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THESPROTIA EXPEDITION III
LANDSCAPES OF NOMADISM AND SEDENTISM

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Cover: The Bronze Age site of Goutsoura seen from the south. Photo: Björn Forsén

Layout: Esko Tikkala

Contents

The Bronze Age Site of Goutsoura: Location, Stratigraphy and Date

Björn Forsén

The Bronze Age site of Goutsoura (PS 12) was localized during the intensive survey phase of the Thesprotia Expedition in 2004 on the lowermost eastern slope of the Liminari hill, somewhat more than one km to the east of the Kokytos and the village Rachouli (Fig. 1).[1] The site was later chosen as one of those on which we focused during the second phase of the Thesprotia Expedition, which included magnetometer prospecting, soil sampling and trial excavations. There are several reasons why Goutsoura was chosen as one of the sites on which to focus. Firstly, the Bronze Age in general was very poorly known in Thesprotia as well as in all of northwestern Greece and we were specifically aiming at throwing light on less known parts of the Thesprotian past. Secondly the site seemed to be rather well preserved, as large parts of it were located in fields that had not been taken into modern cultivation.

The aim of this chapter is mainly to describe the progress of the work at the site as well as to give a general overview of its location, stratigraphy and date. The geoarchaeological setting, pottery, lithics, small finds, grave and terrace structures, human remains and animal bones are published in separate chapters.[2]

The surface scatter in relation to the location

While surveying fields in 2004 one of our survey teams directed by Jeannette Forsén came across a small concentration of poorly preserved prehistoric sherds in tract A 42, which corresponds to a field just to the east of the Liminari hill that was cultivated by small corn plants. Part of the field was divided into 10x10 m grids and sampled as a site, PS 12. The total density calculated in the 31 squares (as all finds collected per square) revealed, apart from a clear concentration of finds in the northwest part of A 42 (in squares 2B, 3, 4 and 6), also higher densities in the south and east parts of the tract (Fig. 2a). The finds collected consist, in addition to the prehistoric pottery, of lithic artefacts and some small roof tile fragments. The highly worn prehistoric pottery was in the field preliminarily dated to the later part of the Neolithic period or the Early Bronze Age, whereas the roof tiles seemed to be of Early Modern date. The lithic artefacts were prehistoric, but could not be assigned any more specific date.

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[1] For further short overviews of the site, see Forsén *et al.* 2011, 79-82; Forsén and Forsén 2012. The following description is based on my field diary and the reports made by the trench masters. The following persons functioned as trench masters: Rauno Vaara (2007), Christopher TenWolde (2008), Tommi Turmo and Otso Manninen (2009), Sarita Sandell, Johanna Stenberg, Rasmus Åkerblom, Niko Latvakoski and Jarkko Saipio (2010). Esko Tikkala produced the final versions of all drawings and illustrations in this chapter, partly on the basis of pencil illustrations made in the field by the trench masters.

[2] Cf. Lavento and Kouki, this volume; J. Forsén, this volume; Doulkeridou, this volume; J. Forsén, this volume; Papayiannis, this volume; Lima, this volume; Niskanen, this volume and Deckwirth, this volume.

