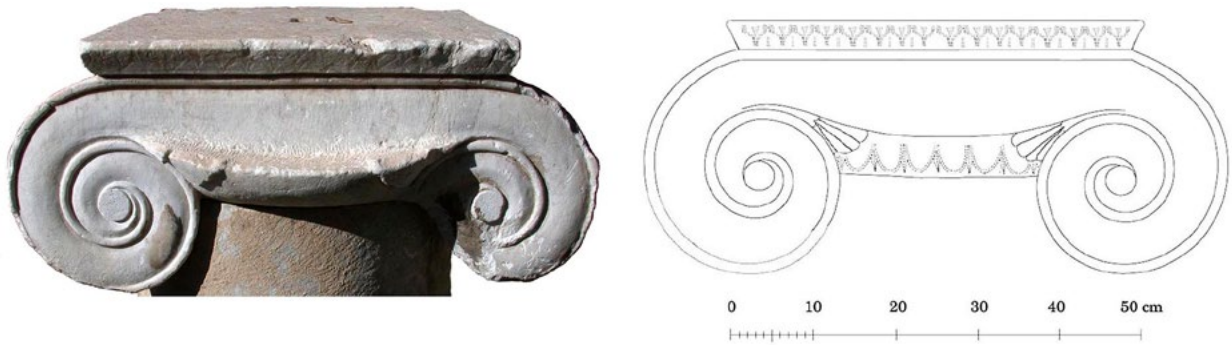

Figure 8: Ionic capital with painted details from Mylasa (photo and drawing: A. Baran).

most probable location for the temple.[72] A painted Ionic capital in the museum of Milas (FIGURE 8) was dated stylistically to the second quarter of the 5th century BC.[73] The use of painted details is observed usually on Athenian examples and it is possible that this capital was produced under Athenian influence or probably by a Carian who had previously worked in Athens. The recent research by A. Kızıl at Uzunyuva revealed other Ionic capitals used as *spolia* in the different walls on the terrace of the *Hekatomneion*. Although the execution of the volute eyes is different, the measurements point to the possibility that they belonged to the same structure. These new capitals are heavily weathered and it is not possible to detect any paint remains on them now. One last architectural member is a column neck[74] in the Milas museum garden dateable to *c*. 480 BC. Its precise find-spot is not known and its size does not correspond to that of other members from Mylasa, so it probably belongs to some other unknown building in Mylasa.

It becomes obvious that architectural evolution in Caria started very early and continued through the ages. The existence of platform tombs, *tumuli* and many building remains from the early Iron Age indicate the Carians' experience in building in stone. This experience should be the reason why Carians were not only soldiers but they also played some role in building activities beyond Caria since the early Iron Age. These close contacts most probably urged them to create the Carian script before the other Greeks and also their own architectural tradition. Although there is no solid excavation evidence, the earliest architectural members belonging to monumental architecture of the region seem to be the Aeolic capitals, which might well date between the 7th century and *c*. 550 BC. It is also reasonable to assume that the Carians played some role in the evolution of the so-called Aeolic capitals. The earliest identifiable Ionic members seem to have been used along with Aeolic style capitals in the region most probably since the 7th century BC. The second group can be dated between 550-530 BC on the grounds of securely dated comparable examples, but it should be kept in mind that they possibly belong to an earlier period than previously suggested. This building activity indicates that the region progressed architecturally and did not suffer from the Persian conquest. The third group can be dated to the last quarter of the 6th century BC and it is a testimony for contemporaneous and extensive building activity in different parts of Caria. It shows that Caria did not suffer from Persian domination and – on the contrary- started to flourish with new buildings just before the Ionian Revolt. The increase in building activity is definitely connected with the regional prosperity which might explain the role of the Carians in the Ionian revolt and the existence of the powerful tyrants. The fourth period is dateable to the period after the Ionian Revolt. The existence of the temple of Apollo in Halikarnassos which was built under strong influence of the Samian Hera temple and the Athenian-influenced painted Ionic capitals from Mylasa might point to a further prosperous period, again just after another catastrophe. These foreign influences should be connected with Carians who continued working in different building projects outside Caria. Most probably these builders, carrying along their experiences from other projects, brought new ideas and fashions into Caria. The difficulty in identifying and dating the architectural members of the 5th century BC persists due to the lack of securely dated parallels, but it seems quite possible that more architectural members from the 5th century BC will be brought to light in the region, after future research.[75]

[72] Baran 2009a: 295-298, fig. 1; Baran 2010: 107-112; Pedersen 1994: 30; Pedersen 2013: 33-64.
[73] Baran 2009b: 59-75.
[74] Baran 2007: 74, figs. 16-17; Pedersen 2001: 112, n. 26; Rumscheid 2004: 160, fig. 24.
[75] The inscription mentioned to be found at Uzunyuva in Mylasa may change some dates. It is said that Pytheos was a friend of Hecatomnos and this might indicate the earlier construction periods for known buildings in the region. Diler 2015a: n. 109.

The number of architectural members is increasing due to new research or excavations every year. Today, we have examples from 18 sites in Caria and judging by their dates, measurements or style, they should belong to at least 35 different buildings or monuments. This is quite a big number, compared to other regions and when combined with other finds and buildings, the Archaic period in the particular region becomes much understandable. When one looks at the architectural evidence, it becomes obvious that not only the quantity but also the quality of the members with some unique features confirms the local architectural progress in Caria since very early periods. The Hecatomnid family did not need to look to other regions when they started the new building activity in the first half of the 4th century BC, because they had their own architectural and cultural traditions in Caria. In all probability future research will yield more examples and the continuous architectural progress in the region will be better understood.

It seems possible to conclude that all the finds, including the archaic architectural members found in Caria, indicate that Caria was part of the Hellenic world and even contributed to the development of Greek architecture already since the earliest periods. The ancient borders and distinctions between regions and *ethne* are sometimes exaggerated and, as seen with the Carian examples, the regions were always in close contact with each other and cultural achievements travelled freely and maybe faster than in the modern world in some manners. It should also be kept in mind that Caria was in the middle of the sea trade with its long shoreline and safe harbours and it is impossible to imagine that the region did not take or give anything to the cultural evolution.

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Visualising Cyrene: Three-Dimensional (3D) Laser Scanning and the Ancient Urban Environment

Gareth Sears and Vince Gaffney

Summary

Recent attacks on the archaeological heritage in Iraq and Syria have brought the vulnerability of the excavated ancient sites across the Middle East and North Africa to the forefront of the public consciousness. In addition to these recent eye-catching acts of ideological iconoclasm, coupled with for profit sale of portable antiquities, sites in Libya, including Cyrene have long been vulnerable to encroachment on the margins of even the protected area, theft and vandalism, despite the efforts of the Department of Antiquities. In addition to deliberate destruction there is also the problem of the natural decay of the re-erected monuments, partly because of the methods used to re-create the buildings in the past. The preservation of the material remains has long been a priority of the Department of Antiquities and UNESCO.

Work undertaken by a team under the auspices of the University of Birmingham and Oberlin College in 2006 and 2007 created a considerable resource of three-dimensional (3D) laser scans tied to the GPS system, as part of a wider programme of examination of the excavated material and unexcavated subsurface remains. In turn, this three-dimensional laser scanning has led to the creation of digital models of a series of monuments from the city and its periphery. This paper will demonstrate the value of collecting data using three-dimensional laser for digital preservation but also for research on the character of structures, their relationship with other excavated buildings, the landscape of the city and the unexcavated remains.

Περίληψη

Οι πρόσφατες επιθέσεις κατά της αρχαιολογικής κληρονομιάς στο Ιράκ και τη Συρία έφεραν στο προσκήνιο της κοινής συνείδησης το πόσο ευάλωτες είναι οι ανεσκαμμένες αρχαίες θέσεις στη Μέση Ανατολή και τη βόρεια Αφρική. Επιπλέον των εξόφθαλμων πράξεων αυτής της ιδεολογικής εικονομαχίας και της παράλληλης κερδοσκοπικής εμπορίας κινητών αρχαιοτήτων, θέσεις στη Λιβύη -συμπεριλαμβανομένης της Κυρήνης- καθίστανται ευάλωτες στο διαρκή σφετερισμό των ορίων της προστατευόμενης ζώνης, σε κλοπές και βανδαλισμούς, παρά τις προσπάθειες της Αρχαιολογικής Υπηρεσίας. Πέραν της σκόπιμης καταστροφής που συντελείται, υπάρχει επίσης η φυσική φθορά των αναστηλωμένων μνημείων, που εν μέρει οφείλεται και στις μεθόδους αποκατάστασης που εφαρμόστηκαν κατά το παρελθόν. Η διατήρηση των υλικών καταλοίπων ήταν ανέκαθεν προτεραιότητα της Αρχαιολογικής Υπηρεσίας και της UNESCO.

