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ABSTRACT

New Research at the Gymnasium of Agrigento

Monika Trümper – Stephen Kay – Elena Pomar – Antonello Fino – Thomas Lappi – Paola Santospagnuolo

The gymnasium of Agrigento is one of the most important, if not the most important gymnasium in Sicily and the western Mediterranean more generally, because of its size, design, and chronology. While parts of a race-track section and a pool were excavated between the 1950s and 2005 and were published in 2009 and 2011, crucial questions remain open: the extension, design, and most notably the existence and location of a palaestra; the construction date in the 2nd century B.C. or the Augustan period; and the urban context. To answer these questions, a project was launched in 2019 in cooperation between the Parco Archeologico e Paesaggistico Valle dei Templi di Agrigento and the Freie Universität Berlin, and a first campaign, together with the British School at Rome was carried out in 2020. This paper presents the results of this first season, which included first, a geophysical survey of the area around the gymnasium and of a field to the north of the Hellenistic-Roman temple; and second, an architectural survey of unpublished features and work in the archives and store-rooms of the Parco Archeologico.

KEYWORDS

Agrigento, geophysical prospection, city plan, gymnasium, grid plan

MONIKA TRÜMPER – STEPHEN KAY – ELENA POMAR – ANTONELLO FINO – THOMAS LAPPI – PAOLA SANTOSPAGNUOLO

New Research at the Gymnasium of Agrigento

Introduction

1 The gymnasium of Agrigento is one of the most important, if not the most important gymnasium in Sicily and the western Mediterranean more generally, because of its size, design, and chronology[1]. The building is located in a valley between the city's agora and the southern row of temples (Fig. 1), and its function is securely identified by inscriptions and its plan. The building was excavated in 1950s/1960, 1991–1993, 1995, 1997, 2001 and 2004–2005. Results were published in preliminary reports by various authors[2] and in two final reports by Graziella Fiorentini[3].

2 Excavations focused on the northern part of a race-track section and a pool, which are located on either side of a small ravine. The race-track section covers in an east-west direction one insula lot of 35 m width, between two stenopoi/cardines, and over 200 m in north-south direction. It includes a stoa of 7 m width (xystos), an open race-track of about 17 m width subdivided by two facing rows of inscribed seats (paradromis), a hydraulic complex, an exedra-shaped structure, an altar, and possibly a tribune with seats (Fig. 2. 3). The excavated pool section is narrower at about 17 m, and its context and extension to the north are unknown. While the connection between the two sections has been destroyed by a ravine, Fiorentini reconstructed a large ramp to cover the 1.3 m difference between the race-track complex located on a lower level and the pool situated on a higher terrace (Fig. 4).

3 Despite extensive excavation and publications, crucial questions remain open:

First, extension and design of the gymnasium: A gymnasium with a well-built race-track system usually includes a palaestra with rooms and bathing facilities organized around a central peristyle courtyard. The pool will not have been an isolated feature and may have been part of a palaestra or a link between palaestra and xystos/paradromis.

1 On gymnasia in general: Delorme 1960; von den Hoff 2009; Mania – Trümper 2018; on gymnasia in Sicily Trümper 2018; Trümper 2020a; Trümper 2020b.

2 Griffo 1963, 178–184; de Waele 1971, 38 f.; Moretti 1976, 182–186; Fiorentini 1992; Fiorentini 1993/1994; Fiorentini 1997/1998.

3 Fiorentini 2009; Fiorentini 2011, 71–95.

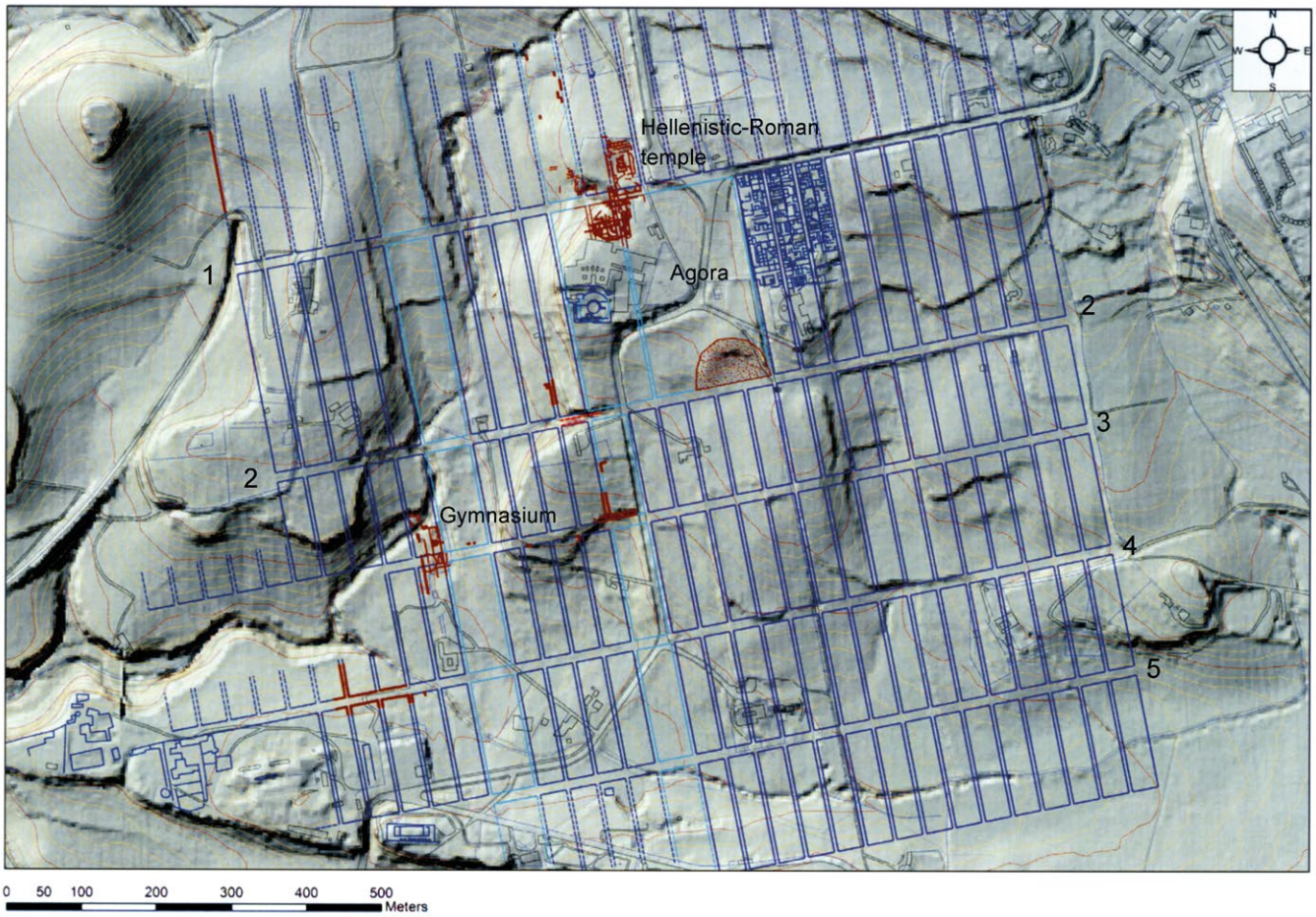

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Fig. 1: Agrigento, reconstruction of the city plan over LIDAR image (scale 1 : 10 000)

Second, idiosyncratic features: Some features such as the hydraulic complex, exedra-like structure, and ramp seem unusual and require further investigation and comparison to reconstruct their function.

Third, history: Fiorentini proposed that the gymnasium was constructed in the 2nd century B.C. on open terrain, when the city saw a major monumentalizing transformation. This has been accepted in recent scholarship with reference to the style of the architectural elements[4]. However, the stratigraphy inside the building and inscriptions on the architrave of the stoa and seats suggest that at least some, if not all currently visible remains belong to the Augustan period: »presigillata« and »sigillata italica« were found in relation to the exedra and the altar, while the stratigraphy of the pool was not explored and that of the stoa did not yield any diagnostic finds[5]. The single published phase plan differentiates only between four phases in the Augustan period, the Constantinian era, the 7th century A.D., and 8th–19th centuries A.D. (Fig. 5)[6]. The abandonment of the gymnasium is dated to c. A.D. 200–250, based on the stratigraphy, in particular destruction deposits. Between A.D. 336 and 348, a new complex of buildings was constructed in the northern part of the race-track, reusing material from the gymnasium: a large round building (23.50 m in diameter) flanked by two halls with an axial colonnade (37 m by 12.30 m); construction and use of this complex until about A.D. 360 is dated by numerous coins. Several production facilities (wine press,

4 Fiorentini 2009, 97–102; Fiorentini 2011, 99 f.; Soraci 2017, 19; Livadiotti – Fino 2018, 65 n. 14; 70 f.; 76 n. 84. In contrast, Caminneci – Parello 2021, 72 maintain the Augustan date.

5 Fiorentini 2009, 101 n. 6.

6 Fiorentini 2011, 84 fig. 63.

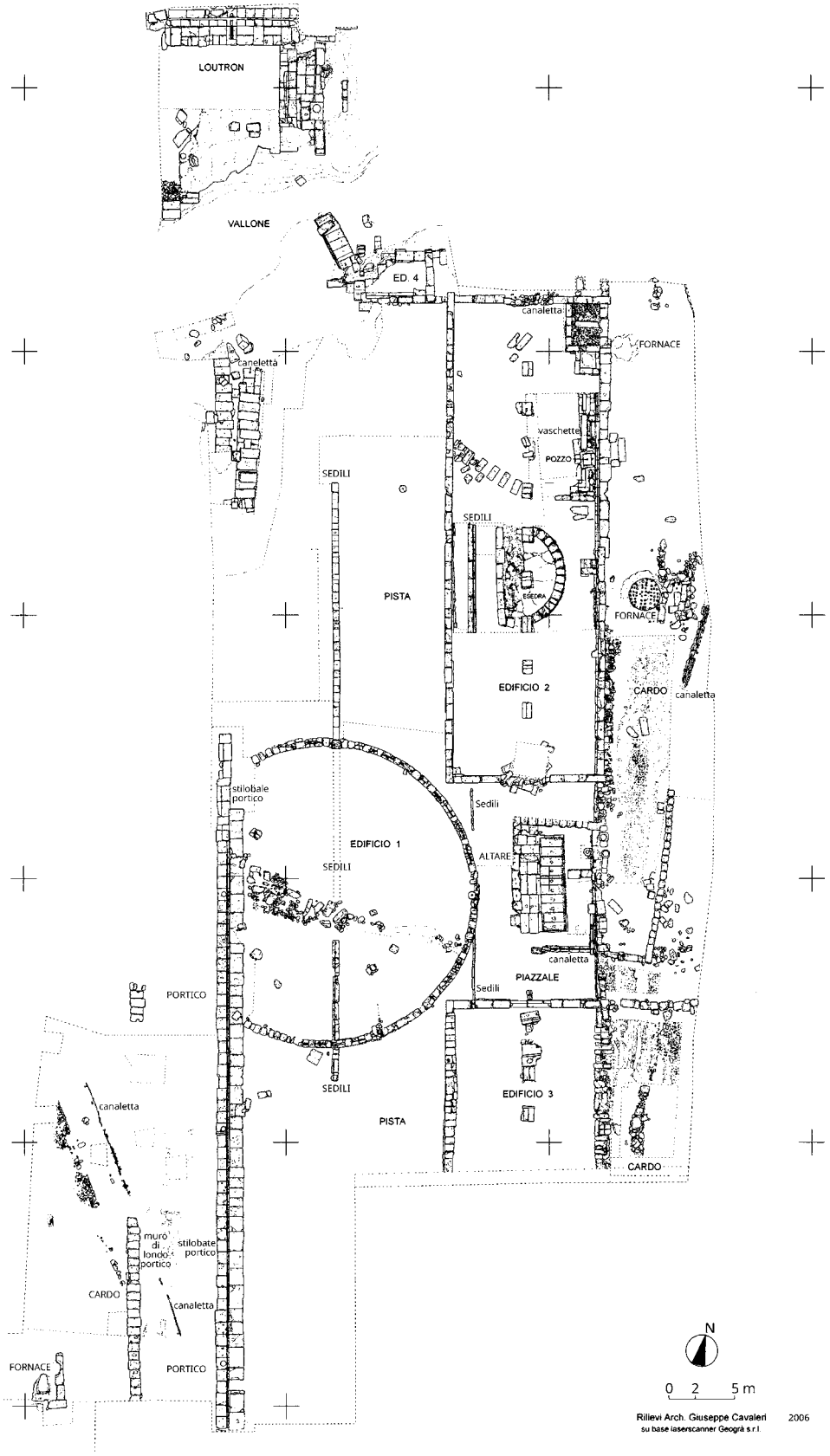

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Fig. 2: Gymnasium, excavation plan, 2005 (scale 1 : 500)

pottery kilns) were installed from the 7th century A.D. onward, dated by the relative stratigraphic sequence. While stratigraphy thus played a crucial role in reconstructing the development of the area, no stratigraphic sections and no finds (coins, pottery) have