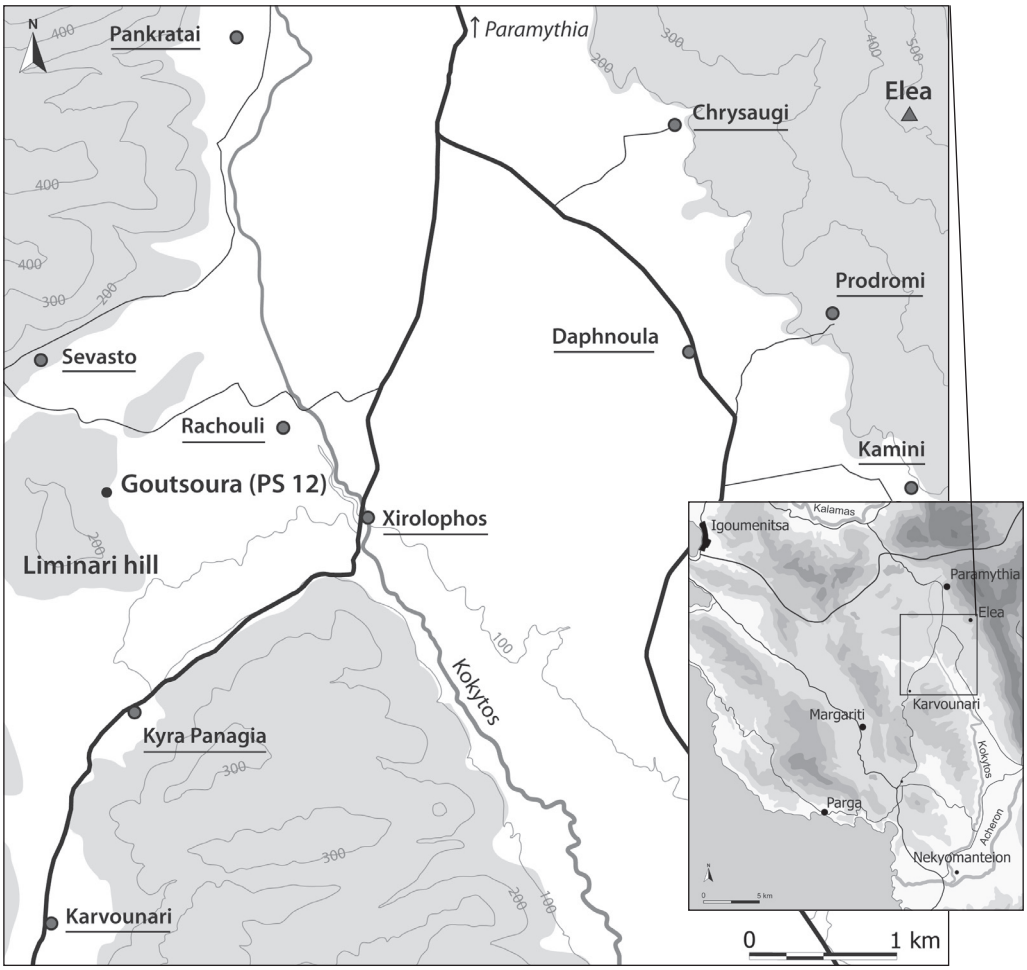
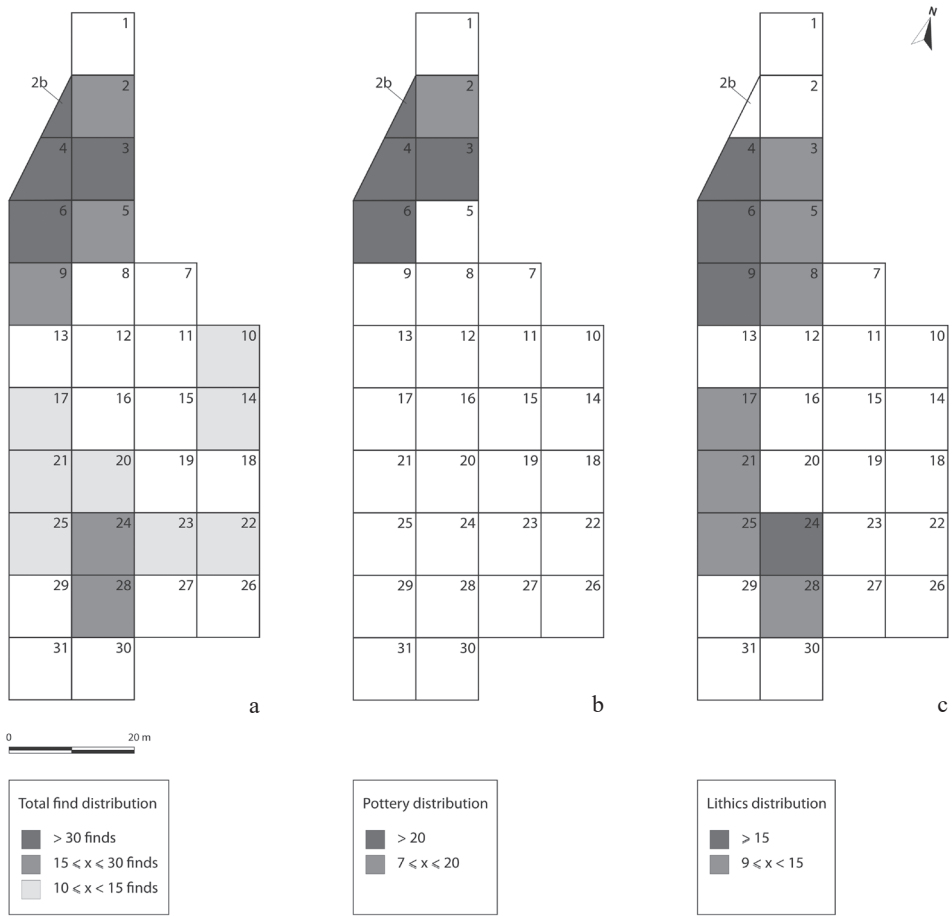


