

## **Chapter 2**

### **The Greek City**

The preceding chapter did not deal with the simple orthogonal layout of buildings and roads but with two important systems, that of the intersections of major axes and that of the highly disciplined and rigorous grid plan which almost invariably follows the *per strigas* layout.

The latter pattern is of special interest. Throughout the search for the "Hippodamean" cities in early ages and in the Minoan-Mycenaean culture as well as in the East, no distinction was made between the simple rectangular layout and the grid pattern. Undoubtedly, the rectangular layout is a common basis for organization found in Egypt, Mesopotamia, and in Minoan palaces. At Thermi IV,<sup>1</sup> at Troy (even though there is a circular wall), and at Phylakopi there is rectangular order within the uniform subdivisions. This is also true at Palaikastro, Gurnia,<sup>2</sup> Vroulia,<sup>3</sup> and Naukratis.<sup>4</sup> This rectangular plan, which continues through the fourth-century Greek world and into the Hellenistic age and which was adopted also by the Romans, is not defined only by the principal of orthogonality; it also has the following characteristics:

1. A master plan provides for development of the total area within the walls as well as that of the residential sector. The few major arteries are made to run longitudinally. There is no central intersection. There are some perpendicular axes and many streets parallel to them, subdividing the city into elongated blocks, usually one actus wide. The grid of subdivisions is the same throughout the city. Squares and public buildings are inserted into the grid without destroying the subdivision, since they are treated as part of the blocks. In this case the streets are tangential to the buildings and squares. Obviously all of this represents a well thought-out system.

2. The preeminent concern of the urbanist is revealed in his study of residential quarters, which are subdivided by uniform equal blocks and whose houses are alike in style. All houses face the street.

These characteristics and the master plan to control future expansion are reflected in a passage from Plato (*Leg.* VI, 779B)

<sup>1</sup> There are here three parallel roads: W. Lamb. *Excavations at Thermi in Lesbos*, Cambridge, 1936.

<sup>2</sup> See an important survey by R. W. Hutchinson. "Prehistoric Town Planning In and Around the Aegean," in *Town Planning Review* 23, 1952-53, p. 261; 24, 1953-54, p. 5.

<sup>3</sup> K. F. Kinch, *Vroulia*, Berlin, 1914.

<sup>4</sup> H. Prinze, "Funde aus Naukratis," in *Klio*, vol. 7, 1908, p. 11, Table 1.

which states that the houses are to be alike and even proposes, for that purpose, that all the foundations be laid at the time the city is founded:

ἀλλ' εἰ δὴ τεῖχος γέ τι χρεῶν ἀνθρώποις εἶναι, τὰς οἰκοδομίας χρῆ τὰς τῶν ἰδίων οἰκήσεων οὕτως ἐξ ἀρχῆς βάλλεσθαι, ὅπως ἂν ἡ πᾶσα ἡ πόλις ἐν τεῖχος, ὁμαλότητι τε καὶ ὁμοιότησιν εἰς τὰς ὁδοὺς πασῶν τῶν οἰκήσεων ἐχουσῶν εὐέρκειαν, ἰδεῖν τε οὐκ ἀηδὲς μιᾶς οἰκίας σχῆμα ἐχούσης αὐτῆς, εἷς τε τὴν τῆς φυλακῆς ῥαστώνην ὄλω καὶ παντὶ πρὸς σωτηρίαν γίγνοιτ' ἂν διάφορος.<sup>5</sup>

It is difficult at present to document this type of city planning before the beginning of the fifth century B.C. If we can confirm some innovations as having occurred in that century, we remove the difficulty commonly associated with the dating of the Hippodamean plan, which is that Hippodamean cities have existed since the beginning of the seventh century. In any case, greater knowledge should be gained concerning this style of planning and how it began. Quite possibly Eastern cities were known and used as examples: for instance, the village of Kahun (Fig. 22), built for the workers of the pyramid of Sesostris II (1897–1879 B.C.),<sup>6</sup> and also some parts of Tell-el-Amarna (Fig. 23), rebuilt *ex novo* in 1396–1354 B.C.<sup>7</sup> Accounts by Herodotus reveal that during the fifth century there was widespread interest in the Orient.

