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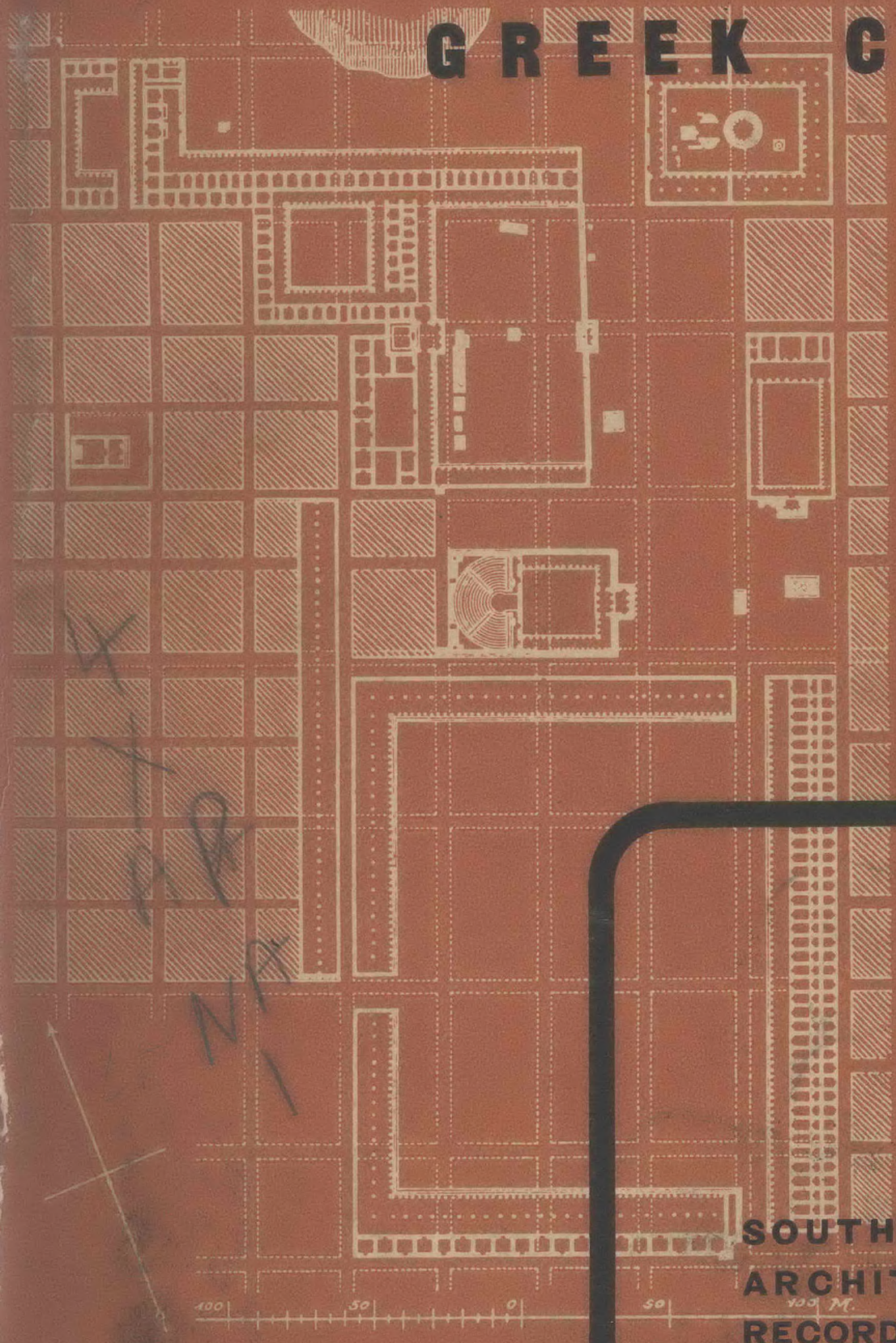
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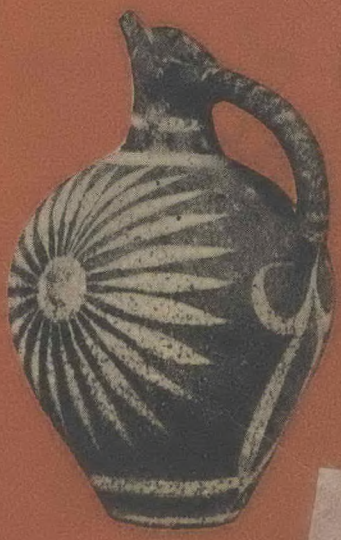
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GREEK CITIES





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GREEK CITIES

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HON. EDITORS: G. E. PEARSE, REX MARTIENSSEN. SECRETARY. A. S. PEARSE



The Acropolis of Athens from the West

A Reconstruction

GREEK CITIES — FOREWORD

Mr. Rex Martienssen has earned high praise both here and overseas by his work on the Hellenistic House, which appeared in the South African Architectural Record last year. He has now made a comprehensive study of town-planning in Greek cities and our particular thanks are due to him for bringing together in a brief compass widely scattered pieces of evidence.

The excavations at Priene came as a revelation to most scholars and it is good to see that Mr. Martienssen has given special space to the study of this elaborately planned town.

Here we have a point where Classical and Architectural studies meet; and it is to be hoped that Mr. Martienssen's example in promoting the co-operation between University Faculties will be followed by others. There are all too many cases where lack of this co-operation produces wastage and actual misunderstanding.

One other point should be mentioned. The average classical student is often shown nothing but ruins, which he finds extremely difficult to digest. Here the architects can help us by producing and reproducing reconstructions; and this Mr. Martienssen has done with outstanding success in this and in last year's Greek number of the South African Architectural Record. Indeed the whole production of the Record is something of which we may be proud.

All classical scholars and all historically minded architects must hope that Mr. Martienssen will long continue his Greek studies—not entirely despising the Roman world!

T. J. HAARHOFF

Professor of Classics, University of the Witwatersrand

GREEK CITIES

by REX MARTIENSSEN

The Town as an Arrangement

The history of town-planning is the record of man's effort to adjust his surroundings to the scale and shape of his requirements. The results of the earliest attempts were rudimentary for the predominant idea of shelter did not immediately produce architecture. With the passage of time and as a result of a growing desire for a settled state and a permanent type of dwelling there was a tendency to shape raw materials according to a pre-conceived scheme of construction. The inauguration of this process establishes the bases of organised building, since capacity for arrangement and mastery of building technique (however elementary) are the twin achievements on which all architecture is founded.

Town-planning is an extension of architecture. It involves in its simplest form the combination of single dwelling units in a recognisable arrangement. For although the quality of architecture may exist in each of a dozen houses, the definition of town-planning cannot be said to have been satisfied by the juxtaposition of units unless the idea of order and arrangement be included in their relationship. Mere grouping is primarily the result of expediency. Collective safety, convenience, the pooling of resources are all expressions of the gregarious impulse that characterises man. These are the ideas from which the city idea springs. The ability to combine and express such concepts in plastic form, however, marks one of the highest intellectual achievements in the history of European culture.

Primitive peoples do not normally achieve architecture or urbanism because they lack the faculty of planning and working towards a pre-determined end. With technical ability must be grouped the peculiar sensibility that enables the creative impulse to strive for a material expression that goes beyond the minimum demands of shelter and security. The hut marks a considerable step from the cave; the house and the city in turn replace the hut and the village.

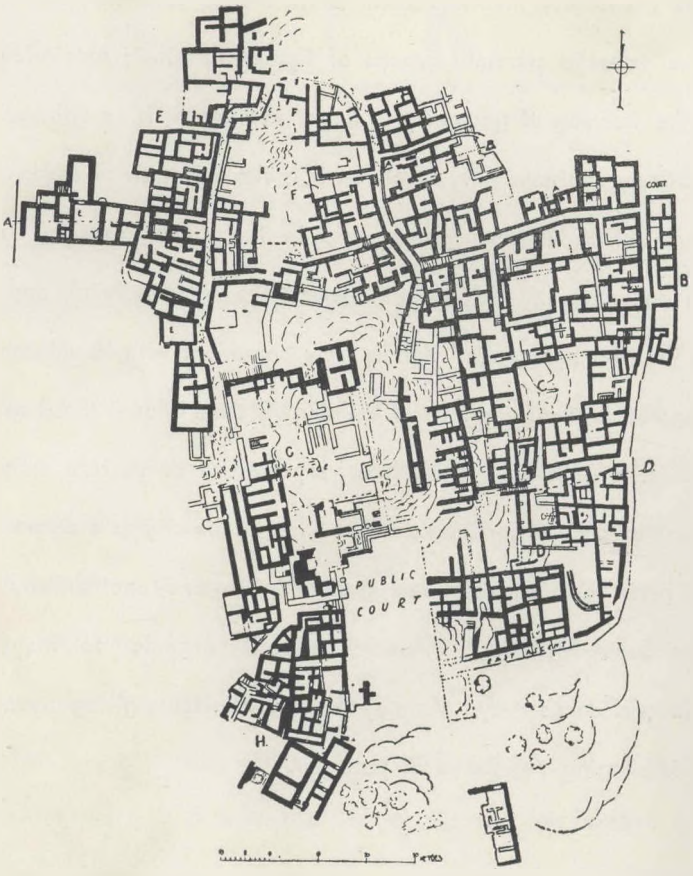
Egypt in her brilliant stone architecture initiated a phase of " organised surroundings " that was extended

by Greece and Rome into the systematised vocabulary that was destined in time to constitute the idea of classic arrangement in building. In the splendid pyramid groups of Egypt with their outstretched causeways lies a supreme demonstration of the meaning of geometry. Egyptian building is an affirmation of order; it negates confusion and the arbitrary sentimentality of chaos; it is the antithesis of makeshift. Closer to us are the ideals of life that Greece out of her own genius gave to the western world. The Greek city is the outward expression of a collective life rich in activities of the creative mind, and its architecture is a timeless exposition of the created background that is truly consonant with its informing spirit. Egyptian architecture stated the great fundamental laws of building, Greece infused the shaping attributes of the humanities into the city fabric. With new ideals (the very genesis of western culture) came corresponding dimensions in the sphere of civic organisation. The idea of the city as a corporate whole, an organic mechanism, in which the parts bear an essential relationship to one another and to the complete scheme is characteristic of the Greek attitude. We owe the word " organic " to Aristotle, it stands for a quality of harmonious and integral consistency. As a symbol it is as vital in giving meaning to architecture and town-planning as it is in shaping the forms of pure art.

Background to Greek Planning — The Minoan Towns.

Between Egypt and historical Greece there is an important link. Research in Crete during the past forty years has thrown considerable light on pre-Hellenic activities in the Eastern Mediterranean, and has revealed the remains of a civilisation that achieved notable proficiency in the fields of applied art and architecture. To-day instead of having to accept the notion of a Greek civilisation without assessable antecedents (beyond the point of the first Olympiad) we are able to envisage a vigorous and apparently prosperous people whose era dated approximately between 3000 and 1200 B.C.

It is not possible here to comment on the origins of the Minoan forerunners to the historical Greeks, but we may note briefly that their " civilised " existence has been computed by Evans to cover three major epochs which he designates " Early Minoan " (3000—2000 B.C.), " Middle Minoan " (2000—1600 B.C.),



Remains of the town of Gournia, East Crete. Situated on the Bay of Sitia and dating from the Middle Minoan era

and "Late Minoan" (1600—1200 B.C.). The last date records the collapse of the Minoan thalassocracy, which may have been due to an over-ambitious colonial policy with consequent weakening of the mother country. What we can assume from the available evidence is that the Minoans were a seagoing race of traders, peace-loving and free of oppression. Contact with Egypt over a considerable period is indicated by pottery finds in Crete and Egypt, and in fact such finds have largely been the basis of establishing a parallel chronology between the two civilisations.

What can we say of the "town-planning" of the Minoans? So far the principal interest has centred on the excavations at Knossos and Phaestos, where great palace buildings have been uncovered, but at which no surrounding towns have as yet been systematically investigated. In Eastern Crete, however, a small town gives us an interesting insight into everyday life in Minoan times. Gournia, on the

northern coast, was a town of farmers. It covered the slope of a small hill close to the sea, and on the summit was what Pendlebury[1] terms the Mansion of the Lord of the Manor. This faced on to a comparatively large public court and had a miniature theatral area.

The sloping site of Gournia necessitated terracing, and in fact the part single and part double-storey type of house must have been deployed in much the same way as the cottages of the Cretan villages are to-day. The domestic area of the town consisted of rectangular houses separated by narrow roads (or rather footways, for according to Hall[2] the laden beasts of modern Crete could not have traversed these tortuous cuttings) and built "haphazard upon the naked rock." The accompanying plan shows all these points. What is important to our present purpose may be summarised as follows: We may note that,

1. The town had in its palace and public court a civic centre, a fact which in itself is a clear indication of the degree of organised living and of communal interests that had been reached by this date.[3]

2. The houses were rectangular on plan, and had courtyards. In some cases independent structural columns were employed to support the roof.

3. The streets though narrow (those at Phylakopi were only 1½ metres wide) were paved with small stones.

4. The town plan was continuous and cellular and therefore the result of concerted and collaborative effort.

Perhaps the great span of time that separated the Minoan era from that of the true Hellenic civilisation would invalidate any attempt to trace a continuity of planning tradition, but the great step from primitive methods of group life which such a town shows, and the close parallelism that can be demonstrated to have existed between its arrangement and that of the mature Greek cities argues strongly for such a hypothesis. The palace and public court should be remembered when we later examine the zoning and public building distribution in Greek cities. The right angle and the straight line, as Haverfield reminds us,[4] distinguish civilisation from barbarism, and in our Cretan town though the roadways curved when the problem of the sloping site was too great to be met by a rectilinear system, the "architect" apparently could not tolerate the amorphous and uncontrolled effect of curved and indeterminate wall systems in the houses. The paving of the streets may seem a small point, but this refinement reflects



Household earthenware vase from Phaestos; dating from the Middle Minoan era

not only a keen practical sense, but also a cognate attribute of desire for formality that we must recognise. The continuous nature of the plan of Gournia, and the repetition of approximately standardised dwelling elements with courts indicates a conceptual attitude to the problem of spatial and constructive technique. Hall is a little severe when he stigmatises these Cretan dwellings as being placed haphazard,[5] for the adjustment of formal construction to existing site demanded extreme ingenuity in the face of a rigidly postulated planning system for the dwelling units themselves.

Let us glance for a moment at one or two other factors that have a bearing on the Minoan attainments in organised building. The size of the town would seem to be determined by the productive factor of the surrounding country, for with primitive methods of transport and poor communications the problem of commodity supply and distribution in the case of a large population in a single town would be extremely difficult to solve. Consequently the size of a town tends to reflect the agrarian or other form of stability of its immediately accessible surroundings. The Minoan towns appear to have been virtually unfortified, and in the case of the large palace buildings such as those at Phaestos the resultant architectural freedom can be seen in spacious entrances, outward-looking loggias, and broad paved terraces which commanded magnificent views over the countryside, as well as providing a generous and orderly setting for the state affairs.[6] True the houses of the people were small judged by present

standards, but with their private courtyards and close contact with the countryside they must have provided more than tolerable accommodation.

On structure we may note that stone and sun-dried brick walls were common, and according to Hall the houses were plastered externally and "no doubt gaily painted."[7] The well known series of faience plaques from Knossos representing two and three-storied facades provides valuable evidence in this connection.[8]

With regard to the demonstrable sensibility of the Minoan people (quite apart from the sense of arrangement shown in their architecture) I shall cite only one significant fact. The Minoans used for everyday household purposes pottery of extreme beauty, not only in shape and colouring but in the fertile imagination of its pattern motifs. Throughout the complex developments and separations of local idiom there is a constant spontaneity and direct appeal in all their ware which must evoke an appreciative response even to-day. The vase from Phaestos which I illustrate suggests without further discussion the kind of people who must have lived in Crete. This household pottery is only a facet of the architectural interior, but even if it is a minor element in the space-arrangement of the small house it is a reliable indicator of the standard of visual and critical selection reached in these times. Of the more complex architectural relationships which denote a high degree of organising ability in spatial contexts I cannot speak here. The palace at Phaestos, for example, demands a separate and detailed analysis for an adequate evaluation of its significance. We have seen, however, sufficient from a town-planning point of view to move towards Greece.

Mycenaean Planning — A Mainland Acropolis.

