Books

Raumordnung im griechischen Stadtebau / K.A. DOXIADIS - Heidelberg: Kurt Vowinckel Verlag, 1937. Architectural Space in Ancient Greece / C.A. DOXIADIS - Cambridge, Mass.: MIT Press, 1972.

Presented by Panayotis Tournikiotis

Architectural Space in Ancient Greece

1. Introduction

Fig. 1. Delphi, Terrace of Apollo, View from point B, 1968.

In his first book, Doxiaxis' view of the architectural and urban past of ancient Greece approximates to the urban thinking of the great moderns of the inter-War period. The encounter revolved around the prospect of formulating the principles of contemporary urbanism as applied in theory and practice, and as they were projected onto the city of the future. Initially published in Germany in 1937, Doxiadis' doctoral thesis was translated into English thirty-five years later to mark the symbolic culmination of his long way of research relating 'the ancient Greek city and the city of the present'. This was also the title of a seminal article of 1964 and the basis of a major series of studies of Ancient Greek Cities, prepared, under his guidance, in the late 1960s and early '70s by the Athens Centre of Ekistics.

Fig. 2. Miletus, Delphineion. View from the west, circa 1914.

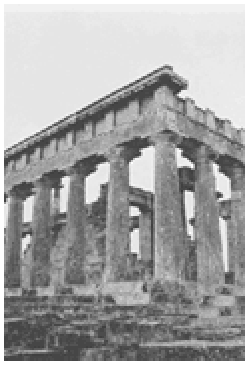

Fig. 3. Aegina, Sacred Precinct of Aphaia. Point from point A, 1968.

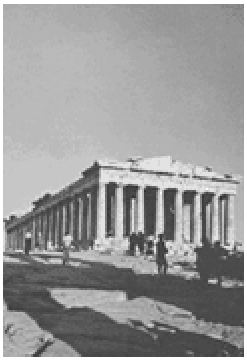

Fig. 4. Athens, Acropolis. View from point A, 1968.

2. The starting-point was the present

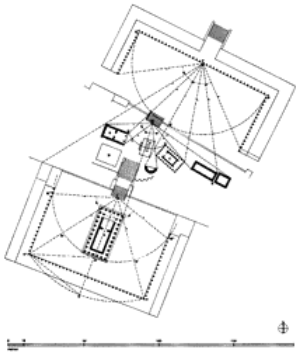

Fig. 5. Cos, Asclepeion, Plan.

Architectural Space in Ancient Greece is a book full of plans, photographs and perspective drawings of ancient Greek cities - dating from the seventh to the first century BC - on which the commentary is a comparatively sparse text. Although, Doxiadis was closely associated with archaeologists when he was writing the thesis in Berlin, it is neither an archaeological treatise nor a history book. Its author's interests were wholly contemporary, focusing on the seach for principles by which space, in its entirety, could be regulated by means of comparative and experimental testing of hypotheses for which no real documentation was available. His starting point was the problematic present, for the treatment of which the ancient Greek city was called upon to provide the means. The line

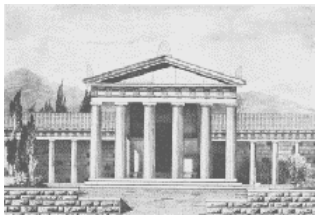

Fig. 6. Cos, Asclepeion. Perspective of upper terrace from entrance. (Herzog.)

Fig. 7. Cos, Asclepeion, Hellenistic period. Perspective from Northeast. (Herzog.)

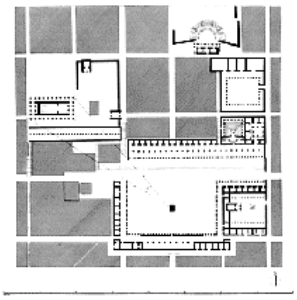

Fig. 8. Priene, Agora. Plan

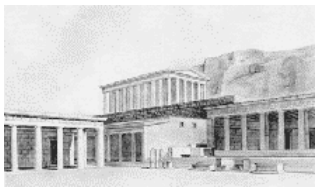

Fig. 9. Priene, Temple of Athena. Perspective, from the agora.

of argument is perfectly clear, and is stated at the beginning of the foreword to the thesis: over the past three decades (that is, the three first decades of the twentieth century), a radical change had come about in the conditions prevailing in cities during the previous three millennia. To Doxiadis' mind, there were two reasons for this: the new building materials which had radically altered the scale and form of buildings, and the mechanization of travel, which had radically altered the scale and form of cities. These two issues - new materials and the new construction methods that followed from them, and the predominance of the machine - also happened to be arguments of central importance for modern architecture, and to form the foundations on which the theoretical principles of modern urbanism were stated. Those principles were formulated at the 4th CIAM, a Congress which reached its climax in Athens in 1933, on the premises of the School of Architecture when Doxiadis was still a student there, and provided Le Corbusier with the platform for his Charter of Athens. The 4th CIAM concept of the contemporary functional city never faded from Doxiadis' mind. Indeed, we could hypothesize that it lay behind his obvious interest in the organisation of the ideal ancient Greek city, an interest which led him, immediately afterwards, to the subject of his doctoral thesis.

