

Chapter 3

Hippodamus of Miletus

Aristotle (*Pol.* II, 1267b, 21) tells that Hippodamus of Miletus¹ studied the theory of government and advised segregation of the people by class; furthermore τὴν τῶν πόλεων διαίρεσιν εὔρε, although some scholars do not attribute this passage to Aristotle. Elsewhere Aristotle goes on to speak of the uniform patterning of streets (*Pol.* VII, 1330b, 21): ἡ δὲ τῶν ἰδίων οἰκήσεων διάθησις ἡδίων μὲν νομίζεται καὶ χρησιμωτέρα πρὸς τὰς ἄλλας πράξεις, ἂν εὐτομος ἦ καὶ κατὰ τὸν νεώτερον καὶ ² τὸν Ἴπποδάμειον τρόπον, πρὸς δὲ τὰς πολεμικὰς ἀσφαλείας τοῦναντίον ὡς εἶχον κατὰ τὸν ἀρχαῖον χρόνον· δυσέξοδος γὰρ ἐκείνη τοῖς ξενικοῖς καὶ δυσεξερευνητος τοῖς ἐπιτιθεμένοις. (The arrangement of the private dwellings is thought to be more agreeable and more convenient for general purposes if they are laid out in straight streets, after the modern fashion, that is, the one introduced by Hippodamus; but it is more suitable for security in war if it is on the contrary plan, as cities used to be in ancient times; for that arrangement is difficult for foreign troops to enter and to find their way about in when attacking.)

Moreover, Hippodamus is called architect by Harpocration and by Photios, μετεωρολόγος by Hesychius and Photios.

The lines of Aristotle reveal only a concept of the ordered city. It should be possible to glean more knowledge through the study of those cities assigned to Hippodamus,³ such as the rebuilt Piraeus (“during the Persian wars,” *Schol. ad Arist. Eq.* 327), the original layout of Thurii (444–443 B.C.) and Rhodes (408–407 B.C.), but these are spread over too wide a period of time. Moreover, the evidence for the plan of Rhodes is not altogether authentic, and the founding of Piraeus probably goes back to the time of Pericles. The date appears to be confused with that for the city walls.⁴ In any case, Piraeus and Thurii are generally recognized as the work of Hippodamus; von Gerkan, who establishes his birth at about 500 B.C., believes that he may have also worked on the reconstruction of Miletus.

Piraeus, in fact, was Hippodamus’s most famous work: τὸν Πειραιᾶ κατέτεμεν (Aristotle II, 1267b, 22), and a square was named Ἴπποδάμειος ἀγορὰ (Xenophon *Hell.* II, 4, 11). One can

¹ Concerning Hippodamus, see M. Erdmann, *Hippodamos von Milet und die symmetrische Städtebaukunst der Griechen*, *Philologus* 42, 1884, p. 193; E. Fabricius in Pauly-Wissowa, *Realencyclopaedie* VIII, 2, c. 1731, IIIA, c. 1992; A. von Gerkan, *Griechische Städteanlagen*, p. 42; G. Cultrera, “Architettura ippodamea,” *Mem. Linc.* 5, 17, 1923, p. 361; I. D. Kondis, “Ἡ εὐτομος διάθησις εἰς τὸν Ἴπποδάμειον τρόπον,” *Ἀρχ. Ἐφημ.* 1953–1954, p. 255.

² According to some authorities, καὶ is to be omitted or to have only an explicative function.

³ Information gathered in particular from Erdmann’s article.

⁴ Judeich, *Topographie von Athen*, p. 76, n. 2.

also refer to *Schol ad Arist. Eq.* 327 and the passages of several lexicographers—Harpocration, Hesychius, Photios, and others—which assign only Piraeus to Hippodamus. The city almost certainly was patterned on an orthogonal grid, with a principal street some fourteen to fifteen meters wide.

The urban pattern of Thurii is also attributed to Hippodamus. He is known to have been a citizen of the colony and to have participated actively in its inception (Hesychius). The plan was laid out on an orthogonal grid, and it may even have been subdivided *per strigas*.