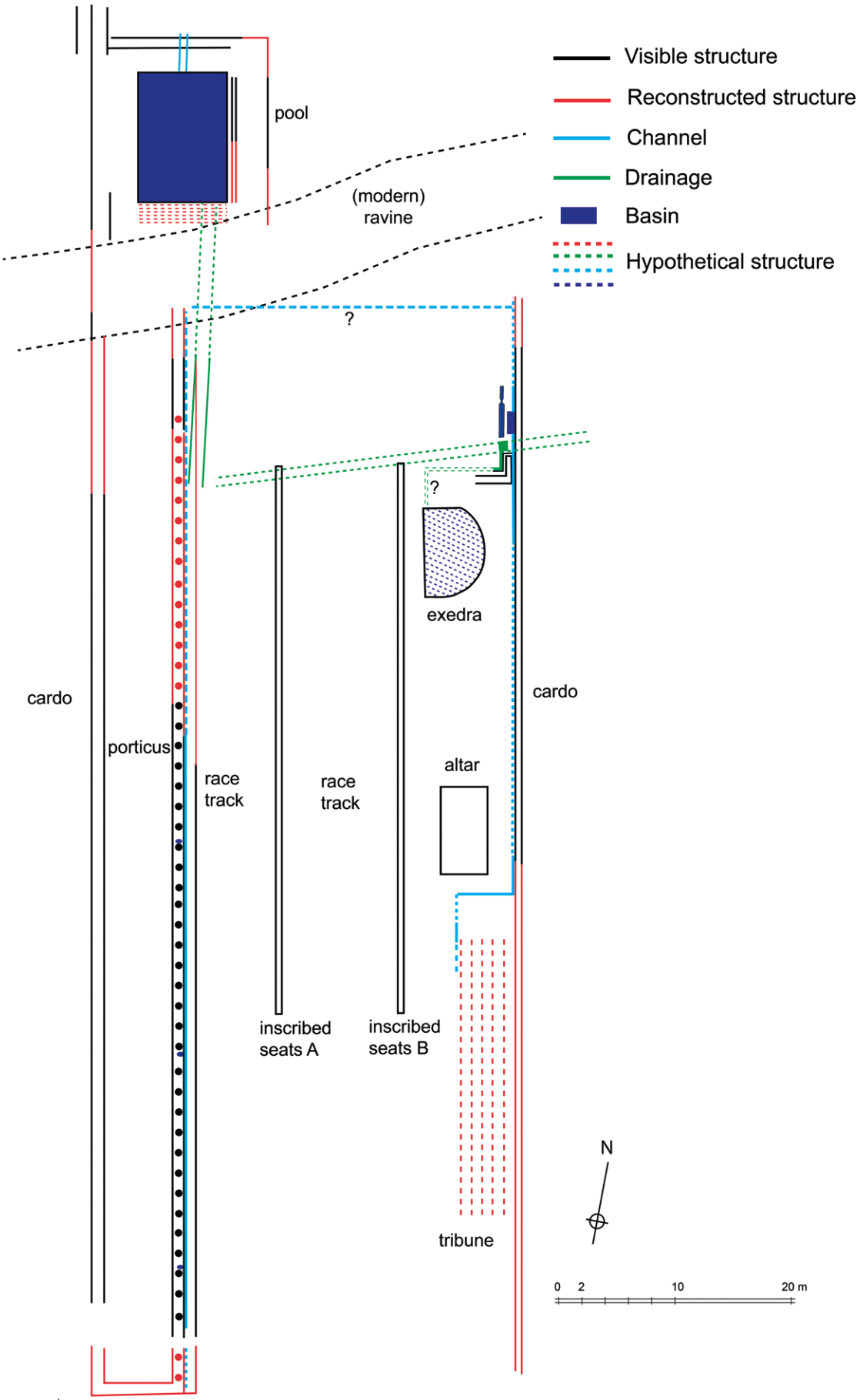

Fig. 3: Gymnasium, reconstructed plan, 2019 (scale 1 : 500) 3

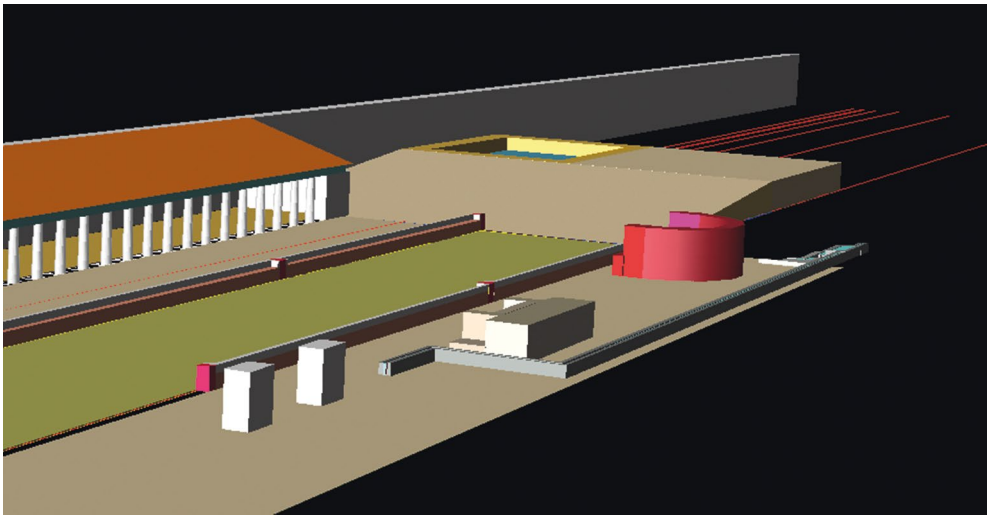

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Fig. 4: Gymnasium, 3D reconstruction of ramp between stoa and pool

been published[7]. The key problem of the construction date of the gymnasium remains, and a possible late Hellenistic origin of the gymnasium has yet to be substantiated more thoroughly with conclusive evidence and arguments. Fiorentini specifies that her argument is based on an »ancor parziale esame dei reperti ceramici rinvenuti«[8], but no further study of the material was published or is documented in the archives.

Fourth, urban context: While it is known that the race-track complex was at least partially flanked by two stenopoi, the gymnasium otherwise appears as an isolated complex in the currently published city plans (Fig. 1). Two test trenches excavated to the west and east of the gymnasium as well as walls visible on the banks of the ravine remained unpublished. It is unknown when and how the area between the temples and the agora was developed.

4 The urban development and cityscape of Agrigento in the Hellenistic and Roman periods have been significantly studied in recent years, initiated by the staff of the Parco Archeologico e Paesaggistico Valle dei Templi di Agrigento, among them especially Valentina Caminneci, Maria Concetta Parello, and Maria Serena Rizzo, and often in cooperation with Italian and foreign universities[9]. However, the gymnasium has not yet been the focus of any of the many projects. Furthermore, few gymnasia/palaestrae have been securely identified in the archaeological record of Sicily and other regions of the western Mediterranean; none include a race-track complex, and nothing has been fully published[10]. Therefore, it seems particularly important to further explore the gymnasium of Agrigento and to answer the above questions.

5 To this purpose, a new project began in October 2019, with an agreement between the Parco Archeologico e Paesaggistico Valle dei Templi di Agrigento and the Freie Universität Berlin. While swift progress of this project was hindered by the COVID-19 pandemic, a first season took place between 6 and 17 October 2020, which included a geophysical survey by the British School at Rome, the documentation of hitherto unknown walls and features on site, and work in the archives and storerooms of the Parco Archeologico. This paper presents the results of this campaign which are particularly important for answering the questions nos. 1 and 4 and provide the basis for addressing the other questions in further fieldwork.

7 Fiorentini 2011, 97 n. 2 lists four coins related to the foundation of the 4th century A.D. buildings.

8 Fiorentini 2009, 99.

9 Caminneci et al. 2018b; more than 20 monographs focused on Agrigento have appeared in the last 10–15 years, which cannot all be cited here. Particularly relevant here are Caliò et al. 2017; Caminneci et al. 2018a; Lepore et al. 2019; Lepore – Caliò 2021.

10 Trümper 2018; Trümper 2020b; contributions in Mania – Trümper 2018.

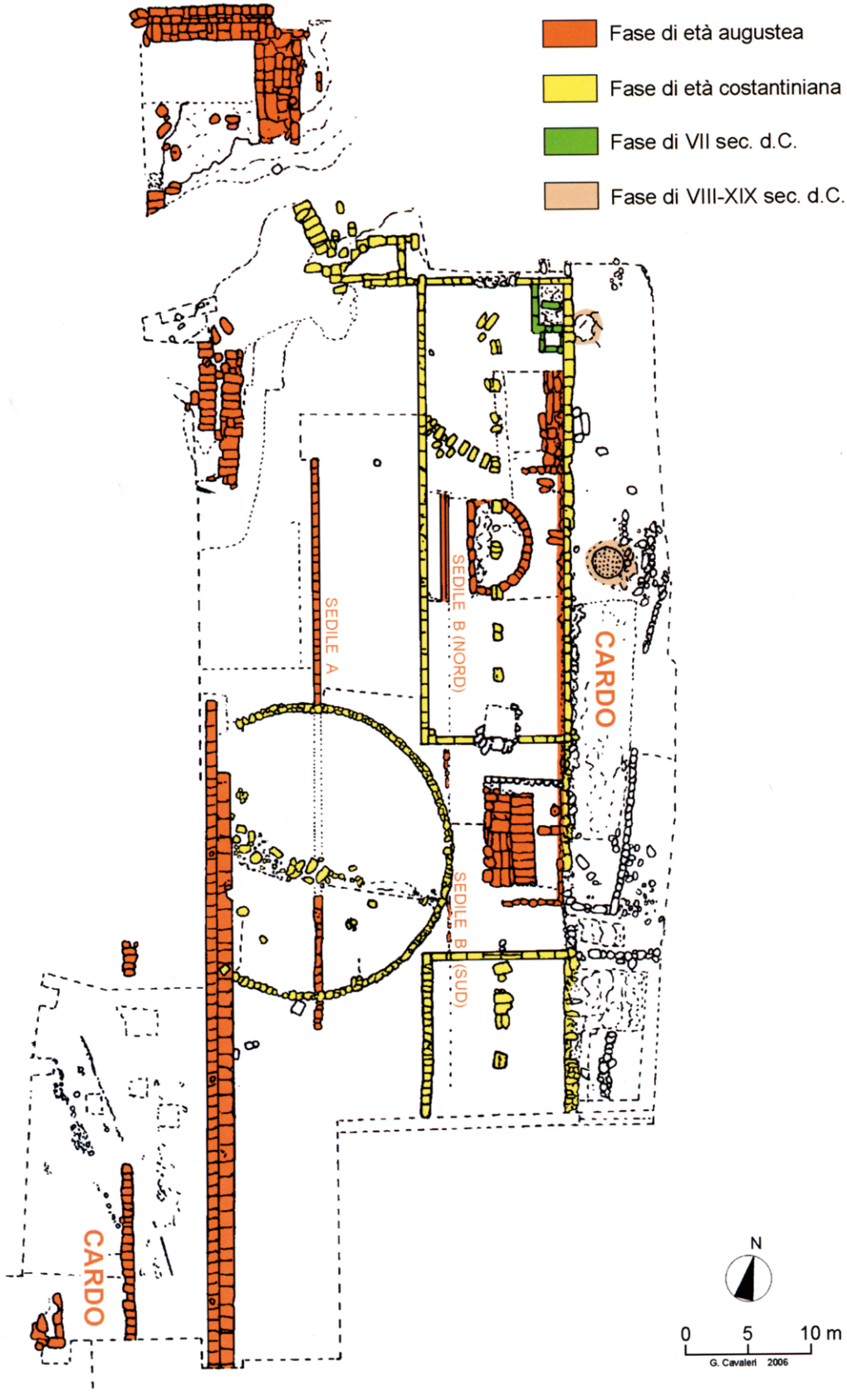

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Fig. 5: Gymnasium, phase plan, 2005 (scale 1 : 500)

6 After an overview of the history of Agrigento and the state of research on the city plan, archival work and major results of the architectural survey are briefly discussed. Focus is then on the results of the geophysical survey concluding with perspectives for further research.

History and City Plan of Agrigento

7 Agrigento was founded around 580 B.C. by colonists from Gela and Rhodes. The city was located close to the sea on terrain that was naturally fortified by hills and ridges in the north, east, and south. A series of sanctuaries were built on the southern ridge, and most likely on the acropolis to the north. In the area between these sanctuaries, covering c. 450 ha, an orthogonal grid plan was established sometime in the 6th or early 5th century B.C.[11]. After two centuries of prosperity, which had been significantly boosted by the victory over the Carthaginians at Himera in 480 B.C., the city was occupied by the Carthaginians in 406/405 B.C. and suffered severe consequences. It recovered, particularly after Timoleon had sent new settlers in the 4th century B.C., but it was again a target during the first two Punic wars. After a first siege by the Romans in 262 B.C., and a Carthaginian counter-attack in 255 B.C., Agrigento was under Roman control at the end of the First Punic war. When the Carthaginians reoccupied Agrigento at the end of the Second Punic war (213 B.C.), the Romans once again conquered the city in 210 B.C. Very few literary sources survive for Hellenistic and Roman Agrigento, and the city has yielded surprisingly few inscriptions from all of its periods of occupation[12]. Polybius (9, 27, 1–3) describes the city of the late 3rd century B.C. as superior to other cities in beauty and elaborate ornamentation, emphasizing its ideal location, natural resources, and strong fortification. The city was apparently still sumptuously adorned with temples and colonnades.

8 While new colonists were sent to Agrigento in 197 B.C., the city was not among the eight Sicilian *civitates foederatae et immunes* that were granted privileges by the Romans. Agrigento had to pay various taxes, was impacted by the slave wars, and was also robbed by the infamous Verres. In the Augustan period Agrigento became a municipium and under Septimius Severus the city was granted the status of a colony. During the centuries of Roman rule, the city seems to have thrived economically, exploiting its fertile hinterland, sulphur mines, and salt caves. Decline can be observed for the 4th and particularly 5th century A.D. when the Vandals raided the city repeatedly.

9 As textual sources are scarce, archaeological evidence is particularly important for reconstructing the urban development of Agrigento. Based on new archaeological evidence, aerial photos, geophysical surveys, and LIDAR data, the urban plan has recently been revised (Fig. 1)[13]. The grid plan includes five plateiai that flank insulae of varying lengths, from north to south: unknown, 270 m (to the east of the agora), 137 m, 150 m, 150 m, 150 m. The width of the insulae ranges from 35 m (Hellenistic-Roman quarter) to 45 m (south of the theater). This rhythm is only interrupted to the east of the gymnasium, where »la zona [è] caratterizzata da accentuati salti di quota e dal passaggio del fossato che attraversa il centro della città andando a confluire nell'antico Hypsas«[14].

10 A recent intensive survey of the intraurban area suggested that the vast area of the city was never densely inhabited in all of its areas, and that the city was significantly smaller in the Hellenistic and Roman periods than in the Archaic and Classical periods[15].

11 The newly reconstructed history and plan of the city are important for the layout of the gymnasium, but the consequences have not yet been fully explored: While

11 Giorgi 2019, 127; Caliò 2021, with earlier bibliography.

12 For the history of Hellenistic and Roman Agrigento Soraci 2017; Soraci 2018 with earlier bibliography; for the epigraphy Prag 2018.

13 Belvedere – Burgio 2012; Brienza et al. 2016; Brienza 2017; Brienza – Caliò 2018; Giorgi 2019; Caliò 2021. The plateiai were denominated with letters by Schmiedt – Griffo 1958 (A–B, C–D, E–F, G–H, I–L, M–N). The new reconstruction includes two additional plateiai but does not number the streets. To facilitate reference, plateiai are numbered here (Fig. 1).

14 Brienza – Caliò 2018, 46.

15 Belvedere et al. 2012, 60 fig. 41; Bordonaro 2012.

the gymnasium is in an area that was more densely inhabited in the Archaic and Classical periods, it is right at the western margin of the reconstructed urban area in the Hellenistic-Roman period. Plateia 3 would have run through the excavated remains of the race-track section, where no remains of a (previous) street were found. While some plans show the gymnasium as part of an insula of 35 m width, flanked in the east by an insula of 60 m width, recently the insula of the gymnasium has been reconstructed with 60 m width, bordered in the east by one of 45 m width; this is at odds with the excavated remains which include a street to the east of the race-track section 35 m in width[16]. The southern end of the xystos was discovered by Pietro Griffo in 1960 close to where Plateia 4 is shown (Fig. 1), but it is unknown whether the gymnasium extended to Plateia 2 and remained confined between the two stenopoi. This would have resulted in an area of 35 m by 90–100 m to the north of the pool, which would have been unfavorably cut for a typically square palaestra[17].

12 The above-mentioned intensive survey also covered the area of the gymnasium and documented good visibility for the entire area, except for a stretch to the northeast, which had medium visibility[18]. The density of finds differed, however, which will be discussed in more detail below. The map that was made based on this survey and on aerial photos from 1954/1955, 1966, 1987, and 2000 shows a number of traces in the area of the gymnasium, long stretches of walls or streets that are mostly aligned with the orthogonal grid plan. The relevance of these traces will also be discussed later[19].

