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Sikyon is located in the northern Peloponnese, between Corinth to the east and the Achaian town of Pellene to the west (Fig. 1). The city was founded in the coastal plain, where it prospered during the Archaic and Classical periods[1]. In 303 B.C., Demetrios Poliorketes in an effort to gain domination over the Peloponnese, besieged and captured Sikyon expelling its Ptolemaic garrison. He then destroyed the coastal city, and founded a new one on what used to be the acropolis, a hill rising directly above the plain, ca. 3.5 km south–west of the coast[2] (Fig. 2). The new city was named Demetrias, same as the city founded by Demetrios on the Pagasetic gulf in Thessaly, but apparently it soon regained its historical name[3]. Sikyon has existed in this new setting ever since albeit with a different name and significant fluctuations in population size. Vasilika or Vasiliko, which is also the name of the village today, is first mentioned in Frankish documents of the 13th century, with relation to the fortress erected by Guillaume II Villehardouin on the site, and regularly thereafter in the context of Frankish, later Florentine and finally Byzantine possessions in the Peloponnese[4]. From the mid–15th century onwards Vasiliko became part of the Ottoman kaza of Corinth and one of the most populated villages of western Corinthia[5]. However, when Wheler came to the site in 1675 he reported that only six families lived there the rest having succumbed to the plague[6]. In spite of this and similar cases of population decrease we can be fairly confident that the habitation of the plateau spans over 2300 years, and this relates to some of the topographical issues that we discuss below.

(no. 115) and Camp 2003, 273–285 (for the date).
4   The erection of the castle of Vasilika around the middle of the 13th century is mentioned in the Aragonese version of the Chronicle of the Morea: Libro de los fechos et conquistas del Principado de la Morea, paragraph 216 (Morel-Fatio 1885, 49). On the medieval history of Sikyon see Lolos 2011, 80–91.
5   This information is based on preliminary examination of hundreds of Ottoman documents obtained from the Bashbakanlik archive of Istanbul and are now under study by Mohammad Shariat Panahi.
6   Wheler 1682, 446.

The Physical Layout

The hill where the city was transferred is a triangularly shaped plateau with its apex oriented towards the west and its base towards the east (Fig. 3). Its shape and elevation result from the combined action of two factors: a) the torrential rivers flowing to the north (Helisson) and to the south (Asopos) of the plateau and emptying into the Corinthian gulf. With time these rivers shaped the deep and wide Helisson and Asopos river gulleys; b) the episodic uplift of the northern Peloponnese by a series of earthquakes which occurred in the course of the Quaternary period. These seismic uplifts are responsible for the successive marine terraces formed in the northern part of the peninsula and resembling a large staircase climbing westward from the low area of the Isthmus of Corinth[7]. In Sikyon, this process reflects upon the terraces rising westwards from the ca. 120 meters above sea level of the southeast corner of the plateau to ca. 260 m at the western end. The transition from one terrace to the next is in most cases gradual with the exception of the terrace directly west of the theater and the ancient agora and less so of a second terrace further west. The terrace to the west of the agora features a sharp edge towards its lower terrace and a slope which in places exceeds a 20 % gradient. It physically divides the urban area into an upper and lower zone with respective areas of approximately 56 and 170 hectares. With the refoundation of Sikyon in 303 B.C., this upper zone became the acropolis of the new city.

Sikyon Survey Project

The civic space (*asty*) of Hellenistic and Roman Sikyon has been the focus of an interdisciplinary archaeological project lunched in 2004 by the University of Thessaly in collaboration with the 37th Ephorate of Prehistoric and Classical Antiquities, the Institute of Mediterranean Studies and the University of York.
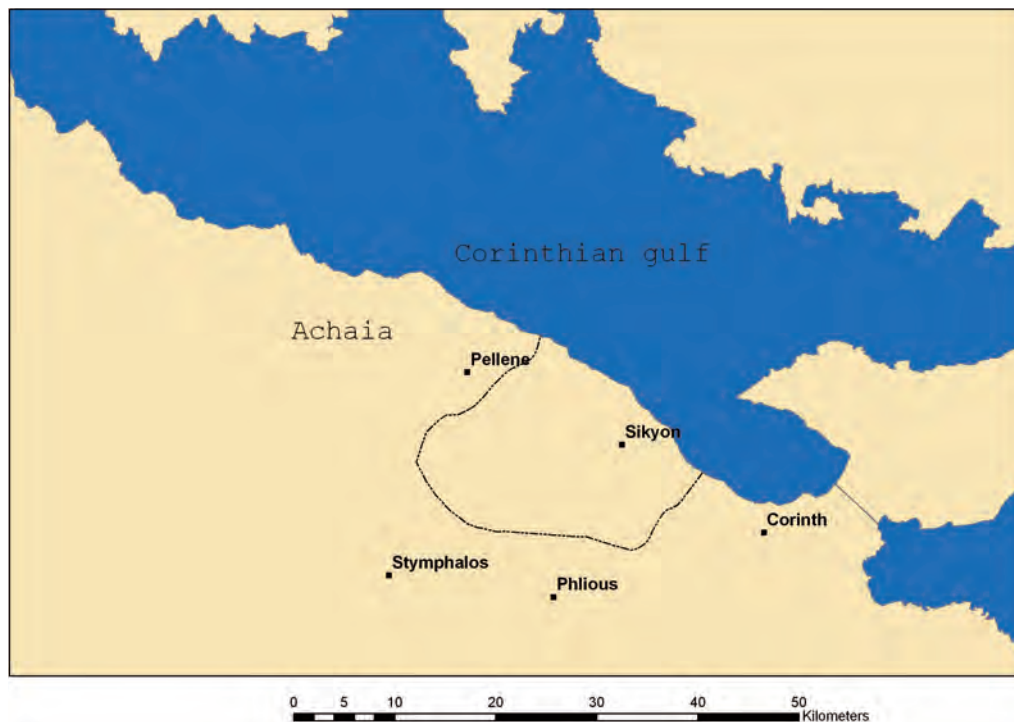
Fig. 1 Map of northeastern Peloponnese with the territory of ancient Sikyon (its boundaries are shown with dotted line) and its neighboring cities (scale 1 : 750 000)

7 On this process see Keraudren – Sorel 1987; Stiros 1988; Stiros et al. 1996.
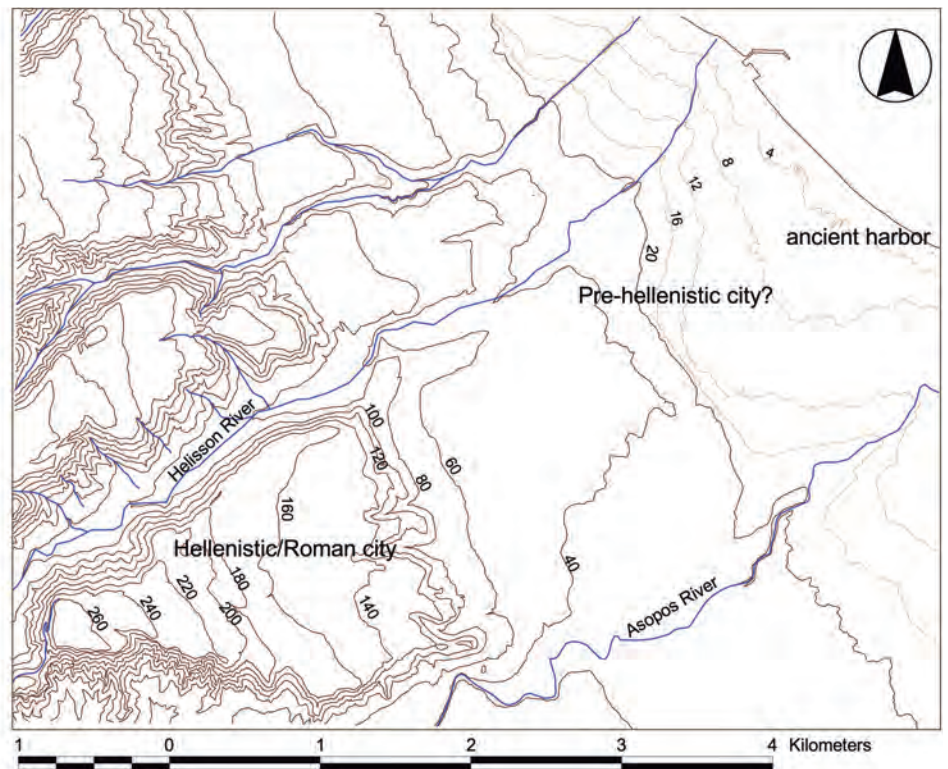
Fig. 2   Map of the coastal plain of Sikyon including the plateau of the later city. The location of the ancient harbor is fairly certain, unlike that of the Archaic and Classical city which is hypothetical (scale 1 : 50 000)

The principal aim of the project is to study the human presence and activity on the Sikyonian plateau from the earliest times to the modern era. Our main research questions relate to the chronological phases of the settlements which developed on the plateau, the layout, structure and development of the city from the Hellenistic period onwards, the interaction of the settlers with the physical environment, the relationship between the city and the countryside (*chora*), the contacts between Sikyon and the outside world as betrayed by the material culture, but also to the perception and ›use‹ of antiquities by the local community and the ›recycling‹ of ancient architectural material in the modern village. With regard to the Hellenistic and Roman city our efforts are directed towards investigating its geographical extent, land uses, the size of the inhabited area, the spatial organization of the residential quarters, the size, shape and structure of the agora, and the town planning which is the focus of this paper.

In order to address these questions, we have conducted intensive surface, geophysical and geoarchaeological surveys over a large portion of the intramural area as well as architectural, archival and ethnographic research in the village of Vasiliko and a study of selected rescue excavations conducted by the Ministry of Culture around the village[8]. Surface survey, either of archaeological, geophysical or geoarchaeological nature, was the obvious and most efficient method for exploring the archaeology of the city as a whole, given its very large size of almost 250 hectares, the relatively shallow archaeological horizon – a meter or less in average, and the fact that the majority of the area is open agricultural land, i. e. not built over or inaccessible. For the purpose of the surface and geophysical survey, which was carried out between 2004 and 2009, fields were divided in 20 m by 20 m squares and surveyed by walkers spaced 4 m apart, thus nominally ensuring a 50 % ground coverage (Fig. 3). All pottery sherds and roof-tile fragments were counted, representative artefacts collected, while the architectural fragments, both the in-situ and the not

8   See the webpage of the project: <http://extras.ha.uth.gr/Sikyon>.

in-situ, were mapped using a differential GPS unit of sub-meter accuracy. In addition, in every fifth square all pottery was collected along two lanes crossing each other at the center of the square. This has allowed us to proceed to a full scale functional analysis of the ceramics which involves examination of shape and fabric[9]. Altogether, some 100 hectares were investigated representing ca. 40 % of the intra-mural area of the ancient city and 60 % of the total surveyable area[10]. Some 800 in-situ and 1000 not in-situ architectural fragments were mapped on the surface, while concurrent geophysical survey identified extensive subsurface remains of walls and streets. The geophysical survey covered an area of almost 40 hectares mostly over areas which had been field walked. However, other areas, both inside and outside the agora were covered where possible (Fig. 3). Geophysics relied mainly on magnetometry but in the agora and in a few other places resistivity meters as well as the ground penetrating radar were also used[11]. The rich and often spectacular data produced by this surface exploration underlie our reconstruction of the city-grid, occasionally supplemented by the results of previous investigations.

Previous Topographical and Archaeological Research

The theater, built on the slopes of the acropolis, was the target of the earliest systematic excavations on the site in the late 1880s by members of the American School of Classical Studies[12]. These early excavators commented on the regularity of the line of the ancient walls which were then visible around the theater. Andrew Fossum (1905, 272) observed:

»The regular plan of the city can yet be followed in many places. Priene and Ephesus are good examples of the method in which the streets intersect each other at right angles and conform rigidly to a rectilinear system. At Sikyon all the ruins in the neighborhood of the theatre are built accordingly to this rectilinear plan: one set of walls runs six degrees east of north and the other six degrees south of east, cutting the former at right angles.«

Prior to Fossum, the existence of a grid system in Sikyon had struck early travelers and scholars. Ludwig Ross, Ernst Curtius, Wilhelm Vischer, Sir Thomas Wyse, Conrad Bursian and James Frazer all praised the regularity in the layout of the ancient ruins, and particularly of the street lines[13]. Keenest of all is the description offered by Wyse (1865, 304):

9 On the methodology of the survey see Lolos et al. 2007 and the webpage of the project <http://extras.ha.uth.gr/Sikyon>.
10 The modern village of Vasiliko, which occupies the southeastern side of the plateau, covers more than 50 hectares not open to surface survey.
11 Different survey techniques have been tried by the team of the Institute of Mediterranean Studies under Apostolos Sarris, which focused in the agora and the surrounding area. The team of the University of York under Ben Gourley used exclusively a gradiometer: see Sarris et al. 2008, Gourley et al. 2008.
12 See Fossum 1905 for a comprehensive report on these excavations.

13 Ross 1841, 46 f.: »Ich war überrascht durch die Regelmässigkeit der Strassen dieser neuern von Demetrios Poliorketes angelegten Stadt; ihre Richtung ist durch die grösstentheils noch vorhandenen Fundamente der Häuser deutlich bezeichnet, und sie scheinen, nach der von Vitruv erwähnten Regel, immer zwischen zwei Hauptwinden gelegen zu haben, indem sie von Nordost nach Südwest, oder von Nordwest nach Südost liefen«. Curtius 1851, 489: »Hier erkennt man deutlich die alten Strassenlinien, welche mit mathematischer Planmässigkeit angelegt, von Nordost nach Südwest und von Südost nach Nordwest laufen, so dass sie nach der Regel des alten Städtebaus die Richtung der herrschenden

Winde schneiden«. Bursian 1872, 28 f.: »Die ebene Fläche östlich und nord-östlich vom Theater ist jetzt noch auf eine Länge von etwa einer Viertelstunde mit zahlreichen Grundmauern alter Gebäude, zwischen denen man noch die Linien der sehr regelmässig angelegten alten Strassen erkennen kann, bedeckt. Die bedeutendste dieser Strassen scheint diejenige gewesen zu sein, welche wahrscheinlich in der Richtung von Südwest nach Nordost an einem Tempel der Artemis Limnaea vorüber nach der Agora führte, in welche sie bei einem Heligthume der Peitho einmündete, das schon zu der Zeit, wo die eigentliche Stadt noch in der Strandebene lag, innerhalb der damaligen Akropolis bestanden hatte.«
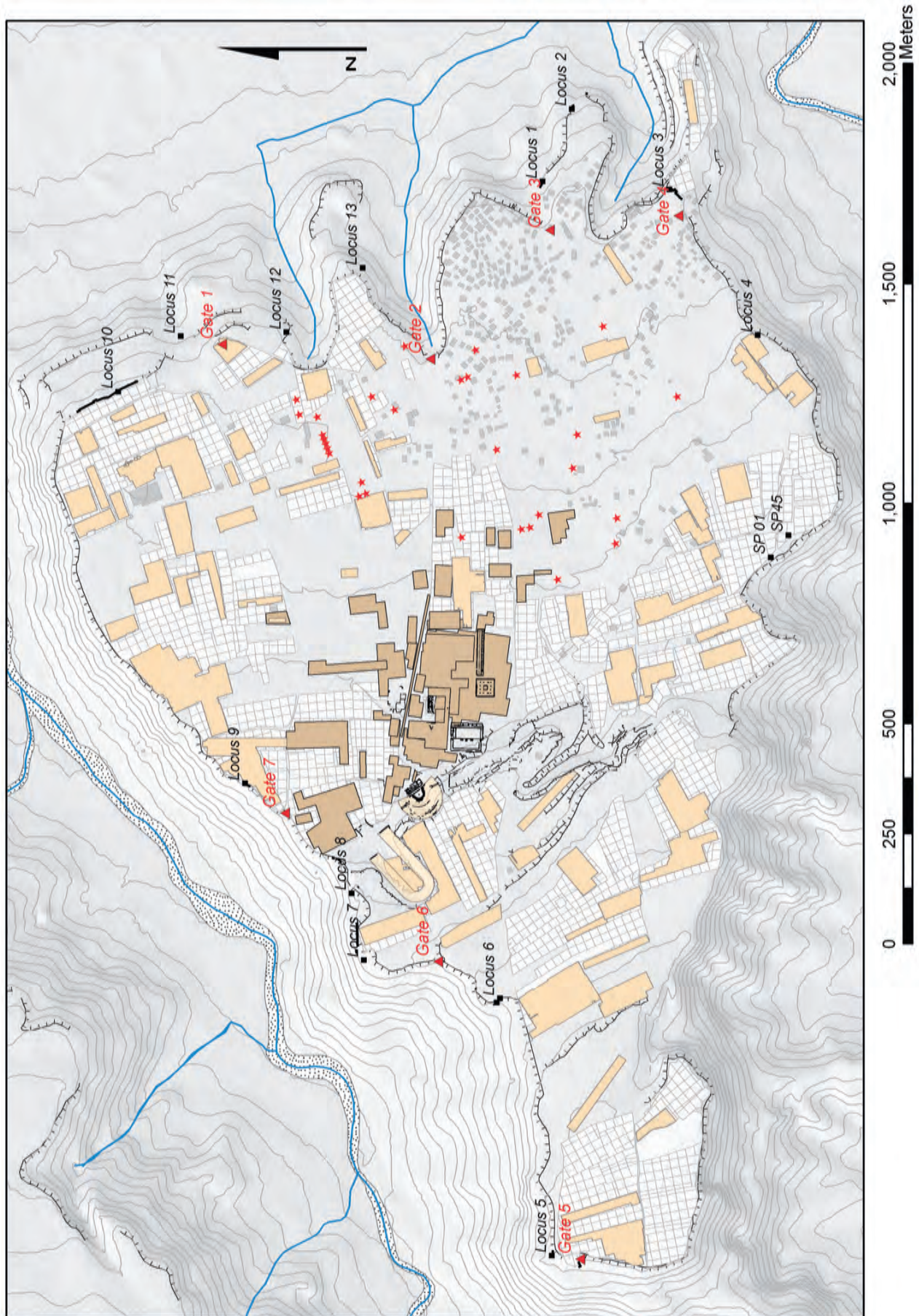
Fig. 3   The plateau of Sikyon with the segments of the fortifications walls (Loci), the location of the gates, the agora with the excavated monuments, the squares of the intensive surface survey, the areas covered with geophysical survey (in darker shaded polygons by the Institute of Mediterranean Studies, in light shaded polygons by the University of York) and the location of the rescue excavations conducted by the Ministry of Culture (marked with asterisks). The village of Vasiliko is shown at the southeastern corner of the plateau. Contour lines are 10 m (scale 1 : 12 500)

Fig. 4   Plan of Sikyon with the north arrow really pointing towards the east

»No ruins are to be seen, save those of a Roman building containing several chambers: but, on the other hand, the foundations of dwelling-houses, and the street-lines, are more wonderfully preserved than in any site of Greece. Laid out with mathematical precision, and in so far resembling Nicaea and many other towns of the Alexandrian period, these streets clearly belong to the ›New Sicyon‹ of Demetrius. None of the remains, whether of public or private habitations, rise above ground – unlike Pompeii, where the disinterred houses are so perfect in preservation, as to bring to light the civic and domestic economy of its people. Yet, of these streets of Sikyon, enough is left to illustrate very remarkably two noteworthy facts, namely, the diminutive dimensions of the houses and the rule followed in antiquity and alluded to by Vitruvius (i. 67–8), which directs that the thoroughfares of a town should lie between the points of the principal local winds. In accordance with this prescription, at Sicyon the streets were made to extend from north-east to south-west, and from north-west to south-east – an arrangement which, to this day, is plainly discernible in the ground-plan.«

Wyse was mistaken, as were almost all early European antiquarians who came to Sikyon, in his position of the north, perhaps misled by one of the first plans, really a sketch, of the site published by colonel Leake in 1830 (Fig. 4). On this map, the north sign in reality points to the east-northeast. Even James Frazer, the experienced commentator of Pausanias, fell victim of the same mistake:

»On the lower terrace – the site of the city of Sicyon as distinct from its acropolis – many foundations of houses and larger buildings are scattered among the fields. With such exactness do these foundations extend in straight lines from north-east to south-west, and from north-west to south-east, that is clear that the city was built on a regular plan, with broad streets crossing each other at right angles.«[14]

Consequently, the straight lines seen by Frazer in reality run from north to south, and from east to west.

14   Frazer 1913, vol. 3, 44.

Fig. 5   Plan of the ruins of Sikyon

RUINES DE SICYONE.

The plan of the site published by the »Expédition Scientifique de Morée« in 1838, which is the only reliable plan of the surface remains around the theater and the city center prior to excavations, shows precisely some of these ancient grid lines (Fig. 5). We will refer to it when discussing the streets of the city.