The key to the next epoch to be considered is the settlement of Mycenae which has given its name to the era that bridged the period between the decline of Crete and the growth of Hellas. Mycenae is boldly situated on a spur of the mountains of Argos, and commanded a strategic position in the time of its occupation. With the collapse of Crete[9] and the move northwards of the centre of Aegean



Citadel of Mycenae

power a sombre chapter in pre-Hellenic history opens. The unprotected type of Minoan town is abandoned and in its stead we find a fortress, its site chosen with a view to military expediency, and its architecture reflecting an era of insecurity and intellectual darkness. Picturesque though its setting appears to the traveller to-day, Mycenae can only be interesting for our present thesis because it shows the early establishment on the mainland of Greece of the acropolis type of settlement. With its massive gateway and encircling walls of stone it is a forecast of the sanctuary of later times where buildings and enclosures for the gods echoed these early arrangements of practical necessity. Although the craftsmen of Minoan Crete may have been absorbed by the mainland hegemony (the so-called Mycenaean pottery and decorated gold cups found on the mainland indicate such a process) the spirit of free creation was dead. There are no signs of a peaceful maritime or agricultural existence, but only the shadow of a warlike people who lived strenuously and built against invasion.

The accompanying plan indicates the general scheme of utilising the area covered by the acropolis. Immediately inside the main gateway (A on plan) and at the beginning of the level escarpment lies a

grave circle (C) and beyond this at about the same level appears to have been a continuous group of dwellings (E). High above these dwellings lay the palace, the megaron arrangement of which is shown at (G). In this early example of zoning (whether dictated primarily by practical considerations or ritual) we see a suggestion of system, of attention to deliberate planning which was ultimately to flower into the balanced and architectonic arrangements of later centuries.

Historic Greece — The Planning of Temple Sanctuaries.

A consideration of the development of town-planning on the mainland of Greece at the beginning of the Hellenic era is beset with many difficulties. Literary evidence has been freely accepted as giving a true picture of living conditions in classical Greece by indicating a wide divergence between public splendour and private amenity. Archaeological evidence is in constant process of widening our knowledge of these conditions, but only gradually as each fresh discovery is made can we put together the facts for a complete survey of urban life. There seems little doubt that in discussing the appearance of Periclean Athens the historians have overstressed the poverty and meanness of private dwellings and minor streets in comparison with the great public buildings and processional ways. Robinson's excavations at Olynthus have shown us that orderly "suburban" layouts were not the prerogative of later epochs, nor does there seem to be sufficient evidence to say that Athens was "an almost Oriental mixture of splendid public buildings with mean and ill-grouped houses.[10]

In default of definite evidence, however, (and this is always difficult to obtain where the town as a living and decaying organism gradually obliterates all traces of its original form) we may accept the current assumption that Greek towns of the 7th and 6th centuries B.C. showed a stateliness in their public buildings that was not echoed in the "half-barbarism" of their side streets. In very early times whether under the influence of Babylon or not, the idea of a generous processional way seems to have been established in Greece and her colonies. References are made by ancient writers to paved roads for religious processions, and although these latter would not approach in volume the

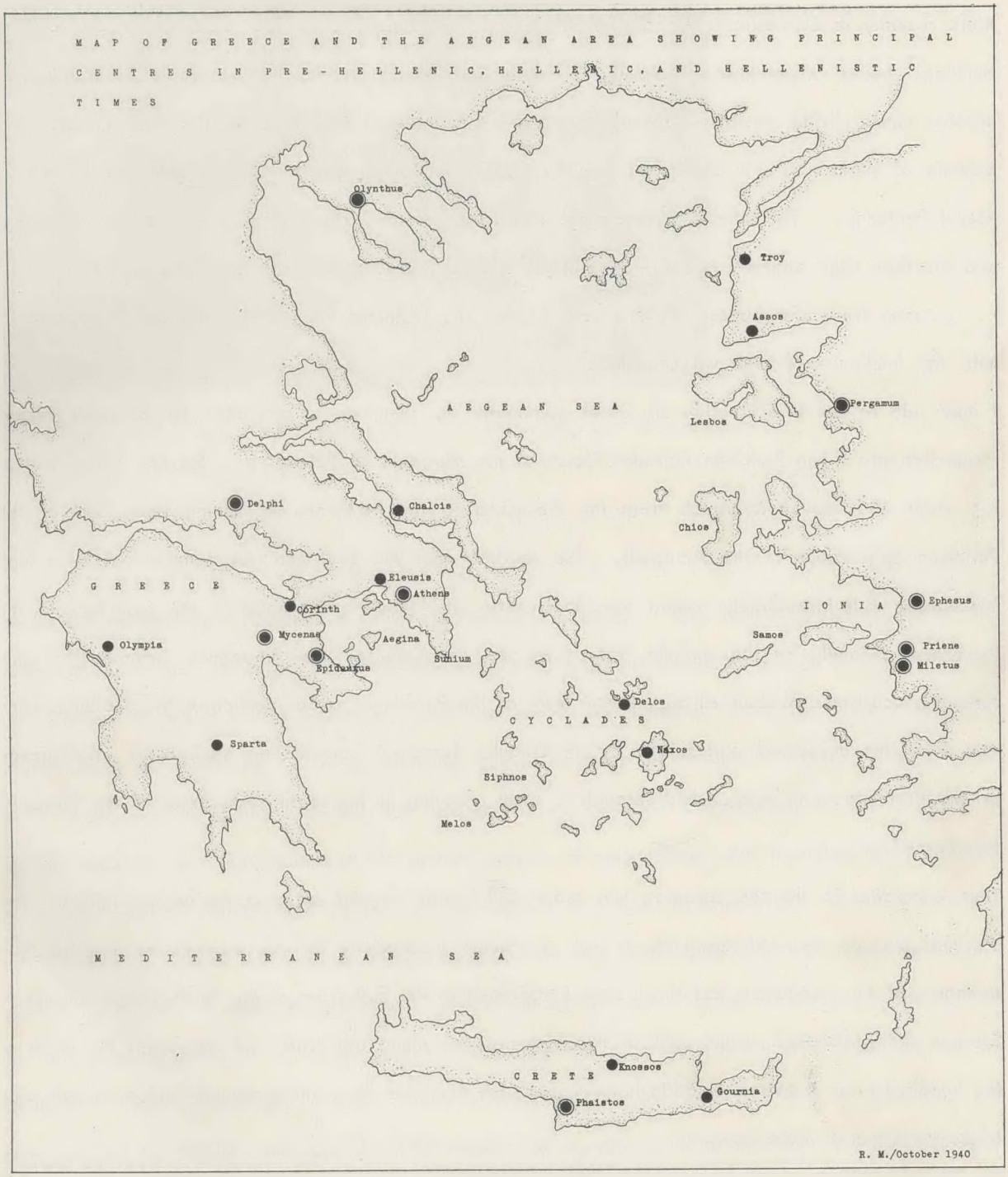
" spectacles " of the great Hellenistic cities with their vast watching crowds, they indicate a growth of civic consciousness that calls for a corresponding architectural expression.

Without embarking on a full discussion of the arrangement and treatment of buildings for civic-religious purposes we may note briefly that the architectural ingenuity that was expended upon such groups of buildings as those at Athens, Delphi and Epidaurus cannot have been without influence in the field of purely civic planning. According to d'Ooge[11] the Acropolis at Athens in pre-Hellenic times grew more and more to be a place of sanctuary, serving also as a place of royal residence and as a citadel. As at Mycenae it formed the fortress-capitol around the base of which grew a settlement. In early historic times the process of adorning the city and building temples was undertaken out of the revenue from taxes. The rich building material of Attica was now exploited, and the great Panathenaic festivals with their musical and other contests were instituted.

The completion of the group of buildings on the Athenian Acropolis set standards for " civic " architecture that not only inspired Greece herself, but served as a symbol of supreme plastic arrangement for succeeding cycles of architectural endeavour.

There is one special aspect of the Greek sanctuary in general and of the Athenian Acropolis in particular that we may consider at this stage. The apparent lack of system and of finite relationship in the arrangement of propylaea, temple, treasury, and statue has given rise to considerable speculation. Penrose, whose exhaustive survey of the Acropolis structures in 1846—47 is the basis of our analytical knowledge of Doric architecture, called attention to the remarkable absence of parallelism in the location of the several buildings on the Acropolis, and observed " that this lack of exact symmetry is productive of great beauty and exquisite variety of light and shade."[12] The remarkable insight of this finding has apparently escaped later commentators on the subject. Lavedan, for instance, is content to dismiss this problem of arrangement with the remark " Les édifices, pris en eux-mêmes, sont beaux et rationnellement construits. L'ensemble est une accumulation confuse d'autels, de temples, de statues, où manquent aussi bien le recul nécessaire pour juger de la beauté de chacun, que la subordination des diverses parties au tout."[13] Lavedan assumes that the spirit of organisation so characteristic of the Greeks could not find expression in practical fields.

Choisy on the other hand reinforces the impression conveyed by Penrose in a detailed and acute analysis



Map of Greece and Ionia showing sites referred to in the text

of the progressive plastic efforts that are offered to the approaching spectator as he passes through the Propylaea towards the Parthenon.[14] His comments indicate that he found no confusion in the group. More recently le Corbusier[15] has said of the Acropolis group: ". . . . the different masses of the buildings being asymmetrically arranged create an intense rhythm. The whole composition is massive, elastic, living, terribly sharp and keen and dominating." And again of the same group: "The balance of parts . . . . is determined by the famous landscape which stretches from the Piraeus to Mount Pentelicus. The scheme was designed to be seen from a distance: the axes follow the valley and the false right angles are contrived with the skill of a first rate stage manager. The Acropolis . . . . seen from afar appears as one solid block. The buildings are massed together in accordance with the incidence of their varying plans."

I must add to this brief section on Greek asymmetry in planning a reference to Stevens's recent researches into "The Periclean Entrance Court of the Acropolis of Athens."[16] Stevens cannot accept the rocky and uneven approach from the Propylaea to the Parthenon as having been part of the Periclean appearance of the Acropolis. He suggests that the approach was defined first by a high Mycenaean wall immediately behind the giant statue of Athena and parallel to the east face of the Propylaea, secondly by the complex formed by the Sanctuary of the Brauronian Artemis (the east stoa of which would obscure all of the west front of the Parthenon except portion of the pediment when seen from the Propylaea) and thirdly by an irregular forecourt immediately against the west facade of the Parthenon and approached through a small propylon in the south east corner of the forecourt thus formed.

Thus, according to the reconstructor, was order and beauty created out of confusion and ugliness. The awkward changes involved, however, in such a scheme (particularly for processions) the unsatisfactory screening of the Parthenon, and the crowded approach to the East front of the Parthenon (according to Stevens the processions would split in two streams, one along the south and one along the north of the building) make it extremely difficult to accept such a system as an improvement and a formalisation of the western area of the Acropolis.

The spectator to-day sees the full form of the Parthenon from the lense of the Propylaea, the lines of its stereobate and the screen of its columns proclaim order on the sloping rock. The rise and fall



Reconstruction of Periclean Entrance Court to the Parthenon by Gorham P. Stevens

of distant horizons are measured by their geometric exactness. One cannot but feel that if the Parthenon had been obscured by secondary structures its power would have been utterly destroyed. The findings of scholars and architects mentioned above are primarily concerned with a particular manifestation of asymmetry in Greek planning, namely a group of religious buildings at one centre. K. A. Doxiadis,[17] a Greek architect, has undertaken an extended investigation of the problem of related buildings, and has published his spatial analyses of many Greek sites including the sanctuaries of Athens, Aegina, Olympia and Delphi; and the agoras of Priene, Miletus, Assos, etc. Assuming a norm based on human scale rather than accepting " an axial rectangular system of co-ordinates which governs the division of space in later times " and taking as the critical point of departure for analysis the propylaea or entrance of each complex, he argues that a uniform system of arrangement can be deduced. What Choisy and Penrose sensed and appreciated but were not able to generalise, has been reduced by Doxiadis to more scientific terms. His hypotheses and conclusions are not necessarily final, but it is extremely satisfactory that a serious attempt is being made to arrive at a formal explanation of an important phenomenon in Greek aesthetics.

Forces in City Development — 8th, 7th, 6th, Centuries B.C.

Our discussion on the arrangement of temple sanctuaries has carried us into the fifth century B.C. and it is necessary to return to an earlier point to pick up the thread of city development as it was influenced by factors other than those dealt with above. We have seen in pre-Hellenic Mycenae and Athens the predominance of defensive and religious influences. In historic times three factors seem to have shaped the city organism. According to Hirschfeld[18] these were (1) Military, (2) Economic, and (3) Aesthetic. In other words in establishing a town site the strongest position which also offered remunerative prospects and beauty in its topography would be selected. This joint practical and philosophical background colours the whole conception of the Greek "polis," and the completion of the Synoikismos (or union of all Attica)[19] towards the end of the eighth century B.C. must have been reflected, if not immediately, then with growing clarity in the architecture and town-planning of Greece. In Athens, for instance, the Agora superseded the Acropolis as the centre of civic life, and in its situation north of the Areopagus it lay convenient to mainland and harbour. Adjoining it was the Ceramicus, "the centre of the most flourishing manufacture of Athens."[20] This politico-economic adjustment of established traditions shows the dominance of material considerations, and incidentally the important function of the Agora renders it unlikely that the religious citadel had a monopoly of architectural splendour.

The emergence of the isolated village into a state of being grouped under a controlling centre would naturally result in a concentration of public buildings (with a corresponding increase of impressiveness architecturally) in such centres. Pausanias describing Panopeus in Phocis[21] implies a clear distinction between village and city in that the latter has government offices, gymnasium, theatre, market place and fountain.

Of the non-practical aspects of the city, that of the Greek attitude to the city as a pure projection of human effort and therefore capable of being symbolised as a "personality" is evidenced in a variety of forms. Gardner in an extremely informative paper[22] mentions the essential difference in attitude to representation shown by the Egyptians and Assyrians of their cities. These earlier civilisations

commonly depicted the idea of the city in " as naturalistic a manner as . . . . possible." The Greek tendency, however, " to clothe all kinds of powers and abstractions in human form " was maintained when the artist sought to give plastic expression to the character or central inspiration of his city.

This conception of the city as being foremost a " body politic " or as being a union of persons rather than a group of buildings is a significant reflection of the axiom that man is the measure. A constant search for the meaning of life and the visible world coupled with a passion for self expression penetrates every department of Greek activity, and it is in the embodiment of the history and in the indication of the character of its people that the Greek city carries so much interest for later cultures. Among the Greeks " the city was more homogeneous, more fully organised, more unified than among us, was more of a person and less of a place."

For our present purpose what we may infer from Gardner's analysis of the representation of the city in Greek art is that the indivisible unity of the city idea apparently denied the feasibility of pictorial representation of portions of the city which for instance to-day would readily be accepted as adequate in symbolising or suggesting the whole. Such fragmentary indication of the whole by the part which is commonplace to-day had no significance for the Greek, and indeed is demonstrably alien to the Greek conception of material unity.