13 It has been attempted to correlate the known historical caesuras with stratigraphic sequences, especially in the Hellenistic-Roman domestic quarter which has yielded particularly rich stratigraphic data[20]. The gymnasium is currently dated either based on the style of the architectural elements and general historical considerations to the period of urban renewal after the income of new settlers in 197 B.C., when two new temples were built on the agora, new differently sized houses were constructed in the insulae to the east of the agora, and the theater may have been built[21]. Alternatively, it is assigned to the Augustan period, based on material from stratigraphic excavations and inscriptions, when Agrigento became a municipium, while no coherent large-scale »building program« can currently be identified[22].

Archival Work and Architectural Survey

14 The archives of the Parco Archeologico comprise the full documentation of the excavations carried out between 2001 and 2005, much of which is digitized. The team that supervised the 2004–2005 campaign also made copies of earlier documentation that is stored in the archives of the Soprintendenza Regionale per i Beni Culturali e Ambientali (campaigns of 1990s) and the Museo Regionale »Pietro Griffo« (Griffo's campaign in the 1950s/1960). While Fiorentini provided a detailed discussion of the gymnasium in her final publications[23], she could not include all information available

16 Caliò 2021, 37 fig. 1.

17 The palaestrae of well-known gymnasia in Amphipolis, Delphi, Delos, Eretria, Olympia, and Priene are square; Emme 2018, 150–154 pls. 1–5.

18 Belvedere – Burgio 2012, pl. 1: category 4 of 5, 1 being »nulla« and 5 being »ottima«. Medium is category 3, but this area is currently completely overgrown and almost inaccessible.

19 Bordonaro 2012, 134 fig. 160.

20 Lepore et al. 2019.

21 Giorgi 2019, 127 Period IV; cf. Caliò et al. 2017; Caminneci et al. 2018a; Caliò 2021. The most recent excavations in 2021 and 2022 suggest that the theater was even built earlier.

22 The remodeling of the Hellenistic temple to the north of the agora is dated to the Tiberian period; Livadiotti – Fino 2017, 99. 102. 104. 112; Livadiotti – Fino 2018, 68.

23 Fiorentini 2009; Fiorentini 2011.

in the rich and meticulous documentation. The Parco has generously provided access to this current study and the documentation will be fully assessed in future seasons. For the purposes of this current study, work focused on gathering information for the architectural survey and revisions of published plans.

15 The excavation plan of the gymnasium published by Fiorentini does not include all features that were once excavated or are currently still visible, and it provides very few levels (Fig. 2). As no digital version of this plan was available, it has been digitized and georeferenced and all available information has been integrated (Fig. 6). This updated plan has also served as the basis for correlating the results of the geophysical survey with the excavated evidence.

16 A site plan made during the excavations of Griffo in 1960 is available in the archives of the Parco Archeologico. Griffo excavated along the stylobate of the stoa, following it in trenches of different sizes presumably to its southern end. The southernmost structures on the plan are currently located in an inaccessible private property, immediately to the south of a modern house which is flanked by Plateia 4 on the reconstructed city plan (Fig. 1). Based on his findings, Griffo calculated the length of the stoa as »poco oltre i 200 metri« (›just over 200 m‹)[24].

17 Several walls constructed of the same limestone ashlars as the pool are visible on both sides of the ravine, to the east, northeast, south, and southeast of the pool as well as to its northwest. These appear on a plan drawn in 1997, but without levels and fixed points to allow the plan to be georeferenced[25]. Therefore, the walls were resurveyed, their surface and foundation levels recorded, and sections were drawn for the first time (Fig. 7. 8. 9. 10. 11). Many of the ashlar blocks that today lie at the bottom of the ravine have most likely collapsed from the above structures (Fig. 12). Future recording of these blocks may help to further reconstruct the ancient structures in this area which must have served the purpose of allowing movement between the race-track complex and the pool.

18 The new plan shows that the back wall of the stoa continued north as the west wall of the pool area (Fig. 6. 9. 15: Walls 7 and 9). The wall is visible in the steep slope of the ravine and the slope above the northwest corner of the pool, where the wall is seemingly doubled for unknown reasons (Fig. 9)[26]. In both areas remains of another wall are visible 5 m to the west (Wall 10). This suggests that the stenopos ran from the excavated trench in the south, perhaps along the entire stoa to the northwest corner of the pool, and possibly further north. Furthermore, there must have been built structures to the west of the gymnasium, at least at the height of the pool complex, because otherwise Wall 10 would not make sense.

19 Several east-west oriented walls and one north-south oriented wall can be identified to the east, northeast, and southeast of the pool, all of which have the same orientation as the walls of the pool and race-track section and most likely belonged to the gymnasium complex Fig. 15: from north to south: Walls 5, 2/6, 3b, 4, 11).

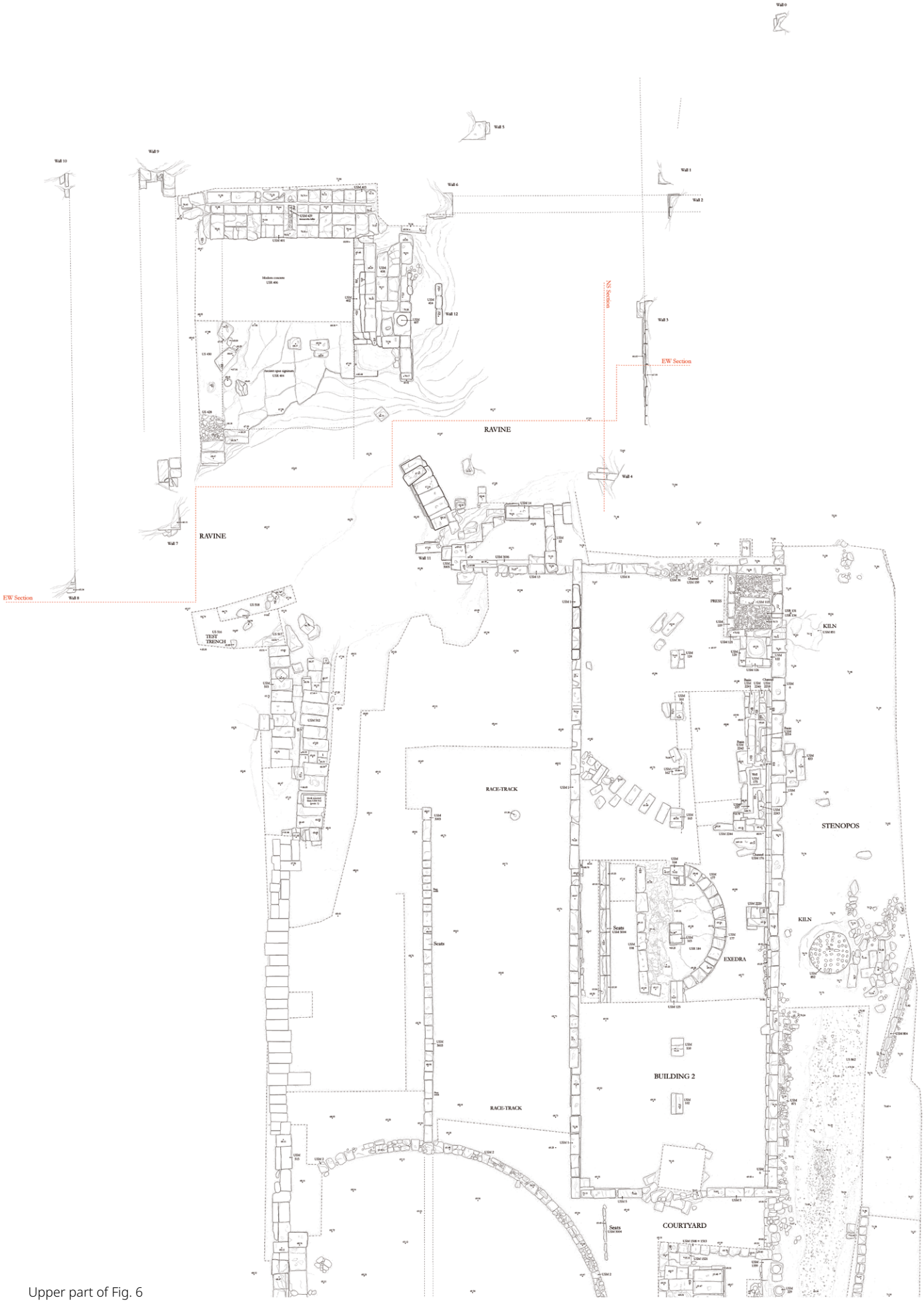
20 The section drawings have revealed different strategies in building various parts of the gymnasium in the area of the ravine (Fig. 10. 11). That the current ravine is not ancient was already recognized during the 2004–2005 season and has recently been highlighted again by Gianluca Furcas[27]. A drainage channel was found under the northern part of the race-track complex, which can probably be traced to large water management works carried out after 480 B.C. It still functioned when the gymnasium was built and must have drained water that came from somewhere to the east or north-

24 Griffo 1963, 177.

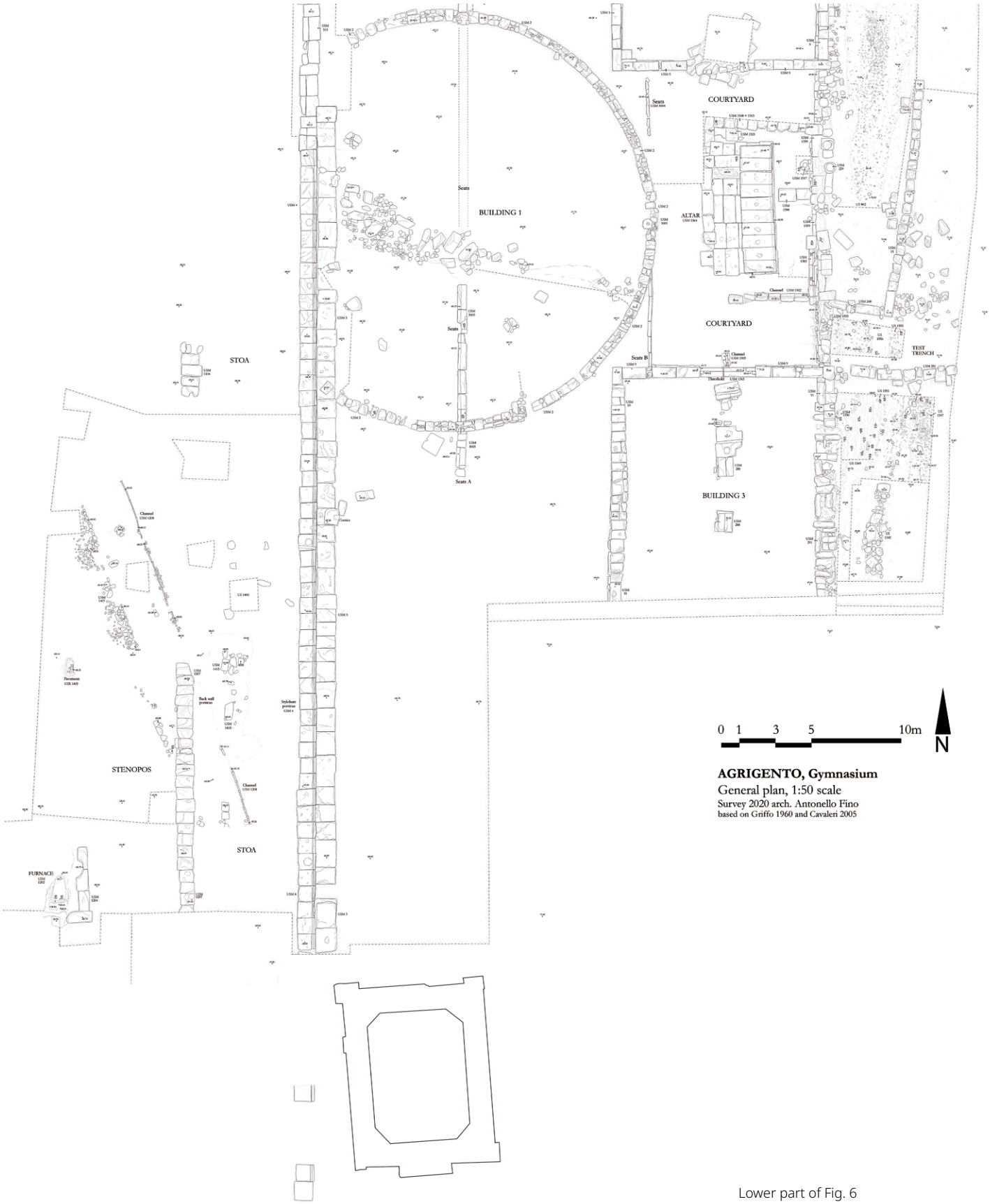
25 Archives of the Parco Archeologico: Area IV, Scala 1 : 50, no. 9-IV-71.

26 The eastern wall is solidly built, with three preserved layers; in contrast, the western wall includes reused blocks and has a strange shape, with a wider lower layer (two blocks) and a narrow upper layer (one block). The western wall may be later (even modern) than the eastern or not a wall at all.

27 Borrello – Lionetti 2005, 2–4 pls. 2. 3; G. Furcas in Brienza et al. 2016, 93–95 fig. 23.



Upper part of Fig. 6



Lower part of Fig. 6

east of the gymnasium. A core made in 1997 revealed significant differences in the level of the yellow-bluish clay-bed under the gymnasium: this was discovered at 63.55 MASL in the west and about 6 m higher in the east. These differences are reflected in the foundation levels of walls.

Fig. 6: Gymnasium, revised excavation plan, 2021 (drawn in scale 1 : 50, reproduced here in 1 : 300). This is an extract, the plan continues far south

7

8

9

Fig. 7: Gymnasium, Wall 3, from W

Fig. 8: Gymnasium, Wall 7, from S

Fig. 9: Gymnasium, Wall 9, from S

21 The walls that flanked the western stenopos were founded at the base of the current ravine, at 66.18 MASL (Wall 7)[28], and the northernmost foundation block of the stylobate at 65.83 MASL. In contrast, the pool was dug into the clay that reached up to 69.97 MASL below the pavement blocks of the eastern walkway (Fig. 13. 14). While the walls of the pool were founded at the level of the pool's base (c. 67.90 MASL), the pavement of the walkway was laid directly on clay. The construction of the north and east walls of the pool shows that they were carefully made, including five rows of ashlars with a height of 0.50 m. In the four lower rows, ashlars with sizes of c. 0.65–0.70 m width, 0.50 m height, and 1.40 m length were laid as headers and binders; the uppermost row was constructed slightly differently as it included two narrow and low steps in the east, and a water supply channel in the north.

22 Wall 3a to the east of the pool was built at a similar level as the walls of the pool (68.39 MASL), but Walls 5 and 6 were set onto much higher levels (69.90 and 70.30 MASL, respectively). Since all walls survive with two or three layers, they were most likely load-bearing walls and not just pavements.

