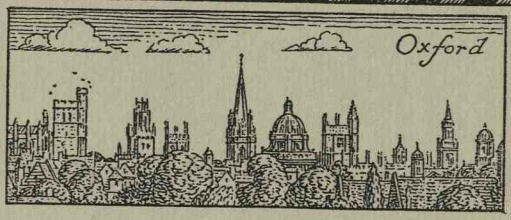

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HELLENISTIC ARCHITECTURE

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Vaulted antechamber in the Anfushy Necropolis, Alexandria; rock-cut, stuccoed and painted. Ptolemaic-Roman period.

HELLENISTIC ARCHITECTURE

An Introductory Study

by

THEODORE FYFE, M.A.

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To

M. N. F.

FOREWORD

The amount of written material which is available on the various aspects of Greek and Hellenistic architecture is already so great that the production of a new work might be regarded as superfluous; but Hellenistic architecture has not, so far, formed the subject of a separate treatise. I have been forced to realise the need of such a work from the bewilderment of younger students about the actual meaning of the term "Hellenistic". It seemed a favourable opportunity to produce this book when the interest which I had taken in the study of classical architecture, extending over many years, was stimulated considerably by an extensive tour in the Eastern Mediterranean during the first half of 1934, in the course of which I visited most of the sites and buildings now described.[1] A series of lectures delivered at Cambridge, early in 1935, enabled me to arrange the material in the order required.

As its title indicates, the book does not pretend to be more than a brief introduction to a subject which could be presented much more thoroughly. From the great range of available material it seemed advisable to make a selection suitable for presentation in a short volume. It might be considered that, for an introductory study, certain portions are too technical. A great deal, if not all, of Chapters IV, V and VI could indeed be omitted altogether by the general

[1] The tour was undertaken to fulfil the requirements of the Henry L. Florence Bursary of the Royal Institute of British Architects, of which I was the holder in 1932–34. The Institute have kindly permitted me to use, in the present work, some of the material of the Report on the tour published in their *Journal* on January 26th and April 6th, 1935.

reader, but I have tried to maintain, in the remainder of the work, a narrative flow which might interest such a reader sufficiently; and it should be recollected that the book generally—not only the more technical parts of it—has been written mainly for the student of architecture.

A more serious criticism might be made of a direct or implied characteristic of the whole book—the inclusion of work dating from some two centuries or more after the Roman domination. Concerning this I need not enlarge on what I have said in various parts of the text, particularly in the first Chapter, but I would emphasise again the extreme difficulty of assigning any definite limit to the term "Hellenistic" except on stylistic grounds; many forms which were wholly or partly inspired by Hellenism were continued right into the Early Christian building periods of the fifth and sixth centuries. It is of course most regrettable that so little is yet known about architecture which is definitely Hellenistic in a historical sense (i.e. as belonging to the third and second centuries B.C.), but the enlightened attitude of the present Turkish Government encourages a hope that the more thorough investigation of Asia Minor may yield additional architectural evidences of the first importance belonging to this period.

In the first Chapter I have suggested the importance of historical geography for any account of the architecture of the Hellenistic Age, but a considerable amount of historical research is necessary before definite conclusions can be reached about the control of architectural events. This is particularly applicable to western Asia Minor in the difficult period that followed the death of Antigonus in 301 B.C., but it is almost equally true of Palestine. The architect can unravel some of the tangles by patient research in the stylistic aspects of building form and detail, and so assist the historian

and the archaeologist. I trust that the present work will lead to further localised research and that a comprehensive history of Hellenistic architecture, worthy of such a great subject, may yet be written.

My gratitude to all those whose writings have assisted me cannot be too fully acknowledged, particularly on the purely historical side. The text or the notes to each chapter contain references to many of them, but one work in particular should be mentioned here—Prof. Robertson's *Greek and Roman Architecture*, published in 1929. Apart from the value of the book itself, the two Appendices, containing a bibliography which can be regarded as exhaustive up to its date, deserve the grateful thanks of all workers in the classical field. Except where necessary, I have refrained from giving references to published works mentioned in that bibliography.

I have endeavoured to avoid the repetition of illustrations which have already appeared in publications well known to English architectural students, such as Prof. Robertson's work and that of Messrs Anderson, Spiers and Dinsmoor, published in 1927. I have, however, included the general plan of Priene taken from Prof. A. von Gerkan's work (fig. 50) and my own photograph of the *proskenion* of the theatre at Priene (Pl. XXIII*b*). The entablature details from the Jupiter temple at Baalbek (Pls. V*a* and XVII*b*) and the Circular temple at Baalbek (Pl. IX*b*) have also been included because they have a certain freshness.

I have used thirty-three photographs and sixty-three sketches of my own. I need hardly refer to the forms of mouldings and ornament in the sketches. They are merely general impressions quickly executed, as seen by an architect; but the more elaborated records of mouldings in figs. 19 and 27 should be explained. Though these are, for the

most part, based on some measurements which I have been careful to indicate, I cannot claim accuracy even for the best of them. Here again they are the forms as I sketched them, checked, wherever possible, by dimensions. That even the trained eye is sometimes misled is too true, but it should be recollected that no two versions of a measured and carefully-drawn moulding are ever precisely the same. The architect tends inevitably to put down what he himself wants to see or what he feels in the expression of the form; and if only by the mere thickness of a line the extreme delicacy of a Greek moulding can be quite changed. I felt that I could not trust myself to re-draw anything except the two entablatures from Belevi in fig. 19 and the Doric capital in fig. 31. The other sketches here reproduced were inked-in on my original pencil ones and sent straight to the printer. This accounts for some variations of relative scale, as e.g. in fig. 27 *k* and *l*.

The many, both in western and in Mediterranean lands, whose friendly aid, ungrudgingly given, has been of material assistance, I may perhaps be permitted in this place to thank in a general and not a particular way. I have referred to them individually in the Report of my tour, already mentioned, but I should like to thank the General Board of the Faculties in the University of Cambridge for granting the extended leave of absence that enabled me to undertake that tour. I am again much indebted to Mr W. W. Tarn, in the present case for reading through Chapter I and part of Chapter VIII. I am also most grateful to Prof. D. S. Robertson for some helpful suggestions and to my friend Mr Henry M. Fletcher for reading through the whole of the work in draft.

I am happy to acknowledge the cordial answers I received to all my requests to reproduce or to copy published illus-

trations and to make drawings from particular sites or museums.[1] I appreciate deeply the unqualified permissions of Prof. Dr Ernst Buschor, Prof. Dr Josef Keil, Geh. Prof. Dr Th. Wiegand and Sir Arthur Evans (to whom also on general grounds I owe a gratitude that no words can express), to make use of any of their published material. Dr Keil, in the most friendly way, had no objection to my recording the mouldings from Belevi shown in fig. 19. I tender my warmest thanks to M. Henri Seyrig (Direction des Antiquités, Haut Commissariat en Syrie et au Liban), for making available any photographs that I desired from the splendid collection of the Antiquities Service at Beyrouth. I am indebted to Prof. A. Maiuri, Director of the National Museum at Naples, both for permission to use the plans of two houses at Herculaneum and to reproduce two of my free sketches of architectural details from that site; to Dr A. Adriani (Director of the Graeco-Roman Museum at Alexandria), for permission to reproduce my own photograph of the Mustapha Pascha tombs, a sketch of detail from the same (this material being hitherto unpublished) and sketches of carved bases in the museum; to Prof. W. von Massow, for permission to publish photographs of the Market at Miletus and of the model of Pergamum[2] in the Pergamon Museum, Berlin; to Prof. W. A. Campbell and Prof. C. R. Morey (representing the Committee for the Excavation of Antioch and its Vicinity), for leave to publish the photograph of the Antioch floor mosaic; to the British Academy and Don Miguel de Asin, for permission to use the Pharos restoration of the latter and of Don M. Lopez Otero; to

[1] For detailed references see *List of Illustrations*, or (where taken direct from publications) the illustrations themselves.

[2] I have adopted this spelling throughout, as it has general acceptance in English and American writings. In Germany the equally correct spelling "Pergamon" is used officially at the Berlin museum and by German writers.

Dr Ciro Drago (Director of the National Museum in Taranto), for allowing me to reproduce sketches of three fragments in the Taranto museum; to Dr Evvaristo Breccia, for permission to use the published plan of the Catacombs of Kôm-el-Shugafa; to the Committee of the Palestine Exploration Fund, for the plan and elevation of El-Khazne at Petra published in their *Annual*; to the Trustees of the British Museum, for the plan of part of the sixth-century temple at Ephesus from the British Museum publication; to the Council of the Architectural Association, for the details of the Mausoleum Order published in their *Sketch Book*; to Prof. E. Pontremoli (Professor of the École Nationale Supérieure des Beaux Arts), for the illustration from *Pergâme*; to M. J. Chamonard, for the plan of the House of the Masks at Delos in *Délos*, XIV; to Prof. David M. Robinson, for permission to make a drawing of a border from Olynthus; to the Committee of Yale University and the Clarendon Press, Oxford, for permission to use the plan of Jerash; and to the American School of Classical Studies at Athens, for the use of the plan of the excavations at Corinth. I am most grateful to Miss Alene Williams, Mrs R. M. Reed, Mr C. A. Greig (H.M. Consul-General at Izmir), Mr G. W. Horsfield (Inspector and Adviser to the Transjordan Department of Antiquities) and Mr D. C. W. Verey, for supplying me with original photographs or negatives.

In addition, I have to thank the following publishing firms or agencies for permission to reproduce or to copy pictures from the books or journals mentioned: fig. 43, Éditions Alpina, Paris (A. Maiuri, *Herculanum*); fig. 57, *The Architect and Building News*, London; fig. 44, E. de Boccard, Paris (*Exploration Archéologique de Délos*); figs. 4 and 48 (Aezani), Établissement Firmin-Didot, Paris (Lebas-Reinach, *Voyage Archéologique en Grèce et en Asie Mineure*); fig. 48 (Basilica),

J. M. Gebhardt's Verlag, Leipzig (J. Durm, *Baukunst der Römer- Handbuch der Architektur*, Band II); figs. 19*g* and 45, L. O. Paul Geuthner, Paris (C. Dugas, *Le Sanctuaire d'Aléa Athéna à Tegée*, and A. Gabriel, *Recherches Archéologiques à Palmyre*); figs. 6, 7, 48 (Theatral Hall) and 50, and Pl. XXVI, Walter de Gruyter and Co., Berlin (Th. Wiegand, *Baalbek*, *Milet*, I, 2, and A. von Gerkan, *Griechische Städteanlagen*); fig. 15, Istituto Italiano d'Arti grafiche, Bergamo (E. Breccia, *Alexandrea ad Ægyptum*); fig. 4 (below) and Pl. VII, Heinrich Keller, Leipzig (Th. Wiegand, *Palmyra*); figs. 41 and 42, Macmillan and Co. Ltd., London (Sir A. Evans, *Palace of Minos*); fig. 48 (Agora and Stoa), The Macmillan Company, New York (A. Marquand, *Handbook of Greek Architecture*); fig. 14, The Manchester University Press, Manchester (*Monumenta Asiae Minoris Antiqua*, Vol. III); fig. 48 (Square Hall), Georg Reimer, Berlin (Wiegand and Schrader, *Priene*); fig. 46, John Tiranti and Co., London (Letarouilly's *Édifices de Rome Moderne*); and also Joh. Fritz Treue, Berlin (Pl. XXVII *a* and *b*) and Fratelli Alinari, Florence (Pl. XXIX*b*), for permission to use their photographs in these plates, on which their names are mentioned.

At the end of a Glossary of the technical terms used in the text and notes I have given explanations of six of the special buildings at Delos mentioned in Chapter VIII. In view of the comparatively early dates of five of these, the remark, in Chapter I, that most of the Hellenistic work at Delos was subsequent to 166 B.C. might seem to require some qualification; but the statement is broadly true, because of the quantity and importance of the residential remains belonging to this later period.

The references to Asia Minor on pp. 12 and 46 should be qualified by an appreciation of the work of French, German

and Austrian scholars and their architects in various parts of that region during the second half of the nineteenth century. Particulars of the publications are given in Prof. Robertson's bibliography, but I might have mentioned, as important representative works of their class—in Chapter II, the temple of Rome and Augustus in G. Perrot and E. Guillaume's *Exploration Archéologique de la Galatie et de la Bithynie* (Pls. 14–31): in Chapter III, the round-monument at Panajirdagh described and drawn by G. Niemann in *Ephesos*, I, and the rock-cut tomb and grave-tower shown in O. Benndorf and G. Niemann's *Reisen in Lykien und Karien* (Pls. III and XXV). I ought also to have mentioned (on p. 55) the excellent photograph of the tomb at Mylasa on Pl. XLIX of the same work, and (on p. 51) the full geometrical drawings of the Nereid Monument in G. Niemann's *Das Nereiden-Monument in Xanthos*.

In conclusion I wish to express my warm thanks to the staff of the Cambridge University Press for the admirable manner in which they have produced the book, as well as for their courtesy and consideration on all occasions.

THEODORE FYFE

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January 1936

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(Where no source is given, from a drawing or photograph by the author)

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[1] Omitted for reasons of space and showing remains of the "Baths of Hadrian"? and the "Baths of Eurycles". The original title, etc. have been retained but moved to another position on the plan.

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Photo. by Mrs R. M. Reed

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Photo. by Mr C. A. Greig

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CHAPTER I

RISE AND DEVELOPMENT OF HELLENISTIC ARCHITECTURE

DEFINITIONS

It is convenient to consider Hellenistic art and architecture as commencing with the consolidation of the Macedonian supremacy under Alexander the Great. Work of the first half of the fourth century B.C. may be considered as purely Greek, but work which is later—or certainly from the commencement of the last quarter of that century—should be considered as Hellenistic. So much for the beginning: it is better not to consider any definite ending, but to look for the spirit of Hellenism, whether it be in the first century A.D. or considerably later.

Mr Tarn, in the historical outline to his book *Hellenistic Civilisation*,[1] deals with the nature, influence and chronological scope of Hellenism. He accepts "Hellenism" as the substantive of Hellenistic, Hellenisticism being an impossible word in any language. His time period from the death of Alexander in 323 B.C. to the establishment of the Roman Empire by Augustus in 31 B.C. would be generally accepted, though a word will be said about it later. He adds: "after the Hellenistic world had finally gone down in the ruin of the Roman civil wars, with the empire it began to be built up afresh on different lines; civilisation became Graeco-Roman." He adds later: "the Greece that taught Rome was not the older Greece but contemporary Hellenism, and so

[1] *Hellenistic Civilisation*, by W. W. Tarn, 2nd edn. (London, 1930), p. 1.

far as modern civilisation is based on Greek it is primarily on Hellenism that it is based."

J. B. Bury, in *The Hellenistic Age*,[1] says: "the art of the Hellenistic period cannot be ignored...a generation ago... there was a notion prevalent that the Greeks were already decadent in the third century....Nothing could be more untrue. That vague and facile word 'decadent' is often misused, but no misuse could be more flagrant than to apply it to the Greeks of the third and second centuries."

Mr E. A. Barber, in the same work, says: "I shall only refer indirectly to such things as the rise of the vast Hellenistic monarchies with their mixed populations and their crowded capitals, or the great increase in wealth and luxury, or the foundation of endowed institutions of learning or the advancement of science. By virtue of these things the Hellenistic world...is in many respects nearer to the world of to-day than are the Greeks of the classical age."

Finally Prof. W. S. Ferguson, in *The Cambridge Ancient History*,[2] says: "Hellenism failed to master the intractable soul of the Orient; but it acquired the capacity for world culture in the attempt. What led the proud Roman conqueror captive was not the aristocratic civilisation of Attic Greece, but the more seductive, accommodating, catholic modification of it that we call Hellenistic."

It is therefore clear that the best historical criticism emphasises the value of the Hellenistic age. Some aspects of the term Graeco-Roman should be cleared up. Here we are obviously on more difficult ground. Mr Tarn in the book just quoted says in a footnote: "one school would now include under Hellenism the contemporary civilisation of the

[1] *The Hellenistic Age, Aspects of Hellenistic Civilisation*, treated by J. B. Bury, E. A. Barber, E. Bevan and W. W. Tarn, 2nd edn. (Cambridge, 1925), p. 2.
[2] Vol. VII (Cambridge, 1928), p. 1.

Roman republic. It is not so included in this book; but I am not expressing an opinion here on that view."

W. R. Lethaby, however, raises a question which is pertinent to this enquiry. In his editorial comments in the fifth part of *Antiquities of Ionia*,[1] p. 17, he says, when dealing with Myra in Lycia: "the details of the architrave and the cymation show that the tradition of the work—although we should usually call the style 'Roman'—derives from Priene, Magnesia and other Hellenistic works. It appears more and more clearly that all 'Roman' architectural detail was in fact Hellenistic." In the Appendix of the same work he says: "it will not be out of place to consider what may be called the classical transition, and the relation between the architecture of Greece and Rome. A later phase of the same question has been raised by Strzygowski in his *Orient oder Rom*. In the result it will appear that the transition was almost entirely accomplished in the Hellenistic East, and that, indeed—except in a limited and local sense—there was no Roman architecture." This was written in 1915. About ten years earlier, H. C. Butler was feeling his way towards the same point of view.[2]

I am inclined to the opinion that Mr Tarn's astute recognition of Rome's intervention to save the classical spirit in Syria during the first century B.C. is most valuable in a general sense, and that in such a sense the term Graeco-Roman might be appropriate; but I question if that term could be applied with equal appropriateness to the architectural output of Syria at any period up to the fourth century A.D. I am also inclined to agree with Lethaby's inference that architectural style during this period in the Eastern Mediterranean should be called Hellenistic. Rome

[1] Macmillan and Co. Ltd. (London, 1915).

[2] *Architecture and Other Arts* (New York, 1904).

admittedly accomplished great structural works—bridges, aqueducts, baths, amphitheatres, and rotundas like the Pantheon. It has been assumed that the finer classical trappings and the domestic works were done by Greek artists. Does this carry us far enough? Is it not rather more true that all late classical expression was not Roman but was based on Hellenism, and was in some regions a direct and unbroken line of development from the severer classicism of earlier Greece? Even the arch as a decorative feature is seen early in Hellenistic development.[1]

What then are we to consider as Graeco-Roman, or is this title entirely unwanted? I think not. It seems to me that we can make a definite distinction in architecture between the Eastern Mediterranean and Europe, north and west of Rome, including Rome itself. South Italy (that is, for our purposes, Pompeii and Herculaneum) and—even more—Greece might be considered as on the borderline between Graeco-Roman and Hellenistic during this late period. Here we must apply the touchstone of style, as true a test in architectural detail as it is in painting or pottery. There can be no doubt that many architectural and decorative works of Roman date in these particular regions have the Greek spirit.

Before leaving this general ground we can reconsider two statements. The first is Lethaby's that Rome had a style "in a limited and local sense". I fancy that he was thinking of the Latin-Etruscan tradition which was indigenous to Italy, and this certainly had a strong influence on the constructive side of Roman architecture; and it also had some stylistic in-

[1] Also, but rarely, constructionally. See D. S. Robertson, *A Handbook of Greek and Roman Architecture* (Cambridge University Press, 1929), pp. 231 and 232; and M. Schede, *Die Ruinen von Priene* (Berlin, 1934), figs. 65 and 79, for both kinds at Priene.

fluence not applicable outside of Italy or the western provinces of the empire. The second is the date 323 B.C. To insist on this date for the commencement of Hellenistic architecture in Asia Minor might get us into difficulties. It is generally accepted that the last temple of Artemis at Ephesus, the temple of Athena Polias at Priene, the Mausoleum at Halicarnassus, and the temple of Cybele at Sardis, were Hellenistic works. I think it is only reasonable to assume that in Asia Minor, the original home of Hellenistic art, the date of 323 B.C. can be accepted in a general sense, certainly in a political one, but that art cannot be tied down so exactly. Comparative research in Macedonia might perhaps help to clear this matter up considerably. In the meantime I think we can assume that the great works of the fourth century B.C. mentioned above may rightly be called Hellenistic, or if we want to be more exactly accurate, proto-Hellenistic.

THE GREEK BACKGROUND

The study of the Hellenistic Age cannot ignore the earlier classical expression which was more stylised but which evolved much the same forms. The heroic world of Greek vases and of the Phigaleian frieze is echoed in the Pergamene altar and the Alexander sarcophagus. The most pertinent feature of this enquiry is the work of the mid-fourth century B.C. in Greece, just before the Macedonian expansion.

Two aspects of it are particularly important. One is the development that is shown by the temple of Athena Alea at Tegea, built about 355 B.C.,[1] and the other is the more domestic side shown by the recently discovered floor mosaics

[1] D. S. Robertson, *op. cit.* Appendix I, p. 329.

at Olynthus in Macedonia.[1] In both, we see direct forecasts of Hellenistic expression. The Tegean temple shows the architecturally-treated uncolumned cella, which we meet with about sixty years later at Didyma and about four or five centuries later at Baalbek and Palmyra. The Olynthus mosaics are among the first examples we have of the panel-picture subject familiar to us in the houses at Delos dating from the latter part of the second century B.C., but more completely paralleled by several mosaics from Antioch, commencing with the first century A.D.

We must consider that the great period of the sixth and fifth centuries B.C. was a powerful and significant background, so that any study of the Hellenistic Age should begin with a full appreciation of the earlier output. An overhaul of its main sources yields valuable comparative material. The Parthenon is the only Greek temple of major size in marble which has the greater part of its cella wall and the whole of its peristyle paving intact on one long side. The Athenian Propylaea shows superb handling of large marble masonry. Both the Parthenon and the Propylaea show ashlar work of a perfection which is rare even in Greece of the fifth century B.C. The beauty of the fitting of the large floor-slabs of the Parthenon cella is equally notable.

The sculpture from the temple of Zeus in the museum at Olympia should be compared with work of a slightly earlier period that can be seen in other museums—notably Delphi and the Athenian Acropolis. We see a handling of drapery which is architectonic. The parallel or radial folds have a cross-section which is like that of Doric flutings. These

[1] See article on excavations of the John Hopkins University, Baltimore, Maryland, in *Illustrated London News* for Nov. 10, 1934, by Prof. David M. Robinson; and *Excavations at Olynthus*, by D. M. Robinson, Part II, architecture and sculpture, and Part V, mosaics, etc. (Baltimore, London and Oxford, 1930 and 1933).

treatments indicate the harmony of sculptural and architectural forms which is so characteristic of the archaic period in Greek art; and it was a larger matter than that of the temple structures alone. An important temple had a multitude of cult figures in its precincts, which must have assisted the impression of wholeness.

For their siting, impressiveness and available material Paestum in Magna Grecia and Selinus in Sicily are more important than anything outside of Athens and Delphi, not even excepting Akragas (Agrigentum). The three temples at Paestum are intact to a great extent, and the Poseidon temple is in a more perfect state of preservation than any other Greek temple that exists. Modern excavation has made the site of Paestum an ordered arrangement, in place of the lonely waste it was till the beginning of this century. The western roadway which runs continuously past the sea-fronts of the temples is in relation not only to them but to an extensive system of public buildings which was placed between the Poseidon and Ceres temples. This had, as its focal point, another roadway proceeding towards the sea, which crossed the western road at right angles. The town walls on the east and south have been cleared and made an intelligible part of this great system. Finally, the great paved space with its altar base at the east end of the Poseidon temple makes that building much more effective.

Like Paestum, Selinus had a main paved street running north and south to the west of its acropolis temples, but the treatments of the two sites were, of necessity, radically different. The port of Selinus entered into the heart of the town and divided it into two sections. From early in the sixth century B.C. both sections must have been of equal importance, as each contained great temples. From their impressive positions and close spacing, it is obvious that the

two groups of temples must have marked sanctuary sites of great importance. What is now known as the acropolis site—containing temples A, B, C and D (there is no certain knowledge of their true ascriptions)—appears to have been strongly fortified. The evidences of walling, gates and towers on this section of the site are extremely valuable.

A proper study of Selinus must include the splendid architectural pieces which have been removed from it and which are finely displayed in the museum at Palermo; where also can be seen notable fragments from other Sicilian sites, especially Himera. The whole series, together with the still earlier remains in the museum at Corfu (Corcyra),[1] are the most valuable in existence for the close study of stone and marble treatments in archaic Doric. The upstanding gutter-parapets of Himera are more pronounced than those of the archaic temple at Ephesus. This usage was revived in an Assyrian form in the late Hellenistic East, e.g. in the temple of Bel at Palmyra.

If the study of Greek architecture is to be of any real value to the modern world of architects and craftsmen, it must be a whole study and not a partial one. We must, for example, think of the Parthenon not in its most obvious form as a sculptured building, but in relation to the known decoration of the Propylaea which led up to it. Any consideration of the actual light effects of the Propylaea, even as they exist to-day, will enable us to understand the value of its painted walls and ceilings. The synthetic use of colour as an accessory to interior effects is a matter which interests us enormously to-day. We are beginning to discover uses for colour in a great variety of ways and circumstances. Full

[1] The original fragments of the Gorgon temple (see below, p. 131) have now been completely assembled in the museum at Corfu.

appreciation of the classical uses of it should be, therefore, of paramount importance to us. Colour was, undoubtedly, to the Greeks a matter of skilful adaptation to certain lights, of the use of reflected light, of the relative importance of natural material having rich colour quality, contrasting, in harmonious association, with applied colour on material which called for it. We find all these problems in front of us nowadays. It is this which makes the contemplation of one of the supreme interiors of the world—that of the basilican church at Monreale (Pl. XXIX *b*)—such a revelation and delight. The airy spaciousness, the cool tranquillity combined with splendour, and the beauty of the detail in this truly classic interior, all combine to give the best impression that exists to-day of completely finished Greek and Hellenistic treatments.

THE CENTRES

Asia Minor. We must now return, more precisely, to the nature and scope of Hellenistic architecture. Reference has been made to the first great buildings of Asia Minor which might be considered as proto-Hellenistic. Lethaby[1] seemed to see in these the presence of a group of sculptor-architects of whom Pythios may have been the chief. What must be stressed is not so much the presence of these sculptors or sculptor-architects (that, in itself, was nothing new in Greek art), but the consistency in the development of earlier Ionian types—the Mausoleum, with its prototypes at Xanthus and Cnidus, and the Artemisium, with its sculptured column drums following on from those of the Croesus temple. The more detailed aspects of these forms will be considered later.

[1] *Greek Buildings represented by Fragments in the British Museum*, by W. R. Lethaby (Batsford, London, 1908), p. 69.

It is clear, however, that in Ionia there was, already, in the fourth century B.C., a rich endowment of architectural and sculptural form which was traditional. During the third and succeeding centuries, outside of this tradition, we can perceive Hellenism in its wider cultural aspects, i.e. as common to Greece, Syria, and even Eygpt, in greater or less degree. This catholicity of outlook can be understood when we study the remains of Ephesus or Miletus, side by side with those of Baalbek or Palmyra. Nevertheless, when we study the work at Pergamum, which belongs to a peculiarly valuable period for our purpose—that of mid-third to mid-second century B.C.—we seem to see a certain severity, as of something more purely Greek, which we do not find in Syria or Egypt. We really know, comparatively, so little of the whole architectural output of Asia Minor in the Hellenistic and Graeco-Roman periods, that this enquiry cannot be carried much further at the moment. It is sufficient to note the presence of the severer classicism as a factor of possible importance.

Pergamum, of course, demands some further consideration. We have discovered at least two definite schools of Pergamene sculpture. Was there a corresponding school of Pergamene architecture? It is doubtful, though there are traceable affinities between detailed treatments at Pergamum and Ephesus. I think it may turn out that the Attalids kept in touch with Athens in artistic matters to a greater extent than the Seleucids.

An important link may be furnished by the recently discovered mausoleum at Belevi, which is some 15 miles north-east of Ephesus. Here we have a structure, of smaller size than the more famous one at Halicarnassus, but apparently of similar type. The details are deeply interesting, and not least so because the moulded base of the podium has a

marked resemblance to the inner wall-base at Tegea. There is every reason to believe that this structure belongs to the third century B.C.[1]

The penetration of Asia Minor by Greek or Hellenistic influences was mainly in the western coastal region known

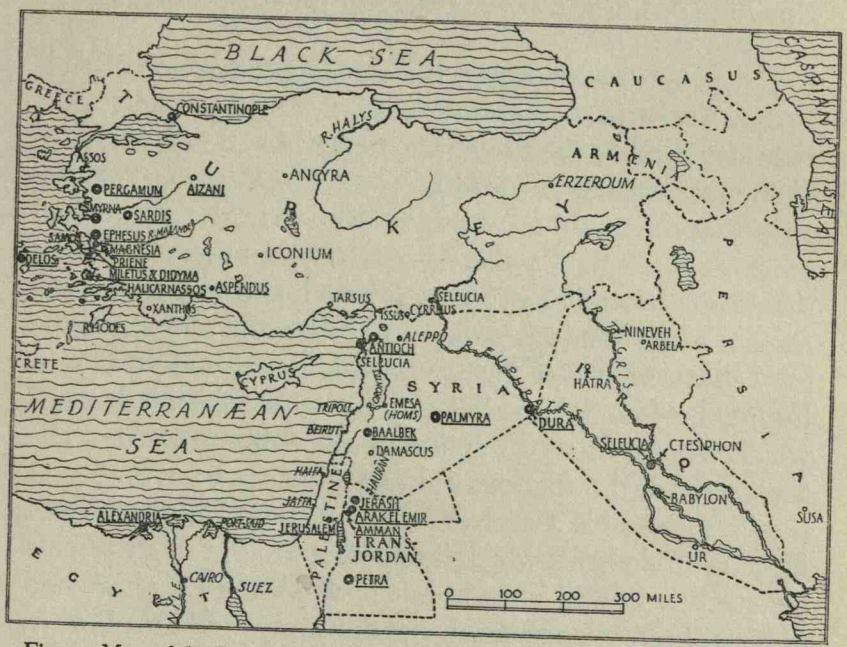

Fig. 1. Map of the Eastern Mediterranean region, showing the principal centres mentioned, underlined.

as Ionia. There were also early Greek settlements in Lycia, on the south-west, and in the Troad and Hellespontine-Phrygia on the north-west. In addition, there were Hellenistic settlements in Phrygia, Pisidia and Pamphylia, but there was no real occupation of the Greek settlements of the Black Sea littoral; and the central plateau of Anatolia, in-

[1] There are no inscriptions, but the character of the detail makes this dating fairly certain. For moulded base see fig. 19*f* and cf. fig. 19 *g*, *h*.

cluding the whole area east of the Halys river, was hardly penetrated at all. Cilicia was certainly penetrated, as the through route to Syria and the East was by the Cilician Gates. We know comparatively little about the architectural remains of these regions, though Hellenistic cities were thickly planted along the great road from Sardis and Ephesus to Antioch.[1]

Egypt. Ptolemaic Egypt had an Egyptian phase of Hellenism which, in a measure, is in a class by itself. In a measure, because the Ptolemies, being Macedonian Greeks, were quite capable of producing architectural work in the pure Greek tradition—witness the recently discovered tombs at Mustapha Pascha, Alexandria;[2] but there is another side that is strongly Egyptian. It is well known that it was a feature of Alexander's policy to absorb and propitiate the local characteristics of the new worlds that he conquered. In Egypt, he found himself faced by an architectural usage which was based on a religion of venerable antiquity. His absorption of the religious element was a matter of profound significance to his successors. The mixing of Egyptian and Hellenistic elements which is apparent in most of Ptolemaic architecture is well known, but possibly the Egyptian side of it has been over-stressed. Useful study could be done in tracing the Hellenistic element, even in those works which are markedly Egyptian. In the Catacombs of Kôm-el-Shugafa and the Necropolis of Anfushy at Alexandria we can see Hellenistic forms and details used both independently and side by side with Egyptian ones. It is probable that the Serapeum at Alexandria was to all intents and purposes a Hellenistic building, suitable as a setting for the statue of the

[1] See map facing p. 175 in *The Cambridge Ancient History*, Vol. VII (1928).

[2] The excavation of these tombs was commenced in 1933, under the direction of Dr Adriani, Director of the Graeco-Roman Museum at Alexandria, who kindly allowed me to make notes of the results to date, and to publish fig. 39 and Pl. II*a*.

god, which was celebrated as an advanced work in coloured materials by Bryaxis.[1] Generally speaking, we may infer that the Greek element was more pronounced in Alexandria itself, and the Egyptian element in the interior of the country.[2]

What has been irrevocably lost from Ancient Alexandria is, of course, most unfortunate—the Royal Palace, the Library, the Museum, and many other civil and religious buildings and monuments. The Pharos is in a class by itself and we know more about it. Though its internal ingenuities were no doubt due to the advanced scientific minds that Ptolemy Philadelphus[3] attracted to his court, the main motive, as a work of structural engineering, was probably induced by the buildings of Ancient Egypt. Neither in Greece, Asia Minor nor Syria were there any structures which equalled, in engineering ability, the pyramids or the great pylons of Thebes and Karnak. The only things comparable to them were the walls of Babylon. The Egyptian structures may have stimulated the designers of the Pharos.

Cyrene. Cyrene, on the north African coast, about 500 miles west of Alexandria, was an old Greek centre which became a Hellenistic one under the Ptolemies and was later annexed by Rome. Excavations are now being conducted there by the Italians. From the results discovered so far it is clear that the Graeco-Roman element was considerable.

Syria, Palestine, and the Further East. The architectural history of Hellenistic Syria began after the battle of Ipsus in

[1] The ascription is not certain. See Dr Evv. Breccia, in Guide Book to Graeco-Roman Museum, Alexandria—*Alexandrea ad Ægyptum* (Bergamo, Istituto Italiano d'arti grafiche, 1922).

[2] Recent discoveries at Hermopolis, in Middle Egypt, show marked Greek influence in the façade of one of the tombs there. (See the article by Prof. S. Garba, in *Illustrated London News*, June 8, 1935.)

[3] 285–247 B.C.

301 B.C. About that time Seleucus Nicator must have founded Antioch on the Orontes, strategically placed in the extreme north of Syria, more or less in a line between Sardis—his western outpost—and the direct track route to the Euphrates and the Further East. Placed at the converging end of an immense plain and well protected towards the sea by mountainous gorges, Antioch had great possibilities as a site. We have no record of its possessing any buildings of humanistic import, like Alexandria or Pergamum: rather is it supposed that it was pleasure-loving and luxurious. So little of it has been recovered, or may ever be recovered, that any definite Antiochene contribution to architectural style may remain problematical; yet the mosaics that have been disclosed by the joint American and French excavations are of great value.[1]

The site itself is grand and romantic. Its bridgehead on the Orontes offered opportunity for dramatic treatment, and some 4 miles west of this, the narrowing valley provided a higher plateau, overlooking beautifully wooded springs of water. This was Daphne, celebrated in Roman Antioch as a pleasure resort.[2] Chance discovery has already afforded ample evidence of the luxurious villas that were built in its sylvan scenery in the fourth century.

The excavators at Antioch have now completed their third year. They commenced in 1932, at the eastern end, on the low-lying ground beside the Orontes. It is obvious that a lengthy and difficult campaign lies in front of the explorers. The production of a definite plan of the ancient city in any

[1] See publications of the "Committee for the Excavation of Antioch and its Vicinity"—*Antioch on the Orontes I, the Excavations of* 1932 (Princeton, 1934), by W. A. Campbell and E. W. Elderkin, and the former in *American Journal of Archaeology*, Vol. XXXVIII (1934), No. 2.

[2] See R. Förster, "*Antiochia am Orontes*", in *Jahrbuch des Kaiserlich deutschen archäologischen Instituts*, Vol. XII, 1897 (Berlin, 1898), pp. 103–149.

of its phases, if possible at all, will involve many years of strenuous work. On the other hand, the discovery of mosaics is a very hopeful sign, apart from the intrinsic value of these evidences. Mosaics usually indicate defined floor areas and these, in turn, mean plans. It is not unlikely that some of the deeper and more undisturbed areas will yield structural material in position, or in fragments. Such discoveries would be of the utmost value.[1]

The other great centres of the Seleucid empire were Doura-Europos on the Euphrates and Seleuceia on the Tigris. Doura-Europos has yielded structural material of importance.[2] This has been overlaid with Parthian and late Roman work, so that any complete elucidation of the earlier Hellenistic city will be a difficult if not an impossible matter. The whole site is of great value, nevertheless. The city evidently contained a Christian community at a very early date; and a pre-Constantinian church or meeting hall, possibly dating from the first half of the third century A.D., containing paintings, is a vivid reminder of Syria's outstanding contribution to the history of architectural style—the links between Hellenism and Christianity, and the connections of both with the Orient. Seleuceia on the Tigris is now a mere name.[3] The cities still further east, planted by Alexander or his successors, have suffered a similar fate.

There are no extensive remains of the once flourishing cities in Syria or Palestine before the Roman period. Some

[1] Important discoveries have been made recently. See below, Chapter IV, p. 81, *Colonnaded Streets*.

[2] Franz Cumont, *Fouilles de Doura-Europos* (Paris, 1926); and "Preliminary Reports on Excavations at Dura-Europos" by M. I. Rostovtseff and others (New Haven, 1929–1934). For a good general account, see M. I. Rostovtseff's *Caravan Cities*, translated by D. and T. Talbot Rice from the Russian (Oxford, 1932).

[3] The Americans have issued two preliminary reports, but the site, so far, has hardly repaid excavation, architecturally.

of the tombs and temples in the Haurân and the Jebel Druze belong to the first century B.C. or earlier, and in Jerusalem the tombs of the Kidron Valley are probably second century B.C.[1] In Transjordan there is the remarkable fortress site of Arâk-el-Emîr, which contains the palace (so-called) of some Hellenistic official or prince, and which is certainly not later than the second century B.C.[2] Further south there are the still more remarkable evidences at Petra, which cannot be dated with any certainty till their architectural detail has been more fully investigated. The classical element is strongly predominant in the Haurân and at Petra.

Both geographically and politically the hold of Alexander's successors over Syria, Palestine and Transjordan was full of dramatic interest. This region, less than 400 miles from north to south and about 150 miles from east to west, is one of the most remarkable on the face of the earth. It has amazing contrasts of altitude and the cities, except Antioch, were on hilly country, far above the deep cleft of the Jordan Valley, which, at its lowest point, was 1300 feet below sea-level. Jerusalem is 2600 feet above sea-level. The watershed in the Anti-Lebanon, whence the Orontes flows north and the Litani flows south-west, and where Baalbek was placed, is 3770 feet above sea-level. Between this and the sea is the impressive wall of the Lebanon range, some 30 miles long, with a mean altitude of about 9000 feet. Even the desert centre of Palmyra was over 1300 feet above sea-level.

The central part of the coast lands remained Phoenician to a great extent in spite of Alexander's reduction of Tyre and Sidon. Parthia was a constant menace on the east.

[1] See Chapter III, p. 57.

[2] See C. J. M. Comte de Vogüé, *Le Temple de Jérusalem* (Paris, 1864). Also H. C. Butler in *Publications of the Princeton University Archaeological Expeditions to Syria*, Division II, Section A, Part I (Leyden, 1907). This is the fullest account, with restorations.

Judaea was a recurring source of trouble. The Seleucids in the third century were rarely able to prevent the Ptolemaic land-access from the south. Philadelphia, the modern Amman, was once a flourishing Ptolemaic city. Now hardly a stone of that city remains.[1]

Greece and Sicily. In Greece itself there were few Hellenistic centres of importance, but Macedonia, the political source of the new Hellenism of the fourth century B.C., may yet yield important results. Athens contains the fine Stoa of Attalus, of very late third century B.C., and Corinth has a large mercantile building which is certainly Hellenistic, and probably fourth century B.C. By far the most valuable evidences of later Hellenistic times are those of the island of Delos, dating mostly from the half-century of its reoccupation by Athens in 166 B.C.[2]

In Sicily, where Syracuse was the greatest power in the Greek world at the beginning of the fourth century B.C., the Hellenistic remains are disappointing. Curiously enough, it is in the neighbourhood of Palermo, which was never a Greek centre, that Soluntum, the only complete centre that might be called Hellenistic, exists. It is, in point of fact, as seen to-day, a Roman town built after the first Punic War, probably in the latter part of the third century B.C. For that very reason, its details, as essentially Graeco-Roman—in date, though perhaps not in intention—are interesting.

[1] The Ptolemaic influence in southern Palestine and Transjordan may have been considerable. Mr Horsfield considers that the best of the classical work at Petra is Ptolemaic with Nabataean features.

[2] *Exploration Archéologique de Délos*, I–XVII. École Française d'Athènes (Paris, 1909–1935). For a vivid picture of social, economic, religious and artistic aspects of Delian life during the ultimate phase of Athenian occupation in the last half of the second century B.C. see *Hellenistic Athens*, by W. S. Ferguson (Macmillan, 1911), Ch. IX. W. A. Laidlaw, *A History of Delos* (Oxford, 1933), gives a useful account of the whole period.

I have, so far, attempted to convey an impression of the architectural output of the Eastern Mediterranean in the period that is regarded historically as Hellenistic. What is regarded historically as Roman, or at most Graeco-Roman, should be considered in the same broad way. It has already been indicated that, in an artistic sense, there was no real break, and that the architectural evidences of the Roman period, in Syria, Asia Minor and Egypt, at all events, can be called Hellenistic. These evidences are of the greatest importance in the history of architectural style. Any one of the three sites of Baalbek, Palmyra and Jerash can yield a mass of comparative material which can be matched on no other Hellenistic site, with the possible exception of Ephesus. In this late work also, we realise the full import of the mixture of oriental elements which has already been mentioned. In the architectural forms, the oriental strain is mostly perceptible in the treatment of carved decoration. The larger aspects of these forms are outstandingly classical. The sculpture and painting, however, are immediately seen to be more oriental in origin, particularly at Palmyra.

The character and detail of some of the important centres of late classical times in Syria, Transjordan, Asia Minor and Greece will be dealt with later on. Herculaneum will also call for attention, as it is markedly Greek and its plan forms show departures from the conventional ones met with at Pompeii. Certain forms here and there will be found puzzling, but we can only apply the touchstone of style. An example is the temple of Jupiter at Aezani in Phrygia (Pl. I *a*), a building which certainly requires further study. One might find it hard to believe that it belongs to the second century A.D.[1] But if it was of that date, as is generally accepted, it serves to prove my contention that the work of

[1] The date is given by D. S. Robertson (*op. cit.* Appendix I, p. 342) as *c.* 125.

this period in the Near East was, both in form and in style, Hellenistic. In the fourth century A.D., as we can see from Antiochene mosaics, there were really two schools at work—one classical and the other Early Christian.[1] How far these fused in the churches of the fifth and sixth centuries is an absorbingly interesting subject, which will be dealt with briefly later on. Though both the arch and the vault were used, the underlying principle, in anything that we can call Hellenistic or Graeco-Roman, was a trabeated one.

[1] See Prof. W. A. Campbell in *American Journal of Archaeology*, Vol. XXXVIII (1934), No. 2, p. 206 and Pl. XXV A and B.

Fig. 2. Marble lion's head from Himera, in Palermo Museum.

CHAPTER II

THE TEMPLE

THE GREEK IDEAL

The Greek temple was a shrine which enclosed the visible image of a particular personage in the divine world. It is best to go to the root of the matter and consider the two great Doric examples of which we have most knowledge—the temple of Zeus at Olympia and the temple of Athena Parthenos at Athens.

The central object is everything in this enquiry. The figures of Olympian Zeus and of Athena Parthenos were pieces of superb craftsmanship which contained all the built-up knowledge of which the civilised world was capable at the time of their making. That they were chryselephantine means, in essence, that they were wrought with the finest and most precious materials available. It does not mean that they were not polychromatic. The delicate tinting of the *korai* in the Acropolis Museum at Athens is merely a reminder, by an earlier technique in less precious material, of something which would be continued in the great cult figures. The ivory would be delicately tinted to give the semblance of life. In a word, these were no mere statuesque conceptions; they were the very god, majestic personifications of the actual presence, terrible or benign according to the conscience or mood of the worshipper, or the declared intention of the artist.

It is only rational to assume that, to highly developed artistic sensibilities, the architectural setting of these images

would be consciously purposeful. Its most obvious feature was the double-tiered flanking order. The temple of Poseidon at Paestum shows the only complete surviving example. There was no actual need for a double tier, as the necessities of roof construction could have been met by a single order. It is at least probable that it was adopted deliberately, to give a satisfying sense of scale and avoid the undue domination of the visible presence by architectural accessories. The only radical difference in the two great examples mentioned is the returning of the order treatment *behind* the figure of the goddess in the Parthenon. At Olympia and Aegina, the background was a wall. The Parthenon was exceptional in this respect.

So much for the interior, but it must not be overlooked that it was enormously enhanced by the exterior treatment. To take the Parthenon as the most developed for our purpose—the pediments contained the story of the temple's meaning; the metopes contained separate pieces (in some cases connected) of poetic imagery in sculpture, emphasising the semi-divine nature of the hero; the continuous frieze in relief showed, with rhythmic grace, the great annual procession in honour of Athena herself; all exquisitely coloured, and full of fine imagining. But because of the variety in this treatment and its direct association with structure, the eye would demand some focal point within the temple which would transcend and contain all of it, and would be *alive*. This need would be satisfied by the divine image, and it is more easy to realise its impressiveness when the whole setting is taken into account. It is this wholeness which constitutes the supreme quality of the Greek temple.

It is difficult to feel that even the earlier Hellenistic temples had quite the same quality. In the third and second centuries B.C., inspired by Egypt and the Orient, Hellenism

absorbed new deities—Isis, Serapis (Osiris-Apis) and Tyche (Fortune); but in the Ptolemaic temple of Serapis at Alexandria, already mentioned, the figure of the god stirred the ancient world to something like the enthusiasm that an earlier age had for the Athena Parthenos.

The same unity of idea, culminating in a presence, was not realised in later art till the Normano-Byzantine development in Sicily in the twelfth century. The great Christs at Monreale and Cefalú offer a remarkable parallel to the Greek ideal. In the Romano-Hellenistic Age the path was deflected. Sculpture became an accessory to panel treatment or to an architectural background, if detached. It was the development of architectural treatment that became the absorbing passion. The *architecture* tended to become poetic. The wholeness was gained by the skilful manipulation of architectural form in set composition pieces. The zenith of this development was reached in Syria in the first three centuries A.D.

BASSAE AND TEGEA

We must now turn to the two Greek temples that have most affinity with the fully developed late Hellenistic temples. The importance of the temple of Apollo Epicurius at Bassae must be emphasised, before dealing with the temple at Tegea, as most remarkable even for the fifth century B.C. (Pl. X *b*). If it were either earlier or later it would not have the same significance, but coming, as it did, just after the Parthenon, it still belonged to the great period of Greek art, and it experimented with ideas which had been worked out in a different way in the Parthenon. Its beautiful and original cella treatment brought an entirely new motive into Greek temple design, by making the architectural treatment of an interior, as a single chamber, the pivot of the whole concep-

tion; but the fact that a completely sculptured frieze was introduced suggests that the designer was both aware of the Parthenon example and that he deliberately intended to turn it outside in.

There is, of course, a certain oddity in the diagonal placing of the corner buttresses, but this would not have appeared so to a Greek, who would have thought of it as the most straightforward method of getting over a difficulty. We cannot consider the projection of the buttresses as odd, as this treatment would obviously shorten the span of the central roofing—a compromise providing an effective coffered soffite between the buttresses, doubtless full of colour. Though it is a fascinating theory that the cella was hypaethral, the existence of these buttresses must make us believe that the cella was roofed over and finished with a flat coffered ceiling. The latest research has confirmed this.

Prof. Dinsmoor is examining Bassae afresh and his material is partly published.[1] He has interesting theories about dating which need not concern us here. I will merely note that he explodes the previously accepted statement that the columns of this temple had no entasis. Quite rightly, as the entasis, though subtle, is clearly perceptible. One has only to look at a modern column set out with no entasis to realise that the columns of practically every Greek temple had this characteristic. I will refer to this subject later when dealing with the technique of Hellenistic architecture.

Turning now to Tegea, we find an interior which is much more definitely on Hellenistic lines. The internal buttresses of Bassae disappear, in fact they were never repeated, though they had a great influence which will be dealt with later. Instead, at Tegea, we get engaged columns of the normal

[1] *The Temple of Apollo at Bassae*, by W. B. Dinsmoor, Metropolitan Museum Studies, Vol. IV, Part 2 (New York, 1933), pp. 204–227.

Hellenistic or Graeco-Roman type, i.e. projecting as a half-diameter. They were fully fluted and their proto-Corinthian capitals, as restored by Dugas, are of great interest; but the most remarkable feature is the base, which was returned as a wall-base round the cella. It introduces a moulding of purely Hellenistic type, fully enriched, which has already been mentioned (fig. 19*g* and above, p. 11).

This internal order at Tegea stood on the floor of the cella and there was, apparently, a high attic above its entablature. Whether this was decorated or not we do not know. The Scopaic heads discovered in or near the temple may have come from the pediment. From our present knowledge of it, the interior does not seem to have had the consistency of Bassae, in its relation to the exterior, but it is rather unfair to judge of it without fuller knowledge than we possess. Outside, the temple was a splendidly finished peripteral structure which showed the refining elements of later Doric.

ARCHAIC TEMPLES OF ASIA MINOR

The Columnar Principle. We must now turn to the archaic temples of Ionia. The first thing noticeable in comparing them with those of Greece proper, Magna Grecia, and Sicily, is their outstanding size. The temples of the great cult-foundations of Hera at Samos, of Artemis at Ephesus, and of Apollo Didymaeus at Miletus, were of a size which was attempted only in one normal Doric example—temple G at Selinus (the "Great Temple" at Agrigentum was quite abnormal); but it is at once apparent that this element of size was partly attained by an emphasis of the columnar principle. These temples were all "dipteral", i.e. they had a double row of columns outside the flanks of the cella, which was continued round the fronts.

The multiplication of columns was the leading feature of archaic Ionian temple work, and it was still further emphasised by the columns of the very deep porches—a feature shared with some archaic Doric temples in Sicily;[1] but in the Ionian temples the impression of the front must have been a forest of columns.

The origin of this emphasis of the surrounding scheme of columns at the expense of the cella is a matter of great interest and one about which we can only speculate. The earliest of the Ionian temples—probably the first one at Ephesus—was antecedent to the columned halls of the Achaemenid Dynasty in Persia. The Croesus temple may have followed its plan. There may, of course, have been borrowings from Egyptian usage in Ionia which were more fruitful or more pronounced than those in Greece proper. What must chiefly concern us here is the interior arrangement of the cella in its relation to the cult statue. Here we are again rather in the dark, but the British Museum restoration of the sixth-century temple at Ephesus suggests an internal division of nave and aisles, though with full-size columns and not smaller ones in two tiers.[2] The Samos temple cella, if the restorations are correct, apparently had a nave and aisles division, with columns which marched with those of the pronaos.[3]

[1] Temples C and G at Selinus.

[2] D. S. Robertson (*op. cit.* p. 91) says: "there were probably interior columns, but their positions are conjectural." Interior columns are more certain in the fourth-century temple.

[3] Prof. Robertson has kindly shown me his notes on E. Buschor's latest publication of the Samian Heraeum (*Athenische Mitteilungen*, LV, 1930), and has pointed out that the plan in fig. 43 of his own book is not that of the earlier sixth-century (Rhoecus) temple. Part of this is shown in fig. 3 below, slightly smaller than it ought to be in relation to the sixth-century Artemisium with which it was contemporary. The respective widths on the top steps of the fronts were, approximately, 51½ metres and 56 metres.

Processional Way. The feeling of a processional way through the centre of the pronaos at Ephesus, where there were six columns a side, and at Samos, where there were seven and afterwards eight, was accentuated by the wider intercolumniation at the centre (fig. 3). Though the processional motive can be seen at the Athenian Propylaea, and to a modified extent in one or two of the Sicilian Doric

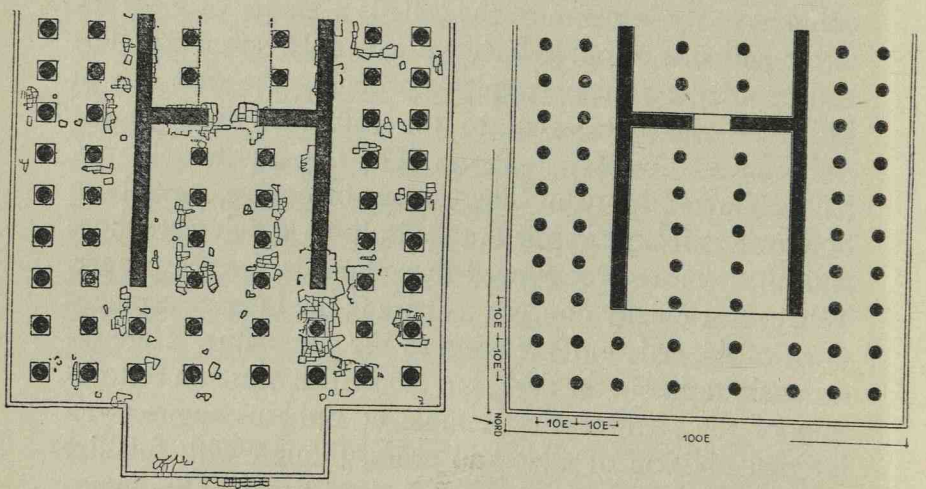

Fig. 3. Entries of temples. Left: sixth-century B.C. Artemisium at Ephesus (D. G. Hogarth, *Excavations at Ephesus*, 1908). Right: first sixth-century B.C. Heraeum at Samos (E. Buschor, "Heraion von Samos, Frühe Bauten", 1930).

temples, it was not definitely a design motive in temple work west of Ionia; nor is it a characteristic of Minoan or Mycenaean plans. It would be reasonable to infer that it was an oriental motive of early origin, and Didyma was its last expression in Asia Minor. The prevailing plan type of later peripteral temples in Asia Minor and Syria was pseudodipteral, in which the inner row of surrounding columns was omitted. This return to an archaic Sicilian usage was probably a coincidence. The real motive underlying the

change of plan in the East was almost certainly one of convenience.[1] It is significant that the simple type of cella, i.e. a single chamber without internal colonnades, became universal; but we could account for this, with reason, from the rise of more advanced constructive methods in roofing.

