

The 'Great Peristyle Tomb' in the Mustapha Pasha Necropolis

NICOLA BONACASA

and

PATRIZIA MINÀ

Since the year 2003, the Italian Archaeological Mission in Alexandria, sponsored by the University of Palermo, carried out archaeological, topographical and GPR surveys at the site of the 'Great Peristyle Tomb' in the Mustapha Pasha necropolis (Fig. 1). The hypogeum was brought to light in 1983. Rescue excavations supervised by Dr. Ahmed Abdel-Fattah in 1983-1984 were followed, in 1985, by an emergency excavation in the garden area to the South of the modern trench inside which most of the tomb lies. In 1994, two trial trenches were dug by Prof. Dr. M. Rodziewicz.

The hypogeum, dug out of the sandstone bank, had a Doric court, with six half-columns per wing, amid L-pillars at the re-entrant angles (Fig. 2). Aisles covered with surbased, not intersecting pseudo-vaults ran around the eastern, northern and western sides of the court. The western and southern aisles were screened off by a divider, joined to the western face of the SW pillar and reinforced with an anta projecting as a support for a lunette. There was the northern wall of a corner room, whose eastern wall was joined to the southern face of the pillar S/7, as recorded by photos from the preliminary phase of the emergency excavation carried out in 1985. The rendering of the southern sector, beyond the edge of the modern trench, remains undefined. No traces of structures, which might have raised the attic elevation, to allow the audience to attend, from the top, the rites staged inside the court, survived. As regards the porticos, the triglyph problem has been solved by interaxes progressively wider, closer they are to the re-entrant angle. The frieze, lacking in axial concordance with the peristasis supports, shows three triglyph/metope units per interaxial space. A semitriglyph fills the re-entrant angle. Round holes for pins to fix garlands and/or decorative elements pierce the architrave, above each support. Transennae which are integral with the supports bar the intercolumniations N/7 and N/2 (Fig. 3, a-b). Because of dishomogeneities in the bank texture, architectural 'tesserae' were lodged in housings cut into the structure (Fig. 3, c-d). In a single case, the ashlars were built making use of lime mortar. The court had a beaten floor (Fig. 4, a). A hole filled with clay mud, to bed out a tree (Fig. 4, b), provides evidence

for a layout of the court as a garden and confirms a hypothesis suggested by A. Adriani as regards dig depth of the Hypogeum 1 court and grass enclosures of the Hypogeum 3 court¹. The aisles had a beaten floor consisting of sandstone shreds and flakes (Fig. 4, c).

Within the perimeter wall of the western aisle, by its northern head, there is a Doric door with slightly tapered frames and oblique and splayed room (Fig. 5, a). The end blocks of the threshold have been lodged inside a casing at the doorposts base. A step has been leant against the threshold, onto the *euthynteria*, to get over the drop from the aisle floor. On each side of the door, two benches ran along the aisle perimeter wall. The door provided access to a room with E-W longitudinal axis, covered with a surbased pseudo-vault and furnished with benches along the N and S walls (Fig. 5, b-c). The existence, inside the modern trench, of adjoining rooms is ruled out by the extent of the sandstone bank on each side of the western room. A natural arch-like instability, we had observed within the western room's rear wall, results from a shear/slip deformation following on from a door opening in a later phase. The jamb lacks in frame; the embrasure, skew and splayed, shows a western style designed as doorpost, which may have matched up the threshold tread with a hole for the leaf pivot. There is the back of a door with entrance from the west. Ashlars blocks, built within the opening, raised the level of the former sill, now reused as a step.

The room located beyond the western boundary of the 'Great Peristyle Tomb' was surveyed for the part lying within the modern trench (Figs. 6, a). A Doric door in its eastern wall shows a plinthless framework; its crosssetted frame is almost missing, while a fragment of cornice is preserved. The threshold consists of ashlar inserted between the doorposts. While lying a second floor, the sill was raised with ashlar, as we heightened, when we make reference to the back of the door.

Within the perimeter wall of the northern aisle, by its eastern head, there is a span resulting from a widening by quarry of an original door (Fig. 6, b-c), which provided access to a room robbed out down to the floor. As well as the Doric door in the western aisle, the northern door was framed within the first intercolumniation of the court portico, to draw a perspective sequence.

1 Adriani, A., 1936: 54, 78.

The perimeter walls of the aisles, entablature, attic and pillars of the court and many sectors of the sandstone bank have been severely dismantled too. Besides, signs of a bulldozer grab are evident on the surviving stretch of the perimeter wall in the N aisle.

The finds collected upon the floors of court and aisles (fragments of local grey/black and red ware dishes/lips with thickened inturned rim and round lip) date back to the last quarter of the second century BC the final frequentation of the tomb.

