Zakynthos Archaeology Project

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The 2015 survey at Skoulikado-Kalimachos

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Abstract

In the summer of 2015, we carried out a surface survey a few kilometres northeast of the town of Skoulikado on the island of Zakynthos. This region is situated to the north of the other areas of the Zakynthos Archaeology Project. The impetus for starting this research was the discovery and report of Mycenaean pottery by one of the inhabitants in the area. As elsewhere on Zakynthos, the archaeological surface record is very fragmented, due to geomorphology and agricultural practices. Nevertheless, we have been able to identify traces of human presence in the area since the Palaeolithic period. In particular, there are two find concentrations that testify to habitation in prehistory and the Mycenaean period and one find concentration testifying to human presence in the Hellenistic-Roman period. Moreover, this latter site can be connected to an inscription that was found in the 19th century.

Keywords

Zakynthos – landscape archaeology – archaeological survey – prehistoric archaeology – Mycenaean archaeology

Introduction

The 2015 campaign in the Zakynthos Archaeology Project was conducted in the area of Skoulikado-Kalimachos (Figure 1). The reason for starting this campaign was the submission of several Mycenaean pottery finds (Figure 2) to the Ephorate of Antiquities on the island by one of the landowners in the area. The owner, Mr S. Desyllas, had stated that he found these fragments during excavation works for drainage channels on his land. He also testified to the presence of a wall at a

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Figure 1. Research areas of the Zakynthos Archaeology Project, including the 2015 area of Skoulikado Kalimachos.

Figure 2. Mycenaean finds from the area of Skoulikado Kalimachos submitted in 2014. Courtesy of the Ephorate of Antiquities at Zakynthos.

depth of ca 1.50 m that was associated with the pottery. It seemed a good idea to investigate the area in more detail and to assess whether this would be a site suitable for excavation in the future.

Skoulikado-Kalimachos is situated ca 8 km north of research area B, which is the northernmost of the three areas that have been investigated in the framework of the Zakynthos Archaeology Project from 2006-2012.[7] Whereas research areas A, B and C are oriented towards the southern coast of the island and the gulf of Laganas, Skoulikado offers a clear view of the northeastern coast and Kefalonia. It borders on the plain of Alykes. Research at Skoulikado would enable us to put the results from the three other research areas in a wider landscape perspective.

The fieldwork at Skoulikado-Kalimachos was carried out in three weeks from Monday 15 June to Friday 3 July. The goals of the project were:

1. to contextualise the finds made by the landowner by having a good idea of the surface finds in the area surrounding the indicated fields;
2. to test whether any substructures are still *in situ* in the fields from which Mycenaean pottery was reported;
3. to better understand the geomorphology of the area and in particular the vicinity of the coast through time;
4. to compare the distribution, nature and the chronology of the finds of this area to the survey finds in the other three research areas.

A variety of research strategies were incorporated in the campaign: (1) archaeological surface survey using the same methods as in the other three research areas; (2) geophysical research (electro-magnetometry and electrical resistivity tomography) in the fields indicated by the landowner; (3) geomorphologic research into the genesis of the current landscape; (4) interviews and conversations with the inhabitants of the area about archaeological finds. During a two-week study campaign in May 2017, the finds of the survey were studied and drawings and photographs were made. The results of the 2015 campaign are published in full here; they will not be part of the final publication of the Zakynthos Archaeology Project.

The research area

The research area of the 2015 campaign is situated 1.2 km north of the town of Skoulikado, and ca 3.8 km south of the coastal resort of Alykes (Figure 1). The inhabitants refer to the area with the toponym *Kalimachos*. This particular toponym

[7] For a full bibliography of the Zakynthos Archaeology Project, see the project website at www.uva.nl/archaeology-zakynthos. Also, see Van Wijngaarden, Kourtessi-Philippakis & Pieters 2013 for an overview of the results. The final publication of the project is currently being prepared.

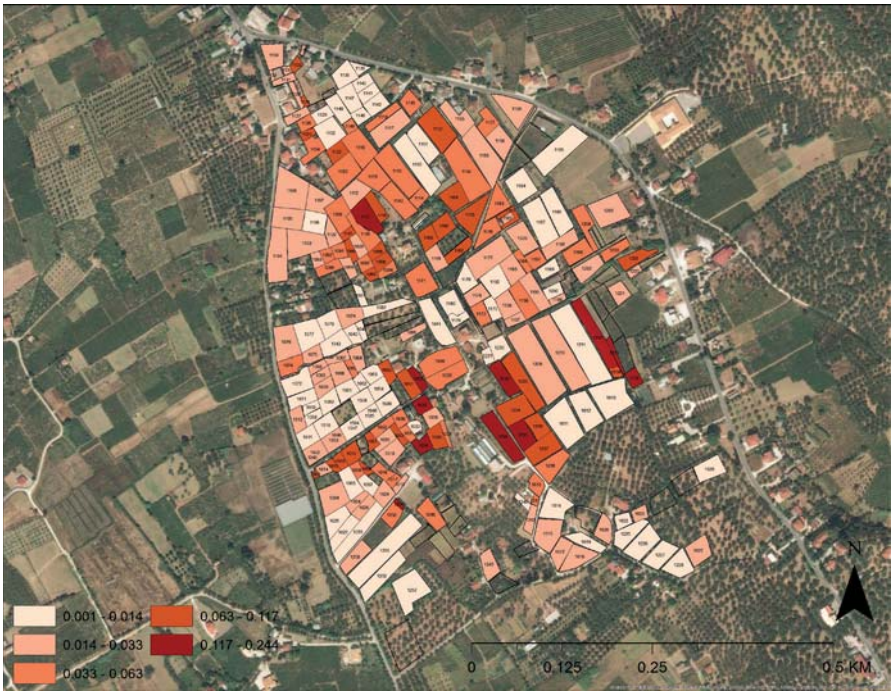

Figure 3. Density map of finds (all periods) with tract numbers.
The legend indicates finds per square meter.

is mentioned by various early modern travellers to the island, such as count Ludwig Salvator, who visited the area in 1904.[8] Systematic archaeological research has not been conducted in the area before. However, L. Salvator reports on the discovery of an ancient inscription, a column and an iron statuette in this area (see below).[9]

The boundaries of the survey area are formed by three roads, which enclose a total area of 40.3 ha (Figure 3). The area is used for agriculture, consisting mainly of olive groves and vineyards. Also, some horticulture is practiced. There are a number of houses in the area, especially along the roads that constitute its boundaries. The terrain slopes down gently from south to north. The highest point of the research area, in the south, is ca 27.5 m above sea level; the lowest point in the north is ca 10 m above sea level. The research area is at the southern edge of the Alykes plain, which contains salt lakes at sea level near the town of Alykes itself (Figure 1). The formation of this plain over the last millennia has

[8] Salvator 1904, 292-293.
[9] Salvator 1904, 292-293.