It is possible that these urban forms derive entirely from rational criteria of organization, not necessarily inspired by earlier examples. For instance, the Aztec city of Tenochtitlan (Fig. 24)<sup>8</sup> exhibits not only the rectangular layout (at least in some parts) and the astronomical orientation but also an analogous scheme of an east–west *decumanus* and many north–south *cardines*, setting off elongated *strigae*.

Such a design could correspond to precise, basic criteria. For instance, the reasoning could be that only a few roads are needed for circulation, while the rest serve to subdivide the city into sections. The blocks become long and narrow because houses are small, and thus a series of houses can form a *striga* without the

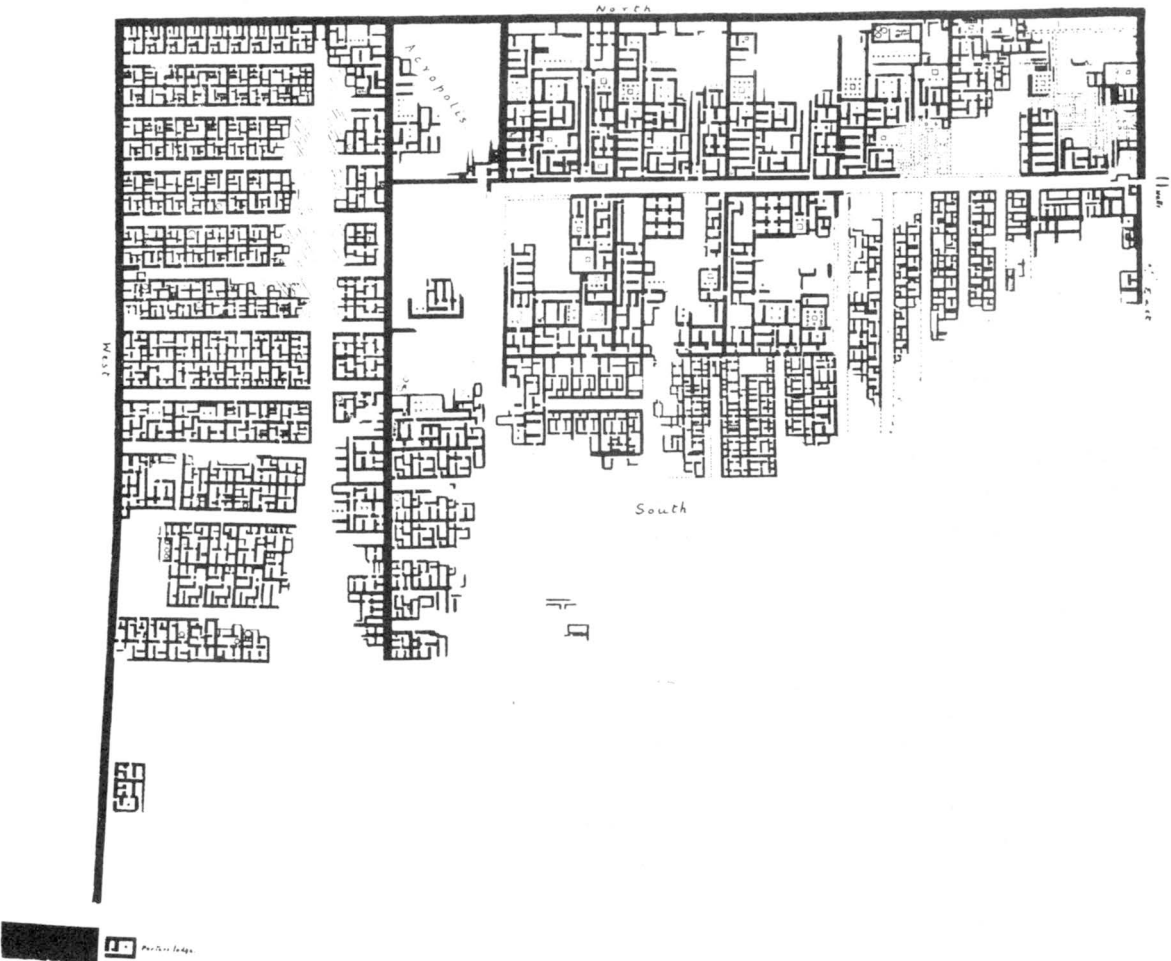
<sup>5</sup> “But if men really must have a wall, then the building of the private houses must be arranged from the start in such a way that the whole city may form a single wall; all the houses must have good walls, be built regularly and in a similar style, facing the roads, so that the whole city will have the form of a single house, which will render its appearance not unpleasing, besides being far and away the best plan for ensuring safety and ease for defense.”