The layout of Rhodes must not be overlooked, either. Even though it is incorrectly attributed by Strabo to Hippodamus (XIV, 654: ἡ δὲ νῦν πόλις ἐκτίσθη κατὰ τὰ Πελοποννησιακὰ ὑπὸ τοῦ αὐτοῦ ἀρχιτέκτονος, ὡς φασιν, ὅφ' οὐ καὶ ὁ Πειραιεύς—the present city was founded at the time of the Peloponnesian war by the same architect, as they say, who founded the Piraeus), still it has characteristics that are not unlike the Hippodamean plan, and indeed the attribution to Hippodamus no doubt arose through its similarity. As reconstructed by Kondis, the plan layout of Rhodes (page 16) follows an orthogonal pattern, and in some parts it is clearly subdivided *per strigas*. It certainly did not have a radial scheme as some writers have thought, who picture it as a city laid out on the pattern of Karlsruhe and Palmanova.⁵

More generally, since Aristotle distinguishes the old irregular city from the new Hippodamean type, we should mention that the system generally in use in Aristotle's time was basically orthogonal.⁶

A passage from Aristophanes' *The Birds* (995–1009 B.C.) is frequently interpreted as a reference to Hippodamus:

Με. γεωμετρήσαι βούλομαι τὸν ἀέρα ὑμῖν διελεῖν τε κατὰ γῶας. Πει. πρὸς τῶν θεῶν σὺ δ' εἰ τίς ἀνδρῶν; Με. ὅστις εἴμ' ἐγώ; Μέτων, ὃν οἶδεν Ἑλλάς χά Κολωνός. Πει. εἰπέ μοι, ταυτὶ δὲ σοι τί ἔστι; Με. κανόνες ἀέρος. αὐτίκα γὰρ ἀήρ ἔστι τὴν ἰδέαν ὄλος κατὰ πνιγέα μάλιστα. Προσθεῖς οὖν ἐγὼ τὸν κανόν' ἄνωθεν τουτοῖν τὸν καμπύλον ἐνθεῖς διαβήτην—μανθάνεις;

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⁵ See, for example, Haverfield, *Ancient Town-Planning*, p. 14.

⁶ Although the new system may not be identifiable with the Hippodamean system (see ref. 2 above), the latter may be a particular element within the new planning system. Although highly praised by Aristotle, the plan is criticized for its lack of security when compared with the old irregular city which was difficult to assail. Thus he advises that the regular subdivision be limited to certain areas of the city and that a layout by *συστάδες τῶν ἀμπέλων* be adopted, which according to Kondis are terraces (see the reference to Kondis's article, ref. 1).

Πει. οὐ μανθάνω. Με. ὀρθῶ μετρήσω κανόνι προστιθείς, ἵνα ὁ κύκλος γένηται σοι τετράγωνος κὰν μέσῳ ἀγορά, φέρουσαι δ' ὄσιν εἰς αὐτὴν ὁδοὶ ὀρθαὶ πρὸς αὐτὸ τὸ μέσον, ὡσπερ δ' ἀστέρος αὐτοῦ κυκλοτεροῦς ὄντος ὀρθαὶ πανταχῆ ἀκτῖνες ἀπολάμπωσιν. Πει. ἄνθρωπος Θαλῆς. (Metone: "I wish to survey the air and divide it into plots" [or "into roads"]. Peisthetairos: "By the gods, what kind of man are you?" M.: "Who am I? Metone, known in Hellas and Colonos!" P.: "Say, what stuff is this?" M.: "These are measures for air. You must know that the air, taken in its entirety, more or less resembles an oven. Thus, I, applying to it from above this curved edge, and inserting a compass . . . understand?" P.: "No, I do not understand." M.: "With the straight rule which I shall apply, I will measure so that the circle is squared. In the center there will be a square and in it will converge all the straight roads, such as in a star, itself also round, the rays emanate to all directions." P.: "This man is a Thales!")

Possibly τετράγωνος is not just "square" or "four-cornered" as is often thought, because the squaring of the circle, so expressed, is not really humorous. Probably the first meaning (according to Erdmann) is taken to be "quadripartite," and thus the squaring of the circle, understood in a double sense, becomes wittier. Thus we have essentially a circular city divided by two orthogonal axes that meet at the agora in the center. There follows the comparison to the rays of a star which spread from the center in every direction. If this comparison is taken literally, the vision of a "Place de l'Étoile" arises. But such a plan was not employed until the seventeenth century; it was totally unknown to the ancient world. Though it is true that the poet can create before the architect,⁷ a less literal interpretation of the passage would be appropriate: the rays are the four streets which, spreading from the agora, define the quadripartite city.⁸

It is unclear, however, whether the passage should be interpreted as paradoxical and fantastic or, as seems more probable, as a simply comic reference to contemporary planning practices and theories. If there is an allusion in the passage, is it to Hippodamus? Hermann and Erdmann think so, and talk of Hippodamus's cyclic principle, which they relate to the school of Protagoras. This brings to mind radial and semicircular plans,

⁷A. Kriesis, *Urbanism in Greece* (given at the Congress of Classical Studies, Copenhagen, 1954), p. 23, believes that Aristophanes had anticipated such a town-planning scheme by many centuries.