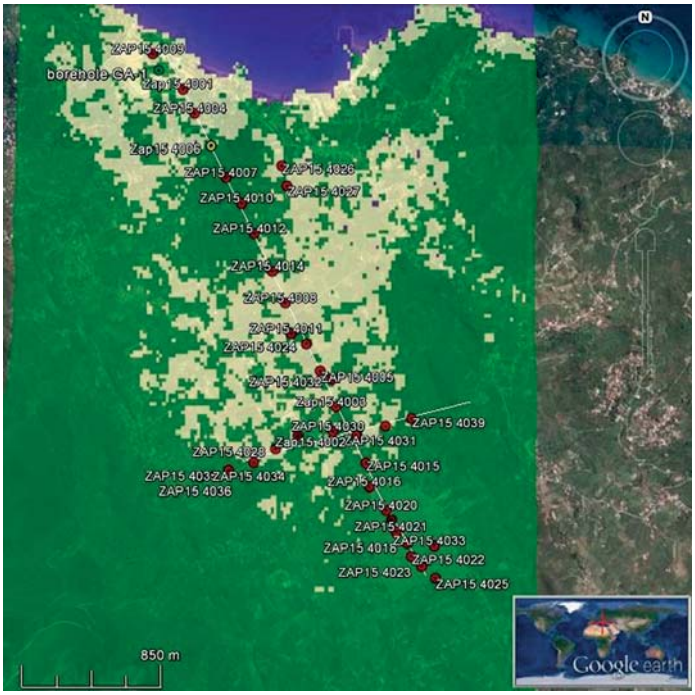

Figure 4. A reconstruction of the coastline ca. 3000 BC.
The light-yellow areas were probable marine or a lagoonal environment
(adapted from Van Puijenbroek 2016, 41, fig. 22).

been influenced by sea-level rise, tectonic pressures and sedimentation from the Vrachionas hills to the SW.[10]

During the 2015 campaign a systematic coring program was executed to determine the coastline's development over time and its proximity to our research area. The cores were done by hand auger, using an Edelman core up to a maximum depth of 5.90 m.[11] Unfortunately no organic materials were attested in these cores that would have been suitable for radiocarbon dating. On the basis of correlations with previous geological work in the area[12] and on the basis of fragments of archaeological finds in the cores, the total elevation change relative to the sea level of the Alykes plain in the last 5,000 years is estimated to have varied from 2.5 m (near the current coast) to 13 m (near our research area). Effectively, this means

[10] Avramidis et al. 2013.
[11] The coring work constituted a research project for a Master in Earth-Sciences at the Vrije Universiteit Amsterdam, see Van Puijenbroek 2016.
[12] Esp. Avramidis et al. 2009

that our research area must have been situated near the open sea at the beginning of the Bronze Age, ca 3000 BC (Figure 4). The coastline then moved progressively to the north and we may expect the Alykes plain to have had a lagoonal character during much of Antiquity.[13]

The archaeological survey

The archaeological survey at Skoulikado was conducted using the same methods as the other campaigns in the Zakynthos Archaeology Project.[14] Teams of students surveyed the surface walking 5 m apart, in tracks that are defined by the topographical boundaries in the landscape. In their line, students counted and collected all finds in a strip of 2 m, resulting in a sample of maximum 40% of materials present on the surface in a track.[15] The aim was to survey the research area in full in this way, but, in the end, the southern part of the research area was not fully covered for reasons of time (Figure 3). A total of 296 tracks were surveyed in this detailed manner, covering 21.54 ha.

During the survey, it became clear that the archaeological surface record had suffered badly from agricultural practices and that the finds were very fragmented, even for Zakynthos standards. A total of some 7,500 finds were collected, of which 4,124 have been stored as archaeological material.[16] Of these, the majority were pottery finds (3,814); a total of 310 lithic artifacts were collected and only a few finds of other material, such as a *Cardium Spondylus* shell with a drilled hole (Figure 5). The regular hole at the tip of the shell argues against natural perforation and it has probably been used as a pendant.[17] No metal objects, such as coins, were found.

The pottery finds were very small and worn, often lacked diagnostic features or even their original surface. Of all stored pottery finds, 609 fragments (ca 15%) could be assigned to one of the classification categories,[18] while another 231 fragments (ca 6%) were labelled as 'probably ancient'. These qualifications were mostly based on an assessment of fabric and, rarely, the presence of distinct diagnostic

[13] See also Avramidis et al. 2017

[14] See Van Wijngaarden et al. 2006, 31-33; 2007, 45-49; 2011-2012, 36-40.

[15] Tests conducted during the 2015 campaign show, firstly, that field walkers do not collect all materials and, secondly, that there are considerable variations among field walkers in what they pick up. See also Van Leusen & Witmer 2014.

[16] The finds brought in by field walkers were all washed and processed. As little material as possible was discarded; we discarded only non-worked, natural stones, pottery that is smaller than 1 cm^2 and material that is obviously very recent, such as building materials.

[17] Karali 1999, 29 and fig. 18. A *Glycimeris spondylus* shell from Kaloyerovrisi on Euboea has the same perforation as ours and is of Middle Helladic III date, see Sampson 1993, trench B.

[18] Considering the fragmented nature of the finds, only very broad classification categories are used in the Zakynthos Archaeology Project: Lithic finds, Probably Ancient, Prehistoric, Mycenaean, Early Iron Age-Archaic; Archaic-Classical, Classical-Hellenistic, Hellenistic-Roman, Late-Roman-Venetian, Early Modern-Modern.

Figure 5. Spondylus shell with drilled hole from tract 1164.

Figure 6. Density map of all classes of ancient pottery and lithics and fragments assigned as 'probably ancient'. Three concentrations of finds are indicated (A, B and C).

ceramic features. The distribution of these ancient ceramics (Figure 6) does not show marked concentrations, apart from tracts 1212, 1213, 1217 and 1218, near C in figure 6, where a high density of ancient material was documented (see below). However, the distribution does show that there were significantly fewer ancient finds in the western and southern parts of the research area than in the east and north.

Most of the finds made during the survey were of likely early modern or modern date. A small number of finds (19 in total) has tentatively been classified in the category post-Roman-Venetian. These are usually fragments of glazed pottery, but pottery distinctive of the Byzantine period has not been recognised. Here, the finds are discussed from the main categories that have been recognised.