As regards the building phase, the architectural elements entitle a dating at about the mid-third century BC. Mouldings and ratios confirm conservatism and predilection for essential forms as almost an order's convention of the Alexandrian Doric architecture. Besides, capitals and cornices of the Doric half-columns show so cogent affinities as for the proportional calculus with the unfinished elements from the Eastern Harbour New Quay that we have to consider the architect was aware of the royal architecture specimen. This is much more true since the layout and frame of elevation are set by coherent enforcement of a principle of approximation of incommensurable geometric quantities: actually, each dimension issues from a direct or a derivative approximation of harmonic and sub-harmonic division of a greater quantity². An essential and plain drawing does not involve either a modest architectural value nor congruence and *symmetria* must have been disregarded in a private architecture in the name of functionality.

Within the wider scope of the Mission's activities directed to a systematic multidisciplinary exploration at the site, a GPR pilot survey has been carried out in a 2 hectares-sized area, to detect anomaly zones supporting the presence of hypogean structures having a potential archaeological significance. Moreover, the data processing allowed us to develop the rendering of a two-dimensional model of the bedrock's morphological structure, where the georadar sampling grid was closer (Fig. 7)³. In the years 2009-2012 the activities of the Mission were directed at designing and implementing a GIS platform which could provide an integrated analysis of geographical information and alphanumeric attributes filed in the past⁴. The

2 Minà, P., 2009b: 158-159.

3 Bombace, M, De Domenico, R., 2009: 161-163, Pls. Ia, IIa; Minà, P., 2009b: 155-156.

4 About a GIS platform independently developed by the Centre d'Études Alexandrines: Arnaud, J.-L., 2002: 159-175; Martin, N., 2003: 17-31; Arnaud, J.-L., 2009: 373-400.

geospatial analysis was intended at reconstructing the necropolis's diachronic and structural features, whilst a survey on other burial districts allowed us to detect shared guidelines in land use planning.

The necropolis layout (Fig. 8) arises from a set-up, which enforced a theoretical design of land division by intersection of sheaves of parallel and equidistant straight lines⁵. In reconstructing the grid, we got a division in E-W strips 45 cubits wide, bipartite (Hypogea 2 and 3) or split up into submultiples, meeting the demand and/or patterned on soil morphology. In a N-S direction, we detected a parcelling out into strips 48 cubits wide. The 'Great Peristyle Tomb', to the South-West of the plot in which the Hypogeum 2 is set, fills up a cadastre unit of 1 1/2 E-W standard alienable plot and 1 1/4 N-S plots. Indeed, if we add beyond the court, to the North, a space as broad as the room taken up to the West (13 meters), the northern boundary of the parcel falls on 1/4 of the grid. Besides, the span of a single plot is scant to hold the room brought to light beyond the northern aisle. Conversely, the rendering of the southern sector remains undefined: photographic records concerning the excavation carried out in 1985 provide evidence of a corner room amid the western and the southern aisles and, then, of a different design of the S wing and the related aisle (?).

The S-N oriented direction of the stairs (or of their major flights) of the Hypogea 1-4 and 6, laid out according to the geological layers geometry, let us assume the Hypogeum staircase well was located to the East, within the SE bank thickness (which could have been part of its core). The divider of the 'Great Peristyle Tomb' western room from the plastered room of the westernmost hypogeum matches with the N-S boundary amid adjoining plots, consistent with the grid. The gap detected between the S boundary of the Hypogea 1-2 plots and the N boundary of the 'Great Peristyle Tomb' cadastre unit, as well as the gap to the East of the last one, could be evidence of surface paths, taken from the parcelling out. The presence of cart-tracks inside the cemetery has to be conjectured, moreover, because of the needs of the burial transport and the freight and disposal of the quarried material.

Many indicators argue that the necropolis was laid out alongside an E-W road, connecting the city and its *chora*, trodden behind the coastline at the foot of the dune belt. The orientation of the Roman *castrum*, almost fitting

5 Minà, P., 2009a: 137-139, Fig. 1; Minà, P., 2010: 200-202, Pl. I.

with that of the Mustapha Pasha tombs, hints at the presence of an iso-oriented road, still in use or restored in the mid-first century BC.

Unfortunately, the data collected by the surveying of the historical bibliography are often hard to be transferred onto a cartographical framework. We could not either apply to the rendering of the necropolis topsoil the fragments of *naiskoi*/shrines, never survived in context⁶.