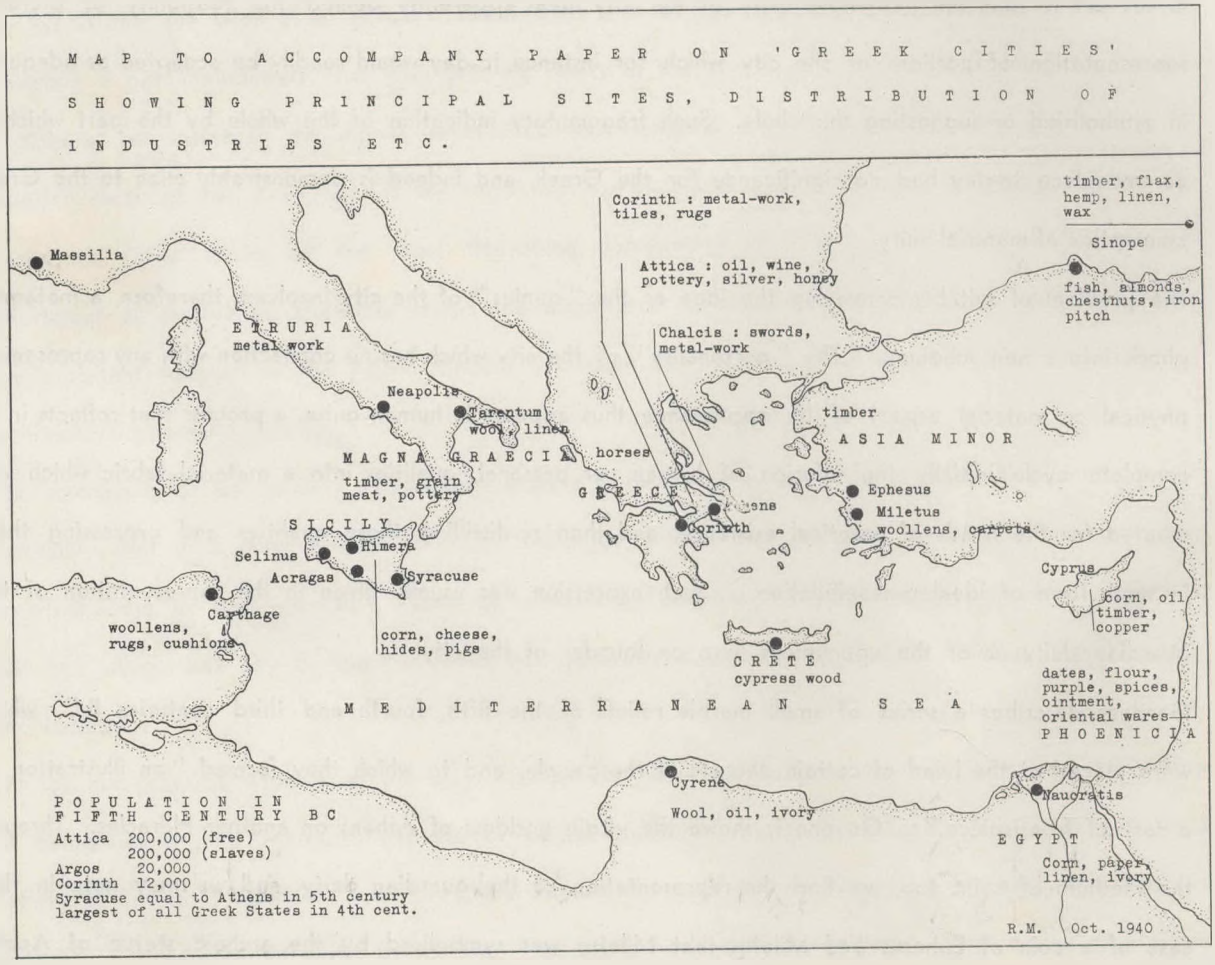
The problem of suitably conveying the idea or the " genius " of the city involved, therefore, a metamorphosis into a new medium. The " personality " of the city which has no connection with any represented physical or material aspect of its appearance thus appears in human guise, a process that reflects in its complete cycle initially the infusion of human, or personal, qualities into a material fabric which was created for the needs of practical existence, and then re-distilling those qualities and expressing them in some form of ideal personification. Such expression was usually given in the representation of the guardian deity or of the eponymous hero or founder of the city.

Gardner describes a series of small marble reliefs of the fifth, fourth and third centuries B.C. which were placed at the head of certain decrees of the people, and to which they formed " an illustration or a sort of frontispiece." On one is shown the virgin goddess of Athens on another Heracles. Through the medium of coins too, we find the representation of the guardian deity, and we may note in the case of a coin of Ephesus and Miletus that Miletus was symbolised by the archaic statue of Apollo

which stood in the Didymaeum in that city, and that Ephesus was similarly represented by an image of its deity.

The city then was considered to have a personality of its own, a completeness which the Greeks found more akin to the union of their own bodies and minds than to the idea of a merely quantitative and practical habitat for the population. The evidence of this attitude which I have summarised may help us to a clearer understanding of the steadfast shaping towards perfection and architectural unity that characterised the progress of town-planning in the Greek world. At any rate it would be as well to bear in mind a concept that must have undoubtedly exerted a continuous though intangible influence on the civic conscience.

Materials used for constructional purposes, and produced in the Greek economy were:—Marble, Emery (Naxos), Marble (Paros, Athens), Obsidian (Melos), Fictile Revetments and Pottery (Corinth and Sparta), "Miltos" (Sinope), Stone (Syracuse)



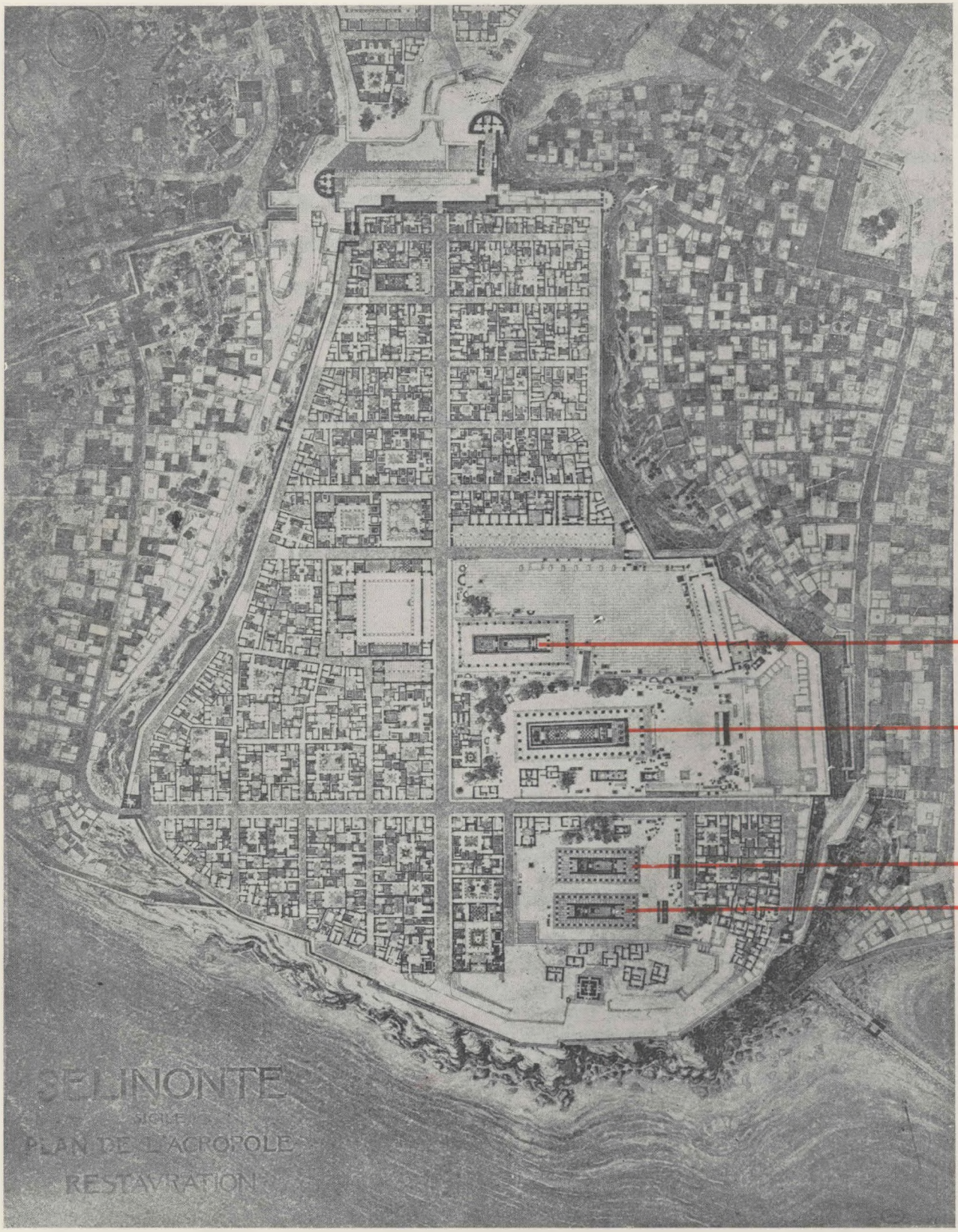
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The expansion of Greece in the eighth and seventh centuries B.C., both in the foundation of colonies and in the growth of her industries laid the foundation for a full and enlightened expression in civic planning in the two succeeding centuries. The rise of the great commercial cities dates from this period. Miletus, Chalcis, Aegina and Corinth testify to a new vitality and trade intercourse over a wide area. Agriculture still provided the general stability, but was supplemented by the manufacture of woven cloth, pottery, etc. The coining of money quickly spread over Greece and new sources of trade were opened up.[23] The intellectual supremacy of the Ionians was now established, and the philosophers of the sixth century inaugurated the bases of science with a strong mathematical bias. The Ionians also showed considerable preoccupation with the necessity for the conversion of theoretical principles into the fields of practical application.

Although the honour of the first essays in town-planning may go to the tyrants of the sixth century B.C.,[24] detailed evidence for formal planning on a wide scale does not seem to go further back than the fifth century.

Selinus — A Colonial City.

Of the colonial cities of Greece, Selinus in Sicily shows a controlled treatment of an interesting site, but the dating of the plan presents many problems. Selinus was founded in 628 B.C.[25] and destroyed about two hundred years later; but whether the plan can be dated at the end of the seventh century or in the fifth century (during which the city underwent a period of great prosperity) is difficult to determined. Haverfield[26] is non-committal, Randall-MacIver[27] does not comment on this point other than to note that there is no detailed record of its life during the sixth and fifth centuries. Myres[28] refers to the "systematic construction of this new city," and Unwin[29] assumes the plan of the acropolis to date from 575—560 B.C. On the face of it there it little to influence us against accepting the date of her great Doric temples as the date of her city plan.


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SELINONTE
PLAN DE L'ACROPOLE
RESTAVRATION

Fougères,[30] however, places Selinus as almost contemporary with Hippodamus the Milesian town-planner, and states that the houses which line the streets are also of the end of the fifth century B.C. Hulot's plan shows the type of house built at Selinus, and these were, according to Fougères, of extreme simplicity and uniformity. The plain facades and peristylar court arrangements appear to have been identical with those of the houses of Delos, and similar to those excavated at Olynthus. It is difficult to reconcile this late date with Myres's reference to the "new" (i.e., as originally founded) city. Nevertheless if we examine the elements of the plan arrangement in relation to the buildings of Selinus there is much to indicate a late date—at any rate the beginning of the fifth century—for the plan.

The actual configuration of the temples enables us to establish the date of the uniform rectilinear plan only in a negative manner, since it is quite conceivable that an informal street system might originally have been complementary to the "loose" and asymmetrical arrangement that exists in the two large temples, and in the group of four temples considered as a whole. Indeed it is extremely difficult to suggest analytically a raison d'être for the group arrangement (considered specifically in relation to the major axes established by the north-south and east-west streets) if it is postulated that the date of the upper (and older) temples is the date of the formal city plan.

Of the four temples it is significant that "A" and "O" in the southern portion of the sanctuary date from 490 B.C., and although Hulot shows these temples hemmed in by blocks of houses to east and west, they are situated in a formal rectangular temenos and are parallel to the main street above them. The large temples "C" and "D" above, which were built in 570 and 560 B.C. respectively display as a group no parallelism or assessable alignment with the street system, such as exists in the case of the later temples "A" and "O."

Suppose that the earlier temples were situated in a city without a deliberately rectilinear system, and that the imposition of such a system were undertaken in the fifth century. The position of temple "D" would then mark the eastern limit of a main north-south axis, and, taking into account the general shape of the acropolis, temple "C" would define the position of the main cross street. These earlier temples are thus given a generous enclosure which firmly resolves their independence within a defined area. The latter temples being contemporary with the new scheme would be easily incorporated in a unified pattern.



Reconstruction of Selinus by Jean Hulot

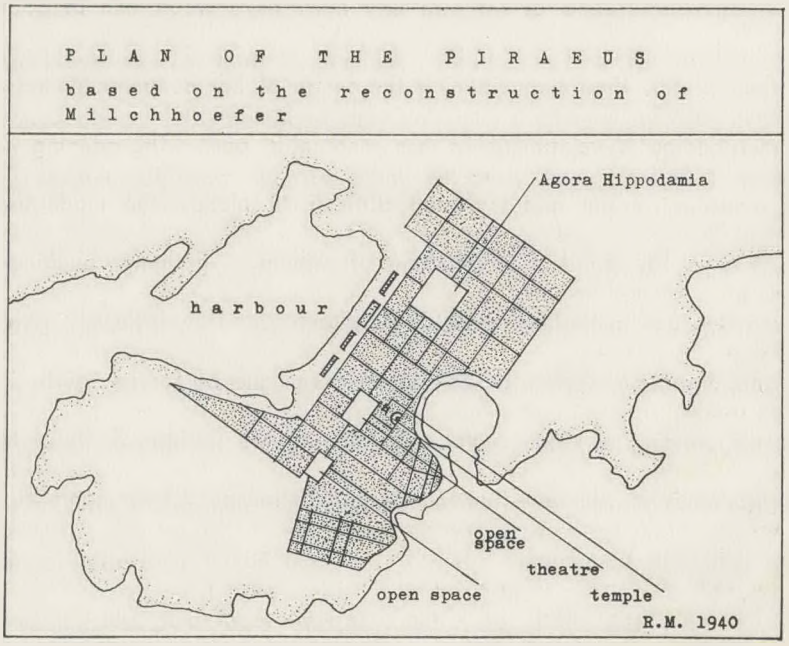
Weight is given to this general hypothesis by the unusual and un-Greek contiguity of the west front of temple "D" with the main street of Selinus. It would be difficult to argue for the deliberateness of such an arrangement (which is not echoed elsewhere in Greek temple schemes) as a unified process unless it is agreed that the temple was built first, and that the closeness of the street is a result of expediency in a scheme which had to incorporate existing and inviolable monuments.

My argument is, of course, not conclusive, nor does it sift in detail the minute considerations that would have to be weighed for a definitive judgment. It does show, however, that there is some evidence for the view that the city plan dates from the fifth century.

Apart from this central problem, we may note the fine setting that contains temple "D," and that merges with that of temple "C." Hulot suggests a lengthy stoa to the north and another to the east of this open space. If such an arrangement is an accurate reconstruction of what actually existed the setting for festivals and ceremonies must have been a superb one. It would seem from such emphasis that the early temples maintained their importance to the end of the life of Selinus, and that the smaller and later buildings to the south did not rival these in the eyes of the city dwellers.

Whatever forces generated the arrangement of the religious sanctuary as a whole, the final plastic effect is of great interest. The temples no doubt lost something of their aloofness by the unwonted intimacy brought about by the new street system, but the variety and vigour of the grouping that resulted are a compensation to our eyes at least. The Doric temple seen from the sea is always peculiarly inspiring,

and one can visualise the significance to homecoming sailors of the first glimpse of their town with its commanding temples in sharp outline against the sky. That personification of the city which we have seen earlier, that attribution of a collective "soul" which made a city more than a group of buildings implied a pre-eminent importance in the city temples. On plan they dominate the city; seen from afar they rise above the houses in massive splendour. To us they suggest the idea of a benevolent protective deity around whom are clustered a group of privileged dwellers, spiritually secure in the shadow of the great houses of the gods.



Fifth Century Development — Hippodamus Of Miletus.

Three important cities, planned on a unified scale and dating from the fifth century must now be mentioned. Thurii in South Italy (443 B.C.) the Piraeus (479 B.C.) and Rhodes (408 B.C.). The design of these three towns has been attributed to Hippodamus of Miletus who was born about 500 B.C. If, however, he was responsible for the planning of the Piraeus (which we may accept) it is extremely unlikely that he would have been in a position to plan Rhodes.

Hippodamus has become rather a legendary figure, and the idea seems to have been widely and uncritically accepted that he was responsible for introducing regular city planning. Actually the so-called Hippodamian system was not Greek in origin, nor did it make its first appearance in the fifth century. Hippodamus can be accepted, however, as standing for a universal recognition of the formal and geometric approach to the problems of town-planning. He appears to have been well established in Athens as a protégé of Pericles during the richly constructive years of the fifth century B.C., and whatever the justification of the claim to his being the founder of the new science of town-planning, the illustrious background of his own city must have stood him in good stead.

Athens at this time was widening the range of her commercial activity, and the Piraeus underwent a corresponding development as her mercantile port. The opening was an obvious one for a town-planner of overseas repute, and it is not difficult to picture the modernisation of the old port on a rational basis as a key political undertaking of Athens. Exchange buildings, warehouses and sample rooms lined the quays, and according to Mr. Tod's picturesque description[31] " Behind lay the city itself, with its teeming cosmopolitan population, its shrines of Greek and of foreign gods, its shops, its inns, its broad straight streets crossing at right angles according to the design of the famous architect and political theorist Hippodamus of Miletus—the earliest application on a large scale of a town-planning scheme."

