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TOMB ARCHITECTURE AND DISTRIBUTION IN THE EASTERN NECROPOLIS OF NEA PAPHOS, CYPRUS

Abstract: The Eastern necropolis of Nea Paphos is one of the most significant funerary landscapes of Cyprus, primarily because of its connection with the capital of the island during the Hellenistic and Roman times, and therefore of importance for the archaeology of the Eastern Mediterranean. The first systematic exploration of the site took place in the 1980s in the form of rescue excavations. Only limited research has been undertaken since then.

This article discusses the necropolis based on unpublished material from the rescue excavations. It presents the tombs' architecture; partially reconstructs the burial ground; reveals the extension of the necropolis; triggers questions related to the dynamics between nearby necropolis, and its potential correlation to satellite habitation sites.

Keywords: tomb architecture; Eastern necropolis of Nea Paphos; legacy data; GIS; Cyprus

1. Introduction

1.1 Background information

This paper presents the overall results of the SpAce project entitled *A contemporary approach of the ancient necropolis of Nea Paphos: GIS application in Archaeology*. The idea of the research project was to study the Eastern necropolis of Nea Paphos (Pl. 1: 1-2) based on unpublished

information resulted from the large-scale (in terms of spatial extension) and long-term rescue excavations between 1983 and 1990. The unpublished data was sourced from the Rescue Excavation Books of Prof. Emeritus Demetrios Michaelides, the excavator of the site on behalf of the Department of Antiquities of Cyprus (hereafter DoA).

More specifically, the project exploited unpublished archival information related solely to the architecture of the tombs, their geographic location, and spatial dispersion. After the lapse of many years since the excavation, this is the first attempt to study the necropolis in terms of tomb typology and distribution, exploiting computer applications (i.e. AutoCAD, GIS, geospatial statistics) in order to complement the current knowledge and to supplement the available archaeological information of the site.

Despite detailed excavation records, information regarding the exact geographic locations and spatial distribution of the funerary architectural features was not always available, mainly because of the surveying technological limitations of the time (for difficulties related to old legacy data, see for example Smith 2008; Witcher 2008). However, this information would be the only ground verification, which is now lost due to the modern city's urban expansion that has significantly altered the ancient landscape (Lysandrou *et al.* 2015). An additional difficulty is that most of the tombs investigated during the rescue excavation were found destroyed. Typically, the main factor for their destruction was the mechanical means employed for the construction development of the area, which was taking place simultaneously with the rescue excavations. In an effort to recover the most of the lost geoinformation, the SpAce project, adopted a methodological approach that brought together archaeological information and geo-data with geospatial tools, capitalizing on technological improvements in the field of geoinformatics, not available at the time of the excavation (Lysandrou *et al.* 2018).

1.2 Research aims

Following specific copyrights permissions provided by the excavator of the necropolis, the current research explores information related to the architecture and locations of the tombs within the Eastern necropolis. Specifically, based solely on particulars concerning the shape and dimensioning of some of the tombs, and on elementary geographic information, the paper partially reconstructs the Eastern Necropolis burial ground through the geo-referencing of several tombs. The tombs' architecture,

distribution, and orientation are discussed. One of the core objectives of this study is to discuss the area used as the burial ground, based on solid excavation material and with the aid of geospatial tools. Undoubtedly, the geographic extent of the necropolis would be more definitely and decisively delimited once the results of many other rescue excavations of individual tombs accomplished in the area over the last 35 years (primarily by the DoA) are published (Lysandrou, forthcoming).

Furthermore, the article serves to make available to scholars the results of the synthesis of primary excavation data. For many centuries, shaft grave tombs had been the simplest and commonest tomb type intended primarily for individual burials in Cyprus. The data exploited for this work permit a study of a large sample of shaft grave tombs within a single necropolis. (Another consistent example of shaft graves is provided by the Kourion's Amathus Gate Cemetery, where, however, the shaft tombs necropolis was much smaller, with a posterior chronology and was investigated under the form of organised and systematic excavation. The results of the excavation in this necropolis have been systematically published: Parks 1996; Parks 1997; Parks *et al.* 1998; Parks *et al.* 2000)

However, the chronology and development of the Eastern necropolis could only be established once the entire *corpus* of findings (i.e. skeletal remains, coins, ceramics) and stratigraphy are published. Lacking this information, the present work does not aim to determine an absolute dating for the necropolis or for individual tombs.

Given that the technical limitations of such a project have already been discussed elsewhere (Lysandrou *et al.* 2018), here the available data are analyzed and the tomb architecture is contextualized in its historical and cultural setting at the level permitted by the limited information at disposal.

For the start, the paper introduces the site and the history of the research. Then, it briefly presents and discusses the unpublished archaeological material attained from the excavation records. A presentation of the results of various analyses that were carried out follows with a particular focus on the distribution of the tombs within the funerary landscape, the tombs typology, and the geographic extent of the necropolis. A distinct mention is made of the predominant tomb type in the site, namely grave tombs, and the results of their metrological study are quoted.

2. The Eastern necropolis of Nea Paphos

2.1 History of research

'Eastern necropolis' refers to the most significant known part of the necropolis of Nea Paphos dating to the Hellenistic and Roman periods, even though the exact geographical extension of the necropolis remains unknown at present (Pl. 1: 1-2); so far, no study has concentrated specifically on this issue.