<sup>6</sup> W. M. Petrie, *Illahun, Kahun and Gurob*, London, 1891, Table XV.

<sup>7</sup> *The City of Akhenaten I* (E. Peet and C. L. Wooley), 1923, p. 51, Table XVI; III (J. D. S. Pendlebury), 1951, pp. 122, 189. Compare H. W. Fairman, “Town Planning in Pharaonic Egypt,” in *Town Planning Review* 20, 1949, p. 33; J. Vandier, *Manuel d'archéologie égyptienne* II, Paris, 1955, p. 972.

<sup>8</sup> See F. Violich, *Cities of Latin America*, New York 1944, figures after p. 28.

Figure 22 Kahun (Petrie).





**Figure 23** Tell-el-Amarna  
(*The City of Akhenaten*).

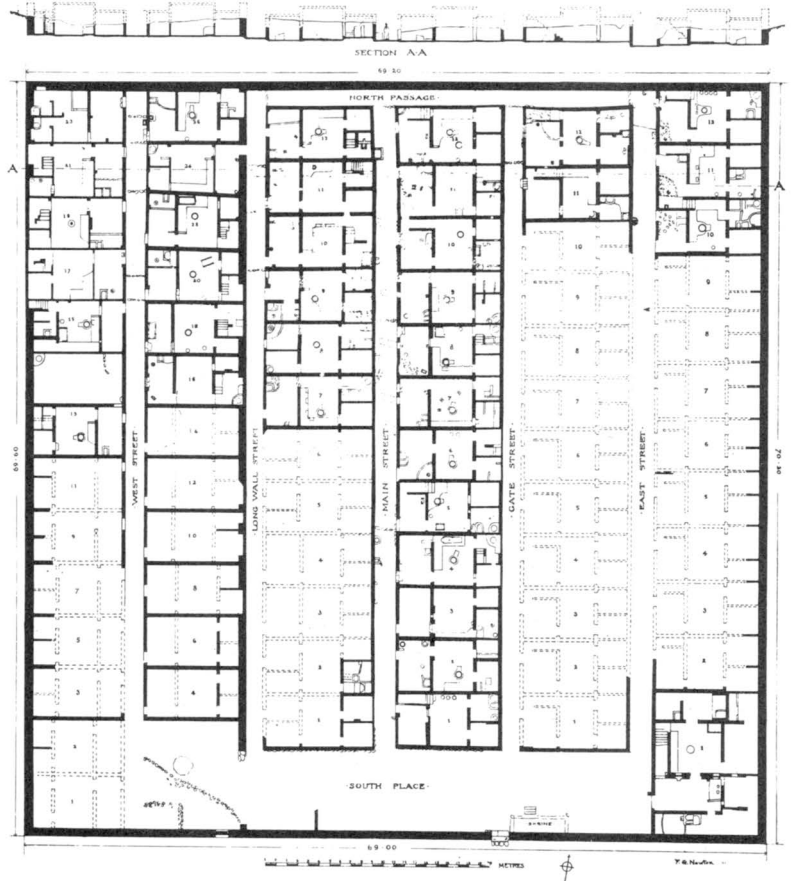
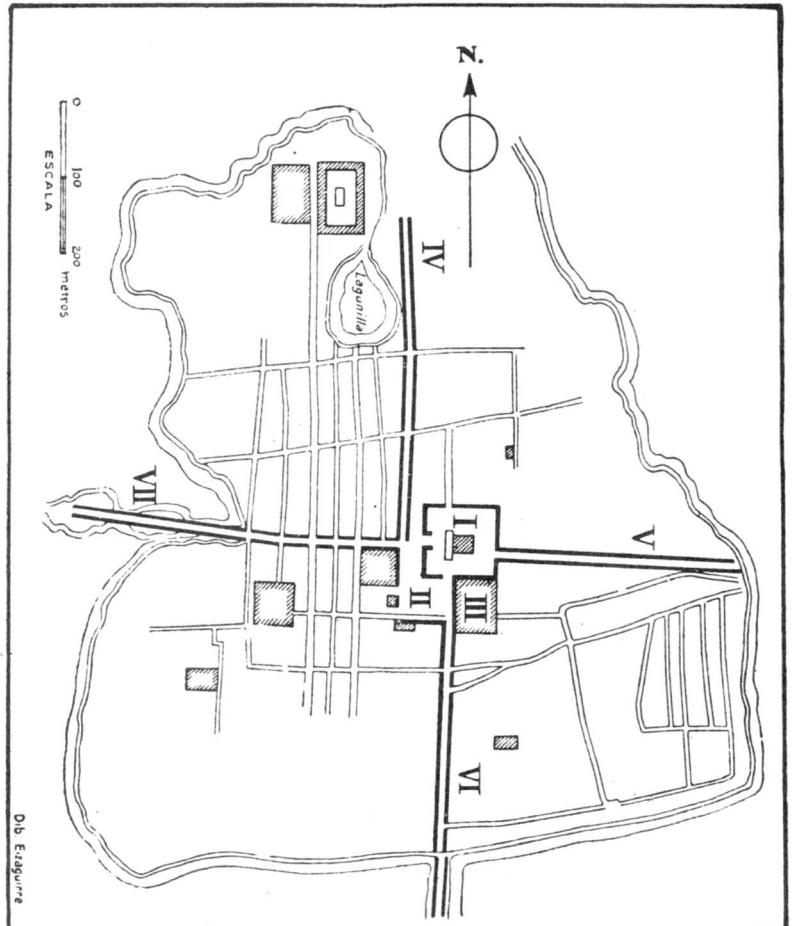