Fourth Century — Theory and Consolidation.

The first half of the fourth century B.C. probably saw a wide consolidation of town-planning control and management. By-laws relating to the general order of the streets and markets, and the appointment of officials for their supervision are referred to in contemporary inscriptions.[32] Laws controlling the building of houses, the restriction of balconies over the streets, indicate the recognition of the town as an established institution at this period.

Of the theoretical attitude to the problem of town arrangement one of the most interesting statements is that by Aristotle[33] Although his intentions are not always clear, and the brevity of his remarks leaves much untouched, he gives a clue to the various departments of planning which formed the bases of fourth century city design. The need for a healthy situation is stressed, and " the site should likewise be convenient both for political administration and for war. There should be an abundance of springs, or if there is a deficiency in these, reservoirs must be built . . . The arrangement of private houses is considered to be more agreeable and generally more convenient, if the streets are regularly laid out after the modern fashion which Hippodamus introduced . . ." But for protection in war Aristotle advocates the " antiquated system " of irregular streets which assists defence, so that the ideal city will contain two types of layout—regularity for beauty and confusion for security. It is not quite clear how such a scheme would be carried out in practice as a deliberate programme, although the re-building of parts of a town may give a similar effect.

Of the requirements of the citizens as a whole Aristotle says there " should be established an agora, such as that which the Thessalians call the ' freeman's agora ' ; from this all trade should be excluded, and no mechanic, husbandman, or any such person allowed to enter, unless he be summoned by the magistrates . . . . There should also be a trader's agora, distinct and apart from the other, in a situation which is convenient for the reception of goods both by sea and land . . . . The magistrates who deal with contracts, indictments, summonses and the like, and those who have the care of the agora and of the city respectively, ought to be established near an agora and some public place of meeting; the neighbourhood of the traders' agora will be a suitable spot; the upper agora we devote to the life of leisure; the other is intended for the necessities of trade."

In these few statements we have a clear indication that a formal framework of related organisations was postulated as an ideal basis from which to develop a city plan. Adequate zoning, public space and control; suitable aspects and sites for different purposes are all implied by Aristotle, but, (as he concludes his remarks on town-planning) " The difficulty is not in imagining (these details) but in carrying them out . . . . . the execution of them will depend upon fortune." How far these propositions were given expression in actuality we shall see in our examination of Hellenistic planning.

Elements of the Greek City.

The Hellenistic era (330—130 B.C.) inaugurates a philosophy of town-planning that is splendidly expounded in the crystalline cities of Ionia. Miletus and Priene show a brilliant culmination of the laboriously built up heritage that went to their making. The established standards—products of centuries of research—of building and arrangement on a civic scale are gathered up in the single fabrics of these cities. Architecture has found a framework, it is no longer a series of isolated fragments of virtuosity—it is the medium of the whole city pattern. The processional way, the colonnade, the agora, the theatre, the temple, the house combine in a pre-determined scheme. Their individual values and functions have been assessed and co-ordinated, they are subject to a plan that is the product of a whole vision. We may be justified in saying that the political Synoikismos of ancient Attica which pooled resources and moulded a new civic organism was the distant generator of this new and triumphant aesthetic synthesis.

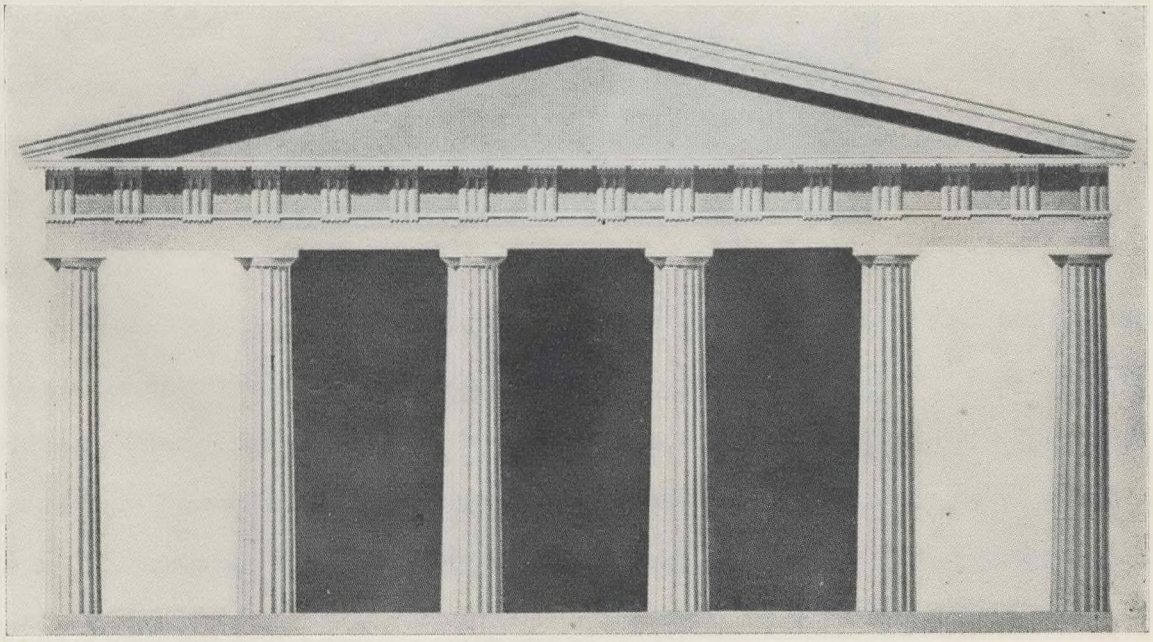
As a single instance of the process of selection and consolidation in the elements of city architecture let us consider briefly the progress of the Doric columnar system which in itself represents a constant underlying theme in all the architectural activities of the Greeks. The Doric system was employed as early as the seventh century B.C. in the Temple of Hera at Olympia, and underwent a change so gradual, and fundamentally so much of degree rather than of kind that we must regard its growth to final appearance as a demonstration of the characteristically Greek method of working to a progressive standard. The basic acceptance of an architectonic-structural system, and the preoccupation with its modification in minutiae over a period of four hundred years is, perhaps, unique in the history of architecture. The Doric system as incorporated in the temple was subjected to a wide geographical distribution.

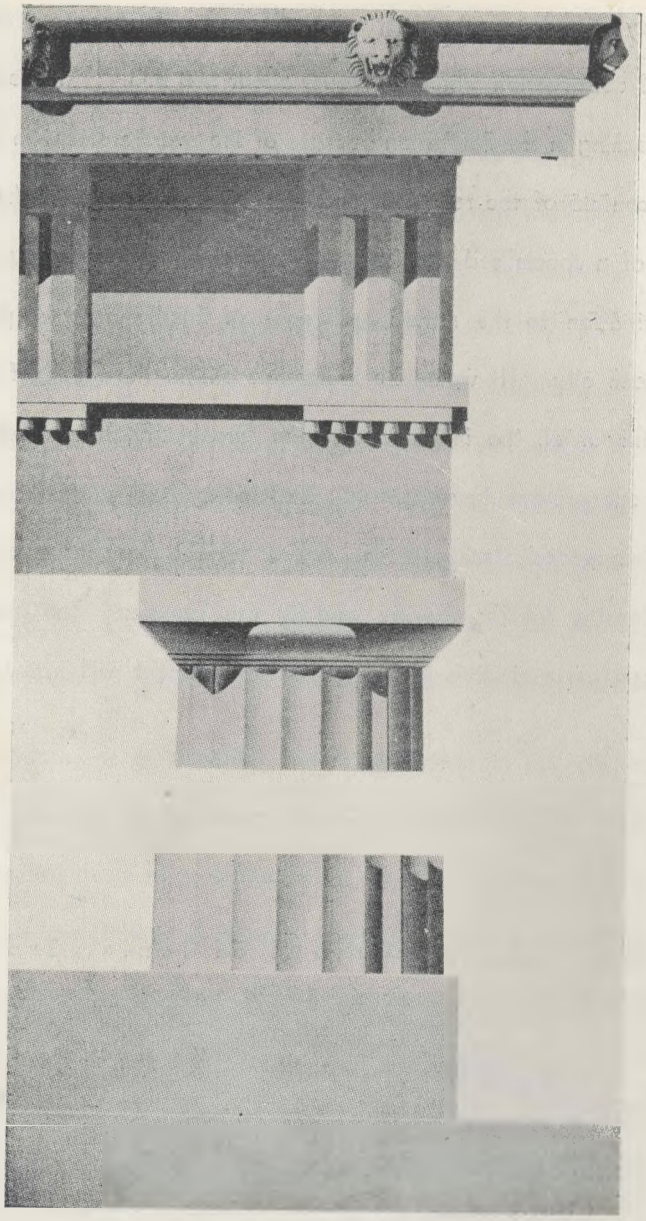
After its early occurrence on the mainland of Greece we find the system vigorously exploited in Sicily in the great temples of Selinus and Acragas. At Paestum, too, the order attains a fullness of profile and a sheer exuberance of form[34] that indicates a spirit of colonial daring which is later modified to less robust proportions in the temple of Aphaia at Aegina, and in the temple of Zeus at Olympia. This "transitional" period on the mainland is followed in the fifth century by the refined and compact expression that occurs in the Theseum and Parthenon at Athens, and in the temple of Poseidon at

Sunium. Finally one may note the use of Doric in the temple of Asclepios at Epidaurus, a relatively small hexastyle peripteral construction which was built about 380 B.C. " Perfection " in the Doric order, which I suggest was only lacking in the Parthenon because of the overstatement in its octostyle arrangement, is here recorded in the context of the religious sanctuary. Epidaurus marks the close of a long process, it is the final flowering of a specialised application.

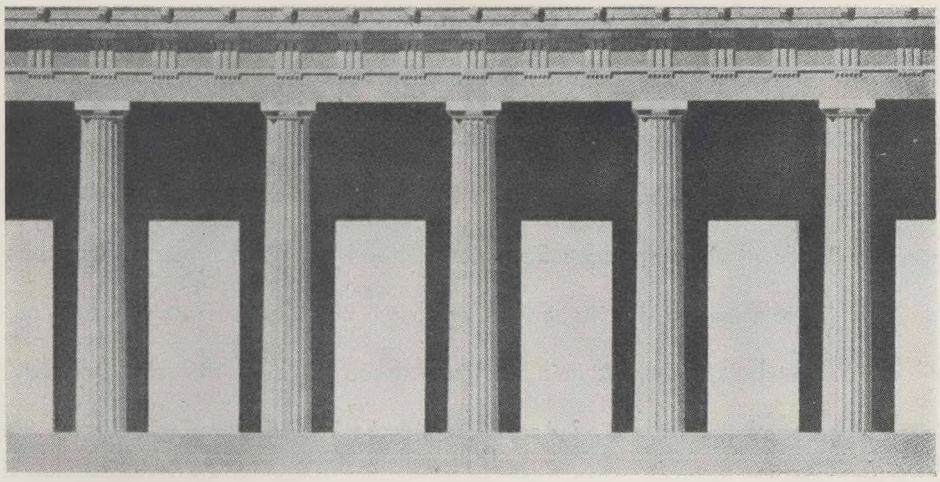
Let us now turn our attention to the nature and range of the " standard " public buildings that were essential units in the Greek city. It would be impossible within the limits of this paper to trace fully the historical development of all the institutions of the Greek city, but I shall sketch the aspects that have some bearing on our present investigation. The elements will be considered in the following order: (1) The Stoa and the Colonnaded Street; (2) The Agora; (3) The Bouleterion and Ecclesiasterion; (4) The The Gymnasium and Palaestra; (5) The Theatre, and (6) The Temple. The house I have dealt with in some detail in a previous paper in this journal,[35] so this element will not be specifically considered in the present survey.

Portico of the Stoa at Cnidus in Ionia, 3rd Century B.C.





Details of the Doric Order of Stoa at Cnidus, Ionia 3rd Century B.C. Typical of the development of the Doric arrangement in Hellenistic times, with its compact silhouette, and light superstructure



Portion of Stoa at Cnidus

The Stoa

The stoa is a logical extension of the idea of an open meeting place which latter in its simplest form offered no shade or protection to the populace. The stoa was essentially an extended portico, the rear wall of which was sometimes pierced to give access to a row of shops backing it. Where the site called for a more complex arrangement (as at Assos in Asia Minor) the stoa was constructed in several storeys, " the colonnade itself facing on the agora, and beneath it one or two storeys which were probably utilised as markets."[36]

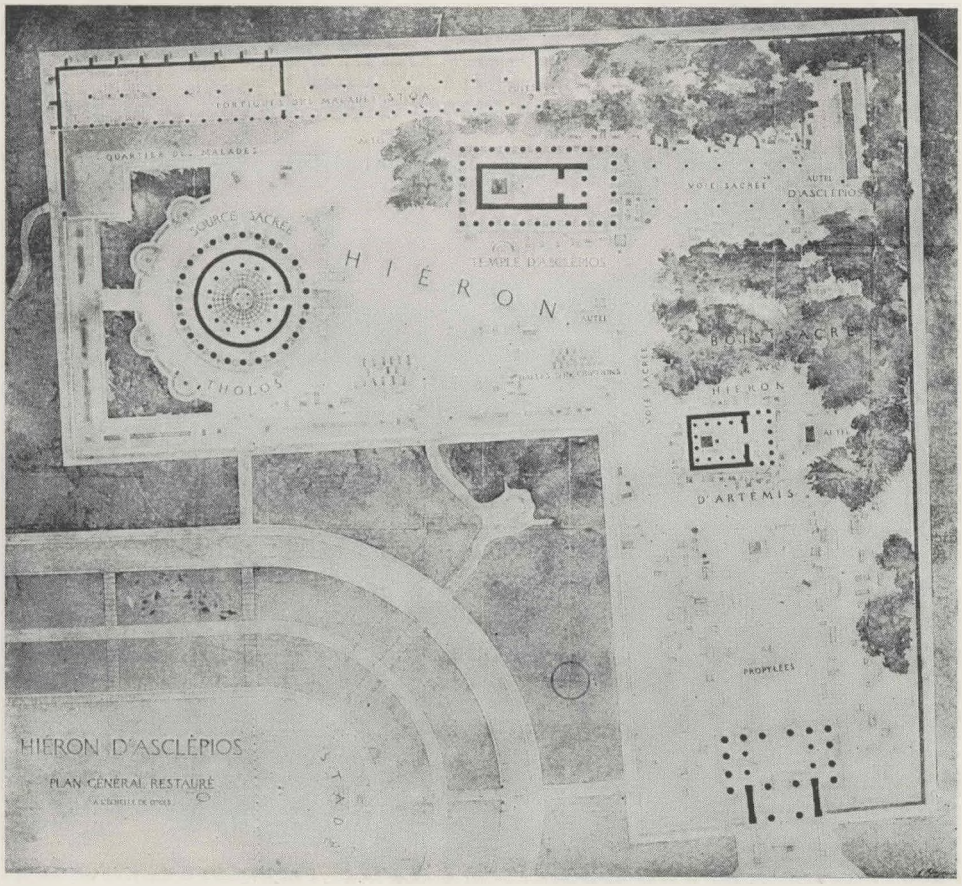
The stoa or so-called " Echo Colonnade " that flanked the treasury terrace and faced the great temple of Zeus in the Altis of Olympia dates from the fifth century B.C., but was according to Gardiner rebuilt in Hellenistic times when it was known as the Stoa Poikile, a name which reflected the wall painting that was used in its decoration. Gardiner summarises the position and function of the stoa in the following statement: " These stoai were a distinctive feature of Greek life. We find them in all places of public resort, in or around the agorai, or the Gymnasia, in sanctuaries like Olympia and Delphi . . . They

were lounges or promenades where people could walk sheltered from the heat or the rain and watch the busy scenes outside." There is some affinity between this element and the theatre, for as Gardiner further remarks "The Echo Colonnade at Olympia commanded . . . a unique view of all the ceremonies in the Altis."[37] Its purpose was not always merely that of a vantage point however, for the Stoic school took its name from the Stoa Poikile at Athens, where Zeno taught; and the stoas of the Piraeus served as exchanges. Apart from its relationship to the agora which we shall examine later, there is an architectural importance which may be exemplified in a final reference. The Stoa in the sanctuary at Epidaurus, against which are arranged the Temple of Asclepios and the Tholos, provides a formal plane of definition for a plastic composition that is dynamic in its asymmetry. The contrasting plan shapes of temple and tholos and the interstitial grouping of statues and shrines are given a final resolution and stability by the "monotony" and repose of the stoa.