Early prehistory: the lithic finds

An important part of all archaeological surface finds made during the 2015 campaign at Skoulikado-Kalimachos consists of stone artifacts, which, according to their features, reflect human activity in the broad time span beginning in the Middle Palaeolithic and ending probably during the Holocene, i.e. the Neolithic period

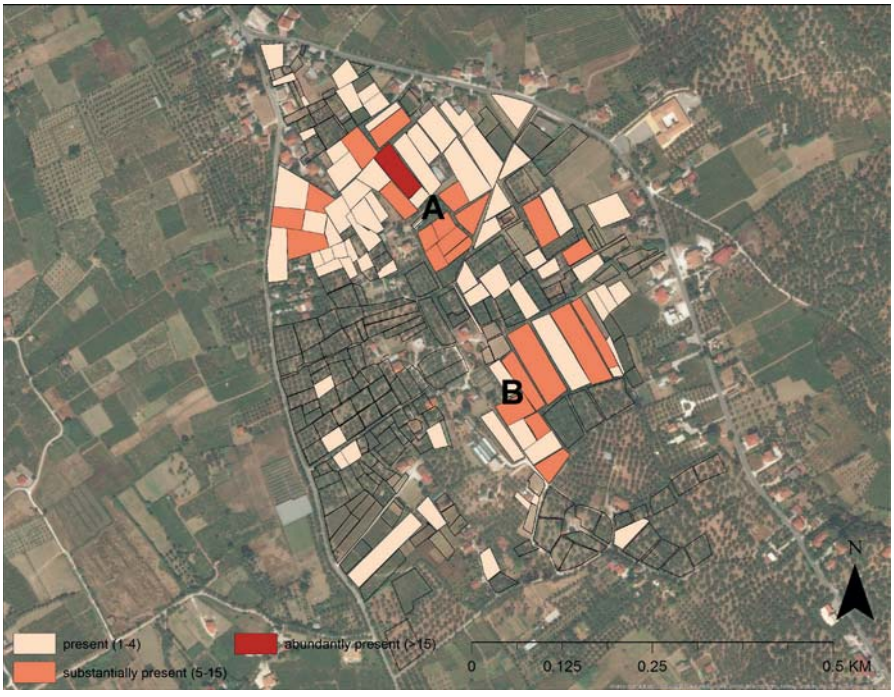

Figure 7. Distribution map of lithic artifacts.

Table 1. Lithic collection composition *N*=310.

Cores	35
Plain debitage	181
Tools	80
Raw material testing	1
Undiagnostic fragments	13

or even later. The distribution of this material within the research area does not reveal any patterns according to cultural markers or artifact types (e.g. cores, tools) with the exception of tract 1169, where the finds consisted exclusively of cores of various ages. It should be noted, however, that overall the density of this material is very low, with the exception of tracts 1115 and 1232-1234 (Figure 7, Table 1).

The majority of the artifacts are made of flint, whereas 30 finds have been formed on chert and 5 more on quartz. Flint types are difficult to distinguish in most cases due to the heavy patination characterising the biggest part of the collection (78%). However, observations on recently broken or unpatinated artifacts reveal the diachronic use of a variety of flint types (Figure 8, Table 2), regardless of the chronological determination of the individual artifacts. The primary resources of

Figure 8. Characteristic lithic raw material types observed within the lithic collection.

Table 2. Flint types *N*=75.

Gray	9
Gray/Beige	5
Brown	4
Brown/Red	5
Red	4
Black	1
Beige	36
Beige/Brown	8
Mauve	2
Greenish	1

flint and chert are probably located on the slopes of the Zakynthos mountain masses (e.g. Vrachionas), where such materials have been observed during survey visits.[19]

Less than half of the lithic artifacts (43.5%) are intact and even fewer are maintained in mint condition. This observation, in conjunction with both the even distribution of the material (Figure 7) and the fact that many artifacts show typical rolling indicators, suggests that the collection has been recovered from a secondary depositional context.

As for the chronological and technological characteristics, nearly half of the total number of collected lithic artifacts (151) did not bear any technological or typological traits that would have placed them securely in a specific cultural unit. These objects consist mainly of unretouched flake and blade fragments, but also technical pieces that could be part of core reduction sequences of various cultural periods (e.g. crested blades, core rejuvenation flakes).

The Pleistocene component

Judging by techno-typological features, nearly 25% of the material (82 artifacts) seems to have been constructed during the last two cultural phases of the Pleistocene. A group of artifacts, including two characteristic lineal levallois and a discoid core (Figures 9 and 10) and large-sized cores flaked through facial or semicircular, unipolar or bipolar debitage methods, indicates the activity of Middle Palaeolithic hominins in the broader area. This evidence is enforced by a series of 'typical' Middle Palaeolithic tools or 'techno-types', such as pseudolevallois points, side-scrapers (some of them formed through quina retouch), notches and denticulates often formed on typologically levallois blanks.

[19] Van Wijngaarden et al. 2008, 72-76; Tourloukis 2010, 124-125.

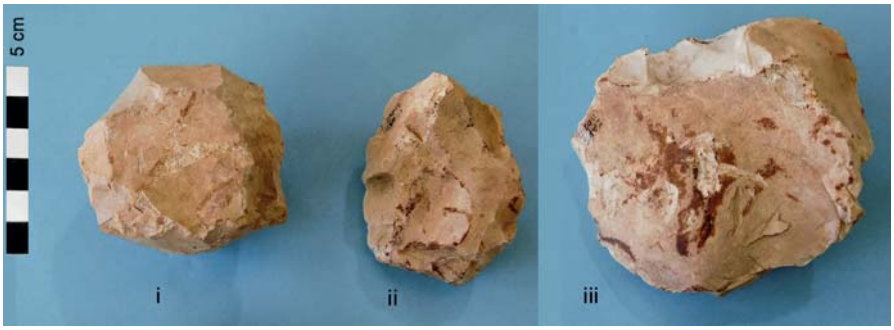

Figure 9. Levallois cores (i-ii) and inverse side-scraper on big flake (iii).

Figure 10. Cores and tools of the Pleistocene component. i: Lineal levallois core. ii: Double side-scraper on Janus flake with partially bifacial retouch. iii: Side-scraper with abrupt retouch on pseudolevallois point. iv: Laminar core indicating bipolar semi-circular reduction. v: Thick nosed end-scraper/core. vi: Carinated burin/core. vii: Laminar core indicating bipolar semi-circular reduction. viii: Partially backed bladelet fragment. ix: Carinated end-scraper/core (drawings by O. Metaxas, i-viii and S. Ligkovanlis, ix).

Table 3. Pleistocene component tools.

Side-scrapers	10		
		straight	1
		convex	3
		inverse	2
		denticulate	1
		dejete	1
		double	2
Mousterian Points	2		
Denticulates	3		
Notches	4		
End-scrapers	16		
		carinated	4
		nosed thick	2
		nosed flat	5
		simple	4
		on blade	1
Burins	2		
		straight	1
		carinated	1
Truncations	2		
Borers	1		
Splintered pieces	1		
Backed bladelet	2		
Notched bladelet	1		
Denticulated bladelet	1		
Total	**45**		

Another set of artifacts testifies to human activity during the Upper Palaeolithic, especially in an early phase of this period. This is suggested by cores flaked through a laminar concept of debitage witnessing the use of semi-circular or circular, unipolar or bipolar reduction methods. Among others, the tools of this chronological component include a series of carinated and nosed (thick or flat) end-scrapers, a carinated burin and two backed bladelets (Figures 9 and 10; Table 3).

The Holocene component

A considerable amount of the collection (77 artifacts) seems to have been manufactured and used in post-Palaeolithic periods (Table 4). Compared to the early component of the collection these implements are in most cases in mint condition, often completely non-patinated, whereas their average dimensions are much smaller. Cores of this group represent simple unipolar facial or fully opportunistic

Table 4. Holocene component tools.