The burial ground of the Eastern necropolis, extramural itself, lies to the east of the city of Nea Paphos (Pl. 1: 3). The natural and anthropogenic topography of the landscape is of a relatively flat land with a mean height of 12 (and maximum 20) meters above sea level, defined by the city walls to the west end and the coastline to the south, with no specific landmark as for its easternmost boundary, while its extension to the north is still unclear.

The necropolis has been systematically excavated, mainly as a result of large-scale rescue excavations in the 1980s (Lysandrou *et al.* 2018) due to a rapid development and expansion of Paphos at that time (Lysandrou *et al.* 2015).

On top of the unpublished tombs that are included in the present study, the DoA reports a few others from the Eastern necropolis accidentally discovered in the 1980s (i.e. Tomb M.P.2454 in Karageorghis 1981a, 45; Karageorghis 1981b, 977). These have also been taken into consideration for the purposes of this article. Several other tombs were also reported both in the past (that is, before 1980: Myres and Ohnefalsch-Richter 1899, 6; Markides 1916a, 7; Markides 1916b, 13-14; Gunnis 1936, 147; Deshayes 1963, 24-55) and more recently (Michaelides 1990, 190, Raptou and Marangou 2008, 365-387) in various locations around the ancient city of Nea Paphos, chiefly to the north and north-east, but they are not part of the Eastern necropolis.

As argued by Nicolaou (1966) in one of the first studies discussing the topography of Nea Paphos, the necropolis of the city lies just outside the perimeter of the city walls. A distinction between two contemporary areas used as burial grounds, the Northern necropolis and the Eastern necropolis, has been suggested and kept since then. Despite the fact that this distinction was made on limited archaeological data, posterior excavations and archaeological research confirmed the two funerary sites were separate. A question emerges regarding the use of the area in between the two

necropoleis, as well as the chronological establishment and development of the burial grounds surrounding the city of Neas Paphos.

As far as the Eastern necropolis is concerned, very little was known at the time of Nicolaou's essay. In particular, the necropolis was thought to extend east of the city walls at the localities Hellenika (*Ελληνικά*) and Alonia tou Episkopou (*Αλώνια του Επισκόπου*) (Nicolaou 1966, 601), initially mentioned by Hogarth *et al.* (1988, 267-269) (Pl. 1: 1-3, 5: 5).

Previous studies on the Hellenistic/Roman funerary landscape are limited to complementary parts of a few publications (Nicolaou 1966; Młynarczyk 1990) which aim at a broader examination of the city. Most of the literature that explicitly references the Eastern necropolis deals with luxurious or rare artefacts found within specific tombs (i.e. Michaelides 1984; Michaelides and Młynarczyk 1988; Michaelides 1990).

More attention needs to be devoted to the study of tomb architecture in relation to the unpublished stratigraphy, artefacts, and anthropological evidence of the Eastern necropolis. The concurrent examination of architecture and topography with burial goods and skeletal remains will establish chronological sequence in regard to funerary issues and possibly yield observations on potential changes of mortuary practices, social behaviors, and potential status changes during the transition from the Hellenistic to the Roman period as well as within the individual historic eras.

2.2 Tombs excavation record and data

Three hundred seventy architectural features filtered from the excavation records of 1982-1990 form the basis for this study. All of them are dating to the Hellenistic and early Roman periods. They predominantly include simple grave tombs and, secondly, several chamber tombs, a few wells, and other unidentified architectural features. Tombs and other features were uncovered in different places within the necropolis, explored and recorded by the excavator, and recently indexed regardless of the quantity and type of the available information (Lysandrou *et al.* 2018). Thereafter, the catalogue was filtered in order to see which of them could be exploited further and how. Fig. 1 shows a part of the digital indexing of the various features within a tailor-made database.

A/A	PM no.	Tomb no.	Indicative area	Excavator's tomb no.	RWB no	Page	Excavation year
1	2519	T.2/83	Hotel 'X' under construction plot 323/1	I	I, 1983-1984	2	1983
2	2520	T.3/83	Hotel 'X' under construction plot 323/1	II	I, 1983-1984	3	1983
3	2521	T.4/83	Hotel 'X' under construction plot 323/1	III	I, 1983-1984	5	1983
4	2522	T.5/83	Hotel 'X' under construction plot 323/1	IV	I, 1983-1984	6	1983
5	2523	T.6/83	Hotel 'X' under construction plot 323/1	V	I, 1983-1984	7	1983
6	2524	T.7/83	Hotel 'X' under construction plot 323/1	VI	I, 1983-1984	10	1983

Fig. 1. PM no. (Paphos Museum number as per the Official Registry of the DoA); Tomb no. (as per the Official Registry of the DoA). The rest refer to notes from the Excavation Records which were matched to the Official Registries. In particular, Indicative area (the excavation area of each individual tomb as marked in the Excavation Records by the excavator); Excavator's tomb no. (the number attributed to each tomb during the excavation by the excavator); RWB no. (Rescue Workbook number which each tomb is recorded in), and the pertinent page number in the following column. Finally, the year of excavation of each individual tomb is provided (where more specific dates of the duration of the excavation were available, they were marked in the database)

The database included all available information for each architectural tomb and feature, for instance, the survey unique number attributed to each feature, the official number assigned to each feature in the archives of the DoA (thereby facilitating the connection between the two sources of information), particulars regarding the architecture, and more. Subsequently, this information was imported into a GIS environment, which enabled merging of archaeological, geographic, topographical, and architectural information (Lysandrou *et al.* 2018).

It is noteworthy to mention that several destroyed tombs and other features were not attributed a PM no. and therefore they have never

reached the official state registries of the DoA. However, considering their historical and archival value, at least as far as the architectural density within the landscape is concerned, these features have been considered in the present study.