The growing application and formal use of the stoa in the post-Hellenic period would seem to justify Fyfe's estimate that it was "the most important plan unit of Hellenistic times."[38]

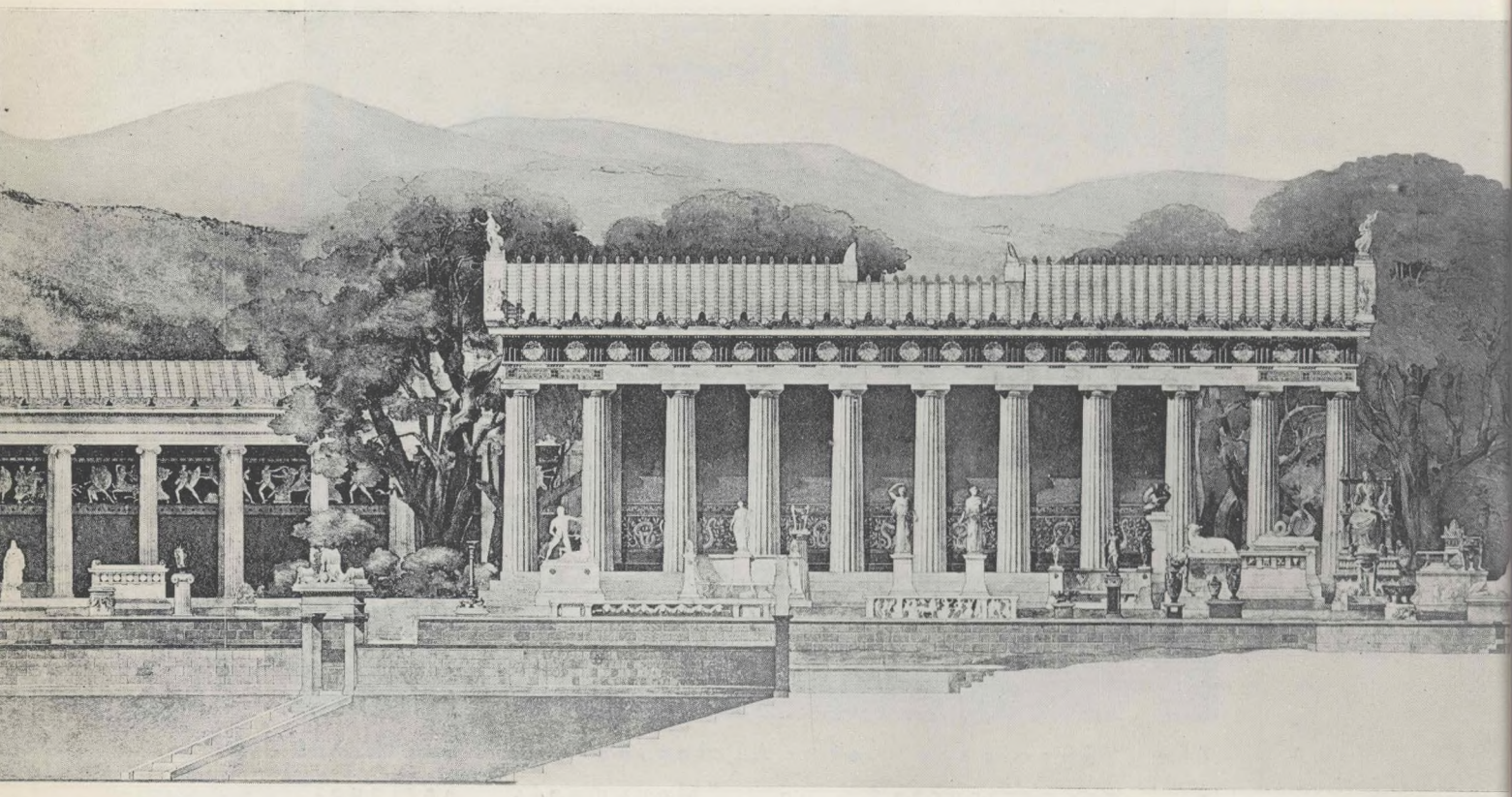
The Colonnaded Street

Although the use of the colonnaded street seems to have been widespread only in Roman times, it must be mentioned here. In the Hellenistic era it seems to have been mainly employed in colonial towns where climatic conditions demanded more protection than the stoa was capable of providing. According to Bosanquet[39] this type of street had its origin in Antioch and Alexandria. At Ephesus the colonnaded street added to the monumentality of the city, but, as Bosanquet points out "the real value of these streets lay in the protection which they afforded from summer sun and winter rain . . . (for) the increasingly gorgeous and perishable clothing of the Hellenistic and Roman East was little fitted for exposure to rain."



The Sanctuary of Asclepios at Epidaurus as reconstructed in "Monuments Antiques"

Note the arrangement of the propylaea, temple of Asclepios, Tholos and Stoa, and the complete articulation of each building within the defined enclosure. It is interesting to compare this group with those contained in the Sanctuaries at Athens and Selinus.



The Temple of Asclepios, Epidaurus, seen from the direction of the Propylaea

From "Monuments Antiques"

The Agora

The agoras in Hellenistic times were of two main types. (1) places where the populace assembled to hear the proclamations of rulers., officials, etc., and (2) places of meeting for the transaction of public or private business. In either case the agora in its mature form consisted of a large open area, rectangular or trapezoidal in shape, and surrounded by stoas. The civic type of agora often included temples within its space as well as public fountains and statues; the bouleterion, prytaneum and basilica were grouped in the immediate vicinity. The commercial agora was usually surrounded by shops and stalls and presumably temporary shelters of many types were set up in the open.

It appears that in early times the agora was an irregularly shaped area at the intersection of important streets, and only in the growth of the corporate idea of a city did it assume any degree of formality. Lavedan suggests that its initial political function was modified with the passage of time into one having an economical basis, but that at all times it remained a place of pleasure and recreation.[40] In the Homeric era only the political aspect is reflected, but by the end of the seventh century B.C. commerce invades the agora and the small merchants with their foodstuffs, pottery and wine and perfume ply their trade freely in this area. Following attacks by legislators and philosophers on this abuse of the civic functions of the agora we have indications of a clearer zoning of functions.[41] Pericles, for instance, constructed a special market at Athens for the sale of cereals.

In general one may say that the agora was placed centrally in the city plan, although in the case of seaports having only one agora this was situated at the quay. Such towns were Rhodes, Alexandria, Thasos and Delos. It must be noted that many inland towns also had only one agora, as for example Corinth. Concerning the form of the agora there are at least two types. The ancient mainland arrangement, irregular, and with a number of apparently unrelated stoas which provided only a partial enclosing structure; and the so-called new type which as evidence indicates, had its origin in Ionia and was introduced into Greece by Hippodamus.

The Agora of the Ceramicus at Athens illustrates the first type. For examples of the second type we may turn to Priene, Miletus, Magnesia, etc., where the agoras are not only strictly geometrical in plan

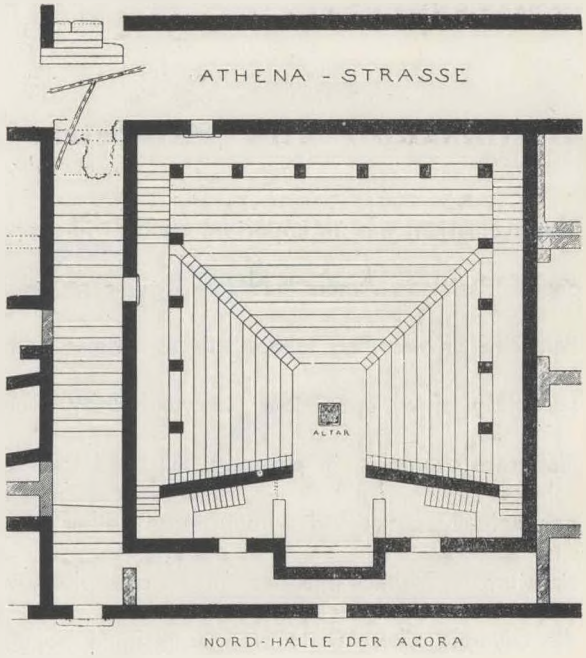
but bear a measurable relation to the city area. At Priene[42] the agora occupies the equivalent of two insulae, at Magnesia six, at Miletus[43] (south agora) sixteen. The accompanying plans show the manner in which the agora was related to the street system, and the variations in detail that were necessitated to meet local conditions. Of the regular type of agora on the mainland of Greece in the post-Periclean period may be mentioned those at Megalopolis, Orchomenos and Argos. Complete enclosure is found at Tegea, Messene, and at Delos. Rectangular treatment appears to have been almost universal, the most notable exception of the Hellenistic epoch being that at Assos[44] where the non-rectilinear arrangement has great vitality and retains for its basis a formal stoa system.

Bouleterion and Ecclesiasterion.

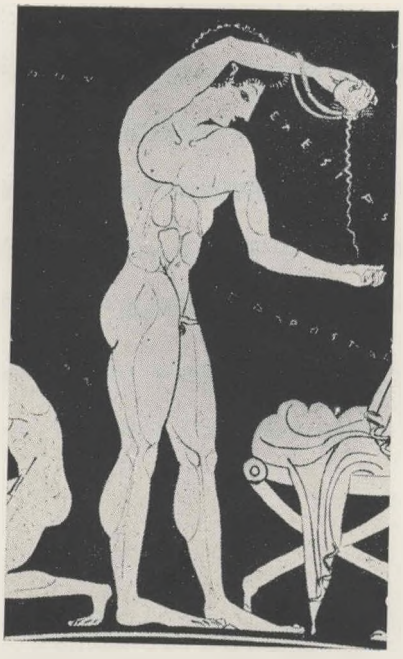
The best known examples of these two classes of building are those at Miletus and Priene. The history of the Boule or Council from which the former type takes its name is an extended one. Gardiner mentions a special council house having been built in the sixth century B.C. or earlier for the deliberations of the Boule at Olympia.[45] The peculiar plan of this building may have resulted from a rebuilding on old foundations. At any rate the central row of columns in the two main halls recalls the archaic Doric temple plan such as that at Thermum. The similarity of this early type of Council Chamber to the simple stoa is apparent; its development into what amounts to a small covered theatre dates probably from Hellenistic times, and at Miletus we see a mature and architecturally significant expression of the functions and standing of the council on which the responsibilities of the city rested. The Bouleterion at Miletus[46] was built about 175 B.C., and was situated at the end of a large peristylar court which was entered through a central propylon. The building itself seated about 1,500 people on the ancient theatre system which in turn was contained within a roofed rectangular space. The general architectural treatment is Doric, but with a strong Ionic influence.

The smaller and simpler Ecclesiasterion at Priene was intended for popular assemblies and held about

700 people. Its situation against the Prytaneum suggests a close practical link in the functioning of these two public buildings. The Ecclesiasterion was a roofed structure measuring about 66 ft. 0 in. each way. What remains of the walling indicates that the building approached monumentality only in its interior treatment, the exterior being carried out in simple masonry. This restraint is an interesting comment on the discrimination that had been reached by the end of the third century. We may note that the sloping system of stone seating followed the main inclination of the site, so that a door in the rear wall was level with the street above. The main entrance was in the south side.



Plan of the Ecclesiasterion at Priene



A youth pouring oil into his hand from an Aryballos, preparatory to rubbing his body
From a Krater of about 500 B.C.

Gymnasium and Palaestra.

The gymnasium was an important element in every Greek city, and in fact the larger cities had more than one. Periclean Athens had three gymnasia, and in later times apparently an even greater number. The Palaestra or wrestling school was sometimes combined with the gymnasium, the latter in its simplest form consisting of an open court surrounded by a colonnade. The various exercises took place, in more elaborate examples, in different halls and rooms. The gradual intrusion of elements of the population not actually concerned with exercise rather widened the scope and accommodation of the original simple structure. Perhaps the best known examples are those at Olympia, Epidaurus and Priene.

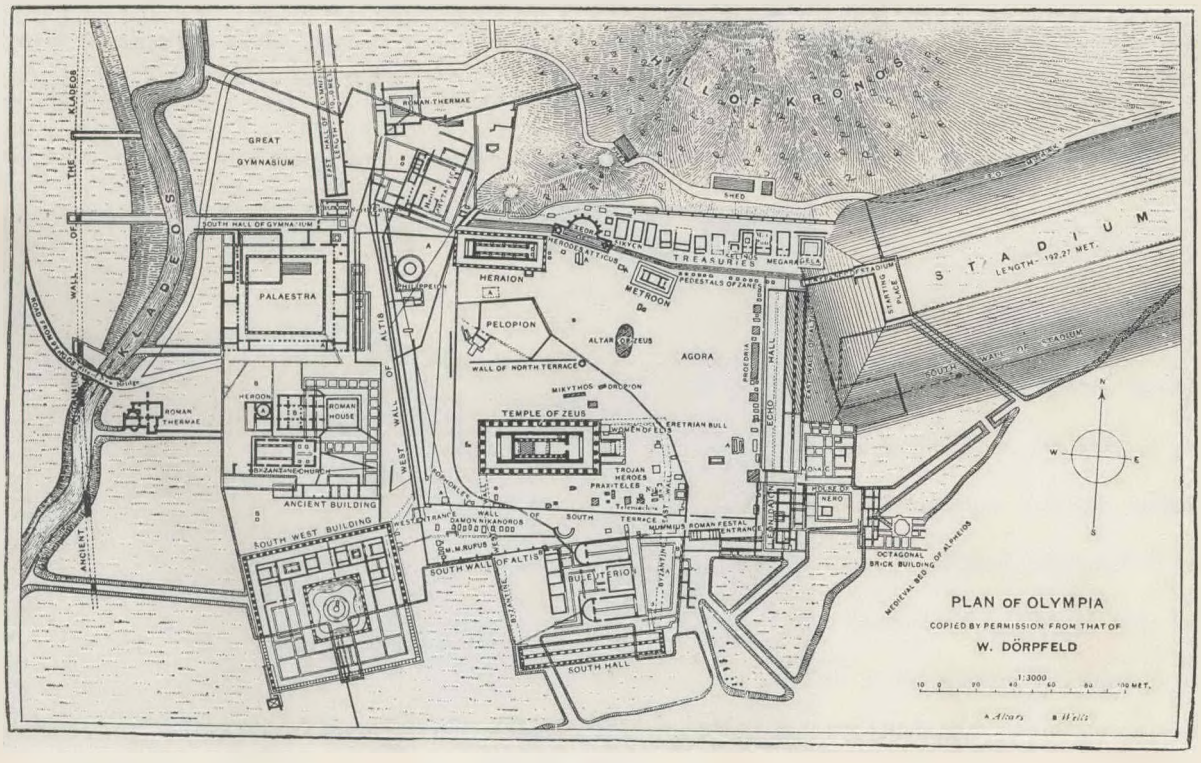
At Olympia where there was no resident population the palaestra and gymnasium had only a limited and specialised purpose. The latter was originally a large quadrangle with at least three enclosing porticoes, one of which served as a covered running track. The Palaestra consisted of an open court about 130 ft. 0 in. square, surrounded by a Doric peristyle. Outside this were the numerous dressing rooms, vestibules, etc. Bath rooms, storage rooms for oil, sand, and athletic apparatus occupied some of this space. Most of the rooms opened on to the peristyle with two or more Ionic columns in antis.

In several rooms were statues of gods, heroes or athletes, and in some stone benches for spectators and competitors. Both buildings appear to date from the third century B.C.[47]

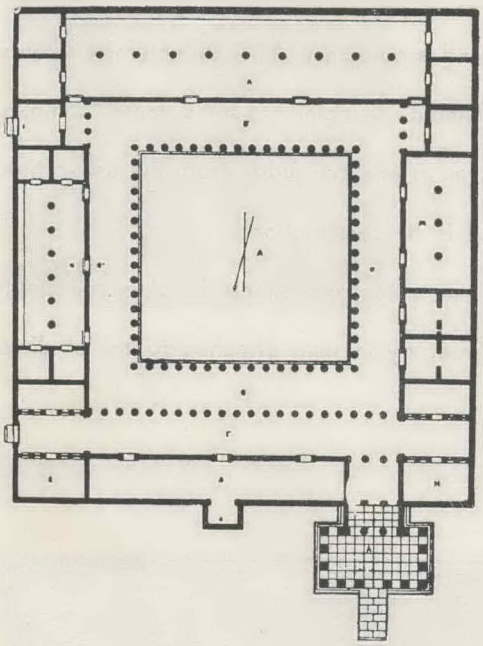
Another site of a specialised character was Epidaurus, the most celebrated centre of the cult of Asclepios, where in addition to the temple group previously mentioned, there were provided hospital, palaestra and stadium. This very interesting group of buildings with the beautiful fourth century theatre nearby is perhaps the equivalent of a health resort, and offers a parallel to the group at Olympia where the athletic festival gave a special meaning to the type and arrangement of architectural elements. At Epidaurus the Palaestra had much in common with the Olympic example. It is more complex, however, and architecturally more subtle than the latter. As far as one can judge from the excavations an air of spaciousness and some luxury must have been achieved in its construction.