Large-scale excavations at the heart of the city were carried out by the Archaeological Society of Athens from the 1920s until the 1950s and to much lesser extent during the 1980s. They revealed a temple, a complex identified

Fig. 6 Sikyon. The agora with the excavated monuments (with the exception of the stadium which has never been excavated), scale 1:4000
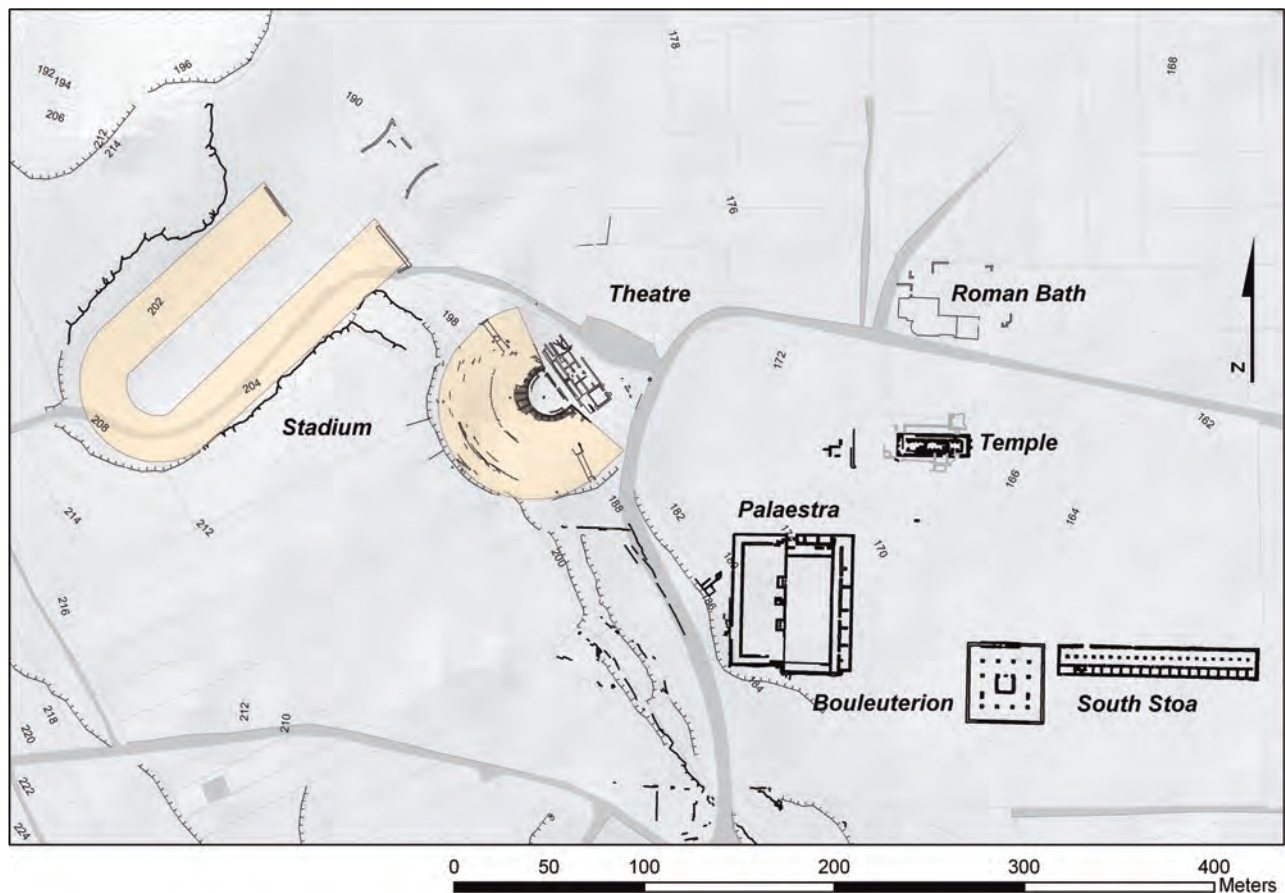
as gymnasion, the bouleuterion of the city, a long stoa to the east of it, and a square structure of uncertain function at the northeastern corner of the temple[15] (Fig. 6). The identification of the bouleuterion proves that this area was indeed the agora of the ancient city. The monuments are oriented according to the cardinal points and define the southern and western side of the ancient agora. The north and east sides have not been identified, consequently the boundaries, size and shape of the agora as a whole remained uncertain.

Finally, the Greek ministry of Culture has conducted rescue excavations in a number of places across the lower plateau (Fig. 3), some of which have revealed significant architectural remains. Overall, artifact distribution across the entire plateau and the analysis of the material show that a good part of the lower plateau was inhabited from the middle Hellenistic to the early Roman Imperial period as opposed to the upper plateau where activity was clearly less intensive and probably associated with agriculture and cattle breeding (Fig. 7).

Building a New City

Diodoros explicitly tells us that Demetrios, who resettled (μετοικίσας) the Sikyonians to the former site of their acropolis, undertook along with the citizen body the building of the city (τῷ δὲ πολιτικῷ πλήθει συνεπιλαβόμενος τῆς οἰκοδομίας), and was subsequently honored in that city as a »founder« (κτίστης)[16]. How exactly Demetrios planned the *metoikesis* we do not know. However, we are fortunate enough to have an inscription from Kolophon,

15 Only brief reports of these excavations are published at the Praktika of the Archaeological Society for the years 1933 to 1941, 1951 to 1954, 1984, 1987 and 1988.
16 Diod. 20, 102, 2 f.
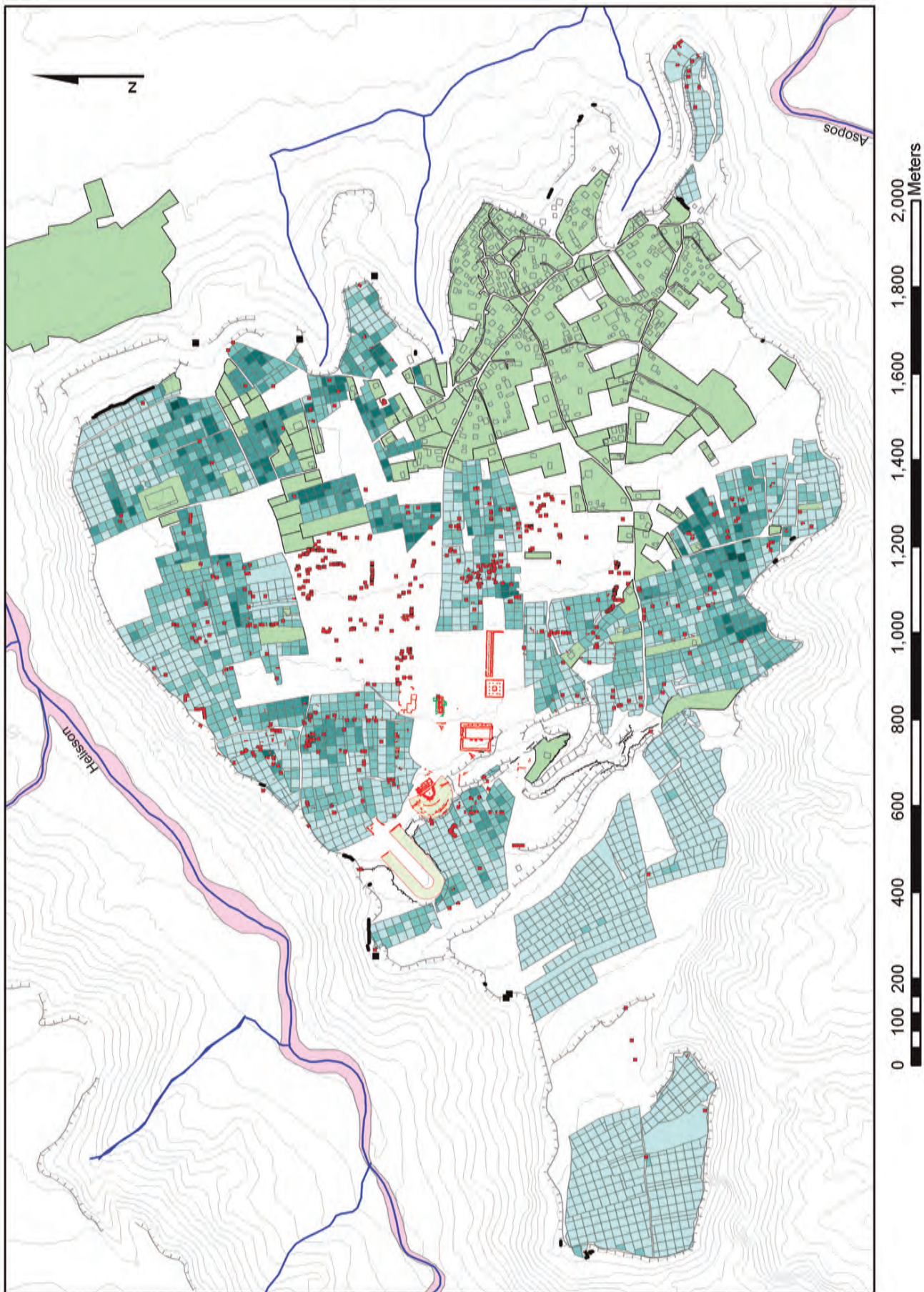
Fig. 7   Ceramic density on the plateau of Sikyon per survey square adjusted for visibility (the darker the color the greater the density). The red dots and lines show the in-situ architectural fragments. The green areas represent the extent of modern settlements. Contour lines are 10 m (scale 1 : 12 500)

dated to the late fourth century B.C., which describes the procedure of a unification of the old and the new city of Kolophon[17]. The initiative was due to Antigonos, Demetrios's father, and involved the construction of a wall enclosing both areas, and the restructuring of the whole city. Ten men were appointed to plan the walls, find an architect to supervise the works, raise funds from abroad, »and study the manner in which the roads and building lots shall be laid out and advantageously sold, and provide so that a market place, workshops and all other necessary public facilities are excluded [from the parceling]« (lines 21–27). One would expect a similar board appointed at Sikyon-Demetrias, in order to build the walls, plan the streets, provide for the erection of public monuments, and allocate the insulae of the new city[18].

The City-walls and the Gates

The Fortified Circuit

One of the first tasks of the planners of the new city must have been the erection of its walls along the edge of the plateau which was not fortified before. Survey of the Hellenistic walls and examination of four segments excavated by the Greek Ministry of Culture showed no traces of an earlier phase[19]. The earliest pottery found in the wall securely dates from the beginning of the 3rd century B.C., i. e. right after the foundation of the city, while two stretches of it have reused blocks from public or sacred structures of the Archaic and Classical periods[20].

Remains of the fortification wall were mapped in 16 areas around the plateau, mainly along the eastern and northern sides[21] (Fig. 3). Most impressive is the segment excavated by the Greek Ministry of Culture at the northeastern corner of the plateau (Locus 10) over a distance of nearly 70 m (Figs. 8. 14). It preserves a maximum of four courses in perfect isodomic masonry ca. 1.65 m high and includes a rectangular tower 4.6 m wide. A second long section of the wall is visible at the southeastern corner of the plateau and has never been excavated (Locus 3). It can be followed for 34 m and is interrupted by a rectangular tower 6.5 m by 4 m (Fig. 9). In its present form, the tower and part of the wall abutting its short sides display medieval masonry, and were most likely built by the Franks in the 13th and 14th centuries. However, foundations of the early Hellenistic wall found both to the northeast and particularly to the southwest of the tower make it clear that the Franks built on top of the extant ancient walls. Only one course of this wall is visible on the surface today, ca. 0.7 m wide. Wall traces in this area prove that the southeastern projecting spur of the plateau, which extends to the east of the wall, was not included in the fortifications of the city, in antiquity or in the Middle Ages.

Around the southern, precipitous, side of the plateau, i. e. towards the Asopos river gulley, the wall was found in three areas (Locus 4, SP45, SP01). At the western, short side of the plateau, the wall is visible in two places (Locus 5) and includes the traces of an ancient gate to which we will refer below (Fig. 10). The northern side of the plateau, towards the Helisson river gulley, preserves visible sections of the wall in four areas. In two places (Locus 7 and 9) both faces of the wall are preserved, and the total width comes to 2.7 m and 3.2 m respectively (Fig. 11). The section to the north of the stadium (Locus 8) shows the vertical cutting of the rock, ca. 25 m long, for the bedding of the exterior face of the wall (Fig. 12). It is a pity that an impressive section of the wall at the northeastern corner of the plateau (due north of Locus 3), to which early

17 The inscription is published by Meritt 1935, 359–372. For a commentary and translation see Holland 1944, 169–171; Maier 1959, 224–231 no. 69; also Demand 1990, 161 f.

18 Demand 1990, 214 f. n. 66 correctly points out that the checkerboard pattern was a practical device for allocating land, as is attested by its early use in Greek colonies. Therefore, we should be cautious in seeing political or other implications in it.

19 Survey of the walls around the plateau was conducted by Yannis Lolos during 1996–1997. A few more traces of it were mapped in the course of the intensive surface survey.

20 The pottery recovered from the joint between the foundation blocks at Locus 1 includes a ›Corinthian‹ B stamped amphora handle dated to the end of the 4th or early 3rd century B.C., while the foot of a kantharos of similar date was recovered from the foundation trench of the wall excavated at the Apostolopoulos field. Reused blocks, among which epistyle fragments bearing T-shaped and swallowtail clamps, were observed at Locus 10.

21 Detailed description of the walls of Sikyon is offered in Lolos 2011, 191–212.

Fig. 8   Sikyon. Detail of the long stretch of the city-wall at the northeastern corner of the plateau (Locus 10) showing remains of a tower

Fig. 9   Sikyon. Segment of the fortification wall at the southeastern corner of the plateau (Locus 3) showing part of the ancient curtain wall and the east side of the medieval tower

Fig. 10   Sikyon. Remains of the fortification wall at the western side of the plateau (Locus 5)

Fig. 11   Sikyon. The double-wall on the northern side of the plateau (Locus 7)

12   13

19th century travelers refer, has been obliterated in recent decades by house construction.

Overall some 200 m of wall segments were mapped out of a total circumference of approximately 9 km. The discovery of sections of the fortification wall above the precipitous southern and western sides of the plateau strongly argues for the existence of the enceinte around the entire plateau and refutes Frazer's opinion that there was no wall around the southern (his »eastern«) edge of the »acropolis«[22]. Judging from the extant remains, the line of the fortification wall, with its many bays and projections seems to have followed the nature of the terrain. Along the eastern side, the preserved wall reaches an altitude of ca. 100 masl, whereas along the northern and western sides it runs above the 200 masl contour line. Of particular significance for the tracing of the wall is the segment recorded along the south side of the plateau (in SP45). A single row of stone blocks, 1.2 m wide, runs in a northwest-southeast direction some 20 m inwards with relation to the present edge of the plateau. This example shows that at least in some areas featuring precipitous slopes the ancient wall builders took into consideration the danger of erosion and collapse, and safely placed the wall several meters inward from the edge. In all other areas, judging from the extant remains, the outer face of the wall was erected on the slope below the edge of the plateau, which could partly explain its later burial or collapse.

Early students of Sikyonian topography had suggested that the circuit was bisected by a wall separating the city from the new acropolis. Scant remains of such a cross-wall were first reported by Vischer, and later by Skalet who vaguely referred to »recent findings« proving its existence[23]. Both had probably in mind an east-west wall that is shown on the map of the »Expédition Scientifique de Morée« and is visible on the slope of the upper plateau, some 60 m to the west of the palaestra (Figs. 13. 29). Its total length comes to 33 m long and its width equals 1.2 m. At its eastern end it is cut by the modern road leading to the upper plateau. In places three courses of its double masonry of conglomerate blocks are apparent above the ground. The direction of the wall and its thickness preclude its being a cross-wall separating the acropolis from the city of Hellenistic times. It is best explained as a retaining wall, that almost aligns with the northern wall of the palaestra complex.

Sikyon

Fig. 12 The line of the fortification wall to the north of the stadium (Locus 8). The vertical cut of the bedrock for the lateral bedding of the wall in the foreground, followed by a short segment of the inner row of ashlar blocks (where the ruler and compass are)

Fig. 13 The retaining wall to the west of the palaestra (from northwest)

22 Frazer 1913, vol. 5, 546 f.
23 Vischer 1857, 276; Skalet 1928, 5.

Fig. 14   Sikyon. The outer face of the fortification wall at Locus 10. It is set lower than the edge of the plateau and the inner face of the wall which was erected atop the edge

Fig. 15   Schematic reconstruction of a section of the wall along the edge of the plateau (scale 1 : 100)

0   1 m
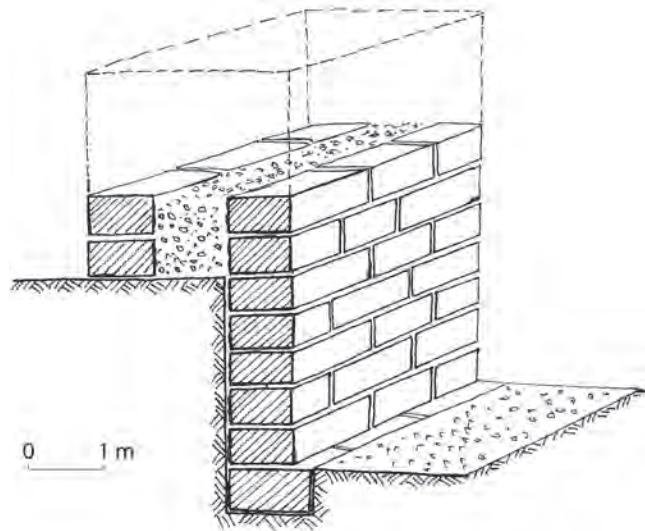
Construction

The wall is constructed in isodomic masonry, and the roughly picked ashlar blocks measure 0.7 m to 1.35 m in length, 0.5 m to 0.85 m in width, and 0.3 m to 0.4 m in thickness. In most cases the blocks were set flat (*plana*) but in few cases they were set on their short sides (*erecta*). The method of construction can best be observed at the longest section of the wall in Locus 10 (Fig. 14). Here the builders used the natural escarpment along the edge of the plateau, which in Locus 10 reaches 3 m in height. They cut the escarpment vertically, so that they could then ›dress‹ it with ashlar blocks and erect the wall a little higher than the upper surface of the plateau (Fig. 15). In other words, the wall builders included the escarpment within the wall. This method presented three advantages: a) it made use of the natural slope while maintaining a significant height to the outer face of the wall, b) it allowed more straight segments than would have been possible by simply following the edge of the plateau; and c) the quarried stone produced from cutting the escarpment could be used for the construction of the wall. We can now understand Plutarch's reference to the acropolis wall of Sikyon (in the context of Aratos's return to his city from exile) being higher on the exterior than the interior side[24]. At least in one place its interior height was almost level with the rocky ground, and this was the spot chosen by Aratos and his fellow exiles in order to breach the citadel by means of ladders.

24   A runaway came to Argos and informed the exiled Aratos that a spot along the walls where he climbed and fled the city (Sikyon) »was almost level on the inside, being attached to rocky and high ground, and that its exterior height was not so inaccessible by ladders« (Plut. Aratus 4, 3). Given the fact that the Life of Aratos was based on the autobiography of the statesman, Plutarch's account preserves an autoptic testimony.

The fortification consisted of two parallel ashlar courses with a rubble and earth fill. This may have also been reinforced by a series of internal cross–walls, following the standard method of wall construction for this period[25] (Fig. 16). Perhaps the closest parallel to the fortifications of Sikyon are the fortifications of Demetrias in Thessaly, also founded by Demetrios Poliorketes in 294 B.C. The impressive walls of this royal city are constructed in isodomic masonry and with double thickness, 2.6 m to 2.9 m wide[26]. In Sikyon, both faces of the wall were recorded in only three places (Loci 7 a, 7 c and 9; Fig. 11); the rest shows only one – usually the interior side – 0.6 m to 0.8 m wide. The overall width of the fortifications in these three Loci varies between 2.1 m and 3.2 m. The wall was wide enough to accommodate a gallery running on top, which is mentioned by Plutarch as ὁδοὶ τοῦ τείχους[27].

The conglomerate stone used for the construction of the foundation was locally extracted, and clear traces of trenchlike quarrying are visible to the north-east of the stadium. It is possible that only the lower courses of the wall were built of stone, and that the superstructure was of mudbrick, as at Thessalian Demetrias. This would justify the placing of a tile-roof on top of the wall. During the intensive survey of 2004–2009, we recorded a consistently high number of roof-tiles, particularly of the Lakonian type, along the edge of the plateau.

Fig. 16 Sikyon. Segment of the city-wall at the western side of the plateau (Locus 5) showing the inner row of the double-thick wall and the cross-block

Gates

Based on the topography, a few physical remains, grave monuments directly outside the city and accounts of early travelers and scholars, we can recon-struct as many as seven gates, four on the eastern side, one on the western side and two along the northern side of the plateau (Fig. 3). We can be fairly confident that no gates existed above the steep, southern side. Gate 1, by the church of Agia Eirene, opened onto a road leading down to the Helisson river through the pine trees of Moulki. A large cemetery developed from the early Hellenistic period onwards on both sides of the road[28] (Fig. 17). A second gate (Gate 2) must have stood to the west of the gulley of Mikri Vrysi, by the church of Agia Anna, and it may have been the terminus of the road from Corinth which Pausanias took. Strong indications for this are the fountain of Mikri Vrysi, which may well be the »dripping fountain« mentioned by Pausanias, the actual road recently excavated by the Ministry of Culture and the graves located above and below the fountain and recorded by Frazer and the American excavators of the theater[29]. In addition Frazer saw ruins of the actual gate above the gulley of the Mikri Vrysi:

»Of these remains [of the fortification wall] the most considerable are to be seen in a deep natural cleft or fissure in the edge of the plateau immediately to the west [meaning north] of the village of Vasiliko. This fissure may be about 300 yards long. In the bottom of it are some small gardens with trees and a road leads up to the village. At the upper end of the fissure may be seen some massive pieces of ancient Greek masonry, perhaps the ruins of a gate. First there is a wall, some 20 feet or so long, running across the upper end of the fissure and abutting on the native rock at each end. It is built of large squared blocks laid in regular horizontal courses, of which seven are preserved. A few yards lower down the fissure is a piece of a similar wall about 11 paces long, extending at right angles to the former wall and standing in part to a height of seven courses. Still lower down the fissure I observed a few other remains of antiquity, such as squared blocks, a couple of drums of columns, fragments

25 See Winter 1971, 135.
26 See Stählin 1924, 72 f.
27 Plut. Aratus 7, 6.
28 Six pit graves and three cist graves were excavated by the Ministry of Culture along this road: Kassimi 2004.
29 Paus. 2, 7, 4. On the identification of the »dripping fountain« see Lolos 2011, 106–108. On the recently excavated paved road along the gulley of Mikri Vrysi and the associated cemetery see Tsiogas forthcoming. On the graves see Earle 1889, 287 f.