Οι εργασίες ομάδας υπό την αιγίδα του Πανεπιστημίου Birmingham και του Oberlin College το 2006 και 2007 οδήγησαν σε ένα αξιοσημείωτο απόθεμα τρισδιάστατων σαρώσεων συναρτημένων με σύστημα γεωδαιτικού προσδιορισμού, ως σκέλος ενός ευρύτερου προγράμματος εξέτασης τόσο του ήδη ανεσκαμμένου υλικού, όσο και των μη ανεσκαμμένων υπεδάφιων λειψάνων. Με τη σειρά της, αυτή η τρισδιάστατη σάρωση οδήγησε στη δημιουργία ψηφιακών μοντέλων μιας σειράς μνημείων της πόλης και της περιφέρειάς της. Στην παρούσα εργασία καταδεικνύεται η αξία της συλλογής δεδομένων με χρήση τρισδιάστατου laser για την ψηφιακή διατήρηση, καθώς και για τη διερεύνηση του χαρακτήρα των δομών/κατασκευών, της σχέσης τους με άλλα ανεσκαμμένα κτίρια, του τοπίου της πόλης και των καταλοίπων που ακόμη δεν έχουν έρθει στο φως.

Key Words

Cyrene; digital preservation; laser scanning; threatened heritage.

Introduction

It is a great honour to contribute to a volume honouring the career of Professor Richard Tomlinson and his work with regard to Cyrene. Professor Gaffney was briefly a colleague of Professor Tomlinson in the Department of Ancient History and Archaeology at Birmingham and Dr Sears has benefitted from Professor Tomlinson's knowledge of departmental history over the years.

The current paper, focusing on the three-dimensional laser scan survey of several structures in Cyrene has its roots in two seasons that the authors co-directed at Cyrene with colleagues at Oberlin College as the *Cyrenaica Archaeological Project* (CAP) in June 2006 and June-July 2007, which has resulted in the presentation of results from the magnetometry and topographic surveys in several publications.[1] The project was

[1] Kane and White 2007: 39-52; Sears *et al.* 2012.

created to examine the relationship between Cyrene's urban and suburban topography and its evolution and the links between the city and its hinterland, as well as to provide a resource for the management of the UNESCO site of Cyrene by the Libyan Department of Antiquities. Since 2007 the political situation in Libya has changed and security has considerably worsened, making further work at the site impossible. In this context, the three-dimensional data collected during the 2007 season has become extremely valuable as a means of digital preservation for heritage purposes and as a resource for further study of the monuments and their relationship to each other, the urban topography and in some cases the unexcavated subsurface remains. This paper will provide an overview of the group's work and show the potential of three-dimensional laser scans not only for digital preservation but also for research projects.

Context

Attacks over the last few years on the archaeological heritage in Iraq and Syria have focussed western public attention on a series of ancient sites with the relatively recent destruction at Palmyra of temples and a triumphal arch, being added to a variety of acts against many heritage sites.[2] Set-piece iconoclasm and obliteration of monuments is only part of a wider war on heritages that Daesh/Isis/IS launched in areas under their control, in an attempt to 'purify' or rewrite the past.[3] This ideological position was coupled with the pragmatic desire to monetize the archaeological heritage through the sale of artefacts, which in itself is only part of a wider phenomenon of looting as individuals and groups sought to survive in the chaotic and multi-polar world of the post-2011 Middle East. Satellite images of Dura Europos and Apamea, for instance, revealed considerable despoliation of parts of the cities that had previously been unexcavated; pits pock-marked the surface of the sites.[4] Compared to the eruptions of interest in the destruction of the sites in Syria and Iraq, the fate of Libyan archaeological remains have rarely made it into the media and, so far, they appear not to have suffered to quite the extent of sites in Iraq or Syria, although a few particular sites have been attacked.[5] That is not to say they are safe. Even without the destabilisation of law and order in the country over the last few years, sites in Libya, including Cyrene, have long been vulnerable to encroachment on the margins of the archaeological sites, as well as theft and vandalism, despite the efforts of the Department of Antiquities (DoA).[6] Despite work since the 2011 revolution to encourage the involvement of the population of Shahat to protect the monuments, encroachment on Cyrene's margins and particularly in the cemeteries has escalated, in addition the controlled archaeological park excludes much of the suburban structures.[7] In the absence of entirely secure law and order across parts of Libya, the Department of Antiquities' staff's ability to protect all ancient sites has been reduced.[8]

In addition to deliberate destruction and looting, there is also the problem of natural decay of the standing monuments and particularly the decay of re-erected structures. The risk to the re-erected heritage partly stems from the methods used to re-create the buildings. As a UNESCO World Heritage committee report puts it: 'earlier restoration work is [...] in some cases inimical to the preservation of the site'.[9] Whilst the preservation of the material remains and the replacement of earlier reconstruction materials has long been a priority of the Department of Antiquities and UNESCO, the cost of doing so was always high and required considerable political will and resources to improve the situation. The current political dislocation makes the financing and practicality of such work extremely difficult. A recent UNESCO report acknowledges all of these problems, listing several ongoing concerns including: the inadequate protection for the cemeteries; vandalism and the expansion of agriculture in the area; building work; and the inappropriate restoration work of earlier archaeological missions.[10] The destabilisation of the state and the presence of multiple armed groups has only made the protection of monuments more difficult and increased the list of potential threats to the sites.

The international response to the destruction of monuments in Iraq, Syria, and Libya has been *ad hoc*. International organisations including UNESCO have provided a significant monitoring role and individual states have also offered similar support.[11] A number of academic groups have acted in an emergency response mode and, as an example, the British Museum announced its *Iraq Emergency Heritage Management Programme* in 2015 planning for the day when curators can return to the sites that had been overrun by IS, by providing training to help appropriate authorities record and document the scale and extent of destruction, in order to be able to effectively reconstruct and preserve what is left.[12] One recently launched project (in which the

[2] Amos and Meuse 2015; Wolfinbarger *et al.* 2015.
[3] Ömür 2015.
[4] Amos and Meuse 2015; Lawler 2014.
[5] Broodie 2015: 212-217; Di Lernia 2015: 547-549; Kane 2015.
[6] Rose 2001; Sears *et al.* 2012: 180–183; Thorn 2005: 13; White 2012: 2–3.
[7] Abdulkariem 2013: 103-106. The threat to the margins of the site have obviously changed considerably from the states recorded in Tomlinson 1992: 131, 141.
[8] Abdulkariem and Bennett 2014: 155-161; Bennett 2017; Bennett and Graham 2015: 157-167; Kane 2015: 205.
[9] UNESCO 2007.
[10] UNESCO 2015.
[11] ASOR 2014.
[12] British Museum 2015. For more useful data on current initiatives in respect of Syria, see Perini and Cunliffe 2014.

authors are involved) is the *Curious Travellers* project, which uses data mining and donated images and videos to digitally document ancient sites.[13]

A common element in many of the responses mentioned above is the appreciation that novel digital recording methods are a key tool in dealing with the immediacy and scale of the threat to the built heritage. Because of the *ad hoc* nature of the threat and the response, a range of different approaches have been suggested; some of which have considerable funding. Responses such as the *Endangered Archaeology in the Middle East and North Africa* (EAMENA) project, based at the universities of Leicester and Oxford, relate to artefact reconstruction or large-scale recording across whole regions whilst other projects have yet to demonstrate the potential to upscale, to meet future requirements.[14]

In the context of the deepening threat to both the excavated and un-excavated heritage, as well as the mixed international response, the Birmingham and Oberlin group's work has become increasingly important for preserving the heritage of Cyrene. A previous publication and reports examined the *Cyrenaica Archaeological Project*'s work on the unexcavated subsurface remains recording parts of the city that were under potential threat of encroachment by both building in New Shahat and destruction associated with agriculture.[15] Indeed, some of the areas on the southern periphery of the site recorded by the group in 2006 have since been built over, making the work done then on recording and photographing *in situ* finds and integrating these into a topographical map of the area invaluable for any future examination of the 'suburban' zone of the city.[16]

Three-dimensional (3D) laser scanning at Cyrene

Whilst the 2006 season was focused on topographical modelling and recording material to the south of the Sanctuary of Demeter and Kore, the 2007 season was focussed on undertaking magnetometry and three-dimensional (3D) laser scanning in several areas around Cyrene, including the theatre to the west of the Gymnasium/*Caesareum* complex. A Leica HDS6000 3D laser scanner was used to digitally scan as much of these areas as possible, with panoramic photography done at the same time. A model of the monuments was then created, by tying the scans together, and colour was then rendered onto the model using panoramic photographs taken at the scan points. The models were then rectified to their real position within our geographical information system, using a differential global positioning system base station and rover.[17] The rest of this paper will examine the benefits of the three-dimensional laser scanning for examining individual monuments and the relationship between monuments within Cyrene, with particular regard to the theatre.