End-scrapers	12
Points	1
Pieces with lateral retouch	7
Splintered pieces	2
Borers	6
Truncations	5
Notches	2
Total	**35**

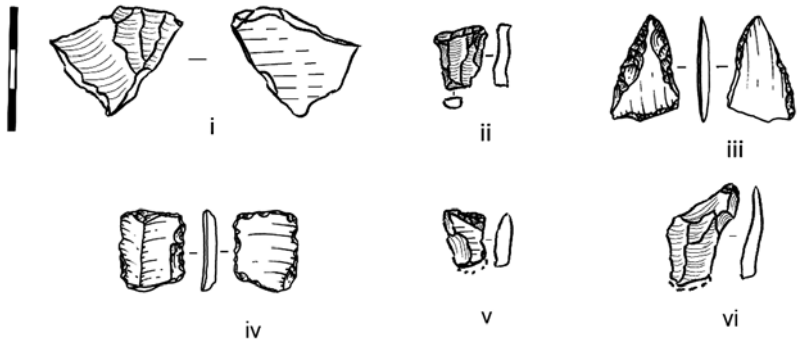

Figure 11. Cores and tools of the Holocene component. i: Core indicating unipolar facial reduction. ii: Thumbnail end-scraper. iii: Point iv: Piece with thin peripheral retouch. v: Truncated piece. vi: Borer (drawings by O. Metaxas, iii-iv and S. Ligkovanlis, i-ii, v-vi).

reduction methods, oriented to the production of small flakes and bladelet-like blanks. Tools include micro-borers and end-scrapers often formed with nibbling retouch, small scale blanks with thin lateral or abrupt retouch in more than two edges, splintered pieces, along with a well-shaped small point (Figure 11, Table 4). The exact cultural placement of these objects cannot be assessed, since quantitively safe samples of chronologically diagnostic tool forms (e.g. points, geometric tools or blanks with silica gloss) are lacking. As a result, this set of artifacts seems to represent non-agricultural activities which may well extend from the Mesolithic to the Bronze Age, or even to later periods.

Remarks

The stone artifacts from Skoulikado-Kalimachos constitute a small sample representing human activity during prehistory at Zakynthos. The general chronological

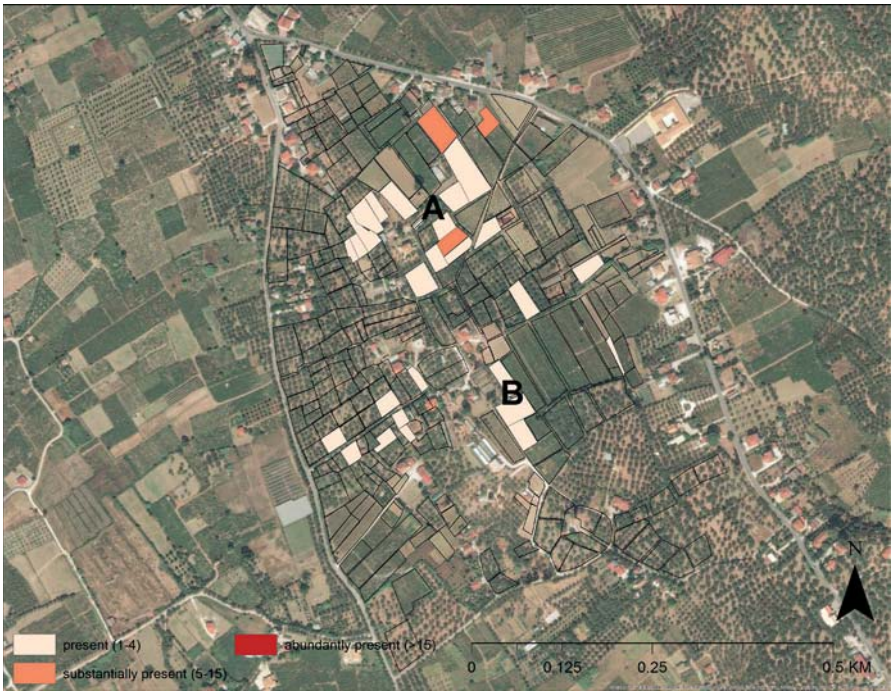

Figure 12. Distribution map of prehistoric pottery, incorporating prehistoric coarse wares and Mycenaean fine wares.

and technological characteristics of this collection are also present in the lithic collections from other regions of the island (e.g. Mouzaki-Brouma, Koiliomenos),[20] with the difference that in those find spots the evident traces left behind by the Pleistocene hunter-gatherers are far richer and the technological variability observed is more extended. At the same time, these findings resemble well the Palaeolithic material culture of Western Greece in which they should be incorporated.[21] In this way Zakynthos is emerging as an important activity territory during the Palaeolithic. The question remains whether it was approached by land or by sea.[22] The answer to this question, which must remain open for now, will shed light on the cognitive abilities of the island's pre-modern habitants. Future research is called for to unravel this issue, enriching and revising in this way the existing perceptions.[23]

[20] Van Wijngaarden et al. 2008, 72-76. The lithic artifacts of research area B on Zakynthos are being prepared for publication in Ligkovanlis forthcoming.
[21] E.g. Darlas 1989; 1991.
[22] See, for example, Ferentinos et al. 2012.
[23] I.e. Avramidis et al. 2017.

Prehistoric pottery

In an archaeological landscape such as that of Skoulikado-Kalimachos, which has been highly affected by erosion, agricultural practices and human building, the soft fabrics of prehistoric coarse wares are particularly difficult to detect.[24] The material that has been classified as prehistoric consists mostly of small pieces of coarse ware with a grey to black core and often an orange to red exterior. This type of pottery, which is fairly ubiquitous in western Greece and the Ionian Islands,[25] is notoriously difficult to date, especially without diagnostic features. Based on the fabric alone dates may vary from the Late Neolithic to the Early Iron Age. A total number of 34 fragments of this type of pottery have been found during the survey. The majority of fragments in this general class of prehistoric material did not contain diagnostic features that would allow further classification. Exceptions were a few handle fragments, among which was part of a ledged lug handle (Figure 13) of likely Early Helladic date.[26] Also, in tract 1111, we found the base of a large storage vessel (Figure 14), also of probable Early Helladic date.[27] Interestingly, this fragment resembles similar bases from research areas A and C of the Zakynthos Archaeology Project.[28]

In addition to the fragments of prehistoric coarse ware, a total of 30 fragments of Mycenaean fine ware were picked up in the field. Most of these were body fragments without diagnostic features that would have provided information on the pot shape or the date. Exceptions are a body fragment of an open vessel with a distinct carination (Figure 15), which is reminiscent of an angular kylix (FS 267) or bowl that was found in Lithakia-Kamaroti on Zakynthos.[29] Also, a fragment of the stem of a fairly large Mycenaean kylix was found (Figure 16).[30]

The distribution of the prehistoric and Mycenaean finds does not really show a strong concentration in particular fields (Figure 12). However, an interesting combination of artifacts is visible in the area marked with B in Figures 6 and 12.