Sculpture. Such sculpture as we have of the archaic period is illuminating. The standing figures have a verticality and a statuesque simplicity which is completely architectonic. The splendid so-called "Hera of Samos" in the Louvre is not a very large figure and could hardly have been the main figure in a great temple, but it is probable that it stood in direct relationship to a building. It is not only full of sweetness and strength: it is astoundingly modern in its dress. In all the finest draped statuary of the archaic period, whether in repose or in action, we see this architectonic quality, particularly in the folds of the drapery. There was also a richness and a gaiety about most of the early Ionian work. An example is the front of the Siphnian Treasury as we can see it in the restoration at the Delphi Museum. It is *alive* in a remarkable way and more expressive of a piquant sculpturesque mood in architecture than anything of the fifth century, except, perhaps, the Nereid Monument at Xanthus.

HELLENISTIC TEMPLES

I. ASIA MINOR

The Temple of Apollo Didymaeus at Miletus. The Hellenistic temple in Asia Minor with the best-preserved interior arrangement is the Didymaion at Miletus, which continued

[1] Vitruvius was responsible for the belief that Hermogenes of Teos, the architect of the temples at Teos and Magnesia, introduced the octastyle pseudodipteral type of plan. (See D. S. Robertson, *op. cit.* p. 154.)

the dipteral tradition of the archaic temples. There was undoubtedly a great *tour-de-force* in architectural scenic effect at the east end of the cella. If the box-like bastions at the sides of the high flight of steps (Pl. II *b*) had been treated with perfect plainness and had therefore been more in scale, and if the remarkable frieze of the order had been less vulgarly expressed, this might have been a great arrangement.[1] The little shrine, or "naiskos", at the other end of the cella may have been, as Prof. Robertson describes it, "a pleasing Ionic temple", but it can hardly have added to the effectiveness of the interior as a complete architectonic conception.[2] On the whole, the Didymaion, with its deep, well-like unroofed cella and the rather crushing character of the treatment—a very tall podium surmounted by richly capitalled pilasters—does not appear to be quite convincing.

Other Temples. The fourth-century temples at Ephesus, Priene and Sardis are interesting in point of date for comparison with nearly contemporary temples in Greece proper. Thus, the one at Ephesus was probably begun before 350 B.C. and was therefore almost exactly contemporary with the temple at Tegea. Priene may have been about twenty years and Sardis thirty years later. Though the Didymaion may have been founded a little earlier than Sardis, its commencement was delayed till about 300 B.C. and there is much in it that is ascribed to the Roman period. The others are the great representative fourth-century Ionic temples which contrast with the Doric ones at Tegea and Nemea, and we find this Ionic expression continuing right through the third

[1] The gigantesque frieze with the great head (of which a considerable fragment can be seen on the site) must have been disposed somewhere, and this seems the most reasonable position for it.

[2] D. S. Robertson, *op. cit.* p. 153. For the restoration see T. Wiegand, *Abhand. d. Preuss. Akad.* (*Philos. Hist.*) I, 1924 (Berlin), Pls. VI, VII and VIII.

century in Ionia, in a series of important temples at Lesbos, Sminthe, Teos, and Magnesia on the Maeander. We have evidence that the pure Ionic tradition survived in the fine temple at Aezani already referred to, though the Corinthian column was employed in the large monument at Belevi of much earlier date.

All of these temples had characteristics of their own, though they are mostly pseudo-dipteral, but the temple at Sardis calls for particular mention. It was octastyle, of major size, the representative example in Ionic, as Segesta was in Doric, of unfluted (though really unfinished) columns. This gives it a certain austerity, less common in Asia Minor than in Syria. The columnar arrangement is in every way interesting. It had the "processional" entrance, being pseudo-dipteral on the flanks and dipteral on the fronts; with two pedestalled columns in the pronaos, recalling Ephesus. There were also graduated intercolumniations in the fronts, as at Ephesus and Samos. At Artemis Leukophryene, Magnesia, built by Hermogenes in 200 B.C., only the central columniation is wider.

Placings and Groundworks. The placings and groundworks are very interesting, and we can trace the growth of a new conception of the temple, as an isolated monument forming the central feature of a large surrounding enclosure. The siting of a building is a vital part of its essential quality, and it was the peculiar privilege of Hellenism that it was able to make its temple structures hold their own in the largest natural surroundings. Never before or since was this achieved to the same extent. It is noteworthy that Greek temples were not always placed on or very close to rising ground, but they were usually associated with hilly country. Even the temples at Paestum, which are on

conspicuously flat ground, have a distant background of hills, and a range of towering mountains ending in a rocky sea-promontory at one end of their formation. What we may consider as a second type of placing can be seen at Segesta, where the temple seems to grow out of a steep hill-slope with unsurpassable dignity. A third, perhaps the most typical, and the grandest type, is exemplified by the Parthenon on its rock at Athens. We see from Selinus, however, that temples were not always wholly or even comparatively isolated.

The only deliberate effect in the groundwork of the Greek temple was the paved space and inclined ramp at the eastern end, the traces of one or both of which can be seen at the temple of Poseidon at Paestum, temple C at Selinus, the temple of Aphaia at Aegina, and the temple of Zeus at Olympia. The ramp absorbed part of the east end of the actual platform or surrounding stylobate of three steps, which had substructures as required to suit the irregularity of the ground. In some of the Hellenistic temples of Asia Minor, as in the archaic temple at Ephesus, there was a deliberate intention to achieve a stepped-platform effect, of considerable height, when the building was on flat ground; and there was a walk all round before the stylobate proper was reached. This motive may be defined as the "platform stylobate", and it was used at Ephesus (both temples) and at the temple at Magnesia on the Maeander, already cited.

The temple of Athena Polias at Priene had an exceptional and very fine treatment necessitated by the extremely steep hill-slope and the nature of the entire lay-out of the town, which will be referred to later on. We see here a built-up platform which involved high retaining walls on the west and the south. The structure had therefore an acropolis placing which must have rendered it very effective. Above this was

a normal Greek stylobate of three steps. At the east end there was the traditional paved space and altar.

The stepped stylobate is a hall-mark of date. Till well on in the first century B.C., if not till the end of it, a stepped stylobate seems to have been the rule. Thus the Bel temple peristyle at Palmyra, which may have been begun at the very end of that century, certainly had a stepped stylobate in its original form; which was replaced by a platform and podium probably in the second century B.C.[1] Among Graeco-Roman temples in the West, those of Vesta at Tivoli and of Minerva at Assisi had rudimentary podiums only; while the Circular Temple in the Forum Boarium at Rome had no podium, but a stylobate of shallow steps. All of these buildings may be considered as Hellenistic.[2]

The use of the moulded podium, as a temple base in the West, is essentially a characteristic of the Etruscan cella temple, carrying with it a thrusting-forward at the front to enclose the steps leading up to the entrance; but it is also an exceptional Hellenistic feature before the Roman period, as at Didyma, where the great stepway leading down from the inner vestibule to the cella was contained by side podiums, used for ramps and staircases. The most complete parallel to the Etruscan usage is in the treatment of the Zeus altar at Pergamum, dating from the first half of the second century B.C. Archaic Ionian use was apparently variable, if the restoration of the later sixth-century Samian Heraeum, which shows a rudimentary podium, is correct.[3]

[1] This was pointed out to me at Palmyra by M. Amy, the resident architect of the "Service des Antiquités".

[2] H. C. Butler first called attention to the Hellenistic character of the temples at Tivoli and Assisi.

[3] See Buschor, "Heraion von Samos, Frühe Bauten" (*Athenische Mitteilungen*, LV, Athens, 1930), Pl. XXVII, and Robertson, *op. cit.*, fig. 43 (from Wiegand).

Surrounding Enclosures. It is difficult to say to what extent Hellenistic temples in Asia Minor were set in wide paved spaces, where there was room for such treatment, but it is quite likely that these settings were often considerable. This treatment would have been particularly impressive at Ephesus, where the temple was placed at the upper end of a short valley with a sea outlet, but surrounded on three sides by hills.

The surroundings of the Sardis temple are less easy to imagine, as it is a site which has been much more neglected. Its present appearance of wild and undulating country probably in no wise represents its original character, as it was an important centre in the sixth century B.C., the meeting-place of ancient routes from Ephesus on the south, Larissa on the west and Ankyra and beyond on the east.

The completely worked-out monumental placing of the temple was achieved at Aezani, in Phrygia. Except the setting of the temple of Bel at Palmyra we know of nothing to compare with this in Hellenistic or Graeco-Roman times outside of Jerusalem, where we may assume that the setting of the Jewish temple had some resemblance to that of the building now in its place—the "Dome of the Rock"—erected by the Arabs in the seventh century. Though this is elevated more above its surround and is on a vaster scale than the temple at Aezani, the considerable size of the latter makes the parallel not inapt. It can certainly be imagined that an effect of grandeur would have been attained by the placing of the temple (fig. 4).

As there was no acropolis at Aezani, the platform, approximately square, was given dignity by raising it considerably above the ground and utilising the space so obtained to some extent. A wide flight of steps in the centre gave access to an inner quadrangle consisting of a double colonnade, and a

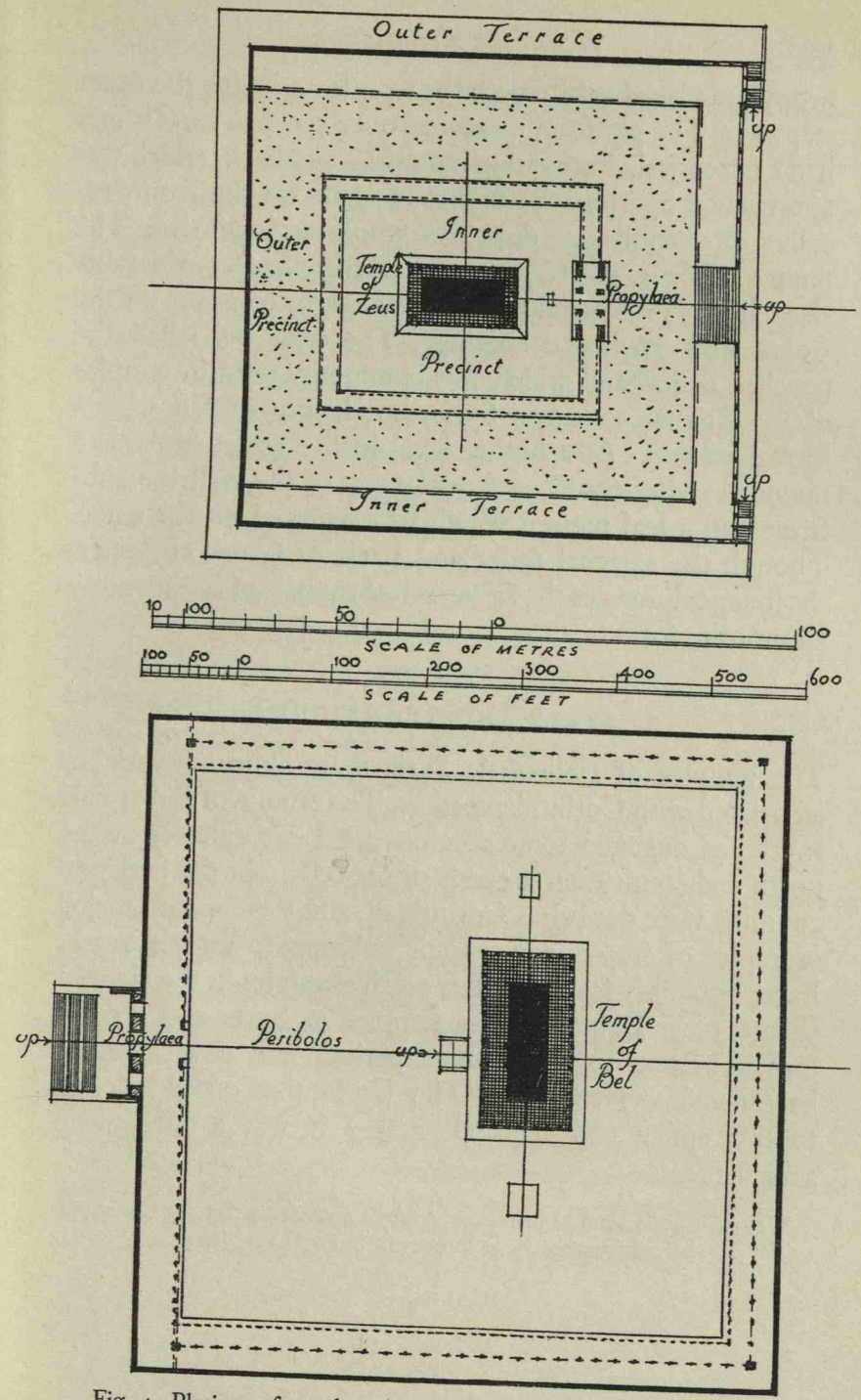

Fig. 4. Placings of temples. Above: Temple of Jupiter at Aezani. Below: Temple of Bel at Palmyra.

propylaea placed axially with the temple and with the outer stepway. The platform measured over 500 feet across, and had a raised walk buttressing it on sides and back, which was approached by sideways flights of stairs on the front, recalling Persepolis, as does the whole arrangement. The temple of Zeus, placed centrally, was itself of considerable size. It was of dipteral plan and had eight columns on the fronts with graduated spacings. The cella walls had the panelled dado-band which was commonly used in temples of the Roman period in Syria, but it was carved with a formal pattern. At a higher level in the wall there was a moulded string-course and at the top of the wall the sub-frieze had a leaf pattern which was returned on the antae. Though the external order was Ionic of Greek character, the inner columns of the pronaos had capitals of rudimentary Composite form.[1]

2. SYRIA AND TRANSJORDAN

The temples of Hellenistic Syria were almost invariably associated with Corinthian orders. The temple of Bel at Palmyra had engaged Ionic columns used decoratively at the north and south external ends of the cella, but the peristyle columns were doubtless Corinthian, and there are no major examples of free-standing Ionic columns in temple work. Except possibly for a very few small examples in the Haurân or the Jebel Druze, all the temples in Syria and Transjordan belong to the Roman period, and can therefore be called late Hellenistic. The Corinthian order belongs to this epoch and it is clear that it was a Hellenistic achievement.

[1] These capitals seem to justify Dr Ashby's contention that the Composite capital was derived from the Ionic and not from the Corinthian one.

The Temple of Bel at Palmyra. This must have been the grandest classical monument in Syria.[1] It should be taken first, as it has relatively early elements both in its plan and its treatment. The plan is pseudo-dipteral and must belong to the first century B.C. in its main lines (fig. 5). It was of major size, measuring about 100 feet wide on the top step, with eight columns on the fronts—the central columniations being wider—and fifteen columns on the flanks. The slender proportion of these columns, combined with the remarkable building-up of the superstructure over the entablature, would have given a great impression of height (Pl. I*b*). The proportion of width to height (i.e. to top of attic or cornice) was respectively about 55 to 43 and 25 to 13 in this temple and the temple of Artemis Leukophryene at Magnesia, which is also an octastyle example and well authenticated. These figures will show what a different conception was attained in later Hellenistic times by using the Corinthian order with a mixture of oriental elements; for there can be no doubt that part of the superstructure of the Bel temple was orientally inspired. We can see this in the "gorge" detail (Ptolemaic) of the upper cornice and the "crow-stepped" form (Assyrian) of the parapet.

Inside the peristyle there was another remarkable feature of this temple, a series of high bridging-slabs at the top of the architrave between the colonnade and the cella wall, carrying the flat slab ceiling. These cross-slabs, in effect

[1] For this and for other architectural work at Palmyra, see *Palmyra*, by Theodor Wiegand and others, 2 vols.—text and plates (Berlin, 1932). The details of the upper part of the Bel temple are necessarily incomplete in the book and will not be available till the final investigations of the French "Service des Antiquités" are completed. Through the kindness of M. Seyrig (Direction du Service, Beyrouth) and of M. Amy, the resident architect, I was able to see drawings in an advanced state, but I am not able to show a complete section of the temple, as it has not yet been published. The fine German book will remain the standard one for several years and in many ways will never be superseded.

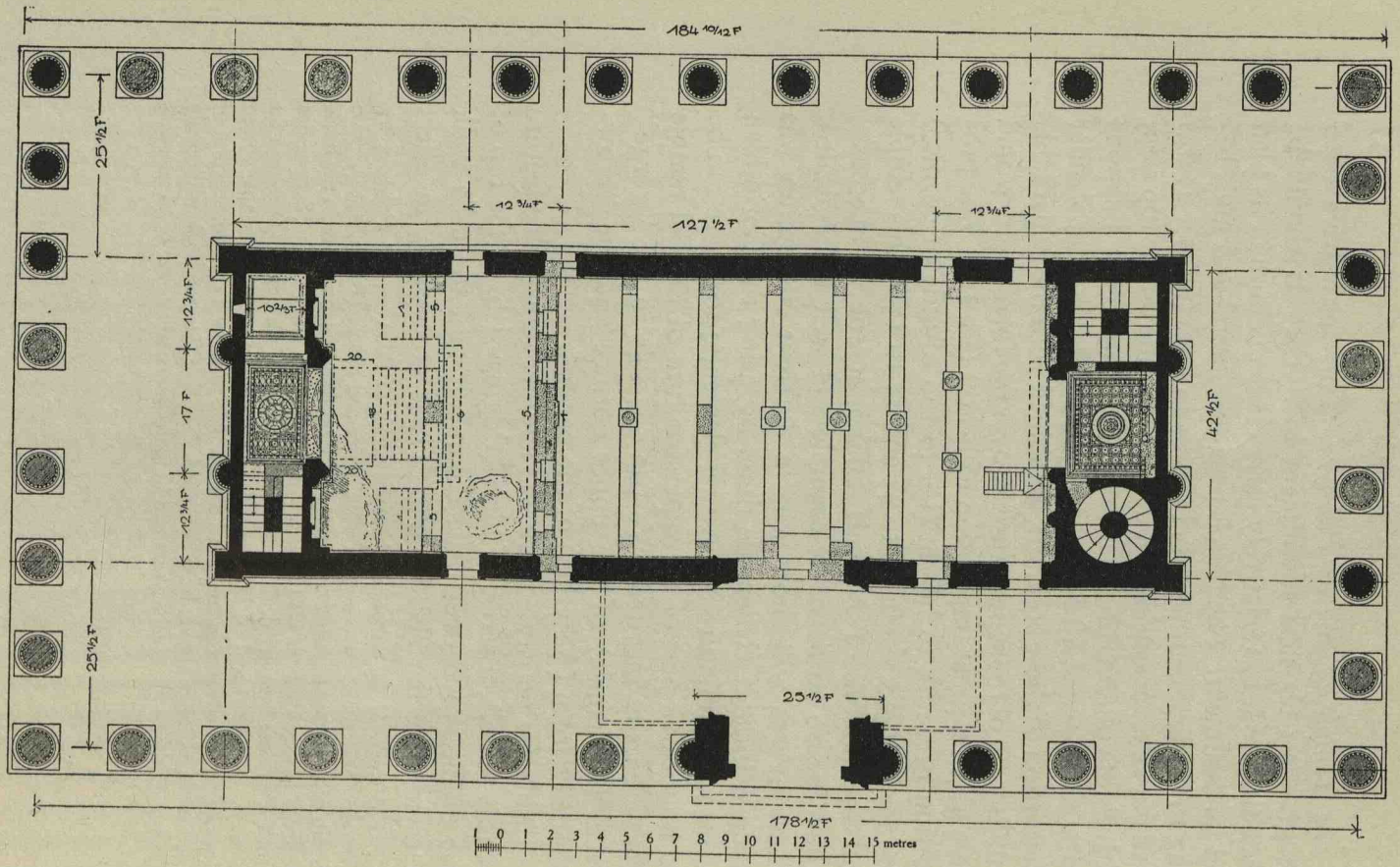

Fig. 5. Temple of Bel at Palmyra. Plan. (From Th. Wiegand and others, *Palmyra*, Im Verlag von Heinrich Keller, Berlin, 1932.) The figured dimensions are in Roman feet.

deep beams, had slightly raking tops, so that presumably the ceiling was similarly sloped; a direct expression of construction for the practical purpose of rain outflow to the gutter. Both the cross-slabs and the ceiling-slabs were elaborately carved. As design, or for effective display of relief sculpture, the motive would appear to be of doubtful value, but the consideration may have been the disposal of a series of pictures not suited for continuous treatment: the metope put to another use.

There are many matters in this temple which are not quite clear and which are attributed to the later Roman remodelling. One of these is the great doorway on the west side (the temple is orientated north and south), which forms a grand feature coming right out into the peristyle. Another is the lack of structural cohesion in the interior, between the cella wall and the north end. More will be said about the north end later on, but one must believe that the doorway was part of a considered scheme which embraced the vast surrounding enclosure, or peribolos, as the two features are axially placed. It is best to accept the temple as it stands. The internal arrangements show, in duplicate (though perhaps this was not the original intention), the altered interior conception of a temple end, forecasted to some extent at Didyma, though that also may have been of late date. No longer is there a free-standing cult statue in an austere setting, but an architectural set-piece full of subtle intention, a true prototype of the altar-setting in the Christian church. These ends of late Hellenistic temples introduced the skilful planning elements which we find in the civil structures of Graeco-Roman times. Winding staircases, usually square but occasionally circular, and obviously useful, are nearly always in evidence. The temple of these times was not a monument only, but a "convenient" building. Windows

were sometimes introduced. There are three of these on each side of the Bel temple.

The peribolos, of which considerable standing remains exist, was approximately square (fig. 4). It was raised appreciably above the surrounding ground and externally, its pilastered walls, crowned with Assyrian crow-stepped parapets, would have conveyed the full effect of a fortified enclosure, but for the elaborate propylaea and its grandiose stepway. The temple was not placed quite symmetrically within the peribolos, and sideways, not endways to the propylaea.[1] On this entrance side the "cloister" of the peribolos is a single wide walk, with a tall open colonnade towards the central space. On the other three sides it has a double walk with two rows of smaller columns. These arrangements led to some interesting plan formations at the angle columns, which will be considered later on. The whole conception was a majestic one and the temple was worthy of its setting. Its flank colonnades (Pl. IV) have an exquisite grace which can only be matched in classical usage by the much smaller north portico of the Erechtheum at Athens.

The Temple of Bacchus at Baalbek. We must consider this as the next most important temple in Syria, perhaps the most important for purposes of study. Though belonging, in all probability, to the second century A.D. it is quite Hellenistic in character. As a complete architectural monument,

[1] The propylaea had a direct relationship to the main colonnaded street of Palmyra, which was deviated to lead towards it: the temple being already there, but only capable of coming into the scheme by a side doorway, this was provided: the doorway has later elements than the cella. All this seems clear, but is not altogether so, in fact. The earliest elements in the peribolos go back to the beginning of the first century A.D. and would appear to be a natural following on from the building of the temple. We might also ask—why was the temple orientated north and south? The only explanation must be a practical one, the nature of the ground calling for exceptional treatment.

consistent in its plan concept and the purposefulness of its treatment, it has no peer in the whole field of late classical expression; being, in addition, of major size, lavishly decorated, and in a better state of preservation than any other example. More than this, its plan is not so much that of a temple as of a church (fig. 6). The ample porch, with its grand doorway, the large undisturbed cella (the temple is not dipteral), and the "sanctuary"—which, with its steps, is nearly as long as the cella—all combine to give a unique character to this deeply interesting building. There are no windows, but the side walls of the cella have a fluted Corinthian engaged order and niche treatments. In these side walls we find the ultimate expression of the ideas which were first embodied at Bassae and Tegea, some five or six centuries earlier.

In all its plan elements the temple is not only consistent but extraordinarily competent. The retention of major scale by the two main supports at the sanctuary end, which harmonise with the flanking order, was a master-touch. Nothing could be more admirable than the general sense of scale which is maintained throughout by this means, by the great doorway, and by the exterior peristyle treatment (fig. 7). As usual in Syria, the unfluted external column-shafts are a fine foil to the richness of the capitals, entablature and peristyle ceiling. This last is of segmental section. The order rests on a rudimentary stylobate of two shallow steps, and on a high substructure consisting of a moulded podium built of large, finely drafted ashlar blocks, thrust far out at the entrance end to contain the wide stepway in three tiers.

The Temple of Jupiter at Baalbek. The actual scale of this fine temple is impressive, although, as at Didyma, it takes time to realise it, because the standing material in position is

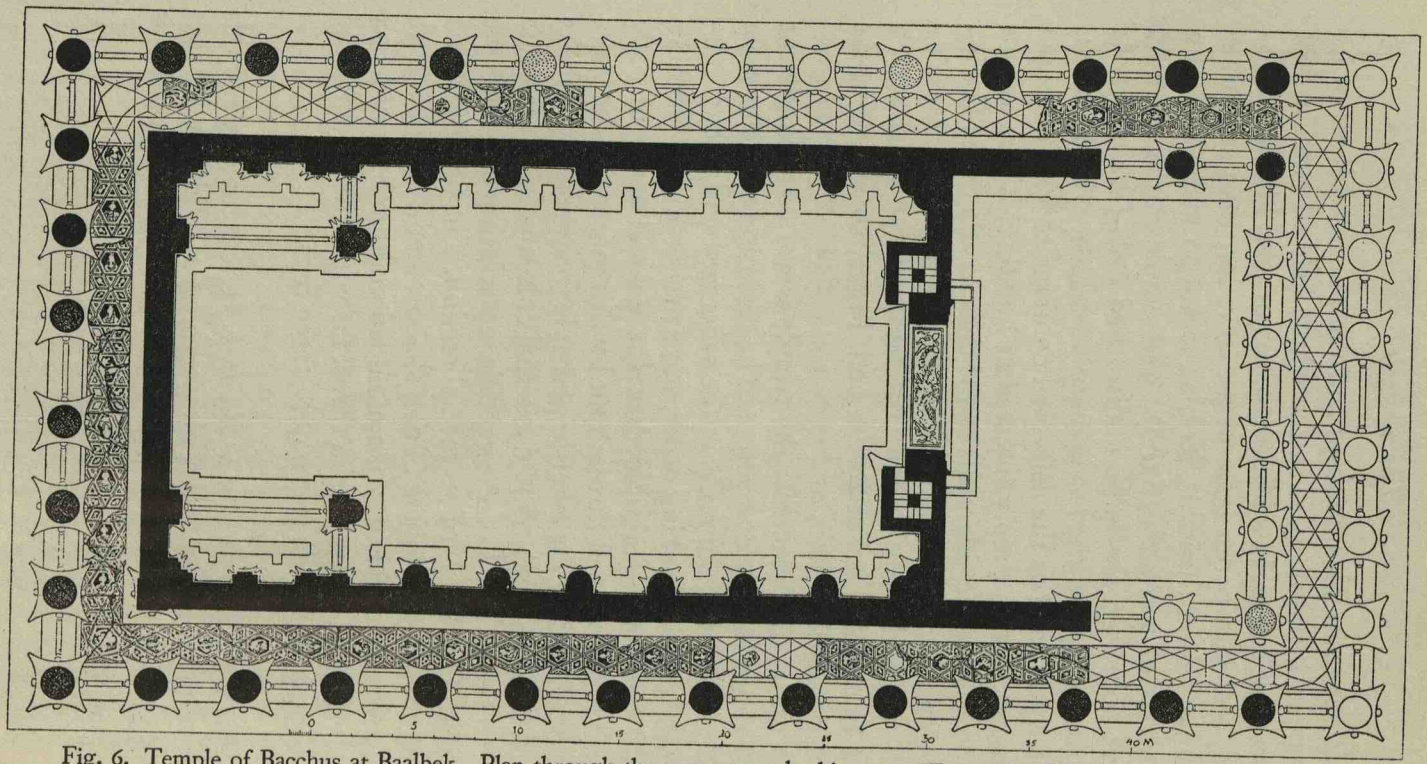

Fig. 6. Temple of Bacchus at Baalbek. Plan through the upper part, looking up. (From Th. Wiegand and others, *Baalbek*, Walter de Gruyter and Co., Berlin, 1923.)

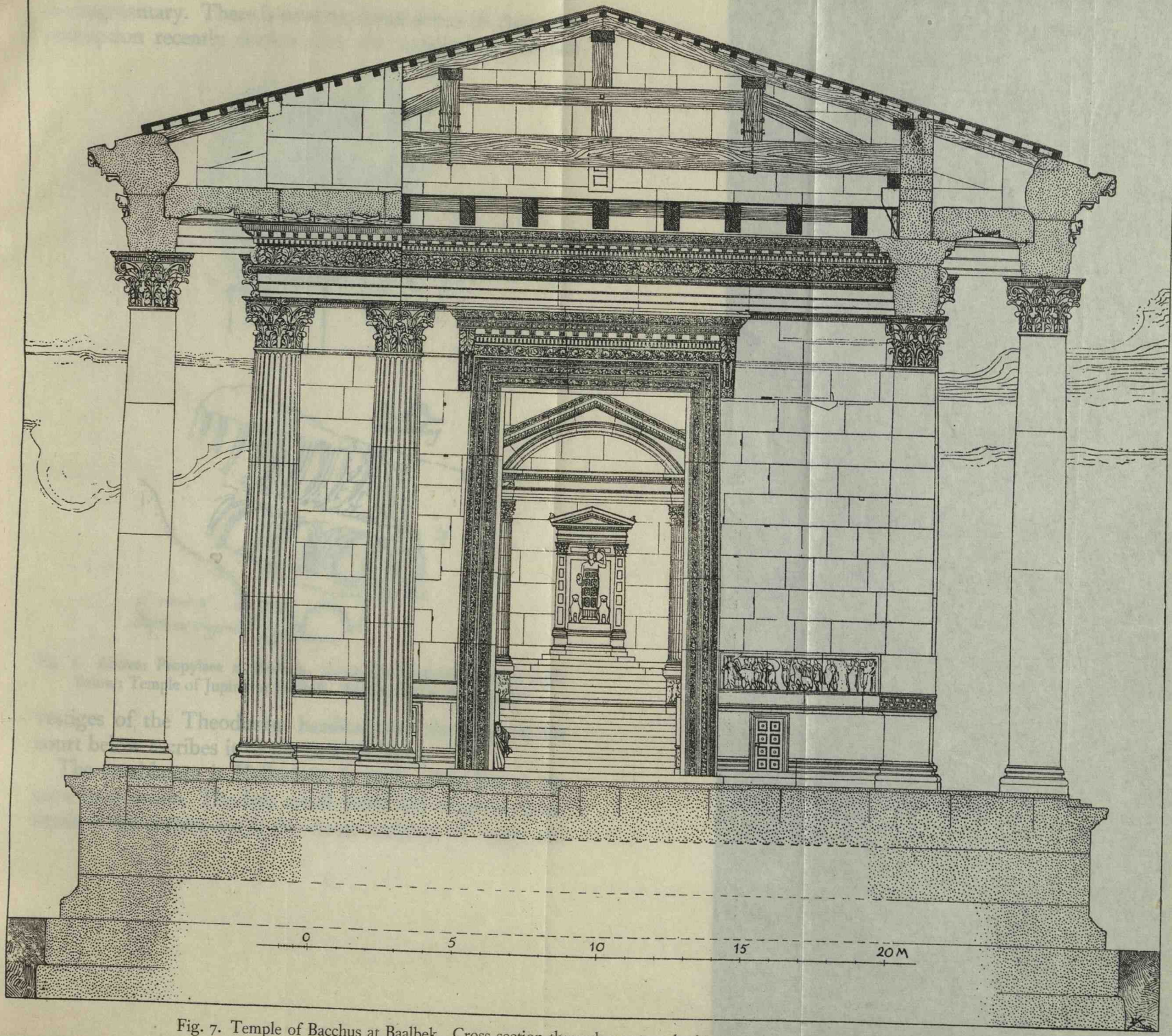

Fig. 7. Temple of Bacchus at Baalbek. Cross-section through pronaos, looking inwards. (From Wiegand's *Baalbek*.)

so fragmentary. There is now no doubt about its date. An inscription recently disclosed by the removal of the last

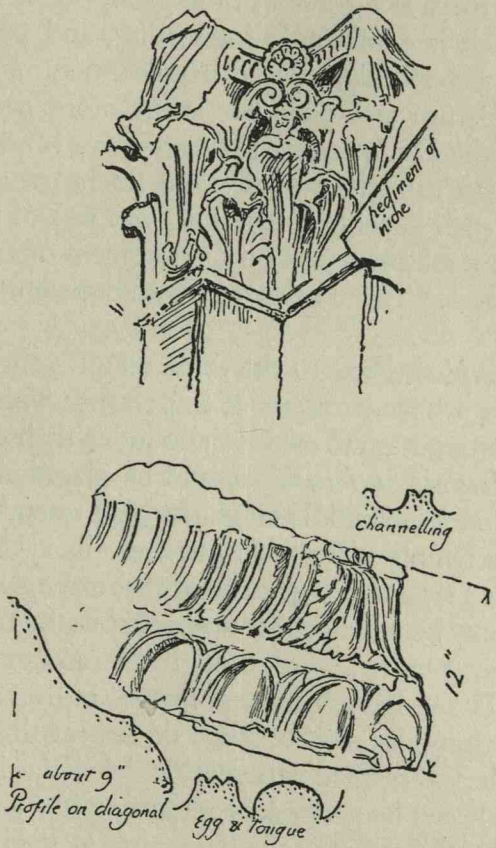

Fig. 8. Above: Propylaea at Baalbek. Corinthian capitals, internal angle. Below: Temple of Jupiter at Baalbek. Abacus details, main order.

vestiges of the Theodosian basilica over the altar in the court below ascribes it to the time of Nero.

The entablature is Hellenistic in style, rich, but at the same time severe. The free scroll-work and recurrent lion-heads of the cornice are in the direct tradition of Tegea and

Priene. Though the inverted modillions of the cornice and their counterparts in the frieze introduce an element of strangeness, there is a gravity in the grouping of these two features which is profoundly interesting, and which must have given a verticality to the detailed treatment of the whole entablature and pediment even more pronounced than that of the Doric order. The architrave is normal, and the Corinthian capitals are fully and finely carved to the very top of their abaci (fig. 8). This was one of the tallest orders of classical times, and on the fragment of entablature in position the detail from below appears consistently delicate.

Other Temples. Next to the three temples already mentioned, there are some others of importance which exist in sufficient preservation to enable us to judge their effect. The *temple of Artemis at Jerash*[1] should be placed first, as the largest and most splendidly sited. Its plan resembles that of the Bacchus temple at Baalbek, but the cella is shorter than the combined cella and sanctuary of that example. The two structures may be nearly contemporary, but the treatment at Jerash is much more severe, though the masonry is of fine character. The only architectural feature in the interior is a series of rectangular niches; it would appear that the walls and the niches were lined with marble slabs. The importance of the temple can be gauged by its setting in a surrounding enclosure, recalling that of the Bel temple at Palmyra but to smaller scale (fig. 51).

The *temple of Zeus Olympios at Jerash*, of earlier date than the Artemis temple, was also peripteral, with a Corinthian order, but has only one column standing. Here again the treatment was austere. Internally there were no niches except the end one for the cult statue, but a pilaster treatment

[1] See *Zeitschrift des Deutschen Palaestina Vereins*, 1902, Pl. 9.

which is well spaced and effective. Both the Jerash temples stand high up in commanding positions.

The *temple of Baalsamin at Palmyra* is smaller than either of the Jerash examples, but is much better preserved. There is a sturdy strength about it which commands attention. It is not peripteral, but has a fully pilastered order round the cella, which is continued by the columns of its very deep prostyle-tetrastyle porch. The cella has a pedimental window on each side and a large consoled doorway in front. This is one of the most important temples of its class in Syria. Its monumental character is enhanced by the brackets for statuary which are built low down on the front columns.

There were two other considerable temples at Palmyra, both slightly larger than the last mentioned—the *Grave-temple* and the *Corinthian temple*. They were of similar size across their fronts, approximately, but the latter was peripteral and almost pseudo-dipteral. The grave-temple is of exceptional interest, an important example of a special class of structure which was evidently introduced in late Hellenistic times in the Near East. Like the Baalsamin temple it had no peristyle, but had a shallow hexastyle porch. The very wide walled portion, over 50 feet across externally, contained deep tiers of burial recesses on each side. In the central open space, or nave, there was apparently a square feature in two tiers, each having four free-standing columns: a kind of double ciborium. This building should, perhaps, be considered more as a tomb-monument than as a temple.[1]

All the Syrian temples which have been mentioned had wider central intercolumniations in their fronts, the other ones being equal. This appears to have been not only normal but invariable usage in late Hellenistic Syria, but it is interesting to note the disappearance of the graduated spacings of

[1] Cf. below, Chapter III, Group III (*Other elevated grave-monuments*), p. 62.

the proto-Hellenistic temples in Asia Minor, and the consequent loss of elasticity in composition. As the increase in the central spacing was quite pronounced, and as it was almost invariably associated with an entrance doorway, the procedure was no doubt retained for practical convenience in entry. An extension of the same principle led to the arched entablature over the central opening, which we find in many entrance porches and propylaea.[1]

There were several smaller temples in Syria, in the Haurân and the Jebel Druze, belonging to the period first century B.C. to third or fourth century A.D. Most of them have oriental ideas which partly controlled their form or their detail, though the classical element is always apparent and sometimes complete. They are all deeply interesting in point of detail.[2]

The Circular temple at Baalbek. Circular structures were unusual in Syria. The unique and most effective pseudo-circular temple at Baalbek is valuable as showing a straining of order use which outdoes the most advanced treatments of the Renaissance, and yet retains freshness and interest (Pl. IX*b*). This is specially noticeable in the acute angle at the meeting of the curved cella with the front porch (fig. 27*h*). The order form is based on an octagon with hollowed sides which are tangential to the cella. The cella is of horse-shoe form, as it is five-eighths of a circle with a large doorway in the straight cut-off. In front of this is a wide double prostyle porch, and the podium of the temple is thrust out beyond it to contain a stepway. All this sounds complicated, but in reality it is simple and charming, and the number of

[1] According to H. C. Butler, the first use of this feature in Syria was in the first century B.C.

[2] See (following Butler) S. B. Murray, *Hellenistic Architecture in Syria* (Princeton, 1921).

free-standing columns give the feeling of airiness and grace that was attained in some of the garden buildings of the Renaissance. A festal look was secured by a high sub-frieze round the cella, decorated with festoons in delicate relief. Between this frieze and the panelled dado-band, each of the five compartments of the drum contained a pilastered rectangular niche with an arched-entablature head. Both the pulvinated frieze and the cornice of the order were fully decorated. The roof would have lent itself either to a flat or a domical treatment. Though it is small in comparison with the other buildings at Baalbek, the whole structure is not negligible in size. The door architrave is 2 feet 4 inches wide and the top mouldings of the concave plinths are 1 foot 7 inches high (fig. 27 *k*, *g*).[1]

3. GREECE

Delos. Hellenistic temples that have any structure left except groundworks are rare in Greece and the Greek Islands. The best preserved is the small *temple of Isis at Delos*, which must have been built in the latter half of the second century B.C. As was usual in the structures belonging to that period of Athenian domination in Delos, the temple is Doric.

It is of simple form, built of white marble, with a short cella and a distyle-in-antis porch, recalling the Athenian Treasury at Delphi (Pl. III *a*). The proportions are graceful and exhibit Hellenistic Doric at its best. The site was superb, and the temple still forms a conspicuous landmark on a wide terrace on the slopes of Mount Cynthos, overlooking the entire town. It contained a good draped statue of Isis, classic-

[1] For a good plan see Robertson, *op. cit.*, fig. 112, from Wiegand. See also below, Pl. XXVI, for position and restored view from the air.

ally treated and still largely preserved. In front was a well-designed marble pedestal about 4 feet 10 inches high, with delicately carved rosettes on two sides.

4. CONCLUSION

This outline of Hellenistic temple structure is necessarily incomplete. It has only suggested the main tendencies, principally in outstanding examples of the later phases, and I have specially emphasised some matters such as placing which are often overlooked. There are temples in Asia Minor that have not even been mentioned,[1] and some important ones such as those at Teos and Magnesia on the Maeander, that have not been described. All the Hellenistic cities, greater or lesser, contained temples, mostly of the early Roman period, though important evidences of many examples of the third and second centuries B.C. may yet be disclosed. A great field of study lies open in Asia Minor.[2] Egypt has not been dealt with at all in this book, as every

[1] The most important are the Corinthian temple at Cnidus and the temple of Aphrodite at Aphrodisias. The Cnidus temple was evidently a most interesting and original work, judging from the representations of it in *Antiquities of Ionia* (Part III, Pls. IV–X). Its upper structure was richly ornamented, and the pseudo-peripteral form enabled its carved sub-frieze to be fully seen. The temple at Aphrodisias is shown in the same Part (Pls. XIV–XXI). Though of late date, it was in the traditional Ionic development. Portions of the frieze are in the British Museum.

[2] Nevertheless, extremely valuable work has been done by the English and American Committee responsible for the fine publication *Monumenta Asiae Minoris Antiqua* (Manchester University Press, 1928–1933), which, to date, has reached four volumes. Vol. III contains nearly all we know about Cilicia. It should also be borne in mind that though a lot of its material requires overhauling, the Society of Dilettanti's great inception—*Antiquities of Ionia*—produced results from many sites which have remained almost uninvestigated since. The five Parts deal with Teos, Priene, Didyma, Miletus, Ephesus, Jackly, Labranda, Samos, Mylasa, Stratonicea, Laodicea, Troas, Iassus, Patara, Telmessus, Lindus, Cnidus, Magnesia (Maeander) and Myra—a goodly list.

See also, Foreword, p. xiii, above.

temple that was built in the Ptolemaic Age, and is now remaining, conformed with remarkable consistency to traditional Egyptian usage.

Detailed reference has not been made to the later Artemisium at Ephesus and to the Athena temple at Priene; but it is the main purpose of this study to describe architectural character where it exists, and these buildings, which have been fully written about, are now completely ruined, so that we are dependent, almost entirely, on museum pieces. We are extremely fortunate, in England, in the possession of so many of these pieces in the British Museum; and it is satisfactory that some of the important fragments from Sardis are being similarly preserved elsewhere. The architectural fragments from the Hellenistic Artemisium are magnificent, alike in scale and in forthright handling of marble masonry. The handling of the work at Priene and the Mausoleum was more delicate, as it was much smaller. The variety of these things is wonderful. They are as little mechanical as the work of the fifth century; and it must be recollected that they are of the parent stock of all Ionic detail. Ephesus, in particular, takes one's breath away. This temple must have been the supreme achievement of the fourth century in Ionia, just as the Parthenon was of fifth-century Doric in Greece.

There is no perceptible line of cleavage between Greek and Hellenistic in the fourth century B.C. If all the links could be connected, we should probably find that there was an almost equally gradual transition between the fourth century and the first century B.C., at any rate in regard to Doric and Ionic expression. The steps that led to the full employment of the Corinthian order are more obscure, but there must have been many interesting experimental forms.[1] What

[1] An interesting form of experimental Corinthian capital, belonging to the ruined temple of Zeus at Uzunda Burdj, is shown in Vol. III of *Monumenta*, p. 47.

we actually find in the late or Graeco-Roman Corinthian temple is something quite intelligible as a succession from an earlier Greek form having a more limited constructional outlook, containing some new and highly expressive features. Perhaps the most important was the panelled dado-band round the outside of the cella wall (sometimes returned round the antae—see fig. 7), which provided a new horizontal emphasis, specially noticeable in non-peripteral temples. It may have been to balance the weight of this that the moulded podium was introduced. Entablatures tended to become single units of decorative expression, though composed of the traditional elements—architrave frieze and cornice; but there was no tampering with the function of the architrave as a constructive member in design. We may call these forms and ideas Graeco-Roman or Romano-Hellenistic, but it is really more convenient to call them simply Hellenistic. That they were truly so in the Eastern Mediterranean lands till the second century A.D., and sometimes even later, becomes increasingly evident the more the actual examples are studied.

Fig. 9. Fragment of a stone frieze in the museum at Taranto.

CHAPTER III

TOMBS AND MONUMENTS

Tomb structures in the Ancient World varied very much both in intention and in conception. Undoubtedly the landscape setting was important. The great Egyptian structures of the pyramid-builders transcended everything. Whether we consider them as architecture depends on the meaning we give to that word; but the mastabas certainly had something of what is generally understood as architectural quality. The underground structure was always prevalent in the other Mediterranean lands and in Mesopotamia. Even fine-built structures like the beehive-tombs of Mycenae were really underground. We have no evidence of elevated tomb-structures built during the sixth and fifth centuries in Greece that were comparable with the temples of that age.

The Hellenistic and proto-Hellenistic contribution to the tomb-monument type of structure was a notable one. The most famous example—the Mausoleum at Halicarnassus—though not a stone of it actually exists in position to-day, is clearly the prototype of the "Shrine of Remembrance" at Melbourne, which was dedicated in 1934. Several other modern memorials (notably the Cenotaph in Whitehall) resemble, perhaps unconsciously, the grave-towers at Palmyra. If we consider the graceful but tiny Choragic Monument of Lysicrates at Athens as Hellenistic, we find that this also has been a favourite model, nearly copied on the Calton Hill at Edinburgh early in the nineteenth century. Though it was not a tomb-monument, the Pharos at Alexandria was the

first and tallest of all the lighthouses that have been erected subsequently.

We can divide the subject-matter into six groups as follows:

GROUP I. *Halicarnassus and Belevi.*
Other monuments of this class.

GROUP II. *The rock-cut monuments at Petra.*

GROUP III. *The grave-towers of Palmyra.*
Other elevated grave-monuments.

GROUP IV. *Underground tombs, rock-cut and structural.*

GROUP V. *The monument of Philopappos at Athens.*

GROUP VI. *The Pharos at Alexandria.*
The "Beacon" tower at Abusir.

GROUP I

HALICARNASSUS AND BELEVI

The Belevi Tomb. Though the recently discovered tomb at Belevi, already mentioned, was probably built about a century later than the one at Halicarnassus, it is convenient to study it before the more famous example, because it is less known, and because it has disclosed some valuable material in its base treatment which may be considered as a fairly conclusive settlement of this treatment in the earlier structure. It is all the more reasonable to compare the two examples, as though the Halicarnassus monument was the larger of the two, the Belevi one was of no mean size. The length of the lowest step of the stylobate on the long side is approximately 98 feet. The corresponding dimension at Halicarnassus cannot have exceeded 127 feet.

The tomb at Belevi was partially a rock-cored structure. It may have belonged, like the tomb of Mausolus, to a type which has been defined by Lethaby as "a basement, a pyramid and a trophy".[1] Though succinct and good, this is not a complete description, as the pyramid and trophy were raised above, or "suspended over", the basement structure, by means of an intervening order of free-standing columns carrying a normal entablature. Of two earlier examples of this type of structure, one, the small Lion tomb at Cnidus, had a stepped pyramidal roof;[2] the other, the small Nereid monument at Xanthus, had a gabled roof like a temple. This must be studied in the British Museum.[3]

At Belevi, the core of the basement is a remarkably square rock, hollowed out at the back for a sarcophagus chamber. It may have been shaped considerably to a rectangular form, obviously necessary for the facing of dressed marble to be erected with the minimum of labour and material. Fortunately, a considerable quantity of this facing, including the stylobate and moulded base-course, exists in position or nearly so (Pl. V*c*). In addition, certain indications on the top of the rock make the level of the top of the basement portion of the monument at least approximately certain. Finally, the remains of the order which stood on the basement are sufficient to enable a fairly exact restoration to be made of the total height of the monument to the top of the entablature of the order (fig. 10). This may have an important bearing on the height of the Mausoleum. The form of roof is not quite clear, but as this monument is in south-west Asia Minor, near the coast, it is not very far from Hali-

[1] *Op. cit.* p. 57.

[2] See Sir Charles Newton, *Halicarnassus, Cnidus and Branchidae*, Vol. II, pp. 214–227, with restorations by Pullan in Vol. I, Pls. LII–LVI. The splendid lion is in the Mausoleum room at the British Museum.

[3] See also, Foreword, p. xiv, above.

carnassus; and we might expect a stepped, stone-built, pyramidal roof, with or without sculpture at the top.[1] The

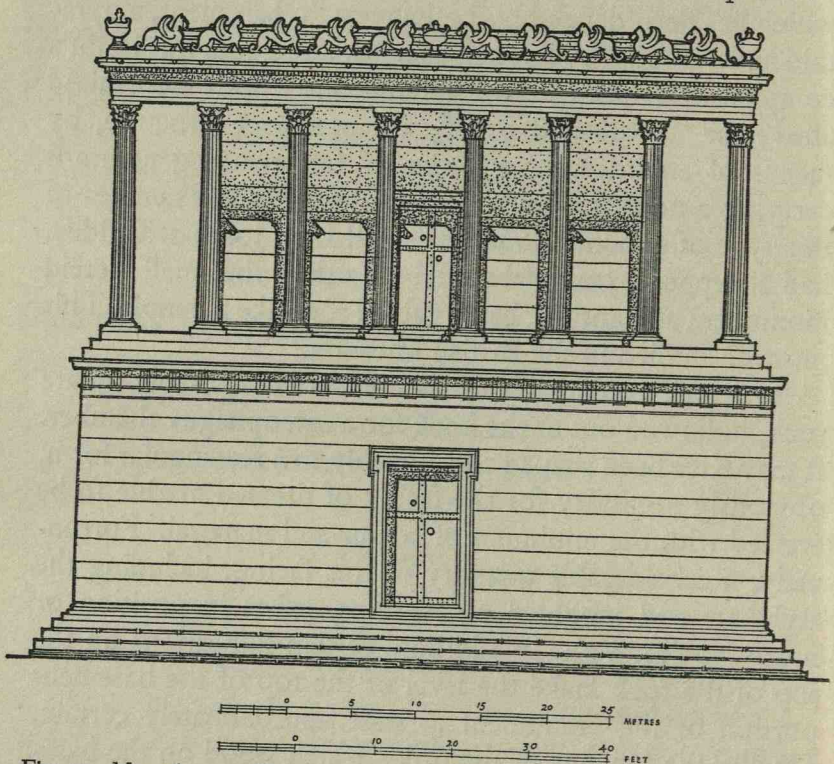

Fig. 10. Mausoleum at Belevi, near Ephesus. Side elevation. (From a restoration by Dr Josef Keil.)

only substantial variation between the two monuments that we can be sure of is the more eclectic nature of the detail in

[1] Since I saw this monument, the final account of it, with full drawings, has been published by its excavator, Prof. Dr Josef Keil. See "Vorlaüfiger Bericht über die Ausgrabungen in Ephesos", *Jahreshefte des Österreichischen Archäologischen Institutes in Wien*, Vol. XXIX, first section–XVIII (Vienna, 1934), pp. 104–151: 14 photo illustrations, restored plan and elevation, plan and three sections of sarcophagus chamber. Dr Keil, who kindly allowed me to make a drawing from his restoration, assumes a graded roof of very low pitch (see fig. 10).

the Belevi example. It was not Ionic. Its mixture of Hellenistic Doric below and proto-Corinthian above was more characteristic of its date. It should not be forgotten, however, that a building on Greek soil—the temple at Tegea—approximately of the same date as the Halicarnassus monument, had a pure Greek Doric order outside and a proto-Corinthian order inside. As already mentioned, the profile of the moulded base-course at Belevi has a strong resemblance to the base-moulding of the internal order at Tegea. The entablature of the main order, as assembled on the site, has a narrow carved frieze of cyma-recta section, carved in a pure Greek manner. One of the Corinthian capitals exists, nearly complete (Pl. XXI*e*).

The monument is tucked away in a fold of wild wooded hill-country, rising rather quickly from a considerable lake. A fine view of this and of the hills on the other side of it can be obtained from the top of the rock-platform. From the ground evidences, it is probable that a lot of preparatory work in rock-cutting and clearance was effected on the rear side, from which the sarcophagus chamber was entered.

The Tomb of Mausolus at Halicarnassus. The marble remains of this memorable building are almost entirely in the British Museum. It must have been very striking and beautiful. To convince ourselves of this we need only glance at Adler's restoration and study carefully the architectural and sculptural evidences (fig. 11). The sculpture was of first-class mid-fourth century quality and the architectural details show a Greek refinement which was perhaps never excelled in the fourth century. We must not regard it as a gigantic structure. Adler's restoration—probably about correct for total height, though possibly too high in the basement portion—shows it about 90 feet high. Its probable

overall length has been stated already at 127 feet over the stylobate. On the same showing, the width was 108 feet. It was therefore only about one-fourth, linear, greater than the Belevi tomb, but it was a great monument in actual mass—and particularly in height—for the Greek world. At the time of its building it was probably unique, apart from small and comparatively rudimentary prototypes. These facts, taken in conjunction with the fame of its architects and sculptors, would explain the great measure of admiration it received, though it is probable that the "wonder" was really the pyramid and its trophy. As there is no doubt, from the evidences in the Museum, that there was a cella underneath the main bulk of the pyramid, the support of that feature would not have been a very difficult matter, but it *appeared* to be difficult from exterior view. From the scanty evidence available, Sir Charles Newton estimated that the external cella-wall had an inclination of 1 in 100.

Lethaby made a thorough study of the architectural evidences in the Museum and established some useful data. His conclusions make very interesting reading and appear to be quite sound, but he hesitated to make a new restoration.[1] Adler is probably too fussy in the lower treatment of the basement or podium. The evidence from Belevi would lead us to believe that there was first a stepped stylobate, then a moulded base, and an unbroken wall surface above that until the continuous sculptured frieze of the podium was reached.

It might appear to us nowadays that a possible weakness in the whole design was the corner column treatment, necessitating—as the Ionic order was used—corner capitals like

[1] He thought it worth while to publish a sketch drawing of one which he himself rejected, showing the stages of the pyramid graduated, as they almost certainly were (*op. cit.* fig. 43).