⁸Which was a complete set of radial roads, according to R. E. Wycherley, "Aristophanes, The Birds 995–1009," in *Class. Quart.* 31, 1937, p. 22.

as seen by Cultrera, Friedländer, and others. Von Gerkan rules out all of this.

The evidence of Piraeus, Thuri, and Rhodes also rule out this extension of Hippodamus's work. We have seen that the *θεαροειδής* of Rhodes and other cities is not a reference to the form of the city. Most probably Aristophanes's allusion is to be considered as kin to Plato's fantasy of the city of Atlantis,⁹ said to be laid out in concentric rings. If both Plato and Aristophanes were referring to a circular city, one wonders whether there might have been a theoretical interest in such a city,¹⁰ a not improbable hypothesis in the light of some Oriental examples and considering the interest there might well have been in Oriental city plans, as evidenced in Herodotus. Certainly the Egyptian contribution to the myth of Atlantis is not to be overlooked.¹¹

The circular city¹² was known in the Orient, as evidenced by the hieroglyphic symbol of a city—a circle divided into four parts (Fig. 25). Other examples are the Hittite city of Zincirli,¹³ the Assyrian military encampments shown on reliefs (Fig. 26),¹⁴ and the city of Qala i Darad, while Baghdad (a circular plan, from its descriptions) continues the tradition which, by other routes, extends to the Viking castles.¹⁵ Especially important are the circular walls of Ekbatana (Herodotus I, 98).

The interest which Plato showed in the Orient is apparent to L'Orange. That Aristophanes should have shared this interest is not inconceivable. His "quadripartite" circle can certainly be

⁹Cf. P. Friedländer, *Platon*, I², Berlin, 1954, p. 303 ff. It is not certain whether the city mentioned in *Leg.* p. 778C is circular.

¹⁰R. E. Wycherley, in "Aristophanes," *Class. Quart.* 31, 1937, p. 30, thinks that the ancient circular city with a central agora was abstracted into a uniformly patterned system; yet this is not known through any of the urban examples we have studied. Perhaps it is preferable to admit a certain amount of theoretical speculation. Furthermore, we are not to confuse with this type of plan the *πόλις τροχοειδής* plan, the name given by Herodotus VII, 140 to Athens. These terms simply refer to a city arrayed around an acropolis, in the words of Strabo (IX, 396) *ἐν πεδίῳ περιτοικουμένη κύκλῳ* (in a plain and surrounded by dwellings).

¹¹See especially M. Pallottino, *Archeol. Class.* 4, 1952, p. 237.

¹²Which after all is also the form which many prehistoric centers approximate, also in Greece (Dimini).

¹³R. Naumann, *Architektur Kleinasiens*, Tübingen, 1955, p. 215; p. 207, Fig. 246; p. 216, n. 6, on circular fortifications found in the territory between the Tigris and Euphrates, of uncertain date.

¹⁴I. Billerbeck-Delitzsch, "Die Palasttore Salmanasser von Balawat," *Beiträge zur Assyriologie und semit. Sprachwiss.* 6, 1909, Table C.

¹⁵See the interesting study by H. P. L'Orange, "The Illustrious Ancestry of the Newly Excavated Viking Castles Trelleborg and Aggerborg," *Studies Robinson*, I, St. Louis 1951, p. 509. For a discussion of Oriental cities, see also Lavedan, p. 56, and H. W. Fairman, "Town Planning in Pharaonic Egypt," *Town Planning Review* 20, 1949, p. 33.

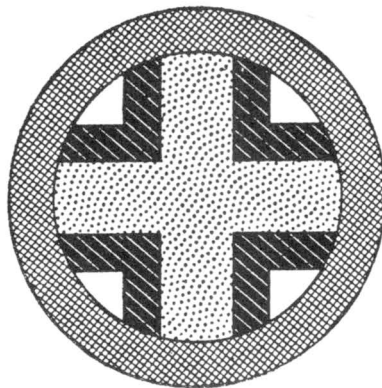
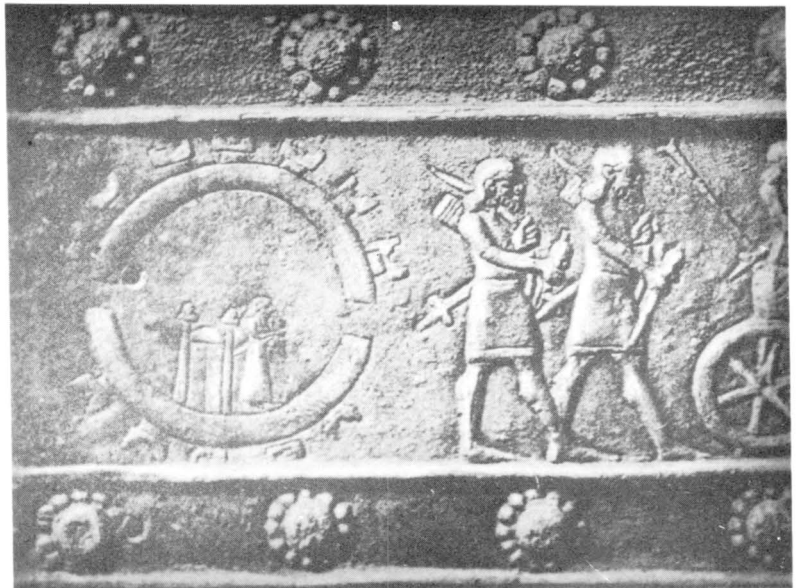