Fig. 1. General map showing the location of the site of Goutsoura and the hill of Liminari.

Some additional information concerning the gridded area could be gained when studying the distribution of the different categories of finds. The prehistoric sherds were clearly concentrated in the squares with highest total find density (squares 2, 2B, 3, 4 and 6, Fig. 2b). The lithic artefacts were spread all over A 42, with slight concentrations in the northwestern part of the field, roughly in the same general area as the prehistoric sherds, as well as in the southern part of the tract (Fig. 2c). This seems to support the assumption of a prehistoric site in the northwestern corner of A 42, to which not only the pottery but also the lithics would belong.[3] Finally, the roof tiles are concentrated in two squares in the east (squares 14 and 18), possibly indicating an Early Modern tile dump or perhaps even the location of some kind of small shed.

The fact that all the finds from the later part of the Neolithic period or the Early Bronze Age were concentrated in a small area along the western edge of tract A 42

[3] The lithics from A 42 are also of the same grey flint as later found during the excavation of Goutsoura (for which see below and Doulkeridou, this volume).



Figs. 2a-c. Distribution of survey finds in tract A 42.

seemed to indicate that the site might continue in that direction. A 42 is separated from the Liminari hill by a dirt road. On the other side of the road there is a sheltered nook which would have been a perfect setting for a prehistoric settlement (Fig. 3). The size of the nook is ca. 150-160 m in a north to south direction times 50-60 m in a west to east direction. Just to the northwest of the nook, slightly higher up on the hill slope, there is a separate terrace measuring at most 40x10 m.

The slopes of the Liminari hill consist of limestone totally denuded of all soil. Only some prickly oak bushes and mountain tea grow on the slopes today. It is unclear at which stage in the past the topsoil eroded away, creating the alluvial fan in the nook, but the erosion may have consisted of several phases, thus also covering the Neolithic and Bronze Age layers with more recent soil. Two small ravines leading down from the hill slope have brought water to the nook and the fertile, previously marshy, flat plain opening up towards the east of the Liminari hill has provided good grazing ground. The marshy plain has also offered good possibilities for drawing water from wells (Figs. 1 and 3).

During the late nineteenth and early twentieth century a local farmer used to keep his livestock in the nook. According to oral information the farmer had a small hut here

Fig. 3. The site of Goutsoura and its setting. Photograph from the southwest.

and the livestock was kept in place by a fence built of field stones. The fence climbed rather high up on the hill slope which at that time was totally nude. The nook and the stone fence are visible in the background of a photograph taken in 1913 by Fred Boissonas, but unfortunately not the hut, the location of which thus remains unclear.[4]

The southernmost third of the nook is today overgrown by impenetrable thorny bushes, whereas the northernmost two thirds only are covered partly by shrub and partly by grass. Some 30-40 beehives are kept in the clearings of the northernmost part of the nook, which otherwise is not cultivated in any way. The main part of the site which was clearly located in the nook could be due to the total lack of visibility not be studied by an intensive survey. Therefore we had to change our research strategy in order to learn more about the site. We began in 2007-2008 by trying to define the borders and character of the site with the help of trial trenches, phosphorous sampling and magnetometer prospecting. The trial excavations were then in 2009-2010 continued and enlarged.