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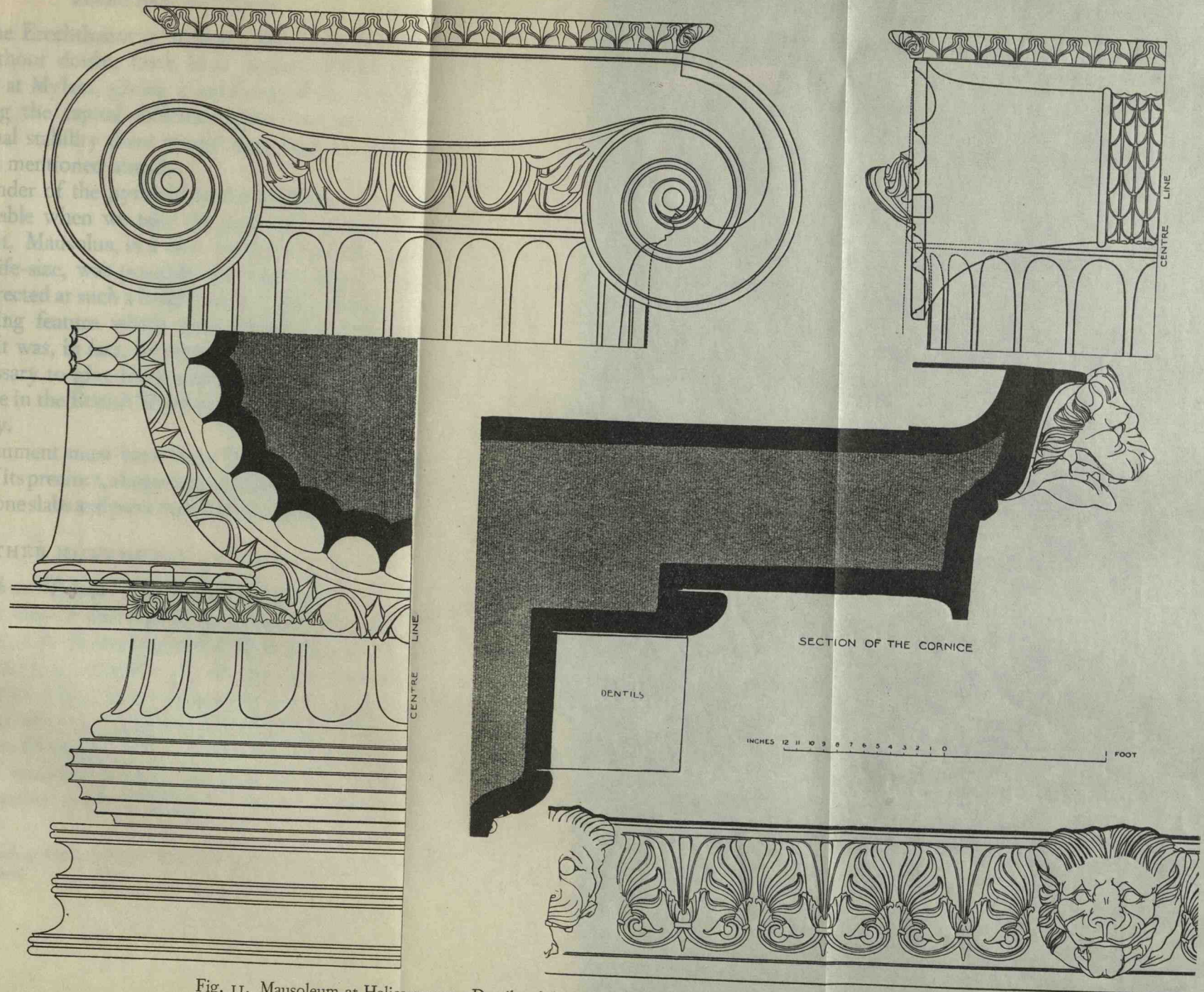


Fig. 11. Mausoleum at Halicarnassus. Details of the order. (From *Architectural Association Sketch Book*, 1910.)

those in the Erechtheum at Athens. At a later date there would, without doubt, have been square pillars at the corners, as at Mylasa, giving a satisfying effect of stability and making the capital difficulty quite easy of solution. About actual stability there would have been no question, as has been mentioned already.

The wonder of the pyramid to the ancients is the more understandable when we take the great size of the trophy into account. Mausolus, in a two- (or four-) horsed chariot, well over life-size, was possibly the largest finial that had ever been erected at such a height and in such a manner. It is this crowning feature which gave meaning to the entire structure. It was, in fact, its consummation in no ordinary sense, necessary to give force and point to the whole. The superb horse in the British Museum gives us the scale of this great trophy.

The monument must have been doubly effective by the treatment of its precinct, a large surrounding space paved with marble or stone slabs and punctuated with accessory sculpture.

OTHER MONUMENTS OF THIS CLASS

The Tomb at Mylasa. The remaining monument in Asia Minor which was of this type is the considerably later and smaller tomb of the Roman period at Mylasa, also in Caria.[1] This was standing complete in all essentials until quite recently, but it is rather inaccessible and I was not able to see it. The upper order is a species of Corinthian and there are square piers at the angles. There is no cella behind the order and the roof consists of stone slabs ingeniously bracketed over in the manner of the Jain tombs of India, as Fergusson pointed out.

[1] See *Antiquities of Ionia*, Part II, p. 26 and Pls. XXV–XXX, and Foreword, p. xiv, above.

This monument is a very interesting example of the survival of a Hellenistic type of structure into Roman times. It owed its preservation to the massiveness of its building and the permanence of its form of roof construction. A somewhat similar method of bracketing roof slabs can be seen, on a smaller scale, in the covering of the four-way arched basement of the spina of the circus at Vienne, in France, which is also in perfect preservation to-day.

The Lysicrates Monument. The tiny Lysicrates monument in Athens, built of marble, is also in this class, and though from its date (334 B.C.) it is pre-Alexandrian, it may be considered as proto-Hellenistic. Its motive is a rectangular basement, a tall circular drum containing an order and a low-pitched roof carrying an elaborately carved finial. The result is beautiful both in form and detail, but it is too well known to need further description, as it was recorded by Stuart and full particulars of it can also be found in books dealing with the classical orders published since his time. It is still in a fair state of preservation.[1]

Various Tombs in Syria and Palestine. In Syria and Palestine there is an interesting group of tomb-structures which include some worthy of being called architectural monuments. The tomb of Hamrath at Suweida in the Haurân was recorded by de Vogüé in *La Syrie Centrale*, but H. C. Butler, in 1905, found it in ruins. It is remarkable for Syria in having an engaged order of Hellenistic Doric attached to the rectangular structure which carried the stepped pyramid. De Vogüé was able to record the starting stones

[1] The "Tower of the Winds" at Athens should be mentioned, though it is in a class by itself, and it is also so exceedingly well known that it does not need any description. It was of much later date (*c.* 50 B.C.) but Greek in conception and handling.

of the pyramid. This was one of the most important of several rectangular stone tombs with pyramidal roofs in this district, but all of them were comparatively small. The roofs were not always stepped but were of steeper pitch than that of the tomb of Mausolus. The tomb of Suweida is one of the earliest and appears to date from the first half of the first century B.C.

Even more interesting is the so-called "tomb of Absalom" in the Kidron Valley, outside Jerusalem (Pl. VI*a*). It is a comparatively small monument, roughly about 20 feet square, but of tall proportion. The whole of the lower part is cut out of the natural rock, but the upper part is built of large stone blocks. The motive here is a low rectangular podium or basement, a rectangular order treatment surmounted by a high attic, and a crowning feature consisting of a circular drum carrying a concave conical finial. The result is a monument of great character, showing admirable balance.

The order is Ionic with square pilasters at the angles and with two engaged columns on each side, but there are engaged half-columns against each pilaster. There is a commencement of fluting under each capital. Though the whole feeling of the detail is provincial, there is a noticeable purity of outlook in the Ionic capitals. Two characteristics of the detail are specially remarkable. The entablature of the order has an architrave surmounted by a "gorge" cornice of Egyptian type. The finial, or roof, is also not Greek, but is suggestive of work at Petra.

Prof. Robertson has suggested the first century A.D. for the date of this tomb,[1] but Dr Mayer, who is a good authority, ascribes it confidently to the Maccabaean period in the second century B.C. In style it can be called Hellenistic

[1] *Op. cit.* p. 221.

showing Ptolemaic influence, and probably some Nabataean influence also.

There are two other smaller but interesting tombs in the Kidron Valley, also rock-cut. One of them is Ionic with a pyramidal roof and the other is a façade only—two Doric columns in-antis, like Beni-Hassan. The details of both are quite Hellenistic and it is probable that they date from the same period as the "Absalom" tomb.

GROUP II

THE ROCK-CUT MONUMENTS AT PETRA

The remarkable rock-cut monuments at Petra include several which have outstanding architectural character. The largest and most notable is El-Khazne, the so-called "Treasury" (fig. 12), but it should be realised that these monuments are not the only evidences remaining at Petra. There are important detached buildings, of which the most interesting is the Kasr-el-Bint ("House of the Virgin"), constructed with massive stone blocks. These have been investigated in a preliminary way by Wiegand, who also gives a rough drawing of the side door of El-Khazne.[1] This remarkable door is full of freshness and force and has traits which recall the tombs at Alexandria, though the capitals of its jambs also recall those of the inner pilasters of the Didymaion at Miletus. It is difficult, at least until further examination has been made, to give any definite date for the Petraean work. The best of it might well be anterior to the first century A.D. In thinking of parallels to its rock-cut architecture we must not forget Medâin Sâlih, that still more inaccessible site on the road to

[1] *Petra*, Wissenschaftl. ver. des deutsch-turkischen Denkmälerschutz Kommandos (Berlin, 1921). Newton shows a correct drawing of the door.

Mecca which has been described by C. M. Doughty in *Arabia Deserta*; but it would appear that the more slender output of the Maccabaean tombs in the Kidron Valley at Jerusalem is an important parallel, at any rate to the Greek-inspired work at Petra; and there is evidently work at Petra

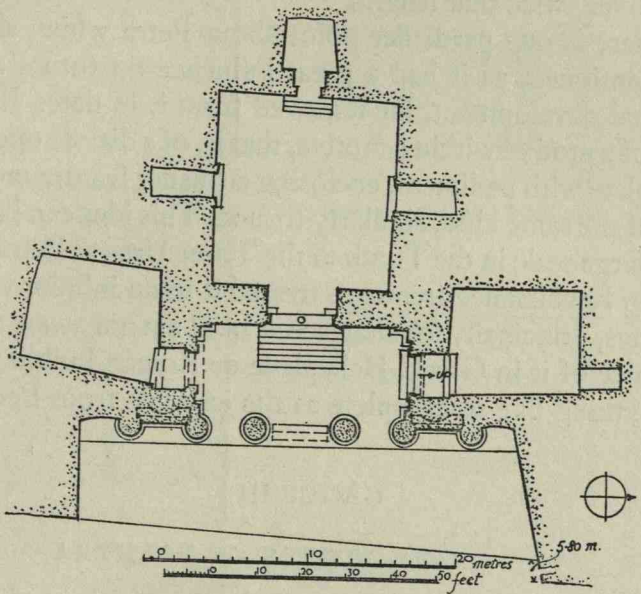


Fig. 12. The Khazne at Petra. Plan.

which is not so inspired. Wiegand sees in the rock-cut output a fantastic basis, and he regards it as due to craftsmen who were primarily scenic artists.[1] Mr Horsfield is not of this opinion, and he is our principal authority.[2] The only architectural drawings of the rock-cut tombs are the admirable plan, elevation and section of El-Khazne by the late F. G.

[1] *Ibid.*

[2] Mr and Mrs Horsfield's forthcoming book on the Nabataean output, to be published by the Cambridge University Press, will include a valuable account of the architecture.

Newton, published in the *Palestine Exploration Fund Annual* for 1911, unfortunately small in the reproduction (fig. 13). They are quite accurate, as they were based on careful survey on the spot. The great scale of the actual work is apparent. The main order is about 50 feet high and the total front is well over twice that height.

There is one particular point about Petra which should be mentioned, as it had a great influence on future architectural development, far removed from it in date. It consists of a motive within a motive, that is, of a distyle opening, complete with pediment, enclosing a smaller feature more or less of the same kind, similarly treated. This idea can be seen on a large scale in the Tomb of the Three Urns at Petra. The Italian Renaissance architects treated it in an infinite variety of ways, principally for altarpieces, but I am not aware of any instance of it in Greek, Hellenistic or Roman building that is anything like so complete as the example from Petra.[1]

GROUP III

THE GRAVE-TOWERS OF PALMYRA

The grave-towers of Palmyra belong to a class of tomb-structure which is peculiar to Syria[2] and seen at Palmyra in its highest development. They were in every respect tomb-monuments, finished with unexceptionable classical taste internally; and externally, with equal care, but with a severity of general treatment which is remarkable. It is difficult to realise that the tallest ones are over 70 feet high, but, as iso-

[1] There were other examples, quite classically treated, in that remarkable site. See Alois Musil, *Arabia Petraea, II—Edom* (Vienna, 1907), figs. 113 and 114. For an Italian Renaissance example, see the altar treatment in the north transept of the Church of St John Lateran, Rome.

[2] But see Foreword, p. xiv, above.

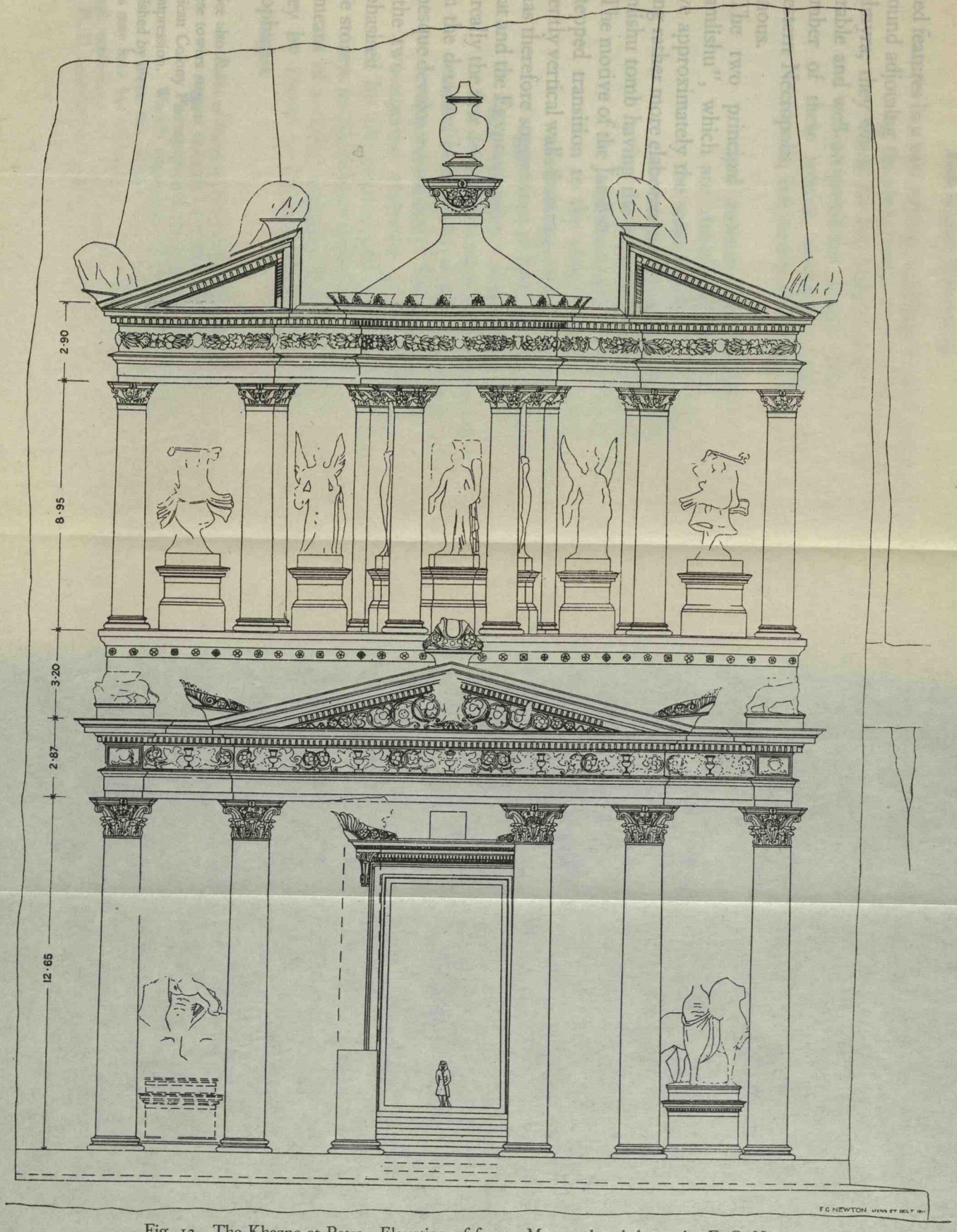


Fig. 13. The Khazne at Petra. Elevation of front. Measured and drawn by F. G. Newton.
(From *Palestine Exploration Fund Annual*, 1911.)

lated features in a vast setting, standing on stony undulating ground adjoining the desert track which is the approach to Palmyra, they would be less impressive but for their admirable and well-proportioned design. There was a great number of these towers, covering a large area in the Western Necropolis, but nearly all of them are now very ruinous.

The two principal towers—the "Elahbel" and the "Jamlishu", which are about one-third of a mile apart, have approximately the same treatment; the Elahbel tomb being rather more elaborate and complete internally and the Jamlishu tomb having the more effective niche externally.

The motive of the Jamlishu tower is a plain high base and a stepped transition to the tower proper, which has apparently vertical walls finishing with a small cornice (Pl. VII). It has therefore suggestions of both the Mesopotamian ziggurat and the Egyptian pylon.[1] These Palmyrene structures are really the first detached monumental towers, comparable with the detached bell-towers of the eleventh-century Romanesque development in Italy. The resemblance is increased by the two-storeyed treatment of the Palmyrene towers, emphasised by the pronounced architectural emphasis of these storeys in the frontal treatment; on the ground storey by means of a richly-consoled doorway and on the upper storey by means of an arched niche containing a stone sarcophagus.

[1] See also *Ruins of Palmyra*, by R. Wood (1758). Wiegand's photographs of these towers suggest that they are battered, but a photograph taken by the American Colony Photographers at Jerusalem with a wide-angle lens corrects this impression. Wood's engravings show the Elahbel and Jamlishu towers diminished by means of set-backs. This is clearly wrong, but some of the other towers may have had this treatment. I regret that I was not able to make a thorough exploration. Pr. S. Abamelek-Lazarev's *Palmyra* (St Petersburgh, 1884), Pl. II, confirms the verticality of one of the towers.

stone doorway in front. The roof, hollowed out of the rock, is in the form of a semicircular barrel vault, like that of the so-called "Temple of Diana" at Nîmes, in France. There is a pilaster treatment on the walls, but more sparing than in the grave-towers. The finish of walls and ceilings is painted stucco of very interesting character showing symbolical figure motives of oriental origin. The principal figure treatments are in the end tympanum, and though they are in bad condition, they have a touch of the heroic feeling exhibited in the best of the painted panels from Pompeii and Herculaneum. The ceiling decoration is based on a hexagon pattern, with a large circular medallion in the middle.

Mustapha Pascha, Alexandria. The most important Hellenistic underground tombs that are known to us have been discovered recently at Mustapha Pascha, near Alexandria, Egypt. There are two systems of these, each consisting of two square compartments divided by a loggia. The treatment, which has a finish of fine stucco, is a completely architectonic one, based on a refined version of Hellenistic Doric (Pl. II *a*). The most interesting characteristics are the openings to the tomb recesses, stairs and loggie. These are finished very delicately and their details would have delighted Sir John Soane. Apart from their piquant plasterwork they show many evidences of colour (fig. 39). In one of the tomb recesses there is also an important sarcophagus, with a coloured plaster imitation of a mattress and of shaped wooden legs.

This type of sarcophagus is of course a favourite Hellenistic one, which can be seen, complete with its recumbent figure, cut out of rock in the mausoleum at Belevi, near Ephesus (Pl. V *b*); and which may be about the same date—third to second century B.C.—as the Alexandrian tombs.

Kôm-el-Shugafa and Anfushy, Alexandria. At Alexandria, also, are the underground tombs known as the Catacombs of Kôm-el-Shugafa and the Necropolis of Anfushy. Though these are of late Ptolemaic character, as they belong to the

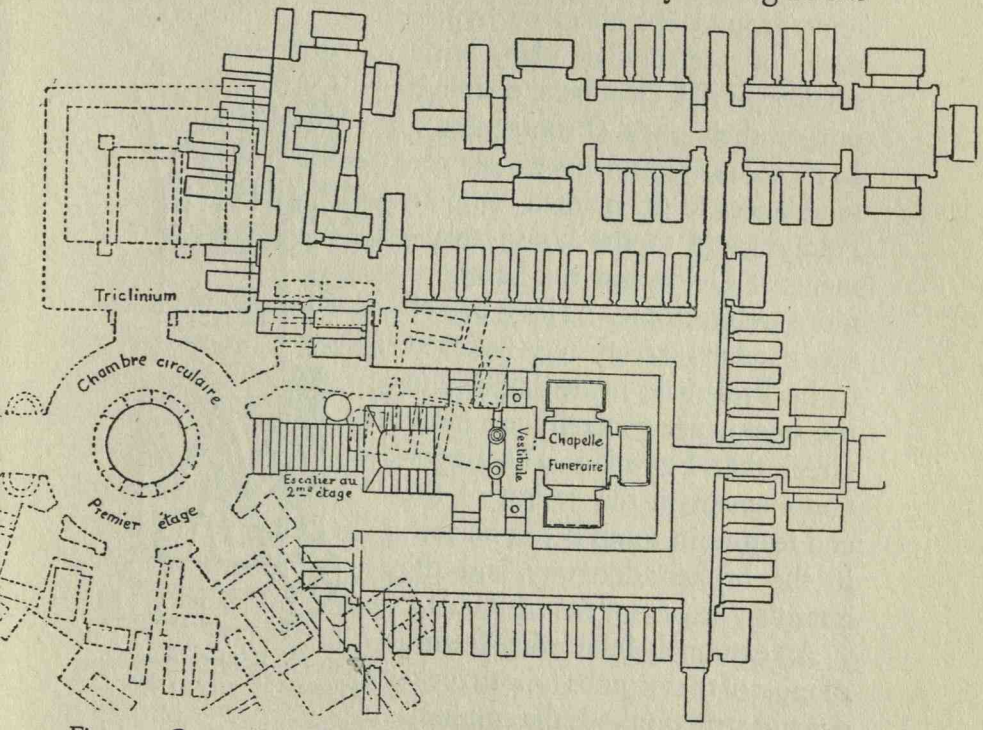


Fig. 15. Catacombs of Kôm-el-Shugafa, Alexandria. Main portion of plan. (Enlarged from Dr Evv. Breccia's *Alexandrea ad Ægyptum*, Bergamo, Istituto Italiano d' arti grafiche, 1922.)

Roman period, they are Graeco-Egyptian in their treatment. Kôm-el-Shugafa is a *tour-de-force* of rock-cut architecture which would be remarkable in any period (fig. 15). No plan of it is capable of interpreting it properly; and a model, though it would illustrate its changes of level, would fail to convey its cavernous impression. It is probably the most

ambitious thing of its kind in the Mediterranean, including a circular well for light, a Graeco-Roman triclinium, and a markedly Graeco-Egyptian end feature (fig. 16).

Anfushy consists of a series of underground chambers or hypogaea, of rectangular plan, with smaller burial chambers opening out of their ends (Frontispiece). In its colour treatments we see resemblances to the painted tomb at Palmyra and to the house treatments at Delos, but the latter are more architectonic. At least one of the chambers at Anfushy is believed to be Ptolemaic in its dating and the treatments generally are more Greek than Egyptian. The Egyptian element in the design of the end feature in tomb B can be seen in the broken doorway and the guardian beasts on the pedestals.[1]

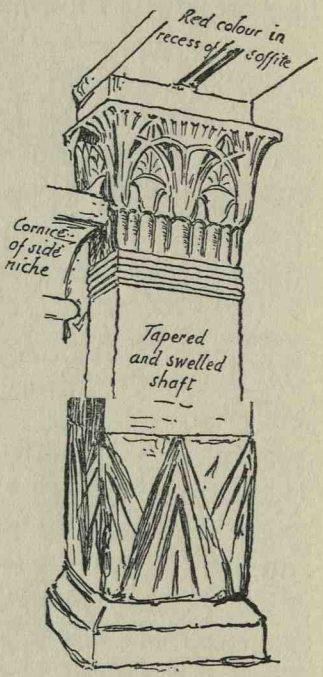


Fig. 16. Kôm-el-Shugafa. Pilasters at entry to shrine.

An extremely interesting feature of most of these tombs—both rock-cut and structural—is the emphasis that is given to the end treatments of the chambers which gave access to the burial recesses. In the grave-towers at Palmyra this emphasis was obtained by a rather wider spacing of the pillars, which also were cylindrical and not flat pilasters. In the principal chamber at Anfushy the emphasis is obvious. At Kôm-el-Shugafa there was a deliberate scheme for the production of an effect, as the climax of an involved

[1] For a good general account of Kôm-el-Shugafa and Anfushy, with plans and illustrations, see Breccia, *op. cit.* pp. 317–334.

and considered approach, no doubt borrowed from Egyptian temple usage. In all these cases we find affinities with the sanctuary of the Christian church.

GROUP V

THE MONUMENT OF PHILOPAPPOS AT ATHENS

The Pentelic marble Monument of Philopappos on the top of the Pnyx at Athens has not received the attention it merits as a purely classical memorial structure combining architectural and sculptural treatment (Pl. VIII). Though it was erected at the beginning of the second century A.D. it has an historical link with pure Hellenism, as it commemorates the grandson of Antiochus IV Epiphanes, the last king of Commagene, in Seleucid territory. The whole of the lower part was undergoing repair in 1934 and I was not able to examine it properly, but there is a good record of it in Stuart and Revett's *Antiquities of Athens*. Both the form and the variation in the heights of the order treatments in the front and the back respectively are interesting. Stuart and Revett, in their perspective drawing, show the lintels of the side niches as curved on plan. This is incorrect, as the remaining one is, rather remarkably, straight. The arched head of the central niche is curved on plan, as can be seen from its slight distortion. The junction of the front and back design motives is a little obscure, owing to the ruinous condition of the ends of the monument. The height from the top of the squared podium to the cornice is about 30 feet, but the podium itself, as now cleared, is considerably higher than Stuart and Revett were able to see it.

It is probable that remains of other examples of this type of monument exist in Asia Minor. As it is, this stands in a class by itself, which can be placed definitely as Hellenistic.

GROUP VI

THE PHAROS AT ALEXANDRIA

The Pharos at Alexandria was a venturesome achievement. It was built by Ptolemy Philadelphus in the first half of the third century B.C. The Colossus at Rhodes might be a myth for all we know about it nowadays, but the Pharos was preserved by the Arabs from the ninth century, and though it was pulled about a great deal, its original structure, in all essentials, existed to the top of the penultimate stage at any rate till the thirteenth century. We know this from the elaborate description of the Arab antiquary Ibn al-Šayj, which has been published recently in Spain by Don Miguel de Asin and the architect Don M. Lopez Otero. An English translation was published by the Duke of Alba in the *Proceedings of the British Academy* in 1933. It is clear that the Arabs put a mosque on the top to replace the lantern.

We have not only got fairly accurate particulars of the nature and size of the Pharos, but we are able to locate its site, as it is reasonably certain that some of its foundations actually exist and that they are now incorporated in the central part or "keep" of Fort Kaid Bey, which, in its present form, goes back to the fifteenth century.[1] It would be remarkable enough as the first lighthouse of any importance, but it is probable that no lighthouse that has been built since exceeded it in size and height. The base of the tower structure was a square of approximately 100 feet side and the entire height of the edifice was over 400 feet (fig. 17). Admittedly, a structure standing in an isolated position by the sea would not appear so impressive as one of lesser height in a built-up area, unless one were close beside it; but even so,

[1] A thorough examination of the existing evidences of the Pharos is overdue. It is impossible to make any proper investigations at present, as the Fort is used for a military station by the Egyptian Government.

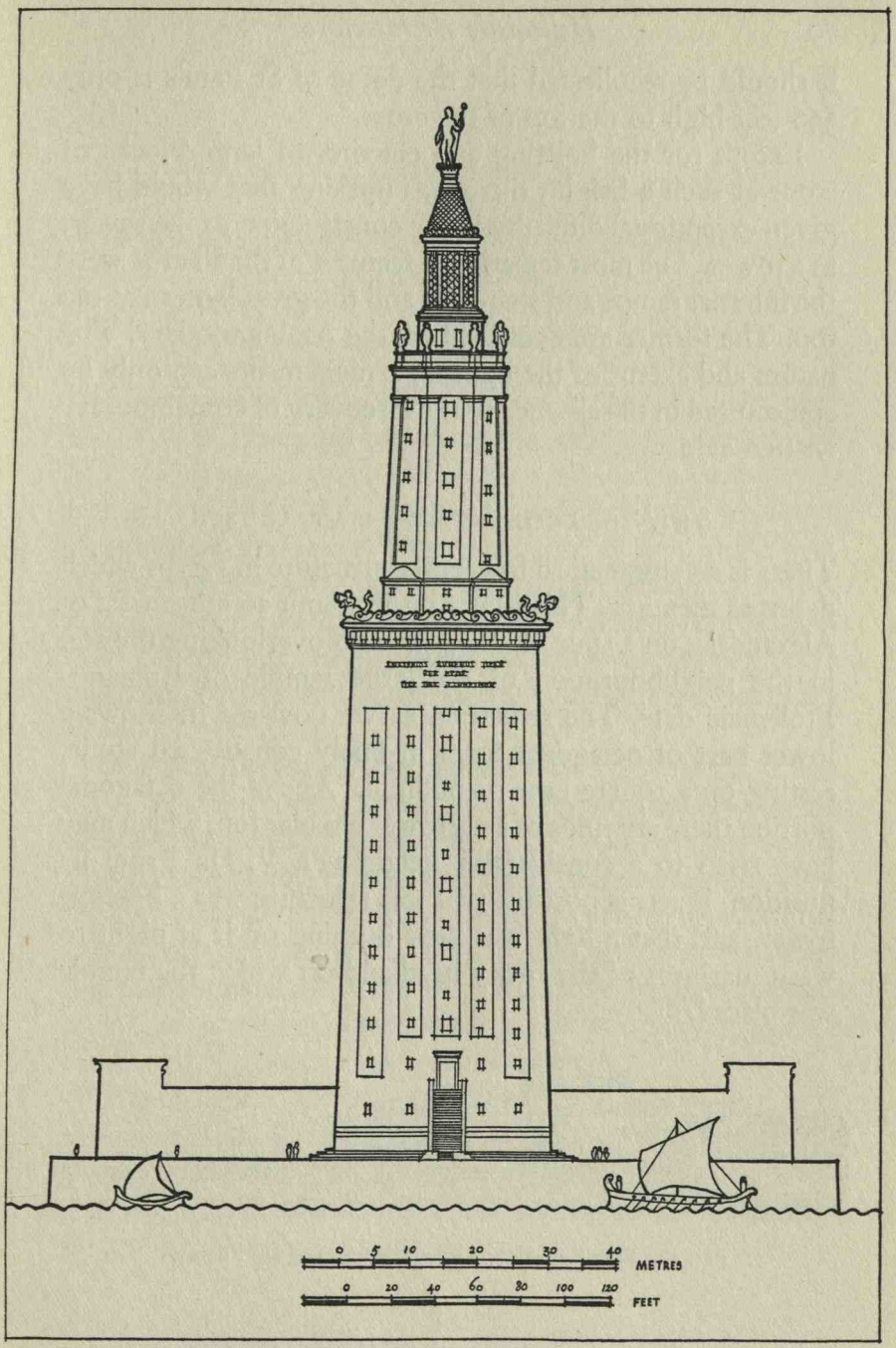


Fig. 17. The Pharos at Alexandria. (From a restoration by Don Miguel de Asin and Don M. Lopez Otero.)

it should be recollected that the dome of St Paul's is only 366 feet high to the top of the cross.

Except for the hoisting and erecting of large blocks of stone at such a height, there was nothing that would have given exceptional difficulty in the construction of the tower, as a tower. The most remarkable features of the Pharos were the internal ramps and staircases and the great lantern at the top. The former are described by the Arab antiquary. The nature and extent of the lighting arrangements can only be conjectured in the absence of the discovery of contemporary written evidence.

THE "BEACON" TOWER AT ABUSIR

There is an enigmatical tower-like structure in Egypt which deserves mention. This is at Abusir, about 30 miles west of Alexandria, on a spur of rising ground overlooking the sea, in the neighbourhood of the large temple of Romano-Ptolemaic date. The structure, as we now see it, shows a lower part of octagonal form in finely constructed stone, resting on a square base or podium. Above the octagonal portion there are ruins of a narrower circular top, which may have risen to a considerable height (Pl. VI *b*). From its position, it seems possible that this structure was a beacon-tower, and that a light was kept burning on it at night to warn mariners of the rocky headland on which the temple was placed.

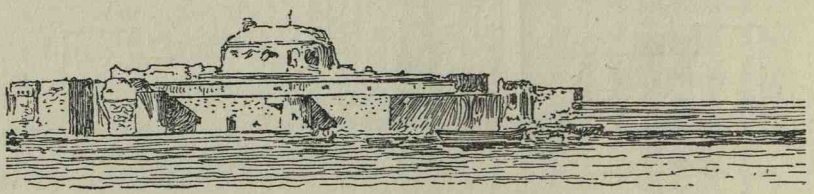


Fig. 18. Fort Kaid Bey, Alexandria. Site of the Pharos.

CHAPTER IV

THE ORDERS. SCENIC AND BAROCK TENDENCIES

I

The versions of the classical orders that have found their way into architectural pattern-books are mostly Greek ones of the fifth century B.C. and Roman ones from examples in Rome itself. As Rome was the chief source from which the Renaissance architects borrowed, this is not surprising. Noble results were produced by masters like Brunelleschi, Alberti, Bramante and Wren. Other masters, like Baldassare Peruzzi and Michelangelo, developing on their own lines, were sometimes more Greek or Hellenistic than they knew.

Nor is it surprising that the practical study of the Greek orders remained, for the most part, deeply embedded in the fifth century B.C. The purists of the Classic Revival in England—Inwood, Stuart, Cockerell, Wilkins and others—though some of them were aware of later Hellenism, did not care to explore that field. Only Soane, the architect of the Bank of England, with his extraordinarily original outlook, advanced steadily, consciously or unconsciously, into a fluidity of treatment which is astonishing.

The one great pattern-book which might have been used —the four Parts of the *Antiquities of Ionia* published by the Society of Dilettanti—remained in comparative obscurity. Practice was being deflected from academic considerations by the great engineering output of the second half of the

nineteenth century. It was unfortunate, but perhaps inevitable, that the really splendid achievements of British architectural scholars in Asia Minor were comparatively neglected. They were just too late, or too early, to bear fruit.

Soane was more Greek than Roman in his outlook, but a Roman, or Graeco-Roman phase of architectural treatment was fully exploited by a slightly earlier and perhaps equally eminent architect—Robert Adam. His work shows the experience gained by his great book on Spalatro combined with a study of Roman plaster-work as found, particularly, in certain tombs in the Via Latina, near Rome. Adam's development of these themes raises the interesting question whether the originals should be called Graeco-Roman or Hellenistic. It is clear that on two counts—originality, and the rich treatment of trabeated motives—they cannot be considered as Roman in any limited or local sense. From their resemblances to work in Asia Minor and Syria, it would not be out of place to call the detailed treatments of Spalatro Hellenistic. The delicate plaster-work ceiling and wall treatments developed by Adam from Roman prototypes can, of course, be matched at Pompeii, but a careful study of them will show undoubted affinities with the orientalised treatments of Syria. Here again, therefore, we can claim a Hellenistic ancestry—and, most probably, a consistent line of earlier development—for the Western results.

We must now consider the material itself. The three orders were all used in Hellenistic times, and there were some interesting variants, particularly a blend of the Doric and Corinthian capitals. There was comparatively little essential change in the Doric and Ionic orders, but the Corinthian order was fully worked-out and produced a great variety of forms in the treatment of the capital.

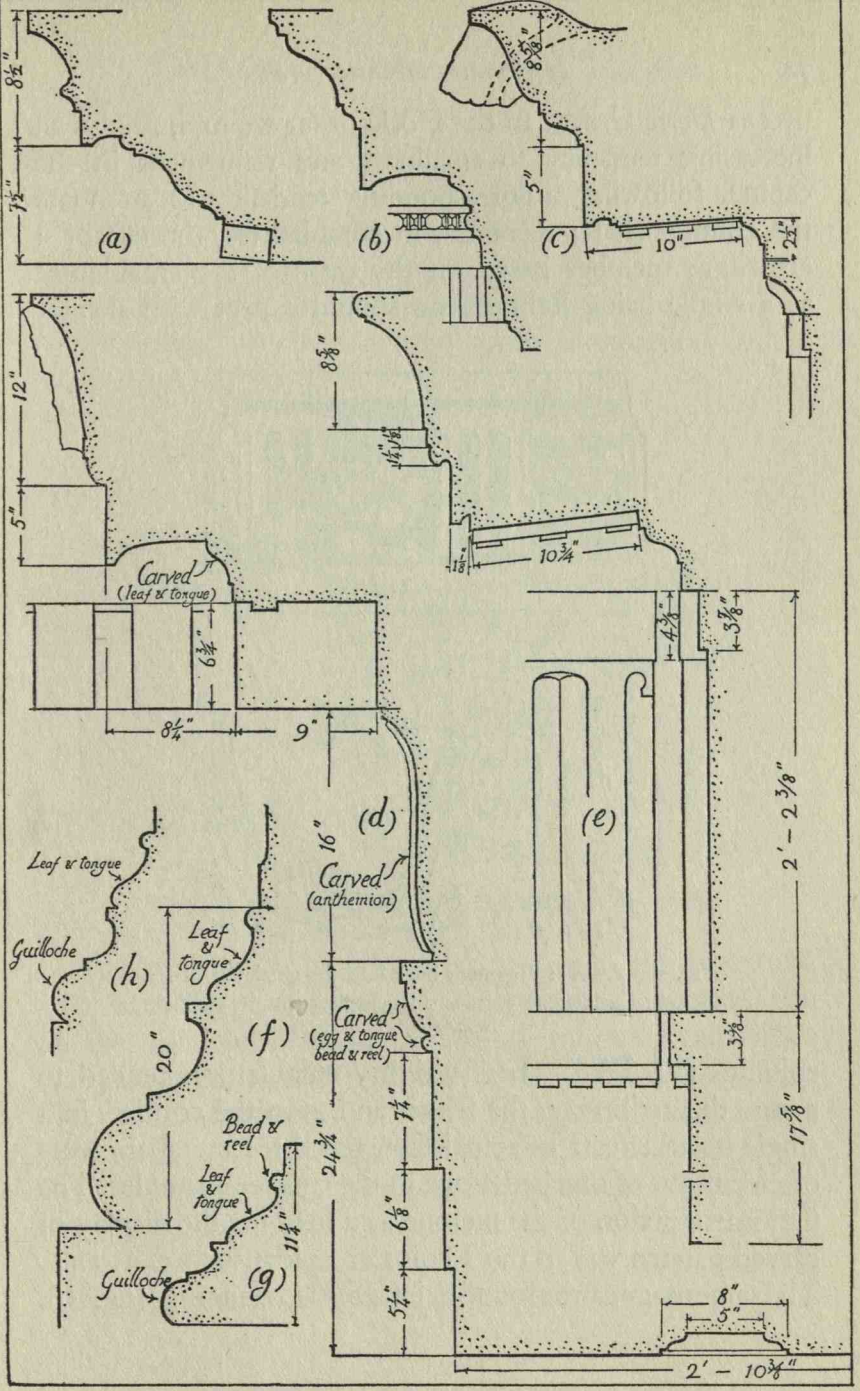


Fig. 19. Mouldings from Belevi, etc. (*a*) and (*c*) Ephesus, Artemisium precinct, cornices; (*b*) Segesta, theatre cornice (no scale); (*d*) Belevi Mausoleum, upper entablature; (*e*) The same, lower entablature; (*f*) The same, base-moulding; (*g*) Tegea, Athena Alea, base-moulding of cella (inside); (*h*) Rome, Terme Museum, base-fragment (no scale).

The Doric Order. In the Doric order we find, firstly, an increasing tendency to smallness and refinement in the capital, following a corresponding tendency to attenuate the column shaft; secondly, in entablatures, the use of a crowning member based on the cavetto, the entablature as a whole being light, as we should expect with slender

Fig. 20. Above: Fragment built into the citadel at Bosra.
Below: Carving on cornice sima, Jupiter temple, Baalbek.

columns (Pl. III *a*). Less weighty entablatures tended to merge the architrave, the frieze, and even the cornice, in a single-beam effect. In actual fact, the three members were often cut out of one bed-stone in the smaller examples. The first introduction of the metope as a field for the display of carved paterae was in the Tholos at Epidauros—*c.* 350 B.C. The same usage can be found in later Syrian buildings (fig. 20).

The Ionic and Corinthian Orders. A general tendency towards attenuation occurred in the Ionic order also, and the capital became correspondingly small likewise. We are fortunate in possessing a fine late Ionic building, carried out with pure Greek feeling, in the temple of Jupiter at Aezani, in Phrygia. This illustrates the tallness of proportion in these late temples, which was even more pronounced in the Corinthian temples at Baalbek and Palmyra.

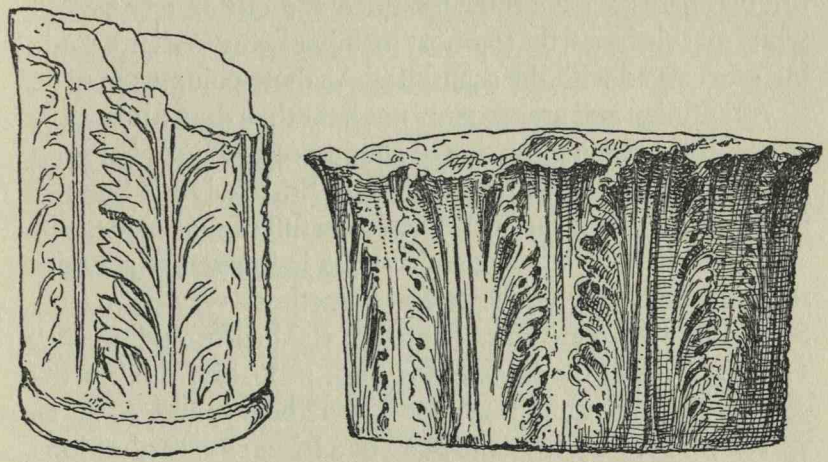


Fig. 21. Bases of column shafts in Alexandria Museum.

Though the sculptured-column drums of the earlier and later Artemisium at Ephesus were not repeated, a variation of the same principle is sometimes found in Corinthian columns of the Roman period in Syria. This took the form of acanthus decoration above the base. H. C. Butler quite rightly surmised that this treatment was Alexandrian. There are two splendid fragments of black basaltic stone in the museum at Alexandria which are in this manner and which evidently belong to columns (fig. 21). They are completely classical in their detail, but the principle of the treatment can

be seen in columns of all periods of Egyptian architecture, continued in Ptolemaic times. A conspicuous instance of the use of the acanthus-column drum in position occurs in the monumental arch at Jerash (Pl. XI *b*).

Instances of this lower-shaft decoration were not unknown in the Renaissance, but there is a more interesting example from the Baptistery of St John Lateran at Rome (Pl. XXI *b*). The porphyry columns which belonged to the original narthex have fully-moulded and elaborately carved white marble bases, the topmost member being a tall upstanding one carved with the acanthus. As these columns may be Constantinian and are certainly not later than the fifth century after Christ, they show one of the important links between Hellenistic and Early Christian usage. Both Italy and Syria—in fact the whole of the Near East—are full of such evidences.

The Hellenistic-Ionic cornice-sima is invariably a cyma-recta, treated with a delicate and sometimes very flat curve. Sometimes there are large dentils in the bed-moulding (fig. 11). At Priene, the Mausoleum and, probably, the fourth-century Artemisium, these dentils were heavy, and, so far as we can judge, they took the place of a frieze; yet restorations on these lines are not entirely satisfactory, and it is clear that there was a frieze in the temple of Artemis Leukophryene at Magnesia.[1]

For the Corinthian order a frieze was the rule, but it varies in its treatment. There was an interesting but not

[1] When columns were widely spaced, as in the front of the Hellenistic Artemisium at Ephesus, the friezeless entablature seems more rational, the basic example being the Nereid Monument at Xanthus. I once attempted a diagrammatic restoration of the Artemisium front on these lines after a study of Lethaby's article in his British Museum book (see *Journal R.I.B.A.* 13th June, 1914, p. 492). This shows too flat a pediment as Wood says that the angle was 17°. I only mention the restoration here as Prof. Robertson refers to it in the bibliography in his book.

unique treatment at Belevi, which has been mentioned already.[1] The frieze of the propylaeum at Jerash shows superb scroll-work carving (fig. 30*c*). On the other hand the Jupiter temple at Baalbek has a different type of frieze altogether, introducing recurring vertical elements connected by festoons (Pl. XVII *b*).

Flutings. Certain peculiarities of column-shaft treatment will be dealt with later. It should be noted that, in Doric and Corinthian columns, the flutings were often filled for a fourth to nearly a half of the column height. In Doric columns flutings were sometimes absorbed altogether in these lower parts, as in the forum at Pompeii. In Corinthian columns the fillings preserved the fluting definition and were convex on plan. It is unusual to find fluted columns in Syria, especially for peristyles. The Bel temple at Palmyra was a splendid exception.

Pilasters and Piers. *Entasis*, or the slight bulge given to column shafts, was as prevalent in Hellenistic times as in earlier Greek times. Further particulars will be given in the next chapter, but it should be noted that Corinthian pilasters or antae, though usually without diminution or entasis, sometimes had both of these features, as in the propylaea at Baalbek and the Bacchus temple there. It is probable that up to the end of the third century B.C., the capitals of Ionic antae adhered to the earlier Greek tradition. After that (and certainly in Graeco-Roman work) they have a volute treatment approximating to that of the columns.[2]

[1] See above, p. 53. The entablature was Ionic though the columns were Corinthian.

[2] Voluted ante-caps can be seen at Pergamum, in work which could hardly be later than mid-second century B.C. (See Pontremoli and Collignon, *Pergâme*, p. 116.) At Ephesus, in work which might be a little earlier, the Greek form can be seen. (See W. Wilberg, *Ephesos*, Vol. III, 1923, pp. 266–273.)

Interesting forms were produced by the meeting of one column with another at an internal angle, and the combination of a column with a rectangular pillar or pier. The first

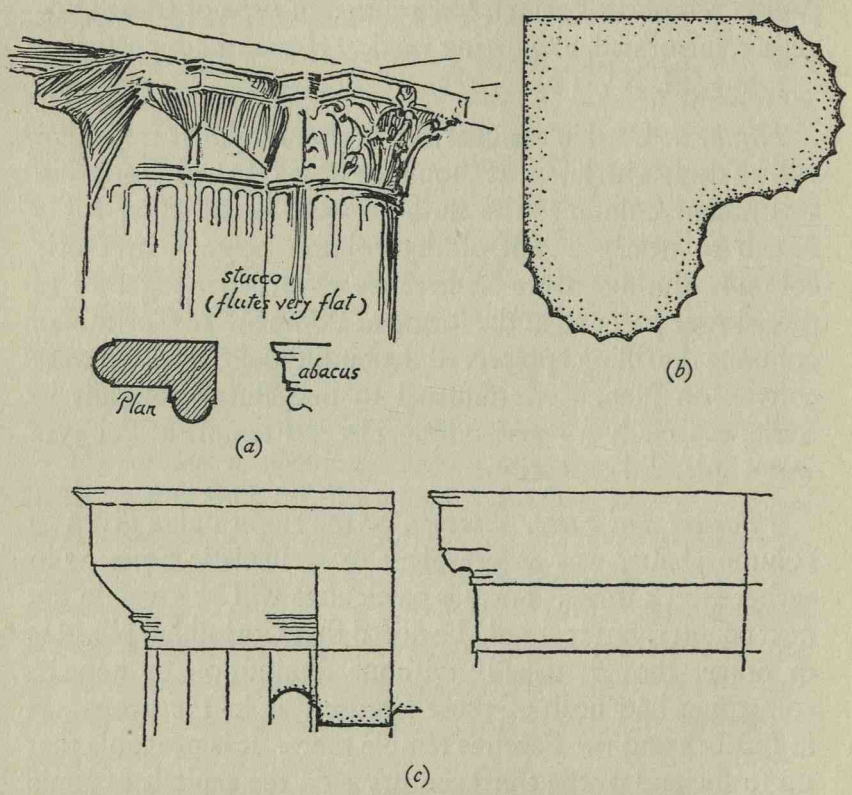


Fig. 22. (*a*) Corner pier, Casa dell' Argo, Herculaneum; (*b*) Cordiform pier of red granite in Alexandria Museum; (*c*) Capitals of column pier and anta, Priene theatre proskenion.

of these produced the "cordiform" pier, which is often of true heart-shape on plan, but there was sometimes a quarter-round at the internal angle. A fragment in the Municipal Museum at Alexandria shows an exceptionally large angle hollow (fig. 22 *b*). This pier was evidently Doric and it is

quite possible that the full details were swept round the internal angle.[1]

The combination of column and pier was more varied in treatment, and at Herculaneum it is met with as an internal angle support (fig. 22 *c*). Its more normal form is a deep pier as in the proskenion of the theatre at Priene (fig. 22 *c*) and other examples.

In Syrian treatments of the Roman period, Corinthian pilasters were often employed closely-spaced for decorative purposes. A very good example of this can be seen in the end towers or bastions of the propylaea at Baalbek, where the diminishing of the pilasters tends to give the towers a battered appearance, slightly resembling the more pronounced batter of an Egyptian pylon (Pl. XVI *a*).

Another interesting pilaster treatment is that of the hemicycles of the great court at Baalbek, some of which are very well preserved. With the delicate breaks of their cornices and the enrichment of their friezes, these features, which carried segmental domical finishes, must have been very effective (Pl. XVI *b*). At Baalbek, also, in the internal angles of the side chambers of the propylaea we see two half pilasters meeting at right angles, a treatment which puzzled the Renaissance architects. The Corinthian capitals in these features were managed with great skill (fig. 8).

Superimposed Orders. Hellenistic order treatments showed great elasticity in smaller buildings applied mostly to civil use, but it should be borne in mind that even fifth-century Doric temples had sensible variations in their double-tiered internal colonnades. The very perfect example which remains—the temple of Poseidon at Paestum—had only an architrave (i.e. a lintel course) dividing the upper and lower

[1] It is a sketch from memory only, as I unfortunately lost my original note.

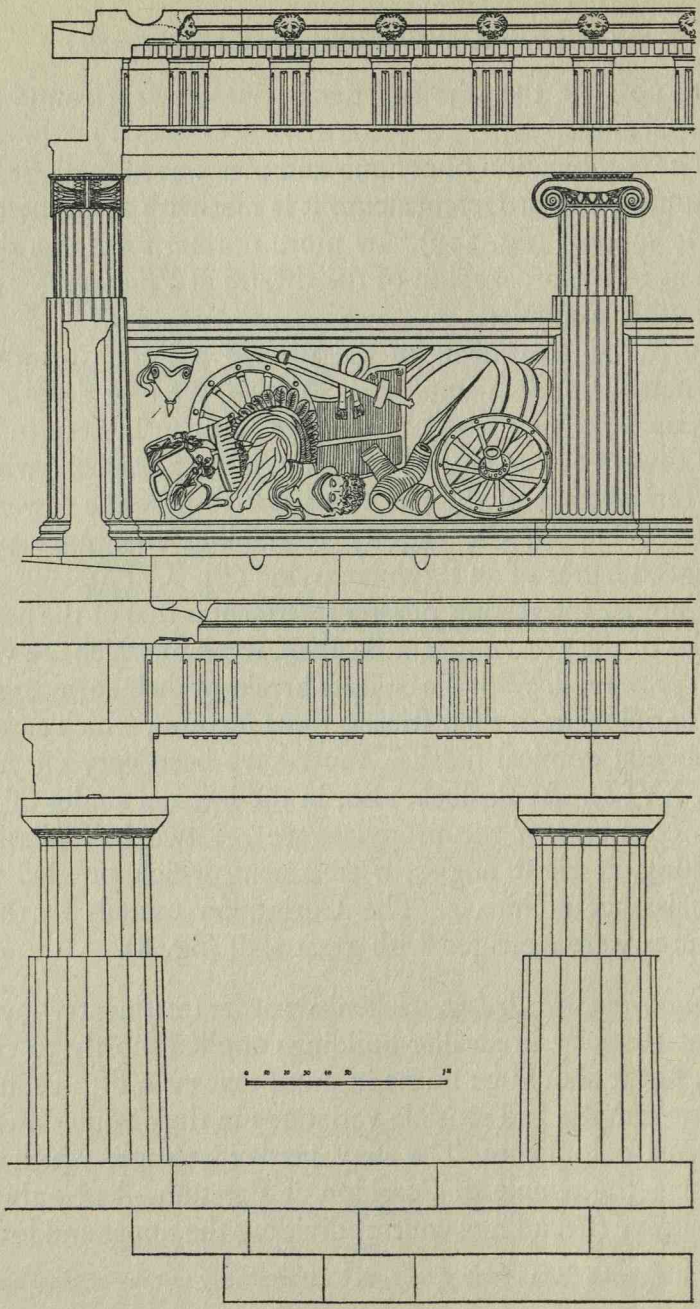


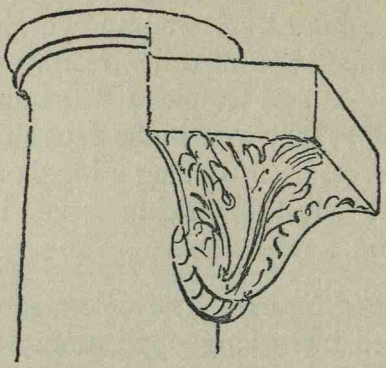
Fig. 23. Pergamum. Precinct of Athena temple. Superimposed orders. (From E. Pontremoli and M. Collignon, *Pergâme*, L. Henry May, Paris, 1900.)

ranges of columns. A well-known Hellenistic example in Ionic of a superimposed order treatment occurred in the precinct of the Athena temple at Pergamum. The friezes were not omitted as they were in the Zeus altar. The upper storey contained a floor (this being a loggia treatment) and there was a close balustrade, richly carved in front, between its columns (fig. 23).[1]

Colonnaded Streets. The colonnaded streets of eastern sites offered interesting opportunities in order treatment. Here, the directness of the manner in which apparently incongruous elements sometimes meet one another—as in the meeting of the street colonnade with the great monumental archway at Palmyra—almost induces a comparison with Gothic work. The carved brackets which are built out of the main pilasters of the central archway, to carry the entablature of the colonnade, recall those at Jerash, which were probably contemporary. The richly ornamented panelled pilasters in the Palmyrene treatment cleverly mask any appearance of awkwardness in the arrangement. At Jerash the brackets were built directly into circular columns. They were necessitated by the slope of the street and may be unique (fig. 24 and Pl. XXVIII*b*).