[24] Bintliff, Howard & Snodgrass 2000.

[25] Dakaris 1951, 177-183 (KII and KIII wares); Hammond 1967, 299-302 (Red Ware); Tartaron 2004, 71-84; Stratouli 2007, 105-126; Lima 2013, 40-42.

[26] Cf. Wiencke 1995, 63-66; 451-452 and pl. 17 f: P1113 (EH III).

[27] Cf. several of the EH pithoi from the R graves at Nidhri in Lefkada and the pithos base from a MH tomb at Pirgos (Triphyllia) in Elis. For the Nidhri pithoi, see Kilian-Dirlmeier 2005, for the Pirgos pithos, see Rambach 2010, 118.

[28] Area A: ZAP09_2143.138 (Lithakia-Kamaroti); ZAP09_1021.007 (Perlakia-Panokambi). Area C: ZAP06_1021; ZAP06_2241 (both in the area of Vasilikos-Doretes); ZAP10_1006.14 (Vasilikos). These finds will be published in the main, final publication of the Zakynthos Archaeology Project.

[29] Van Wijngaarden & Pieters 2017, pl. CXXXVI b.

[30] This fragment was found lying at the bottom of an olive tree together with several other archaeological finds. It was put there by someone with some knowledge of archaeological material. We assume that originally it was in tract 1169.

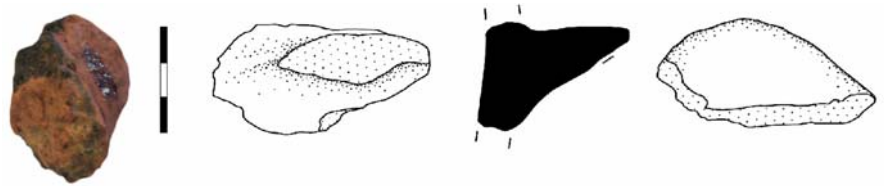

Figure 13. Fragment of a prehistoric ledged lug handle (ZAP 15 1232.10)
(photograph by G. van Wijngaarden, drawing by O. Metaxas).

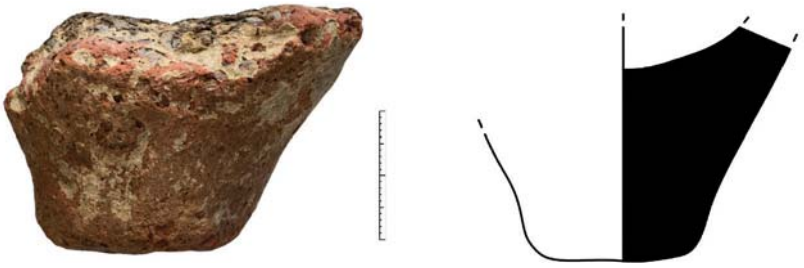

Figure 14. Base of a prehistoric storage vessel (ZAP 15_1111.52.
(photograph A. Dekker, drawing by L. Opgenhaffen).

Figure 15. Carinated wall fragment of an Mycenaean open vessel (ZAP15_1154.10)
(photograph by G. van Wijngaarden, drawing by L. Opgenhaffen).

Figure 16. Fragment of a Mycenaean kylix (ZAP15_1169.14)
(photograph by A. Dekker, drawing by L. Opgenhaffen).

In tracts 1232-1235 small numbers of prehistoric pottery were found in combination with fairly high numbers of lithic artifacts (31 in total). Most of the lithics (10) can typologically be assigned to the Middle (8) or Upper (2) Palaeolithic and are earlier than the prehistoric pottery; others are undiagnostic (15). However, some lithic artifacts (7) from these tracts probably date to Holocene times and could be associated with the prehistoric pottery. Among these are three blades, of which one is laterally retouched and is formed on grey flint. Also, there are two small cores and an end scraper on a flake. Among the pottery finds are a base fragment of a Mycenaean closed vessel and the abovementioned prehistoric ledged lug handle (Figure 13). Even though the indications are very vague, we suggest that the concentration of prehistoric remains in these tracts indicate human activity in this area during the Bronze Age.

In the area marked 'A' in Figures 6 and 12, tract 1152 yielded five very small fragments of Mycenaean pottery. In addition, 4 lithic artifacts were found, among which is one bladelet of probable Holocene manufacture. Also of interest are tracts 1168 and 1169. The former yielded ten small fragments of Mycenaean pottery, as well as two handle fragments of prehistoric coarse ware. Moreover, the large Mycenaean kylix fragment referred to above (Figure 16) came from tract 1169. Both tracts also yielded a relatively large number of lithic artifacts (eight and five pieces respectively). Most of these belong to the Pleistocene component in the lithic record, but several blade and flake fragments and two cores may be assigned to the Holocene. The spondylus shell with drilled hole (Figure 5) discussed above also came from this area. It is impossible to chronologically correlate the small quantity of lithic artifacts and the prehistoric and Mycenaean pottery. Nevertheless, the combined distribution of these different classes of artifacts shows a slight but marked concentration in the area indicated by A in Figures 6 and 14, suggesting the presence of a prehistoric or Mycenaean site in the area.[31]

A Mycenaean site?

As mentioned in the introduction to this article, the 2015 survey at Skoulikado was instigated by the Mycenaean finds that were brought by one of the landowners to the Ephorate of Antiquities of Zakynthos. Among these finds were the stem of a LH IIIA goblet or kylix (FS 255 or 256)[32] (Figure 17) and a monochrome rim fragment of a bowl or kylix (Figure 18).[33] The finds had been

[31] We may be dealing with the peripheral area of a site, often defined as a 'site halo', see Waagen 2014, 418-419.
[32] Cf. Mountjoy 1999, 539 fig. 195 no. 189 (from Phaleron in Attica and assigned to LH IIIA2).
[33] Cf. Mountjoy 1986, fig. 107.2 (kylix); 90 figs 108 (kylix) and 109 (bowl).

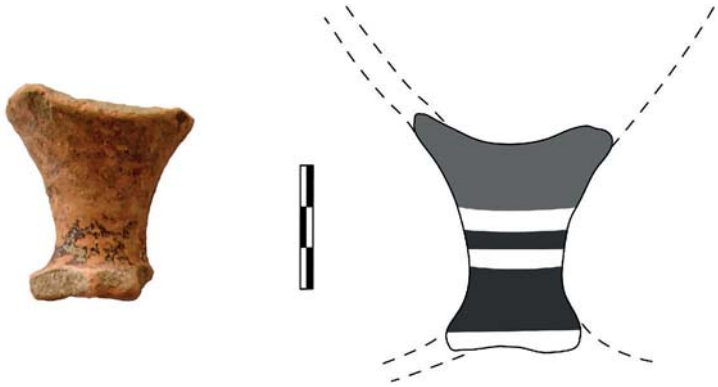

Figure 17. Mycenaean kylix stem brought to the Ephorate of Antiquities at Zakynthos in 2014 (photograph by G. van Wijngaarden, drawing by S. Benneker).