Fig. 17   Sikyon. Part of the cemetery excavated outside Gate 1 by the Pefka of Moulki

of houses built of thin flat bricks and mortar, two Roman graves cut out of the rock and lined with brickwork, and so on. Further to the north [east], in the line of the fissure, is an ancient burying-ground where, as I was informed, human bones have been found together with pottery and jewellery.«[30]

This impressive stretch of wall described by Frazer is no longer preserved, having been obliterated by the construction of a basketball field, but a 10 m long segment of the wall came to light in 1995 during the opening of a ditch by the church of Agia Anna. Two courses of the ashlar masonry are visible, but most of the blocks are either broken or badly worn. This segment must belong to the inner turn of the fortification wall following the contour of the gulley, and it allows us to reconstruct an inverted Π-shaped arrangement with a gate opening onto a cross-wall at the upper edge of the gully.

A third gate (Gate 3) certainly existed below the church of Agia Trias, and its position coincides with today's main entrance to the plateau. This could be the »sacred gate« (πύλη ἱερά) mentioned by Pausanias before he reports on the sanctuary of Demeter which stood on the eastern slopes of the plateau toward the coastal plain[31]. The remarkable natural opening in the rocks below the church of Agia Trias has been interpreted by Leake and Frazer as the certain position of a gate at this point[32]. The natural opening through the cliffs has been considerably widened for the passage of the asphalt road in recent times. Clarke in the early 1800s and Clark in mid-19th century describe an old paved and rutted road leading to this point[33]. Older residents of Vasiliko remember a section of this road, between the last zigzag of the modern asphalt road, as being paved, but this pavement was covered when the asphalt road was built. This road continued straight toward the harbor, and was lined by grave monuments, some of which were excavated during the late 1960s and the 1970s during the opening of the highway to Patras and in early 2000s in the course of the construction of the new railway from Athens to Kiato[34]. A fourth gate (Gate 4) must be placed at the southeastern edge of the plateau, by the church of Agioi Theodoroi, opening onto a road which smoothly descended towards the Asopos river and the direct road to Phlious[35]. Between Agioi Theodoroi and Agia Trias, the tunnel of Panagia was probably an ancient passage for pedestrians allowing them to approach the abundant water source of Megali Vrysi located in the gulley below.

Gate 5, near the northern extremity of the western short side, opened onto the road to Titane. It is the only gate of Sikyon which is preserved today to

30   Frazer 1913, vol. 5, 546 f.
31   Paus. 2, 11, 1. For the argumentation see Lolos 2011, 109 f.
32   Leake 1830, 372; Frazer 1913, vol. 3, 48 f.
33   Clarke 1818, 545; Clark 1858, 344.
34   See Lolos 2011, 114.
35   The »direct« road (εὐθεῖα ὁδός) connecting Sikyon to Phlious and following the course of the Asopos river is mentioned by Paus. 2, 11, 3; 2, 12, 3.
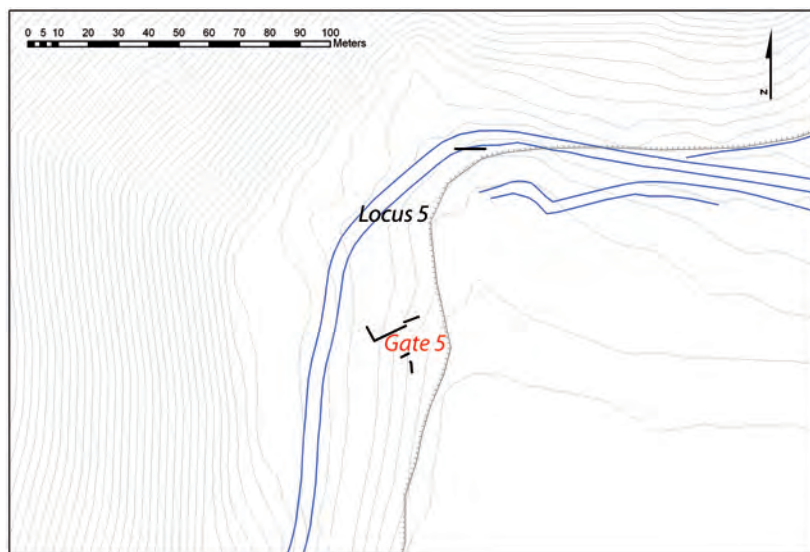
Fig. 18   Sikyon. The mapped segments of Gate 5. With blue line the modern dirt road (and offshoots) linking Vasiliko to Paradeisi. Contour lines are 2 m (scale 1 : 2500)

some extent (Fig. 18). The gate had an outer rectangular court, the northern side of which is preserved over an approximate length of 15 m. Only a short stretch of the southern side is visible, less than 3 m long, on account of the vegetation covering this whole area, but probably enough to establish the width of the court to ca. 8.8 m. It is interesting to note that the gate is located some 65 m south of the place where the modern dirt road leaves the plateau in the direction of Paradeisi. Massive erosion of the marl is certainly responsible for the considerable subsidence of the ground surface here since antiquity.

Finally, the northern side of the plateau had either one or two gates corresponding to path(s) which descended in an oblique line to the Helisson river and continued in the direction of Stymphalos. We must certainly restore a gate (Gate 6) to the west of the stadium, where the natural opening along the edge of the cliffs has been widened and deepened in recent decades by mechanical means (Fig. 19). This was the path taken by a number of early travelers on the way to Stymphalos and is labeled on the plan of the »Expédition Scientifique de Morée« as »chemin de Vasilika au lac Stymphale«. A second gate probably existed to the north of the stadium, now indicated by an opening at the edge of the cliff (Gate 7; Fig. 20). The line of a path leading from it down to Helisson can be discerned in the 1945 aerial photograph of the area, and locals testify to its existence in the pre-automobile era.

Fig. 19   Sikyon. Gate 6 (from northeast); the original, ancient cut was deepened in recent times by mechanical means

Fig. 20   Sikyon. Gate 7 (from east); the depression represents the remains of the ancient road cut

Streets and Insulae

Our successful reconstruction of the system of internal land division used at ancient Sikyon and particularly the size and form of the building units (insulae) relies on the positive identification of streets across the entire plateau. It depends on five kinds of evidence, listed in order of reliability: a) rescue excavations, b) geophysical survey, c) mapping of in-situ architectural features, d) modern property boundaries and road network, and e) the plan of the »Expédition Scientifique de Morée«.

Excavation

For obvious reasons excavations provide the most reliable evidence for the existence and the physical characteristics of a street. However, the identification of a street in an excavation may not be obvious when the surface of the street is just hard packed earth, i. e. not paved, as seems to be the case in Sikyon. In addition, in rescue excavations, that is excavations conducted within a particular area determined by the proposed building surface, it is often difficult to relate the excavated features to their immediate or broader surroundings. For example a street–wall may not be identified as such if standing in isolation, that is not related with another segment excavated nearby. A further and more fundamental problem with using data from rescue excavations conducted many decades ago (and since covered over) is their uncertain geographical position. Even when the field boundaries within which the excavation was conducted are known, the exact position of the trenches within it is rarely fixed with accuracy. During the last four decades the Ministry of Culture has conducted over 30 rescue excavations in the plateau of Sikyon, among which many have produced architectural remains[36] (Fig. 3). Of these excavations, only one includes an undisputable segment of an ancient street accurately placed within the grid.

Geophysical Survey

Geophysical survey has provided us with the most abundant and conclusive evidence for the reconstruction of the city grid. However, magnetometry which was primarily used outside the fenced archaeological site, i. e. outside the ancient agora, has its limitations which have affected the targeted areas as well as the end results. As with most geophysical techniques used in archaeology readings are taken at regular intervals according to a systematic sampling pattern (usually gridded areas comprising samples of 1 m × 1 m or less). Results are then displayed using a continuous map of responses (subsurface anomalies) across the entire scanned surface. In practice, this means that the fields subject to geophysical survey should be as free of physical objects as possible, and vineyards and apricot groves which are plentiful on the plateau of Sikyon are particularly unsuitable. In addition, magnetometry relies on the accurate measurement of the vertical gradient of local magnetic fields and is subsequently very sensitive to ferrous metals. Many crops, and particularly vineyards, use metal fittings either as support for crops, as irrigation, or as fencing and are therefore problematic. Although the majority of geophysical survey was undertaken alongside surface collection survey in an attempt to gain a regular coverage over the entirety of the plateau, in several instances the choice of target was dictated by the presence or absence of metals.

36 All these excavations, conducted at the request of the owners of the fields usually when applying for building permits, remain unpublished. We have scanned selective plans from these excavations and placed them on the master plan of the ancient city.

A final issue, which directly relates to the use of the geophysical results for the reconstruction of the ancient town plan, is the spatial accuracy of the features produced by the raw geophysical readings. Accuracy depends on three factors: the sampling interval, which in our case was 1 m × 0.5 m, the physical strength and response character of the anomaly, and the positioning of the samples inside the bigger survey grid area. The first defines the smallest unit of measurement possible for spatial positioning, which in our case was 1 m. The second defines how we interpret the geophysics. Most anomalies look bigger than they are due to the character of the response. Generally, the deeper the anomaly the wider the response at the surface, and conversely the weaker the signal. Furthermore, with magnetics a spatial shift of signal to real position of anomaly is determined by one's latitude in the northern hemisphere. The last category refers to the spatial accuracy of sample positions in a grid, which in magnetics is affected by the stability of pace of the surveyor. Readings can get stretched and distorted by speeding up or slowing down. And lastly there is accuracy of the placement of the survey grid itself which is usually done with GPS. With these constraints in mind, the accuracy in the dimensions of the features produced by the magnetic survey should be rounded to the nearest meter.

The successful interpretation of geophysical results relies on our ability to detect contrast between archaeological features and natural feature/background soils. Geology plays a major part in this and the alternating bands of calcareous marls and terra rossa which make up the Sikyonian plateau have very different magnetic properties: marls tend not to produce good results because the limestone content in the clays is similar to that of ancient wall construction, while terra rossa soils display very strong contrast between architecture and soil deposit. In instances where it is possible to identify contrast between soils and anomalies it is necessary to identify what that contrast represents. One of the challenges with conventional geophysical results of this sort is that they display a magnetic map of the entirety of subsurface deposits (down to around 1.5 m) in a single 2D representation. Therefore we have no concrete means of identifying phasing or stratigraphy in such plots, beyond what we know about the likely physical characteristics of remains from different periods. Geological results can be mistaken for archaeological and vice versa ones. Interpretation of the Sikyonian geophysics is therefore contingent upon two factors, a) the strength, clarity and signature of the response, and b) a familiarity with the physical form of the type of architecture and deposit that we typically find in a Hellenistic city.

Surface Architecture

Out of the hundreds of in-situ surface architectural features recorded during the survey and mapped with differential GPS, the walls and the aligning stone blocks make a critical contribution to the identification of ancient land division, and no more so than in the areas where we have no supporting geophysical data. With very few exceptions, these 140 wall segments in Sikyon are oriented less than two degrees off the cardinal points. The identification of these walls, whether they defined streets and insulae or belonged to partition walls of houses and other kinds of buildings, is a real challenge. Unless we could trace these walls over a great distance, which was rarely the case, it was almost impossible to assign them to a particular street or side of an insula. Only when examined in connection with the geophysical results certainty could be

established. In this case, we were able to associate even isolated in-situ stone blocks with specific street-walls.

On the other hand, the lack of surface architecture does not necessarily indicate absence of buildings in a particular area. The appearance or disappearance of architectural features on the surface is greatly affected by two factors, taphonomy and land treatment. The excavated areas on the Sikyonian plateau show a depth of the archaeological horizon which varies between 0.30 m and 2 m + from ground surface, but in most cases this depth ranges between 0.6 m and 1.2 m. Obviously the shallower the horizon, the more visible it becomes on the surface, and this is particularly true for the top of the ancient walls, which are preserved above the ancient ground surface. Conversely, the deeper the horizon, the more undetectable it becomes. In areas strongly affected by erosion of the terrace located above them, such as the western side of the ancient agora, the earth accumulation over the ancient strata may cover all architectural traces.

The second factor which affects the surface preservation of architectural remains is cultivation and generally land treatment. The ›aggressive‹ preparation of the ground soil for the linear and dense planting of vineyards and their regular plowing during the year often involves clearing of the field from stone blocks which lie above or close to the surface. As a result the majority of vineyards walked during the survey yielded very few in-situ architectural remains. On the opposite, olive groves where the trees are more sparsely planted and not strictly in rows, were proven to be not ›unfriendly‹ to surface architecture. Apricot trees, a popular cultivation in Sikyon today, stand in between: trees are planted in rows but are not as densely as vine logs, which has allowed field owners to move around massive architectural remains when they could. However, this was not the case with smaller features, such as short or thinner segments of walls, which have been cleared away.

Modern Land Division

Modern land division has often been used to support reconstructions of ancient land division both in the city and the countryside. The obvious problem with an uncritical use of modern land patterns for this purpose is the dating, and the tacit assumption that the land or city-scape in question has remained intact throughout the centuries. This is usually not the case in lands with a rich historical trajectory such as the northern Peloponnese which has lived under various rulers since antiquity, namely the Franks, the Byzantines, the Ottomans and the Venetians all with strong tradition in land organization and administration. In some cases, modern land patterns do reflect earlier schemes which could go back to Classical antiquity, but this is something that should be checked and not taken for granted. This is to say, that modern land division and modern street lines can be used as supporting evidence for the reconstruction of the city grid only if they can be associated with ancient traces discovered by excavation, geophysical prospection or surface survey. On the Sikyonian plateau, there are only a few areas around the ancient agora where field lines comply to and even complement the reconstruction of the ancient grid, as we show below. For the most part, they have different orientation and their boundaries are irrelevant to the boundaries of the ancient insulae.
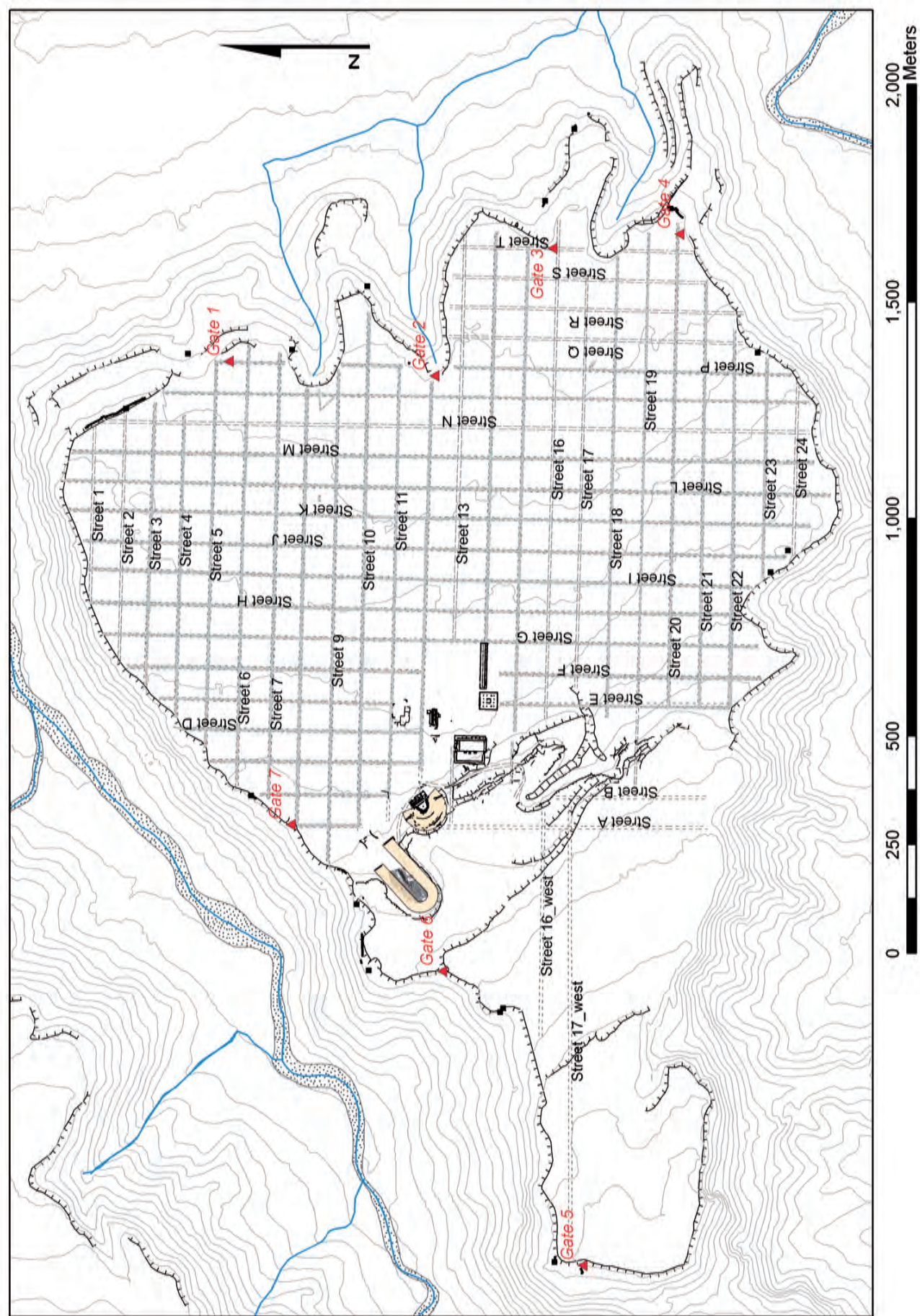
Fig. 21   Sikyon. The reconstructed grid of the city. Contour lines are 10 m (scale 1:12 500)

Fig. 22   Sikyon. Our system of insula designation (scale 1 : 2000)

The Plan of the »Expédition Scientifique de Morée«

Finally, the plan of the site drawn by the »Expédition Scientifique de Morée« and published in 1838 includes surface outlines of monuments as well as various linear traces of ancient ruins some of which represent street walls (Fig. 5). In addition, the makers of this plan did differentiate the reconstructed from the preserved traces, the former represented as dotted lines, the latter as solid lines. We were able to check these features against the results of the intensive surface survey and were impressed by the accuracy of the representation in areas where the features are still preserved. Sadly the plan of the Expédition is limited to the central sector of the plateau, around the ancient agora, the theater and the stadium.

The above presents the range of data used in the reconstruction of the ancient city grid. They are diverse in form and extent, and by far the most significant contribution is made by geophysics and surface architecture. In combination data supports the reconstruction of as many as 18 east–west and 15 north–south streets across the lower plateau (Fig. 21). It became evident at an early stage that these streets are spaced at regular intervals which range between 68 m and 72 m (from center to center), averaging some 70 m apart. They thus define a city-grid using a system of streets enclosing square insulae. For illustrative purposes we have named streets according to an alpha-numeric system, with letters for the north-south streets (from west to east: A to T) and Arabic numerals for the east-west streets (from north to south: 1 to 24). Each building block (*insula*) is in turn referred to by the streets which bound its southern and western sides[37] (Fig. 22).

37   Given that streets are not represented by a single line, we conventionally regard the outer outlines of the streets as the southern and western boundaries of each insula.