The analysis of variability indicators in hypogea distribution echoes a complex organisation. A single *loculus*-tomb with shaft and *dromos*, dug out of the sandstone bank to the South of the Hypogea 3, and the nearby *sema* foundation provide evidence of differential grave types and practices, maybe related to a first burial frequentation, included and partly erased by the monumental necropolis. On the other hand, a 'Chatby type' grave monument along Garstin street, together with some minor chamber tombs to the SW of the hypogea, towards Lord Kitchener street, could reflect a settlement pattern by burial clusters, preliminary to the more complex planning of a larger necropolis (Fig. 9).

The finding of a land use plan, as well as the chronology drawn up by Arnold Enklaar for the Hadra *hydriai* from Hypogea 3 (about 250 BC) and 7 (about 213 BC)⁷ laid side-by-side, suggests also a review of a Marjorie Susan Venit hypothesis, according to which the necropolis would have progressively spread out from the inland towards the sea shore.

In the second half of the second century BC we could distinguish discontinuity factors in the necropolis organization. Into the rear wall of the western room of the 'Great Peristyle Tomb' was let a leaved door with a bolting controlled in the West Hypogea: two formerly distinct tombs contravened the boundary of the *ambitus*, which was downgraded to a divider for rooms on a same axis. Such a regulation of the right of access set in as a follow-on from a changeover in the property/claim system. Inside the Mustapha Pasha necropolis, indeed, only the main doors to the hypogea were provided with locking devices. A comparison comes out from the necropolis of Gabbari. The Hypogea B1 and B3 provide evidence of a controlled admittance to single sectors of the tomb; the inner doors may

6 Adriani, A., 1936: 160-161, Figs. 85-89.

7 Enklaar, A., 1992: 12, 2.6 (*Droplet Painter*), 19, 11.10 (*Wavy Line Painter*).

have been set up following the transformation of the family tombs into collective hypogea⁸. It is worthwhile, in this respect, that inscriptions concerning a claim-holder were painted in the room B1.4, one of the rooms where a bolting was devised. Such an overstepping of the plot boundaries is until now the only instance in the Mustapha Pasha necropolis. Despite the use of the same burial spaces, we find a specific behaviour meant to parade one's own status and family prestige, anything but a simple changeover of property, was dismissed. Nevertheless, the architectural elements relevant to the tomb outer layout provide evidence, still in the second century BC, of the regard for the monumental *sema* within the rites staged at the grave. Then, given the earlier chronology of the first evidence for a change in administration from the Gabbari necropolis, the phenomenon seems to have been established in the two necropoleis neither simultaneously nor according to a uniform development.

In the first century BC-early first century AD, at Mustapha Pasha deep changes underwent, bringing to an overall reorganization of the necropolis (highly standardized grave goods, exploitation as a quarry of the northern sector, dismantled hence, of the 'Great Peristyle Tomb'). The Roman *castrum* stems a more 'fluid' context. The new Nikopolis settlement may have interfered with the previous state and rule once more the relations between town and *chora*, whilst a new equilibrium among the social parts was introduced. The new policy justifies the deepest changes, which cannot be seen as a sign of a potential assets decline. The Roman necropolis lay on areas overlaying only to some extent the previous one and developed according to rules not observed in the past.

It was suggested that the burial areas of Alexandria had spread out from a first nucleus, located by the city walls, towards sectors further and further away from the town. If it is likely that the grave clusters had belonged to distinct burial grounds, depending on the 'formal burial' measures, nevertheless, we cannot rule out any other dynamics, such as a different morphology and structure of the bedrock substrate, land use for agriculture, craftwork activities, quarries, etc., presence of suburban settlements (notably Eleusis, Hagar el-Nawateia, Zephyrion), civic buildings (Hippodrome out of the Canopic Gate) and cult places (Ptolemaic sanctuary at Hadra; sanctuary of Isis-Cerere at Abou el-Nawatir, temple of Arsinoe Zephyritis), into the

8 Boussac, M.-F., Empereur, J.-Y., 2001: 226-231; Minà, P., 2009: 139-142, 144, 146.

chora key sites, meant as benchmarks of the settlement⁹. In the III-II century BC, the monumental tombs of the eastern necropoleis spread over the belt behind the coastline (Shatbi, Hypogeum A; Stratonice's *mega mnemeion*; Hypogea of Sidi Gaber-Cléopatra-les-Bains, Hypogea of Mustapha Pasha, so-called Temple of Arsinoe Zephyritis; Hypogea of Montazah). In any way, cohesive clusters of monumental tombs may point towards privileged sectors, where the primacy claim was paraded by architectural luxury display as a hallmark of a close social group. The chronology of the earliest archaeological finds (Hadra *hydriai*) from the Mustapha Pasha tombs and the date suggested for the Sidi Gaber-Cléopatra-les Bains tombs, concurrent with the early phases at Hadra-el Manara, stand out against the hypothesis of a growing spread of the urban necropolis eastwards, along the coastal road. On the other hand, the uncommon wealth displayed by tombs located in 'marginal' zones keeps the indices of centrality/relevance from being restricted only to a continuity of use of the burial ground and/or a set-up preceding that of the adjoining areas. The faraway cemeteries of the Alexandrian *chora* show a more 'open' state, perhaps owing to a less strict observance of the urban 'rules', possibly related to a lower pressure of social antagonisms. High-rank groups may have chosen there to emphasize their class distinction by selecting a burial ground set apart from those of more common use.