The trial trenches and first indications of stratigraphy

Our first step after the intensive survey was in 2007-2008 to open a total of 10 trial trenches, most of them measuring 1x2 m and being called Trench A, B, C, D, E1-2, E6-7, E11-12, E21-22, F and H (Fig. 4). Trench A was located at the upper edge of tract A 42, where the first prehistoric pottery had been found, Trench H on the slightly higher small terrace of the Liminari hill, whereas the rest of the trenches were located in the sheltered small nook itself. Trenches E1-2, E6-7, E11-12 and E21-22 were made on a straight line, with the numbers marking the x-coordinate and E the y-coordinate. Trench E11-12 was

[4] See e.g. Thesprotia 2004, 89 or Forsén and Galanidou, this voume, Fig. 2.

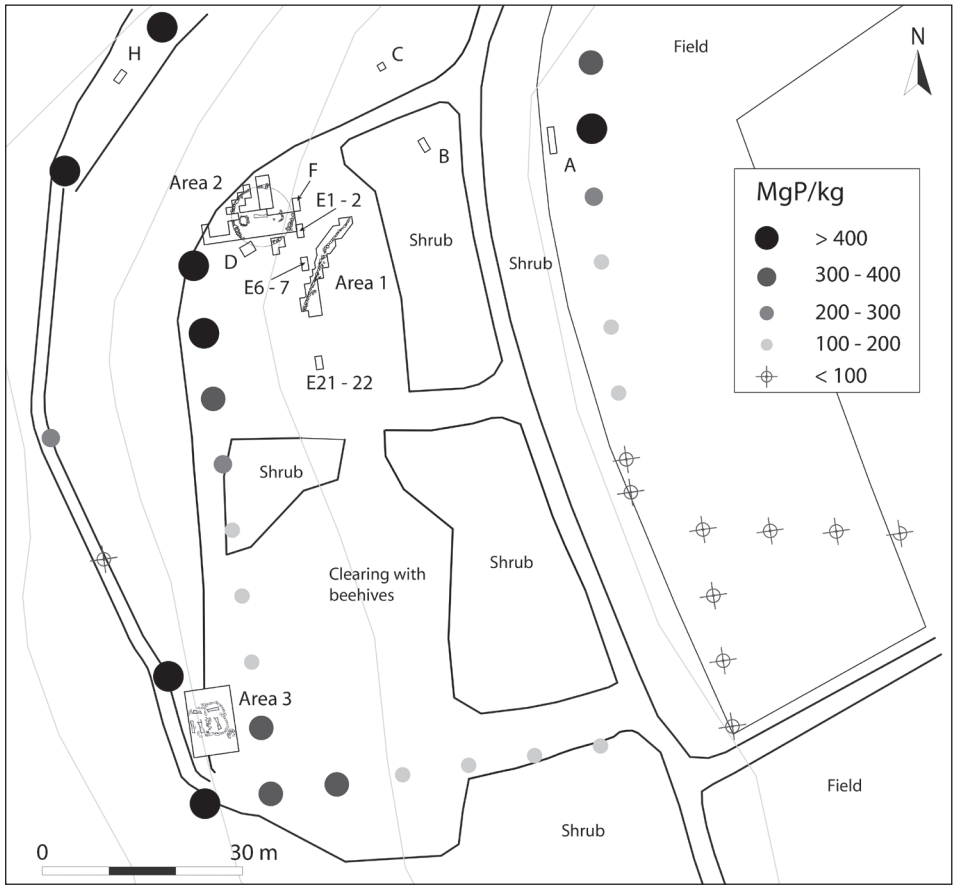


Fig. 4. Location of trial trenches and the two concentrations of phosphorous anomalies.

later enlarged into a 19 m^2 large area when the remains of a terrace wall were found. This area was excavated according to a coordinate system with K, J, G, E and I marking y-coordinates and running numbers the x-coordinates (Fig. 5).

The trial excavations revealed a thick and clear Early Bronze Age (EBA) cultural layer in Trenches A and D. In Trench A this layer (excavated as A1 and A2, Loc. 2-4) was found immediately below the topsoil layer at a depth of ca. 30 cm below surface and was at most some 40 cm thick, containing pottery, charcoal, burnt clay (possibly remains of a mudbrick construction?) and three spindle whorls mixed with stones and soil. In Trench D a clean EBA layer (called D, Loc. 3 and D2, Loc. 5) was encountered at a depth of ca. 95-98 cm below surface. This layer, which reminds of the one in Area A, although it contained much less burnt clay, was at most some 20 cm thick. The pottery collected and C-14 samples confirm the date of these layers to the EBA (more exactly 2700-2400 cal. BC).[5] However, whereas the EBA layer in Trench A was superseded immediately by the topsoil, the corresponding layer in Trench D was superseded by another ca. 35-40

[5] Further, see Appendix and J. Forsén, this volume.