Street	Excavation	Sub-surface street lines (from the geophysical survey)	Surface walls and aligning stone blocks	Modern field boundaries and roads	Expédition Scientifique
A		A10 (l. ca. 5 m), A16 (l. ca. 31 m)	Segments of walls to the west of the palaestra (total l. ca. 30 m)		
B		B17 (l. ca. 25 m)	Wall in B11 (l. ca. 6 m)		
C		C6–C7 (l. ca. 60 m)	Wall in C7 (total l. ca. 10 m), wall in C10 (l. 6.5 m)	Field boundaries from C6 to C10	
D		D6 (l. ca. 23 m)	Segments of walls traced in D11 (total l. ca. 25 m)	Field boundaries from D8 to D11	The street line is drawn from D8 to D11
E		E11 (l. ca. 13 m), E6 (possible line, l. ca. 9 m)			The street line is drawn in E15
F		F4–F5 (l. ca. 82 m), F12 (l. ca. 31 m), F19 (l. ca. 57 m)	Stone blocks aligning in F9 (l. ca. 4 m)	Field boundaries from F8 to F11	The street line is drawn in F16–17
G		G3 (l. ca. 50 m), G11 (l. ca. 18 m), G15 (l. ca. 18 m)	Segments of walls in G7 (total l. ca. 18 m); stone blocks aligning in G17 (total l. ca. 43 m)	Field boundaries from G12 to G15	The street line is drawn in G15–16
H		H3–H4 (l. ca. 88 m), H14 (ca. 32 m)	Stone blocks aligning in H19 (total l. ca. 18 m)		
I		I14 (l. ca. 30 m), I15 (l. ca. 29 m), I22 (l. ca. 21 m)	Stone blocks aligning in I9 (total l. ca. 25 m); stone blocks aligning in I18–I19 (total l. ca. 40 m)	Field boundaries from I15 to I19	
J		J2 (l. ca. 20 m), J5 (l. ca. 33 m), J13 (l. ca. 19 m), J15 (l. ca. 13 m), J22 (l. ca. 17 m)		Field boundaries from J13 to J19	
K		K1–K3 (total l. ca. 122 m), K5 (l. ca. 21 m), K11 (l. ca. 50 m)		Field boundaries from K17 to K19	
L		L3–L4 (l. ca. 124 m), L5 (l. ca. 50 m), L9 (l. ca. 38 m), L22 (possible line, l. ca. 20 m)			
M	M9 (street wall, l. 4.4 m)	M6–M7 (l. ca. 47 m), M12 (l. ca. 23 m).			
N					
O		O7 (l. ca. 20 m)			
P		P18 (l. ca. 62 m), P23 (l. ca. 64 m)			
Q					
R					
S					
T					
1		L1 (possible line, l. ca. 40 m)			
2					
3		E3 (l. ca. 45 m), G3 (l. ca. 41 m), K3–L3 (l. ca. 60 m)			
4		E4 (l. ca. 45 m), I4–J4 (l. ca. 95 m), L4 (l. ca. 56 m)	Wall in D4 (l. 13.5 m), wall in J4 (l. 9.7 m)		
5		D5 (l. ca. 33 m), H5–I5 (l. ca. 38 m), K5 (l. ca. 42 m)			
6		C6 (l. ca. 18 m), J6 (l. ca. 33 m), L6–M6 (l. ca. 65 m)			
7		G7 (l. ca. 15 m)	Wall in E7 (l. 4.5 m)	Field boundaries in G7	
8		C8 (l. ca. 37 m)	Walls in C8 (total l. ca. 32 m), wall in D8 (l. 4.6 m), stone blocks aligning in H8 (total l. ca. 6 m)	Field boundaries and modern road from A8 to C8	

Street	Excavation	Sub-surface street lines (from the geophysical survey)	Surface walls and aligning stone blocks	Modern field boundaries and roads	Expédition Scientifique
9	L9 (house wall bordering the street, l. 4.7 m)	A9 (l. ca. 30 m), E9 (l. ca. 22 m), K9 (l. ca. 15 m), L9 (l. ca. 20 m)			
10		A10 (l. ca. 60 m), G10 (l. ca. 38 m), J10 (l. ca. 55 m)	Wall in H10 (l. ca. 49 m)	Field boundaries from H10 to J10	
11		E11–F11 (l. ca. 80 m), K11 (l. ca. 16 m), L11 (l. ca. 12 m)	Wall in A11 (l. 5 m), aligning walls in B11–C11 (total l. ca. 78 m), northern side of the Bath in D11	Field boundaries from B11 to H11	The street line is drawn from B11 to E11
12		B12–D12 (northern side of the complex to the north of the palaestra: l. ca. 79 m), E12 (l. ca. 60 m)			A line is drawn between D12 and E12
13		G13–I13 (possible line, l. ca. 100 m)		Field boundaries from I13 to L13	
14			Walls and stone blocks aligning in H14–I14 (total l. ca. 58 m)	Field boundaries from H14 to J14	
15				Field boundaries and modern road from E15 to J15	The street line is drawn from E15 to G15
16		A16 (l. ca. 28 m), J16 (possible line, l. ca. 14 m)			
17		Upper plateau (l. ca. 56 m)	Wall in F17 (l. 3.9 m)	Field boundaries from I17 to K17	
18		E18 (l. ca. 28 m), P18 (l. ca. 24 m), R18–S18 (possible line, l. ca. 35 m)	Two walls aligning in F18 (total l. ca. 12 m).	Field boundaries from E18 to F18, and from I18 to K18	
19		D19–E19 (l. ca. 26 m)	Two walls aligning in G19 (total l. ca. 30 m)	Field boundaries and modern road from E19 to H19	
20		E20 (l. ca. 34 m), G20 (l. ca. 47 m)			
21		F21 (l. ca. 57 m), I21 (l. ca. 23 m), J21 (l. ca. 22 m)			
22		F22 (l. ca. 39 m), G22 (l. ca. 40 m), K22–L22 (l. ca. 78 m), O22 (l. ca. 10 m)			
23		O23 (l. ca. 8 m), P23 (l. ca. 10 m)	Wall in J23 (l. 8 m), wall in K23 (l. 4.2 m)	Field boundary and modern road from K23 to L23	
24				Field boundaries from J24 to M24	

Tab. 1 Evidence for the reconstruction of the city-grid by street

The subsequent reconstruction is therefore based on the identification and mapping of street remains. In most cases we have projected the line of streets across the plateau since much of the evident supports the existence of a continuous grid. In the few areas where we had no solid evidence for street alignment we have used a conjectural dotted line on the map. Four out of five conjectural north-south streets fall within the area of the village of Vasiliko where survey was not possible. Out of the 24 reconstructed east-west streets only six are uncertain, three of which close to the edges of the plateau. Table 1 lists the evidence on which the identification of these streets is based by source: the first category lists excavated evidence, which is extremely limited; the second includes the rich information provided by the geophysical survey; the third includes the architectural features recorded during the intensive surface survey (namely street walls as well as house-walls bordering a street); the fourth
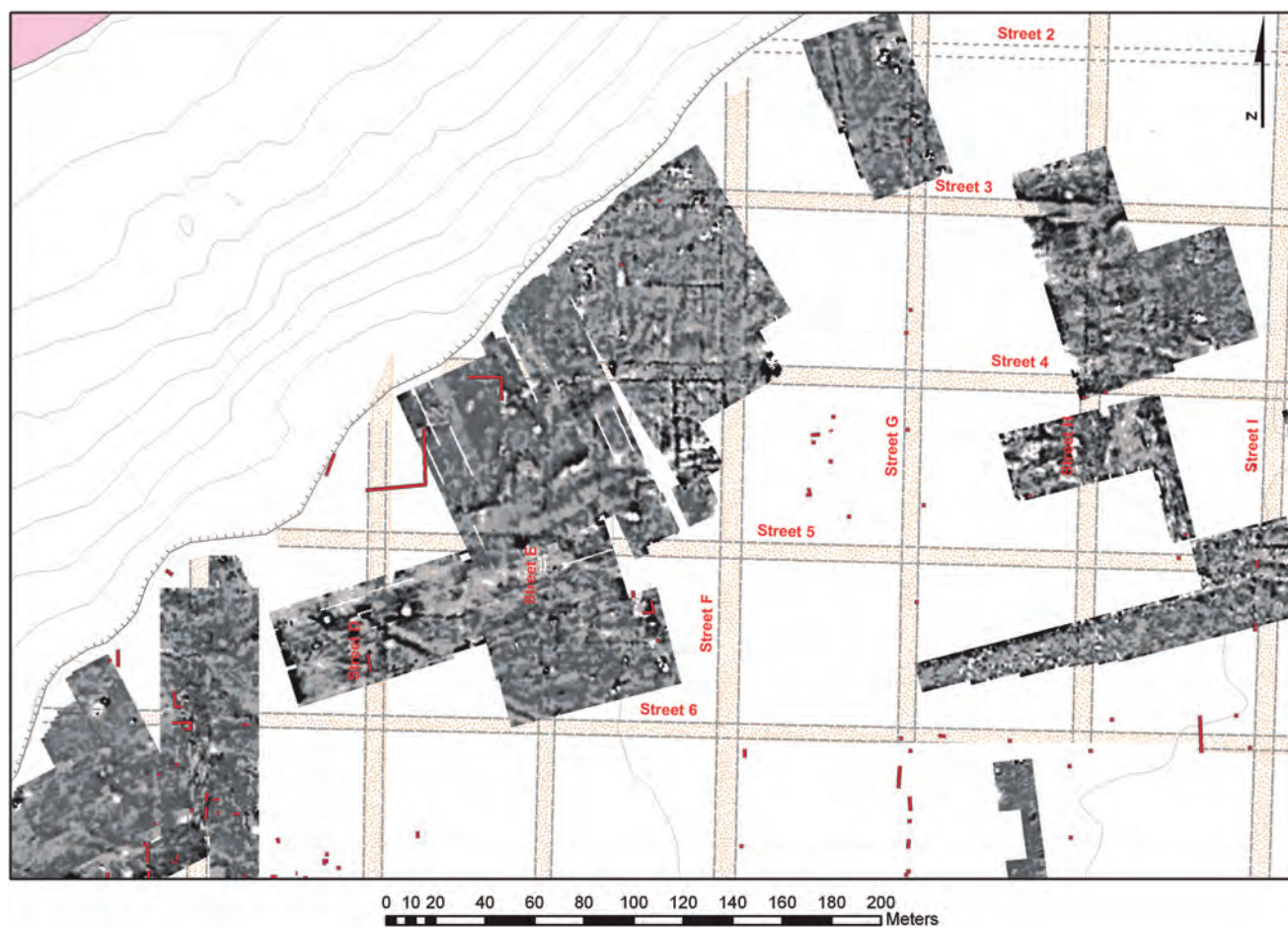
Fig. 23   Sikyon. Results of the magnetic survey in the area defined by Streets 2 and 6, and Streets C and I (scale 1 : 3000)
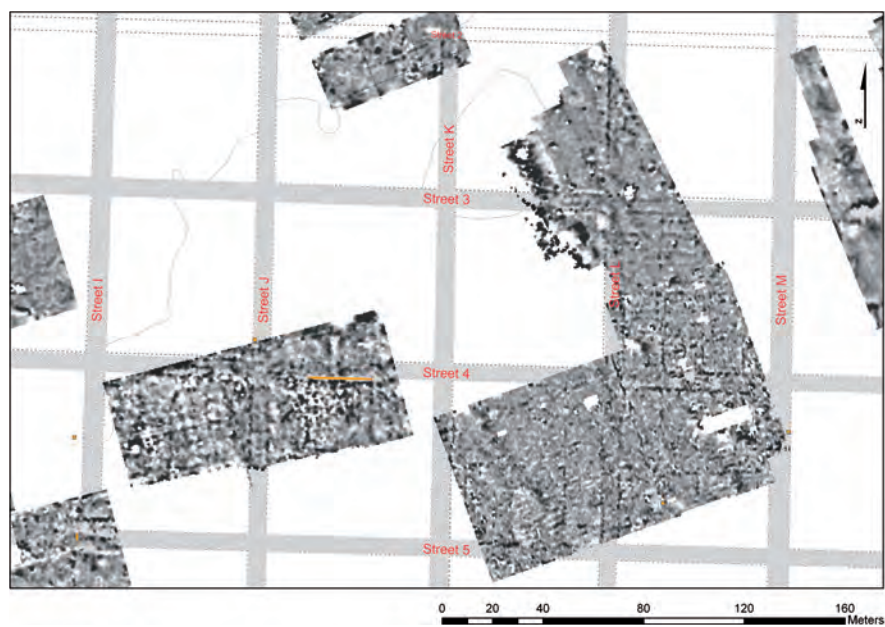
Fig. 24   Sikyon. Results of the magnetic survey in the area defined by Streets 2 and 5, and Streets I and M (the green line is the street wall mapped on the surface), scale 1 : 3000

Fig. 25   Sikyon. Street 11 in the western part of the lower plateau; the line of the street is reconstructed by combination of geophysical prospection and surface survey (scale 1 : 3000)
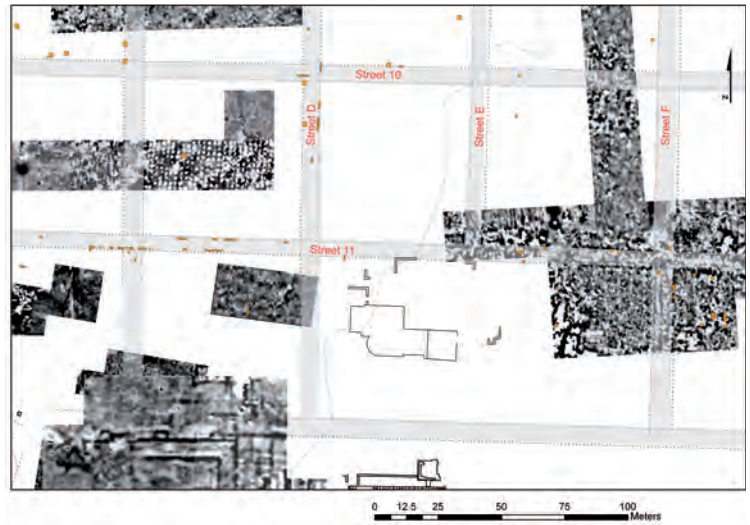
Fig. 26   Sikyon. Intersection of Street L with Street 9 as detected with magnetic survey. The small rectangles are the outlines of rescue excavations with their associated architectural remains (scale 1 : 1500)

category contains the modern field boundaries and sections of the modern streets which align with ancient streets; finally the fifth category refers to the ancient traces drawn by the members of the »Expédition Scientifique de Morée« in the early 19th century and which we interpret as street-walls. Each piece of evidence is located by insula, while for the archaeological features, which are included in the first three categories, we give their approximate length.

Close examination of Table 1 yields some critical observations which relate to the degree of confirmation and accuracy of the grid as reconstructed; it is notable that for the majority of these roads there is more than one segment identified and usually more than one kind of evidence. Equally significant is the long distance over which most of these roads have been identified; in 17 cases that distance exceeds 100 m and occasionally surpasses even 200 m. Examples of streets reconstructed on the basis of different types of evidence and of streets extending over a considerable part of the lower plateau include Streets F to L, 4, 9, 10, 11, 18 and 22 (Figs. 23–26).

Streets which can be demonstrated to extend across the majority of the plateau play an important role in our understanding of planning in the Hellenistic city. Such is the case with Street F which – besides the length of its located segments (totaling ca. 174 m) and its exceptional width – is notable for its appearance to the north as well as to the south of the agora (Fig. 23). In the agora itself, the street is not articulated, which is to be expected since the agora was an open area. The alignment of its two sections presupposes the existence of a continuous system with streets extending across the entire surface area from N to S. Similarly, Street G, which probably did not cross the agora, was found in various places between G3 to the north and G17 to the south, once again showing that it traversed most if not all of the length of the plateau (Fig. 23). The same was confirmed for Streets I, J and L, the last one showing traces on a total length of ca. 232 m (Fig. 24).

The east-west streets also appear to have stretched across the whole width of the lower plateau as evidenced by Street 4 in the northern part, Streets 9 to 11 in the central part and Streets 18 and 22 in the southern half of the city. Traces of Street 4 have been mapped over a total distance of 220 m, from E4 to L4 (Figs. 23. 24); the signature of Street 9 was detected over a total length of ca. 202 m, from A9 to L9 (Fig. 26); Street 11, traced over 191 m, from A11 to L11, has some of the best preserved surface remains; between B11 and D11, the street-walls are visible over a length of ca. 78 m, and correspond to the traces mapped by the »Expédition Scientifique de Morée« (Figs. 25. 27). Traces of Street 18 have been found from E18 to R18, whereas those of Street 22 were mapped in different areas from the western to the eastern edge of the lower plateau over a total distance of ca. 167 m.

Based on such examples, we can argue that a number of streets extended across the entire surface of the lower plateau, and we have illustrated them accordingly along the direction of their detected segments. Accuracy increases with number and length of their attested sections; the larger the number and the greater the length the more certain we are about the precise direction of a street. In the few cases where only one section of a street is known its continuation on either side is extrapolated using the alignment of this one section in combination with the direction of its neighboring streets on both sides. In such cases, the degree of accuracy is relative as the direction of a street may have shifted in some areas or the street may not have extended across the whole length of the plateau, which may have been the case even for streets that have been attested in more than one places. Finally the constant width of a street, suggested by the reconstructed plan, should also not be taken for granted even though many streets show a remarkable consistency in the width of their various segments. Cases of encroachment upon a street, due either to private or public initiative, were not uncommon in Greek cities, as witnessed by regulations against it and by excavated examples[38].

Upper Plateau and Escarpment

The upper plateau (the Hellenistic acropolis) forms a discrete zone as far as Sikyonian planning is concerned. Here we found evidence for only four streets, two east-west and two north-south (Fig. 28). The east-west streets roughly, but not exactly, line up with Streets 16 and 17 of the lower plateau, whereas the north-south streets (Streets A and B) reappear near the northwest corner of the lower plateau, i. e. to the north of the theater. In all four cases, the evidence comes from the eastern area of the upper plateau, more

Fig. 27   Sikyon. Surface remains of the retaining wall of Street 11 in C11 (looking east)

38   See Owens 1994, 167 f. Hennig 1995, 237–253 (mostly on the legislation). For a comprehensive discussion including specific examples from Athens see Costaki 2006, 161–187.

Fig. 28   Sikyon. Traces of streets at the upper plateau detected with magnetometry (scale 1:3000)
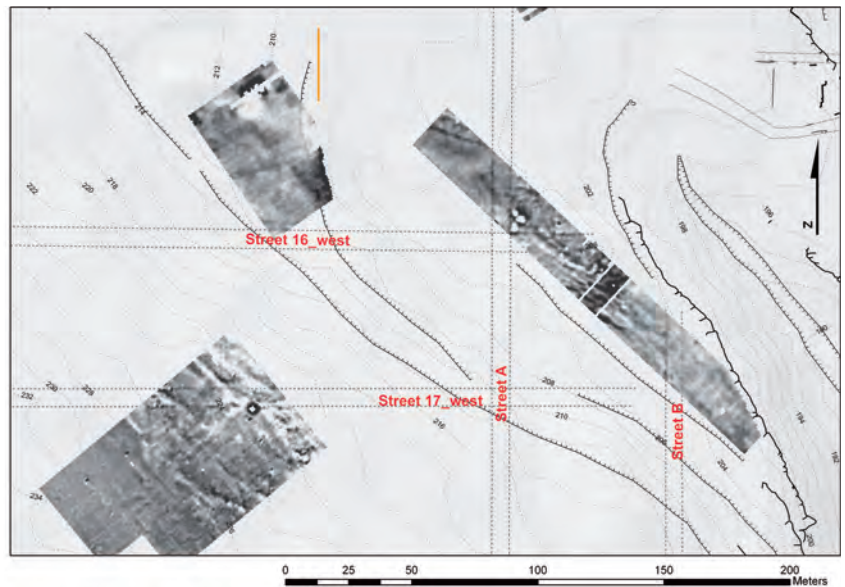
specifically from its central and northern sectors. This general area has also yielded proportionally higher concentration of pottery and roof-tiles than the rest of the upper plateau. It is unclear whether Streets A and B extended all the way to the southern edge of the upper plateau, where artifact densities were low. On the other hand, the fact that they reappear at the northwest corner of the plateau, after a hiatus in the theater area, leads us to conclude that they were probably designed across the entire length of the upper plateau. The distance between the two streets (from center to center) comes to ca. 70 m which is the average distance between the streets in the lower plateau.

The discovery on the upper plateau of the two east-west streets roughly aligning with streets detected on the lower plateau comes as a surprise since a rather steep escarpment separates these two areas. Did the street pattern then extend across the upper plateau even though we failed to find traces of it either on the surface or from the geophysical survey? Geology and soil composition, which has certainly affected the geophysical results from the upper plateau, may have obscured subtle traces of streets. More suggestive though is the absence of street-walls, such as those recognized all over the lower plateau. Either then we had streets on the upper plateau that were just not solidly defined as on the lower plateau or we had no regularly gridded streets at all, simply informal rural track ways. There is, however, at least one exception. Traces of Street 17-west were recognized only at the eastern end of the upper plateau, over a distance of ca. 56 m. Most likely this street extended all the way to the western end of the upper plateau as it was meant to carry the vehicular traffic towards the Sikyonian hinterland through Gate 5. As reconstructed, the street is not exactly aligned with the position of Gate 5. Either the gate was not aligned with the street, and this is true for other streets in the lower plateau as we will see below, or the direction of the street may have gradually shifted along the ca. 850 m stretch that separate the attested segment from the western edge of the upper plateau in order to meet the gate.

The line of Street 16-west was recognized only close to the eastern edge of the upper plateau and is not certain whether it extended westwards all the way to the northern edge of the plateau. It is equally unclear how this street and Street 17-west or any other east-west streets that may have existed on the
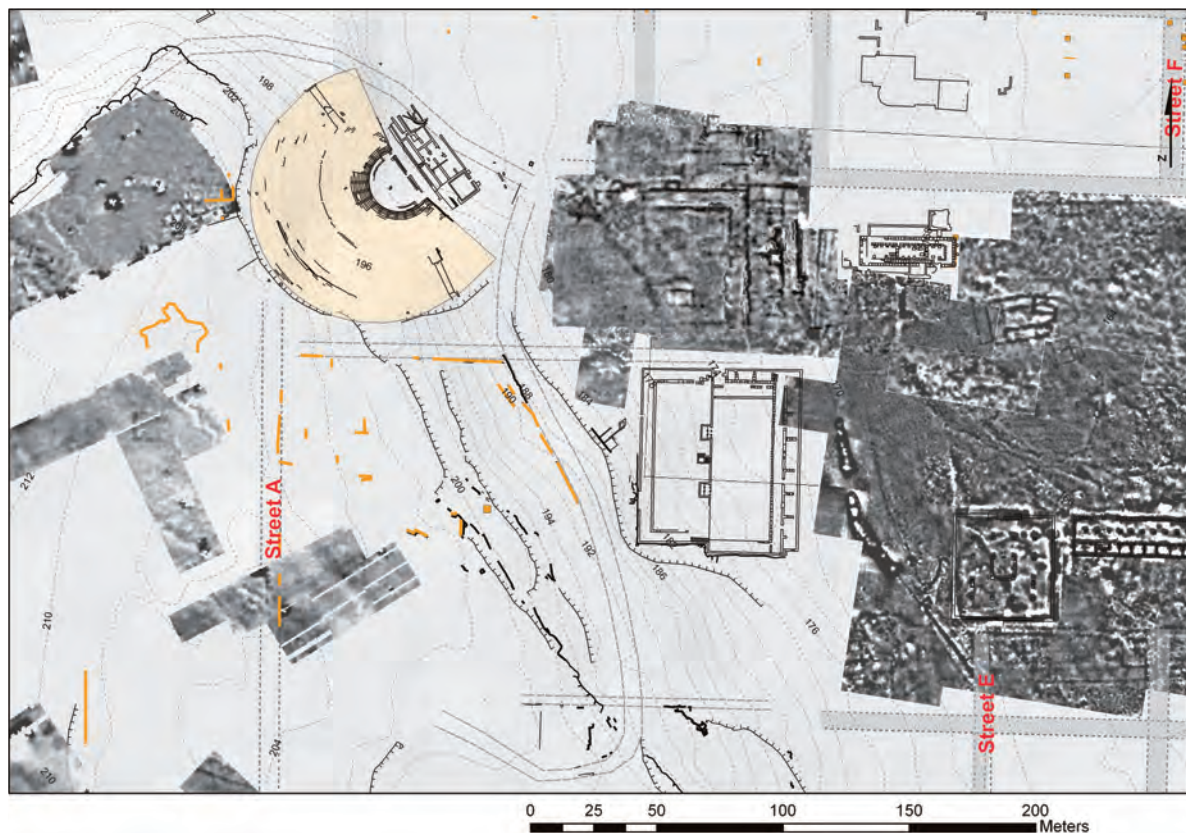
Fig. 29 Sikyon. Suggested communication between the upper and lower plateau in the area west of the agora (with dotted lines). Redlines refer to retaining walls, black lines to rock-cut sections (scale 1 : 3000)

upper plateau negotiated the rather steep slope separating the upper from the lower plateau. Did they continue despite the slope using staircases or did they alter their course for sloped sections to regain their alignment on less aggressive ground, or again did they simply come to an end (Fig. 29)?