The necropoleis polycentric distribution with clusters at the region utmost ends could imply, at least as to the early- and mid-Hellenistic evidence, a thought-out plan within the frame of the seizure of the *chora*, meeting land division and development projects, whose guidelines depend on the site geomorphology.

Aiming at reconstructing a consistent (and predicting) formal model of burial organization structure, we applied the survey methodology tested in the Mustapha Pasha district to analyse the zones A and B of the Gabbari necropolis. On account of the published maps¹⁰ we processed in a table the

9 Minà, P. 2011: 77-79 (with footnotes 91-96). About the geophysical survey and the new excavations of the Smouha sanctuary at the cross-road of Lewaa Mohamed Fawzi Moaaz and Tout-Ânk-Amon street:

http://archaeologydataservice.ac.uk/archives/archiveDownload?t=arch-498-1/dissemination/pdf/smouha_reportSML.pdf and Bruwier, M.-C., 2012: 178-187. A site named Hiera Nesos (of doubtful classification) is listed into an account of journey costs

(*PSI* 5.543, l. 48, Philadelphia, mid III century BC).

10 Sabottka, M., 1983: Figs. 1, 3-7; *Nécropolis 1* 2001: Fig. 1.14; Rousseau, S., 2003: Figs. 2, 5-6, 10, 12-17.

iso-oriented elements, to be hypothetically traced back to the ancient division by main axes and *limites intercisivi*. To identify the benchmarks drawn by the *arpedonaptai* (rope-fasteners), we set a demonstrative value on the position of the hypogea staircases, whose outer edge is often useful to locate a boundary between adjoining hypogea because of the advantage, in sharing out the inner room of the parcel, in setting the staircase on the plot fringes¹¹.

Into the zone B of the Gabbari necropolis we reconstructed a grid oriented $66^{\circ}\perp 156^{\circ}\text{N}$, agreed with the urban layout, and a division oriented $54^{\circ}\perp 144^{\circ}\text{N}$, the same we found as prevailing into the zone A. As for the settling of crossing grids, there are recorded tombs with double orientation, due to a widening of the early structure (Hypogaeum B17, northern addition; Hypogaeum B6, room B6.3) or to a position by the convergence of axes relevant to different grids (Hypogea B26, B12).

The two orientations were also effective into zone C, where there is evidence of plots in the shape of a parallelogram¹². Should the coexistence of two systems be ascribed to either a single land-registering phase or instead multiple phases with new assignments integrated into the early system, transversal axes oriented 150°N draw supplementary adjacent angles of 84° - 96° with respect to both the longitudinal axes of 66°N and 54°N .

Small amounts of land among next tombs, left unassigned before, could have been purchased afterwards by one or jointly by all the owners of the adjoining plots. From such a practice could stem the shared use of inner quotas.

Other tombs in the western necropoleis provide further evidence not only for the two main systems, but also for the long life of their guidelines, concurrently in force since at least the first half/half of the third century BC¹³. Having agreed on the concordance between a grid orientated $66^{\circ}\perp 156^{\circ}\text{N}$ and the urban layout and taken into account the usual settlement of cemeteries alongside a *demosia hodos*, we considered a potential existence of burial roads with a direction of 54°N connected with the southern gates of the city walls or crossing an extension of the longitudinal streets outside the walls. The layout of the roads leading to the city is bound by the geomorphology of the coastline and the saddle between the coastal dune

11 Minà, P., 2009a: 143-144, Figs. 2-5.

12 Minà, P., 2011: 68-71, Fig. 3.

13 Minà, P., 2011: 71.

ridges almost parallel to the seashore and the Mareotis Lake (oolitic limestone ridge II). Coastal dunes were drawn by shaded hatching in historical maps, which show how these 'invariants' had influence over the centuries, independently of the authority in charge of roads control and maintenance. Aiming at a rendering of the layout of such burial roads to the West of the city walls, we georeferenced the maps of the *Description de l'Égypte* in the ETM system through transformation algorithms (rubber sheeting) and resampling of the dataset. An overlay of the rectified Napoleonic map and the vector drawing features of a hypothetical extension of the longitudinal streets as from Mahmoud Bey el-Falaki map gave the results processed in Fig. 10, a¹⁴.