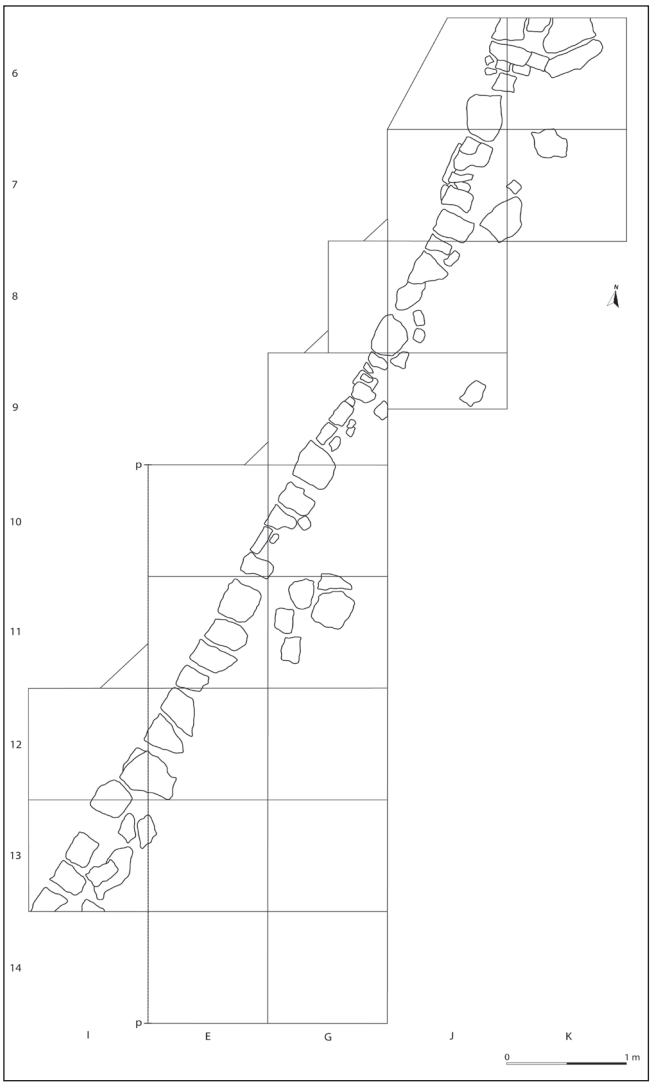


Fig. 5. The coordinate system of the large trial trench excavated in 2008. P - P marks the west section drawn in Fig. 6.

cm thick cultural layer (called D, Loc. 2 and D2, Loc. 3-4) containing a mixture of EBA and Late Bronze Age (possibly also some Middle Bronze Age) pottery, on top of which the ca. 60 cm thick topsoil followed.

Trenches B, C and H revealed remains of a massive rock tumble, which was mixed with Bronze Age pottery in Trenches B and C, whereas in Trench H with some worn pottery of historical date. The Liminari hill slopes are today totally denuded of all soil, which at some stage has eroded away creating the alluvial fan in the sheltered nook. The erosion probably took place during several different stages, the last ones partly covering the Bronze Age layers with the relatively thick sterile topsoil. The massive tumble in Trenches B, C and H probably belong to the final massive phase of erosion that seems to be confined to the parts closest to the very slopes of the hill.

The upper surface of the terrace wall, which first was encountered in Trench E11-12, is located ca. 70 cm below surface, whereas its foundation is at a depth of ca. 100 cm below surface (Fig. 6). The same stratigraphy was observed in the whole trench that finally was enlarged to a total of 19 m^2 around the wall. The uppermost ca. 40 cm layer consisted of topsoil mixed with white small stones and few finds (Loc. 1). Below this layer followed a first cultural layer, which was excavated as Loc. 2 until the upper part of the terrace wall, after which it was called Loc. 3 on the north side of the terrace wall and Loc. 4 on the south side of the wall (this distinction was not always followed). This first uppermost cultural layer was ca. 40-50 cm thick and continued some 10 cm below the