To the west of Street 15, a rock-cut section ca. 10 m long includes a single trace of a wheel–rut 0.17 m wide and 0.10 m deep (Fig. 30). Traces of quarrying have been located all along that slope, and it is possible that this section is associated with such activity alone. However, the general alignment of this section as well as of another rock-cut section some 35 m to the west with Street 15 below may not be coincidental, and both sections may belong to the western extension of Street 15. The gradient on the slope is almost 18 %, which is very high but perhaps not prohibitive even for vehicular traffic[39]. In addition, there are some indications that Street 13 extended westwards as well past the agora onto the upper plateau (Fig. 29). Between the excavated palaestra and the sanctuary identified with geophysical survey to the north of it, there is a 10 m wide pass onto which opened the propylon of the palaestra. Further to the west, on the slope of the upper plateau, the strong retaining wall described earlier is in alignment with this corridor and ultimately with Street 13 (Fig. 31). It is possible that it acted as retaining wall for a street ascending the slope all the more since the southeastern vaulted tunnel of the theater, which leads to the middle diazoma, is accessible only from this slope. The gradient in this area is even stronger than further to the south, exceeding 20 %, which would have necessitated a stepped arrangement although no such remains are visible on the surface. We could imagine the spectators going up a stepped street in order to reach the cavea of the theater through the tunnel.

We have found no other surface remains of roadbeds or rock–cut stepped segments along the slope between the upper and lower plateau that can be

39 The gradient of country roads in antiquity often exceeded 10 % (see Pikoulas 1995, 22) but as far as we know, no such data are available for city streets.

Fig. 30 Sikyon. Rock-cut section and traces of a single wheel-rut (by the scale) on the slope of the upper plateau, due southwest of the agora. The line of Street 15 in the lower plateau is approximated by the dirt road visible to the south of the agora (looking east)

Fig. 31 Sikyon. The possible road ascending between the retaining wall (to the left) and the cavea of the theater (to the right); looking west

positively associated with a road. It should be stressed however that surface exploration of this zone is difficult because it is covered with earth, which certainly comes from the upper plateau, and grown over. Based on the present topography and the existence of a deep gulley which cuts through the area to the southwest of the agora we cannot see how Streets 16 to 18 could have ever continued onto the upper plateau. On the other hand, the gulley floor itself may have been used as a road in antiquity to connect the lower with the upper plateau same as a path does today. To the south of the gulley, we map-ped various traces of quarrying activity on the slope. Among these quarried segments, we observed two parallel sections ca. 8 m and 5.5 m long and 4.2 m apart, which are cut in an east–west direction, and align with Street 19. The line of this street was detected by geophysical survey ca. 65 m to the east of these quarry traces. It is conceivable that Street 19 extended west in a straight line in order to reach the upper plateau, unlike the modern road which in-cludes switchbacks.

Fig. 32   Sikyon. Part of the long rock-cut section to the west of the palaestra

Fig. 33   Sikyon. Rock-cut section topped by three courses of ashlar blocks to serve as retaining wall of the slope to the west of the palaestra

Finally we should consider the possibility of the existence of an S-shaped street which from the area of the theater would gradually ascend the slope at an oblique angle thus breaking from the city-grid pattern (Fig. 29). This is the case with the modern back road connecting Vasiliko to Paradeisi but there are indications that this may have been the case in antiquity as well. A long segment of a vertically cut bedrock is visible along the road over a distance of ca. 37 m (Fig. 32). The maximum visible height of the cut reaches ca. 0.8 m and in one place its dressed upper surface is topped by three courses of conglomerate ashlar blocks, 0.26 m, 0.30 m and 0.38 m in height (Fig. 33). This structure is manifestly a retaining wall, 1.3 m above present ground surface. It is possible that the slope has been cut back to allow for the passage of a road, and that a retaining wall was built where needed in order to protect the road from the slope above. Approximately 100 m to the south, a section ca. 20 m long

Fig. 34   Sikyon. Surface traces of the ancient street leading to the upper plateau (looking southwest)

and 3.6 m wide, which deviates from the modern road, probably represents the continuation of this street towards the upper plateau (Fig. 34). It is oriented northeast-southwest and is defined on both sides by walls, partly rock-cut and partly built, 0.6 m wide. The continuation of this street is not obvious. Either it merged again with the modern dirt road which describes a northern curve in order to continue eastwards or it carried on in a southwesterly direction and ultimately joined the street which led to Gate 5.

Street Construction

Overall, we were able to measure the width of various streets in 34 sections, where both sides were detected[40]. The measurements are based almost exclusively on the geophysical results with two exceptions: a section of Street 11 in B11–C11, where the surface walls were mapped over a total distance of ca. 78 m, and a short section in M9 where 4.4 m of Street M were excavated (Figs. 25. 27. 35). In this last case, the width of the street comes to 6 m, which is comparable to the average width calculated from the geophysical results. We can conclude that the width of the Sikyonian streets ranges between 6 m and 7 m, but given the parameters that influence the geophysical signal and its projection and to which we referred above, this meter and often sub-meter variation may be insignificant. At present we have identified only one street whose width significantly varies from the norm – Street F. Its width was calculated to ca. 7.5 m in F12 and to ca. 9.6 m in F19 (Fig. 23). The greater width of Street F suggests that it was an avenue, the northern and southern sections of which converged almost at the center of the agora. The variation in the width of its two sections probably results from the narrowing of the width of the street near the agora in subsequent centuries. Most streets maintain a consistent width from section to section, but we also have a few cases of later encroachment into the street[41].

The streets were bordered by walls, which show as continuous anomalies in the geophysical results, and can represent either house walls or street walls. House walls were the external walls of houses or structures bordering the

40   These are Streets 3, 4, 7, 10, 11, 17-west, 20, 21, 22, A, F, G, H, I, J, K, L, M, O and P.

41   Examples of streets of more or less consistent width are Streets 3, 4, 11, 21, I, K and L. At the same time, we have a number of in situ surface remains, walls or independent ashlar blocks, which would seem to indicate later building into or across streets (e. g. on Street 14, immediately east of the agora).
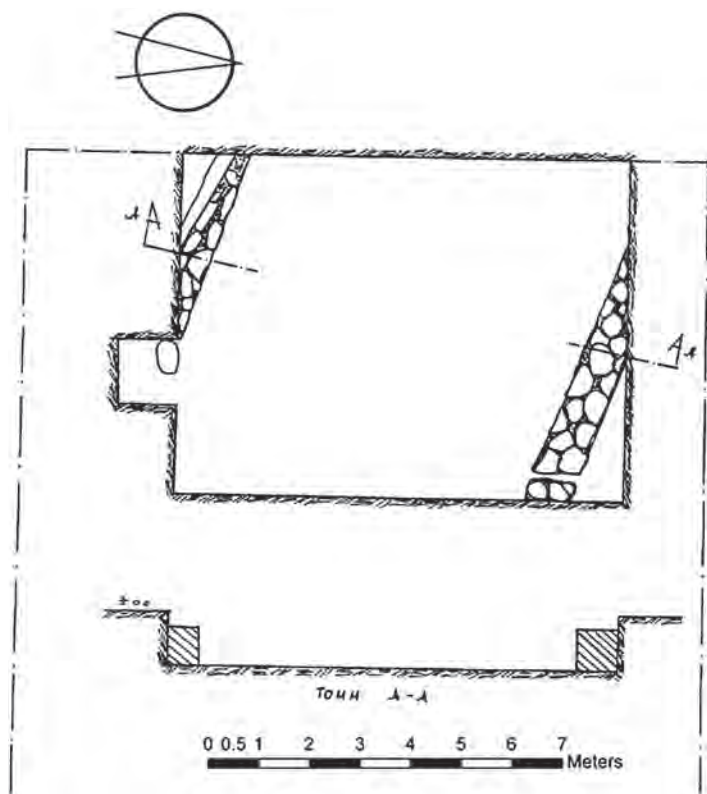
Fig. 35 Sikyon. Plan and section of the road excavated at the Paschalidis plot (scale 1:150)

street, and street walls refer to independent retaining walls that defined and supported the road surfaces. In the geophysical plots, when these lines are not associated with other structures behind them, then they must correspond to street walls, otherwise they may be considered as house walls. Accordingly, in 10 cases we seem to have street walls and in another 15 cases house walls[42].

For the walls which bordered a street and were mapped on the surface, it is more difficult to establish whether they are independent or connected to a structure. They are mostly ashlar conglomerate blocks, whose visible length varies considerably between 0.5 m and 1.3 m, but their (visible) width was found to be consistent between 0.38 m and 0.42 m (Figs. 36. 37). In the excavated section of road M, the east wall, which is better preserved than the west wall, probably represents an independent retaining wall since no structures were found in its adjacent plot (Fig. 35). The wall, 0.5 m wide, consists of reused ashlar blocks mixed with rubble, and is founded on the bedrock (Fig. 38). The preserved height comes to 0.58 m and it seems that the wall projected just 0.10 m to 0.20 m above the ancient street surface[43]. The street surface consists of hard packed earth and gravel and was found 0.3 m to 0.4 m below present ground surface. The average thickness of the road surface is 0.20 m to 0.30 m but without study of the associated material it is not possible to say whether it corresponds to one or more layers. On the basis of this excavated example and on the visible width of the walls mapped on the surface, we can argue that the width of the Sikyonian street walls was 0.4 m to 0.5 m[44].

A final note with relation to the features of the Sikyonian streets concerns sidewalks. Nowhere have we found evidence to their existence. The thickness of the street lines shown in geophysics precludes these representing sidewalks. In addition, the width of the streets bordered by houses is similar to that of the streets bordered by street walls, which means that probably no space for sidewalks was provided.

42 Probable street walls: Street 7 at G7, Street 10 at A10, Street 11 at K11, Street 17-west, Street A at A16, Street G at G3, Street J at J5, Street K at K1, Street M at M5–6 and Street P at P18; probable house walls: Street 3 at E3, Street 4 at E4 and L4–5, Street 11 at E11, Street 21 at J21, Street 22 at K22, Street F at F12 and F19, Street H at H4, Street I at I15 and I22, Street K at K3, Street L at L4–5 and L9, and Street O at O7.
43 The excavator does not record the height of the wall in relation to the ancient road surface since he did not identify the road, but we can estimate it on the basis of the depth of the ancient floor levels which are recorded.
44 In Athens, preserved widths of street walls (which total 144) range from 0.33 m to 1.50 m, an average of 0.50–0.70 m being common: see Costaki 2006, 63.

Fig. 36   Sikyon. Wall defining the south side of Street 8 in C8 (looking northeast)

Fig. 37   Sikyon. Wall defining the south side of Street 4 in J4 (looking west)

Fig. 38   Sikyon. Street-wall excavated in M9 (looking north). Rescue excavation went down to bedrock

Fig. 39   Sikyon. The stylobate excavated to the south of the stoa (looking southeast)

Main Thoroughfares and Lesser Streets

In order to assess the importance of the streets we take into consideration a number of factors including their physical characteristics, such as their width, pavement and architectural ornamentation, their destination and function as well as their relation to the different quarters of the city. We have seen that Street F which led to the center of the agora, was considerably wider than most Sikyonian streets. The exact width of Street E, which also led to the agora has not been confirmed, but that of Street G was the ›normal‹ width of 6.5 m. Unfortunately we did not find evidence for the width of Streets 12 to 14, which also led to the agora this time from the east. We do know the width of Street 11, which led towards the stadium, and which came to 6–7 m, same as the majority of the Sikyonian streets. With regard to the pavement and ornamentation of these important streets, we have no information since they have not been excavated with the exception of the last segment of Street G, before it reaches the excavated stoa of the agora. A ditch dug by Orlandos to the southeast of the long stoa has exposed a stylobate over a distance of 21.50 m, which almost lines up with the eastern, short side of the stoa (Figs. 39. 46)[45]. The excavator did not continue the exploration of this feature after having realized that its upper structure, consisting of alternating column drums and orthostate blocks, is a later addition. The northern end of the stylobate abuts the southern end of the eastern toichobate of the stoa, but we do not know how far it extends towards the south. It is clear that the two were built at different periods, but we cannot tell which was built first. The purpose of this stylobate, which is 0.65 m wide, is also puzzling. One possibility is that it originally supported a colonnade which would have bordered the western side of Street G. Street G, as its neighboring Streets F and H, must have been quite busy since they led to the ceramic production area of the city which was identified by the intensive surface survey to the south of Street 20, between Streets F and J. To the same area led Streets 20, 21 and 22 coming from the east, but none of these streets were wider than the average 6–7 m. Other streets led to important civic sanctuaries, such as those mentioned by Pausanias which took

[45]   Orlandos 1952, 188 f. This stylobate does not appear in published plans of the agora.

Fig. 40 Sikyon. The line of the modern road cutting through the cavea of the stadium (looking northeast)

the traveler to the sanctuaries of Asklepios, Aphrodite, Artemis and Athena, but none of these sanctuaries has been located[46].

An indicator for the importance of individual streets is their position in relation to the city-gates. In many cities, including Priene in Asia Minor, Kassope in Epiros, Halos in Thessaly or Dura–Europos in Syria, the main thoroughfare led to the main gate of the city and often connected two gates diametrically opposed. In the case of Sikyon however, the location of the gates was determined to a large extent by the physical topography since the city was built on a hill which was accessible by limited ways (Fig. 21). Gate 1, which is the northernmost gate of the eastern side of the plateau, is definitely off the line of Street 5. Gate 2, one of the most important gates of the city, is almost aligned with Street 12. Gate 3, perhaps the »sacred gate« of Pausanias, does not seem to align with Street 16, although the line of the latter is conjectural. Gate 4 would have opened onto Street 20, but Gate 5 does not quite align with Street 17-west, at least as we reconstruct it. As mentioned above, the line of this street is extrapolated from a short segment detected through geophysics at the eastern end of the upper plateau. It is conceivable that the course of the street shifted towards the south in order to meet the gate, but we cannot substantiate this hypothesis. Gate 7 is not exactly at the end of Street 8, but falls some 10 m to the north.

Finally, the approach of Gate 6 must have broken the grid pattern of the city. On the plan of the »Expédition Scientifique de Morée« the street which led from the village towards the agora and the theater (labeled »chemin de Vasilika au lac Stymphale«) continued around the southern cavea of the stadium (Fig. 5). The course of this road follows more or less that of the modern asphalt road which connects the archaeological site with the village, with the exception of the section near the agora, where the modern road runs closer to the bath complex than the early 19th century road did. The section in front of the theater and through part of the cavea of the stadium is now a dirt road which leads to Gate 6 (Fig. 40). Closer examination of the northern vaulted tunnel of the theater which in antiquity must have opened onto a street, shows that the floor of the tunnel is much lower than the present ground surface. No doubt the significant erosion of the upper plateau is responsible for the heavy

46 Paus. 2, 10, 1–2, 11, 1.
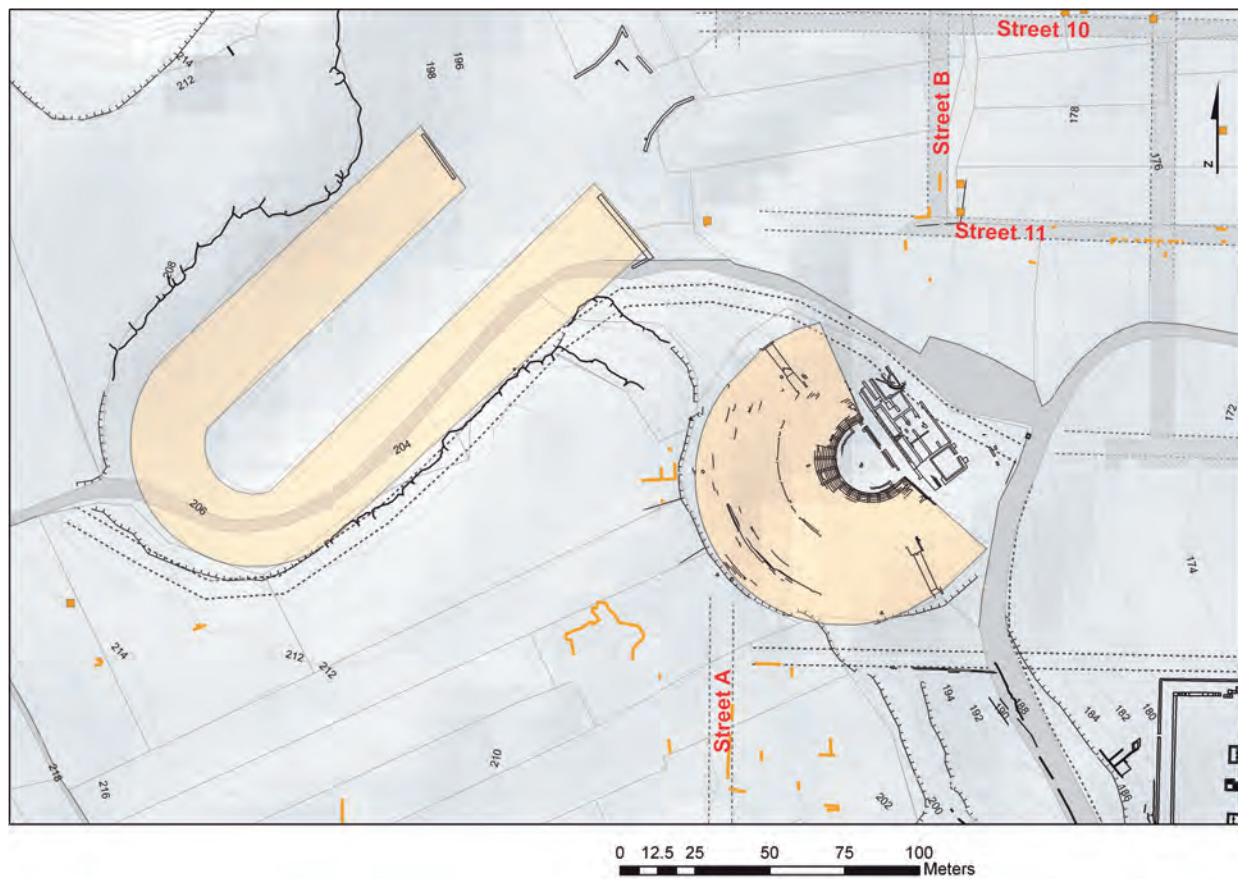
accumulation of earth down the slope since antiquity. We suggest that during this process the ancient road surface was gradually abandoned in favor of an easier route which runs lower on the slope, along the cavea of the stadium. The dotted line on the map indicates the possible line of the ancient route (Fig. 41).

Overall the correspondence between the street lines and the location of the gates is not a direct one, with the exception of Street 12. It would have been interesting to see if that street was wider than average, but unfortunately its mapped sections did not allow us to measure its precise width. In any case, our only, definitely wider street, i. e. Street F, does not lead to a gate in either direction. In the case of streets not leading straight to a gate, we would suggest them ending in an open area or ›square‹ from where one would access the gate proper. Furthermore, a ring-road would have eased circulation and facilitated access to the gates and to the city-walls. The existence of such a road has been confirmed for many cities, in agreement with the prescriptions of Philo of Byzantion, but the surface and geophysical survey of Sikyon has produced no conclusive evidence so far[47].

The example of the road leading to Gate 6 mentioned above raises the important issue of localized variation from the gridded pattern. More specifically a notable trend is for the presence of walls which run across the diagonal of the square insula, although the evidence is fairly limited. Some may well belong to later road networks, but at least in one case (in insula N11), where residential remains of the Hellenistic and Roman periods were excavated, we understand that this diagonal alignment goes back to ancient times.