23 Following the new architectural survey, a preliminary assessment of the pool section can be made (Fig. 15). The pool was surrounded by paved walkways to the north, east, west and presumably also in the south. To the south, ten steps of 0.20 m height and 0.35–0.40 m depth led from the bottom of the pool (67.99 MASL) to the walkway (c. 70 MASL or higher[29]). The walkways were bordered by rising walls in the north and west (= west façade of the entire race-track complex, Walls 7 and 9). A gap of about 6 m remains between the northernmost excavated foundation block of the stylobate of the stoa and the reconstructed southern walkway of the pool. A difference of c. 1.25–1.65 m had to be covered between the stylobate of the stoa (68.87 MASL) and the walkway of the pool (c. 70–70.40 MASL). If the steps had similar height as those to the pool, 5–7 steps of 0.25 m height or 6–8 steps of 0.20 m height would have been required to cover the difference of levels. It is not certain, however, that the pool complex was ever accessible from the south. The terraces of the race-track and the pool section may have been connected by a staircase (or ramp) that was located further east.

24 Two blocks (USM 3005) had been identified as part of the ramp in 2005. The uppermost block lies immediately to the south of the reconstructed southern walkway of the pool, but its surface is at only 69.62 MASL, thus 0.40–0.80 m too low. Furthermore, this block is today too steeply inclined for a ramp. It seems likely that both blocks USM 3005

28 The bottom of Wall 8 is currently not visible.

29 The walkway in the north is at 70.45–70.50 MASL, and that in the east between 70.00 (lowest step) and c. 70.37 MASL. The eastern and western walkways may have slightly sloped from north to south, also to facilitate drainage of the paved area. Alternatively, the steps could have been slightly higher (4–5 cm), leading up to c. 70.40 MASL.

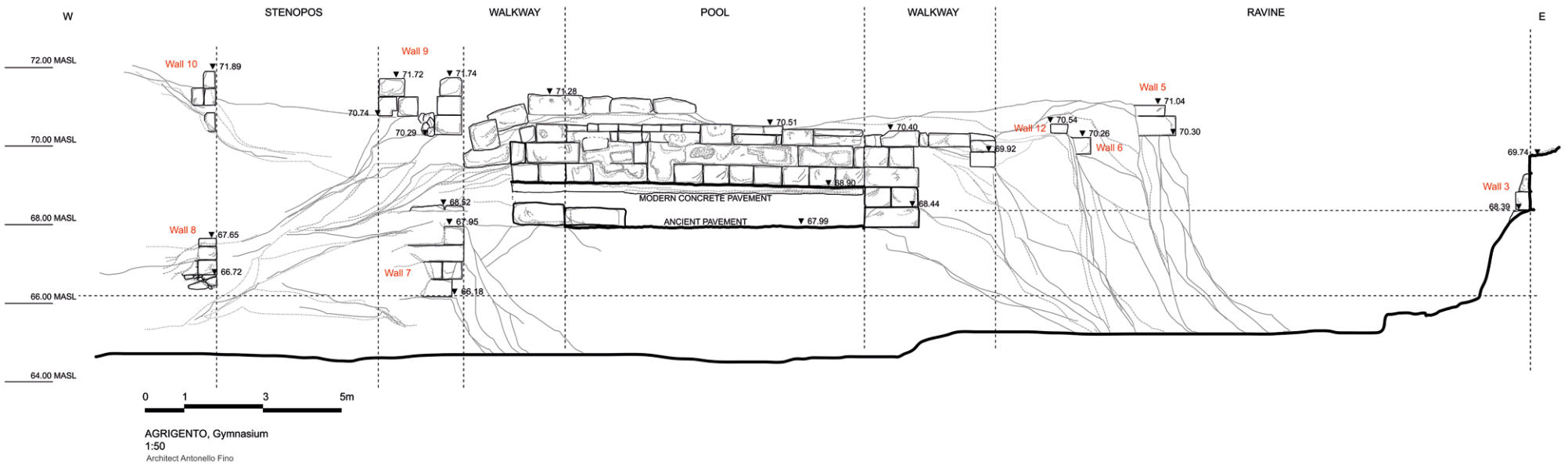


Fig. 10: Gymnasium, east-west section of pool area (scale 1 : 150)

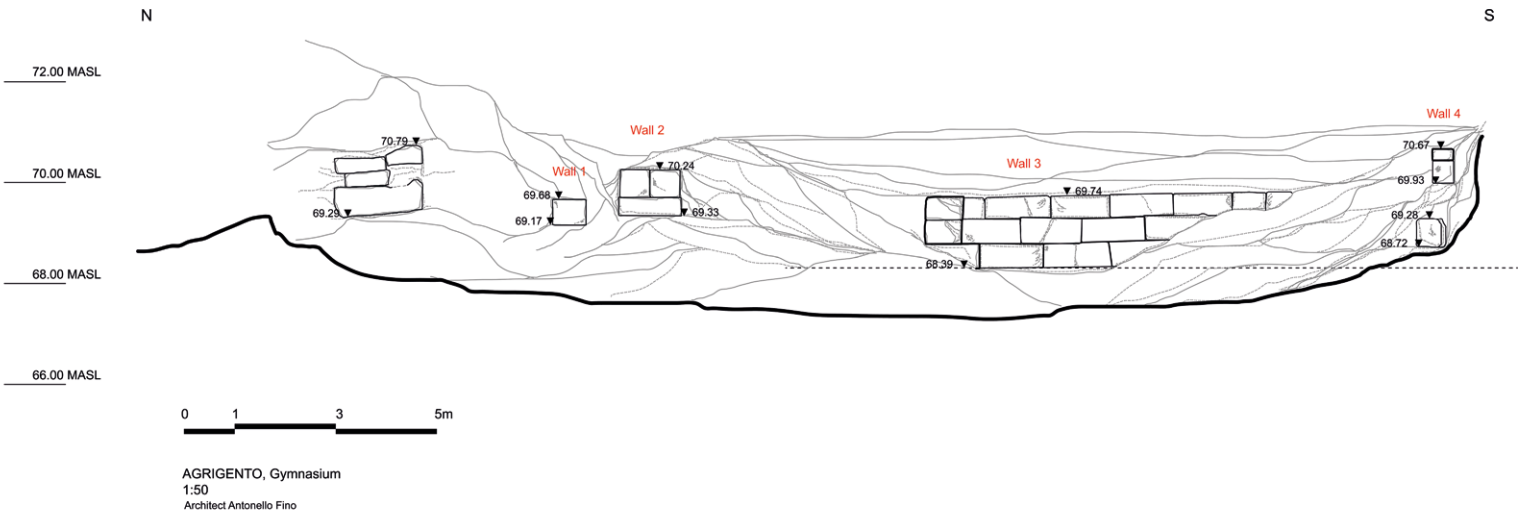


Fig. 11: Gymnasium, north-west section of ravine area (scale 1 : 150)

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Fig. 12: Ravine with fallen ashlars, from S

Fig. 13: Pool with pavement and walls on clay, from S

Fig. 14: East wall and walkway of pool, from S

were reused during the Late Antique remodeling of the gymnasium and that there was never a large steep ramp. Both blocks rest on an east-west wall of which five layers were exposed in 2005 (Wall 11)[30]. This may have been the southern border of the pool area, but its relationship to the stoa cannot be determined as a possible connection was destroyed by the ravine.

25 Even if the terrain of the race-track section sloped significantly from east to west, one wonders why Walls 7 and 8, as well as the northern part of the stylobate of the stoa were so deeply founded. The foundation of the stylobate in the current ravine was possibly up to eight layers high[31], while only two layers are visible further south below the stylobate slabs. Fiorentini explained these differences with the topography, because »il banco roccioso naturale è affiorante« in the south. But another major reason for excavating far down at the point of the modern ravine may have been the large drainage channel that led from the southeast corner of the bottom of the pool to the southwest, following the stylobate until it met the aforementioned older E-W oriented drainage channel under the race-track section (Fig. 3). This channel was also connected with Pozzo USM 175 that is located in the hydraulic complex at the eastern boundary wall of the race-track. The pozzo is 3.50 m deep, going down to about 66.00 MASL[32]. Thus, for a length of about 23–24 m, the drainage channel of the pool had to slope from c. 68.00 MASL down to 66.00 MASL or rather lower, if the E-W channel was sloping from east to west (e. g. 65.80 MASL). This would have resulted in an average incline of 8.4–9.6% for the pool channel, but in the preserved part the incline is much steeper with 14%[33]. The channel was made of large ashlars, used as bottom, side walls, and cover; its interior is 0.50 m wide and 0.60 m high, but the exterior width (of the cover blocks) is 1.70 m. Its impressive size and workmanship suggest that lots of water was drained here, at regular intervals or even permanently, and that significant excavation works were required for its construction.

26 The walls to the east of the pool suggest the existence of further rooms or structures, which may have provided access to the pool from the east. There is no secure evidence of a wall that would have flanked the eastern walkway; the three blocks US 414 (Wall 12) are 1.25 m

30 The upper surface of the third visible layer was found at 67.32 MASL; the digital photos 941.08.05–943.08.05 from 2005 show this wall which is currently completely overgrown.

31 Fiorentini 2009, 72 mentions 8 layers »che raggiungono una profondità di m 4.00«, but the difference between the surface of the lowest northernmost foundation block (65.83 MASL) and the surface of the stylobate (68.87 MASL) is only 3 m. If the blocks were on average 0.50 m high, there may have been less layers.

32 Fiorentini 2009, 87–89. 98.

33 Two levels were taken at the bottom of the channel in 2005, at 65.61 and 66.19 MASL, in a distance of 4.15 m, resulting in an incline of 14%. Several levels were taken at the surface of the cover slabs, from south to north at 66.52, 66.84, and 67.44 MASL; the distance between these points is c. 3.27 m and 4.30 m, resulting in a slope of 9.8% and 13.95%.

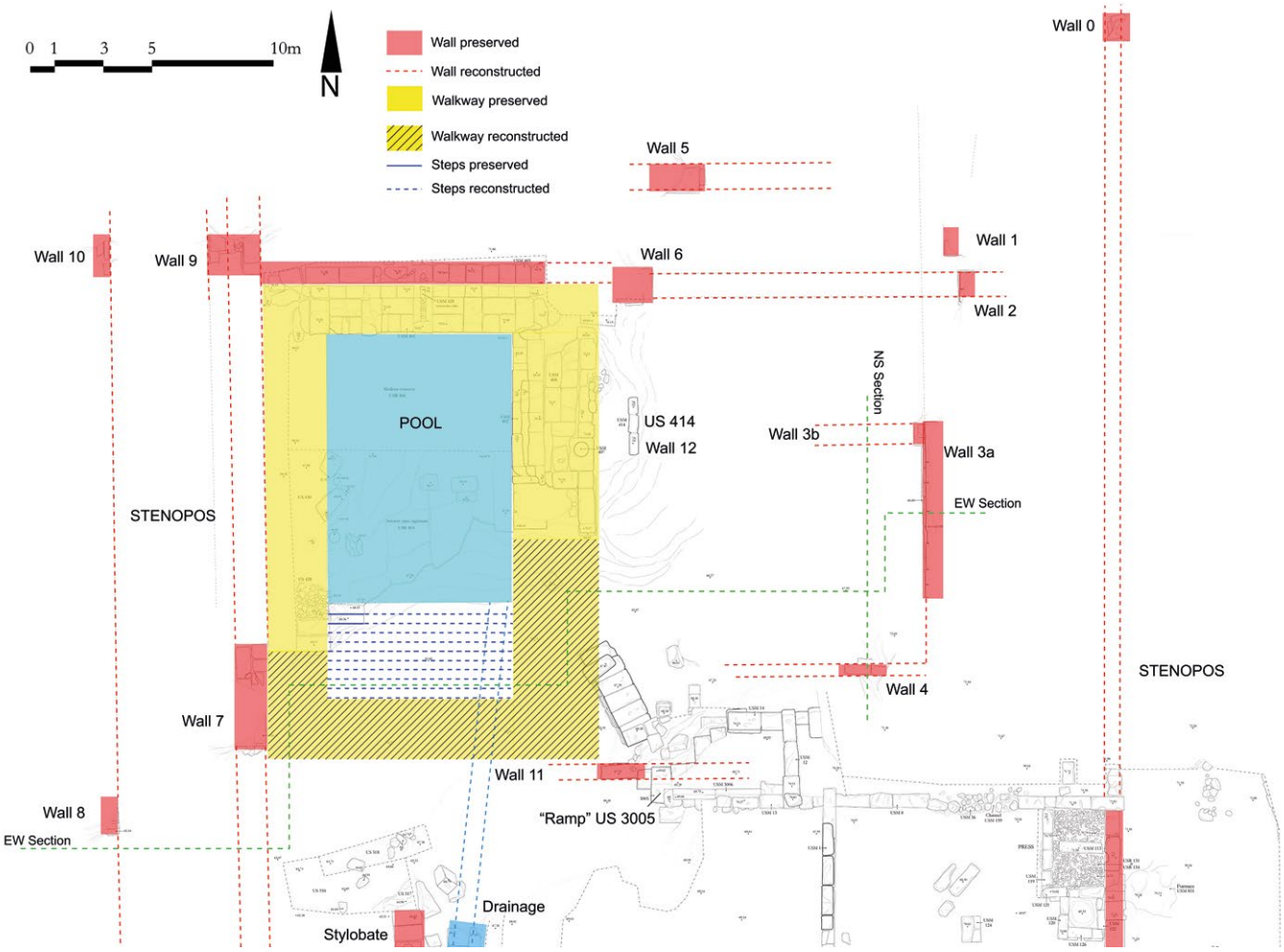

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Fig. 15: Reconstruction of pool section, 2021 (scale 1 : 300)

east of the preserved pavement, seem too thin for a boundary wall, and are even founded on a higher level than the pavement blocks (70.28 MASL). If the pool was not covered, a narrow boundary wall may have sufficed; but if the pool was bordered by covered rooms in the east, its eastern boundary wall should have supported a roof. One wonders whether these blocks, which are currently not visible and assessable, could have been the remains of an entrance construction, like a step in front of a threshold or the threshold itself[34]. Walls 2 and 6 may have closed the pool area to the north, although they are – strangely – not fully aligned with the northern wall of the pool. Walls 0, 1, 5, and 9 confirm that the gymnasium continued further north. Since there is no doorway in the north wall of the pool, there must have been a door in the connection between Walls 2 and 6. More detailed investigation particularly of Walls 0–6 and 11, the ashlars lying in the ravine (Fig. 12), and other walls to the north of Wall 5 will allow further clarification of the situation to the east, southeast, and northeast of the pool.