The theatre-type building to the west of the Gymnasium is, of course, just one of several theatre-type buildings in Cyrene (FIGURE 1). Like several other 'theatres' in the city its exact use and dating is not certain. Interpretations encompass potential use as a theatre, *odeon* or *bouleuterion*, and construction dates range from the first half to the second half of the 2nd century; some link the construction of this 'theatre' to the conversion of the large 'Myrtusa' theatre at the city into an amphitheatre in the second half of the 2nd century.[18] The monument may have gone out of use following the earthquake of AD 365 – certainly a new theatre (the 'Market Theatre') was built to the north on the so-called Valley Street after that date.[19] The theatre was re-used in later antiquity. Goodchild argued that the building was re-used by military occupants in the 4th century AD.[20]

The three-dimensional laser scanning of the monument encompassed twenty-one separate scans creating almost seventeen gigabytes of point cloud data as well as panoramic photographs at each scan station. The scans of the theatre were incorporated into the same model space as scans of the main street running from the Gymnasium/Roman *forum* to the agora and the Gymnasium/Roman *forum* area itself, by scanning a route between the street, through the *Xystos*/Stoa of Hermes and Heracles, to the central passageway into the theatre.

Whilst the value of laser-scanning for the provision of a permanent digital record of monuments that may be under imminent threat is of particular significance to this paper, it should be emphasised that the original purpose of the work was for academic study. The data provided by laser survey is particularly useful for understanding and presenting elements of building's architecture and plans, as well as their relationship to the rest of the city, in terms of spatial relationship with the street grid and other buildings. The point cloud

[13] Curious Travellers 2018; see the journal of *Libyan Studies* 48 (2017) for several recent articles dealing with heritage management and its challenges in Libya.
[14] EAMENA 2015; Project Mosul 2015.
[15] Cuttler *et al.* 2006; Cuttler *et al.* 2007.
[16] Compare Cuttler *et al.* 2007: fig.13 with Kane 2015: fig. 7. Much of the area to the south of the sanctuary of Demeter and Kore was surveyed by the Birmingham team in 2006: Cuttler *et al.* 2006: 5-10; Kane and White 2007; Sears *et al.* 2012.
[17] For a more detailed description of the methodology used in both the scanning process and the construction of the model, see Cuttler *et al.* 2007; Gaffney *et al.* 2013: 104-106.
[18] On theatres see Goodchild 1971: 87-88; Luni 2005: 71-72; Sear 2006: 291-293; Stucchi 1975: 287-293, 463-464; Ward-Perkins and Gibson 1987: 43-71. A catalogue of all the Roman period theatres in the empire does not include the new one, found in the sanctuary of Demeter and described in Luni 2005.
[19] Ward-Perkins and Gibson 1987.
[20] Goodchild 1963: 44.

Figure 1. View of the theatre from the stage building (photo: H. Goodchild/CAP).

used to create the model is accurate to within 0.8 mm and, so, beyond the accuracy of paper-based planning, whilst the model's existence in three dimensions allows for greater flexibility of interrogation than is possible in other media. The model can, for instance, be sliced on any line to create plans and sections (see FIGURE 2, for an example of the use of the model to create a plan).

One of the drawbacks, compared to conventional planning at the excavation stage, however, is the interference of recent additions to the structures with the scans. For instance, with regard to the theatre, the modern wooden and metal stage structure in front of the *scaenae frons* (FIGURE 3) interferes with the space, extending far beyond the space occupied by the ancient stage and obstructing the side entrances into the orchestra. Obviously, where possible, extraneous objects would be removed before scanning but, in practice, in structures that are still being used, this is not always possible and -in any case- there are some spaces that cannot be laser scanned because of the size or inaccessibility of the spaces. The possibilities provided by the technology do, though, far outweigh the difficulties associated with the limitations.

Perhaps just as importantly, the model can be used to examine the relationship between structures in three dimensions and from any angle with the examination of the view-sheds between buildings being particularly facilitated by the model. For instance, in the case of the theatre, it is possible to examine views along the passageways leading to and from the structure or through entrances, in order to reconstruct something of the experience of visitors to the building in the past, the anticipation generated by movement through the confined spaces leading to the seating areas, for instance, as well as movement between the theatre and the nearby buildings and streets. Although such an approach to the physical environment is not new (Diane Favro's work on Rome has been particularly influential in prompting explorations of the city as lived experience), the laser scans allow such approaches to be married to highly accurate three-dimensional spaces with programmed 'fly-throughs' within the models, giving a sense of movement and space within these environments, within the limitations of the reconstructed buildings - which are, of course, considerably different to how they were in the ancient world.[21] Obviously, the significant changes to the urban landscape at Cyrene since antiquity mean that one should not over-state the potential benefits of the reconstructions, when it comes to research into space, view-sheds and movement; for instance, in FIGURE 3 the elements of the portico of the *Caesareum*, which can be seen in the top centre of the image, could not be seen in antiquity from this position. The possibilities for examining movement through the structure and view-sheds, and further manipulation of the digital data set for this purpose, go beyond the possibilities provided by photography and can be infinitely repeated (within

[21] See, for example, Favro and Johanson 2010.

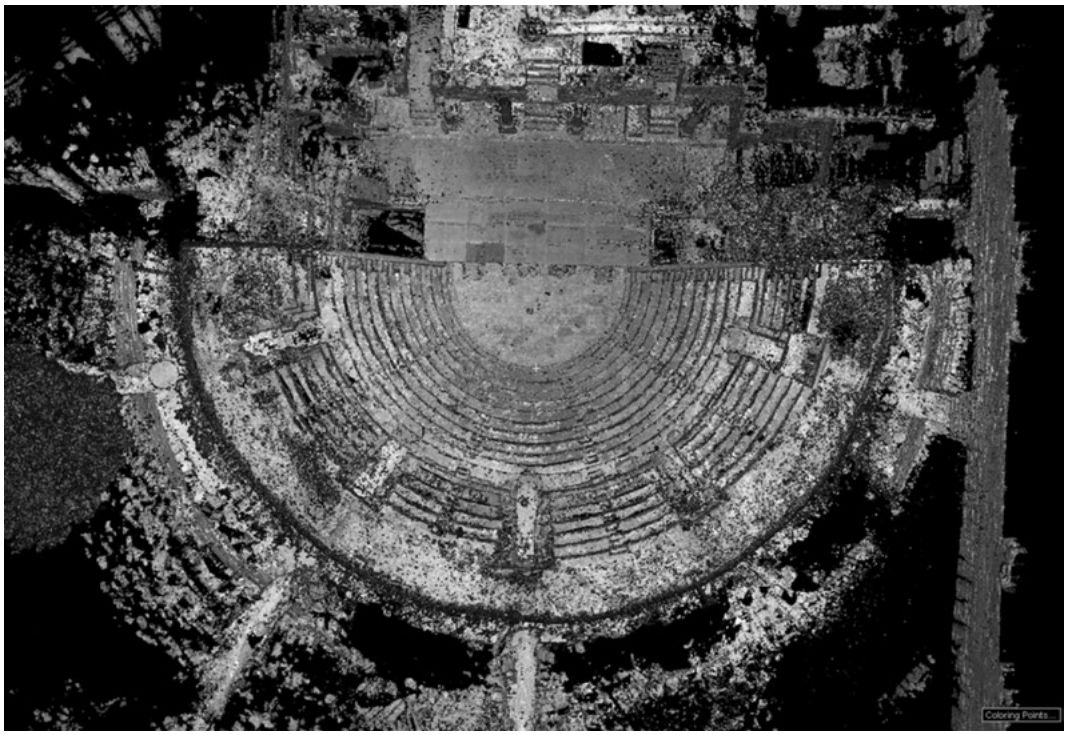

Figure 2. Screen-shot of the three-dimensional model seen from above (photo: CAP).