Fig. 41   Sikyon. The modern dirt road leading from the theater towards Gate 6, and the suggested ancient route (indicated with dotted line). The reconstruction of the cavea of the stadium (shaded) is based on the topography and the two retaining walls (scale 1 : 2500)

47   Ph. Byz. A, 10. Examples of cities with ring-roads include Athens, Thasos, Halieis, Goritsa, Dion, Dura-Europos, Selinous, Ephesos, Skotoussa (in Thessaly) and Rhodes, the last one agreeing completely with Philo's advice for a free zone 60 cubits wide left between the fortification wall and the houses: see Philimonos-Tsopotou 2004, 74 f. (with references). On the Athenian ring-road along the inner side of the city wall see Costaki 2006, 133.
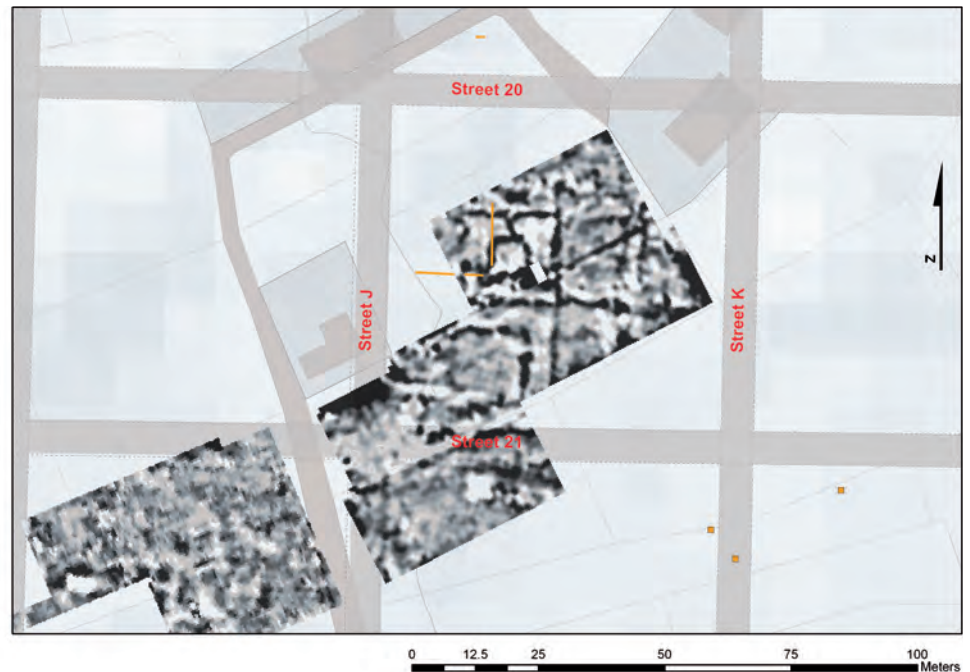
Fig. 42   Sikyon. Division of insula J21
as revealed with magnetic survey
(scale 1 : 1500)

Insulae

The street pattern described above demarcates some 290 whole *insulae* in the lower plateau alone. We were able to measure the exact size of an insula in cases where we had detected the streets on both sides of it, either on the east-west or the north-south axis. In three cases, we measured the east-west dimension as ca. 60 m (K3, K5) and 63 m (J2), and in another three cases the north-south dimensions as 62 m (L4), 63 m (E4) and 65 m (E19) (Figs. 23. 24). Although we did not confirm the exact dimensions of any insula on all four sides, we can argue with a fair degree of certainty that the Sikyonian insula was square with its side ranging between 60 m and 65 m in length, which translates into a surface area of ca. 3600 m^2 to 4200 m^2. In many cases the results of the geophysical survey occasionally combined with architectural remains mapped on the surface indicate an inner division of the insula in two halves by an east-west (L4, E4, K5, L5, O7, F19, J21) and in fewer cases by a north-south wall or alley (I9, E19) (Figs. 23. 24). In J21, the insula is divided in at least six units by one north-south and possibly two east-west partition walls (Fig. 42).

Houses

In addition, we have some evidence for housing units of the courtyard type in insulae L4, E4, E5, E19, H15 and J21 (Figs. 23. 42). The size of the houses appears to vary as was usually the case in non-colonial cities, therefore no standard number of houses fitted in an insula[48]. On the basis of the geophysical results alone we can hardly estimate this number since it is not absolutely clear where the limits of each house lie. Turning to the evidence provided by rescue excavations does not solve the problem because not a single whole Sikyonian house has ever been excavated. With these constraints in mind, we can risk some suggestions. In L4, for example, we could fit as many as eight houses in the area covered by geophysics, to which we could add another four for the

48   In Priene, for example, an insula could contain between 4 and 10 houses: see Martin 1974, 234; Hoepfner – Schwandner 1994, 208–216.

un-surveyed area and come up with a maximum of 12 houses in this insula (Fig. 24). The same holds for E5, where we can make out three houses along the eastern side of the insula and add one more at the southeastern end which was not surveyed with gradiometer (Fig. 23). If we had houses of a similar size along the center and the western side, then this insula could have contained as many as 12 housing units. In J2, things are more uncertain, but we seem to have a tripartite division on a north-south axis. J21, our best example of housing units, shows four courtyard houses, but it is possible that we had more units along at least the northern side of the insula which has not been surveyed (Fig. 42). Based on the typical surface area of the Sikyonian insula, i. e. 3600–4000 m^2, we could theoretically fit 12 or even more houses per insula, even though there does not seem to be a standard size for a Hellenistic house[49].

The Agora

After the theater the agora of the city was the focus of the systematic excavations conducted by the Archaeological Society of Athens mainly during the first half of the 20th century. Its location was confirmed early on, thanks to the discovery by A. Philadelpheus of the bouleuterion, which Pausanias mentions inside the agora[50]. Subsequent excavations by A. Orlandos have confirmed the identity of this building[51]. In addition Orlandos excavated two other public monuments that help us to define the area of the agora, namely a stoa directly east of the bouleuterion and a palaestra complex along the western side of the agora[52] (Fig. 6). The stoa, which measures ca. 106 m by 16.5 m, has two aisles and a series of 20 rooms along the south side (Fig. 43). It must date from the early Hellenistic period based on two coins of the 3rd century B.C. and on stylistic similarities with the South Stoa of Corinth, the construction of which is placed to the early 4th or the early 3rd century B.C.[53] It is notable that the façade of the stoa and the northern side of the bouleuterion are aligned. Furthermore, Orlandos assumed the existence of a colonnade running in front of the bouleuterion based on a 2.4 m wide foundation course excavated along this side (Fig. 44). Extensive stone pillaging in later centuries might explain the absence of the hypothetical stylobate course and in places even of the lower foundation courses down to the dressed bedrock. Therefore, it is not clear whether this colonnade extended along the whole façade of the bouleuterion or only along part of it[54]. However it was, these solid and wide foundations must have supported a heavy superstructure, and a colonnade is a likely candidate.

49   The size of the houses at Priene varied between 200 m^2 or less and 500 m^2 or more: Martin 1974, 234. At the royal city of Pella the size of the houses ranges dramatically between 200 m^2 and 3000 m^2: Lilimbaki-Akamati 2009. In the modest town of Halos in Thessaly, the size of the houses ranges between 188 m^2 and 233 m^2: Reinders – Prummer 2003. In cosmopolitan Delos, next to the sumptuous houses of 300 m^2 to 500 m^2, we had humble houses of even less than 100 m^2: Bruneau – Ducat 2005, Trümper 2005.
50   Philadelpheus 1926. Paus. 2, 9, 6.

51   Orlandos 1939, 120 f.; Orlandos 1940; Orlandos 1947, 56–59; Orlandos 1952, 187 f.; Orlandos 1956, 184–188.
52   Orlandos 1952, 188 f.; Orlandos 1955, 387–391 (on the long stoa); Orlandos 1933, 63–75; Orlandos 1935; Orlandos 1936, 73–75; Orlandos 1937, 86–90; Orlandos 1955, 391–393; Orlandos 1956, 188 f. (on the palaestra).
53   Orlandos did not keep any pottery from the excavation of the stoa or from any of the monuments that he excavated in Sikyon. The bronze coins were allegedly found in the rooms of the stoa but since no stratigraphy is recorded we can

only assume that they come from the first phase of the building which in Late Roman times was converted into a workshop. According to Coulton 1976, 56. 80 the prostyle colonnade of the stoa by the bouleuterion, which also characterizes the South Stoa of Corinth, suggests a Corinthian designer. On the date of the South Stoa in Corinth see Pemberton 1989, 3.
54   Orlandos 1956, 187 f. seems to favor the latter possibility, namely that the colonnade run in front of the middle of the north façade, over a length of ca. 13 m.

Fig. 43   Sikyon. The excavated long stoa of the agora (looking east)

Fig. 44   Sikyon. The foundation course of a hypothetical stoa or colonnade in front of the bouleuterion (looking west)

The palaestra complex on the western side of the agora is laid out in two levels, the lower measuring 72 m by 36 m and the upper 70 m by 32.50 m (Fig. 45). The early Hellenistic date of at least the lower half is based on coins found in the southernmost room of the eastern side of the palaestra and on its possible identification with the gymnasion of Kleinias. This gymnasion, which was founded by Aratos's father in the first half of the 3rd century B.C., is mentioned by Pausanias[55]. The traveler refers to a gymnasion twice in the course of his *Periegesis* around the city, and the question is whether we are dealing with one or two gymnasia[56].

After having described various monuments of the agora, including the sanctuary of Apollo Lykios and the statue of Hermes Agoraios, Pausanias directs himself towards the gymnasion »τῆς ἀγορᾶς ὄντι οὐ μακρὰν«[57]. All

[55]   On the date see Orlandos 1936, 75. On the gymnasion of Kleinias see Paus. 2, 10, 7 and Orlandos 1935, 122.
[56]   On this debate see Delorme 1960, 99 f.; Lolos 2011, 279 f.
[57]   Paus. 2, 10, 1.

commentators of Pausanias have understood this sentence as »the gymnasion which is not far from the agora«, which indicates that the palaestra was considered as lying outside the agora[58]. The excavated entrance to the palaestra, which is on its northern side, indicates that the complex was probably closed towards the agora[59]. This could explain why Pausanias did not perceive it as part of the agora, although we would not have described it as »not far from the agora« given its close proximity[60].

Fig. 45   Sikyon. The palaestra complex in two levels (in the foreground) and part of the agora in the background (looking northeast)

58   Modern translated editions of Pausanias include Frazer 1913, Roux 1958, Papachatzis 1976 and Musti – Torelli 1986. We entertained the possibility τῆς ἀγορᾶς being a possessive genitive depending on τῷ γυμνασίῳ and meaning »in the gymnasion of the agora«, and solicited the help of William Hutton, one of the world experts in Pausanias. Hutton agrees with the standard translation of this sentence and drew our attention to the closest syntactic parallel in the *Periegesis* (1, 17, 2) where Pausanias refers to the Athenian gymnasion which was not far from the agora: ἐν δὲ τῷ γυμνασίῳ τῆς ἀγορᾶς ἀπέχοντι οὐ πολύ. In this case

there is no question that τῆς ἀγορᾶς depends on ἀπέχοντι and not on γυμνασίῳ. We would like to thank warmly William Hutton for his precious help.

59   We say »probably« because only the northeastern side of the palaestra has been found, the rest of the toichobate (and presumably its foundations as well) were robbed out as it happened with so many ancient buildings in Sikyon: see the plan published by Orlandos 1935, 116 where most of the eastern wall of the palaestra shows as a shaded (rather than solid) line, and the photo published in Orlandos 1936, 73 where no trace of an exterior

wall is visible. The plan published by Pharaklas 1971, fig. 37 shows the entire eastern wall of the complex as excavated, which is not true.

60   Pausanias uses the expression οὐ μακρὰν eight times in his *Periegesis* to denote the proximity between monuments or features. Unfortunately in none of these cases both features have been identified so we cannot deduce what range of distances the expression οὐ μακρὰν represents. William Hutton pointed out to us that Pausanias uses similar phrases (such as οὐ πόρρω or οὐ πολὺ ἀπέχων) to refer to entities that are known to be very close.

Fig. 46 The agora of Sikyon with the excavated monuments and the results of the geophysical survey (scale 1:3000)

61 Orlandos 1939, 121. The uncovered section is ca. 25 m long.
62 On which see Philadelpheus 1926; Orlandos 1938; Krystalli-Votsi 1988, 240 f.; Krystalli-Votsi 1991a, 66–68; Krystalli-Votsi 1991b; Østby 1992, 161 f.; Krystalli-Votsi – Østby 2010. Østby is currently studying the architecture of the temple, which probably belongs to Apollo and not to Artemis Limnaia as was first thought: see Lolos 2011, 380 f.

Immediately to the north of the palaestra complex, geophysical survey has revealed a sanctuary which consists of a small temple surrounded by a Π-shaped stoa with its open side facing west (Fig. 46). The external dimensions of this sanctuary are ca. 60 m by 60 m. Some 14 m to the east of the eastern side of the sanctuary, geophysical survey has shown the line of yet another stoa, ca. 41 m long. In fact, part of this stoa was briefly excavated by Orlandos in 1938, and the oblong trench still lies open today[61]. The stoa lines up with the eastern side of the palaestra, and faces the excavated temple of the agora[62].

Using evidence from excavated monuments and geophysical survey, we can identify with certainty part or all of the southern and western sides of the open area of the agora. In addition, our reconstruction of the city grid allows us to position the excavated monuments within the wider urban framework. Thus we observe that the northern and eastern sides of the palaestra align with Street 13 and Street D respectively. Similarly, the southern side of the long stoa is in alignment with Street 14, and its eastern, short, side with Street G. The definition of the northern and eastern borders of the agora is more problematic.

The area directly north of the temple has never been excavated, and geophysical survey here was impaired by the existence of a parking lot and of the asphalt road leading to the village. Consequently this zone ca. 40 m wide, which separates the fenced archaeological site from the Roman bath complex

built to the north, remains to large extent unexplored[63]. Surface survey has shown that the Roman bath complex occupied an area of some 3400 m^2, and bordered Street D towards the west and Street 11 towards the north. It is not clear however if it lay within or just outside the area of the agora. On the eastern side of the agora, the intensive surface survey and partial geophysical survey did not yield any remains that convincingly define the agora in this direction. In the eastern part of G14, magnetometry showed the presence of structures which could indicate the eastern limits of the agora. Finally, to the south of the stoa and the bouleuterion, geophysical survey has established the existence of long structures, of probably non residential nature.

In sum, the agora of the city must have had unambiguous boundaries, either marked by buildings or by streets or again by boundary markers, so that one had a clear feeling when entering or leaving it. Thus Pausanias uses the verb »to come into« (εἰσέρχομαι) upon entering the agora coming from the theater and the sanctuary of Artemis[64]. In addition, the rectilinear aspect of its western and southern sides with their buildings and stoas presenting a straight front towards the open area of the agora, suggests a symmetrical space that was integrated into the grid pattern of the city. If we consider the palaestra and the sanctuary to the north as not belonging to the agora, Street 12 as its northern boundary and Streets H and 15 as its eastern and southern boundaries respectively, then the rectangular space allocated to the agora equals ca. 282 m by 208 m, and corresponds to 12 insulae. If we take Street G as the eastern border and the southern side of the bouleuterion as marking the southern extent of the agora, then the estimated dimensions of the agora would be some 214 m by 174 m corresponding to six whole insulae and three half-insulae. In the former case, the total surface area comes to ca. 59 000 m^2, in the later case to ca. 37 000 m^2, which would represent respectively the maximum and the minimum possible size of the Sikyonian agora. In either case, this would make it one of the most sizable Hellenistic agoras of the Mediterranean that we know of, even surpassing the estimated size of the agoras of important cities such as Miletos, Magnesia on the Maeander or Dura-Europos[65]. In fact, the higher estimated surface area of the Sikyonian agora is not much smaller than that of Pella – the capital of the Macedonian kingdom[66].

Grid Design

The area reserved for the agora of the city is almost equidistant from the northern and southern sides of the plateau, and lies on a high terrace of the lower plateau and in proximity to the two most imposing public monuments of the city (i. e. the theater and the stadium). It is possible that Gate 2, one of the main approaches to the city, was also taken into consideration during the design of the layout of the city, since Street 12 led straight to the agora and the theater. Such observations and the remarkable consistency in the street layout, over distances that reach a maximum of 1700 m in the north-south direction and 1100 m in the east-west direction, betray the existence of a master plan when designing the city. Implementing this plan on the ground was certainly challenging not least because the urban area is physically laid out in terraces which present a total elevation difference of ca. 50 m across the lower plateau. Alterations to the original plan certainly occurred as evidenced by the variations in the distance between the streets and the size of the insulae. These variations, which as we have seen on the basis of the geophysical results range between 60 m and 65 m for the side of the square insula, frustrate our efforts to

63   The survey of this zone by the Institute of Mediterranean Studies using ground penetrating radar has yielded some rather faint signals which could indicate the presence of manmade features, but nothing definite.
64   Paus. 2, 7, 7: Ἐς δὲ τὴν ἀγορὰν ἐσελθοῦσι [spacing by the authors] Πειθοῦς ἐστιν ἱερὸν (…).
65   The south agora of Miletos is 196 by 163 m, i. e. almost 32 000 m^2: Martin 1974, 275. The agora of Magnesia on the Maeander is 26 750 m^2 (214 by 125 m), and that of Dura-Europos comes to ca. 23 500 m^2: Martin 1951, Tableau 1; Martin 1974, 165.
66   The agora of Pella occupies a surface area of some 70 000 m^2, which corresponds to 10 insulae: Siganidou – Lilimpaki-Akamati 1996, 17.
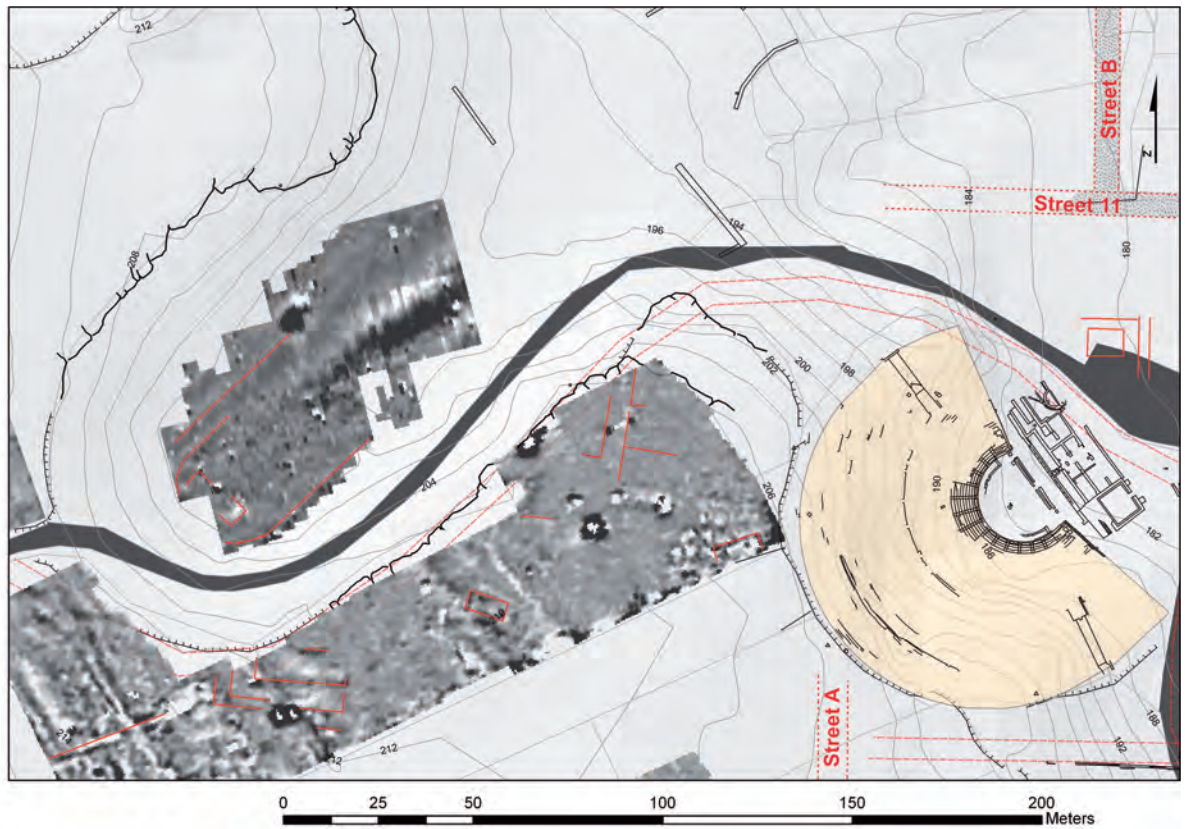
Fig. 47   Sikyon. The results of the magnetic survey over part of the stadium's track. The thin red line traces the outline of the track as interpreted from the magnetic results. The dark grey line represents the modern dirt road. Contour lines are 2 m (scale 1:2000)

reconstruct a standard size of the basic insula that the board of the city-planners envisioned for Sikyon. It must certainly be a multiple of the foot unit used, which is though not given.

The calculation of the foot unit in various ancient Greek cities and monuments has preoccupied a number of scholars enough to establish that no standard foot unit was used across the Mediterranean in the pre-Roman period[67]. The metrical unit used in Sikyon should be sought in the city itself. The stadium has never been excavated but the open end of its track was artificially supported by a massive retaining wall which is still preserved. The closed end of the track was recently located with magnetic survey (Fig. 47). The distance between the two points is ca. 198 m, which means that the length of the stadion proper, overrun space allowed on both ends, was around 180 m. This suggests that the foot unit used in the stadium cannot be the »Doric« foot unit of 0.328 m but has to be a smaller unit similar to that used at Nemea or in Delphi[68]. Of the excavated monuments of the city, two are particularly helpful in this regard. The length of the palaestra (i. e. on the north–south axis) is 72.15 m which corresponds according to Orlandos to 240 feet of 0.30 m[69].

[67]   The shaky ground on which Greek metrology rests is acutely pointed out by Wilson Jones 2000, 74 f. O. Broneer's (1971, 177) »Hellenistic foot« of 0.302 m was based on the measurement of the length of the racecourses in different stadia of the Peloponnese, since 1 stadion equals 600 feet. However the extrapolation of the precise foot length requires accurate measurement of each racetrack that is impossible to obtain. What is worse, in the case of the early Hellenistic stadium at Nemea, the distance between the square pillars set alongside the track as markers of units of 100 feet varies between 29.66 and 29.79 m, and the same is true for the 100 meters foot markers along the track of the stadium at Epidauros which range between 30.10 m and 30.47 m: see Miller 2001, 29–36.
[68]   On the so-called Doric foot, depicted on the metrological relief from Salamis, see Wilson Jones 2000, 79.
[69]   Orlandos 1936, 73.

48

49

Sikyon

Fig. 48   The stylobate of the western side of the stoa with the dowel holes for the positioning of the columns

Fig. 49   Part of the eastern stylobate of the lower palaestra of Sikyon showing dowel holes at regular intervals

We can be a little more confident when measuring shorter distances, particularly interaxial column spacing. One such opportunity is offered on the western, short, side of the long stoa, where two dowel cuttings and the bedding surface of the corresponding columns are still visible[70] (Fig. 48). The distance from center to center of the dowel cuttings comes to 2.48 m, which could correspond to 8 feet of 0.310 m. This differs from the measurements we obtained along the stylobate of the eastern colonnade of the lower terrace of the palaestra (Fig. 49). The distance among the dowel cuttings ranges between 2.10 m and 2.14 m, the average being 2.12 m, which could represent 7 feet of 0.302 m.