2.3 Architectural drawings

All architectural documentation plans and sketches of site plans, individual tombs and other features were vectorized in a digital Computer-Aided Design environment. Where possible, the tombs were drawn in scale, providing useful insights as far as their geometry and metrology is concerned (see *infra* section 3). The architectural digitization procedure has been particularly time-consuming, but essential as it allows introduction of the generated information into the GIS and thus the best merging of architectural and topographic data.

3. Architectural and topographic analysis

This section presents the outcomes of various analyses. To start with, the architectural features of the necropolis are presented and the tombs' architecture is briefly discussed. A metrological analysis of the prevailing tomb type follows. Finally, the spatial factor of the tombs' distribution within the necropolis is examined in relation to areas of the highest tomb concentration.

3.1 Architectural features and typology of the tombs

Various architectural features of the necropolis were divided into six groups, as shown in Pl. 2: 1. The six groups were formed in relation to the usage of these remains (i.e. tomb, well) therefore features bearing a neat burial or other funerary use. Tombs themselves were further divided based on their architectural typology. 'Grave tomb,' 'Rock-cut chamber tomb,' 'Built chamber tomb,' 'Other feature,' 'Well,' and 'Not mentioned' represent the six groups.

The first group (Pl. 2: 1, Group 1) comprises by far the most prevalent architectural type to be found in the territory of the Eastern necropolis, which is a simple rectangular pit grave tomb, counting 316 examples (82% of all features recorded), including looted, unlooted, unfinished, disturbed, preserved or destroyed tombs. This type of tomb is hewn out from the surface of the natural bedrock. It is frequently found in the literature under the name of a shaft tomb or *mnema* since it consists of a simple – usually rectangular – grave sunken in the bedrock. Even though several examples

of the specific tomb type are found all over Cyprus (Lysandrou 2014), the Eastern necropolis shows the greatest concentration and consistency, so much so that it could be characterized as ‘a shaft tombs’ necropolis.’

These tombs are occasionally covered by stone slabs, usually from three to five, depending on the size of the tomb, as it has been recorded by four examples elsewhere in Paphos (not in the Eastern necropolis) (Markides 1916b, 13-14). From the Eastern necropolis data, it appears that several tombs were covered in this way and even when the slabs were not preserved *in situ*, a cut ledge on the top of the tomb, where these slabs were accommodated, testifies to their covering fashion.

This covering practice relates to chronology or to preferences pertaining to burial practices. As argued by Michaelides (1990b, 189), tombs of this type are simple rectangular pits hewn out of the natural bedrock of approximately 2m long and 0,60-0,80m wide. However, he mentions that those of the Early Hellenistic period can be much larger and the deceased was rarely covered by stone slabs.

Simple graves lined from the inside with stone slabs are rarely reported (Tomb 118/84-P.M.2707 in Karageorghis 1985a, 56-57; Karageorghis BCH 1985b, 964 and Tomb 112/84-P.M.2699. All of them are included in the excavation records). These cist graves recall examples of the so-called box-shaped tombs from Northern Greece (i.e., Amphipolis East necropolis, Serres 2000, 198-199; Necropolis of ancient Phagri Kavalas 2000, 193) and are not common in Hellenistic/Roman funerary architecture of Cyprus (Lysandrou 2014, 202-203). Only two examples dating to the Roman period were hitherto known (Lysandrou 2014, 202-203: a Roman tomb from Nea Paphos see Karageorghis 1982a, 708-709; Karageorghis 1982b, 42-43, and a Roman tomb from Salamina see Karageorghis 1969a, 14; Karageorghis 1969b, 540) and as inferred from individual examples, the decision to cover the inner vertical walls of the shaft was imposed by external constrains (such as the soil type).

In total, 42 examples of rock-cut chamber tombs were recorded (Pl. 2: 1, Group 2) among the rectangular graves, in a somewhat random placement. Built tombs (Pl. 2: 1, Group 3) are an exception in the area, which is only represented by one example as documented in the excavator’s notes.

In Pl. 2: 1, Group 4, the indication ‘other feature’ refers to architectural remains such as cremation pits, ossuaries, unidentified carvings and formations, which, however, are correlated to unfinished or destroyed tombs and are generally attributed a funerary use based on the available information.

Pl. 2: 1, Group 5 includes wells that have furnished the necropolis. Only six examples were registered, but most probably, there must have been more of them, considering water properties in funerary context (for both utility and purification purposes, and the importance of water in funeral ceremonies, see Lysandrou 2014, 343 with examples from Cyprus and the Mediterranean, including related bibliographic references). These wells are square- or round-shaped, incorporated in tombs or independent. One of them is described as an integral part of a chamber tomb, while more are noted as accessible via a stepped descending *dromos*.

The last group (Pl. 2: 1, Group 6), under the indication ‘not mentioned,’ refers to five architectural features for which no description is given, neither written nor drawn.

A certain peculiarity was observed concerning several double grave tombs within the necropolis (Pl. 4: 1). They consist of two shaft graves identical in shape and dimensions and positioned next to each other lengthwise. Such ‘twin’ shaft graves were found in a more significant concentration at the locality no. 5 (Pl. 5: 4-5) of the necropolis (see below section 3.3, Cluster C), and fewer were scattered in other locations. At this point of the research, it cannot be verified whether a double shaft grave tomb belonged to members of the same family. A detailed study of any skeletal remains and a scrupulous examination of the funerary artefacts might illuminate their purpose. To our best knowledge, no similar twin shaft graves have been reported elsewhere in Cyprus.