The most obvious feature of the colonnaded streets at Palmyra is the series of moulded brackets that were built into the columns, evidently for the purpose of carrying statuary. The more monumental use of such brackets in the front columns of the temple of Baalsamin at Palmyra—where the brackets are nearer the feet of the columns—has already been mentioned. We find here a motive which was a Hellenistic experiment. It did not penetrate the west

[1] In this genuine example of early second century B.C., it is interesting to see the unusual treatment of the Ionic entablature. Our outlook on Pergamene detail shows that there was fluidity and sweetness in its handling.



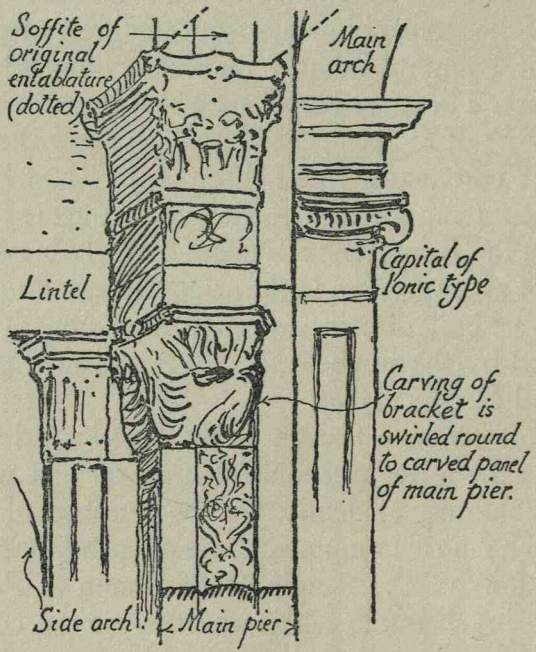


Fig. 24. Above: Colonnaded street at Jerash. Bracket to take change of level. Below: Great archway at Palmyra. Reception of entablature of street colonnade.

and was unknown in the Renaissance. That colonnaded streets, though of Roman date, were really Hellenistic, is rendered certain by the discovery at Antioch, in 1934, of the remains of one of these streets below the Roman strata, 10 metres from the surface of the ground.[1]

Panelled Soffites. In that delightful little building, the Circular temple at Baalbek, the panelled soffites of the architraves come into direct association with Corinthian capitals (fig. 27 *h*). It should be noted that these panelled soffites are characteristic. In later work the panels were moulded and sometimes carved as well. In earlier (fourth-century work) they were usually plain, though deeply recessed, as in the order of the Mausoleum at Halicarnassus. At Belevi they were delicately moulded (see fig. 19 *d*).

Subsidiary Order treatments. The later Hellenistic architects also made small orders a feature of their treatment of windows and niches, mainly by the use of pilasters carrying arched entablatures; though pilaster-jambs for windows were a fairly early usage, as at Delos. Such features as these were elements in a playing with order treatments which became a kind of architectural scene-painting. We find subsidiary order treatments with detached columns standing out from the wall and carried on brackets, surmounted by pediments, sometimes segmental; orders of varying heights associated in one composition; façade treatments with superimposed orders and a central motive. Advanced Hellenistic work, in fact, anticipated the Barock architecture of some fourteen centuries later. There was, in all probability, no direct connection between the two developments. They were both logical results produced by long familiarity with classical elements.

[1] I am indebted to Prof. W. A. Campbell for this information.

II

Scenic character was an outstanding fact about Hellenistic architecture in its later developments, whether these are styled Graeco-Roman or not. It was fostered by the increasing size and importance of the theatre, by the emergence of the grandiose street, by the cults of Eastern divinities that were being absorbed into Greek religion, by the funerary buildings of various kinds, by the building of important markets and libraries, and by the changes in the temple itself. For the complete emancipation of classical architectural form, we must turn principally to the later Hellenistic buildings of the Roman period in Syria and Transjordan, seen most conspicuously at Baalbek, Palmyra and Jerash.

Baalbek and Palmyra. If we can roughly define *scenic architecture* as an assemblage of architectural units put up to form a frontispiece, and *barock* as an absorption of the less into the greater in an architectural composition, it can safely be said that we find scenic architecture in the shrine of the Bacchus temple at Baalbek and barock in the entrance end of its cella (Pl. XII*a*). The entrance end of the Bacchus temple is true barock because the wide double-capitalled pilasters at the sides no longer count as pilasters but as parts of a larger unit which has for its main motive the great door opening. The scenic character of the "shrine" in this temple is apparent if one studies the whole conception carefully. The fusion of the great order with a smaller motive enclosed within it, and reinforced by side accessories of equal scale, is managed with great skill. Nevertheless, though the effect must have gained immensely by the side treatment of the cella, there may have been something inconclusive about

this end treatment as a whole. It hardly attains to the sufficiency of barock.[1]

The north end of the Bel temple at Palmyra is in a different category altogether, and here we are not so much dependent on paper restorations, but on actual remaining facts (Pl. XIII). It is obvious that the whole of this end must be an addition, as it has no organic connection with the side walls; but however it arose, it is an extremely fine piece of design, which is more akin to the best traditions of barock than anything I am aware of in classical architecture. As it exists to-day it is clear that some of its effects are accidental, but mastery is apparent in the way that the frame of the opening grips the order, and in the building-up of a motive by the association of the side features with the central one, while securing breadth by the powerful lines of the crowning entablatures.

The Theatre. The theatre offered one of the greatest fields for the exploitation of the scenic element. The best early Hellenistic example that we know of is the theatre at Priene, which was really Greek in essence. The later ones were almost too numerous to mention. Unfortunately all are now fragmentary, but plausible restorations can often be made.

The opportunity in the theatre was the "skene" (the Roman "scena"), and in its projecting "proskenion". Prof. Robertson may be right in suggesting that the proskenion at Epidauros was Hellenistic.[2] At any rate, we know more about the architectural character of these relatively early proskenia than about the skene. Personally, I find it hard to believe that the beautiful proskenion at Priene (Pl. XXIII*b*)

[1] See Robertson, *op. cit.* Pl. XIII, facing p. 224 (from Wiegand).

[2] *Op. cit.* p. 166.

did not provide the principal background and stage combined for the actors. It would certainly be most suitable for the acting of a Greek play, with the chorus in front. The main point to consider here, however, is its formal character as design. It is really a loggia, with supports spaced quite regularly. The later Hellenistic (or what is usually called the Roman) *scena* was something quite different. It can be seen at its best in the theatre at Taormina, and also, to smaller scale, in the theatre at Jerash (Pl. XI*a*).

In these late examples we have something which is pure scenic architecture. They use orders, niches, pedestals, hemicycles, arched forms, and steps, for the deliberate production of an effective architectural background, rising into two or more storeys. In Roman Africa, as in France, fine monoliths of variegated marble were employed. We can see the partial effect of these to-day in the theatre at Arles. The *scena* of the theatre at Aspendus, in Asia Minor, is a very perfect and very interesting example.[1] The introduction of a single tall order as a variation of the consistent two-storeyed arrangement, to give more emphasis to its split-pedimental central feature, would have rendered this a barock design. As it stands, it is merely scenic, but the emphasis of the central feature is deliberate and moderately effective.[2]

Miletus and Ephesus. Scenic architectural effects were not confined to theatres. We find them, for example, in the front of the market at Miletus (now at Berlin) and in the restorations of the front of the library at Ephesus.[3] In fact, where-

[1] Robertson, *op. cit.* (from Lanckoroński, etc.) fig. 117, p. 278.

[2] This account of theatre treatments is, no doubt, inadequate, but the Greek theatre has already been dealt with exhaustively by various authors, and a fuller study of Hellenistic scenic effects in the theatre demanded more time than I was able to give to it. It would form an admirable subject for research.

[3] Robertson, *op. cit.* (from Wilberg), p. 290.

ever, in the late Hellenistic or Roman public buildings of the Near East, a *feature* in architectural composition was called for, it was treated in a scenic manner. An exaggerated but very interesting example was the back wall of the building known as "Diocletian's Camp" (probably a nymphaeum) at Palmyra, dating possibly from the second century A.D.[1]

The remains of the library at Ephesus are partly in position but there is perhaps not enough material available to effect a complete reconstruction. The restoration on paper is sufficient to show the general scheme. The progressive transformation of the ground-floor motives to the upper floor is possibly unique and it shows an approach to barock.

The entrance front of the market at Miletus is magnificently set up in all its essential elements in the restoration at Berlin (Pl. IX *a*). This certainly has true barock quality. The unity of the scheme is secured by the projecting turrets at the sides in association with the central broken and recessed pediment of the upper storey. There is rhythmical play within the limits of the idea which is distinct from the monotony of the Ephesus motive.

Amman. One of the most remarkable examples of scenic architecture was the nymphaeum at Amman, of which Butler publishes a restored drawing.[2] The plan is original and necessitated what we should consider an awkward junction at each angle. Frankly, this design would have been finer if angle-pillars had been employed, at least for the central opening.

Petra. The front of El-Khazne at Petra could certainly come under the heading of "Scenic architecture", and, in

[1] See Wiegand, *op. cit.* Pls. 45–52.

[2] See *op. cit.* (P.U.A.S.), pp. 54–59, Ill. 35–38, and Pl. V.

fact, the majority of these Petraean works might be so described. It might be even more to the point to call the front of El-Khazne barock, if it is admitted, as I think it can be, that works of this class can truly be considered as architecture at all. Observe the difference of height in the two storeys, a characteristic of true barock (fig. 13).

Pompeii. The basilica at Pompeii is certainly not later than the beginning of the first century B.C., and though some of its elements may be based on a local traditional style, its

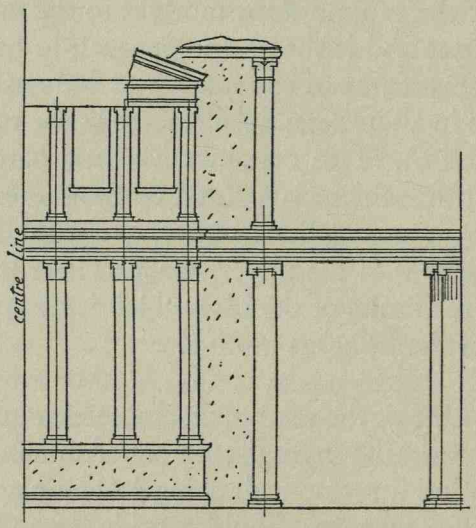


Fig. 25. West end of basilica at Pompeii. Diagram based on existing elements.

framework is Hellenistic. The central pedimented feature at the west end recalls El-Khazne at Petra, but in this case the motive runs into two storeys and the raised dais acts as a high base. Again, we see the storeys have unequal heights. The complete setting-out of the elevational treatment between the side walls is a little obscure, but it is clear that the

entablature of the lower storey was continued right across, and that the entablature of the upper storey belonged to the centre feature only. The whole treatment with its orders of at least three unequal heights, and with its central feature standing forward from the main enclosing framework, is a notable piece of scenic architecture with barock tendencies[1] (fig. 25).

The Propylaeum at Jerash. Gateways or propylaea offered exceptional advantages for scenic treatment. The Propylaea at Athens remained perhaps the finest achievement of the kind in the whole range of the classical period; but it was not consciously or deliberately scenic. For the finest later treatment we must turn to Jerash in Transjordan. The propylaeum at Jerash was a great opportunity. The main longitudinal street of the town—at this point quite level—was a traverse on a steep hill-slope running north and south (see plan, fig. 51). The propylaeum marks the junction of this street, which was a colonnaded one, with the rising stepway leading directly to the temple of Artemis. What exact provisions were made for the interruption of the colonnade (which at this point is now non-existent except for some groundworks) we do not know; but there are some evidences visible on a drawing made in 1863 which seem to indicate a continuation of the street columns across the opening.[2] It is obvious, from what remains to-day, that the whole treatment must have been a grandiose one (Pl. XIV). The two-storeyed flanking treatment of the shops on each side of

[1] For restorations see *Basilika* by Rudolf Schultze (Berlin and Leipzig, 1927), Pls. 1 to 5. The diagram I give supposes some facts which differ from those of Schultze's and are more in accordance with Mazois's restoration, which he illustrates.

[2] This fine coloured pencil sketch by Thomas Wells has been presented by his son (Mr Douglas H. Wells) to the Library of the Government Museum in Jerusalem.

the propylaeum was continued into its wings, but was changed and intensified by the incidence of the side doorways. In the centre was a single wide doorway rising to the full height of the two storeys. The whole of this motive was recessed considerably from the general building line of the street and was enclosed in an order of tall Corinthian pilasters. Above the entablature with its rich scroll-work frieze, which still partly exists on the back wall, we can see that the inner wall of the propylaeum was crowned by a pediment, so flat in pitch as to recall that of a Greek Doric temple. It is noteworthy that the pediments of the niches over the side doorways are of similar flat pitch.

The whole conception is emphatically barock. The deep recessing of a motive governed by an order of tall pilasters recalls the shrine-end of the Bacchus temple at Baalbek, but at Jerash the effect is one of unity and grandeur. So far as I am aware, there is nothing quite so fine as this in the whole range of Hellenistic architecture, as an entrance treatment. The recessing of the motive is, of course, invaluable, as it gives the depth and air-space demanded by a feature of this kind occurring in a street junction which has its main emphasis at right angles to the direction of transit.

The consistent employment of trabeated openings in this propylaeum is another remarkable feature. So far as can be judged, the same principle was observed at the smaller street junction which occurs further south (Pl. XV). Yet the arch was freely employed at Jerash, as can be seen in the gateways at the north and south ends of the town (Pl. XI*b*), and in the tetrapylon in the main street. The insistence of the rectilinear principle in the propylaeum, as in the north end of the temple of Bel at Palmyra, makes these works more comparable to the finest examples of true barock in the later Renaissance of Italy, France and Germany, where we

often find the value of the arched form so subsidiary as to be almost negligible. As design, this propylaeum would, of course, have been considerably modified if it had been cut up by the cross-colonnades which Butler shows in his restoration, but it would still have retained its barock character.

Arched Entablatures. Butler introduces segmental arched entablatures to the frontal screen of the somewhat similar propylaeum at Amman, of which fewer remains exist.[1] This brings us up against these entablatures as a feature in late Hellenistic design. S. B. Murray, in his *Hellenistic architecture in Syria*, goes fully into their origin and *provenance*, and I think his conclusions, generally, are sound. The arched entablature was clearly a Hellenistic feature, possibly taken into classical usage from Assyrian prototypes. Its use at Spalatro was Hellenistic. It was practically non-existent further west.

[1] *Op. cit.* (P.U.A.S.), pp. 43–46 and Ill. 28.

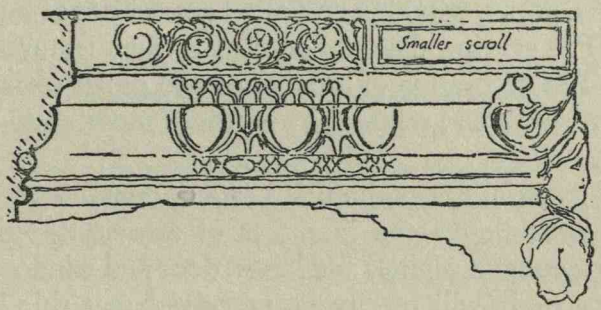


Fig. 26. Marble fragment in the museum at Taranto.

CHAPTER V

DETAIL AND DECORATION

Detail and Decoration, being touchstones of style, are of the first importance in the architecture of any period. For Hellenistic architecture a proper understanding of them is essential, if we are to find our way through the difficult country that is beset with the bye-paths of Egyptian, Oriental and various other kinds of influence. The main track is Hellenism. The surest way of keeping to it is by a thorough absorption of the Greek *spirit* in detail, and a wide comparative knowledge of what it produced in the Eastern Mediterranean during the three centuries both before and after Christ.

The subject can be dealt with, broadly, under three headings:

(1) The purely architectural treatment of entablatures, columns, doors, windows and other accessories of buildings.

(2) The carving that was applied to such features.

(3) The decoration of mouldings and of flat surfaces, i.e. of floors, walls and ceilings, by means of mosaic and painted plaster.

The material under the first heading consists principally of the mouldings—the grammar of any style—given to cornices, column capitals and bases, door and window architraves, etc. It will readily be perceived that this kind of material is, in many cases, bound up in greater or less degree with the carving that was associated with it. The most notable instance of this is the Corinthian capital, where mouldings and decoration are inseparable. It should also be borne in mind that form and proportion are the mainsprings of

moulded treatments. This can be made obvious at once by the familiar instance of the orders. Not only are certain mouldings recognised as applicable to a given order, but the character of the mouldings used in any particular example are dependent to a great extent on the proportion of that example. Again, the mouldings of window and door architraves can hardly be considered intelligently without reference to the forms of the doors and windows concerned.

The material under the third heading—that of flat decoration—is also concerned, in wall treatments, with a certain amount of relief of a purely architectonic kind, such as the slightly projecting bands or breaks in the division and setting-out of the colour-work.

Lastly, taking the broadest ground of all, it should be recognised that the synthetic value of the entire scheme of decoration in a particular exterior or interior is a matter of great importance. This is most applicable to interiors, where surface treatments in association with applied decoration are prevalent, and where the important factor of colour is most noticeable.

It is evident that the subject is a vast one, and that it can only be considered here in its broadest aspects. Each of the three Hellenistic order treatments has enough material for a separate study. Similarly, Hellenistic moulded treatments in general, or even running-scroll treatments in friezes alone, would each offer enough material for independent study. Petra is almost entirely an unworked field for architectural research. It contains a quantity of material which is in position: adequate records of its general forms, mouldings and decorative motives would be invaluable. We are obviously hampered, at present, by insufficient knowledge of the whole subject.

GENERAL AND MOULDED TREATMENTS

There were three chief subtleties in temple treatment—*entasis*, *curvature* and *inclination*—all of which we are familiar with in Greek architecture.

Further examination has been given to *entasis* since Penrose's accurate data about a few Athenian buildings were first published,[1] but more is due. Penrose made it clear that even fifth-century Greek usage was variable. In all probability, so far as can be judged by the eye, Hellenistic usage was less variable, as it would appear that the usual method was to introduce entasis at the *upper* part of the column only, leaving the rest of it straight, or with a slight counter-diminution at the foot of the column. Counter-diminution, or the diminishing of the column shaft near the base, has, so far, been proved only in some late examples, such as the two temples at Jerash and the temple of Bacchus at Baalbek.[2] In the Artemis temple at Jerash it is exceedingly delicate.[3] It is obvious that this counter-diminution would tend to increase the effect of entasis on a column. It is notable that even in comparatively slipshod work, the principle of entasis was observed. Some of the house columns at Delos have, instead of true entasis, the upper part of the shaft diminished more rapidly than the rest of it. Again it is obvious that this would produce the effect of entasis. We must be a little on our guard, as it is possible that the work in question may be unfinished, in which case it gives valuable evidence of technique.

[1] *An investigation of the principles of Athenian Architecture*, 1st edn. (London, 1851).

[2] For these particular examples the authorities were respectively Mr Horsfield and the French architects at Baalbek.

[3] Horsfield.

It is a truism that the more slender in proportion a column is, the less call there is for diminution, and for entasis also. The formalists of the Renaissance—Palladio, Vignola, Scamozzi—set out their adapted versions of Roman columns without any diminution for one-third of the height above the base. This also would have the effect of automatically producing entasis. Some Roman columns may have been set out in a similar way. At any rate, counter-diminution, so far as we know, was a rarity. The temple of Jupiter at Baalbek had none.

Curvature, or the slight convexity given to the stylobates and entablatures of buildings, was freely practised in all the best Hellenistic work. It is clearly perceptible in the Didymaion at Miletus and the Dionysus temple at Pergamum.

Inclination, or the very slight inward leaning of walls, was also practised in Hellenistic times. It has already been mentioned that the Mausoleum at Halicarnassus had a slight inclination in its cella wall. Evidence is lacking about other Hellenistic buildings, so far, but this subtlety was so prevalent in fifth-century Greek temples (it is clearly perceptible from the antae at Bassae and the Concord temple at Akragas) that I have little doubt of its employment in many of the finer Hellenistic buildings erected after the fourth century B.C.

Generally speaking, the most obvious tendencies in Hellenistic moulded treatments were the prevalence of the scotia or cavetto and of the ogee, the latter being used either as a cyma-recta or a cyma-reversa. We find also, especially in work of the third and second centuries B.C., a tendency to use delicate breaks or slightly projecting plain fillets, in association with these or other forms, particularly

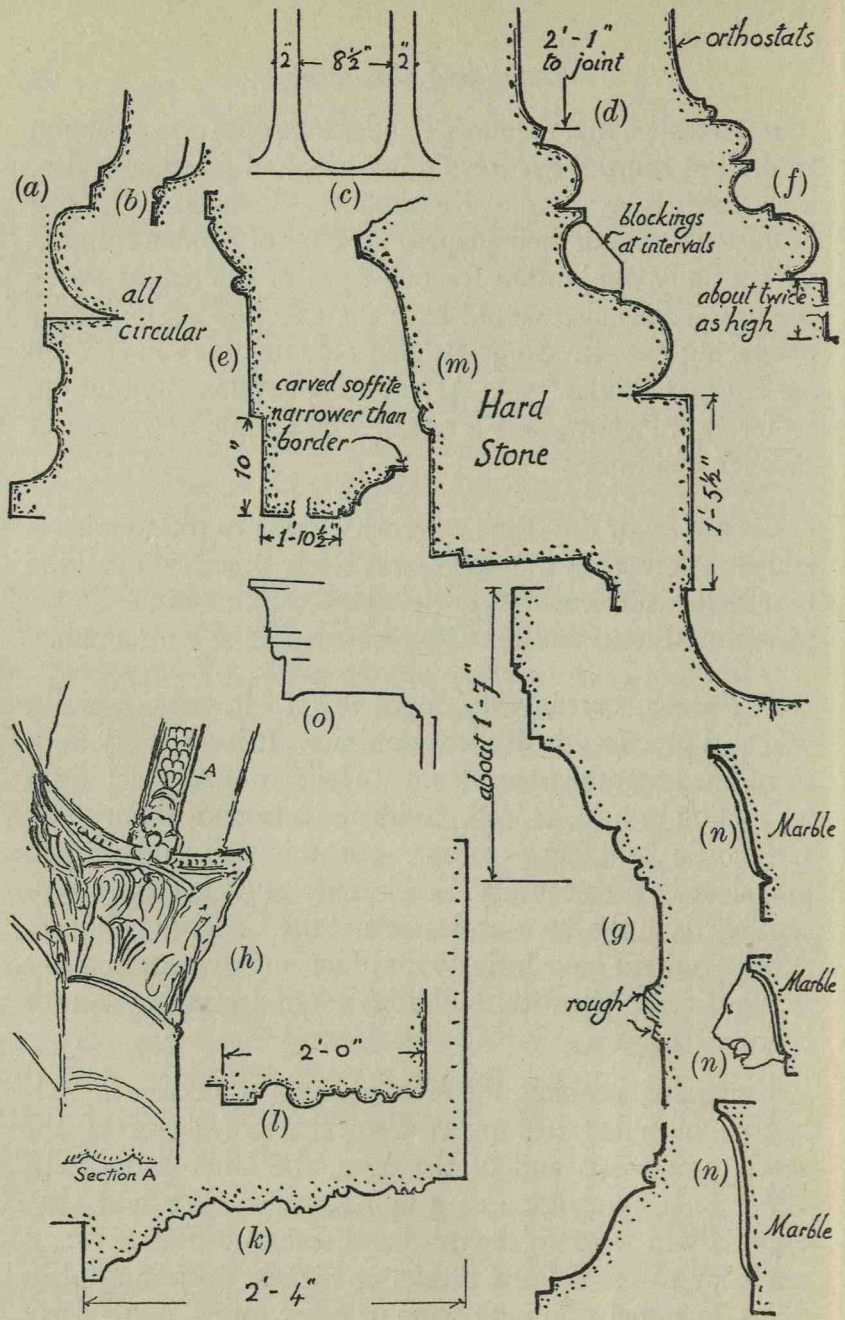


Fig. 27. Various mouldings, etc. (*a*) Didymaion, unfinished column base; (*b*) and (*c*) end of flutes; (*d*) external base of cella wall; (*e*) architrave; (*f*) Dionysus temple, Pergamum, external base of cella wall; (*g*) Circular temple, Baalbek, lower (concave) plinth; (*h*) angle of front; (*k*) door architrave; (*l*) Golden Gate, Jerusalem, door architrave; (*m*) Cornice, Alexandria Museum; (*n*) Cornices, Delos; (*o*) Cornice, Isis temple, Delos.

the cavetto. There is a marked delicacy, almost a superfinesse, in the mouldings of this period, particularly in plaster finishes. This can be seen both in the mausoleum at Belevi and at Mustapha Pascha; but it must not be forgotten that both in the sixth and the fifth centuries B.C. there was equal delicacy, though hardly finesse, as it is characteristic of the best Greek work, especially in the sixth century, that delicacy is always combined with large handling.[1]

This delicacy of the third and second centuries must not be confused with the frittering-away of mouldings which is met with in some work of the Roman period in Syria, and which ultimately ended in those combinations of the ovolo in particular that are met with in Early Christian and Byzantine buildings, where the classic principle becomes almost non-existent (fig. 27 *l*).[2] The beginnings of it are evident in many Hellenistic buildings of the Roman period (fig. 27 *k*). But in this apparent (sometimes real) decadence of late classical mouldings we see the rise of something else: architecture was developing a new expression. The whole subject of the gradual metamorphosis of the classic principle is of absorbing interest, and will be referred to in the concluding chapter.

The true marks of Hellenism in the period we are considering are the delicacies which are observable in all Greek curves, but it has to be realised how these were often brought

[1] From personal observation I am satisfied that this is not overstated. In Doric temples, extreme delicacy is chiefly observable in the mutule as related to the corona of the cornice, in the regula as related to the taenia, and in the top band of the triglyph. "Hawksbeak" mouldings, when the finish was in fine stucco on stone, were carried out with equal refinement.

[2] But archaic Greek mouldings were not always "classical" in the ordinary meaning of the term. The flat ovolo, in particular, was used in persistent combinations, as in the doorway of the Siphnian Treasury (fig. 28). The use of the flat ovolo in the Early Christian East is also remarkable (fig. 53).

about. In the Doric sima,[1] for example, the flatness of the ovolo and cyma-reversa treatments that go back to the archaic period were almost certainly derived from terra-cotta usage, just as the sima itself, as a fictile appendage, demanded the broad fillet on its bottom edge for its finish and sharp-edged drip as an overhanging gutter. These tendencies were only partly retained in Hellenistic times and were nearly lost in Roman work in the West after the first century B.C.; but moulded work of the third and second centuries B.C., though it became merely a traditional expression of form in stone or plaster without always having the constructive meaning of that form as a basis for its use, still remained Greek in profile. Even with the beginnings of the Corinthian order, as, for example, at Belevi, we get a completely Greek outlook (fig. 19 *d*); and in the fully developed Ionic and Corinthian work at Baalbek and Palmyra, there is observable a delicacy of profile which is rarely found in Roman work in the West belonging to the same date. I should be inclined to consider the complete consoled or modillioned cornice as derived from the heavily-dentilled cornices of the fourth century in Asia Minor, which have the underlying principle of the upper and lower bed-moulds, but it must not be forgotten that the Treasury of the Siphnians at Delphi had a consoled doorway (fig. 28)[2]. Though door consoles were used vertically and not horizontally, their essential value as brackets remained.

[1] See D. S. Robertson, *op. cit.* glossary, etc., for an explanation of "sima". As he remarks it should not be confused with "cyma", the moulded form generally understood by architects. Neither should it be confused with the "corona", which is the cornice proper as represented by its vertical face. It is the cresting on top of this, which began as a fictile (terracotta) appendage.

[2] The vigour and real quality of this remarkable work can only be fully appreciated by careful study of the splendid full-size model of the front which the French have restored from the actual fragments in the museum at Delphi.

Window and door openings, at any rate up to the middle of the first century B.C., were usually diminished slightly towards the top by a sloping inwards of the jambs, according to the Greek custom. The temple of Bel at Palmyra is instructive, as the side windows of the cella have this treatment, with plain "box" sills and delicately treated architraves and pedimented heads. In the same building, the central opening at the north end is also very slightly dimin-

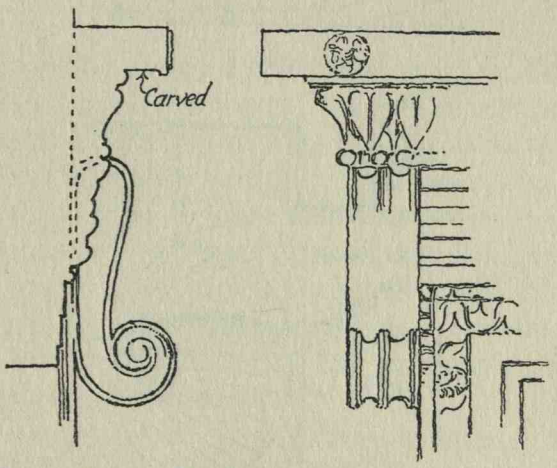


Fig. 28. Siphnian Treasury at Delphi. Doorway details. (Delphi Museum.)

ished, though it is closely associated with an order; but the west door in the peristyle has a rectangular opening. This feature was probably introduced in the second century A.D. In the West, we see diminished openings at the temple of Vesta at Tivoli, built in the first century B.C. On the other hand, several of the Delian house windows, dating from the middle of the second century B.C., are not diminished. It is clear that they were based on a wood technique, and wood does not lend itself to this treatment.

Pedimented window heads were perhaps introduced in the first (or even the second) century B.C., the rake being slight and associated with acroteria. The rake remains flat in

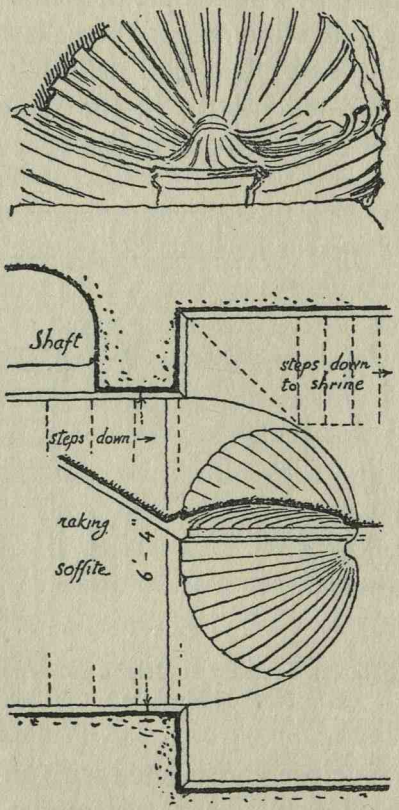


Fig. 29. Shell-ornament. Above: Niche head, Baalbek propylaea. Below: Staircase soffite at Kôm-el-Shugafa catacombs.

some examples of the second century A.D., where these pedimented heads were supported on rectangular corbels and had semicircular-headed niches below, as in the propylaeum at Jerash (Pl. XIV). The two-storeyed wall-recess or niche treatment was a feature of later work, having generally a

pedimented head in the upper storey, usually with rectangular corbels. Examples are too numerous to mention. Niche heads, when semi-domed, were often decorated with a shell motive. This usually spread fan-wise from below (fig. 29), but there were instances of the reverse method. At Baalbek both methods can be seen. Italian Renaissance treatments show similar diversity.

ARCHITECTURAL CARVING

In all the best Greek work, relief carving on moulded members is closely related to form. Thus, we find the anthemion or the lotus on the cyma-recta (according to the delicacy of its profile), the egg-and-tongue on the ovolo, the leaf-and-tongue on the cyma-reversa, and the bead-and-reel on the bead. The torus was treated either horizontally by flutings or reedings, or it was worked with the guilloche—a close running pattern. All of these ornamental forms are met with in Hellenistic architecture, and some additional ones, mostly of later origin, such as the leaf treatment of the torus with cross-bindings at intervals, which can be seen at the Didymaion (Pl. XXI *c*). The delicacy of the treatment in a Hellenistic anthemion is a fairly safe guide in dating (fig. 30*f*), but it is significant that as late as the first century A.D. the Jupiter temple at Baalbek had an anthemion motive in the corona of its main cornice, though a late form of it (Pl. V*a*). This would not be found in the West at the same date.

The Egg-and-tongue. Much has been said about the dart form instead of the pointed tongue in the decoration of the ovolo as a sign of late date, but it is clear that in the East the tongue was worked as late as the middle of the first century B.C., which is the very earliest date we can give to the Ionic engaged columns of the Bel temple at Palmyra. At Didyma,

both forms are found in the capitals of the peristyle. In the West, we see the tongue in the temple of Concord at Rome, built by Augustus. The purity of the Greek feeling in the entire Palmyra capital is noticeable (Pl. XVIII *a*).

The Fret. The fret pattern, also a Greek form of decoration for flat surfaces, was used freely both in early and late (or Roman) Hellenistic work. A good instance is the vertical member, or "corona", in the cornice of the temple of Jupiter at Baalbek (Pls. V *a* and XVII *b*). This cornice illustrates the all-over richness of treatment that was characteristic of late Hellenistic work. It should be recollected that there was, in this, a return to the earlier tradition of fully decorated members that can be seen in the painted fictile revetments of the Greek archaic period.

The Running Scroll. The most interesting carved treatment for flat surfaces, however, was the running scroll that was used for friezes in particular. Here, in the rich later work, as in the propylaeum at Jerash, the boldness of the carving has a tendency to create form in the member concerned. Though the height of this frieze is only 2 feet 1 inch, the carving projects 9½ inches, giving deep shadows (fig. 30 *c*). These running scrolls were based on the *acanthus*,[1] but the most interesting examples show a tendency towards the flower form as the heart of each spiral and the small branchings from the stems which are characteristics both of Oriental and later Western usage; in fact, it is clear that gradations in the treatment of running scrolls merge insensibly into one another through Hellenised Roman, East Christian, early Arab, West Romanesque and Gothic times (figs. 26, 30 *a*, *c*, 53 and Pl. XXI *d*).

[1] Jerash was particularly rich in treatments of the acanthus. A fine example is the square capital on Pl. XVII *a*.

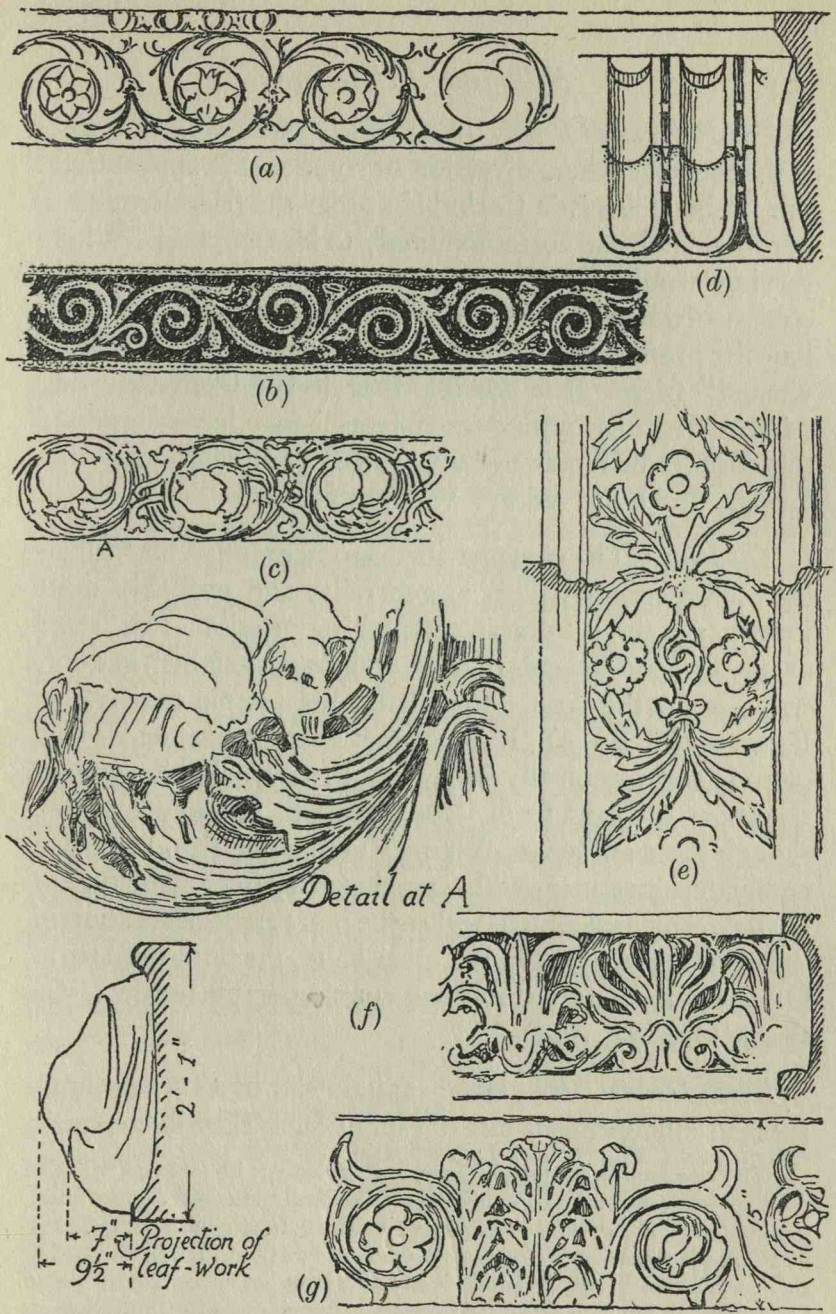


Fig. 30. (*a*) Al-Mšatta, Transjordan, carved band (*c.* seventh century); (*b*) Olynthus, panel border of floor mosaic (early fourth century B.C.); (*c*) Jerash propylaeum, setting-out, detail and section of frieze (second century); (*d*) Jerash, frieze of colonnaded street; (*e*) Palmyra, side opening of great archway, panelled and carved jamb; (*f*) Ephesus, market precinct, moulded and carved band (*c.* second century B.C.); (*g*) Jerash, north gateway, fragment.

The Pulvinated Frieze. In all classic expression the frieze is the member where diversion of some sort is appropriate; but in the Hellenistic Corinthian order the frieze tended to become small, and correspondingly to lose emphasis. Where carving would have been prohibitively expensive, as in colonnaded streets, emphasis was sometimes given by swelling the profile, and producing what is known as the "pulvinated" frieze. It is possible that deep undercut carving with its irregular outline (as at Jerash) may have suggested this form, which was not always left plain (fig. 30 *d*). At Spalatro it was carved in a variety of ways.

The Vine.[1] The vine provided another motive for Hellenistic relief carving. This is generally, and probably quite rightly, supposed to be an oriental importation. It is found chiefly on the flat bands of large architrave members in doorways, as in the west door of the Bel temple peristyle at Palmyra (Pl. XX *a*). It is not met with before the Roman period, and principally in Syria. In fact, all this running treatment of plant form is usually both late and oriental, though most attractive. We may compare a Roman Syrian entablature treatment with, say, the crowning entablature of the Belevi mausoleum, to realise the more static decoration of the earlier example. On the other hand, the floor mosaics at Olynthus have, in some cases, running-scroll borders of a simple kind (fig. 30 *b*).

Doric Details. All classic capitals and bases to columns are really independent bits of sculpture, as they have plastic

[1] The vine motive is a maeander one and should not be confused with the acanthus scroll, but the two motives are occasionally intermixed as in a fine eleventh-century carved door architrave at Grottaferrata, near Rome. See G. Bourgerel, *Fragments d'Architecture et de Sculpture* (Paris, 1863), Pl. 71. Cf. a doorway in the "Little Basilica" at el-Kanawât in Syria, possibly an Early Christian work but with strongly pronounced classical elements (Pl. XIX).

form which must be considered in the round. It is almost impossible for a modern architect to get a rich capital of any kind worked by the mason satisfactorily from drawings only; he must get a model of it made. Even the Greek Doric capital, with all its severity, is sculpturesque, and has decorative value when seen singly in a museum.

The detailed treatment of the Greek Doric capital in the sixth and fifth centuries B.C. offers a field of enquiry which is full of interest. If the enquiry were extended to the end of the first century B.C., there would be literally hundreds of examples to choose from, no two of which would be exactly similar.[1] We are concerned here with broad aspects only and, in particular, with the primary function of form. I think it is clear that annulets went with the echinus and not with the necking of a capital. In nearly every case the plane of their surface is an extension of the plane of the echinus slope. In examples from Selinus and Paestum the necking has a hollow curve having no direct relation to the slope of the echinus, while at the Olympian Heraion some of the capitals have an extremely flat echinus and a necking which is nearly vertical. Though there are many interesting variations of annulet treatment, the normal one is one of four delicate fillets enclosing three shallow hollows. An early example at Delphi shows merely two incisions at the foot of the echinus. There can be little doubt that the normal intention was to secure narrow hollowed surfaces suitable for definition by colour, the fillets being left plain. Hellenistic usage was prevailingly normal in the matter of annulets.

Hellenistic usage was also normal in the treatment of the echinus, but in small late examples this member was practic-

[1] Miss Lucy Shoe, an American archaeologist working for the American School of Classical Studies at Athens, has produced a corpus of several hundred Greek mouldings, which will be published shortly by the Harvard Press. This should help to clear up many doubtful points.

ally a plain splay, with the minimum of definition where it joined the abacus. The deep bowl form with a sharp definition at the abacus which is peculiar to early examples at Corfu and in Magna Grecia had no Hellenistic survival.

One of the most interesting features of Doric development is the triglyph. The Hellenistic triglyph usually con-

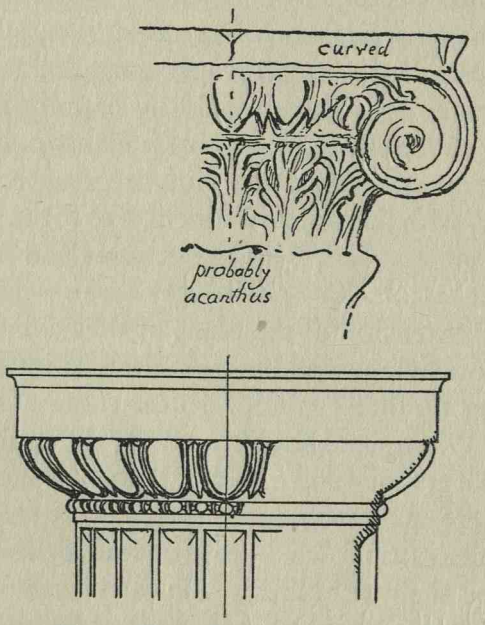


Fig. 31. Above: Proto-Composite capital at Ephesus. Below: Carved Doric capital at Miletus.

tinued, in its elevational treatment, a tendency begun in the middle of the fourth century B.C. or even earlier—a flat line with rounded corners at the top of each glyph. The varieties in the treatment of this were many. From the fifth until the second century B.C. at all events, it was evidently the intention to have as sharp and as much undercut a top edge as expense and material allowed. The abandonment of this

sharpness, with its corresponding sharp shadow, was due to more slipshod work which ultimately produced the prism treatment of the Roman and Renaissance buildings in the West.

There was therefore no radical departure from Greek Doric details. Hellenistic builders show a refining of them in greater or less degree, but at Soluntum a decorative effect was obtained by the pendent fillings of the flutes near the annulets of the capital (fig. 38). It was reserved for the West to adopt a quarter-round in place of the flat echinus in the capital. This may have been borrowed from Etruscan usage, but there is a good transitional example from Miletus (fig. 31). Capitals of this type, of 36 B.C., from the Regia of the Forum in Rome, show the fully emancipated Roman Doric form, with a bead and fillet below the echinus and a moulded abacus, all of these members being carved.[1] Some capitals from Pompeii show similar richness.

Ionic Details. Our whole conception of the Hellenistic Ionic capital is dominated by the superb productions of the great fourth-century temples of Ionia. It is impossible to consider the capitals from Ephesus or Sardis as anything but pure sculpture. We can see in the ends of the volutes a fine and original handling of a decorative treatment which was parallel with the main axis of the capital. It is evident, from the archaic examples from Ephesus, that this was early Ionian usage. It resembles, in principle, the normal Attic form of the fifth century, but the Ionic capitals from the Athenian Propylaea did not follow this usage and we do not find it in other Hellenistic work of the fourth century and later. What became general usage was the Propylaea capital

[1] Good large-scale pencil drawings by Mr Piet. de Jong were reproduced in the *Architectural Association Sketch Book*, for 1912.

amplified—a central binding from which sprang leaf forms at right angles to the main axis (fig. 23).

The bases of the great fourth-century temple columns are as perfect as the capitals, and seem wedded to them in quite an extraordinary way. They are highly original and, to us, rather heterodox, as the weight of the column rose from the square plinth on two hollowed (scotia) members, above which was a large fluted torus. This was also an archaic form, used at Ephesus, though not completely at Samos, where there was a single and much flatter hollowed member, fluted. The whole base, as developed in the fourth century B.C., was an affair of great mastery, and it is notable that the fluted torus member was always pitched-up in its containing curve, which gave an extraordinary feeling both of support and of a counteraction of too great a bearing weight on the scotia members (figs. 11 and 27 *a*). We are not wholly without precedent in Attic usage for this form of base, as the Ionic columns of the Athenian Propylaea spring directly from a low hollowed member worked on the stylobate block.[1]

The difference between front and side made the Ionic capital awkward except in a straight flight of columns. One of the first applications of the capital with diagonally placed volutes, and therefore suitable for any position, may have been the Hypostyle Hall at Delos, dating from the third century B.C.; but this idea seems to have taken root slowly.

[1] There is no certain evidence that any Ionic bases of the fifth century B.C. or earlier rested on square plinth-blocks raised above the pavement. The evidence is not quite clear about all fourth-century bases. Wood stated that the inner row of peristyle columns at the fourth-century Artemisium had no raised plinths. Lethaby's examination of this statement (*op. cit.* pp. 5, 6 and note and p. 18) is not quite conclusive. Mr E. J. Forsdyke has pointed out to me that the square bases of the inner front columns at Sardis are, in reality, part of the pavement. There were, of course, many exceptions to the prevailing form of Asian base, of which the three unique variations on the front of the Didymaion are the most remarkable, but one of these has the double scotia.

Pl. XX *b* shows a square pseudo-composite example from Syria. At Palmyra (Bel temple) and Aezani (Zeus temple) the capitals were orthodox, but the pronaos at Aezani has two pseudo-composite capitals with large diagonally placed volutes (see also fig. 31).

Corinthian Details. The steps which produced the orthodox fully developed Graeco-Roman form of Corinthian capital should be noted. The most perfect pseudo-Corinthian examples were those from the Tholos at Epidauros. These had the essential features of the Corinthian capital—the bell, clothed with two tiers of acanthus leaves, the abacus hollowed on plan and section, with centre flowers, and the duplex corner volutes. Though the complete result is immature, the delicacy and beauty of line, form and execution excite our unstinted admiration. There is less maturity in the earlier Bassae example.[1] The third-century B.C. capitals from the Belevi mausoleum are a little crude in comparison (Pl. XXI *e*). The small examples from Athens, on the Lysicrates monument, only slightly later than those of Epidauros, were beautiful, if experimental. Their vogue in books on the orders was great, as the whole of the order was complete. The most developed capitals that we are aware of, prior to the first century B.C., are the huge earlier ones of the temple of Jupiter Olympius at Athens. These may be early second century B.C. Penrose first drew attention to the fact that the hollowed surfaces of their abaci, mouldings and all, finished as sharp lines where they met at the corners, an unusual characteristic.[2]

The usage of the Corinthian capital in Greece, Egypt, Asia Minor and Syria discloses a mine of experimental form which

[1] For the Bassae capital, see Dinsmoor, *op. cit.* fig. 8, p. 211.

[2] *Op. cit.* 2nd edn. (Macmillan, 1888), Pls. 38 and 39.

is full of interest.[1] The form became stereotyped in the familiar accepted Roman version, though slight differences and subtleties always continued. In the bell form of capital, with leaf-work in flat relief, no volutes, and a square abacus, we can see a compromise between Doric and Corinthian. Multiform corner-piers sometimes show interesting experiments in the combination of detail. Thus, the corner-piers of the internal colonnade in the peribolos of the Bel temple at Palmyra have Corinthian half-capitals in direct association with moulded antae caps of Ionic character.[2]

Hellenistic Corinthian (and late Ionic) bases were normally of Greek Attic section, that is, the intervening scotia or cavetto showed a table on its top edge which projected beyond the springing of the upper torus. The Roman version of the Attic base, which was adopted by the Renaissance architects, was practically unknown in Asia Minor and Syria even as late as the second century A.D.

The cavetto member of the Attic base was sometimes carved. It was left plain on the cella wall of the Didymaion (an Ionic example), unless we are to consider the recurrent blockings there as unfinished carved members (fig. 27 *d*). It is quite probable that these blockings were meant to be carved. It is a sound idea to give a suggestion of strength to the deeply recessed hollowed member of the base (see fig. 27 *d* and Pl. XXI *a*).[3]

Panelled Pilasters. Pilasters were often panelled and the panels were often fully carved in the Roman period (fig. 30*e*).

[1] See D. Schlumberger, *Les formes anciennes du chapiteau Corinthien* (Extract from the Review *Syria*, Paris, 1933) for Syrian examples.

[2] T. Wiegand, *op. cit.* text, pp. 144–146.

[3] Punctuation, as in the lions' heads or ornamented spouts of a sima, or in the emphasis of the vertical joints (lower portions) of stylobate steps, was an accepted usage in Greek and Hellenistic architecture.

For such rich treatment we might seek an oriental origin, but a more commonsense view is the extension of the principle of the panelled soffite, in a desire to decorate all large plain surfaces in important structural members; though circular column shafts—and, to a great extent, pilasters also—were left severely plain, when not fluted. The wreathed treatment in relief on two columns of the Roman basilica at Leptis Magna in Tripoli was probably an exceptional one.[1]

Coffered Ceilings. The remarkable carved treatment in the ceiling of the peristyle in the Bacchus temple at Baalbek shows oriental figure work in an architectural lozenge-shaped panel formation (fig. 6 and Pl. XVIII *b*). Similarly oriental are the symbolical heads in some deeply recessed square panels of ceiling coffering at Baalbek (Pl. XVIII *c*). The Greeks of the fifth century B.C. left coffer panels flat, though they decorated them richly with coloured patterns. It is possible that panelled coffer formations in ceilings were sometimes decorated with ornamental bronze paterae.

The Festoon. It is difficult to give any definite date for the first introduction of the festoon, or suspended garland, as a frieze enrichment, which we find so completely established at the end of the first century B.C. in the "Ara Pacis Augustae". It was probably more a western form of ornament than an eastern one, and its supposed derivation from the Italian custom of suspending vines is not unreasonable. I have already mentioned the rather timid usage of it in friezes at Baalbek.

[1] See P. Romanelli, *Le Colonie Italiane* (Ufficio studi e propaganda, 1930).

DECORATION

General Principles. The whole of the enriched architectural detail that has been described was completely expressed with colour. In interiors, the full synthetic value of colour treatment was obtained, as the wall, ceiling and floor surfaces formed part of one whole. The method may have varied but the principle remained the same. In all this there was no essential departure from Greek usage, but Greek decorative settings were at once more severe and more open. Though the borders in the mosaic panels from house 7 at Olynthus in Macedonia have, for the most part, formal patterns like the anthemion, there is a freshness and gaiety in their use which we see also in Greek vases of the fifth and fourth centuries, and which we do not see to the same extent in the tighter schemes of the more complex pattern borders of first century A.D. mosaics.

Prof. Tristram, in writing about old colour on mediaeval ornament in Bristol Cathedral, pointed out that the true meaning of the form was, in some cases, obscured until the colour was revealed.[1] This should be borne in mind when thinking about classical ornament, both formal and free. We moderns see the Corinthian capital, in which ornament was most abundantly expressed, as form only; but if we look at examples in the Alexandria Museum which still retain some of their original colour, we realise at once what a great difference the colour makes (fig. 32). The bell or drum of the capital was the ground-base and had the darkest and richest colour, usually deep red. The acanthus leaves were shaded off in pale green or blue with red in the turned-over tops. Yellow may have been introduced elsewhere and possibly

[1] Article in *The Times*, Feb. 26th, 1935.

gold as well. It is of course unimaginable that such capitals were not associated with richly-coloured bases and entablatures, but through the whole scheme would run the principle that the main verticals (the column shafts) and the main horizontals (the plain surfaces of the architrave, and the cornice) were, as in the earlier Greek work, left rela-

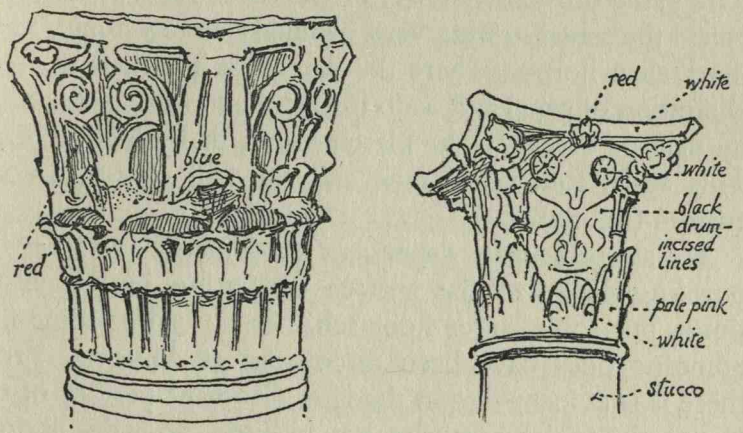


Fig. 32. Coloured capitals. Left: Graeco-Egyptian example in the Alexandria Museum (painted). Right: Decorative pillar in "Casa dei Cervi", Herculaneum (variegated stone).

tively plain and nearly white in general tone. Where there were enrichments in delicate relief on any of these plain faces, their decoration would be correspondingly delicate, so that the main emphasis would be given to the more deeply cut bed-mouldings which were in shadow, the frieze enrichments, the ground tone of the frieze (which was always dark), the capitals, and the bases.