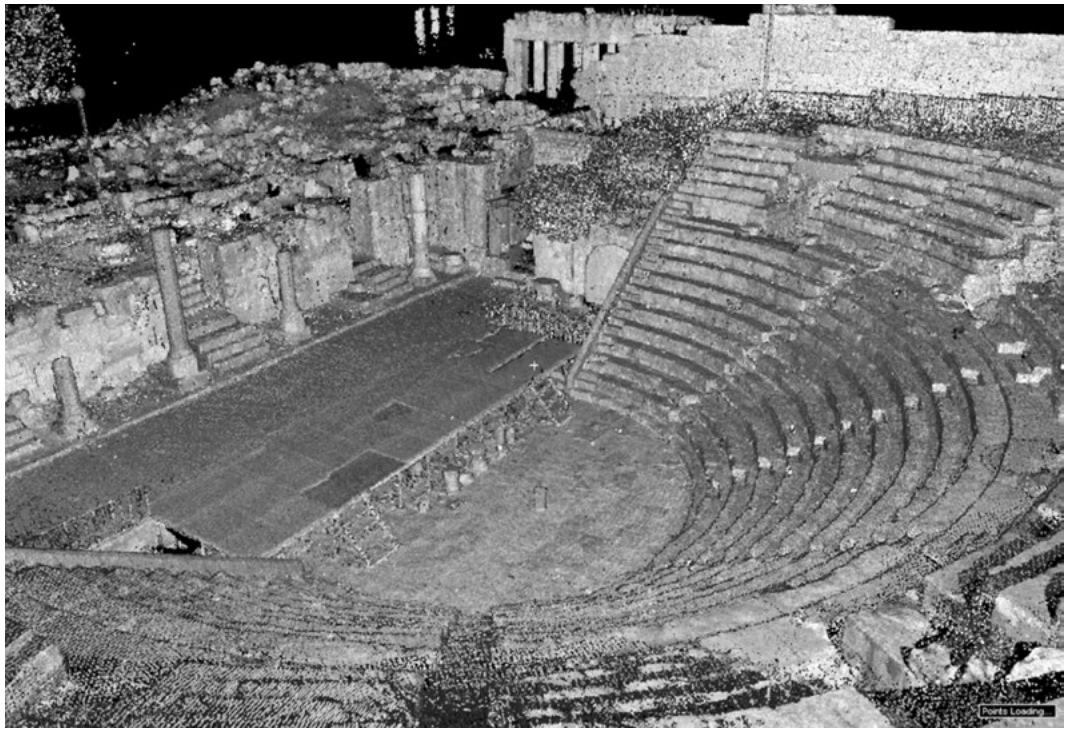

Figure 3. Screen-shot of the three-dimensional model from the 'south-west' (photo: CAP).

the constraints of available time) in response to new research ideas, in a way that would not be possible without repeated access to the actual monument – a possibility that is even less viable at the moment than in the past.[22]

Conclusion

As the example of the theatre demonstrates, three-dimensional laser scanning is an important tool for the study of ancient cities and for preserving by record the current state of individual monuments. Given the current climate in Libya, North Africa and the Middle East, more generally the project's three-dimensional scan data, along with its integration with magnetometer survey, global positioning system (GPS) and topographical survey, is a crucial resource, which may become more important over time, if access to these internationally important sites is restricted or the rate of destruction of artefacts and monuments is increased. Response at this time has demonstrated an adequate level of coherence. The 3D resource described above is unlikely to be the only available resource for Cyrene or other major antique cities. If so, the existence of such data sets might well be considered a touchstone for the international community to organise around, collating the exiting datasets for the good of world heritage. Whilst these data are unlikely to be entirely adequate -as they stand- for emergency heritage recording, they are likely to be invaluable as base data sets for further innovative work to record heritage in advance of any imminent threat or as a response to ongoing destruction. It may also be appropriate to note that the tragedy of the destruction of North African, Syrian or Iraqi heritage is unlikely to be a unique series of events. How we react to current events is likely to be a guide for future action in other regions of the world. Our increasing awareness of the utility of digital recording to record heritage during periods of destruction should be appreciated alongside a responsibility to prepare for future damage elsewhere, and also whether such information has a value in post-conflict reconstruction and reconciliation.

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New Evidence for Early Greek Settlement on the Acropolis of Selinunte

Clemente Marconi

Summary

Since 2007, the excavations by the Institute of Fine Arts–NYU's mission on the Acropolis of Selinunte have uncovered significant new evidence concerning the early phase of Greek settlement. This evidence includes architectural features such as clay floors and mud-brick walls on foundations made of rubble, plus numerous faunal remains and artifacts. The finds are concentrated in the area west of Temple B, and they most likely relate to two 7th-century buildings, datable to *c.* 610 BC, which were systematically dismantled to make way for Temple R *c.* 590–580 BC. This new evidence contributes significantly to our understanding of the early phase of the Greek occupation of Selinunte. It supports the theory that the original settlement was located in the southern sector of the Acropolis and had an orthogonal plan. And it also suggests that this sector of the main urban sanctuary was in use as a sacred space since around the time of the Greek foundation. No less notable is the rich variety of material culture, including indigenous pottery, suggesting a particularly intense interaction with the indigenous hinterland at the time of Greek settlement in Selinunte.

Περίληψη

Οι ανασκαφές της αποστολής του Ινστιτούτου Καλών Τεχνών του Πανεπιστημίου της Νέας Υόρκης στην ακρόπολη του Σελινούντα έφεραν στο φως σημαντικά καινούργια στοιχεία σχετικά με την πρώιμη φάση του ελληνικού αποικισμού. Τα στοιχεία αυτά περιλαμβάνουν αρχιτεκτονικά λείψανα, όπως δάπεδα από πηλό και τοίχους από ωμές πλίνθους που στηρίζονται σε θεμέλια κατασκευασμένα από χαλίκια, αλλά και πολυάριθμα κατάλοιπα πανίδας και τέχνεργα. Τα ευρήματα εντοπίστηκαν συγκεντρωμένα στην περιοχή δυτικά του ναού Β και σχετίζονται πιθανότατα με δύο κτίρια του 7ου αιώνα π.Χ. που μπορούν να χρονολογηθούν στο 610 π.Χ. περίπου. Αυτά κατεδαφίστηκαν συστηματικά για να δημιουργηθεί χώρος για τον ναό R το 590-580 π.Χ. περίπου. Τα καινούργια στοιχεία βοηθούν σημαντικά στην κατανόηση των πρώιμων φάσεων του ελληνικού αποικισμού του Σελινούντα. Συνηγορούν στην άποψη ότι η αρχική εγκατάσταση βρισκόταν στο νότιο τμήμα της ακρόπολης και είχε ορθογώνιο σχέδιο. Επίσης επιτρέπει το συμπέρασμα ότι το συγκεκριμένο τμήμα του κυρίου ιερού της πόλης χρησίμευε ήδη από την εποχή της ίδρυσης της αποικίας ως ιερή περιοχή. Πέραν τούτου πρέπει να επισημανθεί ο πλούτος του υλικού πολιτισμού συμπεριλαμβανομένης της εγχώριας κεραμικής που υποδηλώνει την ιδιαίτερα εντατική επικοινωνία με τους γηγενείς πληθυσμούς της ενδοχώρας κατά αυτή την πρώιμη εποχή.

Key Words

Selinunte; Temple R; Temple B; foundation offering; Demeter *Thesmophoros*.

In 2006, the Institute of Fine Arts at New York University started a new project of topographical, architectural, and archaeological investigation of the main urban sanctuary on the so-called Acropolis of Selinunte. In our first ten years of work, we have been focusing on the southern sector of the sanctuary, including Temple B and its altar, Temple R, the southern portion of Temple C, the *peribolos* wall, and the South Building (FIGURE 1).[1] This new investigation has included the systematic documentation of the structures in the area, their block-by-block analysis, and the excavation of a series of trenches, mainly in correspondence of their foundations.

The southern sector of the main urban sanctuary was repeatedly investigated and excavated between the 19th and 20th centuries (especially by the *Commissione di Antichità e Belle Arti* in Sicily in the early 19th century, by F. S. Cavallari in 1876, and by E. Gàbrici in the early 1920s), and we did not expect to find much stratigraphy left, since the buildings had been excavated down to the level of their foundations. However, our excavations have shown that the foundations of Temple B, its altar, and the South Building were laid not on the bedrock but on layers of earth and sand, for various possible reasons, including antiseismic considerations. As a result, with our very first trench, against the back of Temple B, it became immediately clear that in our area, a thick (up to about two meters deep), untouched stratigraphic column is still preserved. This column is closely comparable to similar sequences excavated in other areas of the sanctuary, particularly by Gàbrici,[2]

[1] Preliminary publications include Marconi 2012; Marconi 2014; Marconi and Scahill 2015; Marconi *et al.* 2015.

[2] Gàbrici 1929: 97–101.

Figure 1: State plan of the area of operation, with indication of trenches 2007–2017. (drawing: Massimo Limoncelli, Filippo Pisciotta, and David Scahill. © Institute of Fine Arts–NYU).

but this is the first time that we seem to gain a clear understanding of the succession of layers and phases.