3.2 Shaft grave tombs’ metrics

As already mentioned, the most common tomb type in the Eastern necropolis is a simple grave tomb. In order to quantify the metrics of any specific type, a pattern analysis has been carried out, borrowing and extrapolating metrics principles applicable to landscape ecology (Forman and Godron 1986; McGarigal and Marks 1994). In particular, the architectural characteristics of the elements (i.e. tombs), such as size, shape, form, shape complexity, were examined.

Various metrics were computed using ArcMap v10.6 GIS software. The analysis provided the following insights into the tombs’ dimensions in relation to their geometry and shape:

- Total Edge (TE), refers to the perimeter of each individual tomb;
- Mean Size (MS), refers to the area of each individual tomb;

- Mean Perimeter-Area Ratio (MPAR) refers to the ratio of the perimeter of the individual tomb divided by its area;
- Mean Shape Index (MSI) refers to the tomb's circularity. MSI is equal to 1 when the tomb is circular, and it increases with increasing shape irregularity. MSI equals the total perimeter of the tomb divided by the square root of its area;
- Mean Fractal Dimension (MFD) is another measure of shape complexity. It equals 1 for shapes with simple perimeters, and 2 when shapes are more complex.

Metrics analysis has been applied to a sample of 176 shaft graves that had solid metrological data. The table below summarizes the basic statistics of this analysis including the minimum, maximum, and mean values as well as the standard deviation for each metric parameter. The measurement units for TE and MS are meters and square meters, respectively, while MSI, MP/AR and MFD have relational values.

	TE (m)	MS (m ²)	MP/AR	MSI	MFD
MIN	1.41	0.08	1.30	1.11	1.00
MAX	15.34	9.48	16.73	1.87	2.00
MEAN	5.91	1.80	4.15	1.30	1.81
STD	2.12	1.26	1.99	0.12	0.39

Fig. 2: Metric parameters of shaft graves

As far as the TE is concerned, there is a notable deviation of $\pm 2m$ regarding the perimeter of grave tombs. Indeed, the range between the recorded minimum and the maximum values was calculated at 1.4 and 15.34m, respectively. The mean perimeter value was calculated to be around 6m, which corresponds to a rectangular shape of $2 \times 1m$. This dimensioning provides a metrological canon for the specific tomb typology within the Eastern necropolis. The mean area value (MS) corresponds to 1.80 square meters, which further verifies these standardization rates. Consequently, the mean ration MP/AR corresponds to a value of ± 4.15 , with an STD 2.12.

Usually, these tombs are rectangular in shape. The MSI small deviation conforms with this norm. However, this small deviation is due to a few rectangular tombs described by the excavator to bear one of the two short sides slightly arcaded (reminiscent of *loculi*-shaped tombs) instead of the typical straight confine line.

The mean value for MFD is 1.81 (almost 2), which indicates shape complexity in terms of the tombs' geometry. A few examples of grave tombs

of the standard dimensions bear a second compartment created by a vertically positioned stone. This compartment is smaller in length than the grave itself. However, the addition of this section elongates the total length of the grave.

3.3 Spatial characteristics and distribution of the tombs

Based on the available information, it was possible to attribute geographic coordinates to 163 tombs. For the remaining ones, for which the geo-referencing was not feasible due to lack of available data, the geographic placement was performed at a block level; where possible, by specifying their general location within the plot according to the guidelines from the excavator. It is noteworthy to mention that most of these tombs no longer exist; therefore, there is no way to retrieve or verify their exact geographic location.

The process used for the geo-referencing of the tombs included initial identification of each study area within the necropolis based on the excavation records, and geo-referencing of the pertinent topographic plans. Then, the tombs corresponding to each topographic map were drawn directly in the GIS environment or imported upon digitization in AutoCAD. The groundwork for the geo-referencing procedure was provided by topographic surveys of the 1:5000 scale, on which some tombs were placed during excavation; sketches from the excavation records; architectural drawings.

As a result, it emerged that the tombs were concentrated in three distinct areas within the Eastern necropolis, hereunder named Clusters A, B, and C (Pl. 2: 2). The maximum tomb concentration within these clusters has been visualized in Pl. 2: 2.

Cluster A (Pl. 3: 1)

The first group of tombs (Cluster A) is located to the north of the present-day Poseidonos Avenue and includes a total of 89 simple grave tombs, six underground chamber tombs and three wells. 78 tombs out of the 95 excavated in this area were possible to locate geographically. Simple grave tombs are concentrated mainly in the southeast part of the plot, and fewer in the southwest, that is closer to the Poseidonos Avenue. The chamber tombs are located around the shaft graves' concentration, excluding the east side.

Cluster B (Pl. 3: 2)

The second concentration of tombs, Cluster B, is less than 100m south of Poseidonos Avenue and Cluster A. The absence of tombs from the area

in between the two clusters – part of the current Poseidonos Avenue – allows to surmise that an ancient street (part of the ancient road network) or passage within the necropolis led there (i.e. *via publica* 1b identified by Bekker-Nielsen 2004). The possible existence of a road between the two tombs concentrations recalls examples from the ancient custom of having the tombs placed along the main routes leading from the city into the extramural necropolis. Tombs of the most prominent persons of their time would be positioned along the main streets of a necropolis (de Jong 2010) to make them readily visible during funerary processions and for eminent display (for Cyprus' examples see Lysandrou 2014, 338-342). No aboveground structures framing roadsides, intended to promote display and visibility of the tombs, are attested in Cyprus. Apart from the case of the two tomb monuments of Ayios Ermoyenis at Kourion (McFadden 1946), seemingly aboveground structures, what remains for aboveground display are several tomb markers, rarely found *in situ*, though. Returning to the Eastern necropolis, available data do not suggest any markers or monuments around the current Poseidonos Avenue, but an ancient street crossing the necropolis is possible from a topographic point of view, as explained above.