A decorative Corinthian column in the "Casa dei Cervi" at Herculaneum has a capital assembled out of very fine stones or pieces of marble. The abacus is white; the drum is a soft black, with a fine pattern delicately incised on it; and

the remaining accessories are applied pieces in white, deep red and pale rose-pink (fig. 32). Though this is rather a *tour-de-force* of Roman date, it serves to show how the Corinthian capital was regarded.

Floor and Wall Treatments. It is clear that wall schemes were based on subdivisions into panels above a plain dado, unless the schemes were very definitely architectonic, as in the Delian houses, where the dado was panelled as well. Definition of panel and dado formation was often enhanced by delicate breaks in the plaster-work, or by incised lines. This again followed Greek and the still earlier Minoan custom (fig. 37).

We are principally dependent on domestic examples for our knowledge of flat surface decoration in Hellenistic times, but some larger floor schemes as well as some fine domestic ones have been discovered at Antioch. From these it is evident that in the later (Roman) periods of the first to the fourth centuries A.D. in Syria, floor decorations in mosaic were pictorial, as in the earlier Delian work. It would naturally follow that wall treatments at Antioch were either purely architectonic, or that figure-subjects were sparingly used. There is a reticence in the scheming of all classical decoration which would forbid the too lavish decoration of both floor and wall together. In all cases, a formal arrangement was followed, so that the mere setting-out of the wall and floor surfaces would tend to sobriety.

On the other hand, the evident richness of the borders to some of the Antioch floor mosaics is most marked. The wide frame round the subject panel—"the Judgement of Paris"—now in the Louvre, introduces a note which is well removed from anything Greek; and this mosaic, being of the first century A.D., is of an early date for Roman Syria. But

though not Greek, the frame is still classic: the two remarkable heads give the touch of humanism. The freedom and luxuriance of the foliage element were due to oriental influence (Pl. XXV).

Though the mosaics from Antioch can, in the main, be called Graeco-Oriental, and the hunting beasts of the "Yakto" mosaic are, in particular, oriental, it is notable how thoroughly Greek the mosaics are in many respects, all the more so as the majority of those found to date are of the fourth century A.D. To see this Greek spirit so strongly manifest at the parent centre, within a century or so of the building of the great Early Christian church of St Simeon Stylites, is deeply interesting, and some of the late work is no less remarkable for its quality. One of the side panels of the largest mosaic yet found—probably the floor of a bath chamber—contains the fragment of a head of *Gethosyne* (or Joy), which, in the beauty of its modelling by fine gradations of colour in the mosaic, recalls the work of Correggio.[1]

Painted work at Palmyra was more completely oriental. It is true that most of it, in the tombs, is formalised by panel treatment, but in their subject-matter the figures have the symbolism of the Orient. Recumbent figures, characteristic of the entire Hellenistic East, are more oriental than Greek. A delightful impressionistic picture from a painted tomb at Palmyra shows this clearly. It must, however, be remembered that recumbent figures were a feature of Etruscan art. Rome's debt to Etruria was principally one of construction; but both the construction and the art were, in all probability, of Eastern origin.

Ceilings. For ceiling treatments we are dependent on some rock-cut tombs at Palmyra and Alexandria, which

[1] This splendid work is over life-size. It was discovered in 1933.

have semicircular or segmental vaults finished with painted plaster. It is evident that geometrical patterns were mostly employed and that a pattern based on the hexagon was a favourite one (Frontispiece); but such patterns were sometimes relieved by medallions—usually circular—containing symbolical or portrait heads. We have no certain evidence of composed picture scenes in ceiling treatments, but, on the other hand, we might well believe that such scenes existed in important interiors, though the general scheme would have resembled a floor treatment rather than a wall treatment.

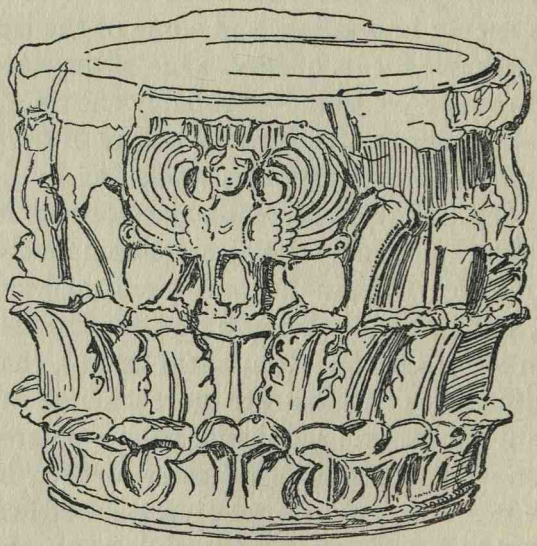


Fig. 33. Capital of fine stone in the Museum at Taranto. (Height about 10 inches.)

CHAPTER VI

MATERIALS, CONSTRUCTION AND TECHNIQUE

STONE AND MARBLE WORK

It is clear that all the finer classical structures were intended to be monolithic in appearance, and that colour was their ultimate finish, but the whole paraphernalia of order treatment in these structures, even when they were stuccoed, was so carefully executed, that we are accustomed to think of it as finished in the bare stone or marble, as the ultimate finish has disappeared. Marble was used where it was readily obtainable, as in Greece and the Greek Islands, but in all the finer work, when stone was used, nothing was left to the chance of the plasterer going wrong; so that there is little to choose to-day between a stone-built temple and a marble one, in point of finish. Apart from the slightly bolder handling of stone, sometimes corrected in the stucco finish, the only thing noticeable in small matters of detail is the necessary increase in the size of fillets which were in association with undercut work; and even this difference is hardly noticeable when the finer varieties of stone were used.

Apart from order treatments and fine temple work, which are in a class by themselves, Hellenistic masonry can be studied profitably from the more utilitarian structures. We will therefore consider these first, beginning with material.

The whole of the Eastern Mediterranean, east of and including South Italy, provided splendid building stone. This region is markedly volcanic. The stone available for building

was broadly of two limestone varieties—a conglomerate which, at its best, almost resembles marble, and a darker and denser stone which was capable of equally fine working. This latter variety was not so freely used, except in sites where nothing else was obtainable, both because it was more difficult to work and because it was less easily obtainable in large blocks.

Jerusalem is a natural quarry-bed of good building stone, which varies from a soft, easily worked limestone to one which is considerably harder and of a pinkish colour. The finest varieties of the softer stone are magnificent material, weathering to a deep yellow tone and showing clear evidence of bed. This can be seen to advantage in the Herodian walling of the city at its north-west corner, dating from the latter part of the first century B.C. The best-preserved stones of this wall are still in an almost perfect state. In Jerusalem and the Jordan Valley the dark volcanic basalt is also plentiful, and it is much used in small blocks for modern building. At Tiberias nearly all the ancient and modern buildings are constructed with this stone. As it is hard to work, it is now left rock-faced unless old stone is re-used, even for façade work with fine joints, only the edges being drafted to secure accurate verticality. The simpler modern work is built in roughly squared rubble, with wider joints. This stone contains a lot of fine quartz which gives it a crystalline appearance, and owing to its gritty texture it takes lime mortar well. Both the old and new Arab buildings have small blocks and no long stretchers, each stone being about 9 inches high and from 8 inches to 12 inches on the face. The oldest masonry at Tiberias in this material, dating probably from the time of Herod Antipas, is of larger blocks with fairly wide mortar joints. This and all the other old stonework was dressed on the face.

The quarries at Baalbek, which contain the famous "trilithon", 70 feet long, are in a spur of the Anti-Lebanon which approaches the site. The natural colour is ivory-white. It usually weathers gray or deep yellow. It is dense and slightly crystalline in texture with hardly any visible signs of bed. From the preservation of the detail in the buildings on the site it is clear that it was magnificent material, capable of being worked as finely as marble.

The stone at Baalbek has some resemblance to the mummulitic limestone of the region near Alexandria, a splendid ivory-coloured conglomerate. The dark basaltic stone was also used in Ptolemaic work, and a similar stone was used in the region north of Smyrna, in Asia Minor.

The handling of Hellenistic masonry, as it can be seen in large masses of walling for retaining purposes of the more decorative kind, shows many interesting forms. Most of these are dealt with in Atkinson and Bagenal's *Theory and Elements of Architecture*, published in 1926. Since that date, however, Hellenistic walling has been more fully investigated. The first thing evident is that it followed the traditional methods of Greek walling, but the use of polygonal masonry was abandoned. The value of polygonal masonry lay in its all-over bond. When perfectly built with fine marble, as at Rhamnus and Delphi in the fifth century B.C., it was unequalled as a bonded facing for a vertical retaining wall. At Pergamum, in the upper citadel, the north retaining wall was built with slightly projecting courses for the whole of its lower section, though it was vertical above. This method makes coursed masonry essential. It was practised by the Greeks, sometimes with wider stages, as in the retaining wall of the west citadel at Selinus, where the wall has almost a stepped effect. In the retaining walls at Baalbek we

also find large coursed masonry as perfect ashlar work except for its roughened surface and fine drafted edges; a method of building that was characteristic of late Hellenistic masonry. It can be seen in the earlier Herodian wall at Jerusalem already referred to. In this wall the longest corner stone is 19 feet 6 inches long and fully 5 feet on the return. The courses are about 2 feet 6 inches high. The horizontal drafting is usually the widest. It is obvious that it was the most important for checking verticality as well as straightness while the work was proceeding.

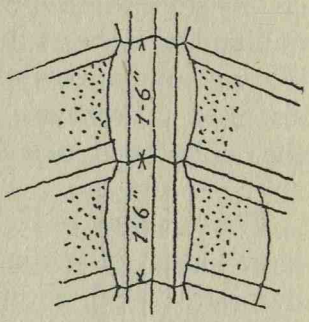


Fig. 34. Priene. Corner of temple retaining wall, looking up.

As Atkinson and Bagenal say, there can be no doubt about the *effect* of rough surfaces of various kinds in massive utilitarian walling, and I am inclined to think it was so far a deliberate intention, as one must assume that the mason knew that such walling would not be worked over by the plasterer after he left it, and that he wished to give it effect as massive stonework. We seem to get proof of this intention from the retaining walls at Priene and Iassus, where the masonry is left rock-faced and deliberately built with pulvinated courses, the corners being fine-drafted on both faces, with square returns to the pulvinations.

Drafted edges were not universal. At Delos, in the theatre retaining wall, the fine trapezoidal, partly uncoursed masonry was left with a slightly roughened face all over (Pl. III *b*). The retaining walls of the temple at Priene were built with smaller courses of unequal heights, which were all rock-faced. The narrowness of some of the headers should be noticed. The lower part of this wall has regular

pulvinated courses of 1 foot 6 inches height, like the retaining wall already mentioned. Each pulvination has upper and lower edges drafted, the remainder being left slightly rough without losing the curve. The intention here must have been deliberate (fig. 34).

The exactly equal coursing of masonry was rarely observed, but in most fine walling the courses were approximately equal. The retaining wall at Iassus in Caria, already referred to, which is probably Hellenistic, shows a return to an earlier method. At every six or seven courses there is a narrow course which is worked vertical and finer and is set a little back from the general roughened and pulvinated faces. Though this suggests the use of special bonding courses, it is more likely that it was a method for checking. At Larissa, north of Smyrna, we see something of the same kind in a fine polygonal wall of the sixth century B.C., but the horizontal courses there project slightly and are made more decorative by upper and lower drafted edges.[1]

A very interesting example of masonry technique can be seen in the corner towers of the propylaea at Baalbek. The intention was, apparently, to finish all the surfaces smooth, but nearly all the stones have a rough projection at their top and bottom beds (Pl. XVI *a*). It will be seen at once that this is the reverse of drafting, but one can only suppose that the projections were meant to be worked off and that the method was regarded as an even safer one for securing perfectly clean horizontal jointing in the facework.

At Abusir, near Alexandria, the great court of the Osireion has its enclosing wall standing, in places, to a height of 15 feet at least. The walls show vertical breaks on plan, recalling those of Minoan walls. They are of finely jointed ashlar construction on the inner faces and the courses are

[1] *Journal R.I.B.A.* Jan. 26th, 1935, p. 365.

arranged in pairs, with a recess about 2 inches in height and rather less in depth between each section. It is impossible to say if this technique was meant to serve a practical purpose.

Hellenistic masons in Palestine and Transjordan occasionally adopted an Israelitish method of using very narrow headers, sometimes duplicated, and recurring regularly like Flemish bond in brickwork. Mr Crowfoot has informed me that a fine curved wall of heading stones at Samaria was built by Perdiccas, and is therefore early Hellenistic, and not—as he thought previously—of Israelitish (post-Ahab) date.

The type of wall that is common in Scotland, and known as "squared rubble, uncoursed", was not often used deliberately in Hellenistic work, but the method common to all masons, of rebating an occasional big block on its top bed so that another block may fit into it, is often seen.

"Random-rubble" can still be seen in excellent preservation on many Hellenistic sites. The Delian house walls are of this description. Such walls may often have been built with mortar, but at Delos they could hold together as dry-walling. As they were usually employed where a finishing of thick plaster-work was desired, it is obvious that they would provide excellent key for such finish, which, in turn, would tend to keep the wall together.

The method of building all thick walls followed the Greek one of an inner and outer face (where both sides were visible) and a core of rubble work, into which some of the headers of the face-work projected considerably or even right through. This method of building in parallel layers can be seen in the cella wall of the Didymaion and the pylons of the Ptolemaic Osireion at Abusir. It can also be seen in Greek retaining walls, as at Hipponion in Magna Grecia and

at Selinus. Naturally it was more appropriate when large blocks of masonry were used, and when the face-work was built with great care, but these conditions being granted, there can be no doubt of its efficiency. If the Norman builders in England and France could have used larger stones, they would have obtained equally good results, without being dependent on the more risky safeguard of lime mortar.

That the Hellenistic masons were thoroughly competent is clear from the staircase and ramp systems at the Didymaion, which may belong to any period between the beginning of the third century B.C. and the second century A.D.; but judging from the character of the detail in the doorways, it is unlikely that they were later than the first century B.C. The whole of the work is in marble. The sloping ramps have semicircular barrel roofing, also sloped, constructed with raking hollowed lid-stones covering most of the width; but the springing stones have horizontal beds, though they are cut to the rake at the top, every alternate one being rebated to take the end of the stone above. As a raking curved overhang had to be worked on each of these stones, the setting-out would be by no means simple, and it does not appear possible that the work could have been done without dressing every stone before it was built in (fig. 35).

The stairs in the pylons of the Osireion at Abusir also show advanced masonry. The raking ceilings there are flat, with slab-stones which take the whole width, but their bed-joints are a trifle below the ceiling level. The corbellings at the entrances would have demanded expert craftsmanship.

For wide spans, the lintel or slab was gradually replaced by the arch, but trabeated forms were sometimes retained for such spans even into the Roman period. The grave-towers of Palmyra have coffered stone ceilings of single

slabs which run to about 11 feet in clear width. Where lintels were employed in later work, as in the propylaeum centre

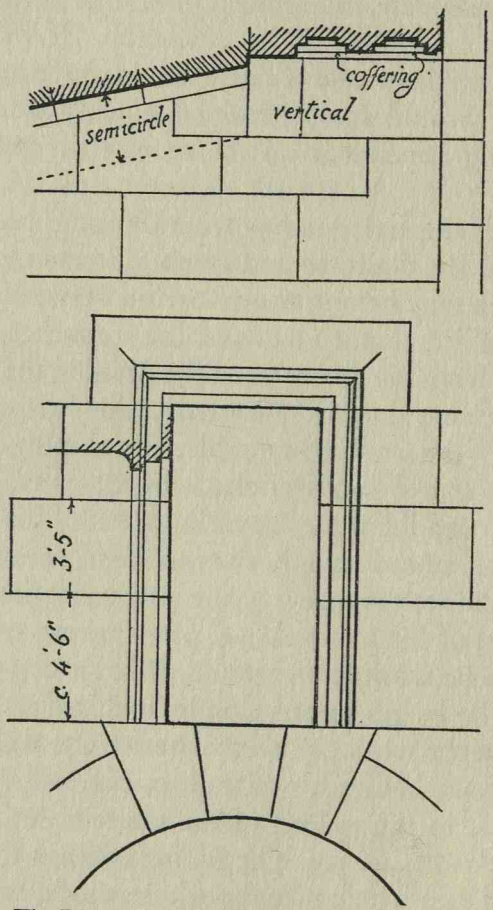


Fig. 35. Above: The Didymaion. Long section through top of ramp leading to cella, showing roofing stones. Below: Baalbek. Wall-opening in east return of south outer wall.

opening at Jerash and in the large doorways of temples, the flat arch principle was adopted. There was at least a central keystone and sometimes splayed haunch-stones as well.

Relieving-arches over the lintels may have come into use as early as the end of the first century B.C., in association with Roman brickwork as used in the West.

This "trabeated-arch" motive, as we may call it, in stonework, the germ of which can be seen in the "Treasury of Atreus" at Mycenae, was used at Spalatro at the end of the third century A.D. and in Syrian buildings of the fourth and fifth centuries A.D. or earlier. It had far-reaching effects on Western architecture. It was apparent that if the lunette be-

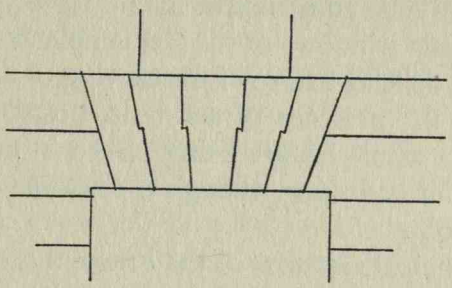


Fig. 36. Kala'ât Sim'ân. Masonry in north arm.

tween the arch and the lintel was filled-in with recessed masonry, a field was offered for important sculpture in relief or even in the round. At Palmyra and at Kala'ât Sim'ân,[1] we find flat-arched lintels with joggled voussoirs. In the later example there are square openings above the lintels (fig. 36).

The first semicircular arches in stone or marble were no doubt built with cut-voussoirs, i.e. with semicircular extrados, but a semicircular niche head, even of considerable size, was usually cut out of one rectangular stone (fig. 29).

[1] Kala'ât Sim'ân, the local name for the magnificent tetraform church of St Simeon Stylites, stands in wild mountainous country near Aleppo, somewhat off the road from Aleppo to Antioch. It was probably built in the fifth century. It can be studied in de Vogüé (*La Syrie Centrale*) and in Butler (*Architecture and Other Arts*).

As these heads were often decorated with shell-patterns, the mason could have worked more freely on single stones. Familiarity with this rectangular enclosing shape of the arched motive may have led to the use of "tailed voussoirs" in larger arches demanding more than a single block; for which, again see Kala'ât Sim'ân (Pl. XII *b*).

Though all the essential masonry of features such as doors and windows was constructive, it is not equally clear that some of their unessential masonry—like the carved pedimented tops—was constructive in the same sense. In the case of the cella windows of the Bel temple at Palmyra, for example, the delicate nature of the carving of the pediment-corona, and the presence of acroteria, point to the probability of the whole feature being placed in position afterwards as a finished thing, though it must have been given some wall hold.[1]

In the principal seat-row of the Priene theatre, the upper part of each curved seat may have been free, but the lower part was masoned out of a long block, extending considerably on each side of the seat (Pl. XXII *a*).

At the Didymaion, the placing of the large sill-block of the raised entrance from the pronaos is an interesting example of marble masonwork. As there is some oddly assorted detail here, the junction between the two base-elements looks more awkward than it ought to be. In principle, the junction is sound and is illustrative of the directness of purpose in Greek and Hellenistic marble buildings.[2]

The ends of the die-walls of the theatre at Priene show some slight displacements in good marble masonry which ought not to have occurred if the end blocks had been properly dowelled and joggled (Pl. XXII *b*).

[1] See Wiegand, *op. cit.* Pl. 80.

[2] See Robertson, *op. cit.* Pl. VI, facing p. 152.

TECHNICALITIES OF ORDER TREATMENTS

Free-standing columns, especially those of the larger and more important temples, were constructed with care, as in Greek times. The drums at Baalbek were of very great size. There were only three of these in each column of the Bacchus temple. Each drum had, in addition to large square dowel-holes, narrow straight grooves right across it on both beds, so that molten lead could be poured in to effect joggle-joints. The drums of the Jupiter temple, being larger, had three smaller square dowel-holes in place of one. Grooves for lead joggles are characteristic of Hellenistic work after the fourth century B.C. There may have been some slight indication of their position in the circumference of each column shaft, after it was erected, as many of the columns at Baalbek and elsewhere have had holes chipped in them at their joints by Arab plunderers in search of lead.

Though fluted columns were very unusual in Syria, those of the Bel temple at Palmyra were finished with such accuracy that it is clear they must have been worked after erection. In all the earlier and finer Hellenistic buildings, there is no departure from the delicacy of the best Greek workmanship in order details. The great column flutes of the Didymaion at Miletus are cut very low down into the apophyge at the base, with finely-formed flat-oval terminations leading from gradual taperings in the widths of the flutes. This technique produces widened tapering fillets between the flutes, near the base (fig. 27 *c*).

One of the most important matters of technique in the Greek and Hellenistic Doric column is the treatment of the arris between flutes. It is clear from examination of many examples that the normal intention was to secure as sharp an arris as size and material permitted, and that this sharpness

was continued right through the necking of the capital to the annulets. It is of course obvious that in very large examples, as at Olympia, where the flutes measured 12 inches across, a very slight softening of the edges was almost imperative, even in marble; but it is astonishing what sharpness was secured. In the great columns of the temple of Zeus at Akragas, where the flutes were 16 inches across, it was considered advisable to have fillets between the flutes, and these are 2 inches wide, but this was exceptional. The only late fifth-century example that I know of where it would appear that a deliberate softening of the arrises was intended is that of the recently discovered Stoa in the Athenian Agora. This had a beautifully-detailed marble order, with a very fine (and apparently intended) fillet as a softening of each arris. The fact that it is filleted and not rounded is most interesting, but it is not a unique example. There is a small archaic marble capital in the museum at Delphi which has very obvious fillets between the flutes of the necking.[1]

STUCCO FINISHES

From archaic Greek times, the working of stucco finishes on stonework was a fine art. Even in cheaper Hellenistic work, as in the middle-class residential quarter at Delos, Doric capitals were finished with thick plaster having a coat of fine stucco on a carefully prepared stone core, which was recessed to give a key for the plaster (fig. 37). The plastered shafts below these capitals were not fluted, but were finished with twenty plain surfaces meeting at very blunt angles. It is obvious that in a small example this would be more practical, in stucco, than the sharper arrises which

[1] The columns in the best-preserved house at Soluntum had fillets between the flutes (see fig. 38).

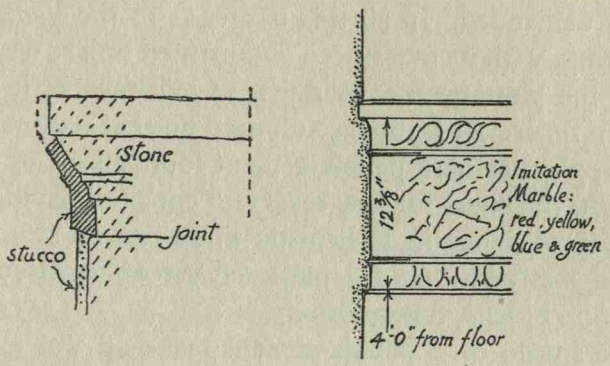


Fig. 37. Left: Stucco finish of Doric capital, Delos. Right: Coloured-plaster dado-band from Delos.

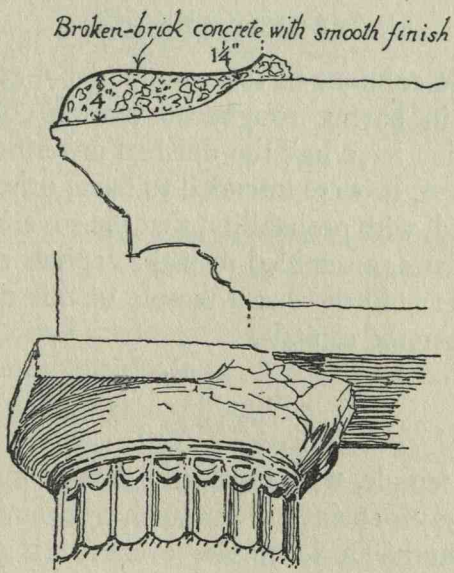


Fig. 38. Soluntum. Above: Waterproofing of soft-stone cornice. Sectional diagram. Below: Doric capital from house peristyle.

fluting demanded. In all this usage, as in the Delian wall plastering, with its fine stucco and painted finish, we see the art of the plasterer just as much in evidence as it was in Minoan times. At Knossos, coloured finishes on fine stucco were applied to hard pebble-cement foundations of several inches in thickness for low seats and couches. Evidence of similar proficiency in Hellenistic times can be seen in the painted mattress-top of a plastered sarcophagus-couch at Mustapha Pascha, Alexandria.

Fine stucco on a pebble-cement make-up was also employed at Soluntum, as a waterproofing for projecting cornices of soft stone (fig. 38).

BRONZE VENEER

The peristyle columns of the temple of Bel at Palmyra are remarkable in having roughened marble cores for their capitals, which have lost the finished covering which they must have had, or were intended to have, originally. It has been assumed, with probability, that the coverings consisted of bronze plates, assembled to make capitals of Corinthian form, as it is unlikely that a temple of this quality would have had plastered capitals.

PAINT

The Greek temple, with its clearly defined moulded members, was ready for paint without further linear definition. We are aware that the Doric temple, severe as it is generally considered, had many delicacies which are apparent on careful examination. It is probable that some of the details, like the annulets, were partly dictated by the intention of their decoration by paint. It is evident that the paint-work was, in

some exceptional cases, both guided and enhanced by relief, very flat in the corner anthemion of a cornice soffite, and bold in the egg-and-tongue on the antae capitals of the Parthenon. The Gorgon temple at Corfu, which is late seventh or early sixth century B.C., shows an interesting technique on its perfectly plain pedimental framework. The raking and horizontal members are patterned with a simple but effective system of incised lines, which are obviously indications of the painted decoration. This process of defining painted

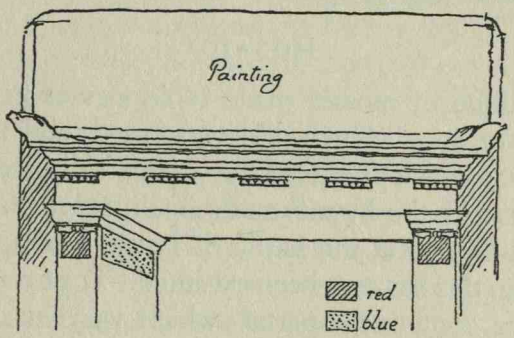


Fig. 39. Tombs at Mustapha Pascha, Alexandria.
Top of a principal opening to a loggia.

patterns by incised lines was practised in Minoan, Greek and Hellenistic times, mostly on plaster-work, where it could be done with ease on a wet surface (fig. 37).

It is probable that Hellenistic painted plaster-work, like Minoan, was true fresco, i.e. that it was applied while the finishing coat of fine stucco was wet. No other process could have secured the evenness and permanence of finish which have resulted. Colours in the larger panel-paintings that have got blurred or faded are those which were less chemically suitable, such as some blues. As in all ancient painting, the earth colours were selected preferably, and not

only formal decorative work, but the picture-work as well, conveys a general impression of deep red, yellow, black and white. The light bright blue that was obtainable from copper, or from cupreous glass, was also permanent when used on small surfaces. In Hellenistic work there are interesting evidences that architectural forms indicated by paint tended to become pattern which was related to function. Thus, at Mustapha Pascha, Alexandria, the capital decoration of the pilaster jambs of a doorway shows red on the faces and blue on the returns (fig. 39).

MOSAIC

The technique of mosaic made rapid strides between the fifth century B.C., when pebble was used, and the second century B.C., which produced the superb wall-piece found in the "House of the Faun" at Pompeii, representing Alexander and Darius at the battle of Issus. Perhaps no finer mosaic than this has ever been executed. The extreme smallness of the component parts—which vary in size—made possible its wonderful gradations of tone. We see the same mastery of execution, though hardly the same quality of design and composition, in the Roman period floor-mosaics at Antioch that were mentioned previously, and in some of the smaller work at Delos.

ROOFING PROBLEMS

In 1932 the British School at Athens discovered at Perachora, on the Gulf of Corinth, the structural evidences and —even more important—the clay model of a temple belonging to the "Geometric" Age. The model showed that the temple had a roof which must have been of thatch and that at its springing the roof was tied by cross-timbers at

intervals. The placing of the holes for the insertion of these timbers would suggest that the ties were associated with the roof structure and that they were not wall ties. The fact is important, as it points to a possible structural connection between the ties and the raking timbers of the roof.

It is generally accepted that the triangulated roof-truss was not known in the West till shortly before its first mention by Vitruvius, i.e. in all probability till the latter part of the first century B.C., at earliest;[1] and it is known that so important did the timber roof become, that the Christian architecture emanating from Rome, as Dalton says, "abandoned vaulting, and down to the end of the first millennium produced no other kind of church than the wooden-roofed basilica".[2]

We are concerned here not with the survival of the trussed roof but with its beginnings, and unfortunately we have no certain knowledge that the practice which may have been applied at Perachora had any true survival in Greek and Hellenistic usage. Rather have we certain evidence that an important building finished in 329 B.C.—Philo's Arsenal at the Piraeus—showed no apparent knowledge of the triangulated truss. The building was of immense length and was nearly 60 feet wide internally, divided into nave and aisles by stone pillars, with a central span of about 23 feet in the clear. As Philo's specification is extant, we have sufficiently exact knowledge to enable us to reconstruct the roof in all essentials. Heavy bearer-beams between the pillars carried the ridge-piece. There was no other essential construction except the equally heavy longitudinal lintels and the light raking rafters.[3]

[1] R. Atkinson and H. Bagenal, *Theory and Elements of Architecture*, Vol. I, Part I (Benn, London, 1926), pp. 208 *et seq.*

[2] O. M. Dalton, *East Christian Art* (Oxford, 1925), pp. 71 and 72.

[3] Atkinson and Bagenal, *op. cit.* pp. 205–208.

The result, as Prof. Robertson says, must have been very impressive, and I think we should not altogether disregard that aspect, as it may have had some effect on the mind of the designer. Let us try and get to the back of his mind. A clear unsupported span of nearly 60 feet would be unthinkable. Granted, therefore, that some system of internal support was inevitable, would it matter so much, within certain limits, where such support was placed? A central span of 23 feet did not demand a tie-beam roof: it could just be managed with a bearer-beam roof; and it is probable that a tie-beam roof (realised as advisable for a small, steeply-pitched construction, perhaps, as a safeguard, rendered as monolithic as possible by clay stiffening), would be considered as too dependent on its carpentry efficiency to be worth all the trouble of making it, apart from feared complications; for I think we must assume that the absence of thrust in a triangulated roof-truss might not have been fully realised.

All things considered, therefore, it does not appear to be proved that the architects of the later fourth, third and second centuries B.C. were quite ignorant of rudimentary roof-trusses. Argument has been based principally on the Piraeus Arsenal, and I have gone into that example carefully because it hardly seems to me to afford sufficient evidence. A more important case is the Ecclesiasterion at Priene, built only about thirty years later than the Arsenal. The clear span here was about 48 feet, quite enough to make any constructor of the period hesitate to employ bearing timbers only. There might well be doubt whether it was intended to be roofed originally, but I think Prof. Robertson is right in assuming that because of the known later roof we should naturally infer an earlier one;[1] though it might be considered

[1] *Op. cit.* p. 179.

as doubtful if the charred remains of the burnt later roof did not belong entirely to the aisles of the structure. The cella of the Didymaion, which Strabo asserts was left unroofed because of its size, does not really come into the argument. It had a span of about 70 feet, enough to make even a Roman builder hesitate to employ a wooden roof in a provincial centre; though in Rome itself, Old St Peter's, built in the fourth century, had a clear nave width which was greater.

The Hypostyle Hall at Delos, built in the third century B.C., is another interesting case. It is a pillared hall, from its arrangement clearly intended to carry one large hipped roof of flat pitch, with, possibly, a clearstoreyed portion rising higher in the centre. The French have restored it, on paper, in this way, and they have suggested a common-sense method of getting over its only complication—the central unsupported square of about 34-foot side—by assuming simple post-and-bearer-beam trusses with bracing timbers; all the remaining spans being under 20 feet and therefore easy to deal with.[1]

From the evidences given above, I am inclined to the opinion that Greek and Hellenistic architects, from the middle of the fourth century B.C. and possibly earlier, were acquainted, in some rudimentary form, with the principles of the triangulated roof-truss, just as they must have been acquainted (at least by hearsay) with the arch and the domical vault in some of their more rudimentary forms. I do not think they avoided either the roof-truss or the arch *entirely* because they wanted to build for eternity, or even at all for that reason, but, in the case of the arch, because its usage would have been foreign to their traditional building expression; in the case of the roof-truss, because its usage would have been beyond the scope of their constructive outlook,

[1] *Délos*, II, (1) 1909, but see below, Glossary II, "Hypostyle Hall".

except for small and oddly roofed structures like the Geometric temple at Perachora, where in any case its construction would have been primitive.

So far as the major temples are concerned, the Samian Heraion, if it had no wooden posts internally,[1] must have been hypaethral, and it is quite probable that the largest of the Sicilian temples without internal columns, which had spans exceeding 40 feet, were also hypaethral; though timbers of that length might have been possible. It should also be borne in mind that if we concede the post and bearer-beam truss with brace members—which is a real though rudimentary form—for the Hypostyle Hall at Delos, and possibly for the Ecclesiasterion at Priene as well, the design of the Parthenon, which had an unsupported central span of about 33 feet, did not preclude the employment of such trusses (fig. 40).

[1] The latest evidence seems to show that it had such posts, or stone or marble columns (see Buschor, *op. cit.* and Chap. II, fig. 3, above).

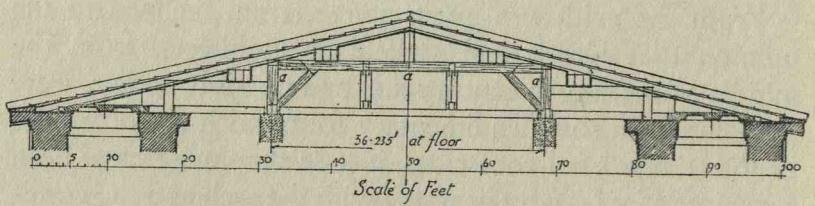


Fig. 40. Section of the Parthenon roof. An essay in reconstruction. (Structural fact, from Penrose, shown in thick lines.)

CHAPTER VII

THE HOUSE

Perhaps more than in any other particular except advanced developments of the orders, Hellenistic architecture is best known for its domestic output; for the Greek house, as generally understood, is really the Hellenistic house.

For long, when we have thought of the classical type of house, we have dwelt, almost instinctively, on Pompeii. The thorough clearance, many years ago, of a great part of the site of Pompeii, even in spite of the completeness of its material, might not have made such a popular appeal if it had not been for the dramatic nature of the evidences of immediate destruction. Nevertheless, the draw of its art side alone was unprecedented and remarkable. Pompeiian red, Pompeiian wall backgrounds and some of the figure-panel wall-paintings were well known, but it is only comparatively recently that fresh disclosures and a more scientific study produced appreciation of the more solid qualities. Even more recently the attention that has been paid to Herculaneum has evolved, from these health resorts in the neighbourhood of Naples, further evidences of the most important mass of decorative material that has been discovered on any classical site.

To call Pompeii and Herculaneum Hellenistic might be considered as straining a point. Yet, though the earliest work at Pompeii belongs to the latter part of the Roman Republican period, one can see nothing but pure Hellenism in the architectural forms. Its distinctive principles of decoration stand alone in the History of Art unless we relate them

in part to the principles of Greek decoration (though these are almost unknown except in the Greek vase) and in part to Oriental motives.

What is generally regarded as the plan type of the Pompeiian house was really conditioned by the necessities of planning when houses were arranged side by side in parallel rows, or, like two or three of the largest houses at Pompeii, were complete narrow "insulae" in themselves. This type is well-known, as books on architectural history deal with the "House of Pansa" or the "House of the Faun"; and, as a result, there has been a tendency to overlook the essential principle of Greek and Hellenistic house planning, which is also found at Pompeii in the "Villa of Diomede", the "House of Sallust" and the "House of the Surgeon". This essential principle is the building of rooms round two or more sides of a rectangular area open to the sky, which was obviously most convenient as a peristyle-court. This is an early Mediterranean form of plan which can be seen in the "Little Palace" at Knossos, which belongs to the first Late Minoan period and may date from about 1500 B.C. or earlier (fig. 41).

It is probable that a great many houses of Minoan times were of the courtyard type, though the "Royal Villa" at Knossos conforms more to the Palace type of single-unit planning in suites of rooms on one axial line, lit at both ends with no peristyle-court (fig. 41). This is the *megaron* plan, which can be seen in combination with a peristyle plan as late as 300 B.C. at Priene.[1]

The Minoan houses were always founded on the principle of having two or even three storeys, usually introducing verandahs, and this principle prevailed in Greek and Hellenistic houses, though perhaps not quite to the same extent.

[1] Robertson, *op. cit.* fig. 124, p. 299 (from Wiegand and Schrader).

Roofing considerations are important. The roofs of buildings in Greece and Italy were usually sloping, with a tiled finish. The roofs in Crete were flat, just as we see flat roofs in

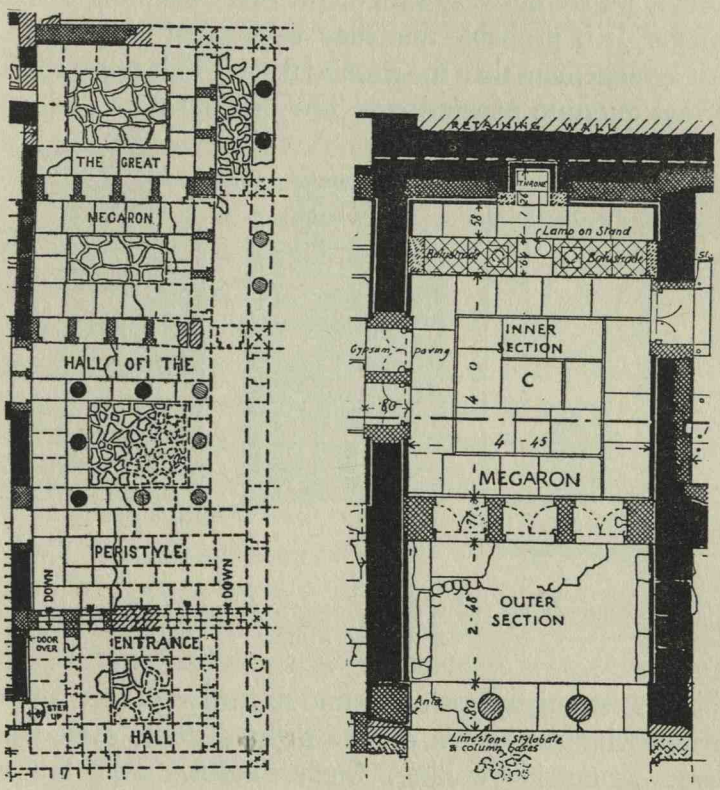


Fig. 41. Left: Ground plan of east part of "Little Palace", Knossos. Right: Ground plan of central part of "Royal Villa", Knossos. (From Sir Arthur Evans, *The Palace of Minos at Knossos*, Vol. II, Part II, Macmillan and Co. Ltd., 1928.)

Cretan villages nowadays; but this did not preclude a one- or two-storeyed house from having a portion which rose above the main flat of the roof. This usage can be seen in town houses in Candia to-day and is also borne out by the

evidence of some of the house-façade tablets from Knossos[1] (fig. 42).

Though it is clear that many Hellenistic houses had upper storeys, we are not very sure of the exact planning of these storeys. It is probable that they were often more open in their arrangement than the ground floors. This raises the important question of windows. The oriental type of house,

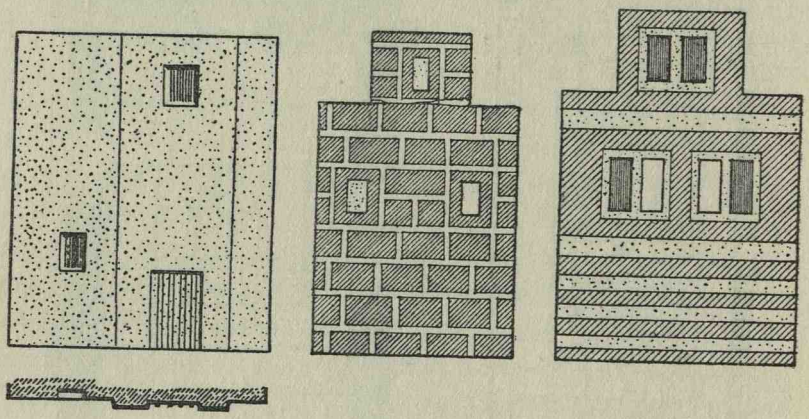


Fig. 42. House-façade tablets from Knossos. (From *The Palace of Minos at Knossos*, Vol. I.)

which is essentially enclosed, undoubtedly avoided any extensive window system on the ground floor, even where there was outside walling. Such windows were few and were placed as high as possible. The Cretan type of house was of semi-oriental type. Light was obtained on ground floors from internal areas. On upper floors it is clear that there were windows, especially where houses fronted on streets. In Roman Ostia, where street houses rose to several floors, each floor being a separate flat, and where

[1] For the complete series see Sir Arthur Evans, *The Palace of Minos at Knossos*, Vol. I (Macmillan and Co. Ltd., 1921), fig. 226.

there were stone staircases serving the flats, we get a modern arrangement[1] comparable to the residential flats of towns like Glasgow, with completely windowed façades; but it should be borne in mind that the walled and windowed façade, without verandahs, can be seen in the house tablets from Knossos.

The *atrium* can be considered as a separate feature, unknown—according to Vitruvius—to the Greeks, and peculiar to Italy, where it may have been an indigenous form; but it should not be overlooked that the atrium, in essence, is an extension of, or a substitute for, the court of the Greek and Oriental house. Its prevailing character—as a walled, and not a peristyled or partly-peristyled court—does not interfere with this essential principle. Broadly speaking, and judging from the more luxurious examples at Pompeii, such as the "House of the Faun", it would appear that the Romans used the atrium as a traditional form and that they adopted the peristyle court—when they could afford it—as a luxury, and because they wished to be fashionably Greek in their cultural ideas. The peristyle court in the larger Pompeiian houses lacks the basic value it had in a Greek or Hellenistic house. In many cases, in fact, it could have been done without, and is merely a graceful architectural unit leading to the open garden beyond. The overshot roof of the Roman atrium introduces a constructional principle which is neither Greek nor Oriental and may be Oscan or Etruscan.

HERCULANEUM

The general principles underlying the development of the Greek and Hellenistic types of house and of the later Roman house have been dealt with and illustrated by Prof. Robertson and other writers. I do not propose to discuss them

[1] Robertson, *op. cit.* figs. 129, 130, pp. 308, 309 (from Calza).

fully, as I wish, principally, to emphasise the importance of what I have called the early Mediterranean type of plan. There are, however, some aspects which have been disclosed recently by the excavations at Herculaneum, which call for particular mention.[1] The disposition of Herculaneum as a town first merits attention. It is radically different from Pompeii. There is nothing monumental about the lay-out of Pompeii apart from its temple and forum quarter. Herculaneum, on the contrary, shows remarkable orderliness and symmetry in its lay-out. The town lies immediately above the sea-shore on a gentle and continuous rise which ends in the foothills of Vesuvius. The front of the town was on a raised terrace protected against the sea both by this and by a wide ditch resembling a mediaeval moat. On the terrace front lay the finest houses, the most notable exceptions to the mass of smaller houses which lay behind the patrician front being the large and high "Casa Sannitica" and the baths for young men with their palaestra in front of them.

The *Casa dei Cervi* (fig. 43) was one of the finest and most sumptuous houses in the town. It covers half the width between two streets and reaches to the front terrace. It is surrounded by a complete corridor paved with mosaic and having a separate low roof. This unique feature has been defined as a "cryptoporticus", which it is in practical application though not in constructive fact. The first important apartment entered from the terrace is an inner vestibule, which is really a fine hall, thrust into a large open central space. This open space is a garden surrounded by the cryptoporticus, which looks on to it through windows. At

[1] The full results of the excavations at Herculaneum have not yet been published, including a complete plan of the town; but see A. Maiuri, *Herculanum* (Paris, 1932).

the opposite end from the hall is the tablinum, centrally placed, and some side rooms. The front of the tablinum has a pedimental treatment beautifully decorated with intricate coloured mosaic and sea-shell inlay—a favourite technique

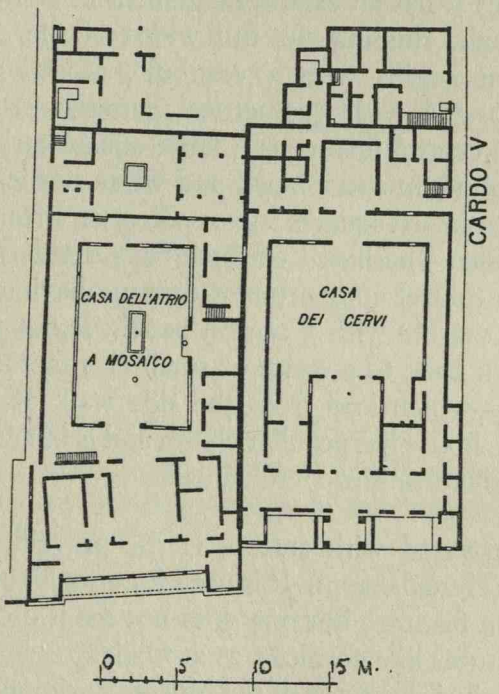


Fig. 43. Plans of two houses at Herculaneum. (From A. Maiuri, *Herculanum*, Editions Alpina, Paris, 1932.)

at Herculaneum. All of the pavements were either of variegated marble inlay or of black and white mosaic, and the walls of the rooms were richly painted. In the garden, carrying on the alignment of the side walls of the front hall, were two single decorative columns, one of which survives. The interesting treatment of its capital has already been described (see above, p. 113 and fig. 32).

The *Casa dell' Atrio a mosaico* (fig. 43) also reaches to the front terrace. Its largest feature is a garden court with a paved walk and open colonnade on each side, and with the fenestrated wall of the house at its far end. The house is remarkable, as it has an axial arrangement at right angles to the main axis, running the full width of the court. The arrangement begins with a vestibule, mosaic-paved and richly decorated with geometrical patterns in black and white. The central feature is a large square atrium with a marble impluvium and a black and white bordered mosaic floor in chessboard squares surrounding it. From this there leads an aisled "basilica" of three bays divided by square pillars, the central compartment or nave having a floor of variegated marble with a central panel. From this feature we can turn back to a series of small chambers—probably bedrooms—which lead from the side walk of the garden court. This house has peculiar charm and is in many respects the most interesting in Herculaneum.

Brick, covered with stucco, is the prevailing building material at Herculaneum. It is used for circular columns and for all plain features, but one does not see it used for ornamental features like cornices, as at Ostia.

Prof. Maiuri, Director of the Museo Nazionale at Naples, is responsible for the system of conservation at Herculaneum, which is similar to that of the "Nuovi Scavi" at Pompeii. It aims at presenting as accurate a picture as possible of the house as it originally existed, without overstraining restoration; in fact, the work is extremely well done and is worthy of all praise. With a few exceptions, the finest wall-paintings from Pompeii and Herculaneum have been removed to the Naples Museum; but it is refreshing to find several houses in the "Nuovi Scavi" in which the paintings have been left

as they were found, covered with large sheets of plate glass kept about 3 feet from the fresco, and further protected from light by roller blinds.

Of course, a considerable amount of structural work has been restored at Herculaneum, and in the New Excavations at Pompeii. The whole of the roof of the atrium in the "Casa Sannitica", with its impluvium, has been restored, and this has enabled the interesting terra-cotta antefixae to take their proper position. This atrium, with its upper gallery carried by small fluted columns and its lattice-work balustrades, was well worth restoration. It should be borne in mind that the only alternative to such restoration is gradual (sometimes rapid) disintegration of important original elements.

DELOS

The main disposition of the residential quarters at Delos will be dealt with in the next chapter. It will be realised how scattered they are; and as each area of development is a self-contained unit, the whole output has to be considered sectionally. The French have, of course, published a great deal of the material.[1] The slender, sometimes attenuated evidences of Hellenistic Doric can be seen all over the residential quarters. The Delian house plan was distinctive and characteristic, though it has some resemblances to the Palmyrene type. Broadly speaking, the larger type of house had a central peristyle-court which was surrounded by rooms. The court was one step down and was paved with plain mosaic in large tesserae or with stone slabs. Below this was a large underground stone cistern for rain-water with a circular draw-off giving access to it. The floor of the court had, therefore, to be supported to a great extent over a void.

[1] *Délos*, VIII, 1 (1922); VIII, 2 (1924) and Plates; and XIV (1933).

Either arched constructions of stone or heavy wood beams were employed. The floors of the surrounding peristyle and of the rooms were also of mosaic, the finest being in the rooms, which were often elaborately decorated. The walls were finished with coloured stucco on a rubble backing, very much in the Cretan manner, but more architectonic. The general scheme of decoration was a skirting in red colour, a dado representing large slabs of stone or marble, a dado-band, usually projecting, and an upper scheme of imitation masonry. In the finest examples this was all very delicately worked out, with a true feeling for the limitations and possibilities of plaster-work. Doorways—thresholds, jambs and lintels—were usually of marble, sometimes finely moulded. The columns of the peristyles were either of stucco on a core of stone, or of marble. Many of the columns are standing complete, but there are no entablatures in position.

The house walls and shop walls were faced with good squared rubble in small pieces and are about 2 feet to 2 feet 6 inches thick. There was usually a core of rougher rubble, but the construction was sound, as the walls are remarkably well preserved. All this stonework was from the local quarries of the granitic stone which is common to all the islands of this part of the Aegean and also to the Sporades and the Dodecanese. The finer varieties of this stone, of a darkish grey colour, can also be seen in the various buildings of the lower town, and in the wall constructions of the theatre. The marbles are primarily of two varieties—a streaked bluish-grey which was probably from Tenos, and a white which may have come from Paros. The archaic Apollo and the lions are almost certainly of Parian marble.

An examination of the various residential quarters at Delos shows interesting evidence of the economies and occasional elaborations of house construction in an important

centre of the second century B.C. Even in the best houses the stylobates of the peristyle-courts, worked in the local stone, were usually left irregular on their inner margins, which were flush with the flooring. In the middle-class houses one can see quite clearly how marble was regarded as possible luxury. Marble columns in these houses were sometimes of rejected or left-over blocks, placed on low square bases of unequal heights. Similarly, in these houses, plaster wall-finishes and floor-finishes are much simpler than in the better houses. It is obvious that columns, whether of marble or stucco-finished, were sought after. The courts have often only four columns, one at each corner, and the entablatures must have been of wood. Again, a moulded white marble base and a shaft of unfluted Tenos marble, surmounted by a simply finished white marble capital (sometimes Ionic), marks a more pretentious but still second-class house. The wealthier houses, represented by the "House of Dionysus" and the "House of the Trident", stand out clearly. In these, the columns are of solid white marble, carefully finished, though not always completely finished; in fact there is hardly a single example of a system of Doric house columns which have all their flutings completely worked. There are degrees of economy even in these better houses. Thus, the column shafts are usually of two or three blocks. In some cases the lowest one of these is cylindrical and the upper one or two are diminished without entasis. The blocks forming the capitals include, invariably, a small portion of fluted shaft fully worked, below the annulets.

The mosaic floors in the finer houses are also a clear indication of the wealth of their respective owners. One can realise how, perhaps, three different types of mosaic-workers were employed: one type capable of carrying out good floors with geometric patterns, a second type capable of

executing floreated borders, and a third (and very superior) type who would be entrusted with the panels of figure subjects. In this last category possibly a quite exceptional artist was the one who carried out the fine panel of Dionysus riding on a leopard in the "House of the Masks". This man may have been fetched over specially from Athens.

In more than one of the Delian houses, the columns of the peristyle vary in size. The resulting arrangement can best be seen in the peristyle of the "House of the Masks", recently excavated (fig. 44). In this case, the four columns giving on to the wide loggia are larger and higher than those of the other three sides of the peristyle (Pl. XXVIII *a*). The lower-level entablatures were carried on brackets which are worked on the penultimate upper drums of the corner columns of the larger row. As the entablatures no longer exist, it is not quite clear how the lower ones were adjusted to the columns they abutted on, but the junctions were no doubt effected simply, without any fuss, probably by a straight cut in each entablature. At any rate it must be assumed that there was a change of level in the upper floors which would be reflected in the ceiling heights of the loggia and rooms below. As might be expected, the greater height is found on the side of the peristyle which adjoins the more important rooms of the house. The matter is not quite so clear in one of the houses in the middle-class quarter at the north end of the site. There, the two intermediate columns of one side are smaller than the two corner ones on the same side.