Figure 24 Tenochtitlan (Violich).



need of superfluous *decumani*. Protection from wind and sun is an obvious reason for adopting an astronomical orientation in the plan.<sup>9</sup>

*Decumani* usually run east–west, or nearly so (Posidonia, Capua, Marzabotto, Agrigento, and later Priene, Damascus, Laodicea; Pompeii is almost northeast), north–south (Rhodes, Olynthus), or parallel to the coast line (Naples, Herculaneum, and Alexandria). Von Gerkan<sup>10</sup> rightly excludes the religious significance in orientation, and instead points to hygienic and topographic criteria. Though perhaps inspired by Hippocrates (*de aere, aquis, locis*), Aristotle (*Pol.* VII, 10, 11, 1330a) testifies to the care taken to open the city to winds (preferably the east, otherwise the north). Oribasius<sup>11</sup> prefers an east–west, north–south array of streets. On the other hand, Vitruvius<sup>12</sup> counsels against

Orientation

<sup>9</sup> It is not employed in coastal cities.

<sup>10</sup> *Griechische Städteanlagen*, p. 78. This is also valid for the most ancient cities. Because the north–south orientation of squares and courtyards (and thus of the entire urban complex), as at Gurnià, Phestos, and Tyrins is employed for practical criteria such as the right exposure to the sun, we must not look for sacred symbolism of the celestial orientation in the Hymn to Apollo 55: Φοῖβος δ' ἐσπόμνοι πόλιας διεμετρήσαντο / ἄνθρωποι· Φοῖβος γὰρ αἰεὶ πολίεσσι φιληδεῖ / κτιζομένης, αὐτὸς δὲ θεμελίια Φοῖβος ὑφαίνει. (And Phoebus it is that men follow when they map out cities. For Phoebus evermore delights in the founding of cities, and Phoebus himself doth weave their foundations.) See Fabricius, in Pauly–Wissowa, *Realencyclopaedie* IIIA, c. 2000.