3. The aesthetics of the city is connected with motion

The change in the conditions of construction and travel (which Doxiadis often appeared to associate less with the optimistic resolution of problems than with their pessimistic accumulation) directed him towards a search for, on the one hand, human scale and, on the other, the secret behind the way in which the ancient Greeks had organized space so as to both gratify human beings and uplift their souls. Using comparative typologies and mathematics - both highly topical at the time in any attempt to interpret good architectural solutions - he studied the sanctuaries and markets of cities in order to discover the principles of a system for arranging buildings in space based on the principles of human knowledge. Doxiadis was convinced that such a system existed and, furthermore, that it was a general theory of organizing space, a theory of urbanism whose rules were of direct significance for the present since "the ancient Greeks designed not isolated objects, as we see being done today, but the parts of a dynamic urban environment" (*Architectural Space in Ancient Greece,* p.4). He went further in explaining his views, saying that as entities the ancient Greek cities were subject to the conditions of development and change current at the time, and were not designed to comply with the aesthetic views of an isolated individual about an ideal city which bore no relation to its actual place and time. Indirectly, this was a criticism of some of the more messianic approaches of Modernism, and particularly of Le Corbusier (*the ville contemporaine*). For Doxiadis, the decisive factor in planning was the human viewpoint: more specifically, the angle of vision of a human being walking through a city and

angle of vision of a human being walking through a city and sensing or perceiving it through the sequence of the organized revelation of its urban entities - of a person turning a street corner, passing through a gateway, or entering a square: the key points on the progression. The aesthetics of the city is not a static matter, but connected with motion.

4. The perceptive power of the eye

Doxiadis' studies of the plans of the ancient Greek cities are generally well enough known, and that of the Acropolis of Athens is particularly familiar. We are not concerned here with the archaeological or architectural precision of that study. We are interested, rather, in seeing it as part of a wider and absolutely contemporary approach which, allusively, contrasts itself to the thinking of Le Corbusier, redefining the artistic terms of the urbanism of someone like Camillo Sitte - the man, indeed, whom Le Corbusier had mockingly accused of having got no further than the road of the donkeys. Doxiadis, however, was opposed to the mechanical road, to the motor road, and persevered with the perceptive power of the eye of a human being moving across the ground no faster than his two feet could carry him. Let's have a closer view to three of his typical examples: the Acropolis at Athens, the Classical and Hellenistic Altis at Olympia, and the Agora and the Temple at Magnesia.

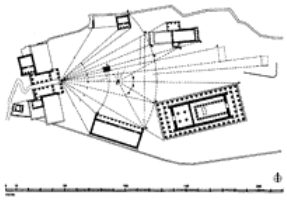

Fig. 10. Athens, Acropolis III, after 450 B.C. Plan.

Fig. 11. Athens, Acropolis III, after 450 B.C. Perspective from point A.

5. The Acropolis at Athens, 530-437 B.C.

The organization of the architectural space of the Athens Acropolis spread over three phases, beginning with the era of Pisistratus and his successors, when the general layout is already recognizable, and culminating in its golden age, during which the Acropolis was undoubtedly designed as a unity by Pericles and his advisers. A mathematical analysis of the site shows a conformity of relationships between angles of vision and distances between buildings. The viewpoint from which these measurements are taken is situated within the main entrance: the western Propylaea. Arcs of a circle are described from this point A to corners of the buildings. During the phase II (480-447 B.C.) the entire architectural space is divided into six identical angles, each of 30°, and this division, with the equilateral triangle that is derived from it, forms the organizing principle of the layout. During phase III (447-437 B.C.) the location of the various buildings is determined by a division of the space into six or twelve parts, or by the angles and sides of an equilateral triangle derived from this division of space. In certain instances, angles of 36° (180°/5), 18° (180°/10), and 12° (180°/15) seem to play an important role. During this phase the field of vision from point A is enclosed on all sides except along the eastern axis. The buildings form two groups, the left group having an opening out into the landscape, which is closed in the distance by the Lycabettos Hill. This layout has many close similarities with that of

phase II. Most important, the open view to the east was retained in all three periods, although its relation to the entrance point differed in each layout. The system was total: voids as well as masses had their form, since together they constituted an architectural space entirely rational and immediately comprehended from the entrance.