Our current thinking is that this stratigraphic sequence, confirmed by our excavation inside the *cella* of Temple R, includes ten phases (FIGURE 2). The first (Phase 1) corresponds to a layer of red sand against the bedrock. This layer has produced prehistoric, mainly Bronze Age material. This earliest stage, which ended between the close of the 11th and the first half of the 10th century BC, is followed by a period of apparent abandonment (Phase 2), marked by the absence of indigenous material of the Early Iron Age. The next steps correspond to the foundation of Selinus by the Greeks of Megara Hyblaea and Megara in Greece (Phase 3), followed, *c.* 610 BC, by the construction of the early structures presented below (Phase 4). These first buildings were dismantled with the construction of Temple R *c.* 590–580 BC (Phase 5). The temple had an undisturbed life for almost a century, before being damaged by fire and being subsequently renovated between the end of the 6th and the early 5th century BC (Phase 6). This was at the same time that the South Building (likely, a theatral area) was erected within the context of the general reorganisation of the sanctuary that had started around the mid-6th century. Towards the end of the 5th century BC, Temple R suffered further damage, presumably within the context of the Carthaginian sack of Selinus in 409 BC (Phase 7) but was soon refurbished, presumably under Hermocrates (Phase 8) and was still in use for part of the 4th century (Phase 9). On top of these layers is the last documented phase (Phase 10), corresponding to the present ground level, which consists of a thick fill, including transport *amphorae* at the bottom and tiles at the top, upon which were built Temple B and its altar. This last layer, misidentified by Gàbrici as a generic Graeco-Roman phase, represents a large leveling dating to *c.* 300 BC, which includes our entire area of operation and possibly (based on Gàbrici's reports) other parts of the sanctuary. This major intervention corresponds to a dramatic restructuring of this part of the settlement under Carthaginian political dominance.

This essay honouring Richard Tomlinson, who has greatly contributed to our understanding of Greek sacred architecture and Greek sanctuaries, focuses on our new evidence for the early settlement of Selinus and its early cult. That our area was occupied by Greek settlers from early on is clearly indicated by the discovery, in the area of Temple R, of some amount of Protocorinthian pottery, including a remarkable conical *oinochoe*, unusually large, featuring two animal friezes. At present, only the lower main body of this vessel is preserved. It was found halved and reused in the foundations of the floor inside the *cella*, one part to the left of the entrance and the other towards the middle of the main chamber.[3] Leaving aside two LG fragments (presumably heirlooms) found in an early

[3] Marconi *et al.* 2015: 327–328.

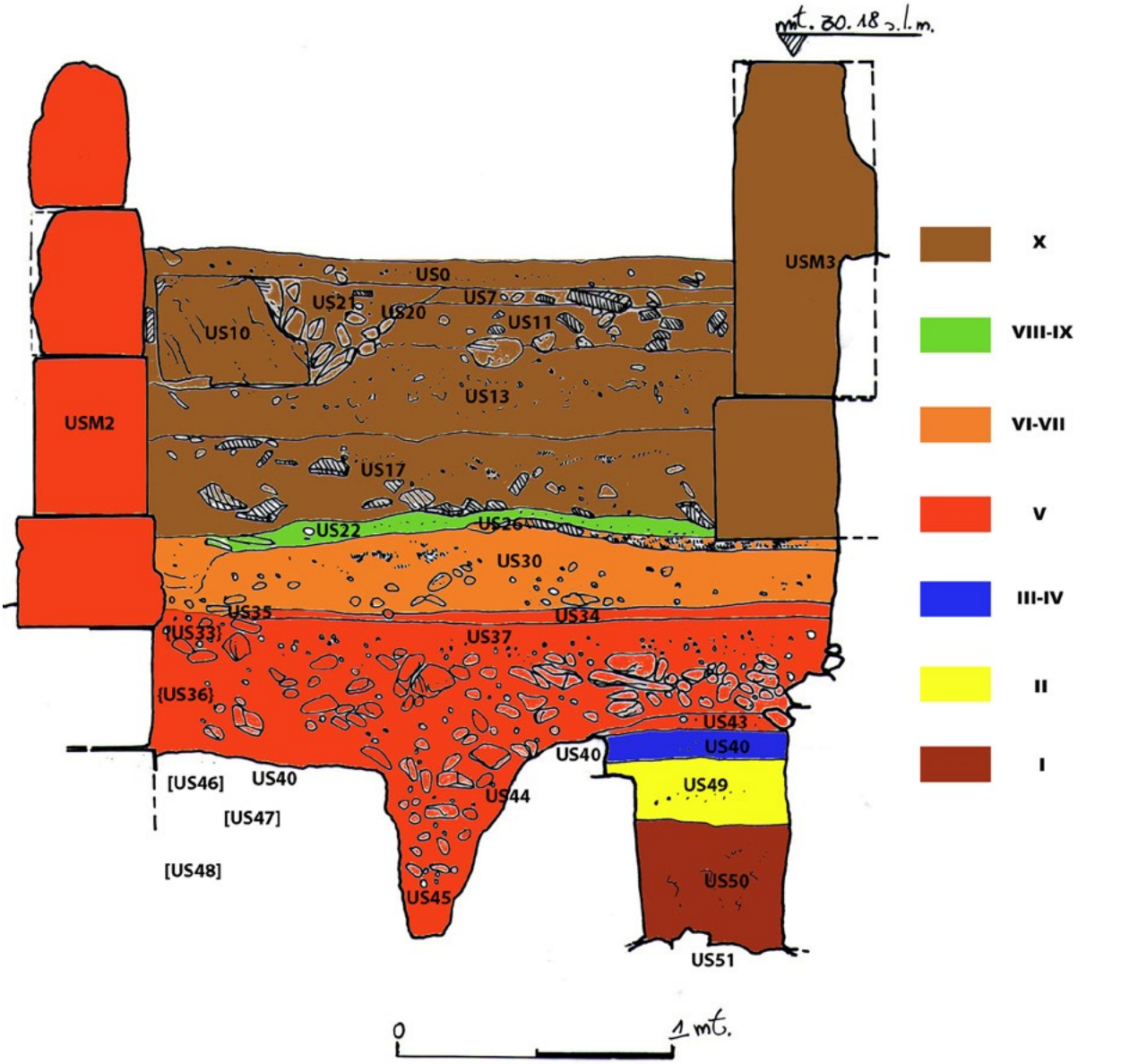

Figure 2: Stratigraphic sequence in the *cella* of Temple R (drawing: Filippo Pisciotta. © Institute of Fine Arts–NYU).

6th century context in our trenches, this *oinochoe* may well represent the earliest-documented Greek vase with figured decoration from Selinunte. C. Neeft[4] provisionally labels the piece as transition MPC II to LPC, that is 650–640 BC, noting how the presence of a conical *oinochoe* earlier than the foundation date[5] should not come as a surprise, considering how the shape was relatively popular in Megara Hyblaea.

Presumably, this Protocorinthian *oinochoe* represents one of the earliest dedications in our area, dating back to the time of Selinus' foundation. To this same phase appear to belong other offerings found in Trench Q, particularly a miniature *hydria* from Megara Hyblaea with a hole in the bottom, a bone pin, and especially three iron spearheads planted blade-first into the ground, and of which two crossed (FIGURE 3). The latter may be seen as an appropriate dedication to the warrior goddess of Temple R (to whom numerous offensive weapons were offered at the time of the construction of the building and on the occasion of its late 6th-early 5th century renovation): yet, the action of planting a spear in the ground (not simply embedding it horizontally, as in the later examples) may also be seen as having a

[4] Email of 20 February 2017.
[5] Concerning the vexed question of the date of foundation of Selinus (and supporting the indication by Thucydides [628–627 BC]) see Dehl-von Kaenel 1995: 32–42; Marconi 2007: 61–66; Meola 1996–1998, I: 293–296; Neeft 2012: 489–490.

Figure 3: Iron spearheads planted blade-first into the ground from Trench Q (photo: Raffaele Franco. © Institute of Fine Arts–NYU).

symbolic meaning, of the taking possession of the new land by the Greek settlers.[6] There are no remains of structures associated with this early phase, for which one may posit an open-air cult. The same applies to the layer immediately above, where two small and very thin clay floors have been identified in Trenches M (FIGURE 4) and Q, which can hardly be associated, however, with buildings.

It is precisely above this level that we seem to have uncovered the first evidence from Selinunte for architecture safely datable within the first decades of the life of the Greek settlement.

In excavating the area east of Temple B, we found no evidence for 7th-century buildings. But such structures became apparent as soon as we moved westward toward Temple R.