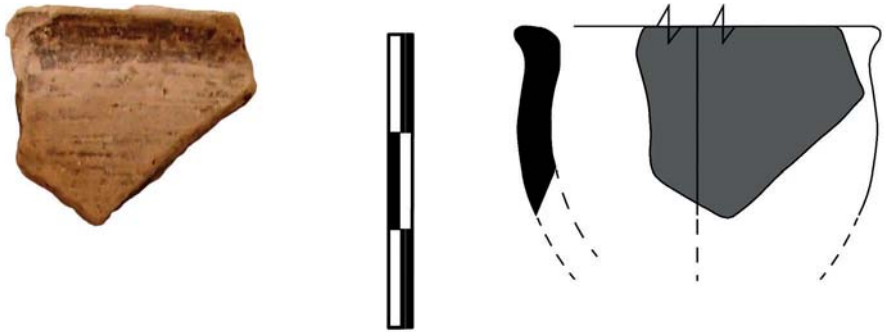

Figure 18. Bowl fragment brought to the Ephorate of Antiquities in 2014 (photograph by G. van Wijngaarden, drawing by S. Benneker).

discovered during drainage works in a field near his house, which later became our tract 1111 (Figure 3). According to the owner's report, several stones, perhaps belonging to a wall, had also been discovered and, unfortunately, taken out. During the intensive surface survey, this tract yielded several prehistoric pottery fragments, among which was the base of a large storage vessel (Figure 14), and one lithic artifact. Even though these tracts do not stand out in the distribution pattern with respect to the quantity of finds, it is clear that these fields belong to the vague concentration of prehistoric surface finds near A in Figure 12 that was described above.

The possible presence of subsurface wall remains inspired us to carry out a geophysical survey in tracts 1110-1113. The aim of the geophysical research was to

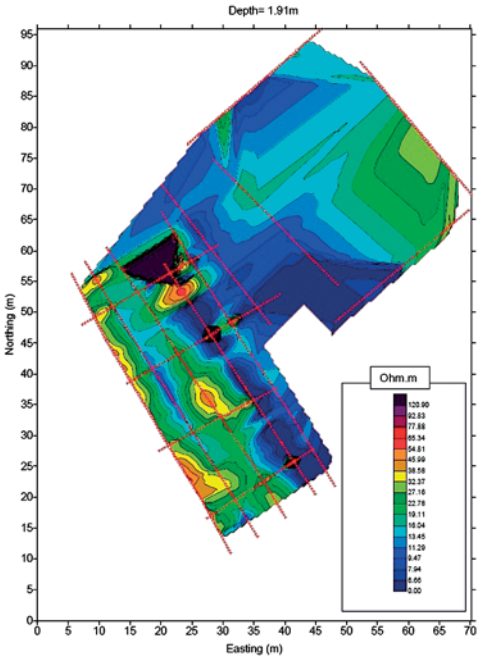

Figure 19. Imagery from Electrical Resistivity Measurements at a depth of 1.91 metres.

assess whether archaeological remains were present below the surface and, if so, to get a sense of their extent and layout. Two different methods were used: an electromagnetic survey conducted by EM profiler and an Electrical Resistivity (ERT) survey (Figure 19). After carrying out surveys on 12 different levels in two separate fields by EM profiler, no subsurface structures were identified that could be attributed to human building. In the field of the reported Mycenaean finds, strong spatially elongated conductivity signals were recorded caused by a metal water pipe. The ERT survey also did not show any anomalies that could be attributed to architectural structures or other remains of human activity. Three layers were investigated up to a depth of 5 m. Overall, the variations in resistivity values were very small and could not be attributed to human activities in the past.

The presence in tracts 1110-1113 of an archaeological site to which the Mycenaean finds could have belonged, could not be corroborated by the geophysical survey. However, as stated above, these fields are in the centre of a vague scattering of prehistoric finds, which are probably indicative of prehistoric settlement in the area. Any subsurface archaeological remains that are still in place can probably only be found by excavating a series of test trenches.

Antiquity: Archaic-Roman periods

Only eight surface survey finds can be classified with some certainty into the long period from the Early Iron Age to the Classical period. The most recognisable find is a base fragment of an Archaic drinking cup. The eight datable finds were found widely scattered over the survey area, indicating that agricultural practices — perhaps manuring — played an important role in their distribution.[34] The low number of finds from this long period is probably at least partly due to the high degree of fragmentation of the finds: it is possible that among the finds labelled as 'probably ancient' there are finds from the Archaic-Classical periods. However, it should also be noted that the scarcity of finds from these periods corresponds well to the results in the other research areas of the Zakynthos Archaeology Project.[35] Whether this should be related to a very modest use of the landscape in these periods or to our inability to recognise other pottery than decorated fine wares is still a matter of debate.

Figure 20. Distribution map of Archaic-Roman pottery.

[34] Bintliff & Snodgrass 1988; Waagen 2014, 418-419.
[35] Van Wijngaarden, Pieters & Kourtesi-Philippakis 2013, 154.

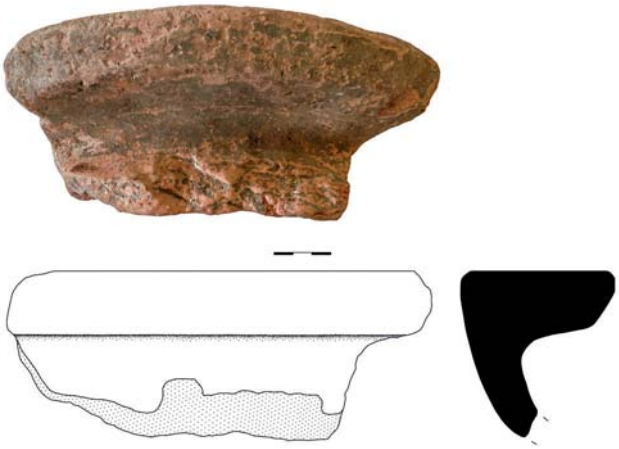

Figure 21. Rim fragment of a Roman pithos (tract ZAP 1221.1) (photograph by G. van Wijngaarden, drawing by O. Metaxas).

Finds from the Hellenistic-Roman periods are somewhat more ubiquitous. Apart from the concentration of finds from these phases near C in Figures 6 and 20, some 30 finds have been assigned to this period in 12 tracts. Among these were several small fragments of black-gloss pottery, as well as small pieces of tiles. A large fragment of a storage pithos (Figure 21), probably of Hellenistic date,[36] was also found.

Figure 22. Black gloss finds from tract 1212.

The largest concentration of finds of the whole survey is located in the southern part of tract 1212 and the adjacent tracts 1213, 1217, 1218, near C in Figures 6 and 20. A revisit of these tracts was recorded as tract 1259. Each of these tracts yielded

[36] Cf. Giannapoulou 2010, 201, fig. 13 δ1, 2 (from Skilloundia).

Figure 23. Metal slag from tract 1212.