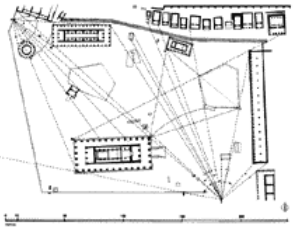

Fig. 12. Olympia, Altis, Hellenistic period. Plan.

6. The Classical and Hellenistic Altis at Olympia, Fifth and Fourth Centuries B.C.

The large enclosure, or Altis, at Olympia was one of the earliest Greek sanctuaries. The principles on which the layout of the site was organized, the boundaries and especially the entrances to the Altis remained unchanged during the Classical and Hellenistic periods, Fifth and Fourth centuries B.C. There were four entrances. The field of vision from each of these points consists of a central opening bounded on either side by a continuous series of structures. The position, orientation, and distance of the buildings from each point are determined on the basis of the 30° angle. Throughout, one can sense the desire to connect the outlines of the different structures with one another and with the lines of the landscape, to form a continuous unity, and within this unity to emphasize one opening: one clear and unobstructed path leading out into the landscape. Figures show how the mass of the temple of Zeus is balanced symmetrically by the Hill of Kronos, and the Metroon by the Heraion. Both are symmetrically placed on either side of the axis leading to the small Hill of Gaia, which rises only slightly higher than the Heraion and the Metroon. The axial symmetry is clearly strengthened by the two balancing groves of trees, one within the Pelopion to the left, and the other in the Hippodamion to the right. It seems clear that a principal aim of this symmetrically organized layout, in which the landscape is incorporated, was to maintain the importance of the central axial opening. This marks the processional route of the people through the sacred precint from the entrance. Also, from this entrance the peak of the Hill of Kronos lies directly to the north. Thus, one of the cardinal compass points is made an integral part of the composition.

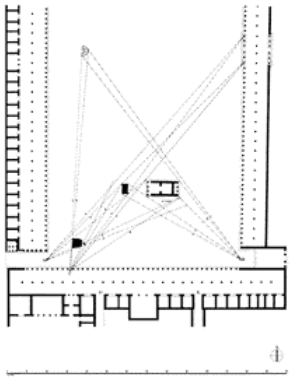

Fig. 16. Magnesia, Agora. Plan.

7. The Agora and the Temple of Zeus at Magnesia, Second Century B.C.

The building of the small temple of Zeus in the Second century B.C. had an important influence on the layout of the agora of Magnesia. There are three entrances to this site. Points A and B are placed in the center of the two entrances east and west of the southern stoa. Point C is placed at the access through the southern stoa. From point A the spectator has an entirely enclosed field of vision in which he perceives each structure in succession, each as a complete entity. From left to right he sees, without any gaps between them, the propylaeon of the sacred precint of Artemis, the altar of Zeus, and the temple of Zeus with the lower structure containing stone benches in front of it. The

position of the temple of Zeus must have been calculated to conceal the larger temple of Artemis, outside the agora, and thus to prevent competition (in the eyes of the observer) of two equally large volumes. The position of the southwest structure seems determined by a desire to interrupt the direct view of the Zeus temple, which would otherwise be very dominant, and lead the eye to the path to the altar and, beyond it, to the propylaeon of the sacred precint of Artemis. Altough the space is entirely enclosed, the route to this propylaeon is kept entirely clear from each vantage point, with the other structures in the agora ranged on each side of it.

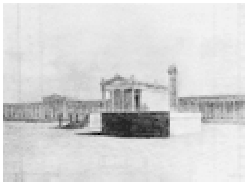

Fig. 17. Magnesia, Agora. Perspective from point A.

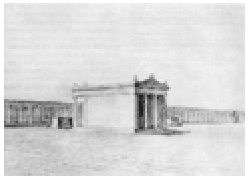

Fig. 18. Magnesia, Agora. Perspective from point B.

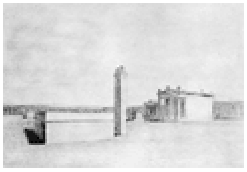

Fig. 19. Magnesia, Agora. Perspective from point C.