Geophysical Survey

Location of the Survey Areas

27 Since geophysical surveys have recently been carried out with much success in the urban area of Agrigento, revealing streets and buildings, this method was chosen

34 The blocks are visible on digital photos 483.06.05–485.06.05, 676.07.05–680.07.05, 816.07.05–817.07.05 from 2005.

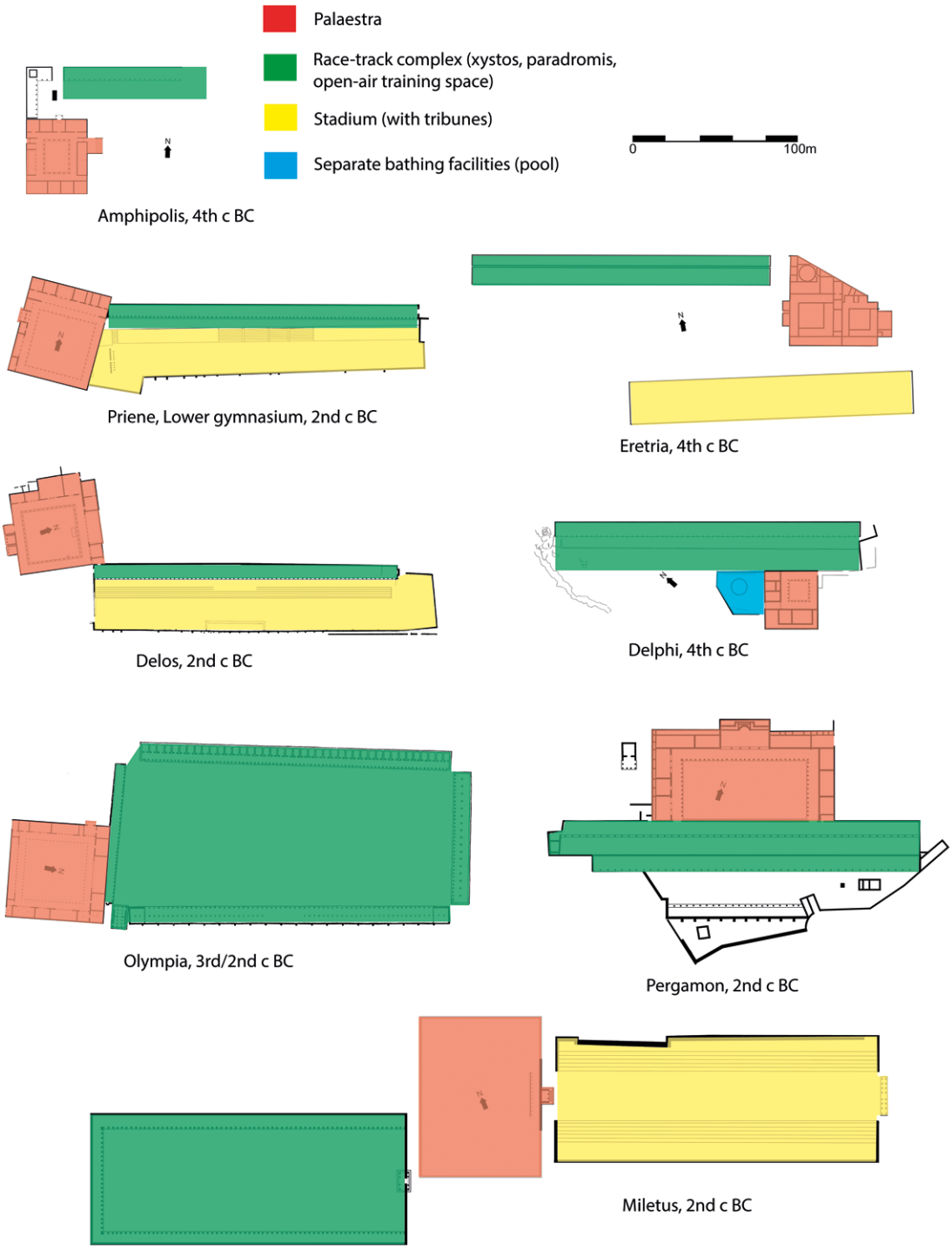

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Fig. 16: Eastern Mediterranean gymnasia with race-track sections and palaestrae (scale 1 : 4000)

for first exploring the extended area around the gymnasium[35]. The aim was to identify the location of a possible palaestra and to investigate the urban context of the gymnasium, more precisely whether the insulae to the east and west of the gymnasium were densely urbanized.

28 A schematic overview of gymnasia in the eastern Mediterranean, which include both race-tracks and palaestrae, served to formulate hypotheses for the location of the palaestra in Agrigento (Fig. 16). In all cases, the palaestra and the race-track complex are spatially linked. While the palaestra of the Delian complex is only marginally linked to the xystos/stadium complex, in all other cases, one entire side or a substantial part

35 Brogiolo – De Guio 2016; Lepore et al. 2018; Boschi et al. 2019; Boschi – Guarino 2019.

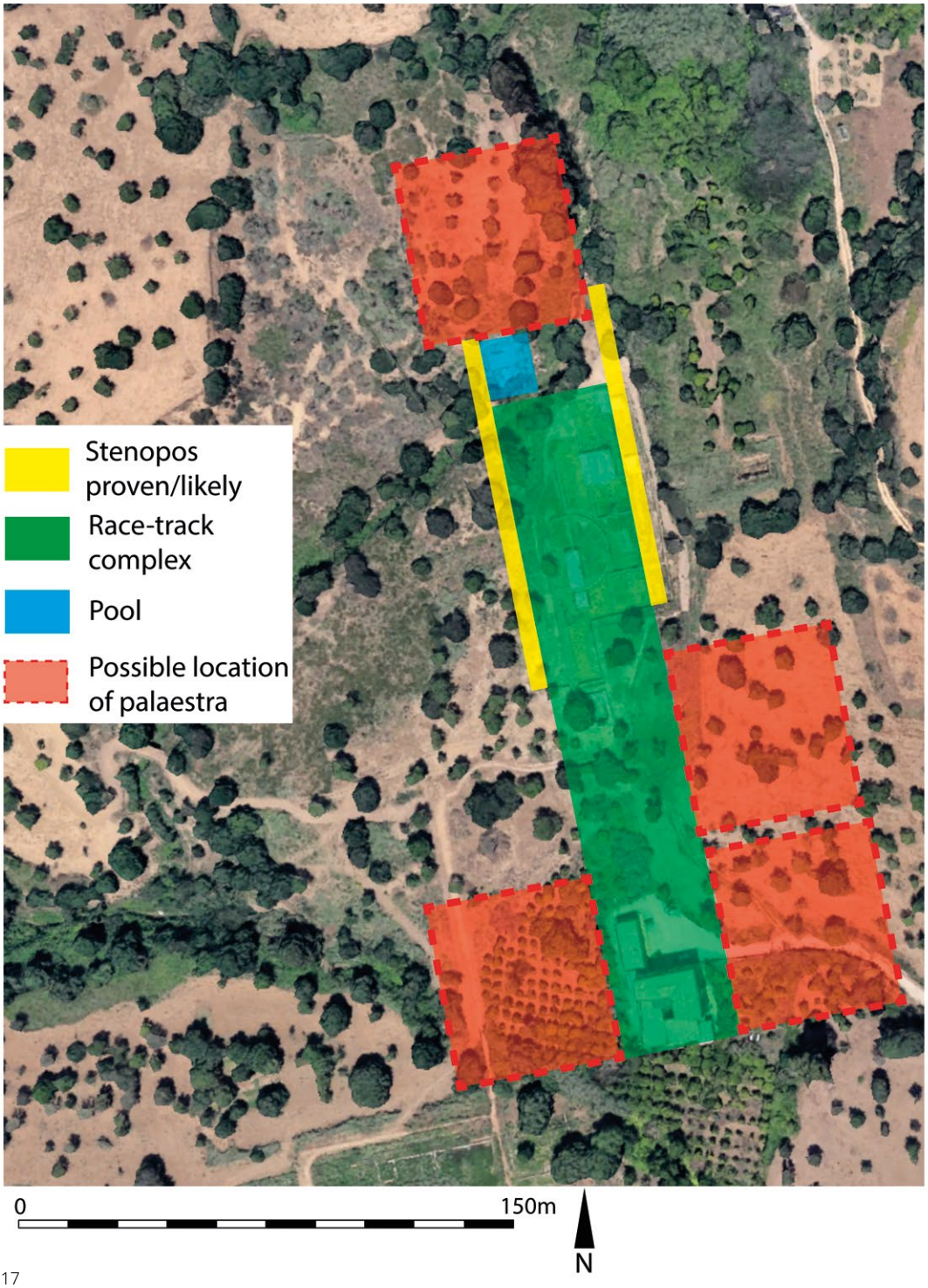

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Fig. 17: Agrigento, Gymnasium, possible location of palaestra (scale 1 : 2000)

of the palaestra is aligned with the race-track. The palaestra can be located somewhere along the long side of the race-track (Delphi, Amphipolis) or close or next to its short side (Delos, Eretria, Olympia, Priene). Only the gymnasium of Delphi includes a separate loutron (with pool and basins) next to the palaestra. The palaestra and race-track section are located on different terraces in Delphi and Pergamon.

29 Remains of a street (stenopos/cardo) were found along the entire excavated eastern façade of the gymnasium in Agrigento as well as in a small trench (23 m N-S) to the west of the xystos-stoa (Fig. 2). This therefore left the option that a palaestra was located further north or south along the long side of the race-track, as in Delphi or Amphipolis, if the stenopoi were interrupted and overbuilt (Fig. 17). Alternatively, the palaestra could have been located to the north of the pool, maybe extending west or east

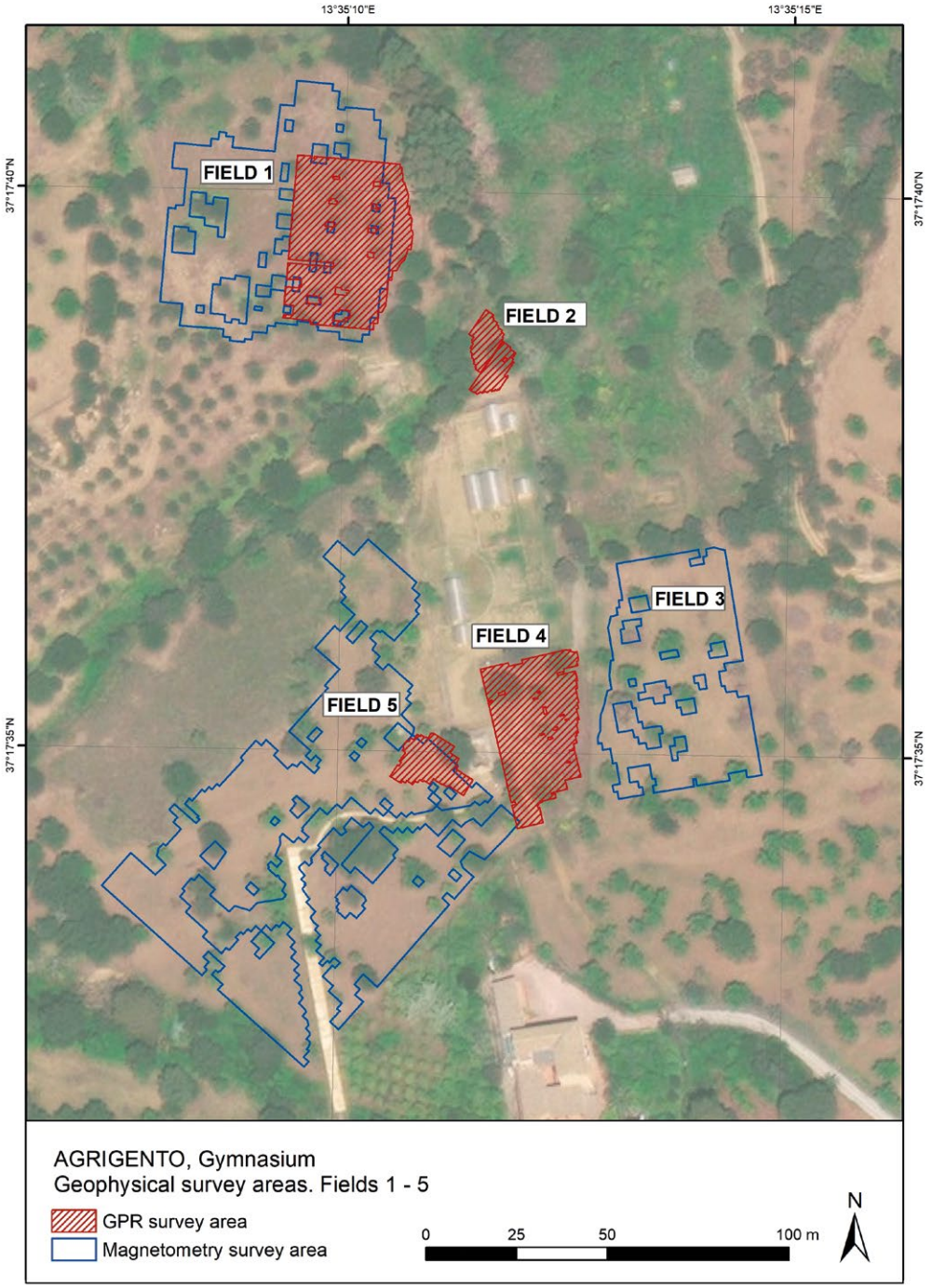

Fig. 18: Location of the geophysical survey areas, Fields 1–5

18

beyond the confines of the 35 m of the insula; or to the south of the race-track section, where it would have covered Plateia 4. On the basis of topographical and typological assessment, a location to the north of the pool seems the most feasible, also as this is the only option that would explain the location of the pool. However, all potential scenarios were explored by the geophysical survey (Fig. 18). Thus, five fields (Field 1–5) were surveyed on all sides of the excavated parts of the race-track section. The differing sizes of the fields were determined by the topography and the condition of the terrain (olive and orange groves, vegetation, ravine, modern paths, and private property).

30 Closely related to the gymnasium, which commonly served for the athletic and intellectual training of male citizens and for the grooming and training of the body, are bath buildings, particularly in the Imperial period, when lavish baths and gymnasia were even merged. A small bath building dating to the Late Antique period has also

recently been identified and excavated by the Parco Archeologico in the Hellenistic-Roman quarter[36].

31 Traces of another small bath building have been identified in a yet unexplored olive grove to the north of the Hellenistic-Roman temple on the agora. This building will be further explored within the framework of the project, aiming to better assess its size, design, date, and urban context[37]. Therefore, the geophysical survey was also conducted in this area between the baths and temple, which is prominently located close to the city center (Field 6; Fig. 1).

Methodology

32 The survey at Agrigento used two geophysical techniques, magnetometry and Ground-Penetrating Radar (GPR), both of which are commonly used for archaeological prospection. The advantage of employing two different techniques allows to maximize the potential for identifying archaeological remains, as each technique is responsive to different physical properties. Moreover, depending on the specific conditions of the survey areas, techniques can respond differently than expected. For example, although the GPR has the advantages of both a higher data resolution and the indication of depth, it is less effective in wet conditions and on clay soil, where the electromagnetic radar pulses quickly dissipate.

Magnetometry

33 The magnetometry survey was carried out using a Fluxgate Gradiometer. This instrument has two opposed magnetic sensors that register the small variations of the magnetic field of the soil[38]. The technique allows the identification of anomalies caused by subsurface features whose magnetic values differ from the surrounding context, depending on the composition of the material[39].

34 The results are presented as a shade plot where different recorded values (indicated in nano-Tesla, nT) correspond to a gradient in greyscale. A major advantage of using this technique is the speed of ground coverage, especially in uneven terrain such as at Agrigento. Moreover, magnetometry is particularly suitable for locating archaeological features such as brick structures, kilns, and other construction materials which have a magnetic contrast with the local soil matrix[40].