Longitudinal streets could have been trodden just over small distances outside the city walls because of the coastline structure and actual morphological barriers. A western extension of the L'4 would have run through a path blazed amid the reliefs to get to the coastal road to the North of the ridge dunes where the Gabbari necropolis was located. As for the L'5, to the West of the bridge over the canal, land morphology leads us to assume the road turned, running along the *kurkar* ridge, at a 54°N angle, which matches the orientation of one of the cadastral grids. The zone C of the Gabbari district is exactly the farther west site out of the city walls where a division matching the urban street layout was observed.

As for a lower density of hypogea in the eastern necropoleis than in the western ones, since the first half / half of the third century BC, it could be useful to add a more precise account. Such an idea arose since the surveys carried out in the eastern necropoleis have been emergency excavations rather than wide-ranging researches, but also because of the solution of continuity in burial frequentation as therein testified by historical sources and archaeological evidence.

The Hadra hills, which provided an apt substrate for the tombs, were demolished all through the treading of the carriageable road in 1872 and of the Cairo-Rosetta railroad. The coastal ridge area shows an early urban growth and a new layout following the opening of the Corniche road (1922 ff.). Large sections of the cemetery were missing, due to the coastal erosion by exogenous agents' action and as a result of the coastline retreat, caused by land subsidence

14 Minà, P., 2011: 71-75, Fig. 4.

and geostatic rise in sea level¹⁵. Aside from these preliminary remarks, the settlement of monumental tombs is bound to two factors, even concomitant: the existence of a substrate enough deep to quarry and of fitting technological skills, and the persistence of an earlier infringeable burial ground.

The *kurkar* ridge II surface tilts toward ENE as a result of stretching and down-bowing of its layers toward East, during the Holocene, due to sudden weighting phenomena by high floods of the Nile River and a large-scale subsurface growth fault evolution as a response to a readjustment of the sediment pile. Besides, the *kurkar* ridge I (bars of offshore islets) between Agami and Pharos could have further sheltered the west shoreline from exogenous agents during periods of lower sea-level¹⁶.

As for the eastern necropoleis, A. Adriani believed that the highest parts of the Hypogeum A of Shatbi had been built in masonry, as well as the Hypogea 3 and 4 of Mustapha Pasha. These tombs were dug out up to a lesser depth than the hypogea in the southernmost sector of the necropolis. We may notice, however, that the surface of the Mustapha Pasha necropolis showed an undulating morphology. The bank altitude inside a private garden at the crossroads of Michael Abadir and Syria street (the site of an additional tomb) and a *epitymbion* foundation which offers proof of the surface level to the South of the Hypogeum 3 are a conclusive evidence. Together with the bank position (and with the aquifer outcrop) we should take into account the existence of a quarry which may have resulted in attenuation in depth of the late-Pleistocene *kurkar* and a removal of the Holocene sediments. Some archive photos seem to confirm the hypothesis of quarries pre-existing/concomitant to the burial frequentation in the eastern necropoleis. Especially in Hadra, Ezbet el-Makhlouf, there are 'corridors' 20-40 meters long, whose irregular plan seems to imply earlier quarry trenches¹⁷. Finally, the items collected so far point at a higher dispersion of hypogea as long as the memory of an earlier burial ground was preserved. It is likely that the late monumental growth of Gabbari zone A, getting to height in the II-I century BC, was influenced by a high-Ptolemaic cemetery which had used the topsoil¹⁸.

15 Minà, P., 2011: 75.

16 Minà, P., 2011: 75-76.

17 Minà, P. 2011: 77 (with footnote 83), 93-94.

18 Minà, P., 2011: 79-80.

Continuous, lasting use of burial space, horizontal stratification, hierarchical organization of burial grounds, monumental structures allowed us to measure multiple experiences in settlement, anyway bringing back to a common denominator. Grids oriented $66^{\circ}\perp 156^{\circ}\text{N}$ were detected to the West of the city walls as well as in the eastern necropoleis of Shatbi¹⁹, Hadra, Aboukir street²⁰, el-Muwassât²¹, and Ezbet el-Makhlouf²², Sidi Gaber-Cléopatra-les-Bain²³, but also in the Anfushi district on the Pharos Island²⁴. The Hadra burial grounds were located alongside funerary roads coaxial to the streets L1 (Hadra, Aboukir street, perhaps at the crossroads with a hypothetical R'5), L'2 (Hadra, el-Muwassât), and L'3 (Hadra-Ezbet el-Makhlouf) (Fig. 10, b), whose fossil 'trenches' appear in the maps of the *Description de l'Égypte*. The earliest grave goods coming from tombs oriented $66^{\circ}\perp 156^{\circ}\text{N}$ in Aboukir street and in el-Muwassât (dating from the end of the IV- first half of the III century BC) provide evidence of an early ordered burial land use. Such a layout of the suburban space planned with a regular road system will be the basic framework for the next urban development²⁵. In a similar way, the necropolis of Anfushi could have been reached by a road to the West of the Heptastadium at a right angle to it (we drawn for a length of two city blocks *i.e.* 660 meters) (Fig. 10, c)²⁶.