The Delian houses are so important and so complete, that it is profitable to compare them with those of Herculaneum and to consider the practical value of both types in relation to modern work. In the earlier (Hellenistic) Delian houses the mosaic floors, where not plain, were enriched by

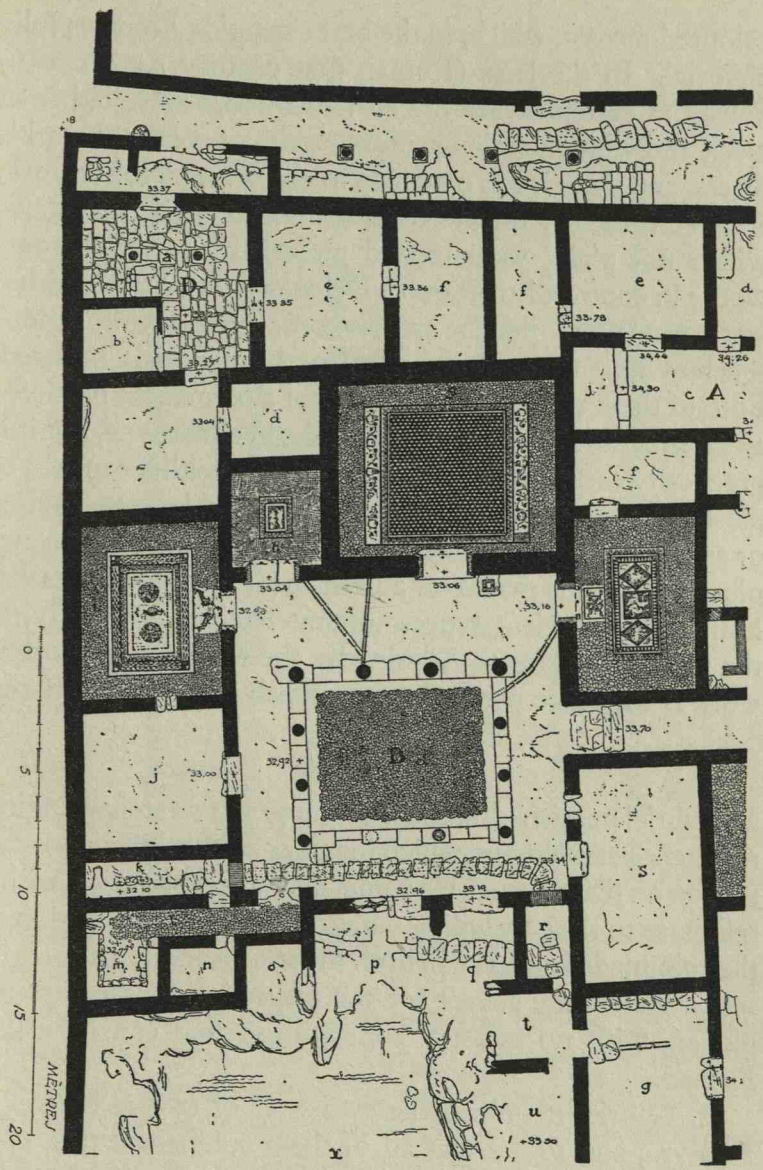


Fig. 44. Plan of "House of the Masks", Delos. From J. Chamonard, "Les Mosaïques de la Maison des Masques" (*Délos*, XIV, Paris, E. de Boccard, Éditeur, 1933).

coloured mosaic, which, in the best examples, becomes fully pictorial. In the later (Roman first century B.C. or A.D.) houses at Herculaneum the enriched floors were either of black and white mosaic or, more rarely, of coloured marble pieces, and there is less tendency to elaborate pictorial work. At Herculaneum, on the other hand, the wall treatments, where not plain, were treated pictorially, as polychrome work; in contra-distinction to Delos, where all wall finishes were treated in purely architectonic terms, with colour schemes that were appropriate to the materials imitated. Both of these types of house aimed at a permanent finish for all interior surfaces. No ceilings exist in either type, but it is practically certain that they were of wood, either exposed or plastered, except where, at Herculaneum, they were vaulted or semi-domed. In such cases, mosaic might have been employed. It is this matter of a permanent finish which makes both of the ancient types most interesting, practically, to the modern architect. Admittedly the tendency of modern work is to secure permanence of finish in interior surfaces.

PALMYRA

M. Gabriel published, in 1926, a monograph on archaeological researches at Palmyra, which includes a short but important section on the houses.[1] He commences his description with a reference to the concluding paragraph of his investigation of the colonnaded streets. In both the streets and the houses he sees a Hellenistic source for the respective treatments employed, with no material contribution that can be called Roman.

M. Gabriel examined the evidences of twelve houses at Palmyra, and found that all of them conformed to a type

[1] A. Gabriel, *Recherches Archéologiques à Palmyre* (extract from the Review *Syria*, Paris, 1926).

which had a Corinthian peristyle-court, either square or rectangular, and with rooms opening out from it. In only one case did he discover a court with the minimum of four columns, one at each corner. One of the houses had the

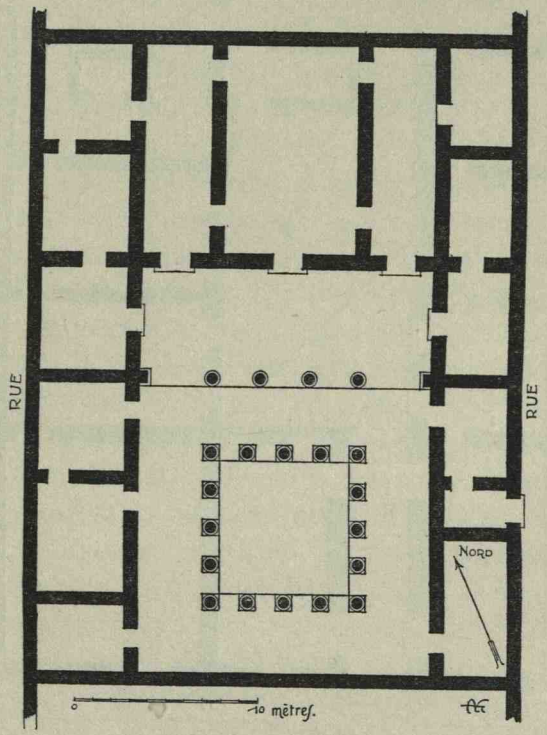


Fig. 45. Plan of a house at Palmyra. (From A. Gabriel, *Recherches Archéologiques à Palmyre*, Paris, Librairie Orientaliste, Paul Geuthner, 1926.)

variation of higher peristyle columns on one side, what is technically termed the "Rhodian" peristyle, of which the most conspicuous example is the "House of the Masks" at Delos. He notes that the brackets to take the entablatures on the two adjacent sides were similar to those employed at Delos. This survival at Palmyra of a method which is purely

Hellenistic of the second century B.C. is interesting, as the Palmyrene houses were probably second century A.D.

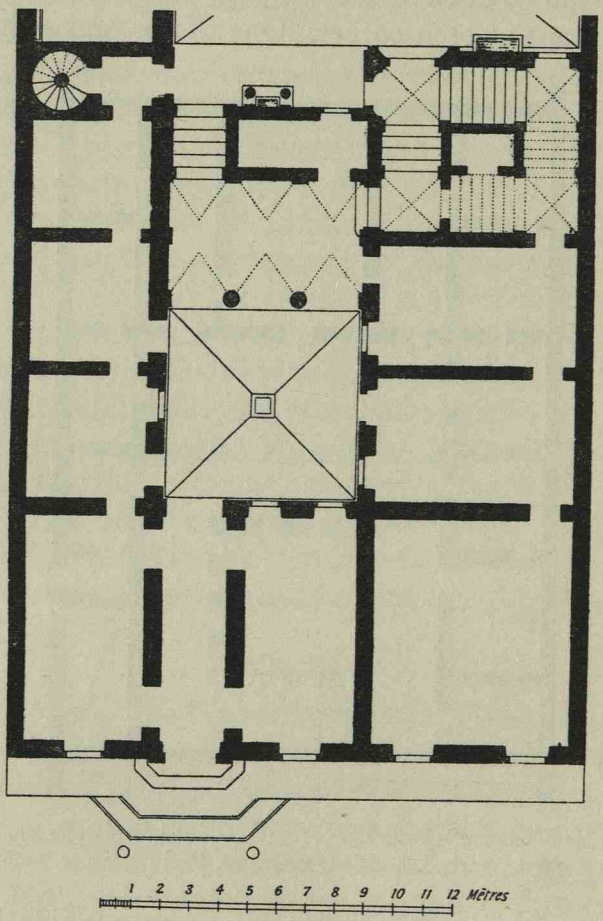


Fig. 46. Plan of Palazzo Tomati, Rome, from Letarouilly. (J. Tiranti and Co., London, 1928.)

M. Gabriel illustrates one particularly large house which has a specially interesting plan (fig. 45). The courtyard of this house, which is approximately square, measures about

55 feet across and the square well of the peristyle, which has sixteen columns, is about 25 feet across. As an extension of one side of the court is a wide loggia with an open colonnade towards the court, and raised one step. M. Gabriel surmises that this idea is a Mesopotamian importation, as it is found in later Arab usage. I have seen something of the same kind at Aleppo, in a seventeenth-century house with a garden court and a raised stone dais at one end, in which a wide-span pointed arch takes the place of the colonnade in front of the dais. The three parallel chambers opening out of the loggia of the Palmyrene house have a suggestion of Parthian plan formations at Hatra. It is interesting to note that the placing of a wide loggia at one or both ends of an enclosed court can be seen in some of the smaller palaces of Rome dating from the sixteenth century, though the idea of the dais has of course disappeared (fig. 46).

The fully enclosed and perfectly rectangular plan formations and symmetrically-placed courtyards of these Palmyrene houses seem to be more markedly oriental than Hellenistic plan types are in general. In Renaissance treatments, such types would be quite understandable, as the whole arrangement was always based on an impressive and usually central street entry. At Palmyra, on the other hand, the entrances—in conformity with oriental usage—are of a more secretive and involved nature, rarely with a direct through passage-way to the court. The complete acceptance of the peristyle court as the main feature of the plan, and the entire absence of an atrium at Palmyra, are significant, as further proof of the Graeco-Oriental character of Roman Syria, in distinction to the Graeco-Oscan character of Roman Italy.

Hellenistic Doric has not been found at Palmyra, and we see the Corinthian order used throughout. There were

Corinthian pilaster treatments on the street façades of some of the houses at Pompeii, and we have seen that Corinthian columns were used decoratively in the "Casa dei Cervi" at Herculaneum; but the use of Doric was almost universal in the West, at Delos, Pompeii, Herculaneum and Soluntum near Palermo. There must have been a school of Corinthian carvers who were at work in Syria, and Palmyra alone has produced a wonderful variety of capitals,[1] but they were obviously easier to work in stone than in marble. At Soluntum stone was also used, though it may have been finished with fine stucco. In the other centres, columns were either of marble or they had stone or brick cores finished with stucco.

The use of Hellenistic Doric for the house peristyles at Soluntum (Pl. XXVIII *c* and fig. 38)—and Doric of an early type in its general proportions—is rather remarkable when we consider that Soluntum was purely a Roman foundation and that it was situated in a part of Sicily which had not been colonised by Greece. It might be expected that such evidences would be found in the later work of the Greek centres at Selinus and Akragas, but they are not, except for a later rebuilding of the upper structure of the temple of Castor and Pollux at Akragas.

The material dealt with so far has been of the comparatively small domestic kind. The larger conceptions of the residence were the villas of Imperial times, such as the one at Praeneste and the one between Rome and Tivoli which was built by Hadrian. Beyond a certain point, the idea of building rooms round a central courtyard was not suitable, without the possibilities of handling plan units which Roman constructive methods permitted. Palaces of substantial size in Hellenistic times may have consisted of a

[1] See Schlumberger, *op. cit.*

series of formations based on the ideas of the smaller residences we have been considering, though whether they were assembled as skilfully as those of the Minoan palaces remains to be seen, as, unfortunately, we have no tangible evidences of the palace of the Ptolemies at Alexandria; and the Seleucid palace at Antioch, if it was not destroyed, still awaits the spade of the excavator. At Pergamum, there must have been too little room for a palace of large size. Apart from Antioch, however, much may yet be disclosed in Asia Minor and Macedonia. The time has hardly arrived for a thorough study of the larger aspects of Hellenistic domestic planning.[1]

The Roman Imperial villas had many elements which allied them to the thermae and other grandiose constructions, by the use of materials and methods which were purely Roman. It was, primarily, their architectural embellishment which was Hellenistic or Graeco-Roman. The same is true of that remarkable achievement, the palace of Diocletian at Spalatro, a compact assemblage of formations to make a fortified residential centre for a military emperor. It is thus comparable to a mediaeval castle, though on a grander scale. Many of its architectural forms and details are immensely interesting and they should be studied with care, as they are, perhaps, the most valuable link we have between Hellenism and the Early Christian styles.

[1] Olynthus has already disclosed a great deal of information about Greek house plans of the latter part of the fifth and the first half of the fourth centuries B.C., and also about street formations in the residential quarters. Rectangular arrangements are apparent throughout, and it is probable that the general dispositions were not far removed from those of the city of Akhenaten in Egypt, *c.* early mid-thirteenth century B.C. See *The City of Akhenaten*, Part I, by T. E. Peet, C. L. Woolley and others, and Part II by H. Frankfort, J. D. S. Pendlebury and others (Egypt Exploration Society, 1923 and 1932).

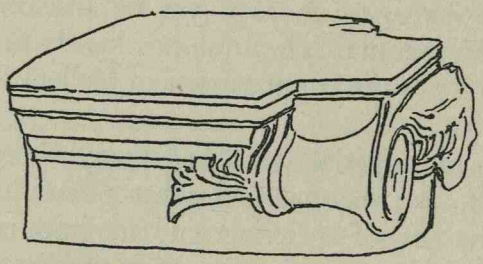


Fig. 47. Small stone capital in the museum at Delos.

CHAPTER VIII

CIVIC DESIGN

A comprehensive study of Hellenistic civic design, with due regard to the general principles which governed it, is certainly wanted. Von Gerkan has given a useful summary of it in its town-planning aspects as they can be seen in particular sites like Priene and Miletus; but there is a lot of new material which has been disclosed since and is appearing every year. Even at the present date any attempt to give a comparative treatment of the subject is bound to be restricted.

It would seem better, in an introductory study of Hellenistic architecture, to devote a little time to an analysis of some of the most interesting plan units, to concentrate on some important sites which afford comparative material by different kinds of treatment, and to conclude with a brief statement on the Hellenistic City State as a whole.[1]

The most important plan unit of Hellenistic times was the *Stoa*, sometimes called the *Portico* (fig. 48). This is a long rectangular unit, serving as a continuous double portico and backed by a wall. It sometimes had a projection at each end. In Hellenistic times, it served also as a portico for shops, which were entered from openings pierced in the back wall.

There is every reason to believe that the *colonnaded street* was Hellenistic in origin, though it is identified more with

[1] For a good brief treatment of Greek and Hellenistic public buildings, with plans, see A. Marquand's *Greek Architecture* (New York, the Macmillan Company, 1909), pp. 314–337.

sites which are of Roman date. These streets may have formed important plan units in association with shops, and they increased the architectural emphasis of gateways.

The *Agora* or Market was another Greek feature which was much extended in Hellenistic times (fig. 48). As it was not covered in except in its colonnaded surround, it could be of any size, and it was, in fact, usually the greatest single unit in a Hellenistic plan.[1] The second century B.C. saw the rapid rise of different sects and even different religions, so that a site like Delos had an agora specially devoted to Italians. In these later sites, the complexity of outlook in religion and the advance of the cults of Eastern divinities may have tended to a lessening in the relative importance of the agora as a plan unit.

The *Basilica* was a typical plan unit which was at least as early as the first century B.C., and as treated at Pompeii it was undoubtedly as much late Hellenistic as Roman (fig. 48). In essence, the basilica was really the peristyle temple turned outside in, but the Roman basilica was emphatically a structure which rose high up in its central section, or nave, to provide a clearstorey. Without more evidence than we possess at present this type of structure can hardly be called Hellenistic, though there were doubtless suggestions of it in some Greek temples, and in some exceptional Greek and Hellenistic buildings.[2] The treatment of the end at Pompeii, referred to in Chapter IV for its scenic qualities, raises the additional and even more important identification of the basilica with a memorable type of Christian church. This aspect will be mentioned briefly in the last chapter, but it is obviously

[1] Aphrodisias had an agora of great extent, 672 feet by 360 feet over-all, with a single cloister surrounding the enclosing wall outside, and a double cloister inside. (See *Antiquities of Ionia*, Part III, Chap. II, Pl. 4.)

[2] See Robertson, *op. cit.* pp. 180–182, for a discussion of the relative dates of the Hypostyle Hall at Delos and the earliest basilicas, and the plan resemblances.

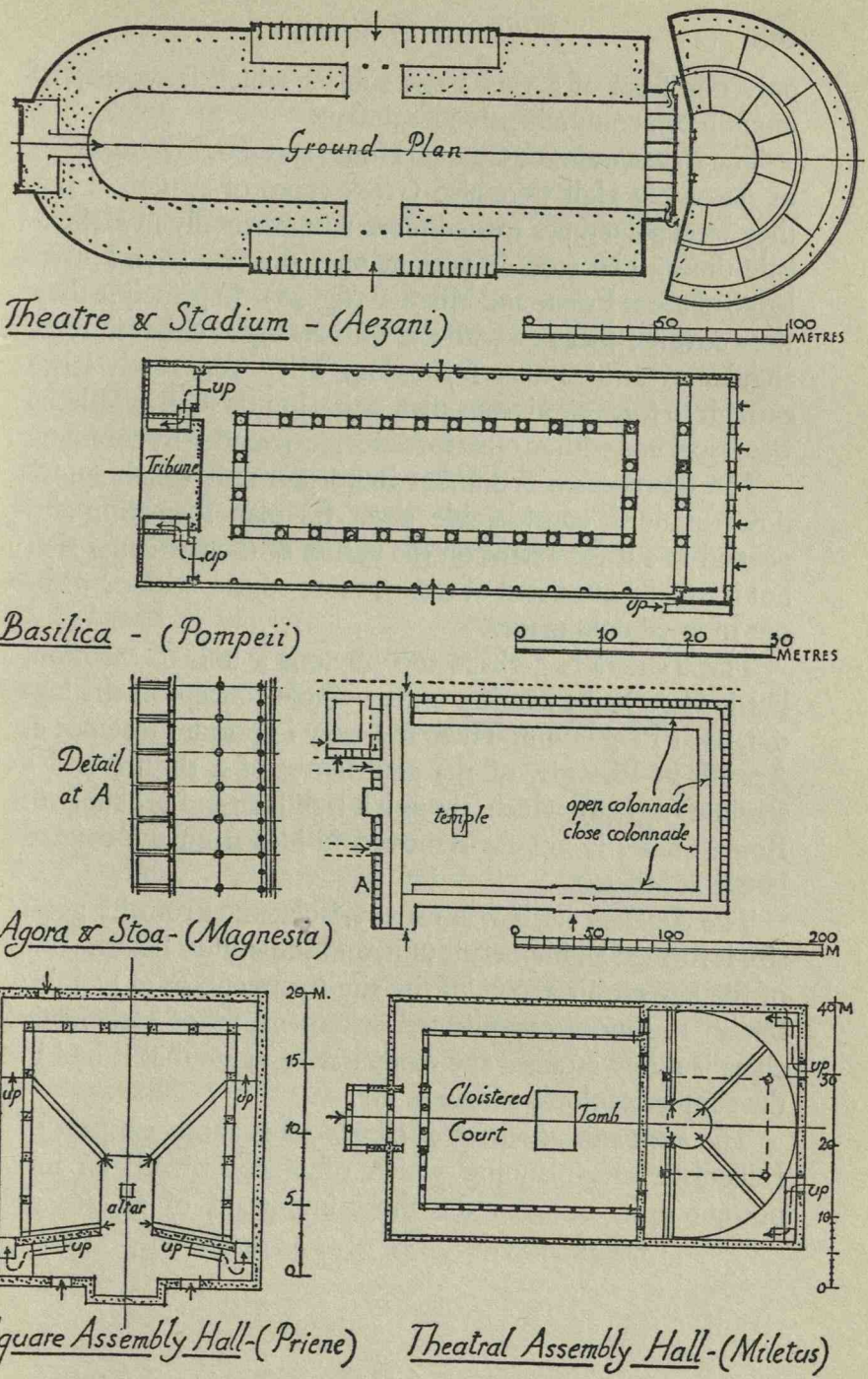


Fig. 48. Plan units.

only one facet of a very large subject which is worthy of much more comprehensive treatment.

The *Bouleuterion* or Council House and the *Ecclesiasterion* or Assembly Hall were also Greek types of structure, but they were sometimes treated more monumentally in Hellenistic times. The most important ones that we have knowledge of are at Priene and Miletus[1] (fig. 48). In principle they were covered theatres, with the seats arranged either in rectangular or semicircular formation. They were rarely large enough to form significant plan units, but the one at Miletus was associated with an open forecourt surrounded by columns.

The *Gymnasium* is another important unit which sometimes attained considerable size. Its plan formation depended to a great extent on the nature of the particular site, but it usually consisted of one or more courts, with or without internal colonnades.

The *Theatre* is perhaps too obvious a unit to mention, but it often had a bearing on the whole concept of the layout, as at Pergamum. There is a very important instance at Aezani, in Phrygia, of the association of a theatre and a stadium (fig. 48), which, though it is of late, and probably of Roman date, is not far removed in idea from the council house at Miletus.

The *Stadium* itself was usually isolated. From its great size it formed an important unit, and sometimes became one of the key requirements of the site treatment, as at Delphi; but in the more complicated arrangements of Hellenistic cities it rarely attained the comparative value that it had in the simpler outlook of Greek life.

The *monumental setting of the temple* is another aspect of Hellenistic city-planning which often constituted an important unit, or even the most important of all—as at

[1] Robertson, *op. cit.* figs. 78, 79, 80 and pp. 176–180.

Palmyra, in the peribolos of the Bel temple, and at Aezani. Here again, we are trenching on the Roman period in all probability, but it is the *early* Roman period, about the turn of B.C. and A.D. At Aezani, where the enclosure forms a raised platform, we are reminded of the settings of the great Roman thermae, which were sometimes similarly raised; but it would appear highly probable that the motive of the raised platform derived from the Hellenistic East, and in that sense may have been adopted from Mesopotamian usage (see Chapter II). The raising of a platform of these dimensions, obviously an immense labour, might have been almost a necessity in low-lying sites liable to floods. In the desert site of Palmyra, it is obvious that increased dignity would be obtained by raising the peribolos of the temple of Bel (fig. 4).

Exceptional structures often attained considerable size. Such a one is the *Hypostyle Hall* at Delos, dating from the end of the third century B.C. Over-all, this measured about 255 feet by 154 feet. It is an interesting rectangular building with concentric systems of columns.[1] Though the origin of this formation has been discussed at some length, I cannot see in it anything that need not be essentially Greek. In any civil building where usage demanded that the attention should be turned *inwards*, it was only common-sense to arrange the roofing supports in such a manner; and the Greeks seemed to be fond of buildings for assembly purposes.[2] The Hypostyle Hall at Delos was about the same date as the assembly hall at Priene and a little earlier than the council house at Miletus.

[1] The roofing has already been discussed (see above, Chapter VI).

[2] The most remarkable one, which must have been the work of a very ingenious mind, was the Thersilion at Megalopolis (built *c.* 370 B.C.), which had a unique arrangement of pillars in radial lines. See Robertson, *op. cit.* fig. 77 and pp. 174–176. A clearer plan is in *J.H.S. Supplementary Papers*, Pl. XXI.

Libraries can also be considered as exceptional buildings, as there was great variation in the treatment of plan in the two principal examples we are aware of. The one at Ephesus was a small monumentally-arranged complex. The one at Pergamum, of more open formation, had a cloistered and partly enclosed forecourt. The principle of the enclosed court, surrounded by a single or double cloistered walk and usually with a gallery above, demanding a double-tiered order treatment, was a marked characteristic of the plan formations of Hellenistic buildings.

West of the Euphrates, there are six sites that can be called Hellenistic which are outstandingly impressive. These are, in Greece, CORINTH and DELOS; in Asia Minor, PRIENE and PERGAMUM; in Transjordan, JERASH; and in Syria, BAALBEK. It may be thought remarkable that Palmyra is not included, but Palmyra is still difficult to realise as a whole, amazing though it is in many aspects of planning and lay-out. It is true, however, that all of the six, from the nature of their landscape settings, involved problems from which the desert centre of Palmyra was immune.

CORINTH

We may begin with Corinth, because it is probably the oldest in its foundation and because a considerable architectural relic if not of its earliest, at any rate of its archaic Greek period, exists in the temple of Apollo. The situation of ancient Corinth is superb. Placed well above the Gulf, from which it is about 1¾ miles in a direct line, it has, as background, the more rapidly rising slopes which culminate abruptly in the Acro-Corinthos, one of the most remarkable low summits in the Mediterranean. The Hellenistic site en-

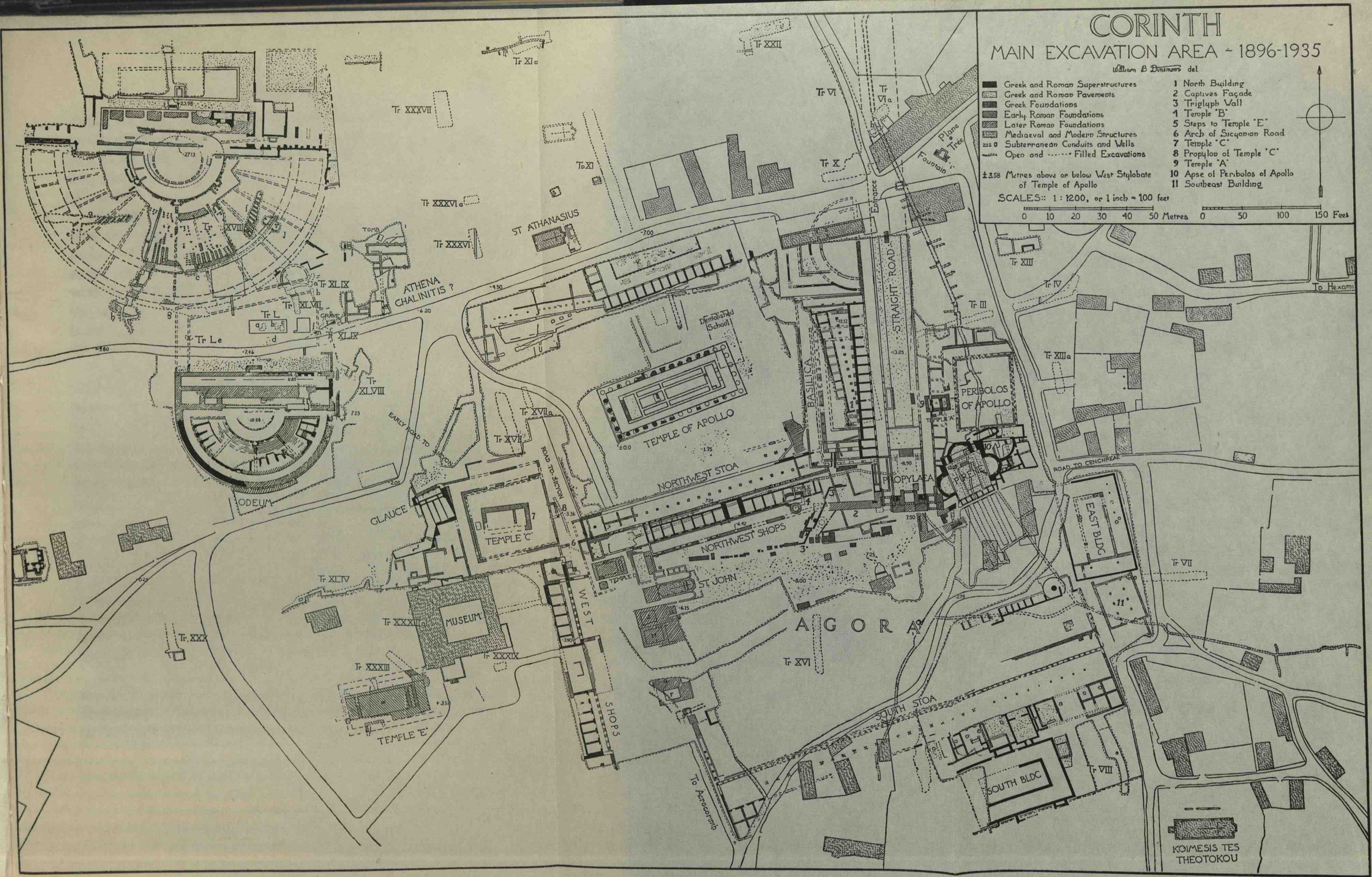


Fig. 49. Corinth. Plan of Main Excavation Area: 1896–1935, excluding a portion on the north.

(By permission of the American School of Classical Studies at Athens.)

closes, on east, west and south, the natural elevation on the seaward (north) side, on which is the temple of Apollo (fig. 49). The temple itself was thus the main monument of the site, and in its simple grandeur it was well able to fulfil this character.

Though we are not able to envisage the archaic town, it is clear that there were buildings of the fourth century B.C. and earlier where the remains of the Hellenistic and Roman town now are, the most important being those associated with the Sacred Spring, a short distance to the south-east of the temple of Apollo. There must have been contemporary streets associated with this system, more or less on the lines of the later ones.

In the absence of a contour plan it is not easy to understand the lie of the ground, which is exceptionally interesting. Some rough idea may be formed by a description of three cross-cuts from north to south. If the first were taken through the great theatre and the odéon above this, it would show steeply-sloping ground for the most part, necessitating deep cutting for these important works. Further south we begin to ascend towards the Acro-Corinthos, and it will be seen that the high ground at temple E is $3\frac{1}{2}$ metres above the Apollo temple. A second cross-cut through the Apollo temple will show the nearest buildings both to the north and the south to be some 7 metres below, though the ground rises slightly further south, as the south stoa is only about $3\frac{1}{2}$ metres below. Lastly, a cross-cut on the main axis of the great north-to-south road to the east of the temple is at the still lower level of $13\frac{1}{4}$ metres below.

These explanations will serve to show the importance of the little acropolis on which the Apollo temple is placed. Hellenistic Corinth, in fact, accepted an ancient monument as its focal point and built itself round it. The whole site in

Roman times was roughly ¼ mile each way, though it was longer from east to west than from north to south.

The most remarkable features of the town proper are the Peirene spring and the great south stoa. The spring is one of the most vividly impressive ancient waterworks in existence. Supplied from an inexhaustible source higher up in the mountain, it is collected into four parallel elongated reservoirs, which in turn discharge into six sluices. There is the constant sound of running water as of several thousand gallons at work. The whole system was amplified in later Roman times by the building of a great triapsal chamber, but the large rectangular basin it encloses was a remodelled Greek construction.

The south stoa is much the larger of two features of the kind on the Corinth site. It has the amazing length of nearly 550 feet, as shown on the plan, but recent excavations have revealed that its double portico—the front columns Doric, the rear columns Ionic—gave on to a row of thirty-three shops, each with a rear chamber, so that there were sixty-six chambers in all. The water arrangements in these shops are extremely interesting. Each front shop had a square well-pit about 36 feet deep, at the back of which was a continuous longitudinal water channel, supplied from the Peirene spring, with cross-connections to each well-pit. As this is a unique arrangement and as it was not usual for Greek buildings to be supplied with drinking water in this way, the theory is that the well-pits were used for cold storage. It is probable that the rear chambers were store-rooms for the shops. The whole arrangement possibly dates from the fourth century B.C., certainly from the third century, and it was not greatly altered in Roman times.

Most of the buildings now showing on the plan in this busy south-east region of the site are Roman, at any rate in

their present form. To this late period belong the propylaea and the "peribolos of Apollo", which was a courtyard with a surrounding colonnaded walk of the Ionic order; but the marble basilica replaced an earlier and smaller one of Poros stone, of the first century B.C.[1]

DELOS

The size and situation of Delos make it one of the most remarkable sites in the Mediterranean. Only the sanctity attaching to a spot specially favoured by one of the greatest of the gods could have made possible the establishment of such an important centre in an island which is about 3 miles long and about ¾ mile across at its widest point. There are Greek or Hellenistic remains in almost the entire length of the island, which runs north and south and is beautifully situated in the Aegean Sea. Small as it is, the island has tremendous character, and its arresting summit—Mount Cynthos—strikes the eye at once as something fine and unusual.

The Greek centre, or Hieron site, lay close to the seashore on the western side of the island, here separated by a narrow strait from the island of Great Delos (Pl. XXIV *a*). The island of Tenos rises on the north-west, some miles away. Rather nearer—on the east side, but invisible except from Mount Cynthos—is the island of Mykonos, the usual point of approach.

The whole of the central part of the site (containing the temple of Apollo, the Sacred Way guarded by marble lions of the archaic period, the Hypostyle Hall, the Sanctuary of the Bulls, the Portico of Antigonus Gonatas, and the Portico

[1] For the full publication, still proceeding under the direction of the American School of Classical Studies at Athens, see *Corinth*, Vols. I-IX (Harvard Press, Camb., Mass.). I acknowledge gratefully the Director's permission to use the latest plan, supplementing that in *Corinth*, Vol. I. (See above, *List of Illustrations*, p. xxvii, n. 1.)

of Philip) lies on ground which is nearly level. Further north, on slightly rising ground, is a small but select residential quarter, the palaestra and the Poseidoniastes. Considerably further to the north-east, and hidden by intervening ground, are the stadium and a closely planned residential area of what were apparently middle-class houses.

There are three other important plan areas, which are all south of the Hieron site. (1) The shops and quays of the merchants form an imposing array close to the shore. (2) The first piece of rising ground, in the direction of Mount Cynthos, hides the Kabeirion, in a small valley between this ground and the next rise. The theatre, well to the south, is rather out of sight. The main residential quarter of Delos, containing most of the best houses, occupies a commanding position on this rising ground. (3) On a topmost terrace above the residential quarter are the shrines of the Eastern divinities. A paved and stepped street leads up to the houses and to the terrace and forms a conspicuous landmark (Pl. XXIV*b*).

It will be seen from the above description, and from a glance at the French map, that the site of Delos is of heterogeneous character. One would imagine that there would be nothing that was arresting at a glance, but this is not actually the case. The long horizontal lines of the more important buildings on the lower site—particularly in the Sanctuary of the Bulls and the Portico of Philip—work in with the shape of the island and with the whole landscape setting in quite a remarkable way; and the uneven ground to the north, between them and the coast, is reduced to order by the vertical lines of the columns of the palaestra. The view backwards and upwards towards Mount Cynthos is just as striking. Far away on its high terrace, the temple of Isis is the dominating feature; and the many standing columns of the residential

quarter below give a vivid impression of the most important Hellenistic thing of its kind in existence. It is all a Doric impression, as Delos was pre-eminently the home of Hellenistic Doric.

It is unfortunate that there is no complete plan of the site, or even of its central portion, yet available. The French are publishing the material in sections, though they are doing it thoroughly. The general map of the island and its remains is admirable, but it was prepared many years ago and is necessarily very incomplete. Delos was never a monumental site. There was hardly width enough for that kind of treatment, and it is clear that a great deal of it was built-on in a hurry during the latest period, that of the Athenian domination in the last fifty years of the second century B.C.; but it is, nevertheless, one of the most illuminating of Hellenistic sites.

PRIENE

Priene, superbly placed and looking south over the wide plain of the Maeander, is much more compact than Delos. It was, in fact, a carefully laid-out small city of about 4000 inhabitants, arranged on one steep hill-slope (fig. 50). Because of that there is less in it that appeals at once to the eye, except the platform of the Athena temple; unless, perhaps, one gets right away from it and views it as a whole from below (south) or from the opposing hill-slope (west). Nearly all of the evidences belong to the latter part of the fourth and the duration of the third centuries B.C.

As Prof. Patrick Abercrombie has pointed out in his little book on *Town and Country Planning* in the Home University Library, the real triumph of Priene is the masterly way that the hill-slope has been managed. In some respects, particularly for older people, it must have been a trying place to

live in. The inevitable treatment of the slope by a series of terraced complexes must have raised difficulties in getting from one to the other.

Prof. Abercrombie advances a damaging criticism. He says: "nothing could be more futile than the application of Hippodomian rectangular principles to this site." It will be

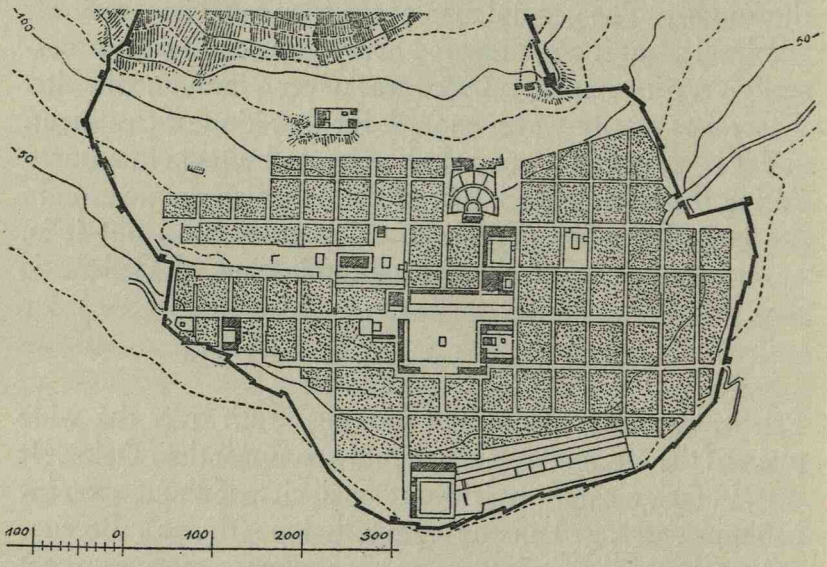


Fig. 50. Priene. Block-plan of lower part of town. (From A. von Gerkan, *Griechische Städteanlagen*, Walter de Gruyter and Co., Berlin and Leipzig, 1924.)

seen at once that, as a town-planner, he has observed that only to a very small extent does the lay-out conform to the contour lines. On the other hand, as the general slope is steep, and as there is only one really steep slope, which forms a blunt salient, it should be realised that some kind of terraced system was inevitable; and the creation of a long east-to-west line, cutting slightly across the contours and

having an upward gradient gradually getting more level in the approach to the Athena temple from the east gate, is very impressive.

The main part of the site is, broadly, in three grades. The topmost one contains the Athena temple and the theatre, though the latter is tucked away behind a depression, so that it is the temple which dominates. Its great bastion is particularly apparent from the platform itself and from the lower ground to the west (Pl. XXIII *a*).[1] The next grade below is the centre of the town, containing the broadest east-to-west street, from the middle of which the spacious agora opens out. This is a masterly arrangement, as the agora was of great size and gives just the breathing space that is wanted. The next grade contains the gymnasium and the stadium, which are at a considerably lower level, not far removed from the south boundary walling of the town.

The main street, where it passes the agora, was skilfully placed near the middle of an easier gradient in the slope. This enabled the central complex to include a stoa and an assembly-hall, ascended by long flights of steps to the north of the agora. The residential buildings were disposed all round the public quarters, the only large cleared space, except that at the agora, being the precinct of the Athena temple.

Priene is no less impressive for its individual public buildings than for its general lay-out. The Ecclesiasterion, or assembly-hall, has been so fully described and illustrated by Prof. Robertson[2] that I need not discuss it here, but I have said something about its roofing when dealing with technique. The theatre is the most perfect and most beautifully-detailed early Hellenistic one in existence. It is

[1] The man standing on the left side in the Plate was placed at the south-west corner of the stylobate of the temple.

[2] But see above, fig. 48.

small but amazingly vital. It enables us to imagine, without effort, what the Greek theatre meant (Pl. XXII *a*). For other details, Wiegand and Schrader's book can be referred to, noting especially the finely-conceived marble lavatory basins in the gymnasium. The external walling of Priene shows splendid masonry which is worth careful study, particularly at the big retaining walls on the south, with their evidences of gates.[1]

PERGAMUM

Pergamum was a fortress site, placed on a high isolated hill which had a crowning eminence forming a plateau more or less level, but with steep declivities all round. The city was built by Attalus I, the second king of the Pergamene Dynasty, and his son Eumenes II, between 241 and 159 B.C. The reigns of these two monarchs, constituting respectively the first and second Pergamene "periods", are most important for the understanding of Hellenistic sculpture. They are no less important for its architecture.

It is nevertheless as well to consider the site treatment of Pergamum as a whole (Pl. XXVII). There is every indication that it was, on broad lines, the work of a single mind of powerful capacity. Here was no adoption of Hippodamian methods. The designer recognised the essential principle that in the ascent of an isolated hill, on which the ground falls away both on the right hand and on the left, all sense of direction is lost. The main approach road to the upper

[1] See the excellent book by M. Schede (Chap. I, p. 4, n. 1, above). It contains several new photographs (including two of the model of the town in the Pergamon Museum, Berlin) and a detailed map. Figs. 50 and 51 in this book, from *Antiquities of Ionia*, Part IV, show how much more of the Athena temple was standing in 1868.

citadel, forming a double zigzag commencing on the lower south slopes, is still intact. It led first to the main buildings of the lower citadel—the gymnasium, the Demeter precinct, and the lower palace. The gymnasium complex now consists of an impressive group of terraces rising in three stages: the first, with an irregular front to suit the hill contours, being for children, the next for youths, and the last for men.

The chariot road then rises gradually on the east side of the hill to reach the upper citadel, but this can alternatively be reached by a steeper and more dramatic footway which cuts through what was the residential quarter, not yet excavated. This route discloses the most masterly part of the Pergamene lay-out, the treatment of the west hill-slope. The main features of this were the long dominating horizontal line of the terrace leading to the Dionysus temple, and the theatre associated with the terrace, forming a link with the main area of the upper citadel (containing, in order of level, the market, the Zeus altar, the library, and the Athena temple precinct) and the topmost buildings of all, the magazines for the storage of grain and munitions and (possibly) the Queen's garden. The Trajaneum, of Roman date, was added to the lower complex.

These upper buildings constituted the kernel of the site. There was, almost certainly, a palace associated with them, but part of the topmost area is still undergoing investigation. Its magazines were excavated by Wiegand and others about five years ago, together with the palace of the lower city.

The Library of Pergamum was celebrated in antiquity, being only second in importance to the one at Alexandria. As seen to-day, it shows a terrace backed by finely built stone alcoves. Its courtyard contained an open two-storeyed arrangement of superimposed orders with balustrades.

The impingeing of the front of the theatre on the terrace leading to the Dionysus temple (Pl. XXVII *a*) was probably a unique arrangement, necessitated by the inaccessible slopes below the terrace which governed its position. It should be noted that the posts of the theatre-scena construction could be let into square sinkings of stone, which were covered with square stone slabs when the theatre was not in use.[1]

Priene and Pergamum are the most completely surviving Hellenistic sites which are known to us at present. There were Roman elements that were incorporated or added at Pergamum, but it is in the main a Hellenistic creation as we see it to-day. It is very interesting to see the advance in ideas which occurred between about 300 to 200 B.C.—the date of Priene—and about 170 B.C., which might represent the date of the Zeus altar at Pergamum. It is impossible to compare two sites which are so radically different in their natural features, but we seem to see in Priene a clinging to the older Greek tradition, and in Pergamum the creation of a real planner. Both in its general arrangement and in the detailed treatment of its buildings, Pergamum is the most valuable site of the period which is Hellenistic in the full meaning of that term.

JERASH

In the two Syrian sites I am about to consider, we are dealing with the Roman period of that region. I have called this Hellenistic, because it is so in essence, but it must be admitted that what we very badly want to find in Syria, and have not found so far, is a complete town which belongs to a period between 300 B.C. and 100 B.C. and certainly not later than the beginning of the first century B.C. It is just

[1] See a photograph by the author published in *Journal R.I.B.A.* for Jan. 26th, 1935, p. 369.

possible that continued excavation at Antioch may give us results from which to form definite conclusions about this important period, which will supplement what we know already about the more exceptional site of Pergamum. It is not so much detail as concept of lay-out and arrangement of plan forms that we want to be clear about. In these matters, did Rome influence Hellenism to any material extent in her comparatively far-eastern provinces? It must be admitted at once that there is something about Jerash and Palmyra which is quite different from Priene. But Priene is too early for proper comparison. It shows fine Hellenism of a kind that is more Greek than Hellenistic. It is the critical intervening period mentioned above that is important for our purpose. Delos is hardly sufficient: it was too near Athens and was a remodelling of a more ancient site.

The situation of Jerash, on one side of a remote but beautiful valley in Transjordan, is romantic in the extreme. Its main longitudinal artery, a colonnaded street running north and south and nearly level in the main, forms a traverse along the higher ground of the valley (fig. 51 and Plates XIV, XV and XXVIII *b*). This street is exceedingly well preserved in its groundworks and is fortunate in possessing a section of the colonnade at the south end, where a downward slope of the roadway has produced the unique stepped arrangement in the entablatures referred to in Chapter IV, I. There are important arched gateways, still largely intact, at the two ends of the road, the one at the south end being associated with an oval "forum" surrounded by a colonnade. On the higher ground to the west of the street were a theatre and other important buildings, culminating in the fine temple of Artemis. The stepped approaches to this part of the site gave an opportunity—fully taken advantage of—for entrance treatments of great dignity. Lining the street on

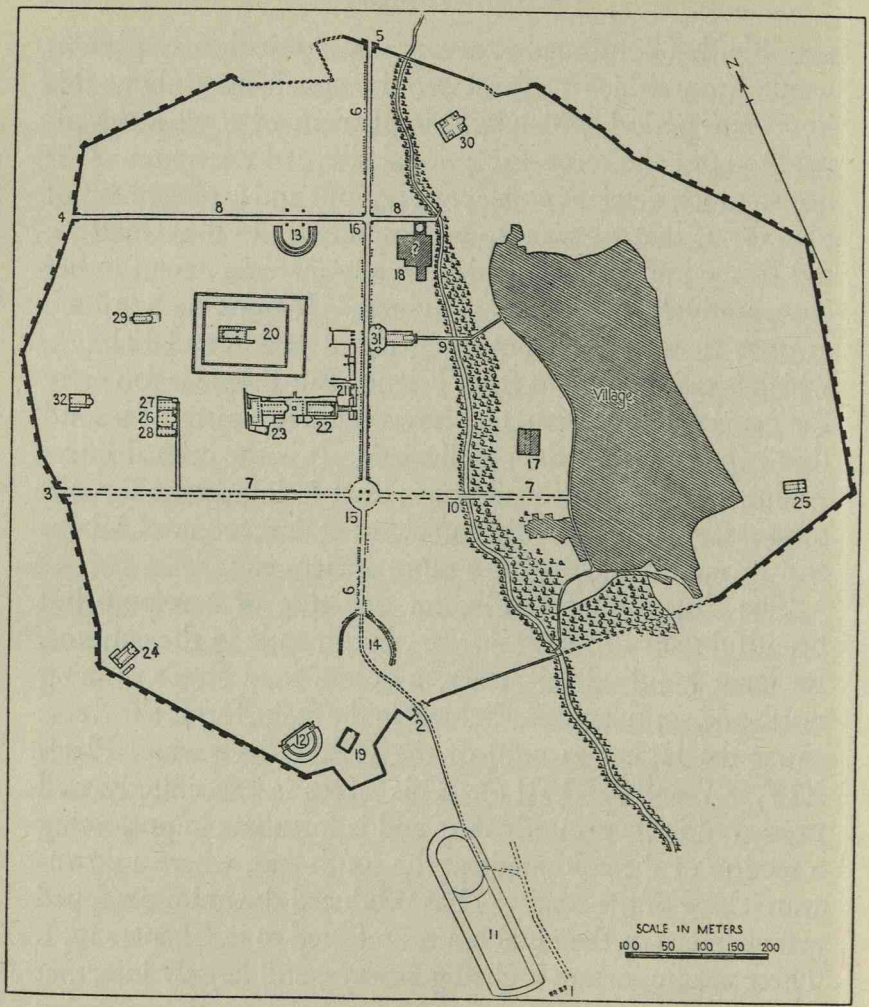


Fig. 51. Plan of Jerash. GATES: 1. Arch, 2. Philadelphia, 3. Pella, 4. Gadara, 5. Damascus. STREETS, ETC.: 6. Antonine, 7. Pella, 8. Gadara, 14. Forum, 15. South Tetrapylon, 16. North Tetrapylon, 9. Artemis Bridge, 10. Pella Bridge. THEATRES: 11. Hippodrome, 12. South, 13. North. CIVIC BUILDINGS: 17. East Bath, 18. West Bath, 21. Nymphaeum. TEMPLES: 19. Zeus, 20. Artemis. CHURCHES: 22. Cathedral, 23. St Theodore, 24. St Peter and St Paul, 25. Bishop Paul, 26. St John the Baptist, 27. Damianos, 28. St George, 29. Church over Synagogue, 30. Prophets, Apostles, and Martyrs, 31. Propylaea, 32. Genesius.

[From M. I. Rostovtseff, *Caravan Cities* (Oxford, 1932).]

the west side was a row of shops. A portion of the front, with doors and windows, is still largely intact. There were doubtless shops on the other side of the street, but nothing exists except groundworks and the hill beyond slopes very steeply to the wooded river-bed below.

Though Jerash, as we see it to-day, belongs to the first three centuries A.D., and, like many eastern sites, had a flourishing Byzantine period, it was probably founded by one of the later Seleucid kings, before the middle of the second century B.C.[1]

BAALBEK

For the study of Hellenistic city-planning, I would have selected Herculaneum instead of Baalbek, but the fully-developed plan of Herculaneum has not yet been given to the world, and its material must therefore be dealt with for its individual domestic character as such. Baalbek, as we see it to-day, is hardly comparable with the other sites that have been dealt with. It is almost entirely a citadel site, and as there are no evidences available of the residential areas that may have been associated with it, it must be considered for its monumental qualities alone. Nevertheless, no study of later Hellenistic or Graeco-Roman developments in Syria could afford to neglect Baalbek. It is the finest classical achievement in axial planning that we are aware of.

The arrangement may have been borrowed from the gorgeous ritual ceremonies of oriental religions. It is indeed monumental in the highest degree. The great court over the external walls is, roughly, a square of about 400-feet side, and the temple of Jupiter, at the end of it, measures 170 feet by 302 feet on the stylobate, with columns 65 feet high. These great over-all measurements are accompanied by a use of masonry that is always exceptional in the size of

[1] M. I. Rostovtseff, *Caravan Cities*, p. 63.

the blocks used, and in the enclosing walls may be called cyclopean. Several of the blocks of the retaining wall on the west side are over 60 feet long. There are also some immense lintel blocks in the courtyards. In the temple, the base-blocks of the columns were 10 feet square and 7 feet high. This included both the square plinth and the circular moulded base.

The impression conveyed by the bird's-eye restored view in the drawing taken from the German book (Pl. XXVI) must be thought of in conjunction with the underlying plan forms, particularly those of the hemicycles in the great court with their semi-domes, which we might well consider as purely Roman in intention. Nevertheless, it should not be forgotten that the finished result was, in appearance, a trabeated one. The presence of arched entablatures over the main axial openings could have had no material bearing on the general effect.

On the main axis of the great court, and right in front of the temple stepway, Theodosius erected a church in the fourth century. Though the ruins of this church, which have just been removed by the French Antiquities Service, covered a larger area than the original first-century structure which lay below them, that structure was of impressive size, and may have had some height as well. It may have been some kind of altar. At any rate it was part of the monumental lay-out, as its base-stones are beautifully constructed. Here we see the survival of a usage which goes back to early Greek times. The large paved spaces in front of the temples at Aegina and Paestum still survive. In both there are altar platforms. This usage has significance in its bearing on the setting-out of temples.

The great temple at Baalbek had what I have called a platform-stylobate, running out at the front into podiums which enclosed the stepways of the approach. The side walls

of the platform go sheer down to the level of the great court, which is some distance below (Pl. X *a*).

Near the south-east corner of the great court there was a descending incline with a vaulted roof, passing under the substructures of the outer part of the plan, and forming the entrance for chariots, a piece of fine engineering on a big scale. The most exceptional feature of the plan is the hexagon-court, an unusual form, which, in this case, may have been dictated by convenience, though Mr A. W. Lawrence suggests Semitic influence. There is only a slight difference of level between this court and the great court, but as the propylaea had flights of many steps leading up to it, it will be seen that the elevation of the temple was considerable. Even at the outside walls of the hexagon-court the drop to the ground below is 30 feet or more.

GENERAL CONCEPTION OF THE HELLENISTIC CITY

As a civic conception, the City State of the third and second centuries B.C. may have been more in line with our own views of what a city ought to be than anything of the same kind either in the earlier Greece or in the Roman Empire. Herein lies the value of the remark quoted at the beginning of this book that "so far as modern civilisation is based on Greek it is primarily on Hellenism that it is based". The Hellenistic empires went down before the superior force of Rome, but in the realm of architecture the vanquished "led the proud Roman conqueror captive". We can see the truth of this in what is left of the architecture of Pergamum and of Hellenistic Ephesus, and we can feel it in Alexandria. These three centres were pre-eminent.

The successor of Hellenistic Alexandria was Byzantium, to some extent, but to an even greater extent Early Christian

Alexandria. We find the Library at Pergamum an important integral part of that city: the equally great Library of the Ptolemies was the repository of a wealth of stored-up learning up to the time of its destruction in the latter part of the third century.[1]

We must place Ephesus beside Pergamum and Alexandria. It may have been greater than Pergamum, and though it is not quite so absorbing to-day, it still has a wonderful atmosphere—a sense of dramatic position. At Miletus we have the sense of a vaster and more open town, but one where the earlier Greek and the later Graeco-Roman elements preponderated to a greater extent. Yet Miletus also must have been a great Hellenistic centre.

It is important that we should appreciate clearly the relative force of two powerful factors that profoundly affected the architecture of Hellenistic cities, and which were present, in greater or less degree, in all of them. One of these forces was the Greek mentality, the spirit of clarity and orderliness which underlay all Greek expression in art and life and literature; the other was the more unsettling element—and one of vast range—of the cults of Eastern religions that were being absorbed by the Greek world from the end of the fourth century B.C. onwards. At Priene we see no visible reflection of this latter force, and even at Pergamum very little. At Corinth, Ephesus and Miletus it may have been present, but we can hardly feel it now. At Delos we can realise even to-day that it was present very strongly. Alexandria certainly had its own version of it.

The Roman view of life was less contemplative and more purposeful than the Hellenistic one. Rome's energies, outside

[1] By Aurelian, in 272. This may have been a partial destruction only, and the Library probably functioned after that date, though a great deal of it must have been destroyed irreparably. For this statement I am indebted to Mr Tarn.

of war, were more absorbed by law and political science. Hence we have the forum as an institution which was peculiarly Roman. In some respects the national qualities mentioned may have induced a simpler view of life; but in the West, at any rate, the tendencies in civic architecture were to more grandiose conceptions of the lay-out of public and private buildings. But though, from the end of the first century B.C., in the civilisation that Mr Tarn has called Graeco-Roman, we find that these conceptions emerge, Hellenism, imbued with oriental ideas, is still strongly perceptible at such centres as Jerash, Palmyra and Baalbek. In the towns of Roman Africa we seem to perceive a different note. In Roman Italy, Hellenism practically disappeared with the empire, except in the clothing of architectural form, the persistent survival of which will be traced briefly in the concluding chapter.

Fig. 52. Delos from the east.