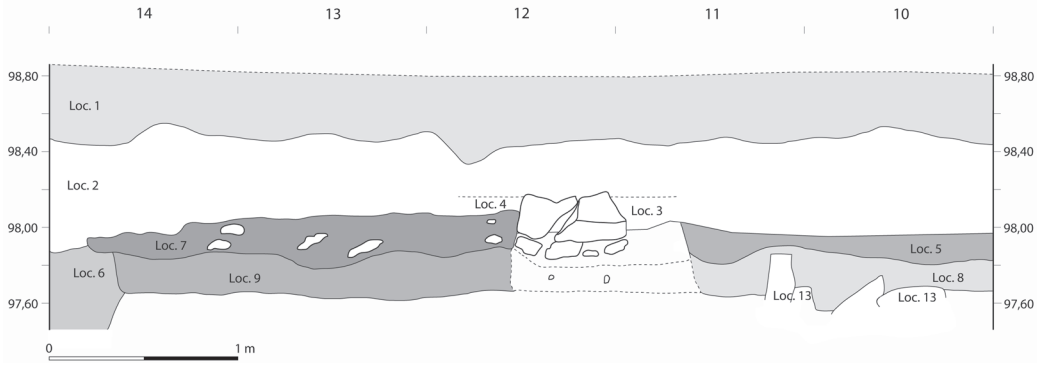


Fig. 6. Profile drawing of west section of the large trial trench excavated in 2008.

upper surface of the terrace wall. The first cultural layer was clearly distinguished from the topsoil by not containing any small stones, at the same time as the soil was denser and more fine grained and included pottery, lithics and charcoal. The largest amount of pottery and lithics came from the lowermost part of Loc. 2.

The first cultural layer in the large trial trench next to the terrace wall is followed by two further cultural layers, which were mostly called Loc. 5 and Loc. 8 on the northern side of the wall and Loc. 7 and Loc. 9 on the southern side of the wall. The second cultural layer consisting of Loc. 5 and Loc. 7 is located between ca. 80 and 100 cm below surface, whereas the third and final cultural layer consisting of Loc. 8 and Loc. 9 continues until a depth of ca. 120 cm below surface, i.e. is located below the wall itself, which is imbedded into the second cultural layer. The amount of pottery and lithics is smaller in the second and third cultural layers than in the uppermost one, but the number of bones is large. Charcoal is also common. Both the second and third cultural layers contain pebbles, although their number is smaller in the third cultural layer, the soil of which is more brownish stained.

What looked like sterile soil, being reddish-brown in colour and including small gravel, was clearly encountered in square E14, where it was partly excavated as E14, Loc. 6. In squares E10-11 natural bedrock, called E10-11, Loc. 13, followed below the third cultural layer E10-11, Loc. 9 (8). In square G11-12 no clear distinction between the second and third cultural layer could be observed and they were therefore excavated together as G11-12, Loc. 7+9.

The pottery and lithics from this largest trial trench was not studied in detail, as the two uppermost cultural layers on the basis of a first survey seemed to contain a mixture of Middle Bronze Age (MBA) and Late Bronze Age (LBA) finds, whereas the lowermost cultural layer produced rather little diagnostic finds. However, three C-14 samples taken from the area surrounding the terrace wall indicate the existence of a datable stratigraphy. Thus Hela-1807 which was taken in J8-9, Loc. 2 (first cultural layer) dates to 1320-1100 cal. BC, whereas Hela-1809 which was taken in K6-7, Loc. 8 (third cultural layer) dates to 1920-1730 cal. BC. Finally, the wall itself could, during large-scale excavations in 2009, by the help of a piece of bone found built into the wall itself, be given a terminus post quem of 1560-1410 cal. BC (Hela-2502).[6] Thus, the

[6] Further on the C-14 samples, see Appendix.

lowermost third cultural layer seems to date to the MBA. The wall itself was constructed on top of this layer at a time that corresponds roughly to LH II or the beginning of LH III. The second cultural layer is either slightly older or contemporaneous with the wall, i.e., dates to the early or mid-LBA, although it also contains earlier finds. Finally, the uppermost first cultural layer has accrued on top of the wall, i.e. during the mid- or late LH III, or possibly even later.