In essence, three features can be related to early structures from the area west of Temple B. The first, found in Trench L, consists of the remains of a rectangular structure with an east-west orientation, with a clay floor and foundations made of chips of stone 0.40 to 0.50 m thick (FIGURES 4 and 5). Parts of both the east and the south wall are preserved, the latter for a total length of 2.60 m. On top of the stone foundations, we found remains of dissolved clay, which strongly suggests the reconstruction of a mud-brick elevation. The first temple of *Malophoros* (particularly its north, west, and south sides) offers the closest comparison for the structure and dimensions of the foundations of our building and the materials of the elevation.[7] Unlike *Malophoros* I, however, our *oikos* does not have a front made of ashlar blocks, which in the case of the temple at the Gaggera presumably supported a pediment. Architecturally, this speaks to an earlier date for our building.The foundations excavated in Trench L are located only 0.60 m under the present ground level. The fact that they lie under the ground level associated with the construction of Temple R (*c.* 590–580 BC) and also under the foundations of Temple B (*c.* 300 BC) explains why, unlike the elevation, they were not destroyed in subsequent construction work in the early 6th and late 4th centuries. Interestingly, two iron spears were found on top of these foundations, deposited within the context of the construction of Temple R. This could indicate that the structure to which they belonged was ritually buried on the occasion of its dismantling.

The second feature associated with early Greek architecture from our excavations consists of the remains of a thick (*c.* 0.15 m) floor made of hard-pressed clay found in the area of the *adyton* of Temple R (FIGURE 6) (Trench P). This floor is comparable to the one found in Trench L and it is located at the same

[6] On the (mainly later) theme of the spear-won land, see more recently Barbantani 2007.

[7] Dewailly 1992: 8–21, fig. 5; Gàbrici 1927: 66–73; Gàbrici 1956: 238–245.

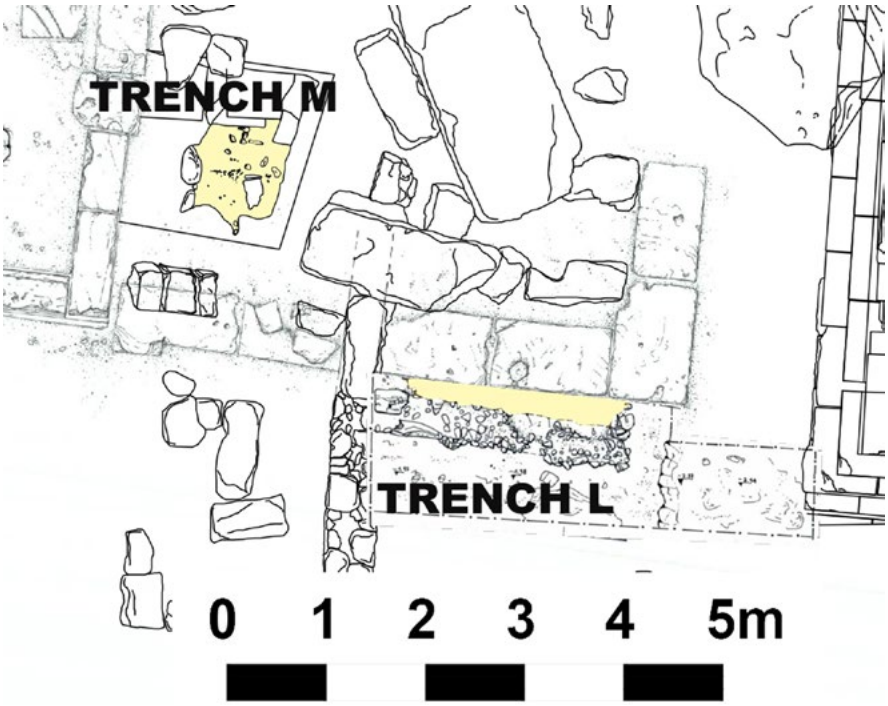

Figure 4: Area in front of Temple R, with Trenches L (2010) and M (2011) and indication of remains of early clay floors (drawing: Massimo Limoncelli, Filippo Pisciotta and David Scahill. Institute of Fine Arts–NYU).

altitude of *c.* 27 m above sea level. This floor found in Trench P was cut by the foundation trenches for the north, west, and south walls of Temple R. In addition, this floor appears to have been pierced by at least four postholes (two similar postholes have been excavated in Trench O, corresponding to the southeast corner of the *cella* of Temple R). D. Scahill has associated these postholes with lifting devices for the construction of Temple R. Considering contemporary architecture in Greece, one is reminded of the postholes in the *Oikos* of the Naxians on Delos,[8] which have also been associated with the lifting of blocks or columns. Returning to our clay floor, no evidence for it has been found in Trench O and in Trench Q, the latter corresponding to the middle of the *cella* of Temple R.

The third feature is quite intriguing: about 80 fragments of pale reddish-brown material identifiable as mud plaster, finished on both sides and containing a significant amount of clay, a low percentage of sand, and vegetal matter (FIGURE 7). Some of the fragments suggest that the mud plaster was partially fired, perhaps through burning this material or the building to which it belonged, rather than as part of the construction process. Fragments of this mud plaster have been found at various levels, from the late-6th to early-5th-century leveling corresponding to the renovation of the sanctuary (such as Trench A SU 5) all the way down to the layer of red sand covering the bedrock (such as Trench O SU 50). This last provenance would suggest the attribution of our mud plaster to structures earlier

Figure 5: View of Trench L and remains of early Greek foundations and floor
(photo: Lillian Stoner. © Institute of Fine Arts–NYU).

[8] Gruben 1997: 316–318.

Figure 6: Remains of early clay floor in Trench P (2013–2015), in the *adyton* of Temple R, with remains of postholes associated with the construction of Temple R. The hole in the center of the floor represents the bottom of a looting pit dug in the *adyton* down to bedrock in 409 BC (photo: © Institute of Fine Arts–NYU).

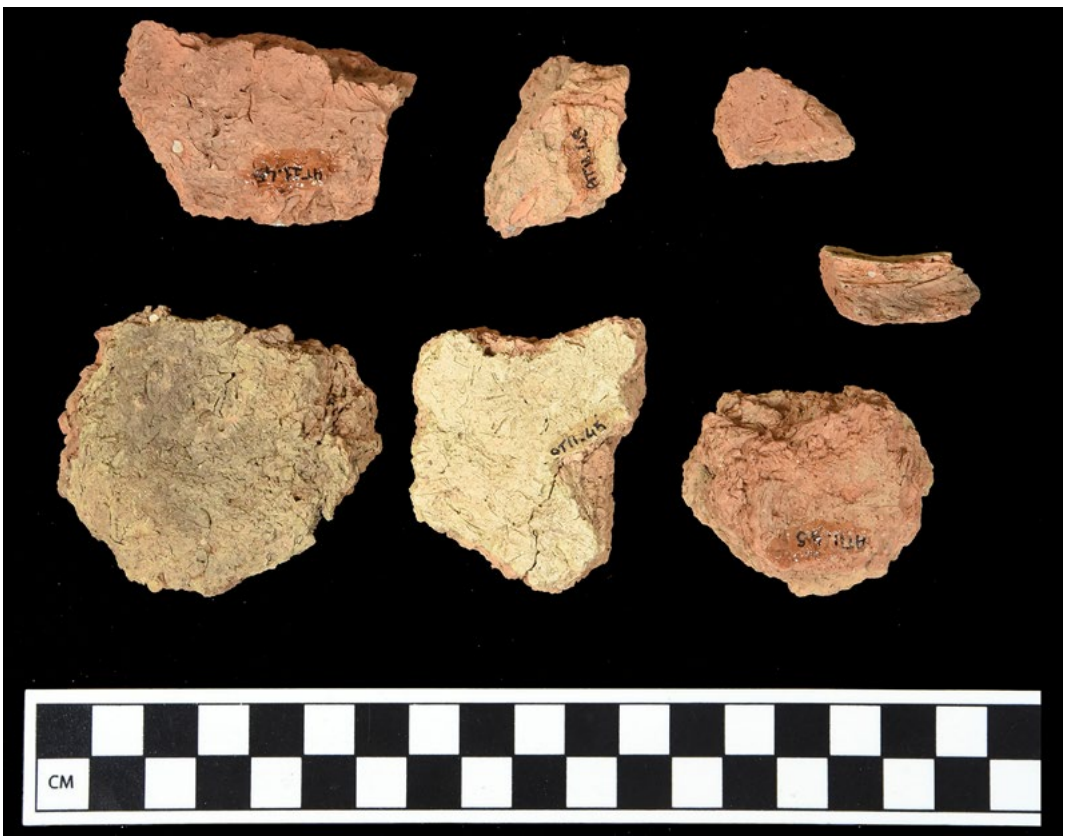

Figure 7: Fragments of mud plaster from Trench M (photo: Raffaele Franco. © Institute of Fine Arts–NYU).