CHAPTER IX

AFTERMATH OF HELLENISM

The survival or incorporation of Hellenistic architecture in Graeco-Roman architecture was mentioned in the first chapter of this book. It is well known that the use of the Orders went on till the fourth century A.D., and that before this period the treatments they implied formed the clothing of constructions that were based on advanced knowledge of the vault and the dome. It is also well known that the architects of the Italian Renaissance, in the fifteenth century, picked up the threads again, and that the classic spirit has survived alike in secular and ecclesiastical architecture in greater or less degree ever since.

To trace the survivals of actual Hellenism in Christian architecture between the fourth century and the Renaissance is a more difficult and elusive task; yet no study of Hellenistic architecture would be complete without some attempt to investigate these survivals. Taking the broadest possible ground, the survey would not be limited to those particular regional or stylistic phases that most obviously owed a direct debt to classical traditional forms, though these must be examined as well. The humanistic spirit in art and architecture was pervaded by a spirit of calmness and serenity of a nature more permanent than the comparative lifelessness of some of its later forms, in times that can still be called classical, seemed to warrant. In some of the finest Romanesque and Early Gothic sculpture and painting, for example, we seem to perceive breathings of the true greatness of Hellenism. The plastic and graphic arts, being less depen-

dent on abstract form, provided a continuous chain in this finer essence which is not so evident in architectural developments.

EARLY CHRISTIAN ART AND ARCHITECTURE

The Basilica. In the fifth century, and still more emphatically in the sixth century, we can see that a new spirit was abroad, not altogether independent of classical form—which was sometimes present—but capable of producing a new interpretation, not only in detail but in entire handling. It is notable that this interpretation was not, in some of its forms, foreign to the purest principles of trabeated construction. The earliest Christian basilicas in Rome did not use the arch as a prime form. Yet these buildings were quite different from the Roman temple or secular hall. Hellenism survived in the columns, which carried the great fields of wall, finished in paint or mosaic, up to clerestory level; but in almost nothing else, though the shrine will be mentioned later. It is also notable that, in the pure basilican form, the presence of arches was not inimical to the classical element, but rather the reverse. The arch in fact, as at Monreale, carried the eye up and thus helped to suggest the tiered colonnades of the Greek temple interior.

A new spirit in wall decoration, and the rejection of all classical trappings such as pilasters and niches which tended to interfere with it, lay at the very heart of the interpretation of form in the Early Christian basilica. The content of Christian decorative expression—partly narrative and partly symbolical—swept away the architectonic mannerisms of the later classical age, its conventionally decorated pilasters, its purely formal panel schemes, which we see at Pompeii and Antioch. There was an element of background which

must have hailed from the Orient. Yet, here again, we approach the spirit of the earlier Greece, not in outlook, but in breadth of handling. The panoply of apostles and martyrs brought in a new conception of the relation of God to man; but this is nearer to the solemn majesty of the Olympia pediments than to anything in Hellenistic art.

The Baptistery. Side by side with this stern basilican interpretation was another which was definitely classical. The octagonal baptistery of St John Lateran in Rome has an interior trabeated treatment with a two-storeyed order. Constantine is credited with the foundation of this building, but its earliest remaining visible elements are more probably of the fifth century. Reference has already been made to the highly interesting column-bases of the original entrance (Pl. XXI *b*), but the whole of the treatment is in the direct classical tradition. This is a remarkable building, of a type that is all too rare, but there is little doubt that it was not an isolated example.

Syria. The Early Christian architecture of Syria was mostly in a different category altogether from that of the Roman basilicas. It was not a trabeated expression but an arcuated one which was indigenous, and more expressive of Syria as a whole than a basilica such as the Church of the Nativity at Bethlehem—noble as this is—with its purely classic Corinthian columns. The greater churches, such as Qualb Louzeh and Kala'ât Sim'ân, were basilican, but of a different character from the Roman type. The ornamental details of these churches, which belonged to the fifth and sixth centuries, or more rarely to the fourth, are a remarkable mixture of elements which we may confidently call Eastern and of other elements which were certainly in the classical

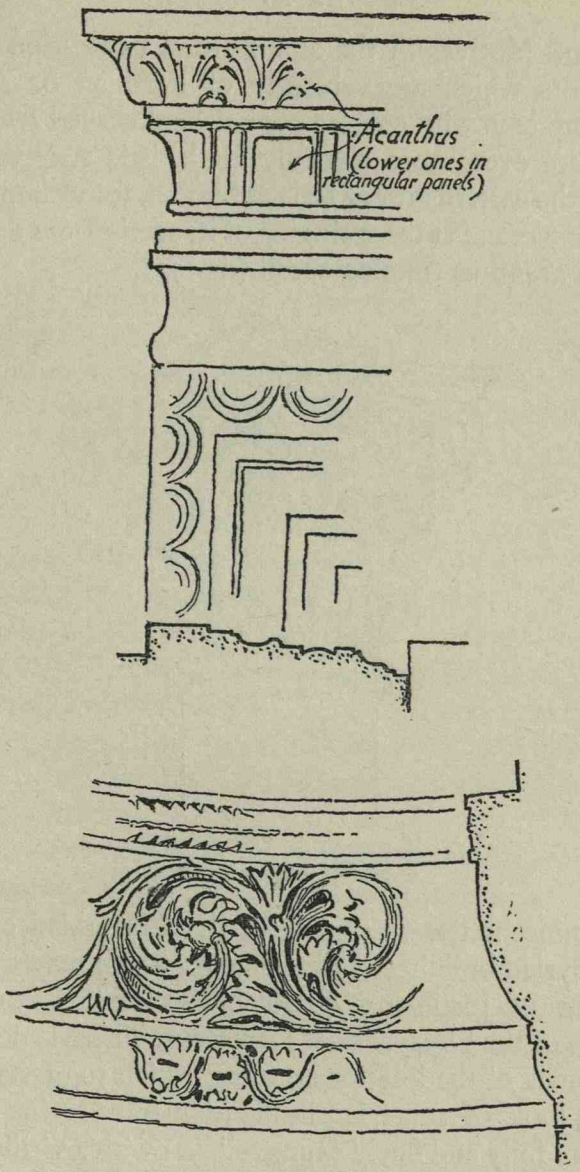


Fig. 53. Kala'ât Sim'ân. Above: Details of main doors in south arm. Below: Springing mould of apse in east arm.

tradition. Motives in the architectural expression of arch treatments which are evidently of Parthian or Assyrian origin are seen with column capitals and carved wall-bands which are even more certainly Hellenistic survivals. The apse of the eastern arm of Kala'ât Sim'ân, for example, has a continuous band at the springing of its semi-dome, decorated with an acanthus running scroll (fig. 53).

Fig. 54. Mosque of the Omayades, Damascus. Capital of interior arcading.

Magnificent use was made of the Corinthian capital in many Syrian buildings with elements which may date from the time of Justinian. A notable example is the Great Mosque of the Omayades at Damascus. There is nothing in the capitals of the interior arcading which suggests the immature look of some Corinthianesque-Byzantine capitals. They are fully and finely expressed, yet with a virility which is all their own, and which renders them superior, as supporting members, to the best Roman forms (fig. 54). We

are reminded by this that Syria was a remarkable centre of development for the Corinthian capital, as mentioned already in relation to Palmyra.

The Shrine. The relation of the shrine of the Romano-Hellenistic temple (seen most conspicuously in the temple of Bacchus at Baalbek) to the sanctuary of the Early Christian church, is a deeply interesting line of enquiry which has not yet been fully explored. Undoubtedly further discoveries that may be made of the earliest Christian churches, like that at Doura-Europos already referred to, would assist enquiry materially, but, in the meantime, it may be said that a very real relation appears to exist. That the classical building tended to exploit a set end-piece of scenic character we have seen already. This was obviously meant to be impressive—the climax of the whole interior—but it may well have been intended to emphasise the celebration of certain mysteries.

Even more important is the analogy between Christian usage and the ends of certain tomb-chambers of the Romano-Hellenistic Age. The recess for the principal sarcophagus, with its partial fencing-off and architectural emphasis, suggests the Christian apse and the screening-off of the sanctuary; a process which can be seen in very early Mediterranean usage, as at Knossos.[1] These smaller pre-Christian examples really offer a more direct parallel, as the beginnings of the church plan were doubtless to small scale, hardly observable as different from orientalised-classical tombs except for the importance given to the altar; and this again had a parallel in Jewish ritual.

[1] See Sir Arthur Evans, *op. cit.* Vol. II, Part II, p. 393 (for "House of the Chancel Screen") and p. 406 (for "Royal Villa"). See also fig. 41, Chapter VII, above.

LATER ROMANESQUE

The Roman constructive expression produced the great vaulted halls, basilicas and domed rotundas which may have had some influence on the Byzantine style; but the architectural trappings of these buildings were derived from Hellenistic forms which began to embody a particular type in association with the arch. We may call this Graeco-Roman with truth, and it ultimately found itself again in Renaissance architectural expression, both for civil and religious buildings. But the Roman temple did not become the Renaissance church, which was a development from the vaulted basilica. The temple, even as late as the second century A.D., was, as we have seen, primarily based on trabeated forms. As we have also seen, its development is clearly traceable from the sixth century B.C.

It is important to recognise these facts, as it enables us to understand the essential Hellenism of most Romanesque basilicas of the eleventh and twelfth centuries in Italy. These buildings were not only nearer to the Hellenistic Age in date, they were—paradoxical as it may seem—nearer to it in spirit than the churches of the Renaissance. Monreale has been mentioned specially, but it is only one example which is illustrative of a great principle. The inside of any Romanesque basilican church in central and southern Europe which has retained its original elements, including the floor, is a powerful reminder of the Greek temple (Pl. XXIX *a*). In Renaissance ecclesiastical buildings, almost without exception, we lose this idea altogether. The civilisation which became Graeco-Roman produced a revival of architectural form which was wholly classical, but was not always in the direct tradition of the earlier and purer Hellenism. It is

worth stressing this point if we are to realise that the spirit is more important than the letter.

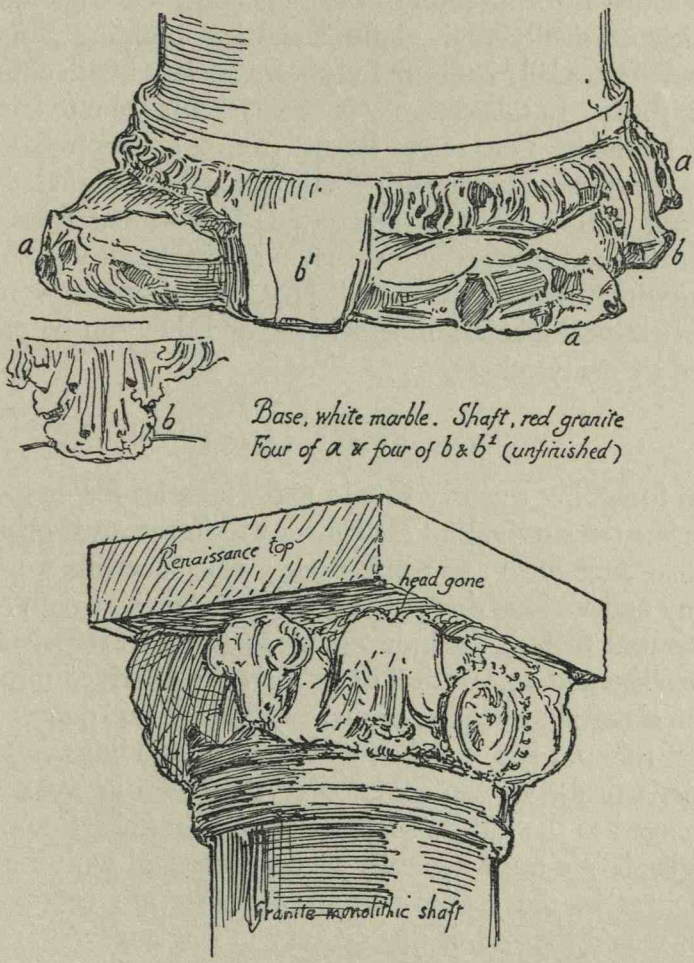


Fig. 55. Above: Base from Sta Maria in Trastevere, Rome. Below: Capital from the Cathedral at Taranto.

In the later Romanesque architecture of Europe—work of the eleventh and twelfth centuries—we have constant

reminders of the survival of classical elements. It is true that when these elements are most pronounced, they are due to the actual incorporation of columns and even entablatures which originally derived from classical buildings, but at times—especially in South Italy—we are faced with entirely new forms. In this category is a remarkable column base in Sta Maria in Trastevere, Rome (fig. 55), which has the acanthus in association with plastic form which might belong to any period. Just as remarkable is a capital from the cathedral at Taranto (fig. 55), having rams' heads in association with Christian symbols.[1] That these features were of semi-classical inspiration is evident, and they can be paralleled by many others.

THE RENAISSANCE

The foregoing remarks should make it easier for us to appreciate the survivals of Hellenism within the great orbit of Renaissance form and expression. These survivals were so many and various that they must be dealt with briefly. At the outset there is the indisputable fact that all Renaissance *expression* and a great deal of its *form* were derived directly from classical principles. So far as the form was concerned, if we rule out large vaulted and domical buildings (mostly ecclesiastical), we can accept everything else in work that belonged to the full Renaissance periods in Italy, France or England. We must naturally be on our guard with the beginnings in the earlier part of the sixteenth century in France and the end of that century in England. As is well known, form, in these times and places, was still mediaeval, though expression (or detailed treatment) was not.

[1] On the four cardinal faces are, respectively, a ram's head, a rosette, an orb and a bearded human head. It is not fully observable whether the corner symbols are of one pattern or are as suggested in the text.

In expression, the beginnings were vital and full of interest. The arabesqued pilaster, the enriched minor column shaft, the sculptured roundel, the festoon, the moulded panel, the fantastically-treated pediment—all of which were Hellenistic—can, separately or collectively, be recalled in work of the periods of the Italian Quattro-Cento, the French

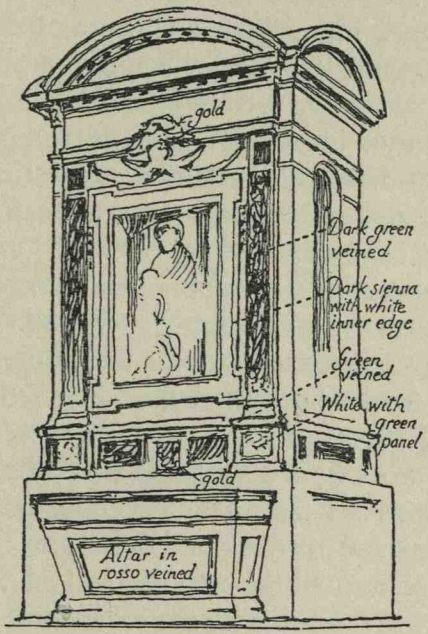


Fig. 56. Side altar in Sta Maria in Aracoeli, Rome.

François Premier, and the English late Tudor or Jacobean. Italy enjoyed a high summer of this kind of expression which extended into the Cinque-Cento and later, especially in ecclesiastical accessories which involved the use of variegated marbles. A delightful altarpiece in Sta Maria in Aracoeli at Rome is only one of many examples of this later survival of pure Hellenism (fig. 56). The same spirit was present to a

high degree in the intarsia woodwork of the palace at Urbino and in the whole treatment of such works as the triumphal arch of Alfonso of Aragon, which is built into the Castello at Naples.

Continuing with expression, we find the scenic element that was prominent in later Hellenistic work recurring in such treatments as those of the Villa Borghese and the Villa Medici at Rome. The painter-architects of the Italian Renaissance—Raphael and Giulio Romano—produced these effects quite naturally, as did Michelangelo in his own powerful and individual way. They were not Roman because they were dependent on surface expression which dealt with rhythms and spacings divorced almost entirely from any major use of the arch.

With few exceptions, the noblest structures of the Italian Renaissance used the arch sparingly, if at all. We see this in most of the great palaces of Rome and Florence. The emphasis given to the horizontal line—perfectly placed and finely detailed—is conspicuous. We see it pre-eminently in that beautiful work by Baldassare Peruzzi, the Palazzo Massimi alle Colonne at Rome, which exhibits the whole poetry of classical form and expression. Even Sanmichele's Palazzo Grimani at Venice used the arch decoratively. The nobility of the design was produced by the rhythmical proportion of the rectilinear elements.

The Renaissance being founded on Rome, and Rome—in its Graeco-Roman phases of expression—being founded on Hellenism, it might seem unnecessary to call any special attention to survivals of Hellenistic ideas in the more advanced architectural work of Renaissance and modern times. It is, in fact, true that the whole body of this work shows a most astonishing persistence in the use of set formulae in

architectural expression, through a period which produced the modern world.

We might leave it at that, but I think it is profitable to carry it a little further. To begin with, there were certain Hellenistic features—such as the niche framed in an order treatment on brackets, the richly-scrolled frieze, and the cordiform pier—which had an accidental survival only. When we see any of these features in Italian or French Renaissance, we are irresistibly reminded of their Hellenistic origin. A striking example of the use of the ordered niche is the great west portal of the parish church of Villeneuve-sur-Yonne, in France.[1] This was a case of Hellenising a Romanesque front, and as the classic treatment had to be confined to piers between the wide arched openings, we get superimposed niched features, which recall those of the market at Miletus. This is an early French example, dating from 1575, though at that time the Renaissance in Italy had reached an advanced stage. Another French example of about 100 years later is the "Cour de Marbre" at Versailles, by J. H. Mansart, with busts on bracket-pedestals between the windows.[2] Though no specific example of the Hellenistic period can be referred to for comparison, the whole treatment is suggestive of the oriental phase of that period.

These examples, taken at random, will serve to show that there are many instances of survival of the more obvious Hellenistic usages into the Renaissance, just as we have noted in the work of some Renaissance masters a Greek rather than a Roman spirit; but the most significant reminder of Hellenism is the output of the *Barock* phase in Italy, France and Germany. It should be understood that I mean

[1] See W. H. Ward, *Architecture of the Renaissance in France*, 2nd edn. (Batsford, 1911), Vol. I, fig. 176, p. 182.

[2] *Ibid.* Vol. II, fig. 305, p. 318.

by this the acceptance of barock in its widest sense, as the establishment of a central rhythmical idea reinforced by subsidiary rhythmical motives. In this sense I would instance the "Bureau des Marchands Drapiers" in the Hôtel Carnavalet at Paris, by J. Bruand (1655), as having a barock tendency,[1] and also the later (Louis Quinze) doorway of the Hôtel de Clermont at Besançon.[2] Both of these are what a Hellenistic architect would have thoroughly understood. Though there is a modified use of the arch in both, the treatments are primarily trabeated, as in most of the finest examples of barock.

Here again, the instances mentioned have been taken at random and they could be multiplied by the score. It is sufficient to point out that there was a quality in barock architecture which strikes an answering chord in many treatments of later Hellenistic work in Asia Minor and Syria. It is, at bottom, much more a matter of the spirit than of the letter; but we see in barock, as in advanced Hellenistic work, a daring in the use of the orders and all their implications, combined with a freedom in the handling of carved form; and yet, with it all, a certain gravity.

THE EIGHTEENTH AND EARLY NINETEENTH CENTURIES IN ENGLAND

This underlying gravity of Hellenistic work, which really arose from its adherence to the trabeated principle, is its true lesson to-day. England and America are in an exceptionally favourable position for appreciating it. Reference has been made, in Chapter IV, to the work of certain masters of the last phase of English Renaissance architecture, and particularly to that of Sir John Soane; but it is the more ordinary expres-

[1] W. H. Ward, *op. cit.* Vol. II, fig. 271, p. 285. [2] *Ibid.* fig. 357, p. 375.

sion of later Georgian work that can be seen in London and in the country towns of England that is the most valuable for our purpose (fig. 57).

The vernacular use of classical forms in England during the late eighteenth and early nineteenth centuries was logical, thorough and enlightened. There are delightful examples of plain Georgian domestic treatments in almost every town. Very often they can only be called classic in the widest sense; but it is significant that when they introduced decorative features, they were invariably of classical origin. The humble designers of these houses and street fronts used doorways and interior treatments which are imbued with the Greek—or rather the Hellenistic—spirit; as it is just in such quaint and charming adaptations, usually in wood, that the facts of later Hellenism are recalled.

Without the quiet, persistent working-out of this priceless development up and down the country towns of England—seen on a grander scale at Bath—we should never have had the coarser but invaluable work which we know as the Regency architecture of London. It has just that gravity in essential mass which the classically-inspired building can give, to an extent that no other type of building can, and which is such a perfect foil to the effects of natural scenery—pleasantly formal—in the parks and squares of London. In the neighbourhood of Regent's Park a lot of this work still remains and can carry its full effect, but there are many quiet bye-ways which are even more valuable. The street treatments in the best of these are really *designed*. Either with or without pediments, they introduce the pilaster treatments that were so thoroughly understood (Pl. XXVIII *d*). Some of these have Ionic capitals of Greek form and others have Hellenistic versions of pseudo-Corinthian capitals. These treatments are so quiet that, when seen from some distance,

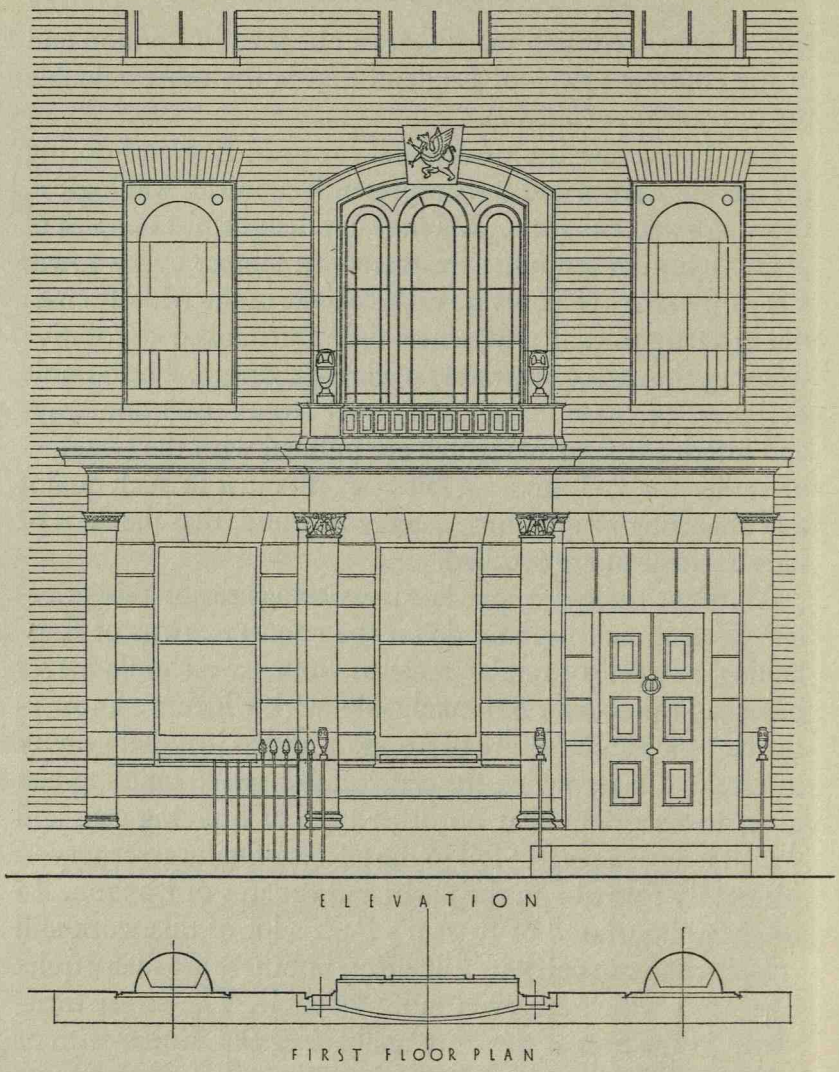


Fig. 57. Gray's Inn, London. Early nineteenth-century adaptation of a house of 1697. (From *The Architect and Building News*, Jan. 4th, 1935.)

it is difficult to realise that they have any classic features at all; but if the features are studied at close-hand they are found to be well—and sometimes beautifully—detailed. Stock-brick that has darkened pleasantly in the London atmosphere gives the prevailing ground tone; relieved, rarely by stone, usually by light-painted stucco in pilasters and cornices, and occasionally in window-dressings. Doorways go with the "high-base" that embraces the whole of the ground storey, which is almost invariably stuccoed, often with emphasis of horizontal joints. In some of the best of the detached Regency villas set back from streets in the outlying quarters of London we find the formulae of classical expression hardly present, though the result is something that a Greek of the Classical Age would have appreciated; the spirit without the letter.

A later and more individualised development produced more grandiose if sometimes more self-conscious results. The greatest buildings of this period were St George's Hall, Liverpool, by Elmes, and the Bank of England, by Soane. Sir Robert Smirke, in his noble Egyptian Gallery at the British Museum, proved the value, in a long interior, of an intelligent handling of thoroughly understood Hellenistic elements.

In these latter days, the *Spirit of Hellenism*, not the slavish copying of its actual forms, can teach us a great deal, especially in civic treatments—the most difficult architectural problem we are faced with; it is astonishingly present in the best of our modern buildings. If analysed, this spirit is nothing more nor less than the clarity and orderliness which are inseparable from all great works of art.

It may seem that I have made a weightier claim than is justifiable for Hellenistic architecture. It cannot be con-

sidered as a style like Greek or Roman, by which terms we understand certain definite things; but it is an inseparable part of the classic principle which is greater than either of these separately. Neither in planning nor in detail can the work of the last three and a half centuries B.C. stand clearly apart from its parent stock or its later development, but it was of incalculable value in the consolidation of architectural treatment. The building contribution of the Hellenistic monarchies was part of the continuous stream which began with archaic Greece and which vitalised Rome. Though this stream was deflected into various channels thereafter, it never disappeared, and it still persists. What can truly be called "classic" in architecture is, I believe, just as present to-day as it was in Hellenistic times.

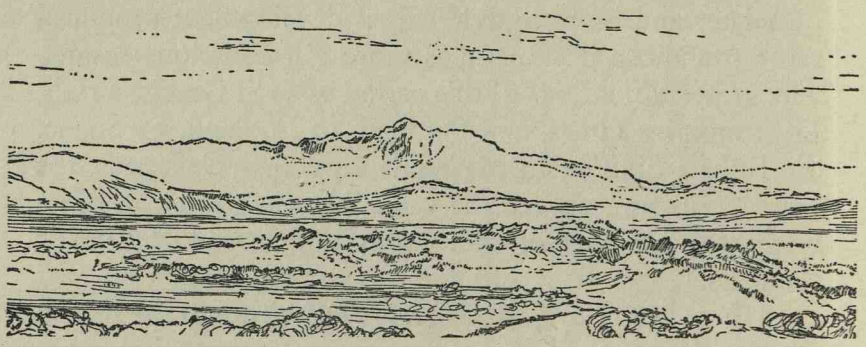


Fig. 58. Plain of the Maeander from Söké, near Priene.

GLOSSARY OF TECHNICAL TERMS USED IN THE TEXT AND NOTES

and explanations of the special buildings at Delos mentioned in Chapter VIII

I

Abacus (pl. abaci). The topmost slab-like member of a classical capital, nearly always part of the block from which the capital was made.

Acanthus. A plant which had a leaf slightly resembling an elongated vine leaf, which was conventionalised and much used decoratively in Greek and Roman architecture from the fifth century B.C., principally on Corinthian capitals.

Acroteria. The upstanding decorative features at the apex and at the two ends of a pediment. (See fig. 13.)

Annulets. The delicate "rings", usually hollows divided by fillets, which marked the transition from the necking and the swelling part (or *echinus*) of a Greek Doric capital. (See fig. 38 below.)

Anta (pl. antae). (*a*) The stop-end of a wall in Greek and Hellenistic Doric or Ionic buildings, taking the form of a slightly-projecting narrow pilaster on one of its faces.

(*b*) A Corinthian corner-pilaster having two similar faces. (See fig. 14.)

(*c*) The pilaster which serves as a wall-respond to a classical column standing clear of a wall. (See below, *Pilaster*.)

Anthemion. An upright form of ornament used in Greek and Hellenistic architecture resembling a conventionalised treatment of the honeysuckle flower. (See figs. 11 and 30*f*.)

Apophyge. The concave curves at the top and bottom of a column-shaft or pilaster which adapt it to the capital and the base respectively; and the same technique on a continuous wall. (See figs. 11 and 27*a*, *b*, *d*, *f*.)

Arabesqued pilaster. A pilaster, panelled on its face and having a rich scheme of all-over decoration in the panel. (See fig. 24, below.)

Architrave. (*a*) The first (or beam) member of a classical entablature, immediately above the columns.

(*b*) The surrounding treatment of a door or window opening.

Arris. A salient angle.

Ashlar. Highly finished and perfectly squared masonry built in regular horizontal courses.

Attic-base. In all probability so-called because the *Greek* form was first used in Attica: it can be seen in the north portico of the Erechtheum at Athens, *c.* 430 B.C. This form can be understood by reference to fig. 27*d* and *f*. In the Roman form there was no table above the top fillet of the cavetto member, which was overhung by the upper torus.

Battered wall. A wall-face which has a pronounced inward leaning.

Bead and reel. The carving of the small, fully convex moulding known as the bead, consisting of recurrent circular or sausage-shaped "beads" divided by duplex hollowed members or "reels". (See fig. 31, below.)

Bedmould. As used in the text, the supporting moulding under any member of pronounced projection or overhang in a cornice. More strictly, it is the lowest moulding, immediately above the bed-joint of the stone.

Cavetto. A hollowed moulding.

Cella. The principal chamber (*naos*) of a classical temple.

Chryselephantine. Composed of gold and ivory.

Coffered ceiling. A ceiling divided into recessed compartments, usually square; a prevailing classical usage from the fifth century B.C. or earlier. (See Pl. XVIII *b* and *c*.)

Columniation. The space from centre to centre of two adjacent columns.

Composite. A term applied to an order distinguished by a column-capital which combined Ionic and Corinthian characteristics.

Conglomerate. "Pudding-stone". A variety of limestone which at its best is very durable, capable of fine finish and not liable to split owing to its homogeneous texture.

Corona. See Chap. v, p. 98, n. 1.

Console. A term applied equally to the bracket or modillion of the Corinthian cornice and to a bracket of the same or somewhat similar form but used vertically to support (or appear to support) the cornice of a door or window opening. (See Pl. XIX and fig. 28.)

Crow-stepped. As applied to Assyrian work, of this form. ⌐⌐⌐

Cupreous. Pertaining to copper.

Cyma. Applied equally to the cyma-recta or to the cyma-reversa (*vide*).

Cyma-recta. The moulding with a simple re-entrant curve in which the concave element is uppermost. It was typical of the crowning member in an Ionic or Corinthian cornice. (See figs. 11 and 19*c*.)

Cyma-reversa. The reverse of the cyma-recta. (See fig. 19*b*.)

Cymation. The crowning member of a cornice; also called the "Sima". (See Chap. v, p. 98, n. 1.)

Dentils. Oblong bracket-like features placed close together forming the middle member of the Ionic cornice in Asia Minor and more rarely in Greece. (See fig. 19*d*.)

Die-wall. The low retaining-wall of a terrace or stepway which is punctuated at intervals by pe-

destals or "dies", or which has a pedestal termination.

Diminution. A term applied to a column or pilaster indicating the reduction in its diameter or width at the top compared to the bottom. (See fig. 11.)

Dipteral. See Chap. II, p. 24.

Dowel. A squared pin of hard-wood, stone or metal connecting two pieces of material which are liable to cross-strain.

Drafted. In masonry, the accurate finish on the face-edges of a block of squared stone, the general surface of which is rough.

Dromos. The long sloped way, rock-cut or with enclosing walls, leading to a large tomb which is wholly or partly underground.

Drum. (*a*) One of the cylindrical blocks of which the shaft of a column is composed.

(*b*) The built cylindrical base of a monumental or domical structure which is circular on plan.

(*c*) Any approximately cylindrical block used in building, such as the body of a Corinthian capital.

Echinus. The swelling bowl-shaped part of a Doric capital. (See fig. 38, below.)

Egg-and-Tongue. The carving of the ovolo (*vide*), consisting of recurrent members each resembling half an egg divided by sharp tongue-like members. (See Pls. XVIII*a*, XX*a* and fig. 31, below.)

Engaged column. A column which is (or which appears to be) attached to a wall, projecting half its diameter or more (Pls. VI*a* and XVIII*a*). The entablature over the column may project with it, independently, or may be in a continuous flight over a series of engaged columns.

Entasis. The swelling curve that was given to the shaft of a classical column. From the middle of the fifth century B.C. it was usually so slight as to be merely the corrective of a straight line.

Extrados. The outer curve of an arch-ring. The inner curve is called the "intrados". (See Pl. XI*b*.)

Ficticle revetments. Applied terra-cotta members.

Finial. An upstanding feature forming the topmost finish of a decorative architectural treatment.

Flemish bond. A type of brick facing in which "stretchers" (bricks built lengthways) and "headers" (bricks built endways) occur with regular alternation in each course.

Flutings (or **Flutes**). The vertical channelings of a column. (See fig. 11.)

Frieze. The intermediate member of a classical entablature.

Gorge. A term applied to the massive but simple hollowed cornice used in Egyptian architecture from the sixteenth century B.C.

Guilloche. An interlacing running pattern used on flat surfaces in painted terra-cotta revetments during the sixth and fifth centuries B.C., and sometimes carved on one of the torus mouldings of the Greek Ionic base. (See Pl. XXI*c*, lower torus.)

Guttae. Cylindrical projections which were worked on the undersides of the mutule and regula (*vide*). Normally, each mutule had eighteen guttae.

Haunch stone. The outermost stone on each side of a rising arch, or the bearing stone at each end of a flat arch. (See Pl. XIV.)

Hawksbeak. A drip-moulding used in Greek and Hellenistic Doric, usually at the top of the corona of the cornice. (See figs. 19*e* and 27*o*.)

Hemicycle. A large recess, semicircular on plan or nearly so, used freely in later Hellenistic and Roman architecture. (See Pl. XVI*b*.)

Hypaethral. Open to the sky.

Hypostyle Hall. In effect (as at Delos) a columnar hall. The term is most generally applicable to a closely-columned hall with a wider central avenue which was an important feature of the larger Egyptian temples.

Impluvium. A sunk square or oblong tank to take rain-water, formed in the floor of a room or space wholly or partly open to the weather; or the opening in a roof over such a tank.

In-Antis. Columns which are "in-antis" do not project beyond the antae but are in line with them. There were usually two such columns. The technical term for this arrangement is "distyle-in-antis". (See *Prostyle*, also fig. 14 and Pl. III*a*.)

Inclination. See p. 95.

Intarsia. Inlay in woodwork, usually applied to the elaborate inlays of the Italian Renaissance in the fifteenth and sixteenth centuries.

Intercolumniation. The clear space between two columns.

Jamb. The side of a door or window opening, usually vertical.

Joggle. A notched-joint in masonry to prevent sliding.

Keystone. The central stone of any well-built stone arch that is not a pointed arch; sometimes used in lintels. (See Pl. XII*a*.)

Leaf-and-tongue. The carving of the cyma-reversa (*vide* and see fig. 11, abacus of capital).

Loggia (pl. loggie). An Italian word in common use for a roofed verandah, vestibule or connecting lobby, which has an open colonnaded or pillared treatment on one at least of its longer sides, or on one side and one end or both ends.

Mastaba. A type of important free-standing tomb structure of the Early Dynastic period in Egypt.

Mausoleum (the). The Mausoleum at Halicarnassus. As this was the "Tomb of Mausolus" it originated the word "Mausoleum".

Megaron. The main hall or living room of a Minoan or Mycenaean important house or palace. (See fig. 41, right.)

Metope. The recurring panel, square or nearly so, in the frieze of a Doric entablature. (See figs. 20, above, and 23.)

Minoan. A name, now of established usage, given by Sir Arthur Evans, to the Age in Crete which prevailed from *c.* 2500 to *c.* 1400 B.C. It did not become definitely architectural till about 1700 B.C.

Modillion. The recurrent bracket feature of a fully-developed Corinthian cornice. (See Pl. XX*b*.)

Monolithic. Homogeneous. All-of-one-piece either actually or effectively.

Moulding. The profile of any clearly-defined member of a building other than a flat member. It can only be ascertained by making a real or imaginary cross-cut through the member, and then either drawing it on paper or cutting it out on cardboard or thin metal.

Mummulitic. A term now used in Alexandria (Egypt) to define a marble-like limestone.

Mutule. One of the recurrent flat projections which were worked on the underside of the Doric cornice. (See fig. 19*c* and *e*.)

Mycenaean. The Age in Greece which was chiefly based on the Minoan Age in Crete and which had Mycenae as its principal centre.

Necking. That part of a Doric capital which effected its junction with the shaft of the column or the anta. The invariable joint between the two members was emphasised, in Greek Doric, in various ways. The necking was of great importance in the design of the capital, in a column both for general curvature and for the method of terminating the flutes. In Hellenistic work there was considerable variation. (See figs. 22*c*, 23 and fig. 38, below.) For an anta-capital necking see fig. 22*c*.

Nymphaeum. A decorative structure of late Hellenistic or Roman origin, containing various chambers in association with one another and probably used for recreation.

Octastyle. Having eight columns in front.

Ogee. See *Cyma-recta* and *Cyma-reversa*.

Order. The essential post and beam elements in classical architecture (i.e. the column and its entablature). These were stylised as Doric, Ionic and Corinthian.

Ovolo. A moulded form which is half-oval or less in section, having a resemblance to part of the curve of an egg.

Palaestra. A variety of the gymnasium.

Patera (pl. paterae). A circular plate-like decorative feature in relief, moulded or carved in a variety of ways. (See fig. 20, above.)

Pediment. (*a*) The gabled end of the roof of a classical building. In this use it was always triangular.

(*b*) A crowning feature resembling (*a*) of a door, window or niche in classical architecture. (See Pl. XIV.) In this use it was, in later times, sometimes segmental. (See Frontispiece.)

Peribolos. A great surrounding enclosure.

Peripteral. Surrounded by columns.

Peristyle. The space between the surround of columns and the cella wall of a peripteral temple.

Peristyle court. A court which has an inner surround or "peristyle" of columns, usually defining a

central area open to the sky, or carrying an upper roof raised on a clearstorey. (See fig. 44.)

Pier. A large pillar, or an assemblage of pillars, or a combination of a pillar (i.e. rectangular or cut out of a rectangular form on plan) and a column (i.e. circular or partly circular on plan). (See Pl. XXIII*b* and fig. 22*a*.)

Pilaster. A vertical strip forming a projection, usually slight, from a wall-surface, of which it is constructively a part, and having a capital and base resembling, or in harmony with, a particular order treatment. In a modified form it was associated with the Greek Doric and Ionic orders as an anta, but pilasters, strictly speaking, were not used before the Corinthian order was fully introduced about the first century B.C. (See above, *Anta*, and Pl. XVI.)

Pitch. The element of slope in a pediment or roof.

Plinth. Usually a smaller and more detailed application of the podium, not necessarily standing on the ground, e.g. the pedestal of an upper storey column; but the term is also used for the square raised base-block of most Ionic and Corinthian columns.

Podium. The high base of built masonry on which the superstructure of a temple, monument or feature was placed. (See Pl. X*a*.)

Polychromatic. As applied to classical sculpture or architecture, the use of many colours to give the semblance of life, or richness and variety.

Polygonal masonry. A form of fine wall-facing only suitable for very hard stone or marble and sometimes used in Greek walls of the sixth and fifth centuries B.C. In principle, each block was an irregular polygon cut to the size and shape which suited it, fitted with exactness to the adjacent blocks without the use of mortar.

Pronaos. The porch or vestibule, open in front, at the principal (usually east) end of a temple, leading to the naos or cella.

Propylaea (sing. propylaeum). A classical entry with gateways. The most celebrated example is the one leading to the Acropolis at Athens.

Prostyle. The thrusting-forward of the porch of a non-peripteral temple so that its columns (usually four) stand clear of the antae of the cella.

Pseudo-dipteral. See Chap. II, p. 26.

Pseudo-peripteral. A term applied to a temple which has a projecting columnar porch but in which the associated side columns are engaged by the side walls of the cella. (See above, *Engaged column*.)

Pulvinated. See Chap. V, p. 104 and figs. 30*d* and 34.

Pylon. A wide tower-like single or double structure with battered walls containing or enclosing a large doorway, which marked the point of entry of an Egyptian temple from the sixteenth century B.C. Its function was somewhat similar to that of a Greek propylaeum.

Rake. A slope.

Ramp. An inclined means of access as a substitute for a staircase or stepway.

Rebated. A "rebate" or squared notch in any hard building material or form (such as a door-jamb) indicates "rebated" technique. In rebated masonry, a stone is notched at one corner and a corresponding reversed rebate in the adjacent stone fits into it. (See Pl. XXII *b* and fig. 35, above.)

Regula. See *Taenia.*

Relieving-arch. A rising or "safe" arch built above the lintel or flat-arch of an opening to relieve it from the superincumbent weight of the upper structure. (See Pl. XII *b*.)

Rock-faced. A term for masonry which is left with a hacked-off rough face on each individual block.

Roof-truss. A rigidly framed roofing structure with its ends resting on solid walls or piers, capable of taking the whole weight of the accessory supports and roof covering over one section of an unsupported area.

Roundel. See *Patera.*

Rubble. Any form of masonry except "polygonal" which is not ashlar.

Scopaic. By, or in the manner of the Greek sculptor Scopas, who worked in the fourth century B.C.

Scotia. A deeply-hollowed cavetto. (see fig. 27*f*.)

Segmental vault. A continuous vaulted roof of which the curve is less than half a circle in cross-section.

Sima. See Chap. v, p. 98, n. 1.

Soffite. An underside, most frequently of a projecting member such as a cornice.

Split-pediment. A pediment which is designed to give an effect of being broken in the middle. The middle portion is either completed on a recessed plane or is omitted altogether. (See Pl. IX *a*.)

String-course. A prominent narrow projecting band of one course of masonry in a wall, sometimes moulded or carved.

Stylobate. (*a*) The external definition of the ultimate platform of a temple, usually stepped, on which the cella or (if existing) the surrounding order of its peristyle was placed.

(*b*) The pavement strip defining a row of columns or supports.

Sub-frieze. A defined masonry course immediately below the entablature, sometimes found on the cella wall of a Corinthian temple and equal in height to the capitals of the antae. (See Pl. IX *b*.)

Tablinum. An ante-room or wide, short lobby between two sections of a Roman house.

Taenia. A narrow but boldly projecting continuous strip of square section which was worked on the top edge of the Doric architrave. The bar corresponding with each triglyph which was worked below the taenia was called the *regula* (or *listel*). The regula had normally 6 guttae, corresponding with those of the front

of the mutule above. (See figs. 19*e* and 23.)

Tailed voussoir. A long voussoir which is bonded into the coursed masonry of the wall. (See Pl. XII*b*.)

Tesserae. The small pieces of pebble, marble or glass of which a mosaic is composed.

Tetrapylon. A four-arched structure spanning the intersection of a main street and a cross street.

Tetrastyle. Having four columns in front.

Torus. A convex moulding of approximately half a circle in section; an enlarged form of the bead, with which it was often associated in Ionic and Corinthian column bases (See fig. 27*f*.)

Trabeated. The beam principle in building as opposed to the arched principle.

Trapezoidal masonry. A term applicable to masonry in which some of the upright joints are straight but not vertical. (See Pl. III*b*.)

Triclinium. The dining-room of a Roman house.

Triangulated. A term applied to structures such as roof-trusses in which the component parts are assembled in accordance with the mechanical efficiency of rigidly connected triangles.

Triapsal. Having three apses or hemicycles, thus providing a trefoil-shaped (trifoliated) plan system.

Triglyph. The projecting recurrent member in a Doric frieze. It was given vertical emphasis and strength as something which was originally constructive by bold V grooves or "glyphs". Each triglyph had two full glyphs in the centre and a half glyph on each side. (See figs. 19*e*, 20, above, and 23.)

Volute. One end of the cushion-like form which is the main part of an Ionic capital. In a more limited sense the eyed-spiral which is defined in relief on the front and back faces of this end. (See Pl. XVIII*a* and fig. 47.) In a wider sense any form which resembles the Ionic volute, such as the smaller one springing from a stem which occurs in duplicate at the four corners of a Corinthian capital. (See fig. 54.)

Voussoir. Any separate component block in an arch.

Ziggurat. An important mound-like structure in ancient Babylonia and Assyria, roughly of truncated pyramidal form, with an inclined walk winding round it from the base to the top, on which there was a temple. The inclined walk gave it a stepped effect.

II

DELIAN BUILDINGS[1]

See Chapter VIII, pp. 165, 166

Hypostyle Hall. This is described towards the end of Chap. VI but the roofing of the building is there discussed from the restoration shown in *Délos*, II (1), "La Salle Hypostyle", published in 1909. The French overhauled the material in *Délos*, II, (2), "Nouvelles Recherches sur la Salle Hypostyle", published in 1914. In their latest version of the building they raise a clearstorey of much smaller extent over the eight columns in the centre which formed a square. As this clearstorey was defined by tall stone pillars socketted into the tops of the columns, a braced wooden truss would be inadmissible.

Kabeirion. The Sanctuary of the Cabiri, creative divinities who were venerated over a wide area in the Greek world. In Italy their worship was associated with the heavenly pair (Dioscuri) and in other centres with Poseidon, etc. At Delos, the Sanctuary was Samothracian, at any rate in its later form. The building had two phases which were somewhat similar and they produced one of the most interesting architectural conceptions in the island, enhanced by the stepped treatments necessitated by the site position. See *Délos*, XVI (1) (Paris, 1935.)

Portico of Antigonus. A long Stoa or Portico with projecting pavilions at the ends which ran due east and west to the north of and facing the temple of Apollo. It had the greatest length (nearly 400 feet) of any building in Delos and its Hellenistic Doric had the unusual feature of bulls' heads in the triglyphs. It was erected by Antigonus Gonatas, grandson of Alexander's general, probably about 254 B.C. See *Délos*, V (Paris, 1912.)

Portico of Philip. A Portico about 260 feet long to the south of the Hieron site on the sea-side of the processional street going east and west, exactly opposite an earlier portico of equal length erected by Attalus I of Pergamum. It formed an interesting complex by its association with a longer

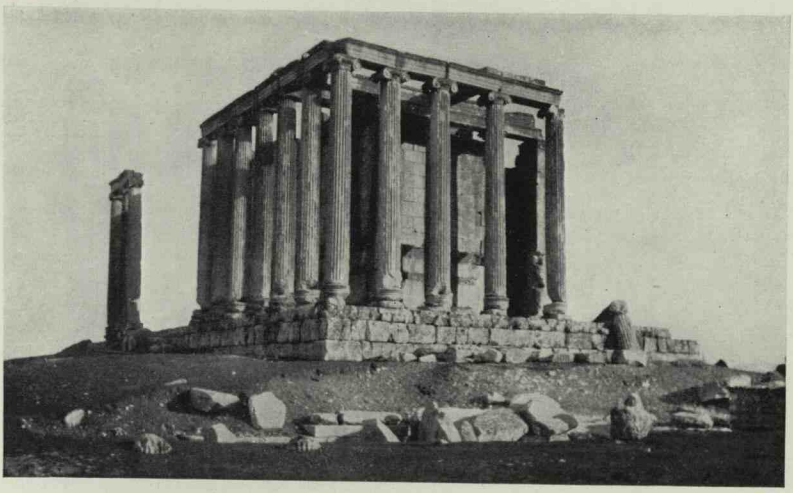
[1] The best available general plan showing the relative positions of the buildings mentioned below is the small scale one on the excellent coloured contour map of Delos and the adjacent islands in *Délos*, IV (Paris, 1911), Plate I; but much material has been disclosed since. A useful plan-map, taken from P. Roussel's *Délos, Colonie Athénienne*, is given by W. A. Laidlaw, *A History of Delos* (Oxford, 1933).

portico placed back-to-back with it. The remains of these buildings are prominent features in the south part of the lower town. The portico was erected by Philip V of Macedon about 212 B.C. See *Délos*, VII (1) (Paris, 1923), and Laidlaw, pp. 117, 118.

Poseidoniastes. The Agora and Club-house of the *Poseidoniastae* who were traders from Beyrout (Berytus) and whose local god was the equivalent of the Greek god Poseidon. The agora resembled a large peristyle court (some Doric columns still standing complete), on two sides of which were the other structures. The buildings belong to the later phase of the last Athenian domination, *c.* 112 B.C. See *Délos*, VI (Paris, 1921), and Laidlaw, pp. 212, 213.

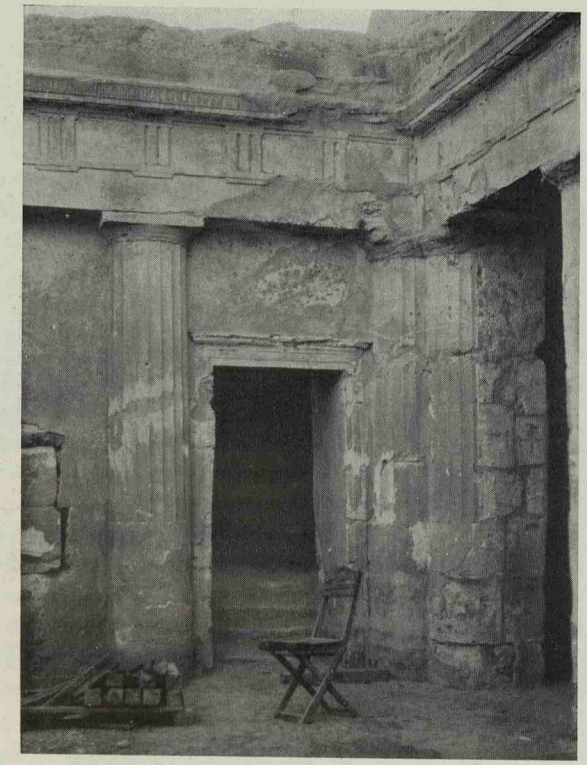
Sanctuary of the Bulls. A remarkable Hellenistic building which might be called more appropriately a Hall or Temple, southwards and at right angles to the Portico of Antigonus Gonatas. It was about 220 feet in length but very narrow in proportion, with a sanctuary on a lower level at its north end. It is believed that it may have housed the dedicated flagship of Antigonus Gonatas after his naval victory over Ptolemy Philadelphus in 254 B.C., and that its unique plan may be due to this or to a still earlier dedication of the same kind. The interesting pillared screen which divided the sanctuary from the main structure contained the bulls'-head capitals which have given the Hall its modern name. The long lines of the foundations are conspicuous in the foreground of Pl. XXIV *a*, below. See *Délos*, VII (1) (Paris, 1923) and Laidlaw, pp. 31, 107, and 137, n. 12.

PLATES

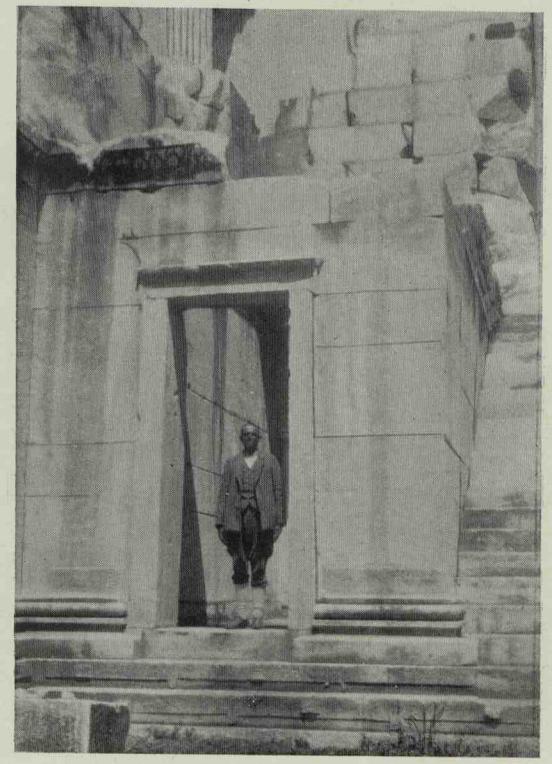


(*a*) Temple of Jupiter at Aezani.

(*b*) Temple of Bel at Palmyra.



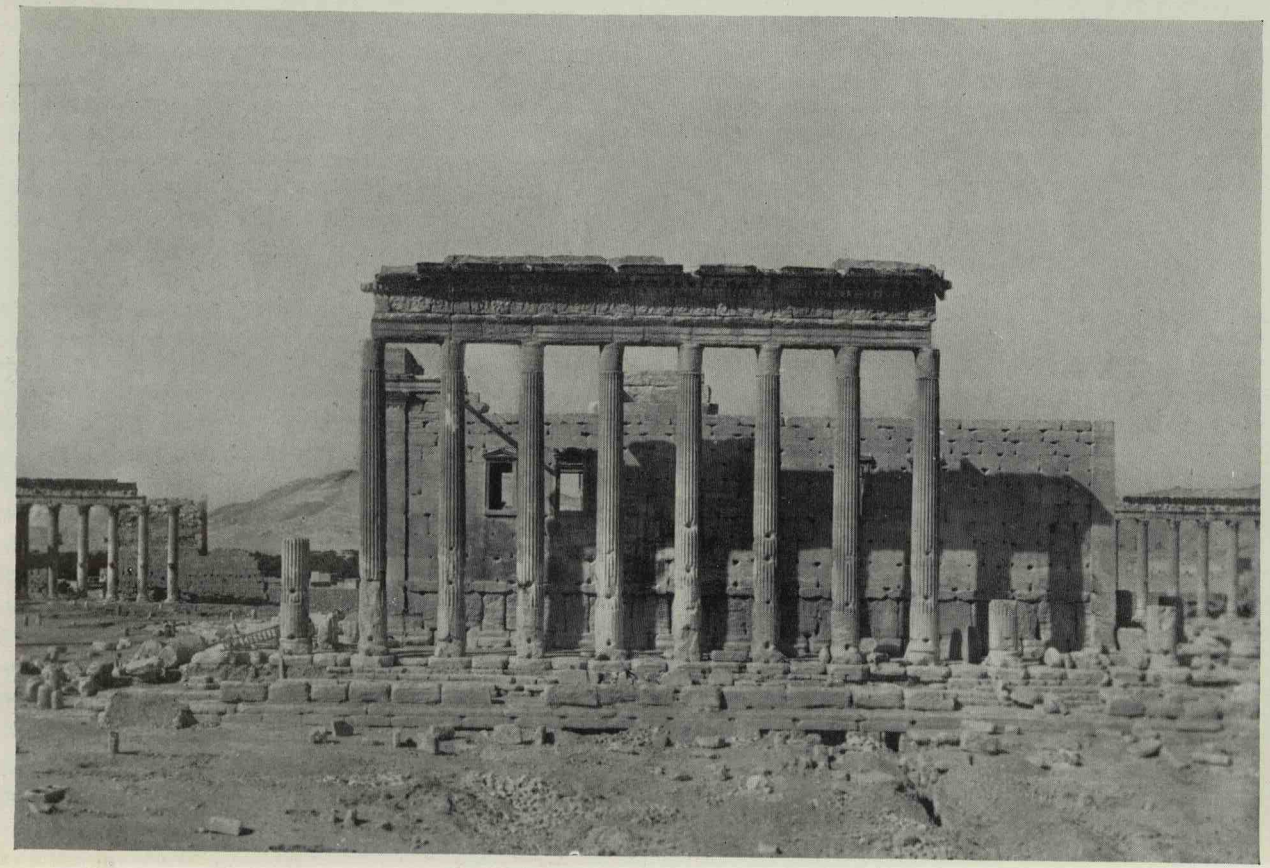
(*a*) Tombs at Mustapha Pascha, Alexandria. Angle of court showing entry to staircase.