<sup>11</sup> II, p. 318 (Bussemaker–Daremberg): Ἐν πόλει, ὅταν ἀγυαὶ παράλληλοι ὑπάρχωσιν, αἰεὶ μὲν καὶ εἰς μῆκος ἀλλήλαις, καὶ αἰεὶ δὲ εἰς πλάτος, ταῖς ὁμοταγέσι μὲν ἀνατολῇ ἰσημερινῇ καὶ δύσει ἐπὶ εὐθείας κείμεναι, αἱ δὲ ἄρκτω καὶ μεσημβρίᾳ, πᾶσαι δὲ τέμνωσι τὴν πόλιν, αἱ μὲν κατὰ τὸ μῆκος ὄλον, αἱ δὲ κατὰ τὸ πλάτος μέχρι περάτων, οὐδὲν οἰκοδόμημα τὸ μεταξύ ἑαυτῆς ἑκάστη ἔχουσα τι ἐνιστάμενον, ἐπὶ πολὺ τῶν προαστείων καθαράς ἐπὶ εὐθείας τὰς ἐπὶ ἑαυτῇ ἑκάστη ἔχουσα ὁδοὺς, εὐάερρον τὴν πόλιν παρέχουσιν, εὐήλιόν τε καὶ καθαρὸν καὶ εὐήνεμον τὸ κατὰστημα ποιοῦσιν, ὅτι οἱ ἄνεμοι, βορέας καὶ νότος, εὖρος τε καὶ ζέφυρος . . . διαρρέουσι . . . Εὐήλιόν τε τὴν πόλιν οὕτως ἔχουσαι ποιοῦσιν αἱ ἀγυαὶ, ὅτι ἥλιος ἀνατέλλων καὶ δύόμενος εἰσέρχεται, τὰς κατ' ἀνατολὴν ἐπὶ εὐθείας, μεσουρανοῦν δὲ εἰς πᾶσας τὰς κατ' ἄρκτους καὶ μεσημβρίας, ὥστε ἠλιοῦσθαι ἑκάστης ἡμέρας ἐν τῇ πόλει τὰς ἀγυαίς. (If all the streets in a city are parallel, some lengthwise and others widthwise; and if streets in the same direction face either the rising and setting sun or the north and south; if they all intersect the city to its farthest limits, either by length or by width; if none of them contains in its whole length any building that may prove to be an obstacle; if the suburban streets that are a continuation of these carry on the same line and are unobstructed for a great distance—then these streets will ventilate the city well, will expose it to the winds, and light it by the sun. And the city will be clean, because the winds, that is the winds of the north, south, east, and west, which are the most important of all and the most ordered, will traverse the streets easily, since the streets lie in the same directions. And since the winds will meet no obstacle to their passage, they will cause no violence as they blow across the city; for indeed the winds when they meet no impediment pass without one's knowing. Nevertheless, they do not traverse the whole city without influence, for they purify the environs, ridding the city of smoke, dust, and all kinds of exhalations. Streets thus disposed render the city easy of access to the sun, because it penetrates the city at its rising and at its setting. At its rising it enters on a straight line into the streets that are turned to the east; at noon it penetrates those that are facing the north or the south. Thus all the streets of the city are subjected daily to the influence of the sun. . . .)

<sup>12</sup> Vitruvius I, 6, 1: *Moenibus circumdatis sequuntur intra murum arearum divisiones*

opening the streets to winds. The orientation of the streets was also concerned with the correct exposure of the house to sunlight. Xenophon<sup>13</sup> and Aristotle<sup>14</sup> favor a southern exposure. To the north of each courtyard there was a covered porch called a *pastas*,<sup>15</sup> protected from the north winds and open to the sun. This kind of porch is frequently seen in Olynthus.<sup>16</sup>

## Residential Sectors

The system just described follows from still other considerations. A scheme permitting a unifying equality within the residential sectors, without a focus to the plan, is certainly adapted to a democratic society based on equality among its citizens. Aristotle (*Pol.* VII, 1300b, 17 ff) explains the relation between city planning and politics by affirming that an acropolis is proper to an oligarchy and a monarchy, while the flat areas are part of a democracy. It is worthy of note that this type of urban design developed in the fifth century, after the fall of tyranny and the affirmation of democratic constitutions. The criteria of equality