Figure 25 Hieroglyphic symbol of the city.

Figure 26 Assyrian military camp (Billerbeck-Delitzsch).



an allusion to theoretical discussions concerning the circular oriental city divided into four parts by axes intersecting at the center. Even though the common form of Oriental cities does not follow this plan, it is possible to understand the theoretical importance which it must have had among the Orientals: the city portrayed the world scheme, circular and quadripartite.

Hippodamus and City Planning in
the Fifth Century B.C.

To summarize: The orthogonal grid layout is characteristic of the plan invented by Hippodamus. However, many cities which followed this scheme were laid out prior to his time, and it is not uncommon to speak of “Hippodamean” cities that antedate Hippodamus. According to Nissen and von Gerkan, this type of plan gained widespread use during the diffusion of the colonies in the seventh and sixth centuries B.C. Hippodamus then might be considered a symbol¹⁶ or at best an urbanist who based his fame on theorizing a preexisting system.¹⁷ Or, as Cultrera¹⁸ and Pace¹⁹ point out, the character of Hippodamean urbanism is not so much in the plan layout (which could be either orthogonal or circular²⁰) as in the monumental squares, the over-all harmony, and especially the search for scenographic effects. Speaking with caution, because the evidence is certainly incomplete, we could say that Hippodamus—who perhaps was born at the beginning of the fifth century and perhaps worked on the plan for Miletus, but who certainly was an established urban designer by the middle of the fifth century—should not be associated with the simple orthogonal system of ancient origins but with that which had developed into the uniform and regular grid pattern known to exist in the fifth century.

It is also natural that such urban design did not spring full-blown from his mind. There must have been precedents from earlier decades, and Hippodamus’s fame must have grown from his theoretical approach to the work. But while it is easily conceivable that he should have developed in depth these concepts of a city plan that was already being elaborated in his own time and that he should have given his name to it, it is difficult to think that his fame should be based upon a form of urbanism already two centuries old. More likely he was neither a symbol nor a simple theorizer but an urbanist who played an important

¹⁶Lavedan, *L’urbanisme*, p. 123; R. E. Wycherley, *How the Greeks Built Cities*, Macmillan, 1949, p. 16; R. Martin, “Recherches sur l’agora grecque,” *Bibl. Ec. Franç.* 174, Paris 1951, p. 347.

¹⁷*Griechische Städteanlagen*, p. 49.

¹⁸*Architettura ippodamea*, p. 374.

¹⁹B. Pace, *Introduzione allo studio dell’archeologia*, Milan 1947, p. 254.

²⁰Though, as we have seen, this latter possibility is to be excluded.

part in city planning during the fifth century, both with his practice and through his theories.

Some specific elements of his work can be discussed. The functional orientation with respect to sun and winds has been dealt with. We are reminded of the epithet *μετεωρολόγος* given him by Hesychius and Photios.

Furthermore, town planning whose architecture is inspired by social principles well agrees with Hippodamus's studies on political constitutions.

Finally, the type of agora that occurs in these regularly patterned cities of the fifth century is, according to Pausanias VI, 24, 2, characteristic of the region from which Hippodamus came. Conversely, the Attic system of planning streets is synonymous with the irregular city: see Philostratus *Apoll.* II, 23 concerning a city in India: ἡ πόλις δ' ὡς μὲν ἔχει τοῦ τείχους, εἴρηκα, φασὶ δ' ὡς ἀτάκτως τε καὶ Ἀττικῶς τοὺς στενωποὺς τέτμηται . . . (I have already described the way in which the city is walled, but they say that it was divided up into narrow streets in the same irregular manner as is Athens. . . .)