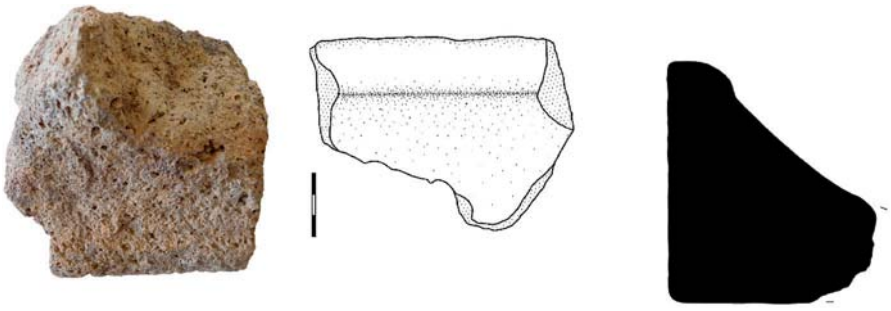

Figure 24. Part of grinding stone found during the revisit of the site (tract 1259) (photograph by G. van Wijngaarden, drawing O. Metaxas).

several hundreds of finds: in total 494 finds were collected.[37] The majority of these finds were small undiagnostic pieces of pottery or tile. A few pieces of black-gloss pottery (Figure 22) and several small fragments of Red-Slip ware warrant the chronological classification of the site as Hellenistic-Roman. Interestingly, a piece of metal slag was also found (Figure 23), as well as part of a grind stone (Figure 24). These finds are perhaps indicative of a general agricultural and industrial function of the site.

[37] Many more finds were observed in these tracts, but many small pieces of tile were not collected.

Skoulikado-Mavroyenia and the Pan stele

A few days after the discovery of the Hellenistic-Roman site of tracts 1212, 1213, 1217, 1218 and 1259, we discussed these finds with one of the landowners, Mr. N. Plessas, who told us that this is the area of Mavroyenia, which is mentioned in L. Salvator's report as the place where an inscription was found.[38] He also took us to the field where according to him the inscribed stele had originally stood. This was our tract 1613, directly south of the find concentration in tract 1212 (Figure 6).[39] In recent years, terracing works have clearly taken place in the area and tract 1613 is now significantly higher than the fields in which our site is situated. In between these fields there was a ditch from which many finds were retrieved. The ubiquitous water in the ditch suggests the presence of a spring in the area.

L. Salvator discusses the inscribed stele from the area, which was reportedly found in 1819 by a notary called Dionysios Barbianis (Figure 25).[40] Salvator also provides a drawing of the stele (Figure 26). In addition, he notes that a stone column was buried there and that a statue of yellow oxidised metal was found with the stele.[41] He mentions an outcrop of conglomerate rock in the area, which 'by many is considered to be a stretch of ancient wall'. Salvator was probably referring to Otto Riemann, who reports Roman constructions 'which seemed rather impressive'.[42] Riemann also mentioned two other stones with inscriptions — one bigger, the other smaller — as well as several smaller stones (with or without inscriptions is not clear) at some distance northwards.[43]

Salvator was not the first to discuss the inscribed stele from Mavroyenia, of which only a few signs are legible. What Barbianis wrote about the stone and its inscription will remain unclear, since his notebook is now lost. It has been destroyed during the devastating earthquake of 1953, when the island's archive, in which it was stored, burned down completely.[44] Unfortunately, also the present whereabouts of the stele are a mystery.[45] It was last seen by Salvator at the property

[38] Salvator 1904, vol. II, 292-293.

[39] Tract 1613 did not yield many finds, but three small fragments were clearly ancient.

[40] Chiotis 1849, 213; Stamatelos 1857, 465; Riemann 1880, 8; Salvator 1904, vol. II, 293, who mentioned by mistake the year 1816. Riemann refers to folio 19 in a book entitled *Χρονικού* ('a treasure of information') in the archive of Zakynthos, containing notes of a notary named Barbianis (1790-1866), a local who 'recorded everything on the island that fell into his hands'; archaeological information as well as birth figures and death rates.

[41] Salvator 1904, vol. II, 293.

[42] Riemann 1880, 9. Interestingly the landowner reported that during digging works in the field of our tract 1613 a large piece of conglomerate had been seen below the surface.

[43] Riemann 1880, 9.

[44] For an account of the earthquake and its devastating effects on the cultural property on the island, see Drakopoulou 2015.

[45] A visit to the depot of the Museum of Byzantine and post-Byzantine Art in Zakynthos did not yield any results.

Figure 25. Bust of Dionysos Barbianis (photograph taken from Varviani 1999, 171).

Figure 26. Stele found in Skoulikado Kalimachos-Mavroyenia (adapted from Salvator 1904, 293).

of Mr. Nikolaos Metaxas near Skoulikado. In 1856 this Metaxas became the owner of the stele. His fellow villager Nikolaos Plessas, nicknamed Smyrniotis,[46] transferred this heavy piece to Metaxas's house and received the sum of two thalers.[47] In addition, the yellow oxidised metal statue, which was found near the stone in Mavroyenia, came into his possession.[48] Salvator saw the stone with inscription shortly before 1904, when Angelos Metaxas showed it to him. He also saw the accompanying papers from the family archive and probably the sketch that he later published in his book (Figure 26).[49]

The dimensions of the stone are reported to be ca 100 cm (height) × 0.45 cm (width) × 0.15 (thickness).[50] The upper part is damaged; the left corner is missing

[46] A name which refers to (old) Smyrnaean family ties.
[47] Salvator 1904, vol. II, 293.
[48] Salvator 1904, vol. II, 293. The female family members of the later owner, Angelos Metaxas, commissioned someone to melt the figurine, because they thought it was made of gold. It turned out to be worthless material. There are no traces of the column that was also found near the stone and statue.
[49] Salvator 1904, vol. II, 293.
[50] Chiotis 1849, 213; Stamatelos 1857, 465; Riemann 1880, 8; Salvator 1904, vol. II, 293.

(ca 25 × 15 cm) as well as part of the right corner (ca 20 × 5 cm). The drawing shows that the stele has been fixated to a flat stone — which could be either ancient or modern.

The inscription has been interpreted in various ways. Chiotis (1849) referred to Barbianis's observations and recommended:

(A)NAΞ | ΠAN | ΕΠAINE(I

He stated that the missing letters had been made up by Barbianis, 'according to his hypothesis', and added that the stone was used as a gravestone in ancient times (without any argument; note that *ἐπαινεῖ* is not common on gravestones). Stamatelos (1857) pointed at Chiotis's publication and Barbianis's remarks and suggested:

[A]NAΞ | ΠAN | ΕΠAINE

He assumed that ἐπαινέ referred to one of Pan's epithets — *'ἐπαινέ = φοβερέ'* — and therefore concluded that the stone was not related to a grave but to a cave or sanctuary of Pan.[51] Riemann (1880) also mentioned Barbianis's notebook, in which he had read something else than Chiotis:

ΝAΞ | IAMΩ | ΕΠAIMIC | AΔ·A

This interpretation was, in his words, 'very inaccurate'.[52] Instead, Riemann proposed:

ΝAΞ | IAΝ{ | ΕΠAINI

On the lower part of the stele he saw the sign:[53]

Riemann could not detect the word Παν at all, adding that he was unable to read the inscription.