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*platearumque et angiportium ad caeli regionem directiones. Diriguntur haec autem recte, si exclusi erunt ex angiportis venti prudenter. Qui si frigidi sunt, laedunt; si calidi, vitiant; si umidi, nocent. . . . cum septentrio . . . in angiportis et plateis non possunt consistere propter vehementiam frigoris.*

(When the walls are set round the city, there follow the divisions of the sites within the walls, and the layings out of the broad streets and the alleys with a view to aspect. These will be rightly laid out if the winds are carefully shut out from the alleys. For if the winds are cold they are unpleasant; if hot, they infect; if moist, they are injurious. [Vitruvius then cites the case of Mytilene where] . . . when the north wind blows . . . nobody can stand in the alleys and the streets for the cold.)

I, 6, 7: *Tum per angulos inter duas ventorum regiones et platearum et angiportorum videtur debere dirigi descriptiones.* (Then the angles between two quarters of the winds will determine the laying out both of the streets and of the alleys.)

I, 6, 13: . . . *inter angulos octagoni gnomon ponatur, et ita dirigantur angiportorum divisiones.* (. . . let the gnomon be set upon the angles of the octagon and let the division of the alleys be directed accordingly.)

<sup>13</sup> *Mem.* III, 8, 9: Οὐκ οὖν εἴ γε καλῶς ἔχει ταῦτα οὕτω γίνεσθαι, οἰκοδομεῖν δεῖ ὑψηλότερα μὲν τὰ πρὸς μεσημβρίαν, ἵνα ὁ χειμερινὸς ἥλιος μὴ ἀποκλείηται, χαμαλιώτερα δὲ τὰ πρὸς ἄρκτον, ἵνα οἱ ψυχροὶ μὴ ἐπιπτώσιν ἄνεμοι . . . (If, then, this is the best arrangement, we should build the south side loftier to get the winter sun and the north side lower to keep out the cold winds.)

*Oecon.* IX, 4: Καὶ σύμπεσαν δὲ τὴν οἰκίαν ἐπέδειξα αὐτῇ ὅτι πρὸς μεσημβρίαν ἀναπέπταται, ὥστε εὐδῆλον εἶναι, ὅτι χειμῶνος μὲν εὐήλιός ἐστι, τοῦ δὲ θέρους εὐσκίος. (I showed her that the whole house fronts south, so that it was obvious that it is sunny in winter and shady in summer.)

<sup>14</sup> *Oecon.* I, VI, 7–8 (1345a): Καὶ πρὸς εὐσημερινὰν δὲ καὶ πρὸς ὑγίαιαν δεῖ εἶναι (οἰκίαν) εὐπνοὺν μὲν τοῦ θέρους, εὐήλιον δὲ τοῦ χειμῶνος. Εἶν δ' ἂν ἡ τοιαύτη κατάβορος οὖσα καὶ μὴ ἰσοπλατῆς. (For well-being and health, again, the homestead should be airy in summer, and sunny in winter. A homestead possessing these qualities would be longer than it is deep; and its main front would face the south.)

<sup>15</sup> Vitruvius, VI, 7, 1: *Id peristylum in tribus partibus habet porticus inque parte, quae spectat ad meridiem, duas antas inter se spatio amplo distantes, in quibus trabes invehuntur . . . Hic locus apud nonnullos prostas, apud alios pastas nominatur.* (This peristyle has porticoes on three sides, and on the side that looks south has two doorposts rather distant one from the other, on which are placed the architraves . . . This place by some is called *prostas*, by others *pastas*.)

<sup>16</sup> *Excavations at Olynthus* 8, p. 143, 161.



naturally were felt much more in the colonies. The relation between colonies and uniform city planning has been frequently dealt with, beginning with Nissen. However, Nissen is interested in the problem only from the seventh century on.

It would prove of great interest to study the house plan and its siting on the one-actus-wide block, particularly in relation to the standardized urban blocks. At Olynthus the block is bisected on its short side by an *ambitus*; the long side of 86.34 meters is divided into five parts. Thus, each house occupies a square, one-half actus on a side. An analogous relationship between block and house has been found by Arias<sup>17</sup> to exist at Marzabotto. The dimensions of the house at Soluntum are similar.