At Priene there were two gymnasia, the upper and smaller one which was simple in plan and easily available to the northern element of the population, and the lower gymnasium attached to the stadium.

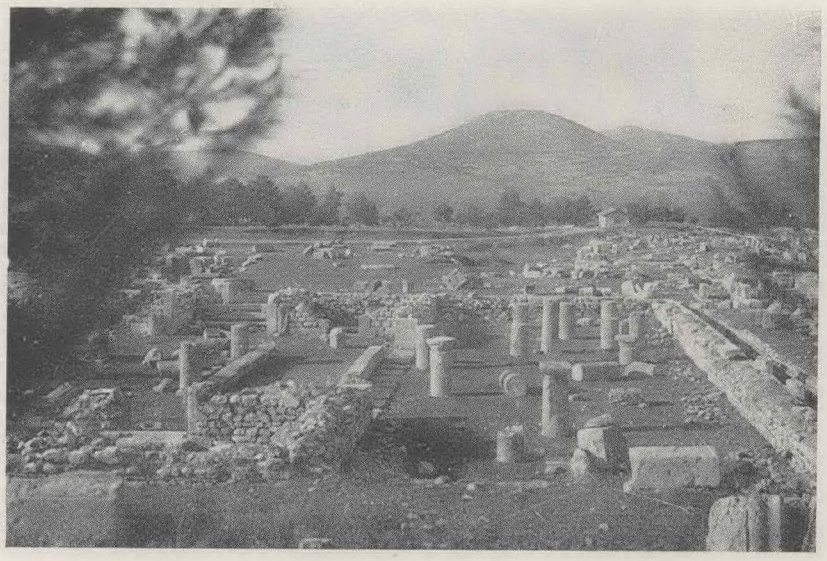
Olympia



Both contain the established elements and testify to the continued importance that was attached to physical fitness by the Greeks. Social and moral factors, however, played their part in modifying the general attitude to nude exercises, and the final collapse of Greek athletics was due to a variety of causes.



Plan and Remains of Palaestra at Epidaurus

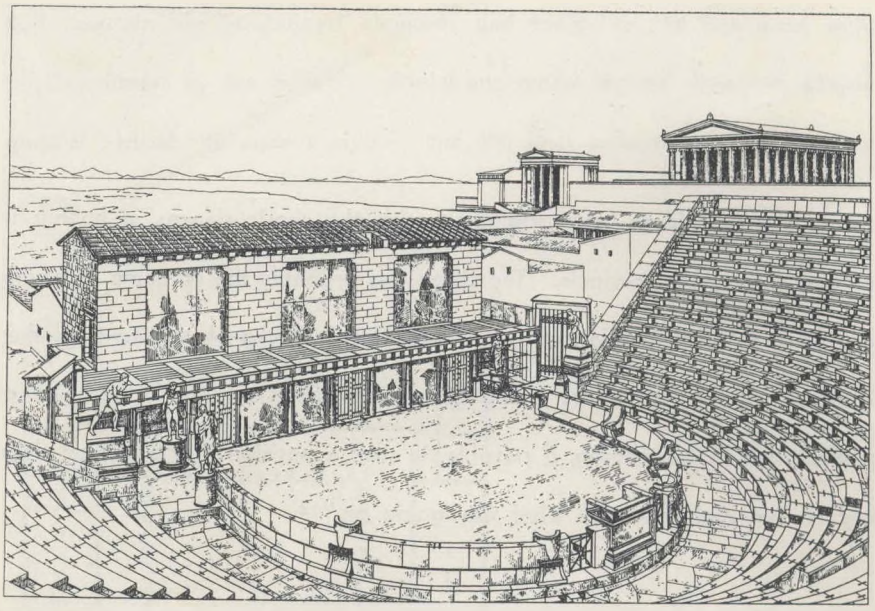


Theatre

The idea of the theatre in Greece may be said to have originated with the choric dances in honour of Dionysus which were held in or near his sacred precincts. The stage was probably the outcome of having to provide the actors with some form of table or platform above the level of the chorus so that they would be visible to the spectators. "The spectators would group themselves on the further side of the dancing-place (orchestra) which would be chosen, if possible, in such a position that a natural slope of a hill would enable a crowd to see and hear well what was going on."[48]

This direct adaptation of existing sites to the needs of an auditorium is the germ of the fully developed Greek theatre with its paved orchestra, architectural skene, and vast construction of stone seating. Of the arrangement in the fifth century B.C., there is only scanty evidence, but by the fourth century examples are to be found in every city of importance in Hellas. Some are in a better state of preservation than others, some in more beautiful situations, but the basic form and underlying principle is identical in every case. Of the better known theatres one need only mention those at Syracuse and Segesta, in Sicily, at Athens, Epidaurus, Argos and Delphi on the mainland of Greece, at Assos, Pergamum, and Priene in Asia Minor.[49]

The theatre at Epidaurus designed by the younger Polycleitus is still well preserved and may serve as a permanent standard from which to estimate the achievement of Greek architects in this field of civic architecture. One may comment on the exquisite balance between pure usefulness and the sublimity of applied geometry that was attained in this example. In Hellenistic times the action continued to take place on the orchestra, and the scene building formed a permanent background. It was only later that the action was "driven back" to a low stage. The reconstruction of the theatre at Priene by von Gerkan shows the general appearance of the complete theatre in Hellenistic times.



The Theatre at Priene, reconstructed by von Gerkan

Temple

We have seen one or two aspects of the problem of analysing the arrangement and situation of the temple in the earlier discussion headed "The planning of temple sanctuaries." We have noted also the placing and general effect of the temple group at Selinus. Minute analysis would be necessary for any definitive statement to embrace the whole history of temple situation and which would take into account the large number of variables with regard to special purposes, special sites, etc. Such analysis is not feasible in the present paper so I shall restrict my remarks to a short general statement on the relation of the temple to the city.

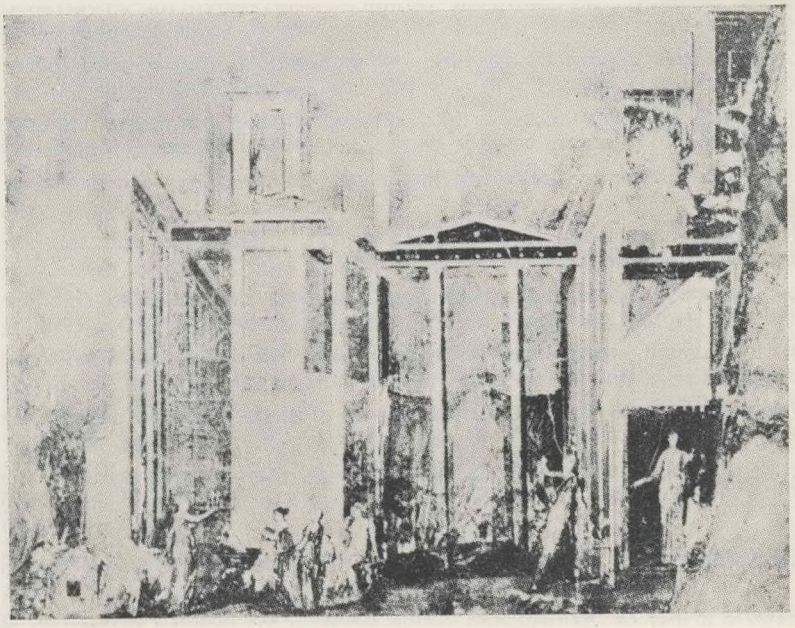
Study of temple placing reveals the fact that at least part of the emphasis that had been inherent in the temple arrangement in early times (eighth to fifth centuries B.C.) was progressively lessened in succeeding centuries. Or, regarded from another standpoint, the type of plastic relationship which had subsisted between temple and city structure initially, underwent during a number of years considerable modification.

The growth of a unified pattern in city arrangement appears (with its rectilinear bias) to have brought

about the absorption of the temple and its immediate surroundings so that it became a harmonious and integral part of the whole system. The parallel development of an essentially repetitive and visually measurable form of space definition in the shape of the universal stoa completed the union between temple and city. The temple as an isolated feature independently proclaiming its three dimensionality gives way to a temple which still has the same intrinsic elements but which has forfeited its right to asymmetry and resigns itself to control within a formal architectural framework. The final stage of this process is admirably shown in the temple of Athena Polias at Priene, and in the temple of Asclepios in the same city.

An important factor in temple design was the application of colour. Evidence from Athens, Olympia and Delphi particularly, shows that a strong polychromy including blue, red, yellow, black and green, was employed for the fuller expression of the elements of the entablature. The principal structural members of the temple—peristyle and architrave—appear to have been self-coloured when finished in stucco, or toned down by a waxing process when the building was in marble.

The effect of such an "extension" to the form of the temple was a considerably increased degree of articulation and vitality. The spirit of Greek architecture and Greek sculpture becomes clear only when the significance of "colour" as an integral part of "form" is appreciated.



Decorative wall-painting from Pompeii. Note the stage-like atmosphere resulting from imaginative handling of architectural elements

The Hellenistic City — Priene Examined.

" Of all Greek cities which have been excavated the most regular in arrangement, the most typical of Hellenistic ways of city building is the Ionian town of Priene."[50] Thus Professor Gardner describes the town which of all demonstrations of Greek town-planning principles has given rise to most controversy. It may seem bold to talk of " typical " ways of city building where the manifold factors of topography, economics, climate, etc., must colour the final result of any attempt at pre-determined and systematic design. But it is characteristic of the wide generalisations and integrated standards of Hellenistic planning that one does instinctively think in terms of typical arrangement or typical effect. Actually the finite result of the planning of Priene cannot be equated directly with other Ionian cities, for scale and sequence of entities must always be variables in the whole process.

The constant factor that makes the Ionian city recognisable as belonging to a category of cities is the underlying attitude that is reflected in its completion. To be significant the variety of plastic effect that is conditioned by variables must be initially controlled by a central aesthetic impulse. The idea is not new, for it is simply the expansion into the field of large scale public construction of the basic classic concept of controlled design. The search for universals in art which is easily recognisable in four centuries of Greek sculpture and architecture may be said to have moved from these media into one which was of more moment and offered greater formative influences to the common citizen. The cumulative effect of contemplating single examples of sculpture and architecture (cult statues, temples, etc.), must have been largely offset by the intermittent and self-conscious nature of such contact, so that we may regard the architecturally unified city as being significant in providing a sustained pattern of environment which must inevitably raise the index of visual satisfaction to a new and higher level. What was gained by the contemplation of single isolated objects now assumes a new order of continuity; there is a fulfilment of the sensory faculties that accords with a collectively growing sensibility.

The absorption of sculpture into the wider pattern of city structure for instance, is a progressive process. There is a loss of identity and significance in this branch of Greek art that is measurable from the time

of the early cult statues through the kouros and koré types (intensely formal and having a "civic" importance) to the representational productions of the fourth and third centuries B.C. What had been primarily an abstract and universal statement underwent a steady degeneration into a medium that had neither architectonic significance nor ritualistic justification.

When we say, therefore, that Priene is typical of the Hellenistic cities we merely imply that it demonstrates a unifying process in its constitutent elements, and that the architectural expression of its institutions has finally crystallised into significant forms. The elements have no longer a specialised treatment; there is only one medium—that of town-planning.

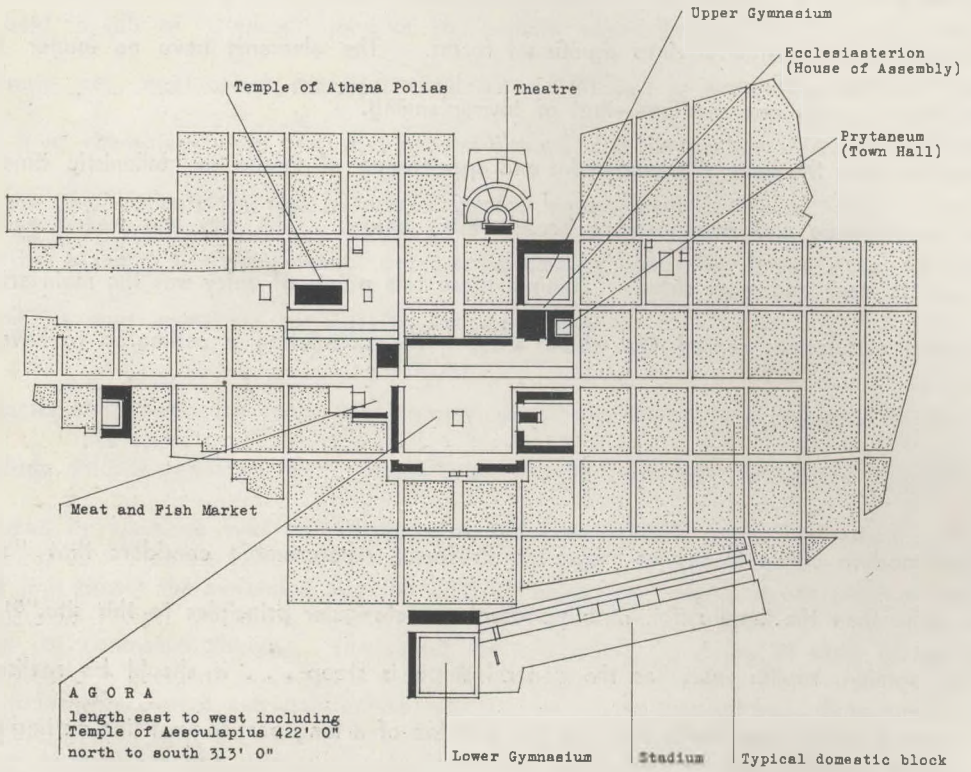
The illustrations show the general arrangement and appearance of Priene in Hellenistic times. The site lay on a mountainside and overlooked a broad valley below. The city was walled and approached mid-way on its east and west sides. Joining these two points of entry was the main artery off which the secondary circulations served the whole area. The population is estimated to have been about 4,000.

What have modern critics to say of Priene? Professor Abercrombie considers that "nothing could be more futile than the application of Hippodamian rectangular principles to this site."[51] Fyfe, who quotes this opinion, replies that "as the general slope is steep . . . 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."

Lavedan sees little merit in the general plan of Priene but in turn quotes Bonnet[52] who defends the chess-board plan in this context, and who finds in the resulting asymmetry of a regular pattern applied to an irregular site a satisfactory aesthetic effect. Haverfield considers that no striking effects appear to have been attempted despite a reasoned and systematic arrangement.[53] Gardner refers to the "almost mathematical precision" with which the streets are laid out, and finds the "extreme uniformity of arrangement" puzzling.[54] He quotes Wiegand (the excavator of the town) who sees in the whole complex a unity and nobility of proportion that can be compared with the organisation of a great house.

P L A N O F P R I E N E I N I O N I A

b a s e d o n t h e e x c a v a t i o n s o f W i e g a n d a n d S c h r a d e r 1 8 9 5 - 9 9



100 0 100 200 300 metres

R.M./October 1940

44



Model of part of the City of Priene in Ionia showing Agora, Temples, Gymnasia and Stadium, Theatre and Typical houses

Thus in a variety of opinions we see two main standpoints. The attitude that seeks picturesqueness unexpectedness or irregularity is disappointed. Abercrombie, Haverfield and Lavedan obviously deplore the lack of charm in Priene, but Gardner though frankly at a loss to appreciate the full significance of the scheme pays a tribute to the orderliness that he finds there. Wiegand with intimate knowledge of the site seems to accept the arrangement without undue comment on aesthetic grounds. Bonnet warmly defends it.