8. The revolving camera

The foundations of Doxiadis' thought are only faintly discernible from the pages of his thesis. He can be assumed to have been aware of the geometrical interpretations of the visual organization of the Acropolis as stated by Auguste Choisy, which were taught in Athens, but what is of particular interest in his case is the fact that he articulates the organization of space in the city around the revolving eye of a moving person, which resembles a revolving camera located at different points in the space and describing full circles of 360° with ten or twelve present stops in each instance. "Radii from the vantage point -[the first and most important position from which the whole site could be observed]- determined the position of three corners of each important building, so that a three-quarter view of each was visible. The radii that determined the corners of the important buildings formed certain specific angles from the viewpoint, equal in size on each site. These fell into two categories: angles of 30°, 60°, 90°, 120°, and 150°, corresponding to a division of the total field of 360° into twelve parts; and angles of 36°, 72°, 108°, and 144°, which resulted from division of the total field of vision into ten parts" (*Architectural Space in Ancient Greece,* p.5). The succession of these points, as a sequence of angles of vision during the continuous movement of the human being in space, converges on the rationale of the cinematic way of seeing and organizing the same space. It is indeed no coincidence that, at about the same period, Sergei Eisenstein was also addressing himself to the same sources - Choisy and the Acropolis - in order to construct an aesthetic theory of cinema montage, with direct references to human movement and the revolving angle of vision in architectural and urban space.

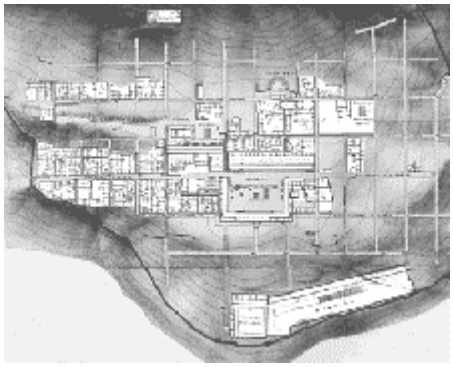
Fig. 20. Priene, General plan.

9. A projective investigation: the critical past and the city of future

Thirty years after the original publication of this book the modern city had changed radically, and contemporary urbanism had moved from conquest to a position in which it was subjected to a first wave of harsh criticism. In international thinking, even so, the two large capitals - Brasilia and Chandigarh - had prevailed as original and ideal applications of the principles of modernism. Reviewing the arguments of *Architectural Space* in 1964, in his article 'The Ancient Greek City and the City of the Present', Doxiadis, on the one hand, presaged the harsh urban questioning of the 'Moderns' by the 'post-moderns' (which would take its final form ten to fifteen years later) and, on the other, prefigured the rationale of the global village. However self-evident or at any rate inevitable that rationale may seem to us today, then, with the development of the media of communication in an embryonic state, it was still primarily a critique of the metropolitan urbanism of modernism. The conclusion is documented by means of comparative and typological analysis, on the same scale, of the fabric of cities selected from all the periods of history, with Brasilia and Chandigarh as the culminating examples. Emphasis is placed on the correct - that is, human - scale of the city, whose centre can be reached on foot from its periphery in ten minutes, which has streets, squares, blocks and a central public space analogous to the ancient agora. Ancient Athens was without doubt Doxiadis' starting point, but Priene played an almost equivalent part in his comparative approach, serving as a model for the contemporary urban situation. Of course, Doxiadis was unable to ignore the motor car and rapid travel, but he dealt with it by proposing that human movement be split between that taking place on foot and that involving vehicles. Comparing ancient Priene with the contemporary megalopolis, he put forward the idea of an articulated and perpetually evolving city, one which would overcome all the defects of modern urbanism. In other words, his proposal was for a network of small cities, on the scale of Priene and in accordance with its rationale, to be located in the interstices of a network for the circulation of mechanical media - that is, motor vehicles. Islamabad is the ideal example of the model: small communities of the Priene type, with populations of 1,000 families or 5,000 people, juxtaposed as the members of a potentially global network, each of whose units is in the simultaneous service of the part and the whole.

10. Conclusion

"We cannot build new cities under the influence only of the model of the ancient Greek city, since in that way we will never solve the problems of the modern era. However, we have to create cities which consist of elements based on the human scale. The modern city should be a synthesis of the human scale and the mechanical scale. Only in this way will we be serving humankind while at the same time improving

the performance of the machine, exhausting its potential. When man succeeds in mastering these large dimensions, the whole world will be one city. When space satellites allow him to survey the entire globe and television enables him to hear the news from every corner of the world, the mechanical dimensions of the city will shrink to those of an ancient Greek city. Man will live not only in a small human community and dominate it by human dimensions, he will also live in a world-wide community, which he will dominate by means of the mechanical dimensions which he has created. In the interests of man, we should return to our ancient heritage and see how the ancient Greek city can be of special help to us." ("The Ancient Greek City and the City of the Present," pp.363-364).