Ground-Penetrating Radar (GPR)

35 GPR is an electromagnetic technique where a high frequency radar wave is propagated into the ground. Measurements are obtained by recording the time (calibrated in nano-second, ns) elapsed between the transmission and reception of the signal[41]. Sub-surface features with contrasting properties are represented in data sets as reflections or hyperbole, therefore the technique is particularly useful for mapping structural walls and foundations[42]. Furthermore, through velocity analysis it is possible to estimate depth measurements of identified features, and data sets can be displayed and examined as both vertical slices (radargrams) or horizontal plans (time-slices).

36 Caminneci et al. 2020b; Caminneci – Parello 2021.

37 It was originally planned that Paola Santospagnuolo would excavate this building within the framework of her PhD dissertation at the Freie Universität Berlin. Due to the pandemic of 2020 this has been postponed to form part of a post-doctoral research project in 2022.

38 Sala et al. 2012, 139.

39 Aspinall et al. 2008, 27; Clark 1990, 65 f.

40 Meyer 2013, 188 tab. 10.3.

41 Clark 1990, 118; Conyers 2004, 25.

42 Clark 1990, 118; Gaffney – Gater 2003, 48.

Survey Parameters

36 The geophysical prospection was preceded by a topographical survey in order to define the survey area. The aim was to provide a framework to correctly position the area to be investigated, as well as to record the geographical coordinates of the survey area. Regular grids for the magnetometry of 30 m by 30 m were set out using a Leica GS18T GPS. The individual lengths of the acquired traverses within the grids were irregular as the data was collected according to the topography of the site, and readings could not be taken where there were obstacles, such as bushes, trees, and paths.

37 The magnetometry prospection was conducted using a Bartington Grad 601. Data was collected every 0.25 m (sample interval) in parallel zig-zag traverses at a regular distance of 0.5 m and subsequently processed with Geoscan Geoplot 4.0.

38 The GPR survey was carried out with a GSSI SIR-3000 instrument with a 400MHz antenna mounted on a cart system with an odometer. GPR data was collected at intervals of 0.25 m in parallel traverse and processed with the software GPR-Slice.

39 Finally, processed datasets were imported in a Geographic Information System software (ESRI ArcMap) in order to compare the results with known excavated buildings, and to place the data in its topographical context with the new architectural survey of the gymnasium.

Survey Results

40 Whilst the general conditions for the geophysical survey were not ideal due to the fragmented nature of the study area and a substantial spread of modern metallic rubbish, the survey succeeded in locating features of potential archaeological interest (Fig. 19. 20. 21. 22. 23. 24). The results are discussed below together with an interpretation. The interpreted features are numbered in the figures and referred to in the text. Magnetometry was conducted in Fields 1, 3, 5, and 6 whereas GPR was conducted in Fields 1, 2, 4, and 5 with varying coverage due to the uneven terrain for the GPR (Fig. 1. 18). The following discussion presents the results of the magnetometry surveys followed by the GPR data.

Magnetometry

41 The magnetometry surveys were partly affected by strong background noise caused by modern waste and infrastructure. Therefore, given the strength of the signal of the metallic objects, it is possible that weaker magnetic signals produced by archaeological features may have been masked. It is therefore feasible that the geophysics results have not recorded the full subsurface archaeological record of the area.

Fig. 19: Field 1, from E

19

Field 1

42 The archaeological significance of this area, based on its topographical position, was confirmed by the magnetometry survey (Fig. 19). However, the conditions described above influenced the clarity of the data and the subsequent interpretation of the results.

43 In the south-western part of the field, an area of strong positive magnetic readings was recorded (Fig. 25: 1), which may potentially locate the presence of archaeological material, such as an accumulation of bricks and tiles.

44 The most prominent features are a series of regular anomalies registered across the area (Fig. 25: 2. 3). These groups of features display a similar geometry and the same orientation along two axes, approximately

20

21

N-S and E-W. The different values of the features, including both positive and negative magnetic anomalies, may indicate different construction materials or the spoliation of some structures. For example, whilst a stone structure with no magnetic field may be recorded in the data as negative anomaly, a brick wall has a positive magnetic signal.

45 The most prominent features lay in the central northern area between two rows of olive trees (blocks of no-data) and suggest an area of some structural organization.

22

Field 3

46 The magnetometry survey to the east of the gymnasium recorded fewer features than noted in Field 1 to the northwest. Areas of magnetic interference were recorded throughout the survey principally in the central-southern area (Fig. 20). The clearest features are a series of negative features at the northern extent of the survey (Fig. 26: 1). Several positive features were also recorded within the central area of the survey (Fig. 26: 2), however, given their irregularity, it is probable that these relate to accumulations of material rather than structures, based upon an assessment of their form and alignment. At the southern extent of the survey, a linear negative anomaly, oriented NE-SW, is probably related to a modern feature (Fig. 26: 3).

23

Field 5

47 The most prominent features are a series of orthogonal linear magnetic anomalies in the central part of the survey area. A weak negative feature is aligned with the modern path, oriented almost N-S and approximately 27 m in length (Fig. 27: 1). In the south-eastern part of the survey area, two linear anomalies aligned parallel E-W are present in the data (Fig. 27: 2). A few meters to the north of this, further linear features, whose response form a right angle, were also recorded (Fig. 27: 3).

48 To the north of the modern path (a right angle of no-data that divides the survey area, Fig. 22. 23), a series of weak linear anomalies lay next to a regular positive magnetic feature (Fig. 27: 4). Despite the poor magnetic contrast, it is noticeable that all

Fig. 20: Field 3, from N

Fig. 21: Field 4, from S

Fig. 22: Field 5, northern part, from W

Fig. 23: Field 5, southwestern part, from N

24

Fig. 24: Field 6, from N

these features are aligned with the hypothesized urban plan for this area and the orientation of the gymnasium.

49 Finally, in the northern part of the survey a few weak magnetic signals were recorded. One feature (Fig. 27: 5) is also of potential archaeological significance as it aligns with the hypothesized trace of the stenopos.

Field 6

50 The magnetometry data collected to the north of the Hellenistic-Roman temple has diverse linear features that may be related to the orthogonal urban plan. Despite the numerous trees in the survey area (Fig. 24), resulting in numerous gaps in the dataset, the most prominent features can be clearly identified.

51 Similarly to that observed in the fields of the gymnasium area, the dataset was also affected by discarded metal objects which have generated a general noisy background. The processing and filtering of the data has removed some interference caused by smaller objects, however, there remain some significant magnetic dipoles generated by larger pieces of iron.

52 The most prominent feature traverses the field in a N-S direction, for the whole length of the survey area, approximately 63 m (Fig. 28: 1 and 2). This feature is composed by two linear negative anomalies delimiting an area of positive magnetic reading with an average width of 5.5 m.

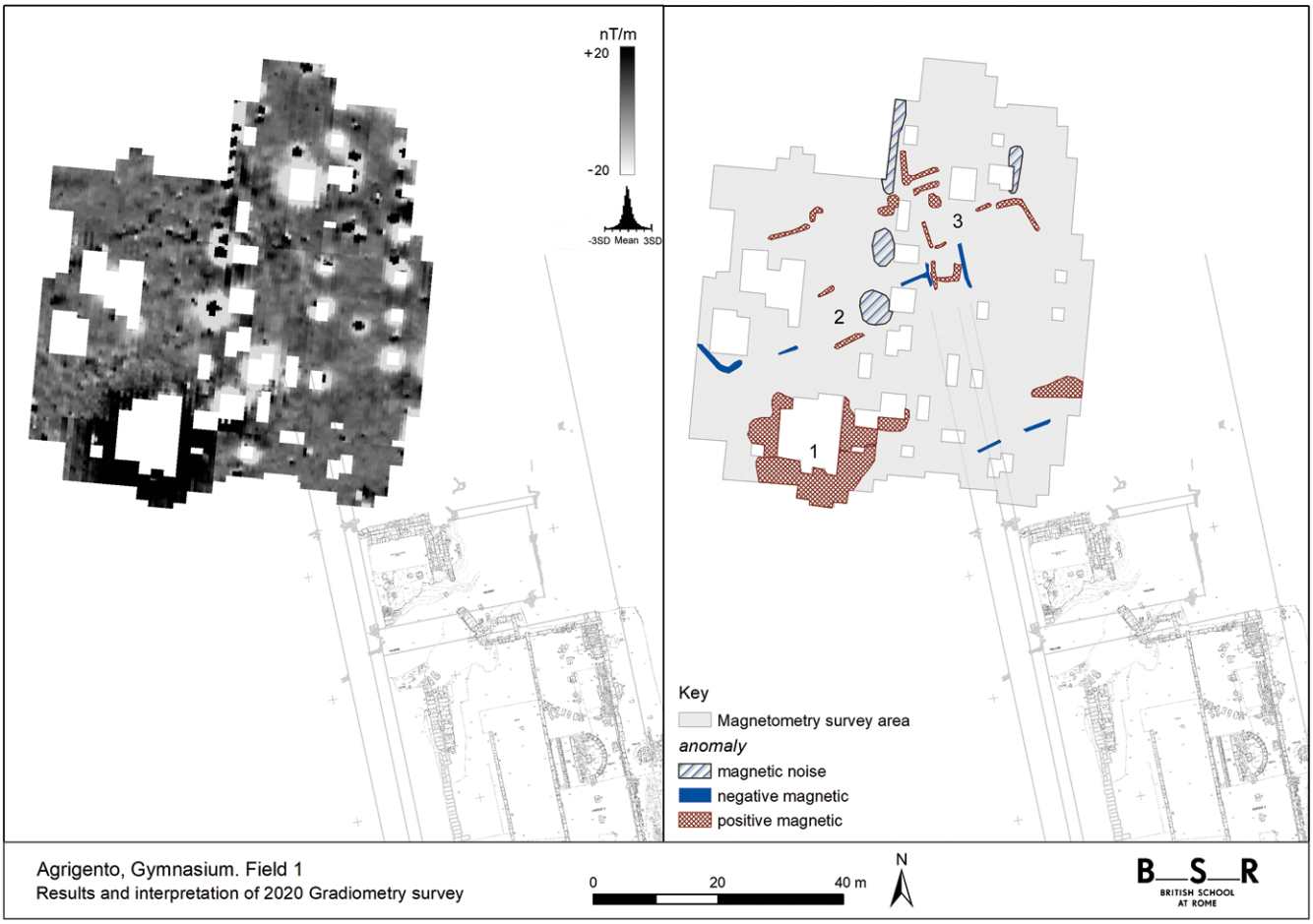

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Fig. 25: Field 1, results and interpretation of the magnetometry survey