(*b*) Temple of Apollo at Didyma, near Miletus. Bastion forming entry to cella at east end.

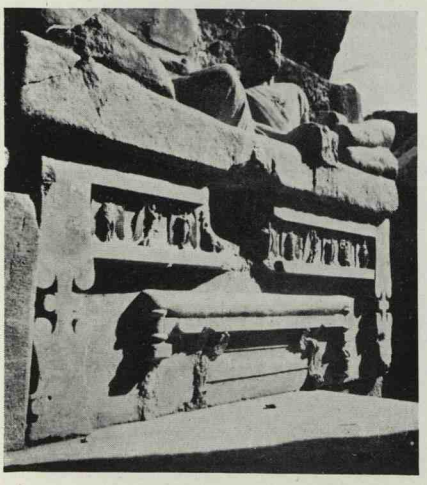
(*a*) Temple of Isis at Delos.

(*b*) Retaining wall of theatre at Delos.

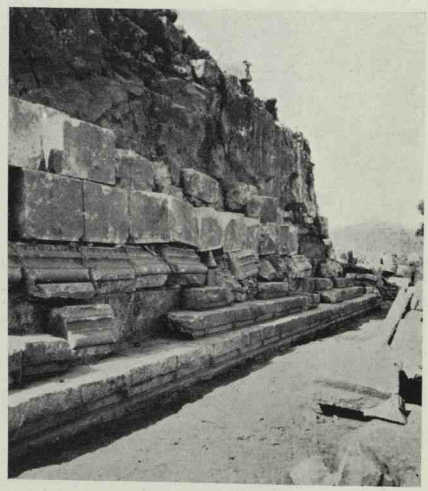


Temple of Bel at Palmyra, east side.

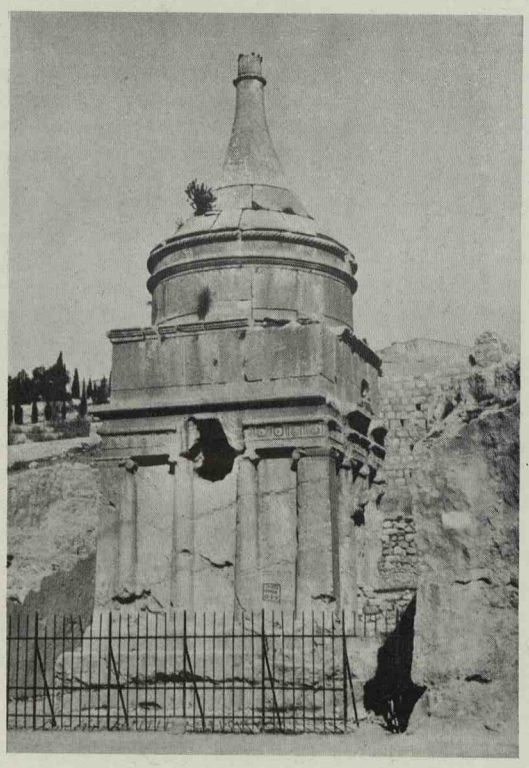
(*a*) Temple of Jupiter at Baalbek, cornice.



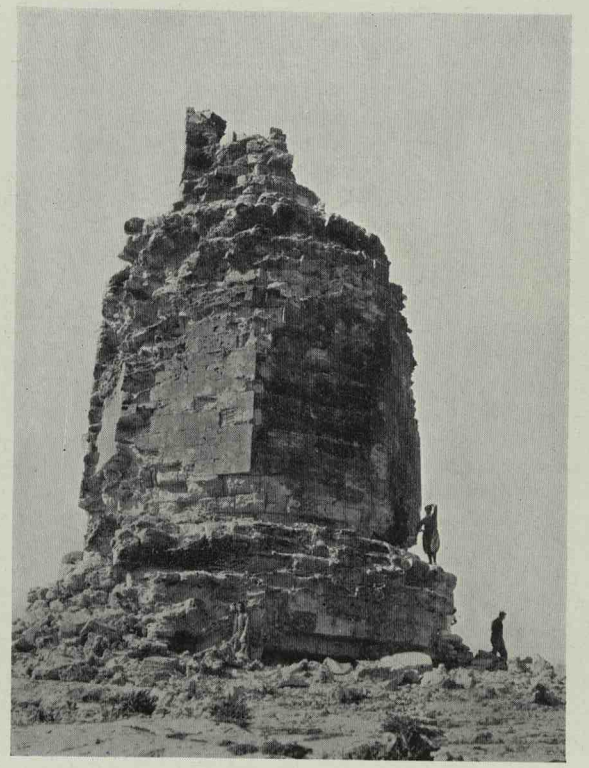
(*b*) Mausoleum at Belevi, sarcophagus.



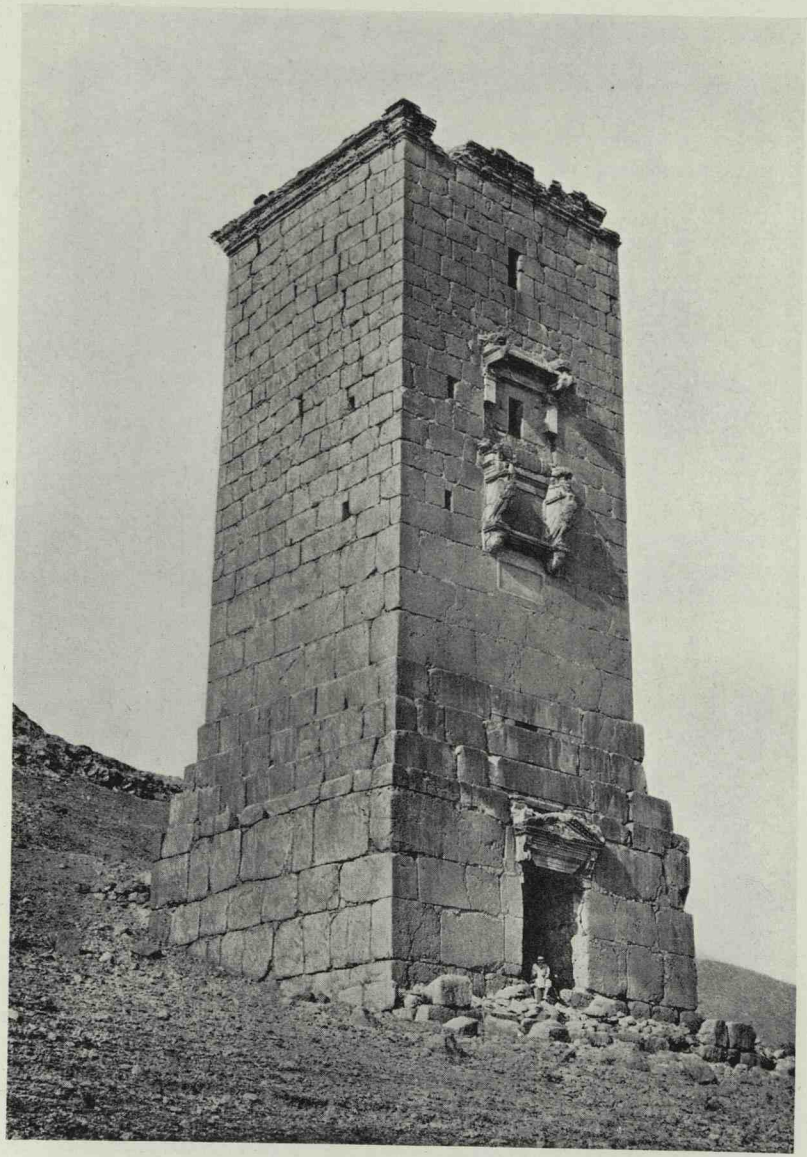
(*c*) Mausoleum at Belevi, view of side.



(*a*) "Tomb of Absalom" in Kidron valley, Jerusalem.

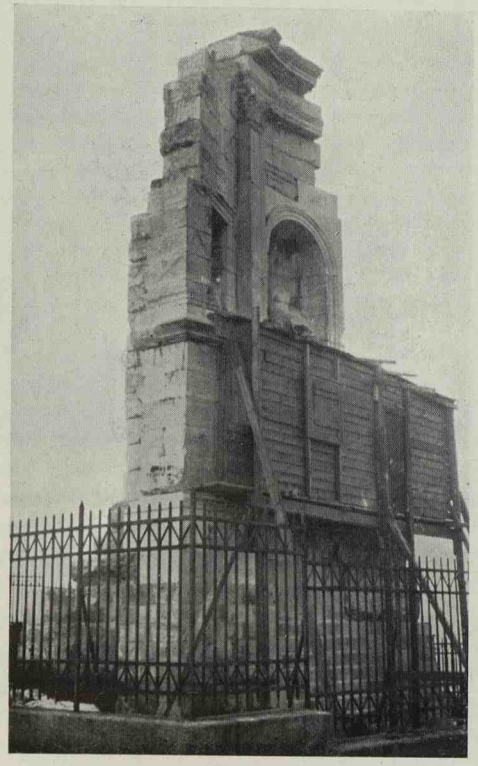


(*b*) "Beacon" tower at Abusir, near Alexandria.



Jamlishu Grave-tower at Palmyra.

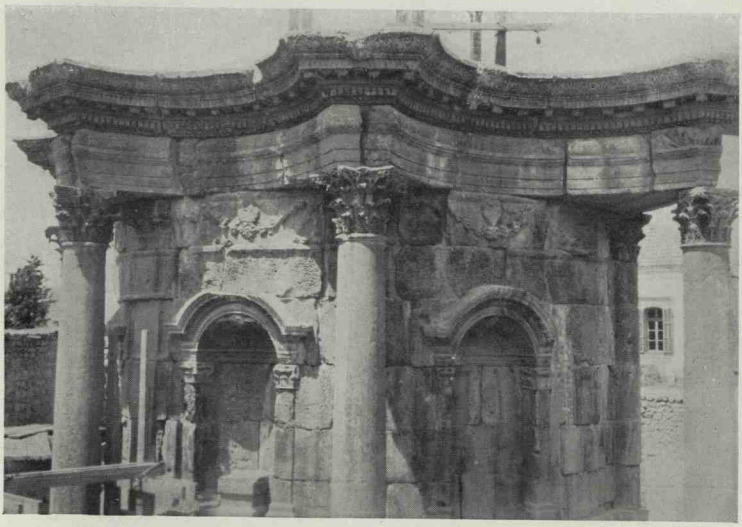
(From Th. Wiegand and others, *Palmyra*, Im Verlag von Heinrich Keller, Berlin, 1932.)



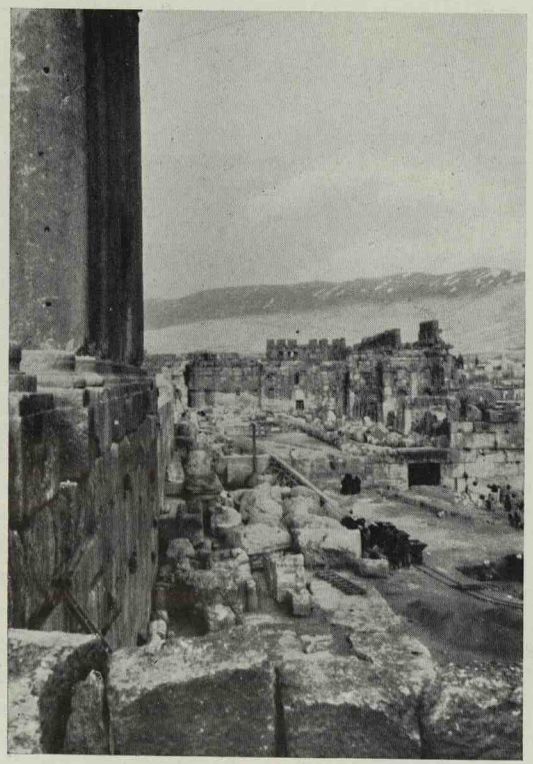
(*a*) Monument of Philopappos, Athens: front view.

(*b*) The same: back view.

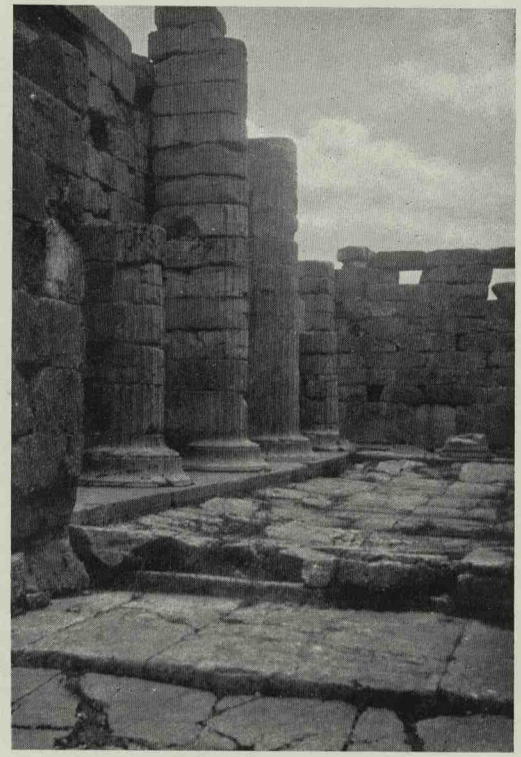
(*a*) Front of the Market at Miletus (Pergamon Museum, Berlin).



(*b*) Circular temple at Baalbek.



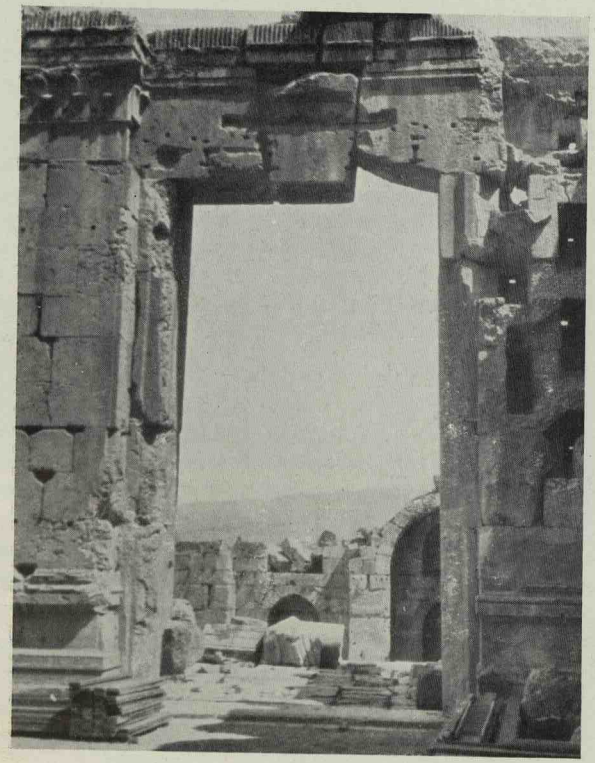
(*a*) Baalbek. South side of temple of Jupiter, looking east.



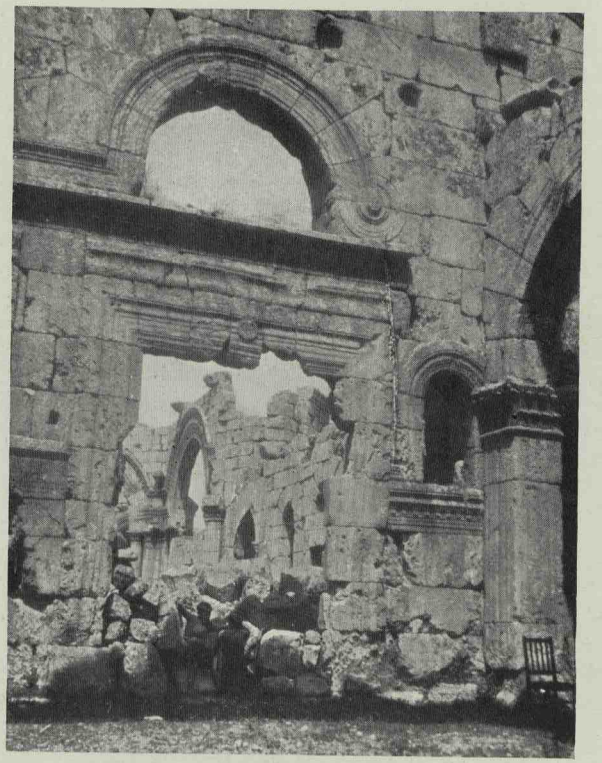
(*b*) Bassae. Temple of Apollo. Interior of cella.

(*a*) South theatre at Jerash.

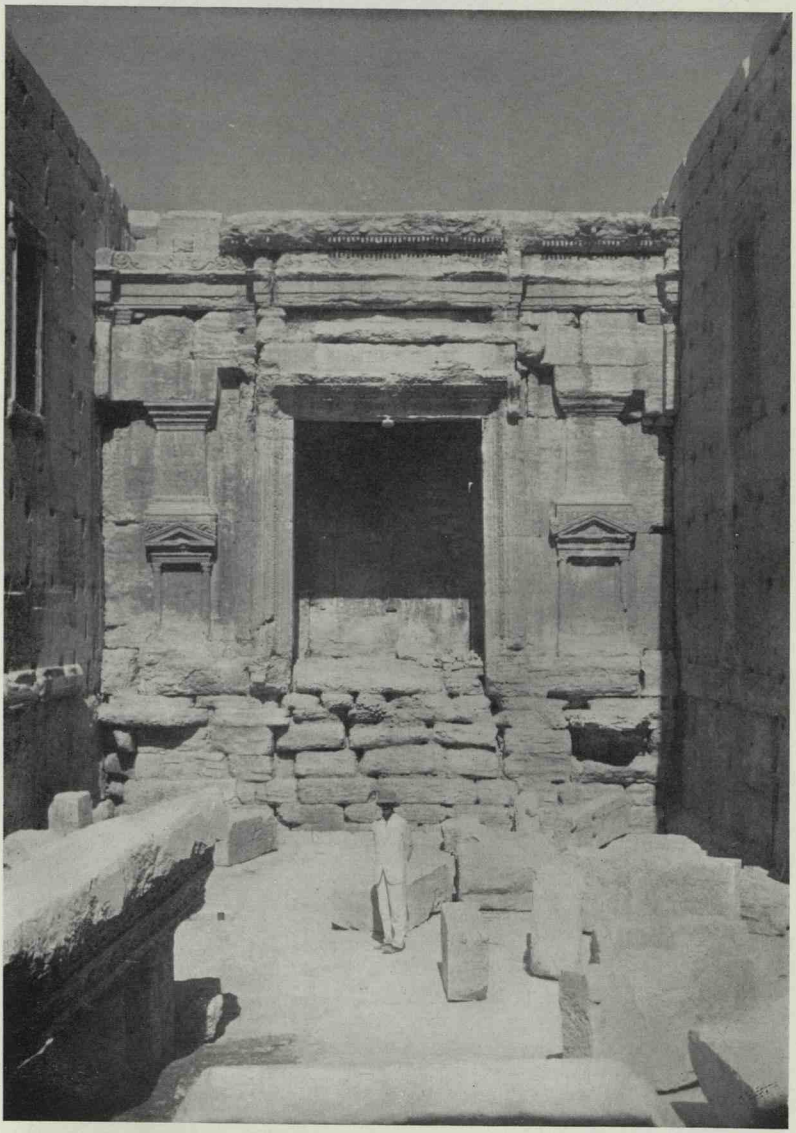
(*b*) Monumental arch at Jerash.



(*a*) Temple of Bacchus at Baalbek. Entrance end of cella, from inside.

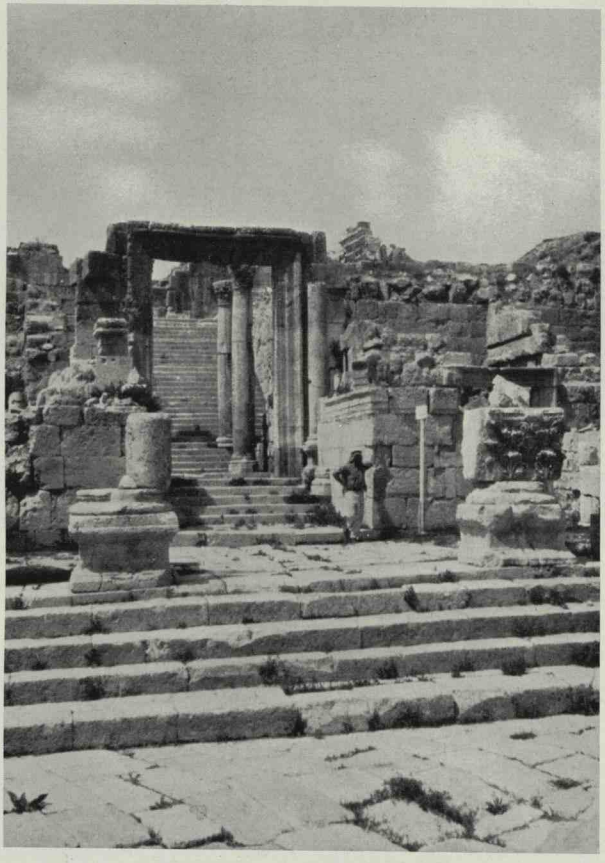


(*b*) Church of St Simeon Stylites (Kala'ât Sim'ân) near Aleppo. Main entrance door from narthex.

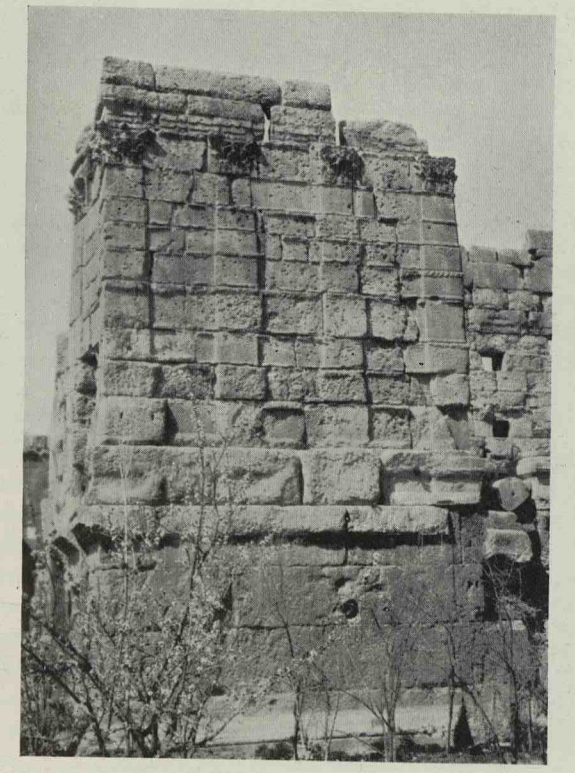


Temple of Bel at Palmyra. Interior, north end.

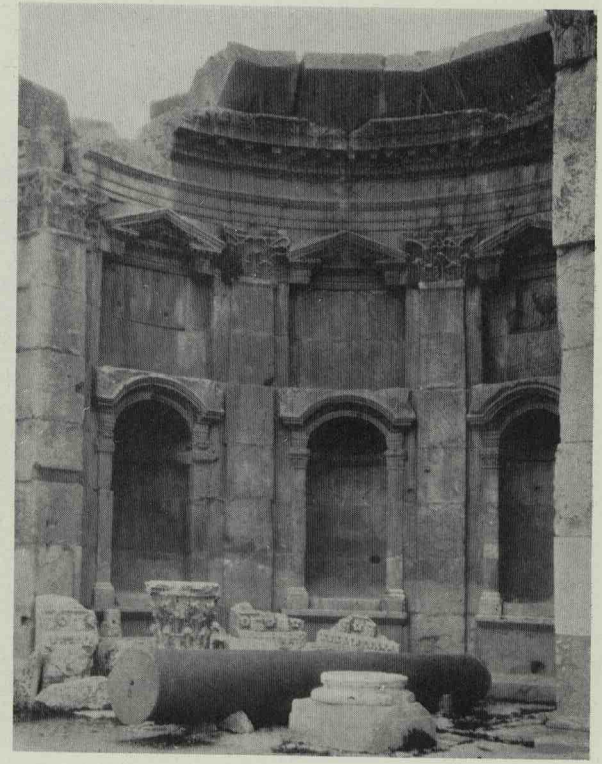
The Propylaeum at Jerash, from the main street.



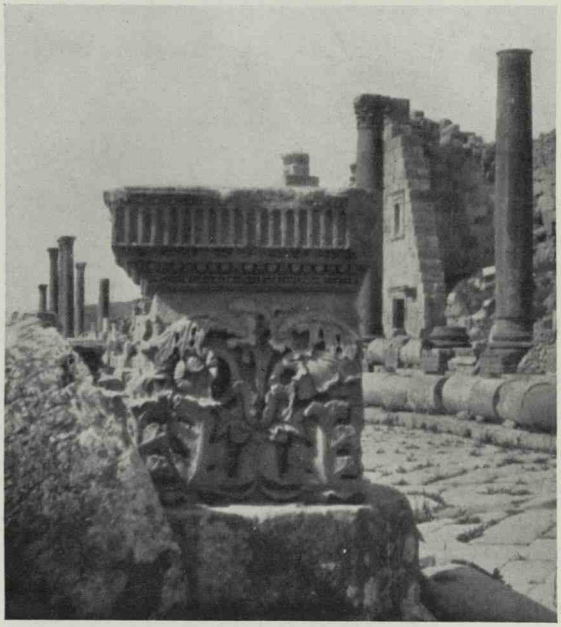
Jerash. Entry south of nymphaeum (now leading to Cathedral) on west side of main street.



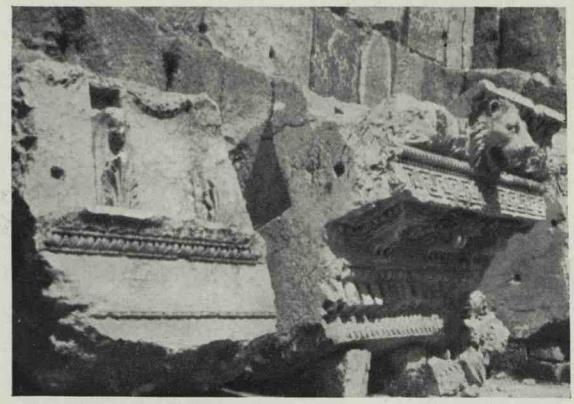
(*a*) Baalbek. South corner of propylaea.



(*b*) Baalbek. Hemicycle in great court.



(*a*) Jerash. A square capital.

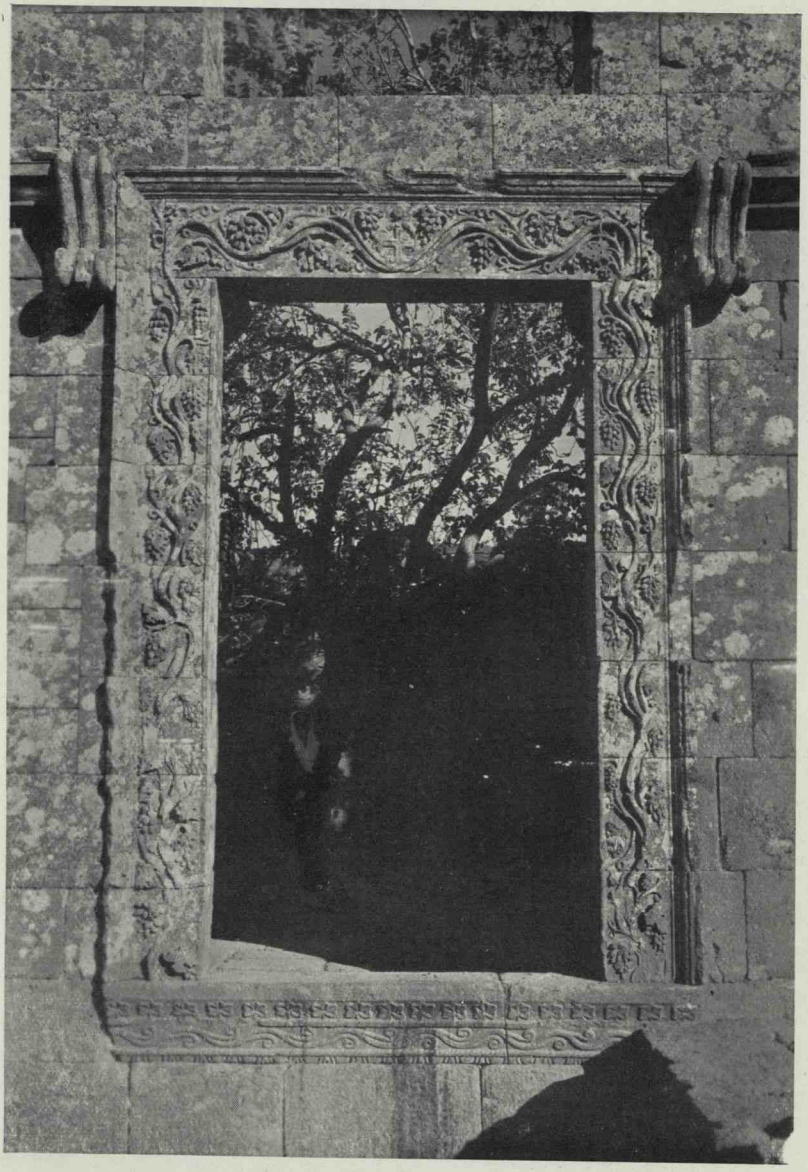


(*b*) Baalbek. Entablature fragments from temple of Jupiter.

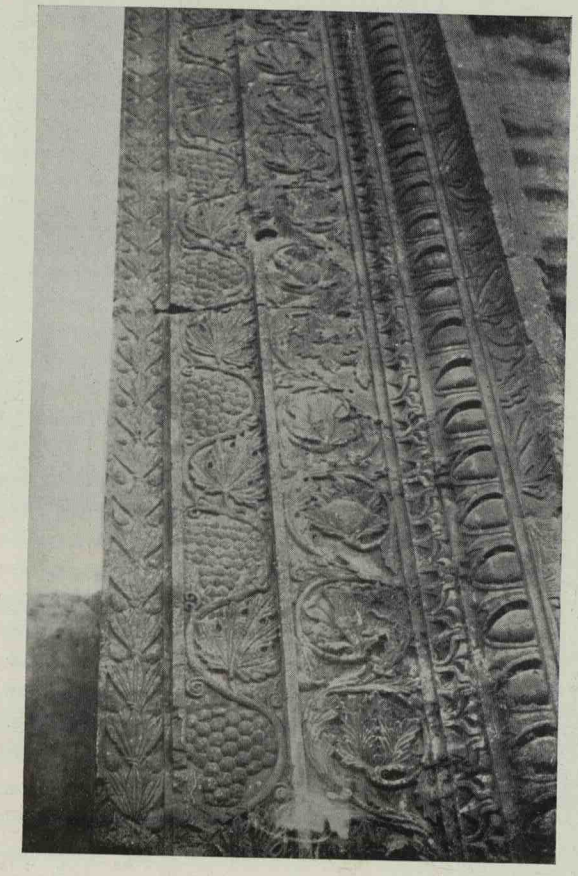
(*a*) Palmyra. Cella of Bel temple, south end. Ionic capital.

(*b*) Baalbek. Bacchus temple. Caisson of peristyle ceiling.

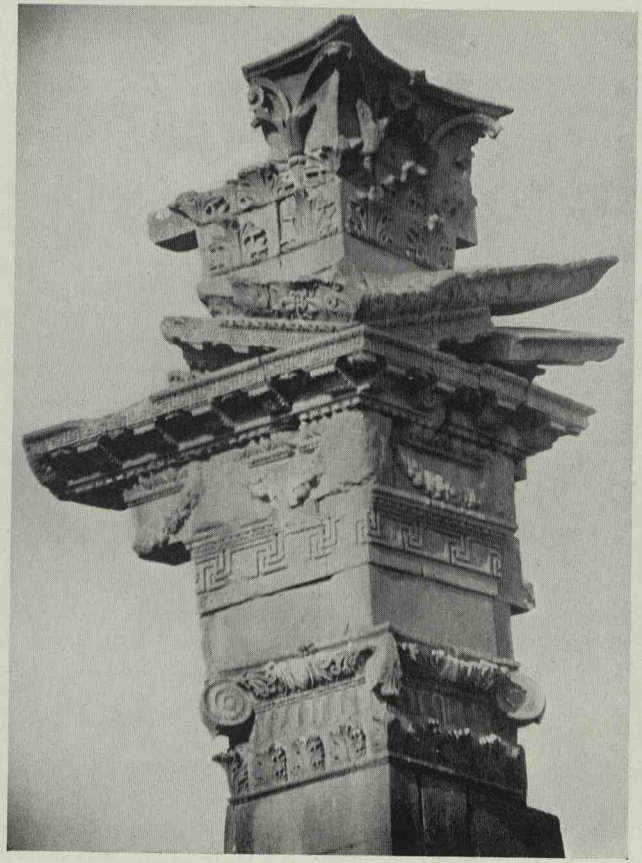
(*c*) Baalbek. Caisson from great court.



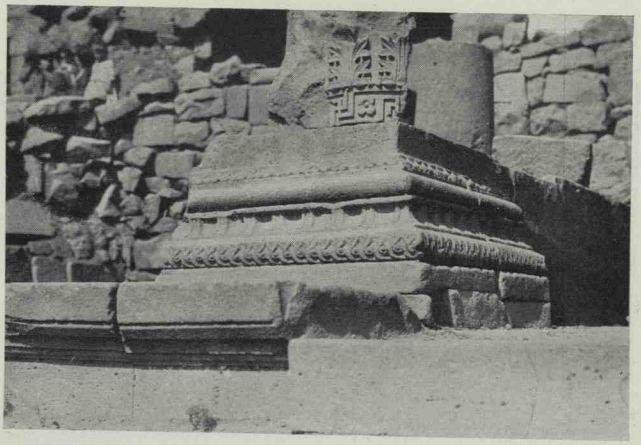
Doorway of "Little Basilica" at el-Kanawât, Syria (Haurân).



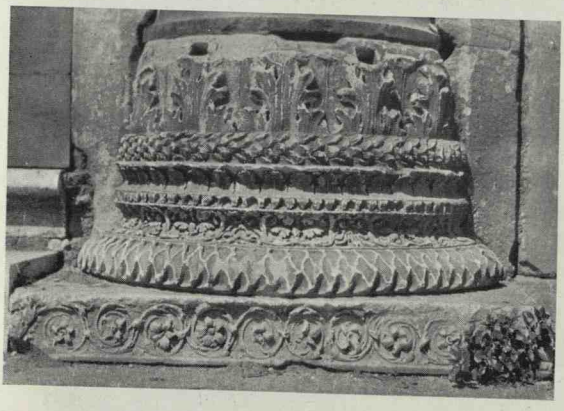
(*a*) Palmyra. Bel temple. Architrave of outer doorway on west side.



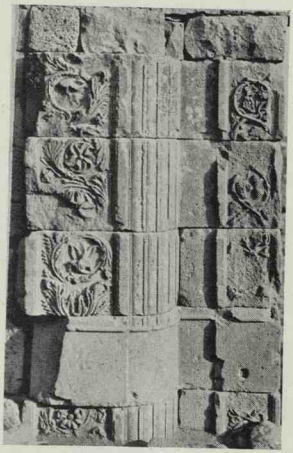
(*b*) Slem, Syria (Jebel Druze). Angle of temple.



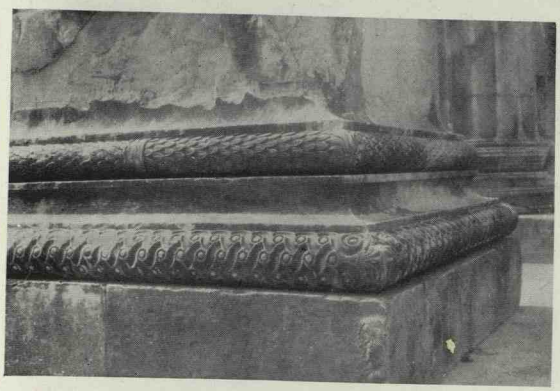
(*a*) Base from temple at Mouchannaf, Jebel Druze.



(*b*) Base from St John Lateran, Rome.

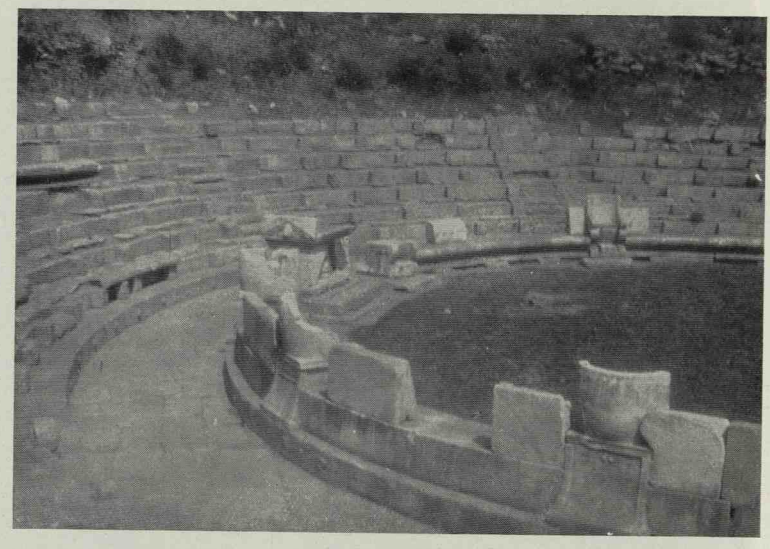


(*d*) Re-assembled jamb of a doorway at Bosra (Haurân).



(*c*) Anta-base from the Didymaion, near Miletus.

(*e*) Mausoleum at Belevi, Corinthian capital.



(*a*) Theatre at Priene. General view showing back of front-row seating.

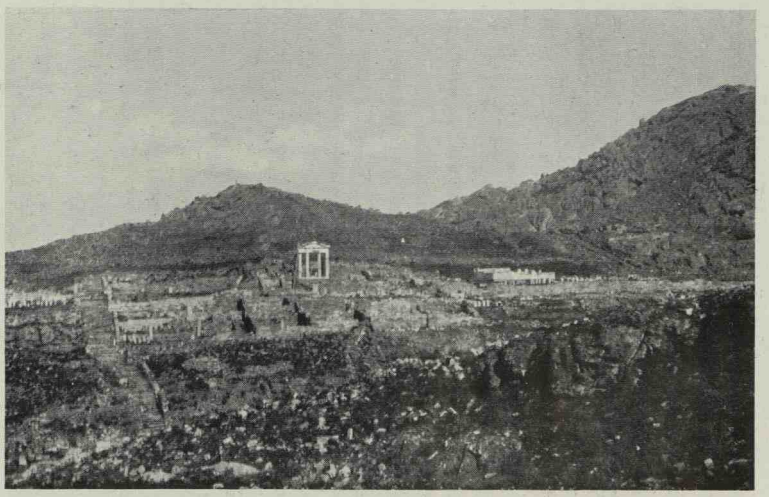
(*b*) The same. Die-wall at end of seating.

(*a*) Priene. Bastion forming platform of Athena temple, from west.

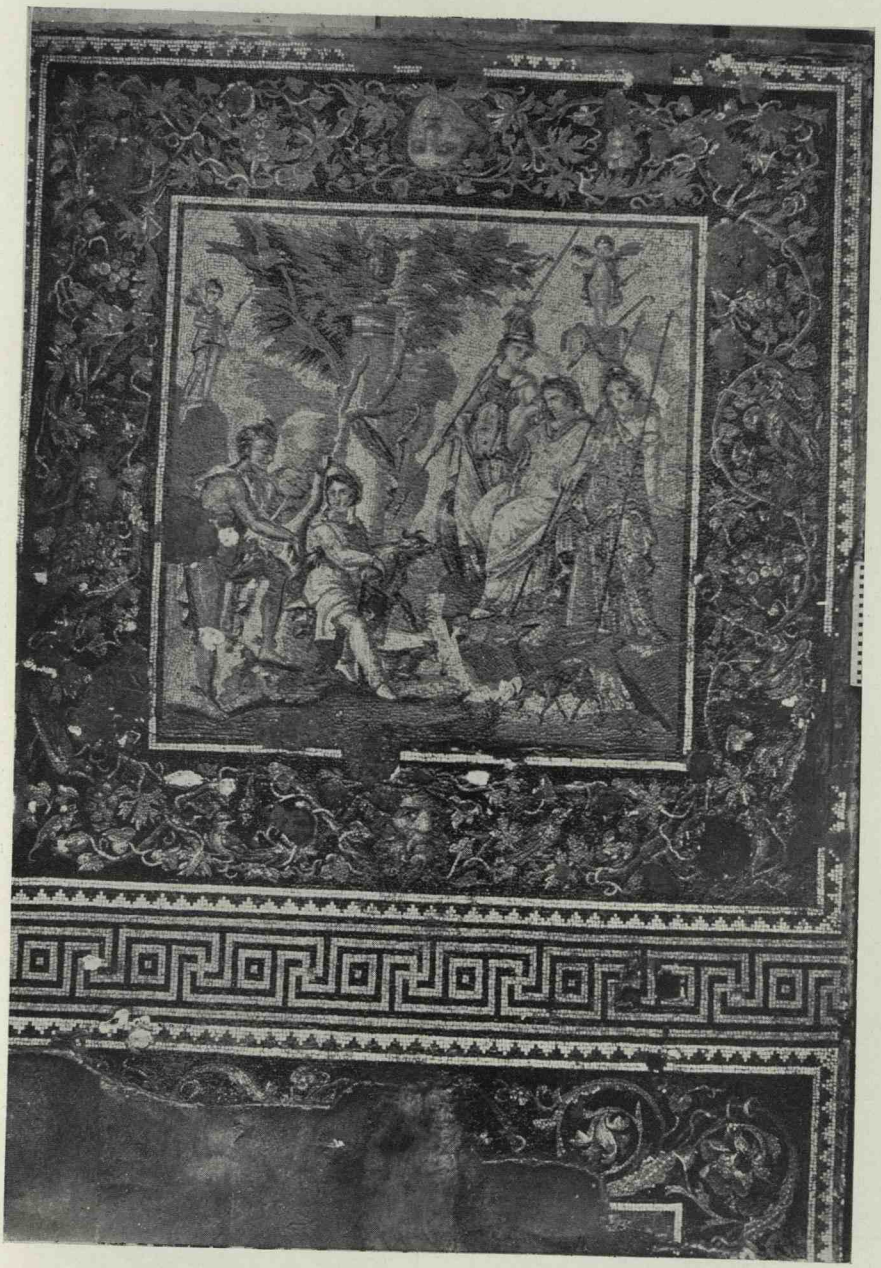
(*b*) Priene. Proskenion of theatre.

PLATE XXIV

(*a*) Delos. View of lower (Hieron) site, looking west.



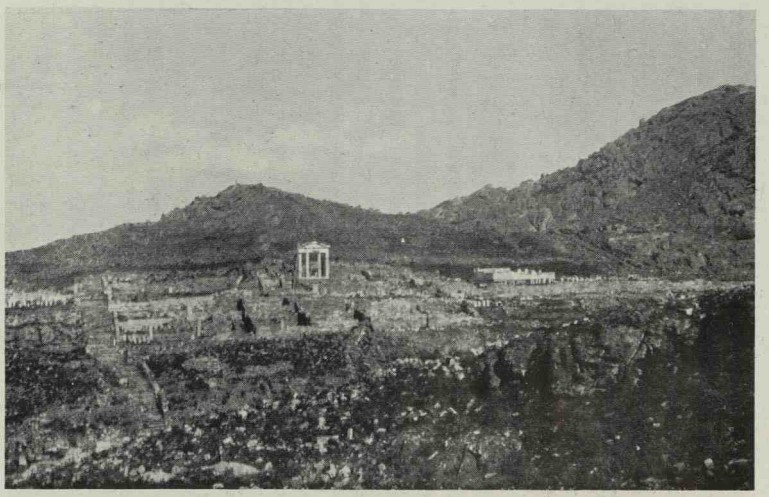
(*b*) Delos. View of upper residential and Eastern-sanctuaries sites, looking east.



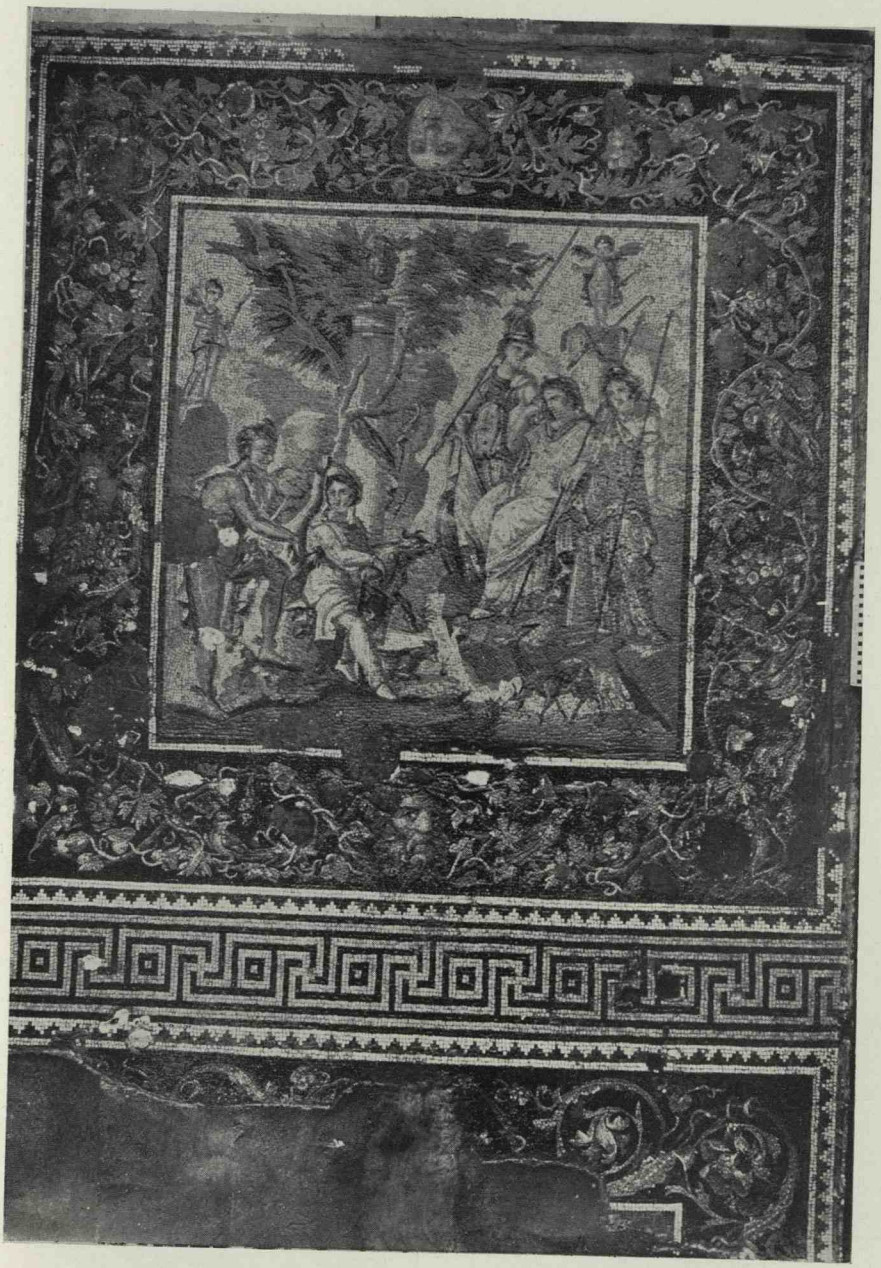
Antioch. Mosaic floor-panel of first century (Louvre, Paris).

PLATE XXIV

(*a*) Delos. View of lower (Hieron) site, looking west.



(*b*) Delos. View of upper residential and Eastern-sanctuaries sites, looking east.



Antioch. Mosaic floor-panel of first century (Louvre, Paris).

Restored view of Baalbek from the south-east.
(From Th. Wiegand and others, *Baalbek*, Walter de Gruyter and Co., Berlin, 1921.)

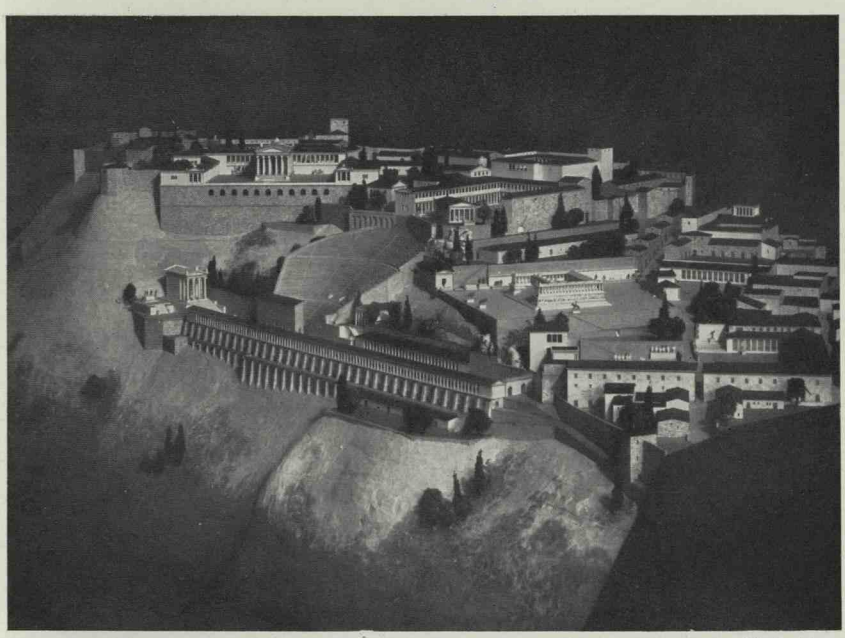


Photo Treue

(*a*) Restored model of Pergamum (Pergamon Museum, Berlin). General view from the south-west.

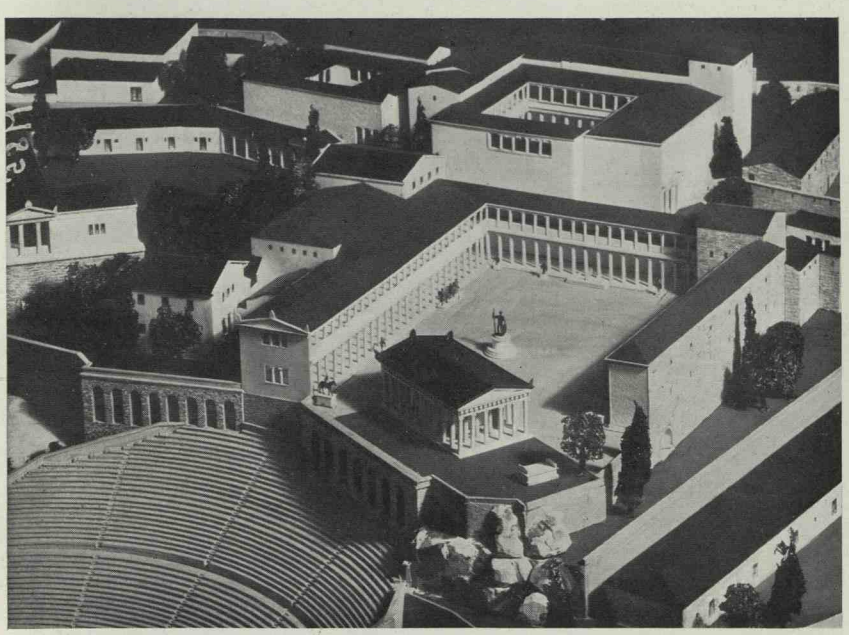
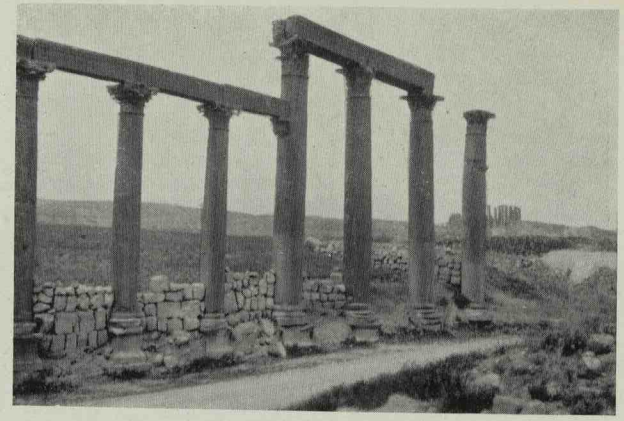


Photo. Treue

(*b*) From the same, showing Theatre, Athena temple and Library.

(*a*) Delos. "House of the Masks."



(*b*) Jerash. Colonnaded street.

(*c*) Soluntum, near Palermo. A house peristyle.

(*d*) Endsleigh Street, Bloomsbury, London.

(*a*) Gerace Superiore, Calabria, South Italy. Interior of Cathedral, looking east.

Photo. Alinari

(*b*) Monreale Cathedral, near Palermo. Interior, looking east.

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Thicker-type numerals refer to numbers of text-illustrations.
Roman numerals refer to numbers of plates.

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