The blocks containing the oldest houses in Region VI at Pompeii are also divided into two parts on their short side, near the *decumanus* (Casa del Naviglio and Casa del Fauno on the Via di Nola, and Casa del Labirinto on the Via di Mercurio). More frequently the entire width of the blocks is occupied between one *cardine* and another, although in some cases this may have resulted from the expansion of single houses. There is no evidence for Ippel's rigidly schematic reconstruction of the plan.<sup>18</sup> The relation of the house to the astronomic orientation of the city has already been discussed.

From the viewpoint of urban aesthetics such a rigid geometric plan may seem surprising among the Greeks; it would find greater credence among the Romans. Yet such a system is a Greek creation; it was not only practical but fashionable in its time. Heraclitus I, 1 (third century B.C.)<sup>19</sup> judges the plan of Athens *κακῶς ἑρρημοτομημένη διὰ τὴν ἀρχαιότητα* (streets irregularly divided because of their antiquity). He is critical of the houses, affirming that a stranger would hardly believe this to be the famous city of Athens and to be reassured would need to see the theater, the Parthenon, or the Olympieion—in other words, monuments rather than urban forms. These and other judgments on the older forms as well as the new planning are very significant.

Yet this Greek creation (not Hellenistic, since it appears as early as the fifth century) is not really alien to the Greek spirit, which sought through mathematics the precision of temple architecture and in some cases of sculpture as well.

<sup>17</sup>See Chapter 1, note 132, p. 51.

<sup>18</sup>A. Ippel, "Pertica Pompeiorum," *Röm. Mitt.* 46, 1931, p. 198. Bisecting the block was also common at Herculaneum, although the short side of the block was not the same width as at Pompeii.

<sup>19</sup>*Sitzb. Akad. Wiss. Wien* 227, 2, 1951, p. 72.

The rigor of geometric subdivision was maintained even in difficult geographic situations, on steep slopes, as for example in Rhodes and Olynthus first, then in Soluntum and Priene, among others. Interesting scenic effects were often obtained this way.

Finally, the importance of the concept of a master plan cannot be ignored. It anticipated the future growth of the city to prevent building outside the walls and imposed a design to be followed through gradual growth and construction. Bearing in mind this use of the plan, we must concede that it is not a trustworthy criterion of urban texture and population even though it has always been used as such. (Beloch<sup>20</sup> uses the physical extension of the city to calculate its population.)

As we have seen, Hellenistic city planning focused on private construction. Yet the agora, too, took on the general character of the plan and fitted into the grid, as evidenced by its perpendicular sides. A homogeneous architecture arose from its regularity of plan, evidenced especially in a single style of arcades. Pausanias apparently refers to this type of agora when he contrasts the ancient agora at Elis, built on the old plan, to that of Ionian cities: VI, 24, 2: Ἡ δὲ ἀγορὰ τοῖς Ἡλείοις οὐ κατὰ τὰς Ἰώνων καὶ ὅσαι πρὸς Ἰωνία πόλεις εἰσὶν Ἑλλήνων τρόπῳ δὲ πεποιηται τῷ ἀρχαιότερῳ στοαῖς τε ἀπὸ ἀλλήλων διεστῶσαις καὶ ἀγυαῖς δι' αὐτῶν. (The agora of Elis is not after the fashion of the cities of Ionia and of the Greek cities near Ionia; it is built in the older manner, with porticoes separated from each other and with streets running through them.)<sup>21</sup>

<sup>20</sup>J. Beloch, *Die Bevölkerung der griechisch-römischen Welt*, Leipzig 1886, p. 474.

<sup>21</sup>See F. Tritesch, "Die Agora von Elis und die altgriechische Agora," *Oest. Jahresh.* 27, 1931–1932, p. 64; R. E. Wycherley, "The Ionian Agora," *Journ. Hell. Stud.* 62, 1942, p. 21; R. Martin, "Recherches sur l'agora grecque," *Bibl. Ec. Franç.* 164, 1951, p. 372.