The exquisite wall paintings as well as wealthy grave goods assemblages of the Hellenistic and Roman tombs of Nea Paphos from both the North and the Eastern necropolis (i.e. Michaelides 2004; Raptou 2004; Raptou 2007) testify that the display was concentrated in the interior of the tombs rather than emphasizing external visibility through prominent burial places along a street.

Cluster B comprises of 103 recorded tombs, of which 91 are simple grave tombs and 12 are underground chamber tombs hewn out of the natural bedrock. From the above, 50 tombs were geo-referenced.

Cluster C (Pl. 4: 1)

The third tomb concentration, Cluster C, is also located to the north of Poseidonos Avenue, 150m to the east. Here, 21 tombs were excavated, and all of them have been successfully geo-referenced. Of these, six are underground chamber tombs, while the rest are of simple shaft grave type, which is, once again, the prevalent type.

A peculiarity observed in Cluster C concerns the presence of double grave tombs (Pl. 4: 1).

Most of the clusters' tombs presented above are no longer extant, with a few exceptions of some chamber tombs which were preserved – under the existing touristic resorts and other modern infrastructure – mainly due to their architecture and/or painted decoration (Lysandrou and Michaeilides, forthcoming). Others, when retained, received intentional embankment for preservation purposes or were gradually backfilled with debris as a result of abandonment and, therefore, are not accessible today.

The area of each tomb within the three Clusters was calculated within the GIS. Due to the prevalence of simple grave tombs, it has turned out that most of the tombs belong to the category with a maximum area up to 7 square meters (Pl. 4: 2-4), which is in line with the dimensions the research produced through the architectural design and dimensioning of the tombs.

The orientation analyses defined the N-S axis, particularly with a NE-SW direction, as the dominant orientation of the tombs (Pl. 5: 1-3). A smaller group of tombs positioned on the E-W axis follows and it mainly concerns the chamber tombs and a few shaft graves. The analysis did not yield any NW-SE orientation examples. The prevalent N-S orientation could be related to the ancient custom of having the tombs positioned so that they overlook the sea (see Lysandrou 2014, 341-342 with examples and bibliographic references related to the spatial planning of ancient cemeteries and tombs). Indeed, as was found from a study of the funerary landscape of the Hellenistic and Roman Cyprus, more than 85% of the Hellenistic-Roman necropoleis is located along river streams of the island while 50% of the Hellenistic-Roman ancient cemeteries are located along the coastline (Lysandrou and Agapiou 2015, 872-873). However, in the specific case of the Eastern necropolis, the NE-SW direction might relate to the road network as well. The positioning of a few shaft graves in an E-W orientation might have been a result of lack of space, and if so, then a later chronology should be attributed to them.

It is noted that the slight inclination of the area, sloping towards the south, should not be considered significant in determining the dominant NE/SW orientation (refer to Pl. 5: 6).

4. Discussion

The relative topography and the relationship between the eastern course of the city wall of Nea Paphos and the Eastern necropolis is shown in Pl. 5: 4-5. The overall results, including the physical distance between the Eastern necropolis and the tombs located further to the north but still to the east of the city walls (Pl. 5: 4), allow a suggestion that the Eastern necropolis

was a separate coastal cemetery developed along the south shore of western Cyprus during the Hellenistic period with a prolonged use well into the Roman period. Apart from the few chamber tombs, the necropolis is a relatively uniform set of shaft graves.

The examination and composition of the available legacy data indicate that the Eastern necropolis must have been particularly extensive on the E-W axis, stretching out approximately 700m to the east of the city walls. It forms a relatively narrow funerary landscape along the coastline, enclosing the areas north and south of the current Poseidonos Avenue, and it measures approximately 250m in the N-S axis, with a total area of 175,000 square meters (Pl. 5: 5). Regarding the tombs' distribution, it is evident that they are grouped along a road leading eastward from the Eastern Gate of Nea Paphos (Pl. 1: 3 – red circle). Probably, another road led from the town through the North Eastern Gate (Pl. 1: 3 – blue circle), which would separate the Ellinika necropolis (on its northern side) from the Eastern necropolis.

The northernmost tombs are located at locality no. 5 of Pl. 5: 5, on Iasonos and Diagorou streets. The necropoleis at the localities Ellinika and Alonia tou Episkopou are more than 500m further to the north and north-east, respectively and are seemingly disassociated from the coastal necropolis, while it is more likely that they are linked to an inland one, such as the nearby necropolis at Katarameni, which in turn is probably connected to a settlement other than the capital of the island (Młynarczyk 1990, 94). As argued by Michaelides (2008, 39), '... the evidence is scattered over such a large area that it seems likely that we are dealing with the necropoleis of not just Ierokepia but also of other, satellite settlements.'