(Bronze Age) than those being considered here, but the fact that the largest concentration of this material has been found in association with the construction of Temple R suggests that at least part of this material belonged to the early Greek phase under discussion. Based on comparative evidence,[9] this mud plaster is best associated with a mud-brick wall and thus the elevation of our early Greek structures.

The lack, in Trenches O and Q, of a clay floor comparable to those found in Trenches L and P, seems to exclude the possibility of one large structure, which would have been at least 21 m long and 6 m wide, and thus larger than its successor, Temple R. We seem to be dealing, instead, with two separate, relatively small buildings, sited near to each other, as also attested at Gela between the 7th and early 6th centuries.[10]

There seems to be no doubt that these early Greek structures had a sacred function. This is indicated by the pottery found in and above the remains of the clay floors, including a large amount of fine ware and shapes associated with the consumption of wine, a staple of cult practice in our part of the sanctuary from the 7th all the way down to the 5th century. Also worth mentioning is the dedication of an iron spearhead embedded in the clay floor in Trench P, a form of foundation offering attested for Temple R.

As for dating this early architecture, the *terminus ante quem* is provided by the construction of Temple R. The rich foundation deposit under the floor of this structure, with Early Corinthian and Middle Corinthian pottery, suggests dating Temple R's construction to *c.* 590–580 BC. A safe *terminus post quem* is provided by the discovery of Early Corinthian and Greek Sicilian pottery in the preparation of the clay floor in Trench P. Based on the evidence currently available, the more likely dating of our early structures is to *c.* 610 BC at the latest, their life lasting only one generation.

Our finds associated with this early phase datable between *c.* 630 and 590–580 BC are of particular interest on a number of counts, the first being the location and form of early Greek settlement in Selinunte. As mentioned above, our evidence is potentially the first for a building at this site firmly dated within the 7th century.[11] There is, in fact, no safe evidence for other structures from this period on the rest of the Acropolis and Manuzza,[12] and the scanty remains found by the *DAI* in Rome under the fortifications in the *Gorgo Cottone* valley can only be generically dated to before *c.* 590–580 BC.[13]

The fact that the earliest-documented structure in Selinunte is from the southern sector of the Acropolis lends significant support to the theory, especially argued by A. Di Vita and D. Mertens,[14] that the original Greek settlement was located south of avenue Sf. In addition, the fact that our early structures have the same orientation as Temple R and run parallel to the east-west SB avenue (this is best apparent in the case of the structure identified in Trench L) supports Mertens's suggestion of a regular, orthogonal plan at the time of the foundation, generated by the SB avenue and the north-south SA avenue (FIGURE 8).[15] It seems likely that the 7th century cemetery excavated by A. Rallo in the agora area served this early settlement, before the dramatic expansion of Selinus in the first quarter of the 6th century.[16]

Last but not least, the discovery of votive material datable to the third quarter of the 7th century strongly supports the theory, first advocated by Gàbrici,[17] that the area of the main urban sanctuary was chosen as a sacred space at the time of the foundation of Selinus. This should not come as a surprise, based on the available archaeological record for Archaic Greek settlement in the West.[18]

Also, there is sufficient evidence to attribute Temple R to a goddess, and there are good reasons for thinking, although only hypothetically at this stage, of Demeter *Thesmophoros* (a less likely alternative being Artemis).[19] The fact that this goddess was closely connected with the foundation of Megara[20] and that the cult of Demeter could be one of the most ancient in Selinus would offer an intriguing correspondence between *metropolis* and *apoikia* at the religious level.

The detailed approach to stratigraphic excavation of our mission, combined with the sifting of the entire excavated deposit and the retention and analysis of all the artifacts and faunal remains, not only gives a clear sense of ritual practice and its development from the Orientalizing all the way down to the early Hellenistic period. But it also means that we have a clear sense of the larger development of material culture and a reliable statistical base for a number of more general considerations.

[9] Malacrino 2010: 42–55; Wright 2005: 93–94.
[10] Lippolis *et al.* 2007: 814–816.
[11] For a discussion of the available evidence before our findings, see Mertens 2006: 85 and Mertens 2010: 97, 99.
[12] Fourmont 1981 and in Tusa *et al.* 1984-1985: 559 does not provide a specific archaeological dating for the Archaic structures (which could still be dated within the early 6th century BC) found in her excavations north of avenue Sf (such as the wall 1981, fig. 7a); Rallo 1976–1977: 722–723 does not indicate the alleged remains of indigenous huts in her state plan and does not publish sections of her trench.
[13] Mertens 2003: 226, 320; Mertens 2006: 84.
[14] E.g., Di Vita 1996: 282; Mertens 2015: 375–376.
[15] Mertens 2006: 83–85.
[16] As originally suggested by Rallo 1982: 216.
[17] Gàbrici 1929: 97–112; Gàbrici 1956: 207–237.
[18] Marconi 2007: 29–60; Mertens 2006: 36–89.
[19] Marconi 2014.
[20] Bremmer 2011: 23.

Figure 8: Reconstruction of original urban plan of Selinunte (drawing: Mertens 2006. Courtesy of Dieter Mertens).

On the side of material culture, probably the most important acquisition involving this early phase of Greek settlement in Selinunte concerns the evidence for indigenous pottery. The presence of pottery from indigenous settlements in western Sicily was immediately noticed while excavating our first trench in 2007.[21] Today, now that the difficult task of quantification of the pottery found in trenches A–P has been completed, we can offer some statistically reliable numbers. In essence, there is a sharp difference between the amount of indigenous pottery documented for the period between 590–580 and 500 BC, only 0.6 percent of the total, and the amount of pottery documented earlier, between 630 and 590–580 BC, when indigenous pottery represents roughly 2.5 percent of the total and appears thus four times more frequently.

The evidence concerning indigenous pottery from our excavations is comparable with the situation at Himera.[22] The highest rate of indigenous pottery is found in association with the early phase of life of this Greek settlement on Sicily's north coast. At Selinunte, the new data demonstrate that the presence of indigenous pottery was indeed marginal within the larger context of the material culture of the Greek foundation. But that considerably higher rate in the early phase of life of Selinus undoubtedly points, as for Himera, to a significant degree of interaction with the hinterland at the time of foundation. We hope that our continued work will further contribute to an understanding of this thus far little-known but essential phase of life of Selinunte in antiquity.

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[21] Marconi *et al.* 2015.
[22] See, more recently, Vassallo 2014.

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Travels Around Greece

Tony Spawforth, Erica Davies and Marie-Christine Keith

This is a collection of memories set down by three ex-pupils of Richard Tomlinson. Erica Davies and Tony Spawforth were both undergraduates at Birmingham University from 1968 to 1971, Marie-Christine Keith from 1970 to 1973.

First and foremost, for all three, Richard was an inspiring undergraduate lecturer, and a natural. He lectured us on a variety of subjects in ancient history and archaeology, from Ptolemaic Egypt to his forte, Greek architecture. His lecturing voice was strong and emphatic. He employed vigorous hand-gestures when reinforcement was needed of some point about, say, the eccentricities of Sicilian Doric. In contrast to some of his Birmingham colleagues at that time, his lectures, such was the clarity of thought and organisation, broke down perfectly into headings and sub-headings; they were ideal for note-taking and revision.

The other memorable feature of these lectures was the Kodak carousel, its tray loaded with Richard's personal slides. On the often grey days of a Birmingham term-time the sights on the collapsible screen in Richard's office, where he taught, wafted us to blue-skied Greek lands. He did much to fan our resolve to see Greece for ourselves.

Richard in fact was instrumental in bringing us to Greece - as was the generosity of the British taxpayer in those dim and distant days. Our degree course required us to go on a study-trip to Rome or Greece in our second year, with our local authority stumping up a significant part of the cost. Two of us, Erica Davies and Tony Spawforth, were in a group of four undergraduates whom Richard drove to and from Greece in the Easter vacation, 1970.

To say that this was a great adventure would be an understatement. None of the four had been to Greece. We all met in London at a parental home, where Richard piled us into the departmental Land Rover. The currency controls imposed six years earlier restricted the British traveller to £50 of foreign currency; pooling this meagre fund for petrol money made distant travel more possible. The journey took us through Germany, Austria and what was then Yugoslavia into northern Greece, whence we drove down the National Road to Athens. Two sat in relative comfort in the front and then took turns to lie outstretched in the back with a rather less enticing view of the world.

Richard was encumbered with a clutch of four non-drivers, and so all the driving fell to him. He was tireless in rousing his fellow travellers to early starts and our progress through the continent was surprisingly swift. He was a demon driver in all but speed; the Land Rover chugged along at a stately pace as highly engineered cars zoomed past us on the autobahns.