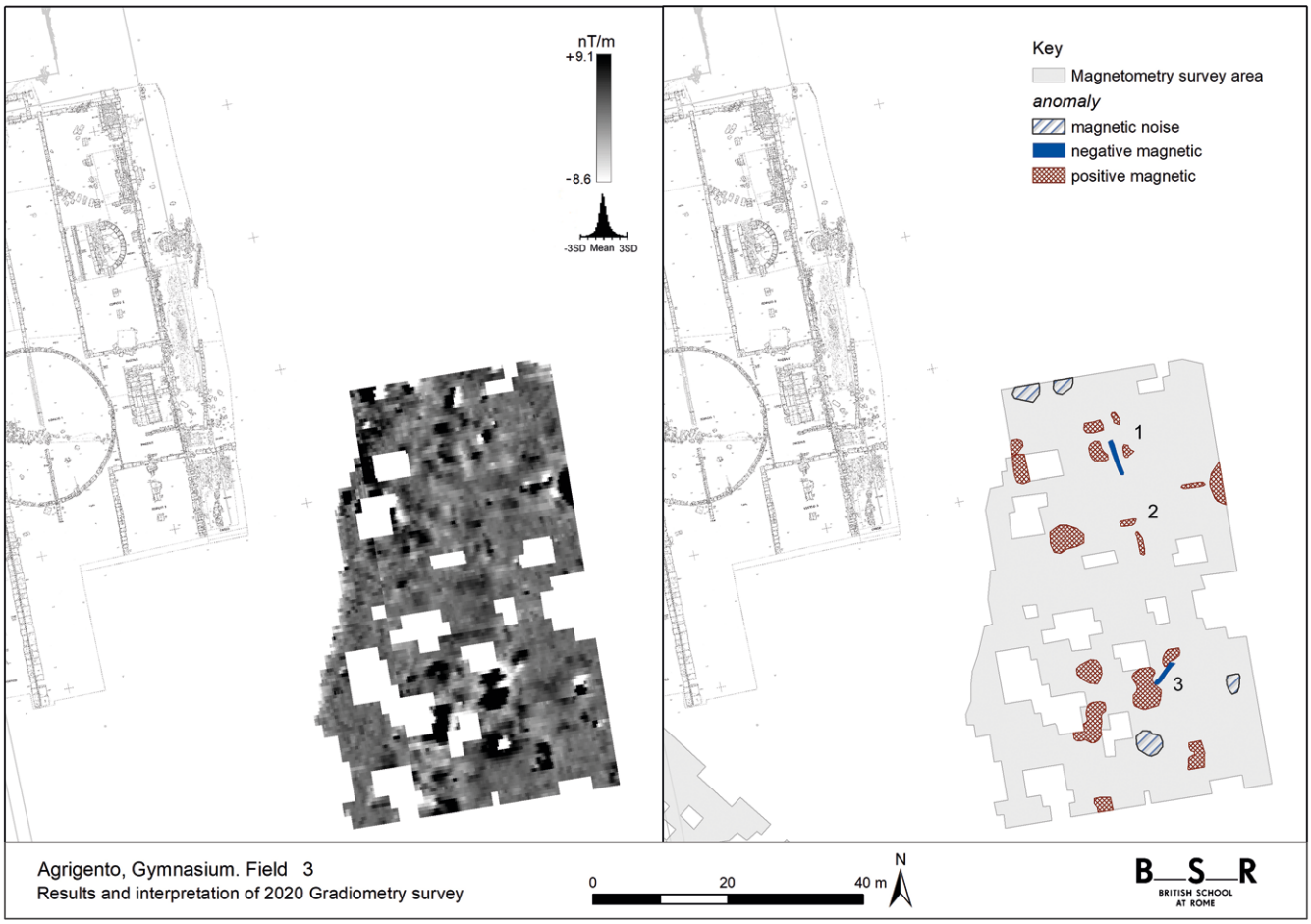

Fig. 26: Field 3, results and interpretation of the magnetometry survey

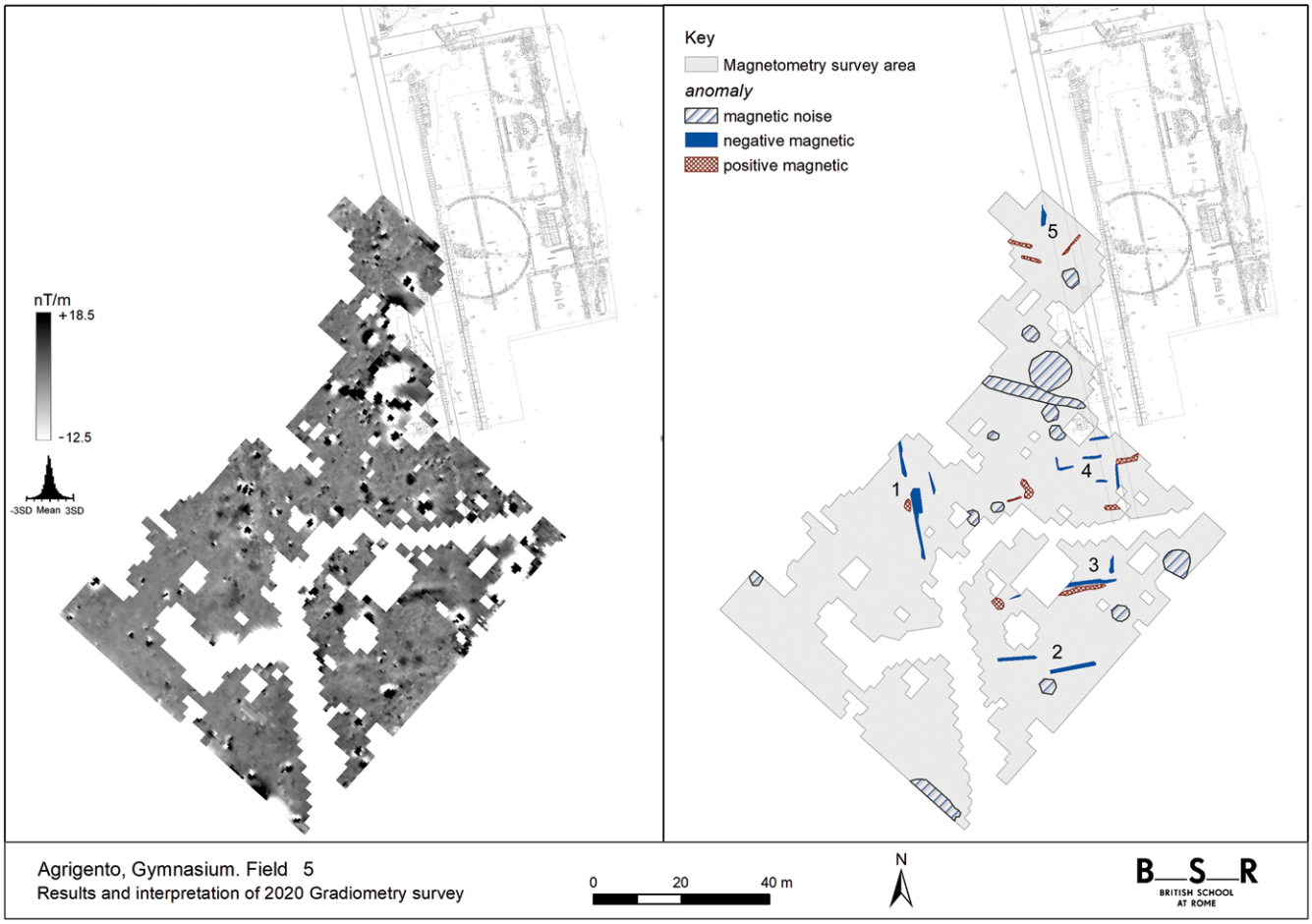

Fig. 27: Field 5, results and interpretation of the magnetometry survey

28

Fig. 28: Field 6, results and interpretation of the magnetometry survey

53 A series of low negative magnetic readings were recorded throughout the rest of the area, on both sides of the major N-S feature. Despite their weak signal, they can be distinguished by the orthogonal pattern of the linear anomalies (Fig. 28: 3 and 4). The regular geometry and the organized distribution of these features, forming right angles, strongly suggests that they are related with buried features of archaeological interest. It is likely that the buried features which generated the anomalies are formed of materials with a very poor magnetic response (such as stone).

Ground-Penetrating Radar

54 The following section describes the GPR results through a selected time-slice for each area which is considered the most representative of the archaeological record. As noted above, the ground conditions were not ideal for GPR survey, with a heavy clay soil likely responsible for a rapid attenuation of the signal and a consequent inability to record data to an adequate depth[43]. Moreover, a high-water content in the soil may have also accentuated this tendency. It therefore follows that the most useful data was collected within the first meter below ground level, after which depth the signal becomes very poor.

43 Gaffney – Gater 2003, 48.

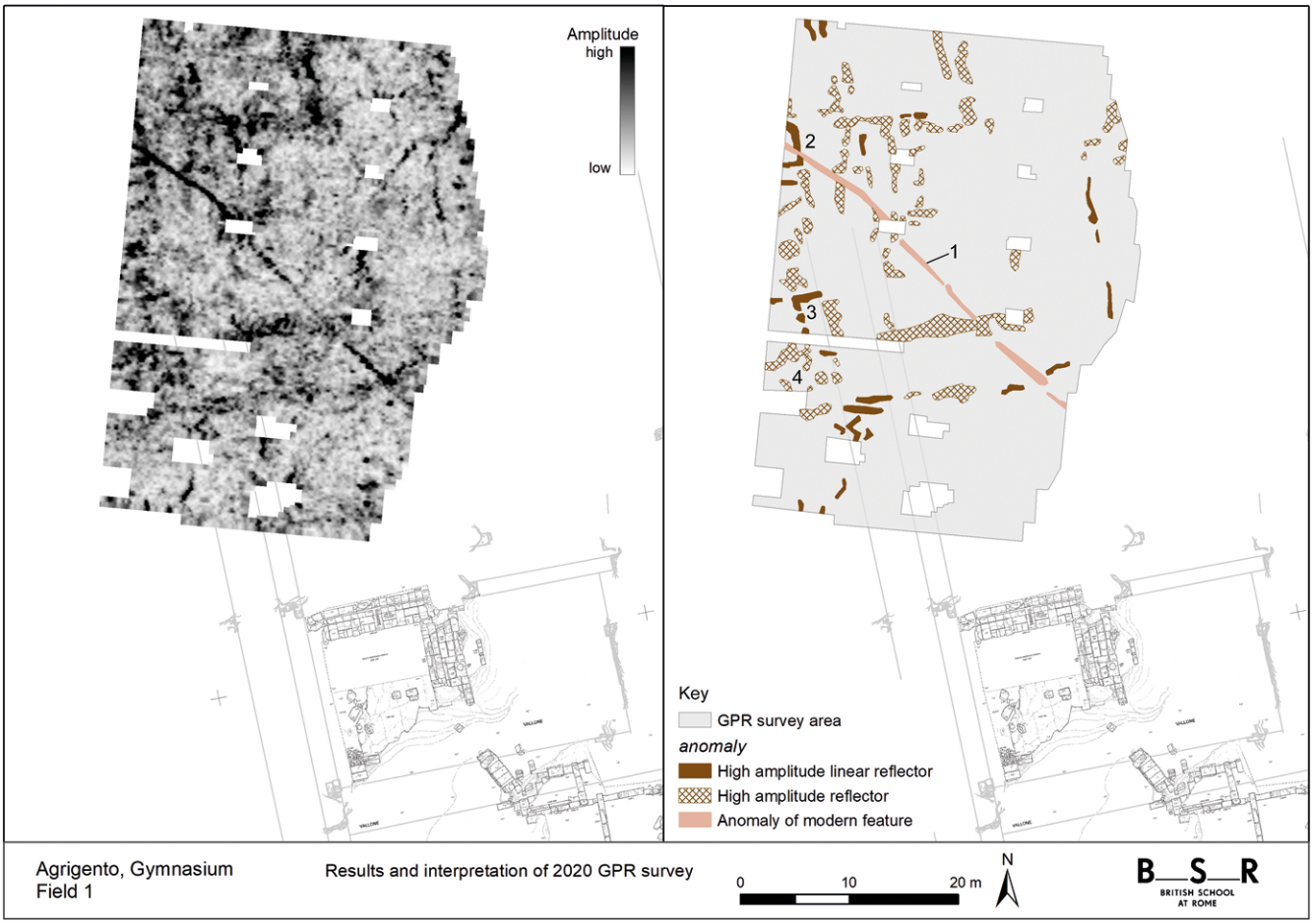

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Fig. 29: Field 1, results and interpretation of the GPR survey

Field 1

55 The GPR survey in the area to the north of the gymnasium recorded a range of high amplitude features, with a majority recorded at the northern extent of the area, following a similar pattern to the magnetometry. These features are estimated as being shallow, at a depth between 0.4–0.8 m.

56 The clearest feature in the dataset is a modern utility which traverses the survey area in a NW-SE direction (Fig. 29: 1). At the western limit of the survey this utility intersects a U-shaped high amplitude feature which aligns with the excavated structures to the south (Fig. 29: 2). Further clusters of high amplitude features were also recorded in the western area (Fig. 29: 3 and 4) and in the southern western part of the survey. Few features were recorded to the east, potentially a result of a greater accumulation of a thick clay soil at the edge of the ravine to the east.

Field 2

57 The small survey area is traversed by a large, shallow modern drainage pipeline which is recorded in the data as a NW-SE high amplitude reflector (Fig. 30: 1). The pipe later emerges in the ravine to the west of the survey area (visible in Fig. 12 to the right of the photograph). The most prominent feature at an estimated depth of approximately 0.5–0.8 m below ground level is medium amplitude N-S linear reflector (Fig. 30: 2). Its regular geometry and its orientation suggest that the feature is a continuation of a wall visible to the south in the open excavation. To the north of the drainage pipe a group of scattered small high amplitude reflections were recorded (Fig. 30: 3).

Fig. 30: Field 2, results and interpretation of the GPR survey

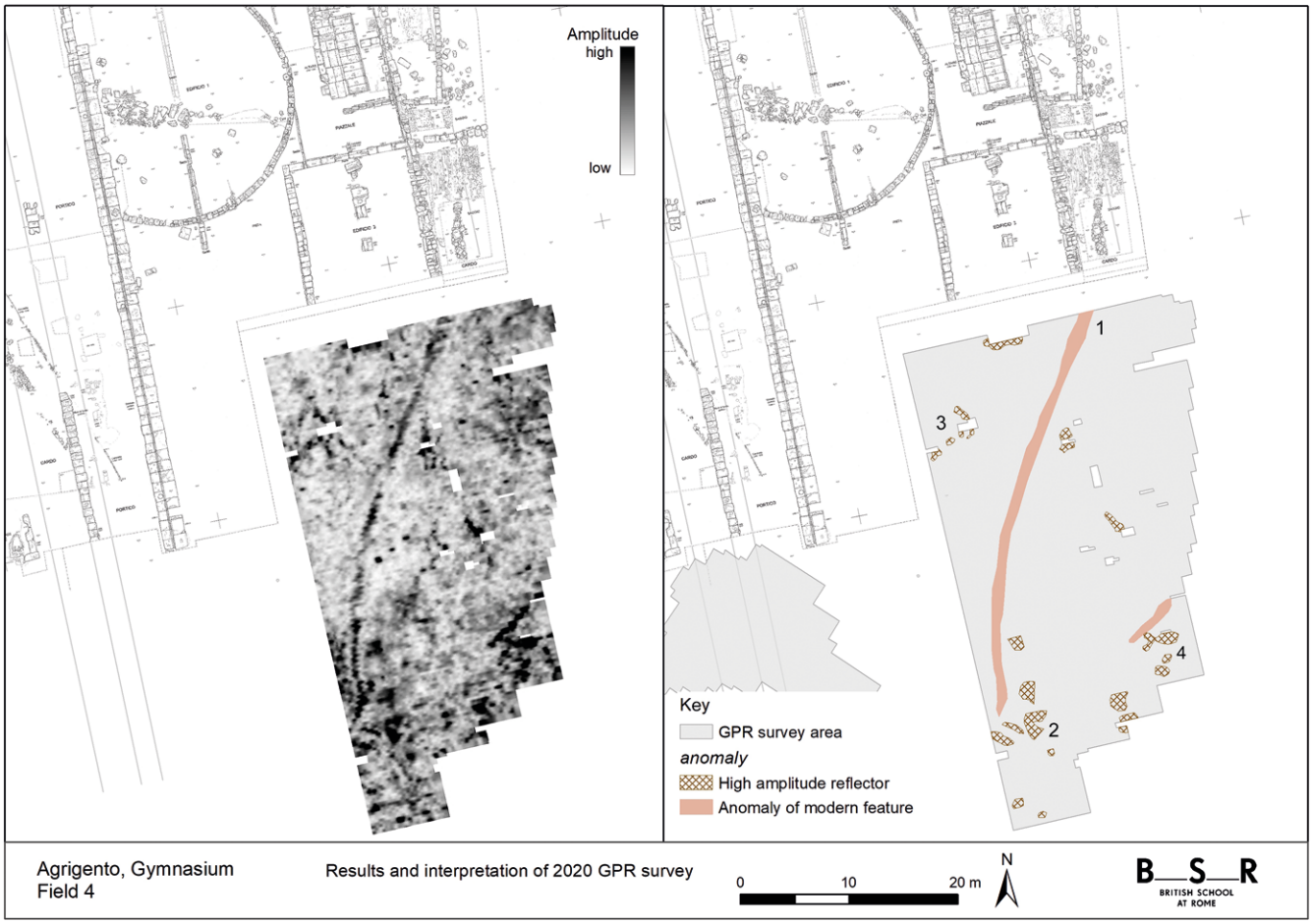

Fig. 31: Field 4, results and interpretation of the GPR survey

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Fig. 32: Field 5, results and interpretation of the GPR survey

Field 4

58 The data collected in Field 4 does not appear to have recorded any major archaeological features, a result of a limited depth of investigation caused by the heavy clay soil (Fig. 21). The main feature recorded was a shallow depression generated by a footpath which crosses the area NE-SW (Fig. 31: 1).

59 Two groups of high amplitude reflections were recorded along the western edge of the survey area; however, these have no distinct form or shape consistent with the standing structures to the north and west (Fig. 31: 2 and 3). A third group of high amplitude features were recorded in the southeast corner of the survey area; however, these have no distinctive form or orientation to aid with an interpretation (Fig. 31: 4).

Field 5

60 The GPR survey conducted in Field 5 recorded a series of features of archaeological interest. The open excavation of the gymnasium to the northeast of the survey area indicates that the archaeological stratigraphy in this part of the site is much shallower than that to the east (Field 4) as the sites slopes towards the west and significant topsoil has previously been removed. The features recorded by the GPR were therefore relatively shallow, intersected at a depth of approximately 0.4 m.

61 The most prominent features follow a N-S alignment (Fig. 32: 1 and 2) and appear to be a continuation of the excavated wall to the north which separates the stoa of the gymnasium and the adjoining cardo. Also of interest is a high amplitude anomaly on an E-W alignment (Fig. 32: 3) which would appear to cut a number of features recorded on this alignment to the north.

Fig. 33: Schematic overview of the geophysical survey results Fields 1–5

Discussion

62 The 2020 geophysical survey at Agrigento recorded a series of archaeological features which reveal the presence of structures organized in accordance with the orthogonal city plan. In this discussion, the main geophysical anomalies are discussed and analyzed within their topographical context, together with a general schematic interpretation drawing together both techniques (Fig. 33).