Salvator identified the stele as 'a sort of boundary stone' and did not discuss the inscription at all.[54] N. Konomos (1979) only mentioned Stamatelos's interpretation in a footnote.[55] In the original publication in *Inscriptiones Graecae* W. Dittenberger warned that nothing can be said with certainty,[56] a statement which is repeated in the updated 2001 edition.[57] It would appear that this is the most valid

[51] Stamatelos 1857, 465.
[52] Riemann 1880, 8.
[53] Threatte 1980; no similar signs are mentioned in this publication.
[54] Salvator 1904, vol. II, 293.
[55] Konomos 1979, 177.
[56] IG IX 1, 602.
[57] IG IX I², 4, 1745.

conclusion. The 19th-century drawing in Salvator's book is merely a sketch, which makes it impossible to identify the words. They cannot be studied in detail anymore, because the stone has vanished without a trace.[58] In addition, the interpretations of Barbianis, Chiotis, Stamatelos and Riemann are not supported by the drawing. It is possible, finally, that the draughtsman has made some errors or additions when he copied the stele.

The first line of the drawing shows a Λ or Γ, and maybe a Ξ or E. The second line is rather vague, we can distinguish an A or Λ, or even Δ, and maybe M or N, while the third line seems to depict a Γ or Π (looking at the sketch, Π is more likely) followed by A, I, N. [E]ΙΙAIN[E] could be a an option if we rely on the drawing; there is space for one letter before and after the visible signs. However, any educated guess is possible, since the type of alphabet, lay-out (*stoichedon* or not), age and place of origin of the inscribed stone are all unclear. It is also the only drawing in Salvator's book that depicts an inscription, so no comparisons can be made.

The Pan connection suggested first by Stamatelos does not seem plausible, since the ancient sources, Greek coins and the few surviving inscriptions from Zakynthos do not refer to Pan at all.[59] They only mention cults (festivals and temples) of Apollo, Aphrodite, Artemis and, occasionally, Zeus (on coins).

The stone itself is damaged but, considering its dimensions (esp. its thickness), it could be a grave stone rather than a pedestal. If the report by Riemann is reliable, several ancient grave stones were found in this area and closer to the mountains.[60]

During the 2017 study campaign of the Zakynthos Archaeology Project, a final effort was made to find the stele. During a visit to the area of Mavroyenia, many local residents have been interviewed about the stone and its inscription. It appears that nobody had ever heard of it, not even the descendants of Nikolaos Plessas (who transferred the stele to the property of Metaxas in 1856) in the village of Skoulikado. Nevertheless, one of his current family members, Nikolaos Plessas, was highly surprised to hear that he had the same nickname — Smyrniotis — as his great-great-great-grandfather.

[58] In 1934, epigraphist Günther Klaffenbach, had also been looking for this stone during his stay on Zakynthos. In his notebook — which is kept in the archives of the *Inscriptiones Graecae* in Berlin — he wrote down: 'Nicht gefunden, 10, III, 1934'.

[59] Ancient sources: temple of Apollo (Plut. *Dion* 23.3), temple of Aphrodite (Dion. Hal. *Ant. Rom.* 1.50.3). Coins: Postolakas (1868) 102-108; Babelon 2 (1907) 902-906 & 3 (774-792); BMC *Peloponnesus* (1887) 94-104; SNG *Danish National Museum* 479-488; SNG *Leipzig* 990-991; SNG *Tübingen* 1941-1943; SNG *Braunschweig* 881-882; SNG *Lockett Collection* 2475-2480; SNG *Paris, Delepierre* 2243-2244; SNG *Athens, Soutzos Collection* 1040-1044; SNG *Athens, KIKPE Collection* 619-620; inscriptions: *IG* IX I^2, 4, 1730-1779.

[60] Schmidt 1899, 62.

Of course, it is tempting to connect the stele to the concentration of finds attested during the survey at Mavroyenia. It is likely that this was the area visited by Salvator. However, at the time of his visit the stele had already been removed and we rely on the reliability and accuracy of the people informing him and us when we make the connection.

Conclusions

The impetus to conduct a survey in the Skoulikado-Kalimachos area came from the Mycenaean pottery finds that were submitted by one of the landowners to the archaeological service of Zakynthos. Even though we have not been able to affirm the presence of archaeological remains in the fields where these finds reportedly came from, it is clear that these fields are part of a wider scattering of prehistoric materials (A in Figure 6) indicating the presence of a prehistoric or Mycenaean archaeological site. Only further archaeological research by excavation (test trenches) will be able to point to the exact location of the site.

The surface survey has indicated the presence of two other archaeological sites in the research area, indicated as B and C in Figure 6. Site B is identified through the combined presence of lithic artifacts and prehistoric pottery. Here too, the exact location of the site cannot be pinpointed, but the combination of artifacts suggests human activity. The concentration of Hellenistic-Roman finds at the location of Mavroyenia (at C in Figure 6) hints at an agricultural or industrial building during this period. However, here too, the exact location should be confirmed by further excavation, given the extensive changes of the landscape due to agricultural activities.

An important objective for the 2015 archaeological survey was to compare the archaeological landscape in three research areas of the Zakynthos Archaeology Project with an area in a different part of the island.[61] Several observations have been made that correspond well to all three other research areas. One aspect is the presence and wide distribution of lithic artifacts, which is comparable to all three research areas. The fact that the lithic artifacts at Skoulikado appear to come from nodules in the Vrachionas mountain compares well to research area B. In comparison to that area, however, the Holocene component among the finds appears to be higher, which may also be the case at Vasilikos in research area C. With regards to the ceramic surface finds, it is clear that for Skoulikado-Kalimachos, the same startling observation can be made as for the other research areas:[62] precisely

[61] Because the final publication of the project is still in preparation, a full comparison cannot yet be made and will in fact, be published in that volume.
[62] Van Wijngaarden, Pieters & Kourtesi-Philippakis 2013, 154.

the periods for which we have historical documentation (the Archaic-Classical and the Byzantine periods) are more or less lacking in the pottery record. The exact causes for this discrepancy are still not fully understood. Otherwise, all of the pottery classes that are present in the three other research areas are also visible at Skoulikado: the prehistoric, Mycenaean and Hellenistic-Roman periods are all well-represented. It should also be noted, however, that our site C, with its large quantities of tile and Hellenistic-Roman pottery in a fairly small area, is actually not paralleled by any of the sites from this period in areas A, B or C, which were all far less clearly defined spatially.

As elsewhere on Zakynthos, the archaeological surface record in the area of Skoulikado-Kalimachos is extremely fragmented. Due to the intense agricultural use of this area over many centuries, the degree of fragmentation here was, perhaps, even more extreme, which is one of the reasons why it has been so difficult to specify the exact location of archaeological sites. Nevertheless, the combination of the highly detailed survey methodology with both historical research and the knowledge of local informers has enabled us to make the archaeological landscape of Skoulikado-Kalimachos visible.

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