An objective examination of the materials that gave rise to Hellenistic town-planning must immediately rule out all " surprise " or disappointment at the form the city structure now takes. The attainment of formality at Priene reflects one thing clearly, that piecemeal development and haphazard charm have no place in its make-up. The continuity of the city pattern and the emphasis on uniformity are not factors that can be evaluated for or against the success of the city as a whole, they are interwoven in its fabric. Without an understanding of this fact we cannot interpret the sum achievement of Hellenistic planning, nor one may add, could we claim to have grasped the significance of the Greek plan in archaic and Periclean times. The subjective imposition of standards of " taste " which have no basic reference to the concepts that made the building of Priene possible must lead to chaos. To find that features of interest or " striking effects " are wanting or that a system is " futile " without first establishing the validity of such phrases carries us little further than if the critic had merely said "I do not care for it."

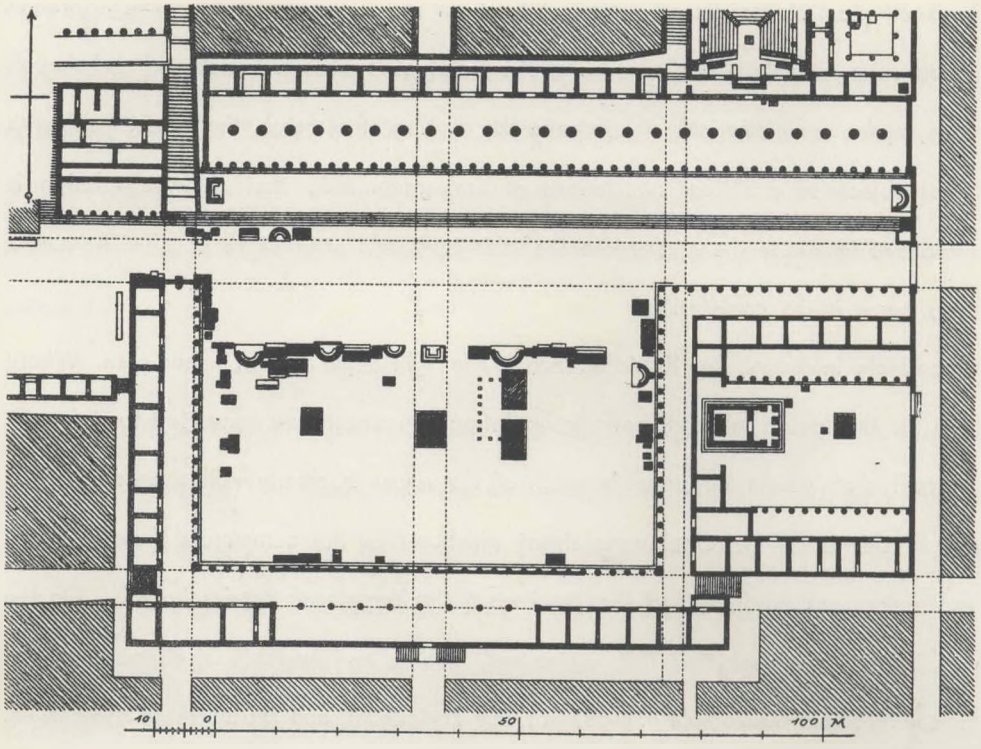
Not to like something is understandable, but to blame it for not being something else is unreasonable. To say that there were no striking effects in Priene is not to offer a criticism. This " featureless " state is an inherent condition of the arrangement to which all the parts subscribe; in other words the uniform texture is of the same order as that which underlies all that we deem characteristically Greek. That the pattern of a krater or a kylix lies harmoniously within the surface, that the individual contours of a kouros reinforce the whole effect of the figure, that the progressive stages of a tragedy are significant in their cumulative effect and not in themselves—all these things are not merely incidental, they form the substance that enables us to refer specifically to the Greek spirit, the Greek contribution. So also in our city are the accents only indicators of an all-embracing unity, a complete shape.

We have in Priene, if not a typical Hellenistic city, then at least an ideal demonstration of an approach to a finite work of art on a large scale. The purpose of the architect is difficult to achieve, and though I have suggested parallels in the completion of a vase or in the carving of a statue, the actual mechanics of city construction are subject to practical restrictions of such magnitude that a finite solution is virtually unattainable. Let us scrutinise the arrangement of this town and attempt to find just how near "perfection" its builders came in its completion.

The street pattern immediately impresses by its adherence to the right angle as seen in true plan. Where the gradient is too steep for the maintenance of normal circulation, the streets are converted to stairways. The main east-to-west street that passes through the north of the agora is clearly visible on model and plan. At right angles to this is the principal cross street which serves the commercial (west) side of the agora, the south gymnasium and stadium, and the precinct of the Temple of Athena Polias. On the centre-line of the agora is another street that links agora and theatre, and on the east boundary of the agora is an important street that links the Temple of Asclepios, the Prytaneum, and the northern gymnasium. On occasions that involved a large movement of the population in the region of the "civic centre" it is quite likely that all three streets were heavily used.

The width of the main streets was approximately 23 ft. 0 in., that of the secondary 11 ft. 6 in. Any wheeled traffic would normally be restricted to the main east-west street which connected the public space and market with the city gates. Little comment seems called for where the easy relationship between dwelling and public building, and between central meeting place and outlying "suburbs" is so clearly visible. When one bears in mind the kind of movement and occupation of its people and its physical dimensions the city as a whole begins to form itself in the imagination and the model helps us to give shape to speculation.

The Agora has been dealt with in general terms earlier in this paper. Let us consider its treatment at Priene. The Agora dominates the whole city. It is boldly proportioned to the needs of the populace, and provides the focal point for civic activities. Grouped with it are the public buildings that symbolise for us the nature of Greek collective life. In position the agora is virtually central, and in size it measures about one fifth the length and one fifth the breadth of the city. Within its area the



The Agora at Priene

various statues of the city stood in free groups, and encircling its main area was a continuous stoa, east, south and west. On the west side were shops, and beyond these a small market for perishable foodstuffs. To the north lay the principal stoa, which extended beyond the limits defined by the other colonnades. The only direct link with the circulations of the city are along the main street. The brilliant conception of the Agora with its defining stoas is nowhere else better exemplified than in this example. From a practical standpoint the agora was equivalent to a great open air hall, available no less for festivals than for the ordinary activities of every day life.

Architecturally it is of the greatest significance, for in combination with its complementary stoas, it is the apotheosis of the Greek Doric column system. The laborious researches in space definition and the vivid experimentation in expressive technique that are traceable through the whole history of Doric temple building seem to have crystallised in this harmony of controlled and modulated space. In the

case of the temple the peristyle held within its embrace a building of enclosed and limited function. In the stoa the column system retains its purpose as a screen, in that the columns define a visual plane and yet allow a penetration of space between them, but the defined area of use, the agora, is open to the sky. In spite of this apparent reversal of functions the nature of the colonnade has undergone no change but merely an extension of application.

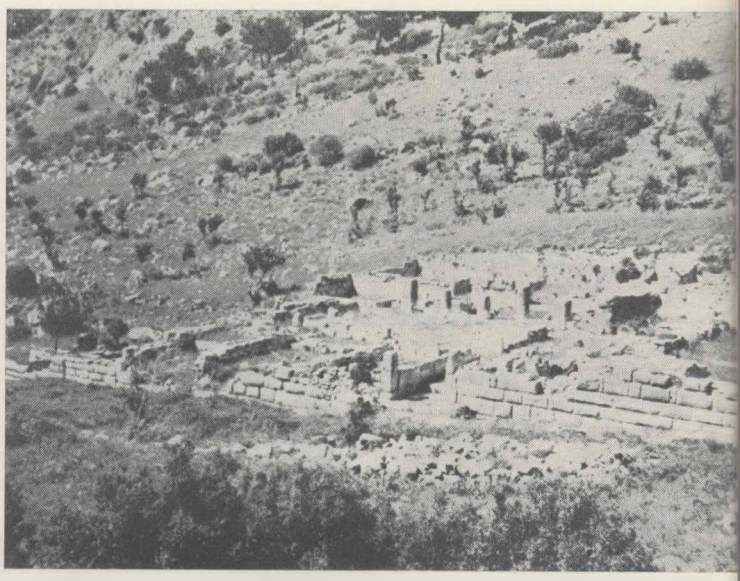
The reconstruction drawing of the north-west corner of the agora shows us some of the detail of its treatment. Here is an architecture that is free of vulgarity, free of striking "features" but which offers in their place the essence of space, a sense of order and dignity, in scale with the meaning of a city. Man is the measure, but in this lofty Doric colonnade with its sharp mechanistic components he has established not only an architectural standard to match his physical stature but one that measures the extent of a free intellect that soars beyond the material and yet can hold and express in tangible form something of its excursions . . .

The northern limit of the group of civic buildings in Priene is marked by the theatre. We have seen in the architectural treatment of the agora a construction of plane surfaces and rectangular definition; in the theatre there is a direct application of fundamental solid geometry to a purpose so exacting in its requirements that we are still astonished by the sheer intellectualism of the feat. The universal and therefore formally recognisable shape of the Greek theatre is in itself an intensely satisfying expression of function. In earlier examples the theatre did not always bear a positive relation to other civic elements, but its self-contained "stability" was always arresting. At Epidaurus, for instance the great cavea commands a wide view of the Asclepian sanctuary below, and seems to gather the immediate surroundings into its embrace. At Priene the theatre, like the temple, now complies with the rigid boundaries laid down for it; the rough hills no longer brush its edge in sharp demarcation; it, too, has become urbanised.

According to Wiegand[55] there were about eighty blocks or insulae for the inhabitants of Priene. As a rule these were divided into four sites for houses of 80 ft. x 60 ft., an extent somewhat greater than that occupied by the older houses of Pompeii. The houses almost invariably had courtyards, and the arrangement of one example from the north-west region of the city (House XXIII) may be briefly described as representing an average arrangement.



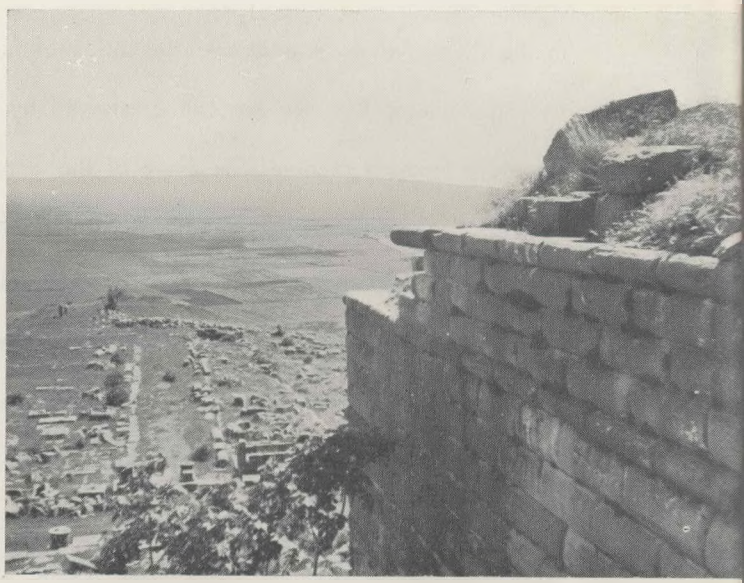
View from S.W. boundary of city looking North. Mount Mycale in the background



Remains of Peristyle House on roa running East to West, North of t Temple of Athena



View from top of theatre overlook- ng the Meander Valley



East Terrace Wall of Temenos, Temp of Athena. Below, remains of the Ago

The site of Priene recorded in 1936 by Monte Brye

The house is approached from a small porch in the outh-east corner by means of an extended vestibule, which in turn gives on to an open forecourt. The principal room faces south on to a loggia, and the various secondary apartments are grouped on the remaining sides of the court. The "living room" is strongly reminiscent of the megaron arrangement of Mycenaean days and seems to have undergone little change during the intervening centuries. A similar arrangement is found in the House of the Trident at Delos, although in that example the loggia fronting the principal room is part of a complete peristyle. The general orientation seems to have been adhered to over many centuries and in many Mediterranean regions. The court of House XXIII measuring about 30 ft. x 30 ft. is a minute replica of the agora and was no doubt treated as such by the occupants. The general arrangement of this little dwelling offered admirable privacy and security, and within the limits of its area a high degree of architectural interest. It shares many basic elements with its more monumental counterparts—the civic and religious buildings. According to living standards of the time, and in view of the fact that many leisure hours must have been spent at public gatherings and entertainments the house seems to have been well suited to its purpose. At least it is safe to say that in pattern and general architectural treatment it maintained the texture of the city scheme in a manner which is difficult to parallel in other times.

We have seen enough to establish that Priene in particular, and the Ionian Hellenistic cities in general, display a degree of classical completeness that is based initially on the integrated and standardised elements of individual structures. The final expression of the city is the result of co-ordinating and adjusting these elements to a postulated framework on a town-planning scale. The city is not merely an aggregate of units each with a specific purpose, it is a new organism with a new character that arises out of a simultaneous manifestation of unity in all its parts. For example the Ecclesiasterion is in itself the product of a succession of definitions of special purpose; its practical demands and structure merge in an architectural unity, but at the same time it bears a positive relationship to the principal element of the city—the Agora—which in turn is strategically placed and plastically formed in relation to the whole city. Such a progression (which can be similarly shown for other elements) reflects a clear pre-determination in the mind of the planner; it can never be the outcome of "natural" growth.

Let us consider the agora and stoa at Priene with the special purpose of examining the abstract quality that was achieved in Hellenistic planning.

A practical function of the stoa is to provide protection. It is easy to agree that this must have been achieved by the arrangement employed, but it is also quite clear that similar (or at least adequate) protection could have been obtained with much less "architecture," and the question, therefore, arises: What is the nature of this "plus" quality that we sense in the arrangement, for instance, of the elements of the North Stoa? What has been deliberately produced that transcends immediate requirements? A full answer would involve definitions and discussion that would carry us far beyond the scope of this paper, but it is important that we feel something of this "plus factor" in the Hellenistic city, and recognise its occurrence as a contributing and conscious part of the whole achievement.

Let us set down the elements that are visible to us in the reconstruction drawing opposite.

1. The plane surface of the agora accented by statue pedestals; this plane being the datum level from which the surrounding structures spring.

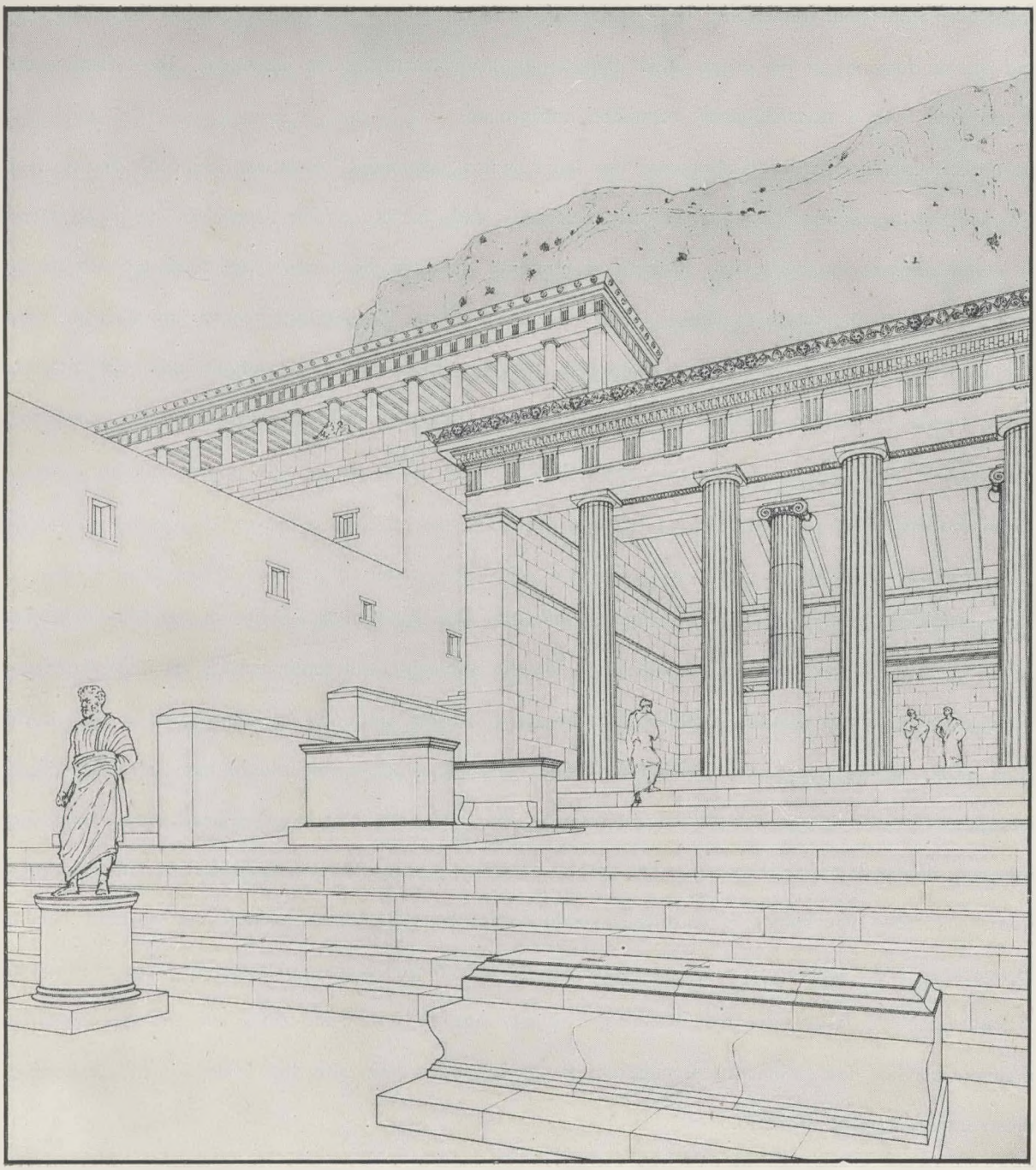
2. A flight of six steps leading up to a broad terrace before the north stoa. This flight is uninterrupted for its full length of 473 ft. 0 in.