Recurring to the dimensions of individual ashlar blocks is not particularly helpful since their dimensions are not consistent and it is likely that the foot was too long of a measuring standard to have been used as such in cases of smaller blocks. Orlandos thought that the 1.312 m length of the orthostate blocks of the bouleuterion represented 4 feet, while their 0.654 m thickness 2 feet, thus assuming that the foot unit used in this case was 0.327–0.328 m[71]. However, he avoids giving a foot equivalent for the height of these blocks which comes to 0.945 m and does not divide evenly by this ›Doric‹ denominator. Rather we should think that a smaller standard of measurement was employed in the cases of ashlar blocks, such as a span (*spithame*) or even a digit (*dactylos*). Clearly more measurements of the excavated monuments and of the architectural features mapped around the plateau are needed in order to build more data which might help us to determine the precise length of the Sikyonian foot[72]. In the present state of research, we can only approximate the length of the foot unit used to 0.30–0.31 m, which calls to mind the 0.307 m length of the footprint depicted on the metrological relief from Salamis[73].

It is clear that any attempt to reconstruct an archetypal size for the Sikyonian insula in terms of feet can be suggestive at best. Insula does not seem to have had identical size across the plateau and the foot unit used is uncertain. A square insula of a side of 200–210 feet bordered by streets 20 feet wide is conceivable, but the variation suggests that the planning of the city grid may not have been based on a standard insula after all. It is possible that the plan was conceived and implemented using survey geometry over larger land units encompassing multiple insulae. Within a wider framework of regularly surveyed

70   The excavator does not give the distance but provides a plan of this side of the stoa: Orlandos 1955, 387 fig. 1.
71   Orlandos 1947, 56.
72   In the case of the excavated monuments it is not always easy to take exact measurements because some of the corners of the monuments are not well defined and parts of their stylobates and toichobates are now covered with earth (accumulated since the excavations of the 1930s through the 1950s).
73   Whether this corresponds to the »common foot« mentioned by Herodotos or to the foot unit used in Salamis (where the relief was found) is still an open issue: see Wilson Jones 2000, 79 f. 86.

land units, minor inconsistencies and variation from one unit to the next could have been accommodated according to local needs, while at the same time conforming to the larger geometrical model. Such planning principles have been demonstrated elsewhere in rural and urban circumstances. At the site of Halieis, where street and insulae vary in dimension, it has been demonstrated convincingly that land division was based on a 221 m square corresponding to a proposed area of 500 000 feet using a 0.310 m foot[74]. It seems probable that at Sikyon a similar geometrical framework was used by ancient land surveyors, but its detailed reconstruction needs further investigation.

In concluding we may ask how the city planners settled in the particular shape and size of the various Sikyonian insulae, in the dimensions of the streets and the orientation of the whole grid. What were the factors that they took into account and to what degree? The physical topography and the climatic conditions, the size of the population and the number of households that had to be accommodated, earlier structures that probably existed on the plateau, or the imitation of urbanistic principles already applied somewhere else? With regard to the insula, its square shape sets it apart from the majority of insulae of the Hellenistic Mediterranean at least as we know them[75]. For most cities the insulae are shown as rectangular, often of oblong shape. In the Hellenistic period Hoepfner sees a predilection for rectangular insulae with one side twice as long as the other, so that eight houses could be accommodated in it, arranged in two rows[76]. In Sikyon this was clearly not the case but the reason for it, be it the shape of the plateau or the number of houses that had to fit into the insula or other is not forthcoming. Whatever the logic, one advantage of having square over oblong insulae is that it allows even circulation on both axes (north-south and east-west). With regard to the size of the insula, we know of no other published example showing a side of 60–65 m, but the surface area (3600–4200 m^2) compares with that suggested for Alexandria (ca. 3800 m) or Rhodes (ca. 4300 m^2)[77]. On the other hand, the width of the Sikyonian streets, 6–7 m with the exception of at least one avenue 9–10 m wide, seems to have been fairly common in small and large cities alike. In Alexandria the attested width of the streets is 6 m and of the avenues 15 m, in the small town of Halos in Thessaly streets were found to be 5.5 m, 6.75 m and 7.5 m wide while its avenues 9 m and 11 m wide, in Dura-Europos 6.35 m, 8.45 m and 12.65 m wide, in Pella the north-south streets are 6 m wide but the east-west streets 9 m wide, and in Rhodes streets were 5.5 m wide and avenues 9 m wide[78].

Finally concerning the orientation of the city-grid along the cardinal points we would have expected the physical layout of the plateau and possibly the prevailing winds to have played a determining role. Yet, this does not seem to have been the case. In fact, the plateau physically lends itself more to a northeastern orientation than to an orientation following the cardinal points. This is because the eastern edge of the plateau same as the edges of the successive terraces rising towards the west do not run north-south but northwest-southeast, mirroring the direction of the coast line (Fig. 2). Accordingly the modern town of Kiato by the gulf has a northeastern orientation that is perpendicular to the coast line. This line was the determining factor for the layout not only of the towns and the fields along the coast, but also of the ones located inland. The village of Velo for example, less than 4 km east of Sikyon, is also laid out on a northeast-southwest axis, and the same is true regarding the layout of fields at the upper part of the plain. Likewise, almost all the country roads in this area lead northeast, perpendicular to the coast line. This may have been so in the

74 Boyd – Jameson 1981, 329.
75 Given that in few cities of the Hellenistic world archaeological fieldwork has covered a substantial part of the intra-mural area, all the more since some of these cities lie under modern towns, the reconstruction of the ancient grid pattern and of the insulae often rests on very limited evidence. Indeed in a number of cases, including Damascus, Ephesos, Cnidus, Magnesia on the Maeander, Antioch or Smyrna, the respective grids, shown in Hoepfner 1999 and other studies of ancient town planning are to a large extent guesswork, not substantiated by hard evidence. What is worse, one can hardly find in relevant publications the specific evidence on which the reconstruction is based. In the case of Smyrna, for example, it seems that the reconstruction of the grid rests solely on the dimensions of the agora: see Hoepfner 2005, 519–522.
76 This is what Hoepfner (1999, 441–443) calls »Einheitsstädtebau«. In addition, Hoepfner suggests that this scheme was first adopted in Alexandria and was proven so successful that was soon adopted by other cities in Syria, Mesopotamia and metropolitan Greece.
77 See Hoepfner 1999, 469 (Alexandria); Philimonos 1996, 74 f. 87 (Rhodes).
78 See Hoepfner 1999, 456 f. (Alexandria); Reinders 1988, 108–110 (Halos); Hoepfner 1999, 497 (Dura-Europos); Siganidou – Lilimbaki-Akamati 1996, 11 (Pella); Philimonos 1996, 72–74 (Rhodes).

Archaic and Classical periods as well, if we take our lead from the one excavated stretch of road in the plain, which led to the ancient harbor[79]. This road was lined with grave monuments going back to the 5th century B.C., which suggests that it was part of the old city that Demetrios Poliorketes captured and destroyed. Cities whose orientation deviated from the cardinal points due to the orientation of the coast included as famous ones as Miletos (5th cent. B.C.) and Alexandria (late 4th cent. B.C.) among many others. Now we can better assess Demetrios' desire to break up with the former city in laying out the new one. Sikyon-Demetrias did not follow the northeast orientation of old, but a new one instead oriented according to the cardinal points. In this case some other reasons came into play and the direction and strength of the winds come readily to mind.

From the Greek National Meteorological Service we obtained a climatological data base with monthly frequency of wind direction and forces in Beaufort scale, over a seven years period. We are fortunate in that during these seven years (1981–1987) the Service had a unit stationed on the plateau of the Hellenistic city. Two facts emerge from examining the data (Table 2): (a) the winds are light, usually 2 to 3 of the Beaufort scale, rarely 4, even more rarely 5, and almost never 6; (b) the ratio of winds blowing from cardinal points (north, east, west but never south) to winds from the northeast and northwest is 10 to 8, in other words the former are the prevailing winds in the area. Given the low intensity of the winds, there was no need to moderate their force by arranging the city-blocks at an appropriate angle. On the contrary, there is reason to believe that the ancient planners would have welcomed the light winds. We know that during the fourth century B.C., theories circulated far and wide dealing with the proper town orientation from a philosophical, geometrical, or medical point of view. Hippocrates was certainly one of the most influential theoreticians of his time as well as of later centuries. Oreibasios from Pergamon in the fourth century A.D. echoes Hippocratic principles when writing the following:

» In a city, where there are streets parallel to each other, the ones extending in straight line from east to west, the others from south to north and thus divide the city through its entire length and width up to its limits without being blocked by buildings … this is what makes the city well aired, well sun lighted and proper. For all the winds, the Boreas and the Notias, the Euros and the Zephyros, which are the dominant and more regular winds, penetrate easily the streets which extend in their directions, without meeting any obstacle, and blow freely without violent chocks. Because when the winds have no obstacles they are hardly felt. However they are not going through the city inactively, but purify the site, by blowing away the fumes, the dust and all the pollutions. This street network also produces a good sunlight; because from sunrise to sunset, the sun penetrates the streets oriented east-west, and at noon the ones that are north-south; thus, all the streets of the city have sun in the course of a day«[80].

No doubt, the light winds blowing from north, east and west were beneficial for Sikyon-Demetrias, and must have certainly come into consideration while planning the new city. This is why the pottery industry of the city was installed in the southernmost quarters of the lower plateau, next to the fortification wall. On the other hand, alongside the theoreticians of urban planning who favored a north-south orientation there were those who argued for an orientation at an angle to the predominant winds and Vitruvius transmits that tradition[81]. Taking now into consideration that northwest and northeast winds are not much less frequent or intense in Sikyon than the winds blowing from

79 This segment of road was excavated by the Ministry of Culture in 1987 but never published.
80 Oreib. *Collectiones Medicae* 9, 20, 1 f. We are using Teubner's edition (1928/9) edited by J. Raeder. The translation is ours.
81 Vitr. 1, 6.

January

	N	NE	E	SE	S	SW	W	NW	SUM
calm									80.1
light	0.5	0.5	0.5	0.2	0.2	0	3.5	0.3	5.7
moderate	1.5	2.4	1.6	0.3	1.6	0.5	4.7	1.2	13.8
strong	0.2	0	0	0	0	0	0.2	0	0.4
SUM	2.2	2.9	2.1	0.5	1.8	0.5	8.4	1.5	

July

	N	NE	E	SE	S	SW	W	NW	SUM
calm									80.8
light	1.4	2.1	1.7	0	0	0.1	1.5	2.1	9
moderate	1.5	2.3	1	0	0	0.5	0.6	3.8	9.8
strong	0	0	0	0	0	0	0	0.3	0.3
SUM	2.9	4.5	2.8	0	0	0.6	2.1	6.3	

February

	N	NE	E	SE	S	SW	W	NW	SUM
calm									79
light	1	0.7	0.6	0	0	0.2	0.8	0.2	3.6
moderate	2	1.8	3	0	3.1	1.2	4.1	1.4	16.5
strong	0	0.2	0	0	0.6	0	0	0	0.8
SUM	3	2.7	3.6	0	3.7	1.4	4.9	1.6	

August

	N	NE	E	SE	S	SW	W	NW	SUM
calm									82.1
light	2	1.4	1	0	0	0	0.5	1.4	6.3
moderate	2.8	2.9	0.6	0.1	0.1	0	2.5	2.1	11.1
strong	0	0.1	0	0	0	0	0.1	0	0.3
SUM	4.8	4.5	1.7	0.1	0.1	0	3	3.5	

March

	N	NE	E	SE	S	SW	W	NW	SUM
calm									79.2
light	1	0.5	0.9	0	0	0	0.9	0.5	4
moderate	1.5	3	6.8	0.2	0.9	0.2	2.5	1.3	16.7
strong	0	0.2	0	0	0	0	0	0	0.2
SUM	2.6	3.8	7.7	0.2	0.9	0.2	3.4	1.9	

September

	N	NE	E	SE	S	SW	W	NW	SUM
calm									85.9
light	1.4	0.6	0.6	0	0	0	0.5	0.5	3.7
moderate	2	2.5	1.4	1.1	0.1	0.1	1.7	1.8	10
strong	0	0	0	0	0.1	0	0	0.1	0.3
SUM	3.5	3.2	2	0.1	0.3	0.1	2.1	2.5	

April

	N	NE	E	SE	S	SW	W	NW	SUM
calm									79.8
light	0.9	0	1.1	0	0.9	0	1.3	1.3	5.5
moderate	1.1	1.3	1.5	0.5	1	0.7	2.6	4.8	13.7
strong	0	0	0	0	0.2	0.2	0.2	0.4	1
SUM	2	1.3	2.6	0.5	2.2	0.9	4	6.5	

October

	N	NE	E	SE	S	SW	W	NW	SUM
calm									83.4
light	0.8	1	0.5	0	0	0	2.3	0.3	5
moderate	1.2	4.8	2.8	0	0.3	0	2.1	1.7	11.6
strong	0	0	0	0	0	0	0	0	0
SUM	2	5.9	3.3	0	0.3	0	3	2	

May

	N	NE	E	SE	S	SW	W	NW	SUM
calm									78.6
light	1.8	0.6	1.2	0	0.3	0	1	0.8	5.8
moderate	2.9	1.5	1.2	0.5	0.5	0.3	1.7	5.6	14.3
strong	0	0.1	0	0.1	0.1	0.1	0	0.6	1.2
SUM	4.8	2.3	2.4	0.6	0.9	0.5	2.7	7	

November

	N	NE	E	SE	S	SW	W	NW	SUM
calm									82.2
light	0.5	0.3	1.1	0	0	0	1.8	0.3	4
moderate	2.2	2.4	2.9	0.1	0.3	0.8	4.5	0.3	13.7
strong	0	0	0	0	0	0	0	0	0
SUM	2.7	2.8	4	0.1	0.3	0.8	6.3	0.6	

June

	N	NE	E	SE	S	SW	W	NW	SUM
calm									79.2
light	2.3	0.9	0.8	0	0	0	0.9	1.9	7
moderate	3	1.7	0.5	0	0.3	0	2.5	5.3	13.5
strong	0	0	0	0	0	0	0	0.3	0.3
SUM	5.4	2.7	1.3	0	0.3	0	3.5	7.6	

December

	N	NE	E	SE	S	SW	W	NW	SUM
calm									83.5
light	0.7	0.2	0.2	0.2	0.2	0.2	1	0.3	3
moderate	1.4	2.7	3.6	0	0.7	0.5	2.3	2	13.2
strong	0	0	0	0	0	0.2	0	0	0.2
SUM	2.2	2.9	3.8	0.2	0.9	0.9	3.4	2.3	

Tab. 2 Monthly frequency (per cent) of wind intensity and direction at the Sikyon station (1981–1987)

the north, the east and the west, we may conclude that winds alone must have not been the determining factor for the city's layout.

We should rather safely rule out the possibility the location of the gates, dictated by topography as we have seen earlier, to have influenced the orien-

tation or layout of the city. The reason is that not a single straight street of the city could have linked two gates diametrically opposed, therefore becoming line(s) of reference for the entire grid. Earlier structures that certainly existed in what used to be the acropolis of the Archaic and Classical city, may have played a role in the orientation of the grid. The Hellenistic temple excavated in the agora has an earlier – archaic – predecessor, also oriented east-west[82]. In addition, Pausanias, in the course of his *Periegesis* around the city, has seen a number of »ancient« temples and shrines, which survived in one form or another down to his day[83]. These had to be integrated into the new urban nexus, and may even have dictated the orientation of the entire city grid. On the other hand, there are examples of cities refounded or reorganized in the Hellenistic and Roman periods, including the colony of Corinth, where their planners skillfully managed to incorporate earlier religious structures into a new and different layout[84].

Finally, we come to investigate the possibility that the city grid and its orientation were influenced by the layout of other cities founded within and outside the Peloponnese. In the first half of the 4th century B.C. the Theban general Epameinondas had founded by synoecism three cities in the Peloponnese, namely Messene, Megalopolis and Mantineia, in an effort to control Sparta[85]. We do not know with certainty the urban plan of any of these cities. In the case of Messene it seems that a ›Hippodamian plan‹ was in place with streets oriented northeast – southwest[86]. We also know little of the changes in urban planning that Macedonian rule brought to the old cities of the Peloponnese. History was not kind to the neighboring city of Corinth, which was destroyed by the Romans in 146 B.C. Yet we do know that the huge South Stoa, erected in the early Hellenistic period, had a southwest-northeast orientation, same as the so-called North Stoa, both influenced by the orientation of the temple of Apollo[87].

For cities actually founded by the Macedonians both before and after Alexander, we need to look to the north of the Isthmus. In fact, Sikyon's relocation, which was the first and last example of an urban relocation by a Macedonian ruler in the Peloponnese, recalls the action of Archelaos with respect to Pydna around 410 B.C. Diodoros tells us that the Macedonian king captured the city of Pydna and resettled it some twenty stadia from the sea[88]. According to Hammond, Archelaos did this »because he intended to re-establish the city on the Macedonian model«[89]. Over one-hundred years later Demetrios Poliorketes repeated Archelaos' actions at Sikyon. This cannot be a mere coincidence, particularly if we take into account that we hear of no other relocation of this kind in the intervening period[90]. Archelaos or one of his successors is also held responsible for transferring the capital of the Macedonian kingdom from Aigai to Pella[91]. This »greatest of the Macedonian cities« to use Xenophon's expression, has a grid plan oriented along the cardinal points with streets 6 m and 9 m wide[92].

It is possible that the layout of Pella has influenced more than any other city the urban creations of Demetrios Poliorketes[93]. His royal city, Demetrias on the Pagasetic gulf, founded in 294 B.C. by synoecism of the surrounding settlements, was also oriented along the cardinal points[94]. In the case of Sikyon, the strong and highly symbolic initiative of Demetrios to re-found the city, was followed by the physical application of Macedonian planning principles. These principles entailed adaptation of the landscape by means of imposing retaining walls and artificial terraces, which would have emphasized the power and determination of her ambitious founder.

82 On the basis of extant remains Østby 1992, 161 f. reconstructs an archaic pro-style temple ca. 10 m × 31 m with two rows of four columns across the front. See also Krystalli-Votsi – Østby 210, 58–60.

83 These include the ruined sanctuary of Apollo Lykios within the Hellenistic (and Roman) agora (2, 9, 7), and elsewhere on the plateau a sanctuary of Asklepios (2, 10, 2–4) and one of Aphrodite nearby (2, 10, 4–6), a sanctuary of Artemis Pheraia (2, 10, 7), a temple of Athena (2, 11, 1), a sanctuary of Artemis and Apollo and a Heraion next to it (2, 11, 1), a temple of Apollo Karneios and a temple to Hera Prodromia (2, 11, 2). None of these religious monuments, that impressed Pausanias on account of their antiquity, has been located: see Lolos 2011, 382–384.

84 See, for example, the forum of Corinth with the preexisting temple of Apollo and the South Stoa oriented differently than the insulae of the city: Romano 2003, 286 fig. 17, 7.

85 See Demand 1990, 107–119.

86 On Messene see Hoepfner 2002–2005, Müth 2007, 235–289. The suggested plan of the city rests on sporadic evidence as acknowledged by the authors. The plans of Mantineia and Megalopolis are now unter investigation by Dr. Jamieson Donati who uses satellite imagery of high resolution.

87 On the South Stoa see Broneer 1954, 18–99; on the North Stoa see Scranton 1951, 163–173. The South Stoa is currently reexamined by David Scahill.

88 Diod. 13, 49, 2.

89 Hammond – Griffith 1979, 150.

90 Demand 1990, 163 has concluded that »Philip and Alexander made little, if any, use of *metoikesis*«.

91 Hammond (Hammond – Walbank 1988, 183 n. 6) attributes the transfer to Archelaos, but Hatzopoulos 1996, 293 n. 2 to one of his successors.