Since the earliest settlement, the burial landscape, where recorded, shows a conscious use of the specific spatial variables. In the sector lying alongside the Aboukir street, at the foot of the hill, tombs, *semata* and enclosures are for the most part oriented $66^{\circ}\perp 156^{\circ}\text{N}$. The Hypogeum D, dug out just beyond the bottom of the eastern slope, also keeps on the same direction. On the hillside, tombs and *semata* have been adapted to the isohypses layout or to the longitudinal axis of the hill. These morphological features led settlers to privilege the higher zones, because of the safety of the site from changes in water table and of the visibility as a sign of status.

19 Minà, P., 2011: 86-88, Figs. 8-9

20 Minà, P., 2011: 83, Fig. 6.

21 Minà, P., 2011: 83-86, Fig. 7.

22 Minà, P. 2011: 81-83, Fig. 5.

23 Minà, P. 2009a: 144.

24 Minà, P. 2012: 91-93, Figs. 1-2.

25 Minà, P., 2011: 90-93, Figs. 10-11.

26 Minà, P. 2012: 93-95, Fig. 3. About the Heptastadium layout: Hesse, A. *et al.*, 2002: 191-273, Fig. 7.

Besides, in Ezbet el-Makhlouf, in el-Muwassât and in Shatbi we also found clusters of tombs oriented $90^{\circ}\perp 180^{\circ}\text{N}$. At the junction between the two systems ($66^{\circ}\perp 156^{\circ}\text{N}$ and $90^{\circ}\perp 180^{\circ}\text{N}$) there are graves (and plots) oriented according to the bisector of the angle at the intersection. In several cases, a *quadrifinium* has been detected. The N-S orientation, known from the Egyptian cadastres, was in force since the beginning inside the *Basileia* of Alexandria, where it was coexisting with the main streets direction, and also kept in the Alabaster Tomb²⁷. Again in the Egyptian cadastres (especially concerning land topographical measurements) we found irregular (parallelogram and trapezium-shaped) plots²⁸. The *gheōmetria* we detected in the necropoleis of Alexandria matches, although at a different scale, with the measuring systems set up in the cadastres of Egypt and the operating practices later codified by the *agrimensoria* doctrine. The *pedatura* of the tombs preserves evidence of original *limites*, who built the landscape features outside the city walls. Changes in burial land use are recorded by intersecting or overlapping divisions, segments of physically fragile systems, usually extremely degraded.

To conclude, the formal congruity we credited for such a system implies a land division of urban and suburban areas as a united plan, even though carried out in stages.