The easternmost tombs presented in this paper are placed at locality no. 6 of Pl. 5: 5. Rivers and streamlets are major topographic landmarks of the area. In particular, the Argaki ton Limnaron stream crosses the necropolis in a nodal point that could form a natural limit for the necropolis east end (Pl. 5: 4). The coastal tombs found further to the east from there, if any, could make part of another coastal necropolis, which in its turn could have served the next coastal settlement; this would reduce the distance that one had to cover from the city of Nea Paphos to the easternmost site of the necropolis to accomplish a funeral procession (Lysandrou and Agapiou 2015, 873-874). It is indeed possible that the Argaki stream constituted the border between the necropoleis pertaining to Nea Paphos (i.e. Eastern necropolis and *Ellinika* (?)), and to the ancient Ierokepia (Michaelides 2008) (i.e. Alonia tou Episkopou), respectively.

Even though the so-called North necropolis has not been excavated as systematically as the Eastern one, it is becoming evident that the two necropoleis are clearly different with regard to tomb architecture, as appears from numerous Hellenistic and Roman tombs investigated there (Lysandrou 2014, 107-153, including all relevant previous bibliography). Although shafts are not absent from the Northern (and the North-Eastern) necropolis, chamber tombs – both rock-cut and built – and atrium tombs are the prevalent typological categories, while shaft tombs characterize the Eastern necropolis. This architectural distinction could allude to social status divergence, with the Northern necropolis being used as the burial place of the elite of the Hellenistic and Roman periods, while the coastal Eastern one was intended for the rest of the community. Chamber tombs undoubtedly promote a family or group character, and it is well known that elites maintain specific kinships in life and death. In contrast, shaft tombs are intended for single burials (double or multiple burials do occur, but are not the rule and are often due to external causes, i.e. mass death). In fact, the sample recorded for this research shows that shaft tombs are almost eight times more prevalent in the Eastern necropolis than chamber ones.

Even though in several cases the type of the grave tombs has been associated with the social structure of the time and specifically with the lower social strata (Vessberg and Westholm 1956, 33, 51; Dikaios 1960, 29; Toynbee 1971, 102), the ongoing study in the field showed that this view does not apply to all cases since several such tombs were found richly endowed as, for examples, the grave tombs investigated by Markides in 1915 at Ktima. Although only few burial goods were found, because the tombs were looted, there were among them golden myrtle leaves, apparently part of a golden wreath (Markides 1916b, 13-14). Another example is provided by the tomb M.P. 2632 (T45/84) from the Eastern necropolis (Michaelides 1990, 189), where, among other gifts and a pair of amphorae, gold and silver jewelry were found. Also, small groups of jewelry were discovered in grave tombs of Kourion (chronologically posterior to the Nea Paphos grave tombs), although the burials were found disturbed (Parks, Given and Chapman 1998, 178). It is, however, a fact that such grave tombs with valuable offerings should be considered ‘richly endowed’ solely as for this specific type of tomb, since the level of the wealth remains consistent with it and in no way can be compared to the plethora of burial ensembles found in chambered tombs. In fact, the ‘valuable’ burial goods revealed within these grave tombs may represent all the valuable possessions of the deceased.

The relatively flat area of the cemetery under study facilitated making shaft graves rather than underground chamber tombs. However, the predominance of shafts should be considered an intentional choice, not a simple consequence of the topography. A correlation between the tombs under examination and the topographic relief shows that the contours characterizing the area of the necropolis are approximately 5-13m above sea level (Pl. 5: 6). Some of the chamber tombs are formed on the lowest of the altitudes. Besides, both tombs types are encountered in both the Northern and the Eastern necropolis, and the relief of the contours of the two areas does not differ much. A difference can be seen in the relatively more rocky soil of the Northern necropolis, which makes it harder to cut underground big rock-cut tombs, but on the other hand, improves their durability.

An overall suggestion is to abolish the distinction between Northern, North-Eastern, and Eastern necropoleis, and accept the areas immediately surrounding the city walls of Nea Paphos as a single burial ground of the city. Given our up-to-date knowledge of the area, it seems that what differentiates the northern part of the necropolis and the eastern one is substantially typology of tombs, topography, and distribution of tombs. The examination of these parts of the necropolis as a single burial ground might facilitate the study of its chronological development, the organization of the necropolis, and exploration of other scientific questions, such as to determine geographically the rural and agricultural areas connected to the city of Nea Paphos and find out the correlation of the rather remote burial clusters with satellite habitation sites.

5. Conclusion

The paper presents a synthesis of the hitherto unpublished tombs of the Eastern necropolis of Nea Paphos, excavated in 1983-1990. It features a review of the tomb architecture and a metrological examination of a specific tomb type. Also, it partly reconstructs the funerary landscape by positioning geo-referenced tombs. Based on concrete archaeological data, the study provides a clearer view of the extension of the Eastern necropolis, triggering questions for further research related, amongst others, to (a) the dynamics between the Eastern and Northern necropoleis and the land use in-between; (b) a potential correlation of the easternmost part of the necropolis to other secondary satellite sites, located further to the east; and (c) a possible major

or secondary street leading from Nea Paphos city walls (Eastern gate) and crossing the necropolis eastward.

In addition, the paper lays the groundwork for future research based on its results. The generated tombs drawings will facilitate the knowledge of placement of osteological remains and burial offerings inside each of the tombs, as recorded by the excavator. This would allow further insights into burial customs of that time related to the position and orientation of the deceased within tombs, placement of the deceased within a mobile container or within a closed or open exposition compartment. Moreover, the digitized tomb drawings can be exploited for the placement of burial offerings. Studying the arrangement of these offerings, conclusions can be drawn as to their use and purpose (i.e. being of mortuary or ritual use; being objects designed specifically to be positioned in a mortuary context or personal belongings of the dead).