92 Xen. hell. 5, 2, 13. Siganidou – Lilimpaki-Akamati 1996, 11 f.

93 This possibility is more emphatically argued in Lolos 2006.

94 On the plan of Demetrias see Marzolff 1992 and 1994.
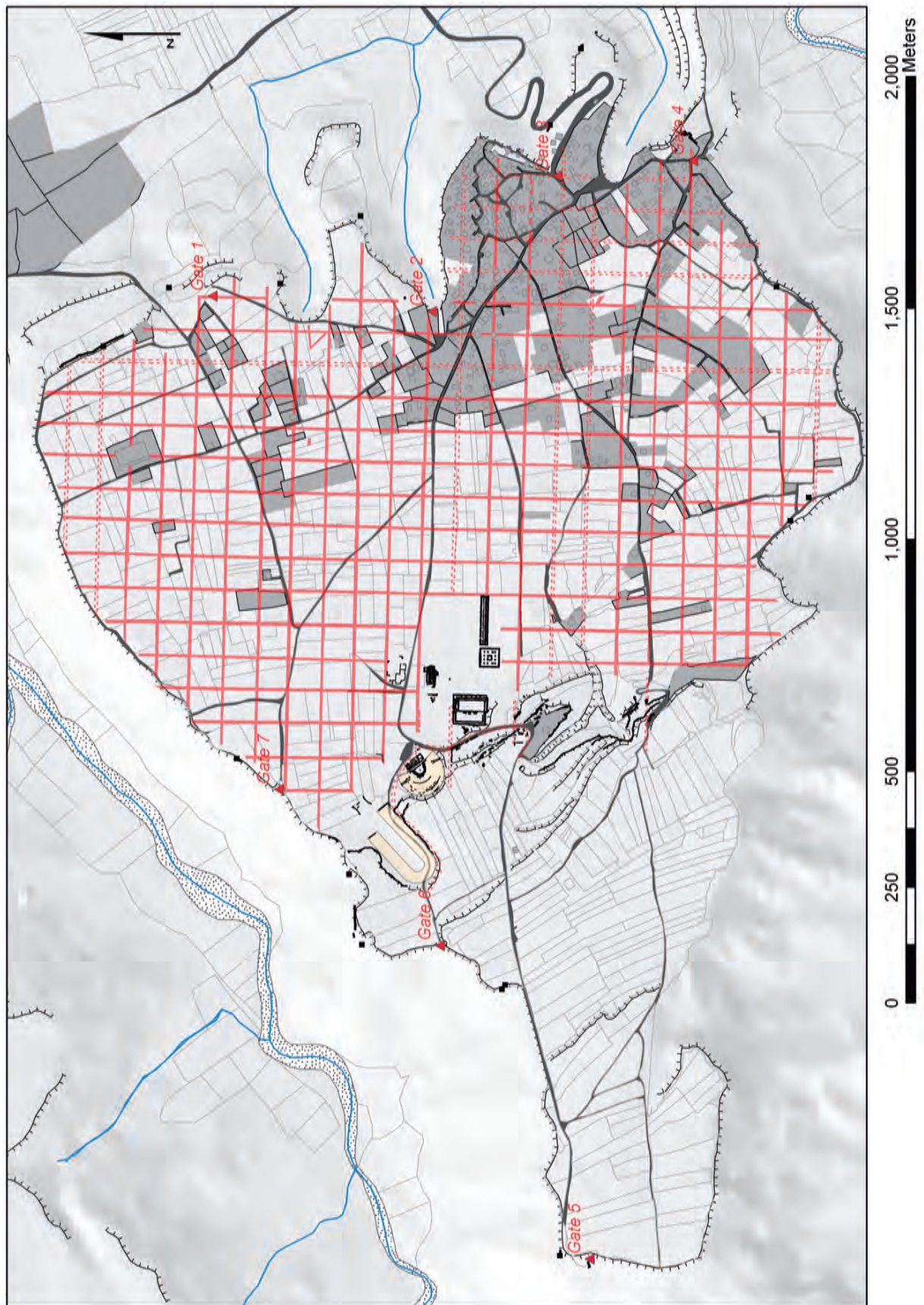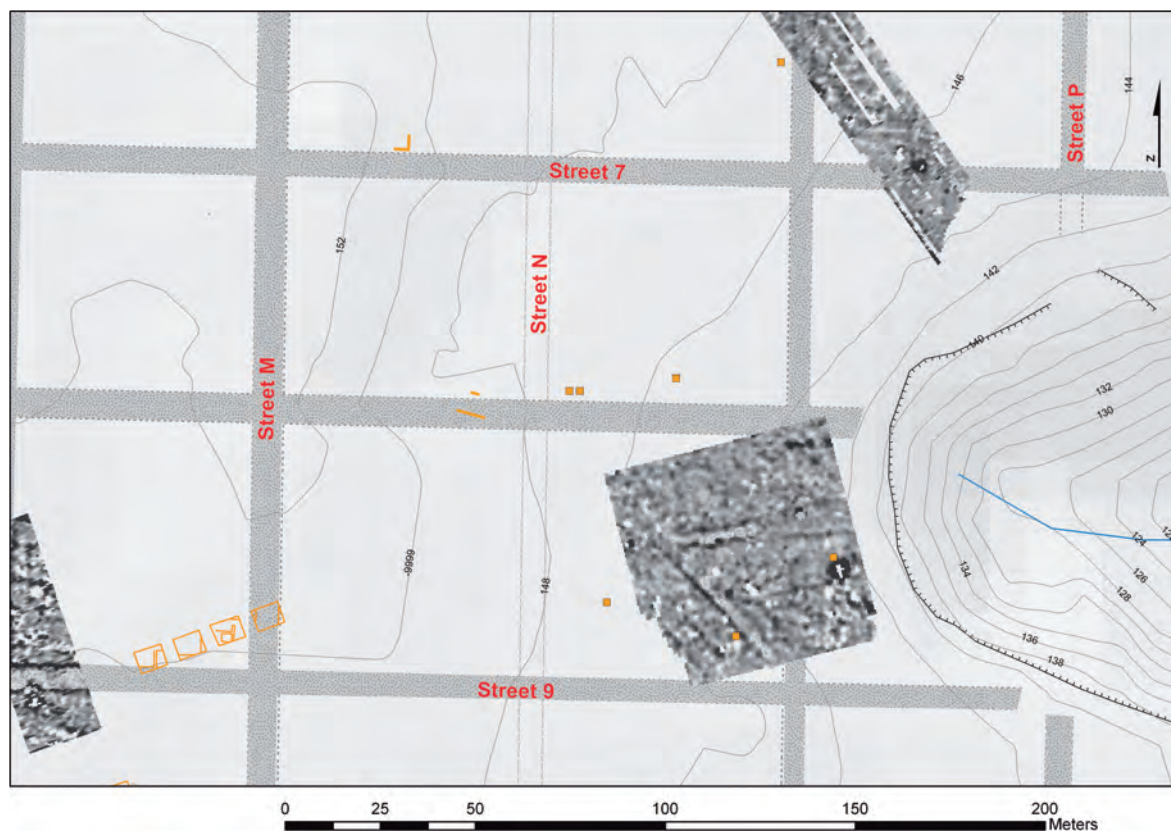
Fig. 50   Sikyon. The reconstructed ancient grid (in red) overlaid on the modern field boundaries (in light grey) and the modern street lines (in dark grey), scale 1 : 12 500

Appendix: Modern Field System and Ancient Grid

In scholarly publications, modern field boundaries are often used heavily to support reconstruction of ancient town plans and land centuriations. In the case of the Corinthia modern property lines have led David Romano to suggest an extensive Flavian centuriation to the south of the Corinthian gulf, which has Sikyon centuriated on a northeast-southwest axis[95]. Our recent intensive surface and geophysical surveys have demonstrated that this is not the case at least as far as the plateau is concerned. In fact, the majority of fields on the plateau today do not follow the ancient grid, with the exception of specific areas around the agora listed in Table 1 (Fig. 50). Likewise, of the modern roads only three seem to follow more or less ancient street lines, and these not throughout their course[96]. The present field system probably goes back to the medieval and post-medieval periods. It is possible that some of the oblique lines of either walls or streets identified from geophysics are also later in date. In insula N9–O9 for example, the orientation at an angle to the cardinal points probably supplanted the ancient one since within a radius of 150 m from it we have found many traces of streets oriented north-south and east–west (Fig. 51).

Fig. 51   Sikyon. Lines detected with magnetic survey at N9 and oriented at an oblique angle with relation to the ancient grid. Notice the geophysical traces for north-south and east-west streets to the north and to the west of this insula (scale 1:2000)

95   Romano and Tolba 1996; Romano 2003, 291–293. For the Sikyonian plateau the precise orientation according to Romano is N62°26'52"E.
96   These are the main street of the village (leading to the agora), which follows for some distance Street 12, the street that lines the south side of the fenced archaeological site and partially follows Street 15, and possibly the section of the road which leads from the quarter of the theater to the upper plateau.

Abstract

Yannis Lolos – Ben Gourley, The Town Planning of Hellenistic Sikyon

This study offers an attempt to reconstruct the town planning of Hellenistic Sikyon based mainly on the results of the recent intensive surface and geophysical surveys. The fortifications of the city were mapped over a total length of ca. 200 m and included seven gates. The city grid was oriented north-south, east-west, and included square insulae 60–65 m in length. The streets had an average width of 6 m with the exception of at least one avenue, almost 10 m wide. The estimated surface area of the agora ranges between 37,000 m² and 59,000 m², which would have corresponded to an area of 7.5 to 12 insulae. Towards the end of the article we examine various factors that are likely to have played a role in the design and application of the specific grid.

Sources of illustrations
Fig. 4: Leake 1830, pl. 4 • Fig. 5: Blouet 1838, pl. 81 • Fig. 35: 37th Ephorate of Prehistoric and Classical Antiquities

Abbreviations

Blouet 1838 • A. Blouet, Expédition scientifique de Morée, ordonnée par le gouvernement français. Architecture, sculptures, inscriptions et vues du Péloponnèse, des Cyclades et de l'Attique III (Paris 1838)

Boyd – Jameson 1981 • T. D. Boyd – M. Jameson, Urban and Rural Land Division in Ancient Greece, Hesperia 50, 1981, 327–342

Broneer 1954 • O. Broneer, The South Stoa and Its Roman Successors, Corinth 1, 4 (Princeton 1954)

Broneer 1971 • O. Broneer, Isthmia 1. Temple of Poseidon (Princeton 1971)

Bruneau – Ducat 2005 • Ph. Bruneau – J. Ducat, Guide de Délos [4](Paris 2005)

Bursian 1872 • C. Bursian, Geographie von Griechenland 2 (Leipzig 1872)

Camp 2003 • J. M. Camp II, Excavations in the Athenian Agora: 1998–2001, Hesperia 72, 2003, 241–280

Clark 1858 • W. G. Clark, Peloponnesus: Notes of Study and Travel (London 1858)

Clarke 1818 • E. D. Clarke, Travels in Various Countries of Europe, Asia, and Africa 6 (London 1818)

Costaki 2006 • L. Costaki, The Intra Muros Road System of Ancient Athens (Ph.D. diss. University of Toronto 2006)

Coulton 1976 • J. J. Coulton, The Architectural Development of the Greek Stoa (Oxford 1976)

Curtius 1851 • E. Curtius, Peloponnesos. Eine historisch-geographische Beschreibung der Halbinsel 2 (Gotha 1851)

Delorme 1960 • J. Delorme, Gymnasion: Étude sur les monuments consacrés à l'éducation en Grèce (Paris 1960)

Demand 1990 • N. Demand, Urban Relocation in Archaic and Classical Greece: Flight and Consolidation (Norman 1990)

Earle 1889 • M. L. Earle, Excavations at the Theater of Sikyon: Supplementary Report of the Excavations, AJA 5, 1889, 286–292

Fossum 1905 • A. Fossum, The Theater at Sikyon, AJA 9, 1905, 263–276

Frazer 1913 • J. C. Frazer, Pausanias's Description of Greece [2](London 1913)

Gourley et al. 2008 • B. Gourley – Y. Lolos – A. Sarris, Application of Integrated Geophysical Prospection Techniques for Mapping Ancient Sikyon, Greece, in: R. Lasaponara – N. Masini (eds.), Proceedings of the 1st International EARSeL Workshop on Advances on Remote Sensing for Archaeology and Cultural Heritage Management (Rome 2008) 169–173.

Griffin 1982 • A. Griffin, Sikyon (Oxford 1982)

Hammond – Griffith 1979 • N. Hammond – G. Griffith, A History of Macedonia 2 (Oxford 1979)

Hammond – Walbank 1988 • N. Hammond – F. W. Walbank, A History of Macedonia 3 (Oxford 1988)

Hatzopoulos 1996 • M. Hatzopoulos, Macedonian Institutions under the Kings 1 (Athens 1996)

Hennig 1995 • D. Hennig, Staatliche Ansprüche an privaten Immobilienbesitz in der klassischen und hellenistischen Polis, Chiron 25, 1995, 235–282

Hoepfner 1999 • W. Hoepfner (ed.), Geschichte des Wohnens 1 (Stuttgart 1999)

Hoepfner 2005 • W. Hoepfner (ed.), Ιστορία της κατοικίας 5000 π.Χ. – 500 μ.Χ. [2](Thessaloniki 2005)

Hoepfner 2002–2005 • W. Hoepfner, Der Stadtplan von Messene, AAA 35–38, 2002–2005, 223–228

Hoepfner – Schwandner 1994 • W. Hoepfner – E.-L. Schwandner, Haus und Stadt im klassischen Griechenland, Wohnen in der klassischen Polis 1 [2](München 1994)

Holland 1944 • L. B. Holland, Colophon, Hesperia 13, 1944, 91–171

Kassimi 2004 • P. Kassimi, Αρχαία Σικυώνα, ADelt 53 B1, 1998, 138

Keraudren – Sorel 1987 • B. Keraudren – D. Sorel, The Terraces of Corinth (Greece) – A Detailed Record of Eustatic Sea-level Variations During the Last 500 000 Years, Marine Geology 77, 1987, 99–107

Krystalli-Votsi 1988 • K. Krystalli-Votsi, Ανασκαφή Σικυώνος, Prakt 1984, 1988, 241–242

Krystalli-Votsi 1991a • K. Krystalli-Votsi, Ανασκαφή Σικυώνος, Prakt 1987, 1991, 66–68

Krystalli-Votsi 1991b • K. Krystalli-Votsi, Ανασκαφή Σικυώνος, Prakt 1988, 1991, 30–31

Krystalli-Votsi – Østby 2010 • K. Krystalli-Votsi – E. Østby, The Temples of Apollo at Sikyon, in: XVII International Congress of Classical Archaeology Roma 22–26 September 2008, Bollettino di Archeologia On Line I, Volume speciale, 2010, 54–62

Leake 1830 • W. M. Leake, Travels in the Morea 3 (London 1830)

Lilimpaki-Akamati 2009 • M. Lilimpaki-Akamati, Τα σπίτια της Πέλλας, Αρχαιολογία και Τέχνες 113, 2009, 26–35

Lolos 2006 • Y. Lolos, Δημητριάς στην Θεσσαλία και την Πελοπόννησο: μια συγκριτική προσέγγιση, in: A. Mazarakēs-Ainian (ed.), Πρακτικά του 1ου Αρχαιολογικού Έργου Θεσσαλίας και Στερεάς Ελλάδος, Βόλος 27 Φεβρουαρίου – 2 Μαρτίου 2003 (Volos 2006) 171–183

Lolos 2011 • Y. Lolos, Land of Sikyon: Archaeology and History of a Greek City-state, Hesperia suppl. 39 (Princeton 2011)

Lolos et al. 2007 • Y. A. Lolos – B. Gourley – D. Stewart, The Sikyon Survey Project: A Blueprint for Urban Survey?, JMedA 20, 2007, 267–296

Maier 1959 • F. G. Maier, Griechischen Mauerbauinschriften 1 (Heidelberg 1959)

Martin 1951 • R. Martin, Recherches sur l'agora grecque: études d'histoire et d'architecture urbaines (Paris 1951)

Martin 1974 • R. Martin, L'urbanisme dans la Grèce antique ²(Paris 1974)

Marzolff 1992 • P. Marzolff, Zur Stadtbaugeschichte von Demetrias, in: V. Adrymē-Sismanē (ed.), Διεθνές Συνέδριο για την αρχαία Θεσσαλία στη μνήμη του Δ.Ρ. Θεοχάρη, Βόλος 29 Οκτωβρίου – 1 Νοεμβρίου 1987 (Athens 1992) 337–348

Marzolff 1994 • P. Marzolff, Dévelopment urbanistique de Démétrias, in: R. Misdrachē-Kapon (ed.), La Thessalie: quinze annees de recherches archeologiques, 1975–1990: bilans et perspectives. Actes du colloque international Lyon 17–22 avril 1990 (Athenes 1994) 57–70

Meritt 1935 • B. D. Meritt, Inscriptions of Colophon, AJPh 56, 1935, 358–397

Miller 2001 • S. G. Miller, Excavations at Nemea II. The Early Hellenistic Stadium (Berkeley 2001)

Morel-Fatio 1885 • A. Morel-Fatio, Chronique de Morée (Geneva 1885)

Musti – Torelli 1986 • D. Musti – M. Torelli, Guida della Grecia, Pausania 2 (Milan 1986)

Müth 2007 • S. Müth, Eigene Wege: Topographie und Stadtplan von Messene in spätklassisch hellenistischer Zeit (Rahden/Westfalen 2007)

Orlandos 1933 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1932, 1933, 63–76

Orlandos 1935 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1934, 1935, 116–122

Orlandos 1936 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1935, 1936, 73–83

Orlandos 1937 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1936, 1937, 86–94

Orlandos 1938 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1937, 1938, 94–96

Orlandos 1939 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1938, 1939, 120–123

Orlandos 1940 • A. Orlandos, Ανασκαφαί Σικυώνος, Prakt 1939, 1940, 100–102

Orlandos 1947 • A. Orlandos, Ανασκαφαί Σικυώνος, Prakt 1941, 1947, 56–60

Orlandos 1952 • A. Orlandos, Ανασκαφαί Σικυώνος, Prakt 1951, 1952, 187–191

Orlandos 1955 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1952, 1955, 387–395

Orlandos 1956 • A. Orlandos, Ανασκαφή Σικυώνος, Prakt 1953, 1956, 184–190

Østby 1992 • A. Østby, Pausanias og Arkeologien, in: Ø. Andersen – T. Eide (eds.), I Hellas med Pausanias (Bergen 1992) 153–176

Owens 1994 • E. J. Owens, The City in the Greek and Roman World (London 1994)

Papachatzis 1976 • N. Papachatzis, Παυσανίου Ελλάδος Περιήγησης. Κορινθιακά και Λακωνικά (Athens 1976)

Pemberton 1989 • E. Pemberton, The Sanctuary of Demeter and Kore: the Greek Pottery, Corinth 18, 1 (Princeton 1989)

Philadelpheus 1926 • A. Philadelpheus, Note sur le Bouleuterion (?) de Sicyone, BCH 50, 1926, 174–182

Pharaklas 1971 • N. Pharaklas, Σικυωνία, Αρχαίες Ελληνικές Πόλεις 8 (Athens 1971)

Philadelpheus 1926 • A. Philadelpheus, Ανασκαφαί Σικυώνος, ADelt 10, 1926, 46–50

Philimonos 1996 • M. Philimonos, Το ρυμοτομικό σχέδιο και η πολεοδομική οργάνωση της αρχαίας Ρόδου, in: Ρόδος: 24 αιώνες, Πρακτικά του Διεθνούς Συνεδρίου, Ρόδος 1–5 Οκτωβρίου 1992 (Athens 1996) 61–89

Philimonos-Tsopotou 2004 • M. Philimonos-Tsopotou, Η Ελληνιστική Οχύρωση της Ρόδου (Athens 2004)

Pikoulas 1995 • Y. Pikoulas, Οδικό δίκτυο και άμυνα. Από την Κόρινθο στο Άργος και την Αρκαδία (Athens 1995)

Reinders 1988 • H. R. Reinders, New Halos: A Hellenistic Town in Thessalia, Greece (Utrecht 1988)

Reinders – Prummer 2003 • H. R. Reinders – W. Prummer (eds.), Housing in New Halos. A Hellenistic Town in Thessaly, Greece (Lisse 2003)

Romano – Tolba 1996 • D. G. Romano – O. Tolba, Remote Sensing and GIS in the Study of Roman Centuriation in the Corinthia, Greece, Analecta Praehistorica Leidensia 28, 1996, 457–463

Romano 2003 • D. G. Romano, City Planning, Centuriation, and Land Division in Roman Corinth: Colonia Laus Iulia Corinthiensis and Colonia Iulia Flavia Augusta Corinthiensis, in: C. K. Williams II – N. Bookidis (eds.), Corinth, the Centenary 1896–1996, Corinth 20 (Cambridge, Mass. 2003) 279–301

Ross 1841 • L. Ross, Reisen und Reiserouten durch Griechenland 1 (Paris 1841)

Roux 1958 • G. Roux, Pausanias en Corinthie (Paris 1958)

Sarris et al. 2008 • A. Sarris – N. Papadopoulos – V. Trigkas – E. Kokkinou – D. Alexakis – G. Kakoulaki – E. de Marco – E. Seferou – G. Shen – M. Karaoulis – K. Simirdanis – F. Kondili – M. Katifori – M. Dogan – Y. Lolos – Th. Kalpaxis, Recovering the Urban Network of Ancient Sikyon through Multi-Component Geophysical Approaches, in: A. Posluschny – K. Lambers – I. Herzog (eds.), Layers of Perception. Proceedings of the 35th International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA) Berlin 2.–6. April, 2007, Kolloquium zur Vor- u. Frühge-schichte 10 (Bonn 2008) 11–16

Scranton 1951 • R. L. Scranton, Monuments in the Lower Agora and North of the Archaic Temple, Corinth 1, 3 (Princeton 1951)

Siganidou – Lilimpaki-Akamati 1996 • M. Siganidou – M. Lilimpaki-Akamati, Πέλλα: πρωτεύουσα των Μακεδόνων (Athens 1996)

Skalet 1928 • C. H. Skalet, Ancient Sicyon, with a Prosopographia Sicyonia (Baltimore 1928)

Stählin 1924 • F. Stählin, Das Hellenische Thessalien (Stuttgart 1924)

Stiros 1988 • S. C. Stiros, Model for the Northern Peloponnesian. C. Greece Uplift, Journal of Geodynamics 9, 1988, 199–214

Stiros et al. 1996 • S. Stiros – P. Pirazzoli – R. Rothaus – S. Papageorgiou – J. Laborel – M. Arnold, On the Date of Construction of Lechaion, Western Harbor of Ancient Corinth, Greece, Geoarchaeology 11, 1996, 251–263

Trümper 2005 • M. Trümper, Modest Housing in Late Hellenistic Delos, in: B. Ault, L. Nevett (eds.), Ancient Greek Houses and Households (Philadelphia 2005) 119–139

Tsiogas forthcoming • A. Tsiogas, Αρχαία Σικυώνα: θέση Καμαράτζα, in: Η Κορινθία και η Βορειοανατολική Πελοπόννησος από τους Προϊστορικούς χρόνους έως το τέλος της αρχαιότητας. Διεθνές Αρχαιολογικό Συνέδριο, Λουτράκι 26–29 Μαρτίου 2009 (for-thcoming)

Vischer 1857 • W. Vischer, Erinnerungen und Eindrücke aus Griechenland (Basel 1857)

Wheler 1682 • G. Wheler, A Journey into Greece (London 1682)

Wilson Jones 2000 • M. Wilson Jones, Doric Measure and Architectural Design 1: The Evidence of the Relief from Salamis, AJA 104, 2000, 73–93

Winter 1971 • F. E. Winter, Greek Fortifications (Toronto 1971)

Woodhead 1997 • A. G. Woodhead, Inscriptions: The Decrees, The Athenian Agora 16 (Princeton 1997)

Wyse 1865 • T. Wyse, An Excursion in the Peloponnesus in the Year 1858 (London 1865)

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