27 Minà, P. 2011: 88-89.

28 Mina, P., 2011: 89.

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Fig. 1

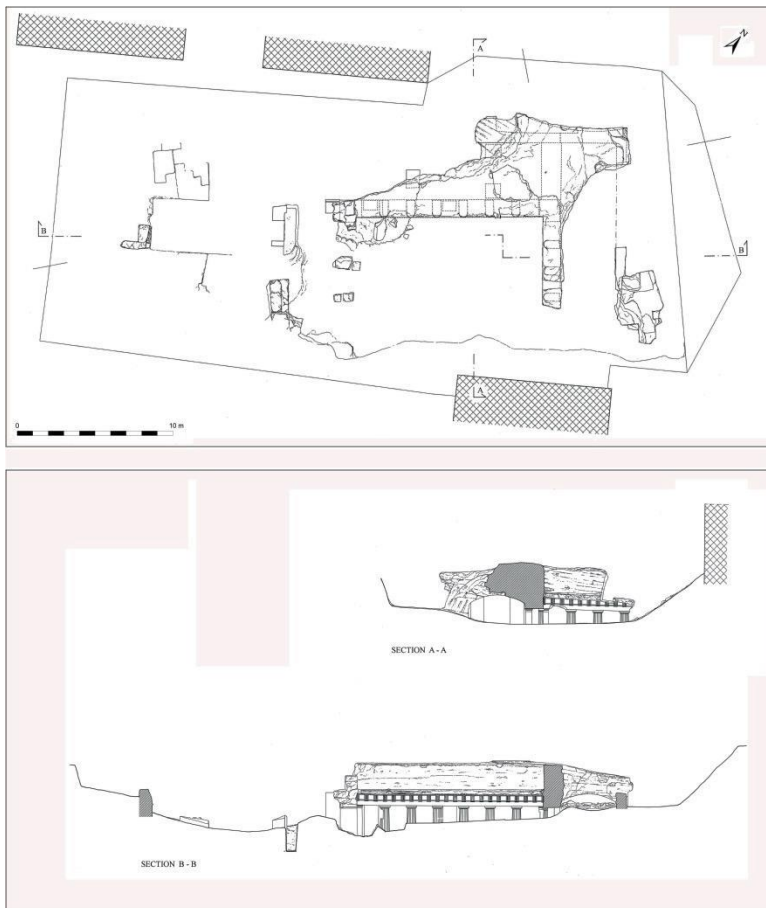


Fig. 2