63 In the areas where the GPR and magnetometry surveys overlapped (Fields 1 and 5), whilst some features were recorded by both techniques, the GPR provided more detailed information. In Field 1 the GPR survey recorded a range of features throughout the study area but with a concentration to the north, potentially a result of a shallower overburden of soil. The features, which correspond to the orientation of the excavated walls to the south, in part appear to cross the projected line of the stenopos as well as abut the road. This is particularly interesting because these walls might testify to the existence of a palaestra that was wider than 35 m and extended over the western stenopos. The stenopos, which is still clearly visible at the height of the pool, between Walls 9 and 10, could have led to the entrance of the palaestra.

64 The intensive field survey recorded a medium to low density of finds in the area of Field 1[44] and two features (E-W and N-S) were identified from aerial photos of 1954/1955 and 2000 (Fig. 34: yellow E-W feature and purple N-S feature). Whilst the differing scale makes a direct comparison between the aerial photograph interpretation and geophysics difficult, there does not appear to be a direct correlation between the two techniques (Fig. 34).

65 Further to the south, the GPR survey of Field 2 indicated the continuation of walls northwards from the excavation a few meters to the south. Whilst areas of high amplitude features were recorded, the irregular nature of these features suggests scattered areas of material and that the stenopos identified to the south continues in this northerly direction. Furthermore, the excavation has shown how the stenopos was later built over with the construction of a kiln, therefore, recorded features in the GPR data may relate to a later phase. A feature at the southern edge of Field 2 has been interpreted as an E-W wall that aligns with Wall 4 (Fig. 15). The density of finds was medium here[45], and a long N-S oriented trace was identified on aerial photos from 2000, which may correspond to the stenopos or flanking walls (cf. Fig. 30: 2 and Fig. 34).

66 The survey of Field 3 to the southeast of the gymnasium was conducted with magnetometry due to both the size of the area and the uneven terrain (a ploughed field), unsuitable for the use of GPR. The survey recorded few features with a clear archaeological origin, despite the central location of the area within the city. The type of construction material, a local limestone, may be one cause, as the material has no magnetic field. However, given the continued occupation of the area of the gymnasium to the immediate west and the remains of an E-W wall discovered in an unpublished trench 15 m north of Field 3 (Fig. 18), it would have been expected to record some form of archaeological activity[46]. Furthermore, whilst the density of finds was high in this area[47], no traces of walls or streets have been identified in aerial photos in Field 3 (Fig. 34)[48].

67 The recently reconstructed plan of the urban layout of Agrigento suggests the width between the stenopos in this area to the east of the gymnasium was 60 m, rather

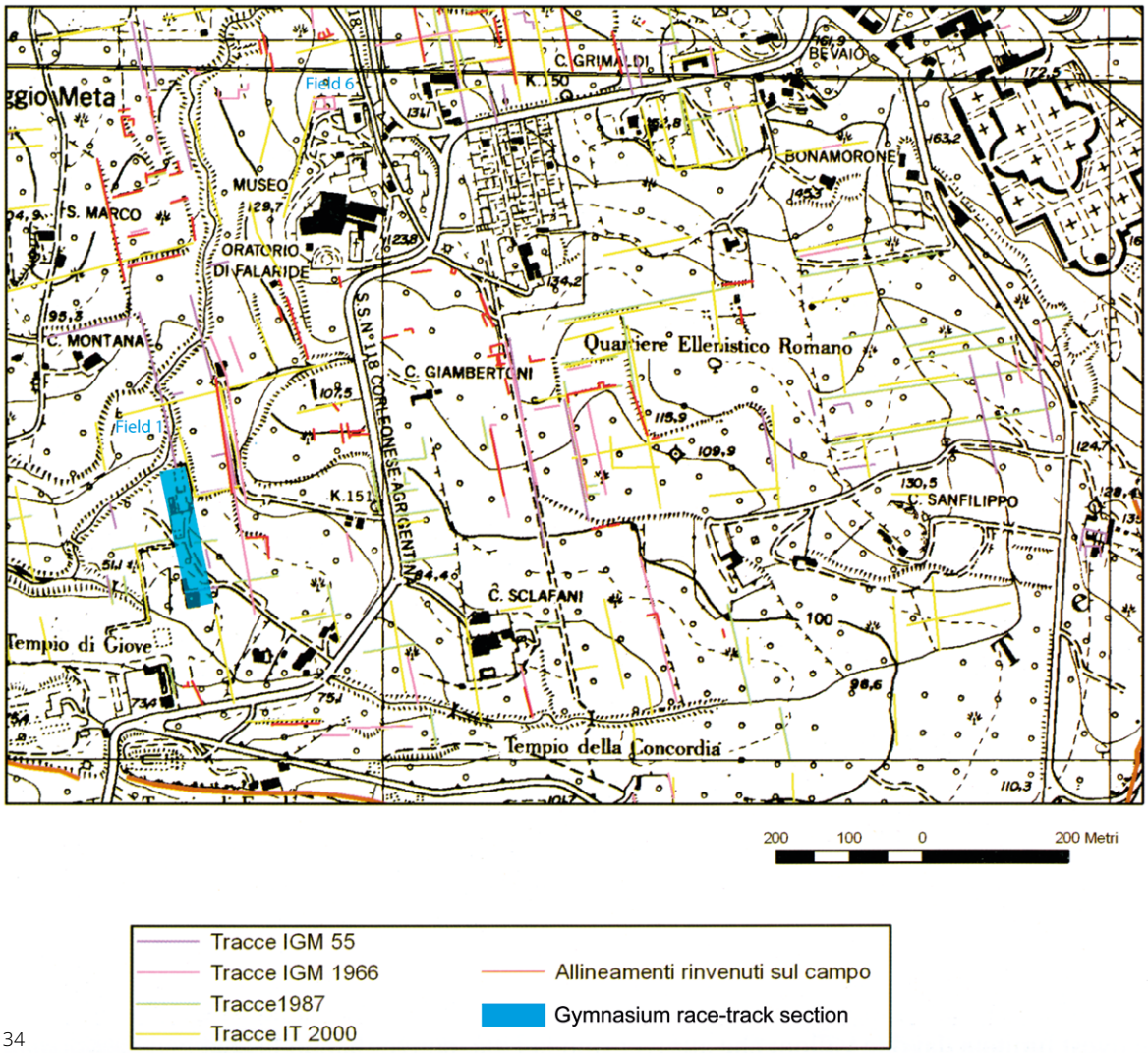
44 Category 4 of 9, 1 being »nulla« and 9 being »altissima«; Belvedere – Burgio 2012, pl. 3.

45 Category 5 of 9, Belvedere – Burgio 2012, pl. 3.

46 Brienza 2017; see Fig. 1.

47 Category 7 of 9; Belvedere – Burgio 2012, pl. 3.

48 The excavated wall to the north of Field 3 is marked, as well as walls to the east and south of Field 3.



34

Fig. 34: Extract of the »carta archeologica« of the area between Plateiai E–F and M–N (here Plateiai 1 and 5; scale 1 :10 000)

than the standard 35 m. Traces of walls and streets have been identified in aerial photos of all years as well as during the intensive field survey at the top of the ridge, c. 65 m to the east of the eastern wall of the gymnasium (Fig. 34). These findings are confirmed by the results of the geophysical survey as no clear indication of the stenopos was recorded at the distance of 35 m, whereas in Field 5 to the west the stenopos was recorded.

68 The survey of Field 5 to the southwest of the excavated gymnasium also permitted a direct comparison of the response of the two geophysical techniques in recording the location of archaeological remains. The anomalies recorded by the magnetometry as negative magnetic features correspond in the GPR data to high amplitude reflections, a confirmation that the structures recorded were built of stone. The surveys confirmed the continuation of the stoa to the south beyond the excavation together with further buildings to the west of the adjoining stenopos, which runs alongside the gymnasium.

69 The most prominent archaeological feature is the N-S stenopos, recorded for a length of approximately 27 m, which likely continues further to the south, where there is now the modern path (Fig. 1. 22. 23. 27). The survey traces the eastern and the western limit of the road, the width of which (approximately 4.5–5 m) corresponds to the width of the known excavated stenopoi at Agrigento[49]. The distance between the eastern border of the identified stenopos and the backwall of the gymnasium stoa to the east,

49 Brienza 2017, 26.

which also indicates the eastern limit of the following stenopos, is c. 40–45 m; thus, the insula between the two stenopoi (both c. 5 m wide) was c. 35 m wide or slightly wider[50]. A comparison can be made with the identification of a road in the magnetometry results conducted in the area of the Temple of Juno, which located a stenopos with a similar magnetic response[51]. It should be noted that an earlier excavation in the south-western part of Field 5, to the west of the modern path, (seen in the geophysics as no-data due to the excavation having not been backfilled) did not record any structures.

70 The density of finds in Field 5 was medium (to the west and north of the modern path) to medium-low (to the east and south of the modern path)[52]. A long N-S feature was identified on aerial photos from 2000, following the modern path and correlating with the stenopos identified in the geophysical survey (Fig. 33. 34). In contrast, an E-W wall identified in the 1987 aerial photos to the north of the modern path was not confirmed by the geophysical survey. Further N-S walls identified to the west of the modern path/stenopos (1954/1955 and 1987) could also not be corroborated by the geophysical prospection.

71 The two stenopoi recorded in the architectural and geophysical survey to the west of the gymnasium as well as the traces identified in Field 1 and 5 suggest that the area immediately to the west of the gymnasium was urbanized, but determining the date, layout, density, and function of these structures (residential?, commercial?, other?) requires excavation. While the high density of finds in the area of Field 3 also suggests inhabitation, this could not be confirmed by the geophysical survey. The E-W wall excavated to the north of Field 3 (visible in Fig. 18) remains the only evidence that the area to the east of the gymnasium was urbanized.

72 The survey to the north of the Hellenistic-Roman temple and south of the baths (Field 6), 600 m to the northeast of the gymnasium, provided an opportunity for a different area of the site to also be examined through geophysical prospection. The density of the trees in the olive grove together with the rough terrain limited the investigation to magnetometry (Fig. 24), which also has substantial areas of no data. The technique recorded numerous features of archaeological interest and in particular outlines a N-S stenopos, which likely continued further south beyond the survey grid, toward plateia E-F (Fig. 1: 1). The road, approximately 5 m wide, was recorded by two strips of negative magnetic readings, indicating the eastern and western limits of the stenopos. As noted above, the weak negative recording is due to a non-magnetic material like stone together with a more positive magnetic surrounding soil. Several other linear features aligned with the stenopos demonstrate the occupation of the area, perhaps indicating a more densely built set of insulae closer to the center of the city.

73 The results confirm the findings of the intensive field survey which recorded an extremely high density of finds in the area of Field 6[53]. Very few walls were identified from aerial photos; only the remains of the small bath, which is located immediately to the north of Field 6, were discovered during the survey (Fig. 34).

Future Perspectives

74 The geophysical surveys were successful in identifying areas for future investigation. The findings permit a better assessment of the questions raised in the introduction, in particular (1) the extension and design of gymnasium; and (4) the urban context.

50 Brienza 2017, 26.

51 Boschi et al. 2019.

52 Categories 4 and 5 of 9; Belvedere – Burgio 2012, pl. 3.

53 Category 9 of 9; Belvedere – Burgio 2012, pl. 3, based on good visibility, category 4 of 5 (5 being »ottima«); Belvedere – Burgio 2012, pl. 1.

The surveys also both complement and confirm the results of previous research, especially the intensive fieldwalking survey published in 2012[54]. The non-invasive surveys have yielded significant insights, but also demonstrate the necessity of excavation in order to provide clearer answers.

75 The surveys have identified Field 1 as the most likely area for a palaestra. Future planned excavations will begin in this area with trenches positioned to cover the area of the presumed northern continuation of the western stenopos. Trenches will also be positioned to explore the structures in Field 5, both to the south and north of the modern path, in order to examine their date and function. Finally, test trenches in Field 3 will allow the contextualization of the single excavated wall to the north of Field 3 and the assessment of how and when this area was urbanized.

76 Excavation in Field 1 and in certain areas of the race-track complex should provide an undisturbed stratigraphy, which together with diagnostic finds should assist in understanding the history of the gymnasium, in particular the date of its construction. These areas include the stretch between the hydraulic complex and the exedra-like structure (Fig. 2. 3) that has not been fully explored down to foundation level or natural levels; and the area to the south of the Late Antique Edificio 3[55], located at the southern end of Field 4, where undisturbed Hellenistic-Roman stratigraphies may be preserved.

77 The new excavations will also provide the opportunity to understand the unpublished material from the earlier excavations, which includes detailed stratigraphic sections and pottery. The architectural elements of the buildings will also be reexamined, contextualizing them in both the specific local and regional contexts, and all features, including all walls and blocks along the ravine and to the east of the gymnasium will be recorded.

78 The gymnasium of Agrigento has already yielded rich data and important publications, which highlight the exceptional character of this complex. Further, targeted or even full exploration of this complex would provide an important contribution to the ongoing re-evaluation of the urban landscape of Hellenistic and Roman Agrigento.

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80 The field season was organized by Thomas Lappi, Paola Santospagnuolo, and Monika Trümper (Freie Universität Berlin) and generously funded by the Freie Universität Berlin. All three participated in the architectural survey, worked in the archives, and studied pottery in the storerooms. The geophysical survey was conducted by Stephen Kay and Elena Pomar of the British School at Rome. Antonello Fino (Politechnico Bari) supervised the architectural survey and made the new plan and sections.

54 Belvedere – Burgio 2012.

55 While this has not been fully excavated, it was most likely as long as Edificio 2, because the entire complex is symmetrically organized.

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AUTHOR DETAILS

Monika Trümper
Institut für Klassische Archäologie,
Freie Universität Berlin
Fabeckstr. 23–25
14195 Berlin
Germany
monika.truemper@fu-berlin.de
ORCID iD: https://orcid.org/0000-0003-4524-6242
ROR ID: https://ror.org/046ak2485

Stephen Kay
British School at Rome
Via Antonio Gramsci 61
00197 Roma
Italy
s.kay@bsrome.it
ORCID iD: https://orcid.org/0000-0002-5920-3377
ROR ID: https://ror.org/04danph04

Elena Pomar
British School at Rome
Via Antonio Gramsci 61
00197 Roma
Italy
e.pomar@bsrome.it
ORCID iD: https://orcid.org/0000-0001-8373-6205
ROR ID: https://ror.org/04danph04

Antonello Fino
Dipartimento di Scienze dell'Ingegneria civile e
dell'architettura, Politecnico di Bari
Via Orabona 4
70125 Bari
Italy
antonello.fino@poliba.it
ORCID iD: https://orcid.org/0000-0001-9703-4511
ROR ID: https://ror.org/03c44v465

Thomas Lappi
Institut für Klassische Archäologie,
Freie Universität Berlin
Fabeckstr. 23–25
14195 Berlin
Germany
thomas.lappi@fu-berlin.de
ORCID iD: https://orcid.org/0000-0002-2013-8352
ROR ID: https://ror.org/046ak2485

Paola Santospagnuolo
Institut für Klassische Archäologie,
Freie Universität Berlin
Fabeckstr. 23–25
14195 Berlin
Germany
paola.santospagnuolo@fu-berlin.de
ORCID iD: https://orcid.org/0000-0002-7009-9419
ROR ID: https://ror.org/046ak2485

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