3. The terrace sloping slightly upwards, and measuring 21 ft. 0 in. in depth, also uninterrupted for its full length.

4. A further flight of three steps leading directly into the stoa.

5. The north stoa, 38 ft. 0 in. in depth and fronted by a Doric colonnade of 49 columns with an intercolumn measurement of 7 ft. 6 in. and having a shaft height of 17 ft. 0 in. The pavement level of the stoa is 6 ft. 0 in. above that of the agora.

The drawing shows only a corner of the stoa, and although we cannot form a complete idea of the full effect of an unbroken colonnade of over 400 ft. 0 in. in length from this alone, we can, by referring to the plan and model, keep all the elements in mind. The practical achievement is the construction of an extended portico commanding from its raised level an uninterrupted view of the agora and its activities. The aesthetic achievement lies in the employment of an established notation of architectural forms to produce a framework or background commensurate with the collective nature of the activities to be



North West corner of Agora at Priene showing portion of principal Stoa

undertaken within that framework. The " scale " of the construction is thus proportioned to the accentuated and shared demands of the group rather than to the requirements of the individual. The collective ego is provided with a psychologically expanded background.

From the material data listed above we can see how this " expanded " scale was achieved. The elements are few but significant, the effect is one of serenity and stability. The repose in the broad planes of paved surface, the cumulative strength of repeated units and the measure that these provide are the visual indices of the resultant unity. One must not read an isolated significance into each of these elements; they are not " features " in themselves. Only in their balanced synthesis does the essential effect emerge. I have undertaken this quantitative analysis only to focus attention on the components.

Many centuries lie between the building of the little Cretan town of Gournia in the Middle Minoan period and the completion of this Ionian essay in civic geometry, but fundamentally they share common starting points. The Minoan architect felt the need of order and unity in his plan, and he built to the limits of his technical resources. Painted facades and talc windows, the use of fine pottery testify to emergence from a primary state of existence. The Hellenistic city is not framed on a new set of ordinates, the whole fabric is merely under greater control. The architect's equipment in the shape of a greatly increased vocabulary of universally recognisable space-structure elements has enabled him to approach an exact solution to a stated problem. In the gradual process of selection there emerged an abstract quality in large scale civic planning, a quality that lies beyond the restrictions and approximations of simple building and entitles the architecture of this epoch to rank with the brilliant manifestations of Ionian genius in other spheres.

What of the other cities of Asia Minor ? Detailed consideration of further examples would extend this paper too greatly, and we must close our discussion in the hope that one " typical " city has yielded sufficient data for a general understanding of the methods and material of Hellenistic planning.

Under the title " Greek Cities " it would be permissible and even desirable to extend our investigation to a consideration of the general conditions and amenities of city life in ancient times, but as this is not

feasible I refer those who are interested to the relevant chapters in such works as Tarn's brilliant "Hellenistic Civilisation," Cary's "History of the Greek World 323—146 B.C.," and the appropriate volumes of the Cambridge Ancient History.

Many and varying estimates have been offered concerning the ultimate importance to later cultures of the Hellenistic way of life. The growth of the classical ideal in art, its sublimation in a new collective ideal, the "standardisation" of religion and the consequent tendency to secularise its manifestation in architecture—all these factors tend to be regarded as a sign of fading glory, of decline and degeneration. It is freely acknowledged that the Rome we know would have been impossible without Greece, but "it is often forgotten" as Cary says "that Hellenistic, not Classical Greece was her teacher."[56]

It may be be idle to speculate on the trend of development that might have occurred if the Greek spirit had been granted an extension of its ever upward curving path of achievement. Events decreed otherwise and an epoch died. It may be idle to speculate, but it may be fitting to close our excursion with the words of a scholar[57] who writes of the end of the "polis": ". . . . those who have been touched by the tradition, and educated by the philosophy, of the Greek city-state may be permitted to stand by its grave and remember its life: to wonder what, under happier auspices, it might have achieved, and lament that it was not given to a Greece inspired by Athens to lead the Mediterranean world to a unity deeper and more pervading, because more surely rooted in a common culture—larger and more permanent, because more firmly planted in a general freedom—than Rome was ever destined to achieve."

Overleaf notes and acknowledgments

NOTES.

1. Pendlebury : The Archaeology of Crete (1939), p. 191, " Gournia, one of the most fascinating sites in the world . . . "
2. Hall : Aegean Archaeology (1915), p. 117.
3. See Glotz : The Aegean Civilisation (1925), Book II, Chapter I, " The Social System and Government." Glotz refers to Gournia as an industrial town.
4. Haverfield : Ancient Town-Planning (1913) p. 14.
5. Hall : loc. cit.
6. For a full survey of the palace buildings at Phaestos see Luigi Pernier : Il Palazzo Minoico di Festos, 2 vols. (1935).
7. Hall : op. cit., p. 115.
8. Illustrated by Evans : The Palace of Minos at Knossos, vol. I.
9. Professor Haarhoff reminds me that the Mycenaean buildings date from some centuries before the final collapse of Crete in 1100 B.C., and points out that the Achaeans had been absorbing Cretan art and civilisation from about 1400 B.C. He attributes the fortress character of Mycenaean building partly to the use of traditional building methods and partly to invaders against whom there was no protective barrier of sea as in Crete.
10. Haverfield : op. cit., p. 28.
11. D'Ooge : The Acropolis of Athens (1908), p. 14.
12. ibid : p. 113.
13. Lavedan : Histoire de l'Urbanisme, Antiquité—Moyen Age (1926), p. 142.
14. Choisy : Histoire de l'Architecture (1929 ed.), pp. 415 ff.
15. Le Corbusier : Vers une Architecture (1928 ed.), pp. 31 and 39.
16. Gorham Phillips Stevens : The Periclean Entrance Court of the Acropolis of Athens, Harvard (1936).
17. Doxiadis : Raumordnung im griechischen Städtebau, Heidelberg (1937), see also discussion in "Habitation et Urbanisme" (No. 2 1938), pp. 44, 45.
18. Quoted by Lavedan : op. cit., p. 114 note 1.
19. Cary : in Cambridge Ancient History, Vol. 3, p. 580.
20. Cary : loc. cit.
21. Pausanias : X. IV. 1 (Frazer).
22. Percy Gardner : Countries and Cities in Ancient Art, in Journal of Hellenic Studies, Vol. 9 (1888).
23. I owe the substance of this statement to Hicks : in Cambridge Companion to Greek Studies (1931), p. 3.
24. Lavedan : op. cit., p. 114.

25. See Burn in Journal of Hellenic Studies (1935, pt. 2), p. 135, for discussion on dating of foundation of Selinus.

26. Haverfield : op. cit., p. 33.

27. Randall-MacIver : Greek Cities in Italy and Sicily (1931), p. 214.

28. Myres : in Cambridge Ancient History, Vol. 3, p. 682.

29. Unwin : Town Planning in Practice (1909), p. 27.

30. Quoted by Unwin, op. cit., pp. 27, 28.

31. Tod : in Cambridge Ancient History, Vol. 5, p. 19.

32. Haverfield : op. cit., p. 37.

33. Aristotle : Politics (Ross, Selections, 1927), pp. 315 ff.

34. Professor Haarhoff has suggested to me that this manifestation reflects the native Italian "ubertas" (richness) which is seen in literature, agriculture, oratory, and general character.
See also Haarhoff : The Stranger at the Gate (1938), p. 175.

35. The Hellenistic House, South African Architectural Record, Nov., 1939.

36. Anderson Spiers and Dinsmoor : The Architecture of Ancient Greece, p. 176.

37. E. Norman Gardiner : Olympia, Its History and Remains (1925), p. 275.

38. Fyfe : Hellenistic Architecture (1936), p. 157.

39. Bosanquet : Greek and Roman Towns (1. Streets) in the Town Planning Review, Vol. 5, No. 4 (1915), p. 287.

40. I am indebted to Lavedan, op. cit., p. 169, for the substance of this paragraph.

41. Lavedan : loc. cit.

42. See generally Wiegand und Schrader : Priene, Ergebnisse Der Ausgrabungen Und Untersuchungen in Den Jahren 1895-1898 (1904), Berlin.

43. See Wiegand : Milet, Ergebnisse der Ausgrabungen, etc. (1906, -08, -14, -22, -24), Berlin.

44. See von Gerkan : Griechische Städteanlagen (1924) for plan of Agora at Assos; also American Journal of Archaeology, Vol. 1, 2nd series (1897), for reconstruction drawings and plan of remains.

45. E. N. Gardiner : op. cit., p. 270.

46. See Wiegand : Milet, op. cit., Heft II, Das Rathaus von Milet for reconstruction drawings, photographs of remains, etc., of the Bouleterion.

47. E. N. Gardiner : op. cit., pp. 288 ff.

48. E. A. Gardner : in Cambridge Companion to Greek Studies, p. 417.

49. See Haigh : The Attic Theatre (1907), and Flickinger : The Greek Theater and its Drama (1929) for the history and development of the theatre.

50 Percy Gardner : The Planning of Hellenistic Cities, in Transactions of the Town Planning Conference, R.I.B.A, London, 1910.

51. Fyfe : op. cit., p. 168.

52. Lavedan : op. cit., p. 154.

53. Haverfield : op. cit., p. 44.

54. Percy Gardner : The Planning of Hellenistic Cities (op. cit., p. 115).

55. Wiegand und Schrader : Priene, pp. 285 ff., for a description and illustrations of the houses.

56. Cary : History of the Greek World, 323-146 B.C. (1932), p. 375.

57. Barker : in Cambridge Ancient History, Vol. 6, p. 535.

ILLUSTRATIONS.

The Acropolis of Athens from the West : d'Espouy—Fragments d'Architecture Antique.

Plan of Gournia : Hall, Aegean Archaeology.

Phaestos vase : photo Lambrinides, Candia.

Plan of Mycenae : Perrot and Chipiez, Art in Primitive Greece.

Periclean Entrance Court : Stevens, Periclean Entrance Court of the Acropolis of Athens

Plan of Selinus : d'Espouy—Monuments Antiques.

Reconstruction of Selinus : d'Espouy—Monuments Antiques.

Portico and Stoa at Cnidus : Stratton, The Orders of Architecture.

Plan of Sanctuary at Epidaurus : d'Espouy—Monuments Antiques.

Temple of Asclepios at Epidaurus : d'Espouy—Monuments Antiques.

Plan of Ecclesiasterion at Priene : Wiegand und Schrader, Priene.

Youth on Krater : Richter and Milne, Shapes and Names of Athenian Vases.

Plan of Olympia : Seyffert, Dictionary of Classical Antiquities.

Plan of Palaestra at Epidaurus : Anderson Spiers and Dinsmoor The Architecture of Ancient Greece.

Theatre at Priene : Schede, Die Ruinen von Priene.

Painting at Pompeii : Bossert and Zschietzschmann, Hellas and Rome.

Model of Priene : Schede, Die Ruinen von Priene.

Agora at Priene : von Gerkan, Griechische Stadteanlagen.

Remains of Priene : photos by Monte Bryer.

Reconstruction of Agora at Priene : Fritz Krischen, Die Griechische Stadt.

O B I T U A R Y

We regret to announce the death of the late Thomas Gordon Ellis, A.R.I.B.A., who died in Pretoria on December 10th after a short illness.

Gordon Ellis was much loved by those who knew him intimately and were associated with him professionally. A quiet, reserved man, he never swerved from the paths of honesty and straight forwardness in his life and work. He held strong views on most subjects and worked strenuously to improve and maintain the status of the profession. He was born in Ladysmith, Natal, in 1887, and was educated there and at Weenen County College where he was very popular and distinguished himself at cricket and rugby football.

He was articled in Pretoria to the late Frederick Chatterton, F.R.I.B.A., author of "Specification," from whom he obtained a sound theoretical training, and spent part of his time in practical building work. He went to London with Mr. Chatterton about 1908 and worked in his office, and later with Mr. Melville S. Ward, F.R.I.B.A., in whose office he was given a good deal of responsibility and carried out several important buildings, notably cinemas, restorations to large county houses, and conversion of old farm buildings, into private houses. The Golf Club Bucks House, at Denham, was carried out by him.
He travelled in France and Italy and has left many fine pencil sketches and measured drawings. During this period he studied for the examinations of the Royal Institute of British Architects and qualified as an Associate in 1913. Returning to South Africa in that year he worked for some months in the office of Messrs. H. Baker and Fleming. He joined Mr. G. E. Pearse in partnership and practised chiefly on the East Rand, at Germiston, Brakpan and Springs.

He was responsible for the mine offices at Brakpan Mines and recreation halls at Springs and Brakpan Mines, Masonic Hall, Brakpan, and many domestic buildings.
When war broke out in 1914 he took charge of the office of the firm in Johannesburg and was married in 1915 to Miss Elizabeth Robertson, of Dumfries, Scotland. During the period of the war he kept the architectural classes going at the then School of Mines and Technology and thus assisted in laying the foundations of the School of Architecture at the University of the Witwatersrand.

He returned to London in 1919, at the invitation of Mr. Ward, but came back to South Africa in 1921 to join Messrs. Cowin and Powers in partnership at Pretoria.

Amongst the important buildings for which he was mainly responsible were the Van Riebeck Medical Building, Cuthberts Building, Burlington House, the Volksbank, St. Wilfred's Church, Hillcrest, Christian Brothers' College, Southern Life Building, all in Pretoria, and the Town Hall, Rustenburg, etc.

He was a members of the Council of the Association of Transvaal Architects in 1918 and 1919. He took a keen interest in Freemasonry and was a Past Master of the Transvaal Lodge in Pretoria. He was also closely associated with the Church of England and for some years played an active part in its affairs. Gordon Ellis was always a fine sportsman and played rugby football and cricket in Johannesburg and of late years was keenly interested in bowls and golf.

He is survived by his widow to whom we extend our heartfelt sympathy, two sons who are both in the Army and a daughter. His eldest son, Arthur, was studying at the Architectural Association School in London, when war broke out, and is now serving as an instructor in the South African Engineering Corps.

G.E.P.

PROFESSIONAL NOTES AND NEWS

The address of Messrs. Corrigall and Crickmay, Architects, has been changed as from 1st January, 1941, from Symes Buildings, Fraser Lane, to Lincoln Chambers, Corner Fraser and Chancery Lanes, Pietermaritzburg, Natal. Telephone No. 5275.

SOUTH AFRICAN SOCIETY OF ARTISTS

The Thirty-eighth Annual Exhibition of pictures and other works of Art will be held in the Argus Gallery, Burg Street, Cape Town, from Monday the 17th February, to Saturday, 1st March, 1941. Entry forms may be obtained at the offices of the South African Academy, 202, Kelvin House, Marshall Street, Johannesburg.

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