For the first night we stayed in a motel in Germany. It was with some astonishment that we encountered an oversized US serviceman who asked us what military base we were from. He assumed that every non-German originated from such a place, despite the fact that we looked an unlikely bunch of soldiers. The smooth and swift German and Austrian motorways brought us to Slovenia for our second night. We stayed in a small mountain village made memorable by the unlikely sight of a resplendent peacock posturing on the wall of a humble village abode. Erica was particularly pleased to be here because her father had been a British Special Operations officer attached to a partisan brigade in Slovenia in 1943.

The alpine charms of Slovenia soon gave way to one of the great driving challenges of the journey, the fearful Zagreb to Belgrade highway. This life-threatening, three-lane road, rutted with pot-holes, was an invitation to dice with death. The Land Rover came into its own, its rugged suspension negotiating the choppy surface with aplomb. Richard continued driving with equal aplomb and imperturbability, while we students passed the time counting at least 26 wrecked vehicles by the roadside. In 1970 the British were still seen as allies of Yugoslavia and we were treated to many cheery waves along the length of the route.

There was a frisson of tension as we crossed the border into Greece. Rumours, probably apocryphal, had reached us that Greek border guards - this was the conservative regime of the colonels - were prone to snipping the long hair of male travellers. Tony turned up his collar to hide his lustrous locks.

Richard found himself presiding over what for his students were their first confrontations with Greek menus and Greek food. *Avgolemono* soup was one of this new world of flavours that sticks vividly in the mind. Thick, sour yoghurt drenched with honey was also recommended. He also alerted us to the phenomenon of the 'Hello Boys', Greeks who had emigrated to the USA

holding to the dream of returning to the fatherland to buy land and settle in comfortable retirement. As we found out ourselves, often their English had dwindled to very few words, not much more than their tell-tale greeting to strangers along the lines of: 'Hello boy you from the States?'

For us students, and like today's gap year, this trip in retrospect had many of the features of a rite of passage. There was the separation from a familiar world (in those days second-year UK undergraduates had not necessarily done much travelling abroad if any), along with the transitional experiences of a completely new culture, one where the availability of cheap Greek wine did not go unnoticed.

After going our separate ways on arrival in Greece, we were reunited with Richard at Epidauros, where his lively and expert description of the intricacies of ancient drama were entrancing and brought the site vividly to life. After Epidauros there was even the liminal moment of fear, in this case when Richard took us to the archaeological site at Perachora, set in its glorious landscape steeped with the scent of pines.

This was a site on which Richard made an enduring mark both as an excavator and as a re-interpreter of structures found by earlier British archaeologists, including, as Richard demonstrated, important examples of ancient Greek dining rooms. On this visit in 1970, Richard took us to the upper plateau, where he led us through an unpromising hole in a field down onto a superb stone staircase leading to a large subterranean reservoir of the 4th century BC.

Unfortunately we had only advanced a few steps before Richard, leading the way, happened to shine his torch upward onto the vaulted ceiling. The effect of the light was to launch into scurrying movement a mass of palm-size spiders poised all this time just above our heads. We should have been admiring the excellence of the ancient masonry: however, one of our student number, at that time a certifiable arachnophobe, really did have a fit, and we hastily abandoned our descent in order to rush her up into the sunlight.

Although we students were left to our own devices and did most of our travelling round Greece on our own, this visit to Perachora was one of a limited number of sites which we visited under Richard's brilliant guidance. While we were in Athens he also took us, all for the first time, to see the British School at Athens. We were thrilled when Richard ushered us through the august portal and allowed us to poke our heads round the door of the Finlay common room and that of the library.

This visit had an unforeseeable momentousness for the three authors of this appreciation, who went on, at different times and in different ways, to forge ties with the British School which still endure. All Richard's undergraduate and post-graduate students were encouraged to spend time at the School. When three of his post-graduates coincided with his term as Visiting Fellow at the BSA, they were encouraged to visit the sites of Attika. Two of them, including one of these authors once more, took an extended tour of the Peloponnese with Richard as expert guide.

He continued to take an interest in his students long after they left his tutelage. In the case of Marie-Christine Keith he gave unnecessarily fulsome acknowledgement of her catalogue of the architectural terracottas from the excavations of Dr Hector Catling at the Menelaion site, near Sparta, as part of his larger writing-up of the architectural remains from the Classical sanctuary for the final publication. More recently, Tony Spawforth recalls with gratitude Richard's willingness to read carefully a complete draft of his book on Greek temples and to share his photographs of temple-sites.

For Richard himself, the British School was the institution which, more than any other, supported his professional interest in Greek archaeology, and to which he gave sterling service at different stages of his university career, notably as Visiting Fellow, as Editor of the *Annual of the British School at Athens* and as acting Director (1995-1997), following the sudden death in post of the then Director, the numismatist Martin Price.

As acting Director charged with the upkeep of the School's fabric, Richard's architectural *nous* prompted him to look up original plans of the School buildings housed in the Royal Institute of British Architects in London. Among other maintenance works, he instigated the modernisation of the Hostel's basement kitchen, which now received the steel cookers and sinks which Hostel residents still use. He was also responsible for re-roofing the Upper House. This work permitted the establishment under a subsequent Director of an artist-in-residence's studio in the now rain-proof attic.

As acting Director of the BSA Richard was accompanied to Athens by his late wife, Heather. She was as devoted to him as he was to her. She gave up her career as a mathematician to support Richard by raising their four children. Outspoken and an able mechanic, she had taken a course at the Longbridge car plant - the only woman at the time to do so. Richard took pride in the fact that she could strip back a Land Rover, not to mention her speedy driving of an Alfa Romeo.

Richard's published work on Classical Greek architecture includes such well known masterpieces as his *Greek Sanctuaries* (London, 1976), typical in its concision, clarity and immense readability. It is less well known that his passion for Classical Greek

architecture prompted him to build his Birmingham house on the plan of the Erechtheion or that, when *per force* he found himself far from the monuments of his beloved Greece, he sought out the neo-classical streets of Edinburgh, the Athens of the North, where he kept a flat. In later life his love of Greek architecture led him to study the early photographs of Greece, especially Athens, a subject on which he lectured enthrallingly and eventually published a book (*The Athens of Alma-Tadema*, Sutton 1991).

Others are much better placed to offer an authoritative appreciation of Richard's continuing importance and achievements as a scholar. As young people, what we all took away from those formative times spent in Richard's company in our late teens and twenties was his true love of Greece ancient and modern. We also have all retained a lasting eye for off-centre doorways and hydraulic plasterwork on Greek archaeological sites.

We hope we have conveyed something of this sense of our debt to an outstanding teacher and a true philhellene.

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Listening to the Stones: Essays on Architecture and Function in Ancient Greek Sanctuaries in Honour of Richard Alan Tomlinson deals with a range of topics that relate to the broad scope of Richard Tomlinson's archaeological quests and echoes his own methodology in research. Innovative masonry modes, matters of style and orders, proportions and design principles, as well as the inter-regional connections which fostered the transmission of architectural traditions and technical know-how have been cardinal points in Tomlinson's writings and lectures, as much as the Greek foundations on foreign soil, the forethought in planning, achievements in the field of engineering and the interaction between the secular, the sepulchral and the sacred premises in an ancient city. The conservative or progressive attitudes of a society usually leave an imprint on architectural creations. So, architecture is subject to evolution along with the developing societies. Its gradual changing signifies the building programs taken up by ancient communities. Within this frame, we better comprehend the function of public edifices, the remodeling of cult sites in accordance with historic circumstances, the role of politics in architecture. This book is a token of appreciation of a British professor of archaeology, who spread knowledge of the Greek civilization, manifesting the brilliant spirit of the versatile ancient Greek builders.

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Barbara Schmidt-Dounas studied classical archaeology, ancient history and prehistory at the Universities Johann Wolfgang von Goethe at Frankfurt/Main and Georg August at Göttingen in Germany. She was a scientific collaborator at the University Johann Wolfgang von Goethe in Frankfurt/Main – Germany within the project 'Donations offered by Hellenistic Kings to Greek Cities and Sanctuaries' which was funded by the German Research Foundation (Deutsche Forschungsgemeinschaft) (1984-1986). Barbara was a lecturer and later an assistant and Associate Professor of Classical Archaeology at the Aristotle University of Thessaloniki; in 2006 shewas appointed Professor of Classical Archaeology at the same University. Barbara is a member of the founding board of the Interdisciplinary Centre of Archaeological Studies 'Manolis Andronikos' (ΔΙ.ΚΕ.ΑΜ.) and a director of the Cast Museum of the Department of Archaeology, Aristotle University of Thessaloniki. Barbara is also a corresponding member of the German Archaeological Institute.

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