Furthermore, as for landscape ecology, this study exemplifies a way of thinking useful for organizing land management approaches (McGarigal and Marks, 1994) since it can be additionally exploited as an indicator in prediction modelling for future archaeological excavations. As such, the calculated metrics (section 2.4 of this paper) provide a rationalized basis for the detection of uncovered as yet tombs, which could work successfully in combination with remote techniques, such as geophysical prospection, as well as of aerial and satellite investigation of the landscape. Indeed, the results for the mean values related to the grave tombs provide the starting point for ongoing research aiming to detect tomb shape features on archival aerial datasets of the necropolis (Lysandrou and Agapiou, 2020).

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1



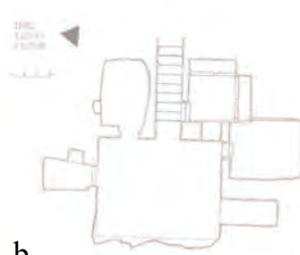
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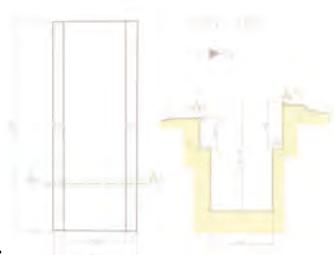
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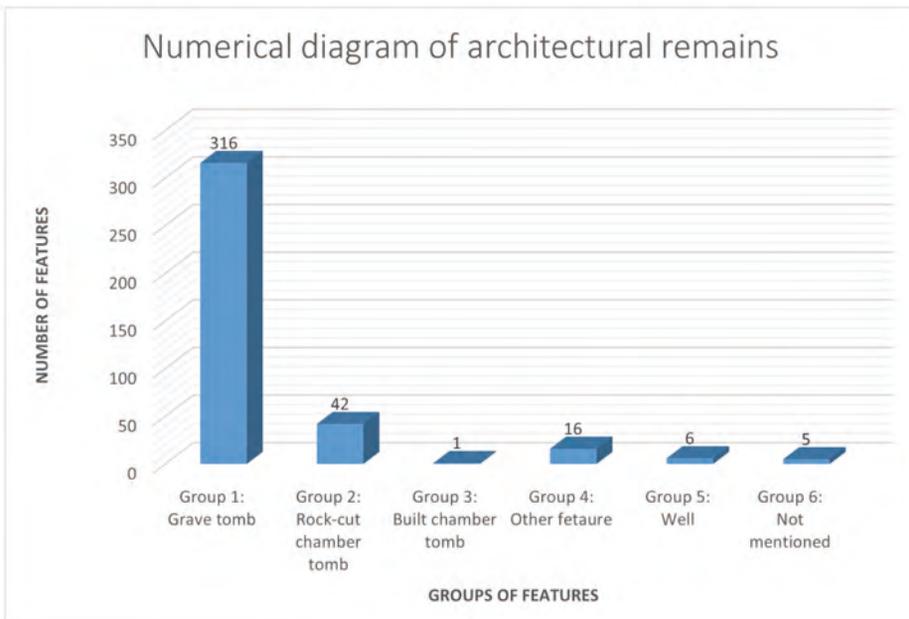
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Pl. 1: 1. Image showing the wider area of Nea Paphos, the Northern and the Eastern necropoleis

Pl. 1: 2. Map showing the ancient city of Nea Paphos and the surrounding necropoleis and sites (after Nicolaou 1966)

Pl. 1: 3. Map showing the city walls and gates (after Nicolaou 1966), within red and blue circles are shown the East and North East gates, respectively

Pl. 1: 4. (a) Scanned ground plan of an individual chamber tomb (source: Prof. Michaelides excavation archive); (b) Digitization on scale of (a) (Lysandrou *et al.* 2018); (c) Ground plan and section of a vectorized grave tomb



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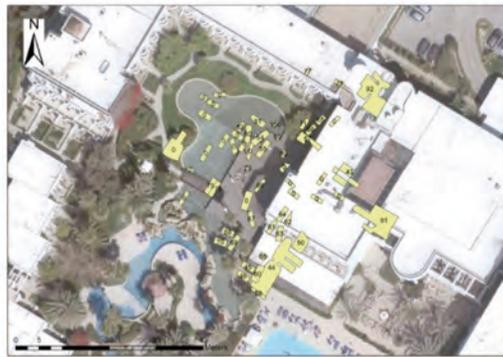
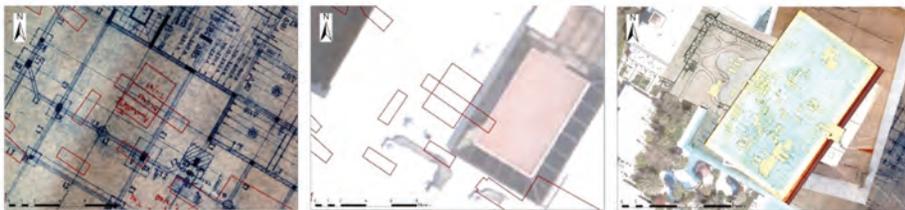


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Pl. 2: 1. The six groups of architectural features of the Eastern necropolis, and the corresponding quantity of the features recorded within each group
 Pl. 2: 2. Visualization of the density of tomb concentration within the three clusters. The largest concentration of tombs in the same area is displayed in red (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)