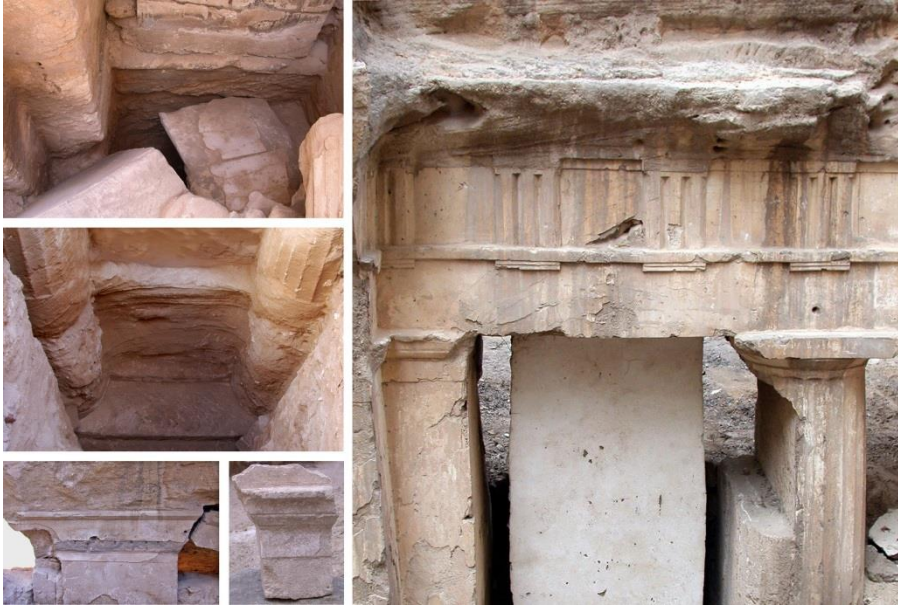


Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8

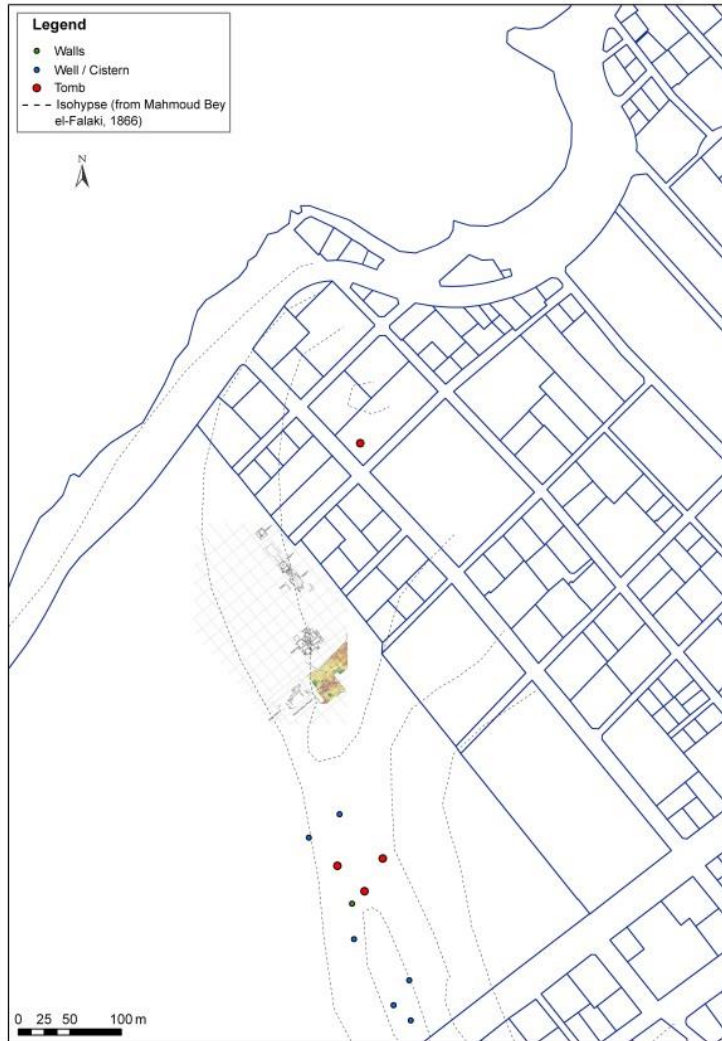


Fig. 9

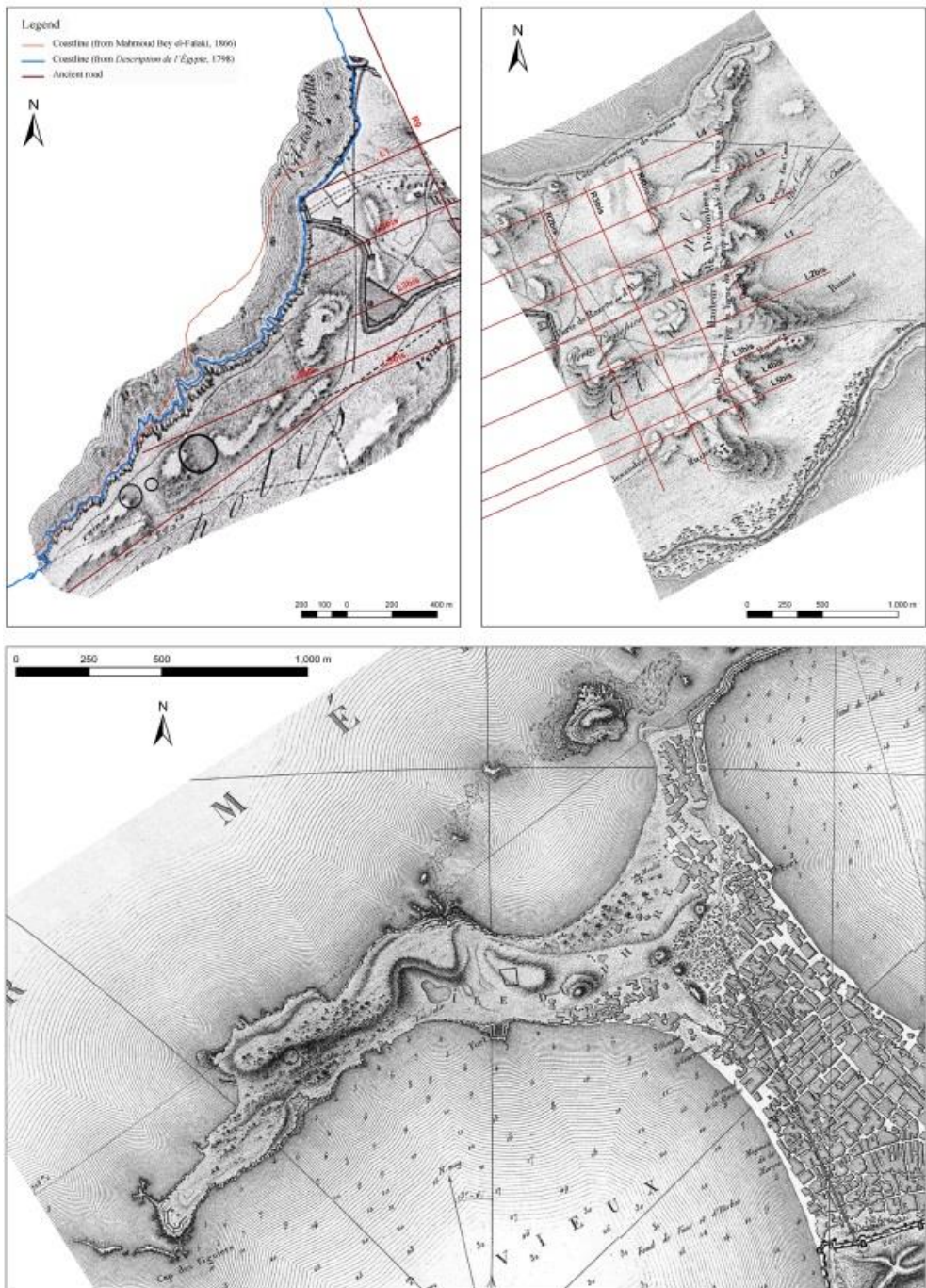


Fig. 10