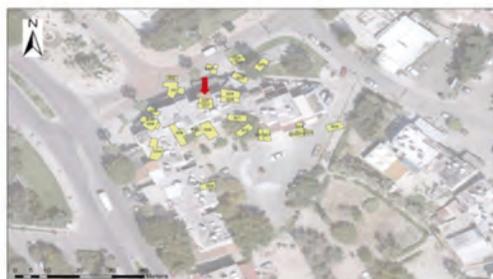
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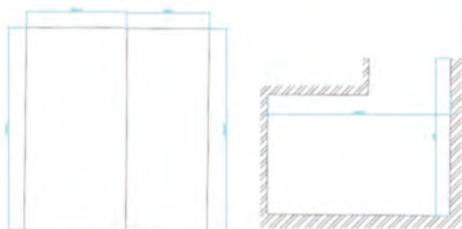
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Pl. 3: 1. Cluster A: preparation steps in a GIS environment (left); display of the main tomb concentration of Cluster A, figuring geo-referenced and architecturally scaled tombs (right) (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 3: 2. Cluster B: preparation steps in GIS (top); main tomb concentration (bottom) (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)



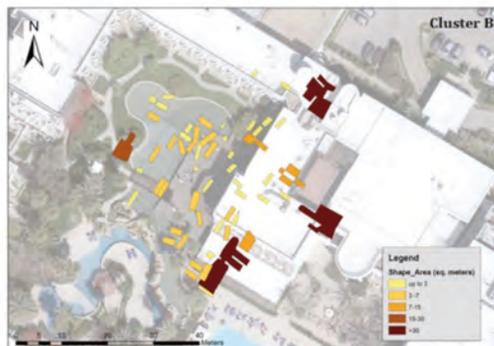
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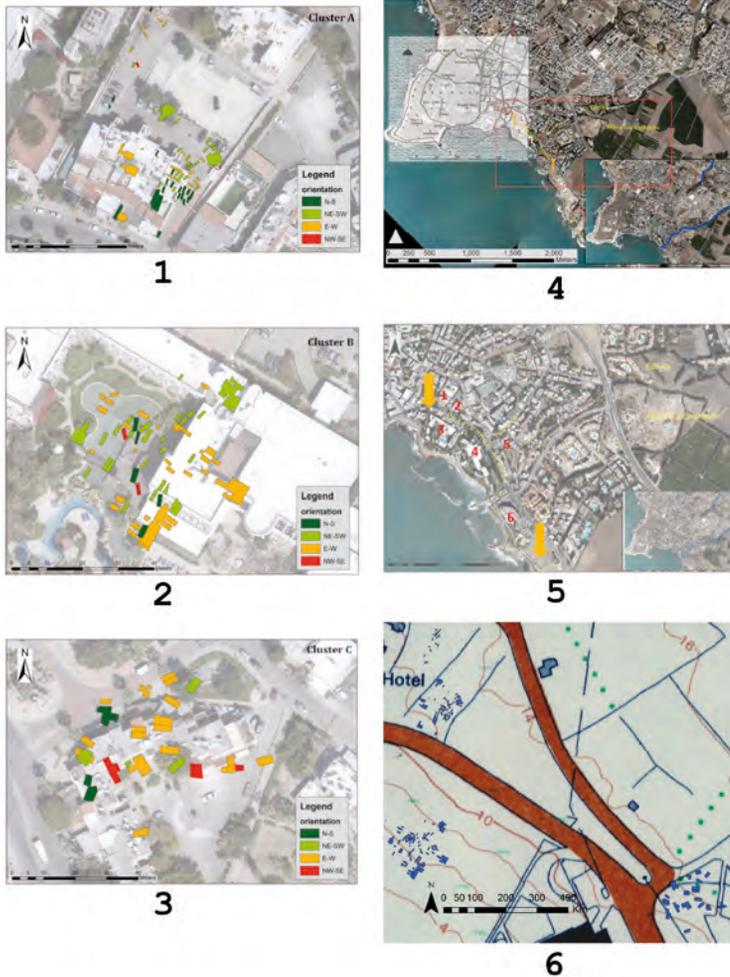
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Pl. 4: 1. Cluster C: main tomb concentration (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus) (top); Ground plan and section of Tomb 22/85 (bottom)

Pl. 4: 2. Calculation of the tombs' area for Cluster A (Lysandrou *et al.* 2018). (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 4: 3. Calculation of the tombs' area for Cluster B. (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 4: 4. Calculation of the tombs' area for Cluster C (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)



Pl. 5: 1. Orientation analyses of the tombs of Cluster A (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 5: 2 Orientation analyses of the tombs of Cluster B (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 5: 3. Orientation analyses of the tombs of Cluster C (background image: Aerial Orthophoto 2014; source: Department of Land and Surveyors, Cyprus)

Pl. 5: 4-5. Visualization of the relation between the Eastern necropolis (enlarged in the bottom figure) and (the eastern limit of) the town of Nea Paphos (within red and blue circles are shown the East and North East gates, respectively). Yellow arrows show east and west limits of the necropolis. Numbering 1-6 in red indicates the investigated areas of the necropolis with a considerable number of tombs (including tombs both geo-referenced and not), starting from the westernmost (no. 1) to the easternmost site (no. 6) (imagery source: ©Google Earth Engine, imagery date: 8/2/2017). Bottom right map shows the *Argaki ton Linnarion* streamlet

Pl. 5: 6. Geo-referenced tombs (shown in blue color) on a contour topographic map. Background map: contour intervals 2 meters, based on the topographic map of Cyprus 1963 (printed in 1964) 1:50,000