A somewhat similar stratigraphy as in the large trial trench was also found in Trenches F, E1-2, E6-7 and E21-22 (Fig. 7). In E21-22 the topsoil of some 45-50 cm was followed by a ca. 40 cm thick cultural layer called E21-22, Loc. 2 and which corresponds to Loc. 2 (i.e. the first cultural layer) in the squares excavated around the terrace wall. Due to time restrictions we never excavated deeper in Trench E21-22. In Trench E6-7 we also had three consecutive cultural layers below the topsoil layer, called E6-7, Loc. 2, E6-7, Loc. 3 and E6-7, Loc. 4. Below the lowermost layer, which probably dates to the MBA, there followed reddish-brown sterile soil, called E6-7, Loc. 5. Three consecutive cultural layers (Loc. 2, 3 and 4), the second one characterized by the large number of pebbles, were also found in Trench F and E1-2, probably following the same stratigraphy as in the large trial trench, although the lowermost third cultural layer here, due to the vicinity of the trenches to Area 2 (cf. below), may date to EBA. In E1-2 some pottery, lithics and bones were still found in the upper part of the lowermost Loc. 5, which however turned sterile deeper down, when it was renamed E1-2, Loc. 6.

Phosphorous sampling and magnetometer survey

Parallel to the trial excavations of 2008 we began to collect phosphorous samples along five lines intersecting the sheltered nook and continuing into the cultivated fields further towards the east. The purpose of these phosphorous samples, which were taken at a distance of 10 m between each other, was to define not only the borders of the site, but also any possible concentrations of high phosphorous anomalies which could indicate intensive human presence. The detailed results of this study will be explained in more detail in another chapter,[7] but I already here want to refer to the main results, i.e., the existence of two clear concentrations of phosphorous anomalies, one just to the south of Trench D and another one some 70 m to the south of Trench D (Fig. 4).

Encouraged by the results of the trial trenches and of the phosphorous sampling we decided to proceed by conducting a magnetometer survey in the nook. The largest trial trench had uncovered a 9 m long terrace wall and we hoped to be able to trace the continuation of this terrace wall as well as any other stone wall constructions in the area by the magnetometer.[8] Unfortunately, the central part of the nook was used as the setting of beehives. Due to the magnetic disturbances caused by the beehives, or rather by the car tyres on which they were standing, the magnetometer could be used only in the northern part of the site.

The magnetometer survey revealed that the terrace wall continued for at least another 15 m towards the north, thus making it at least 24 m long. Towards the south

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[7] Lavento and Kouki, this volume.

[8] For the methodology and use of magnetometer in archaeological sites, see e.g. Smekalova 2009, 18-20.

	Large trial trench	Trench E1-2	Trench E6-7	Trench E21-22	Trench F	Area 1	Date
First cultural layer	E10, Loc. 2 and 3; E10-11, Loc. 3; E11-12, Loc. 2 and 3; E 12-13, Loc. 4; E 13, Loc. 2 and 3 (4); E14, Loc. 2 and Loc. 3 (4); G9, Loc. 2 and 3; G9-11, Loc. 4; G10-11, Loc.2 and 3; G12-13, Loc. 2 and 3 (4); G14, Loc. 2 and 3 (4); I12-13, Loc. 2, 3 and 4; J 7, Loc. 2, 3 and 4; J8-9, Loc. 2, 3 and 4; K6-7, Loc. 2	E1-2, Loc. 2	E6-7, Loc.2	E21-22, Loc. 2	F, Loc. 2	Loc. 1 in all excavated squares	Late LBA (Mid- or late LH III), or possibly even EIA
Second cultural layer	E10-11, Loc. 5; E12-13, Loc. 7; G9, Loc. 5; I12-13, Loc. 5 and 7; J7, Loc. 5 and 7; J8-9, Loc. 5 and 7; K6-7, Loc. 5 and 7	E1-2, Loc. 3	E6-7, Loc. 3	-	F, Loc. 3	Loc. 2 in all excavated squares. Also Trench 1 East, Loc. 5 and Trench 2 East, Loc. 7	Early or mid-LBA?
Terrace wall filling						Trench 2 East, Loc. 6	LH II or early LH III
Mixture of second and third cultural layer	G11-12, Loc. 7+9						
Third cultural layer	E10-11, Loc. 9; E12-13, Loc. 8, G9, Loc. 8; G9-11, Loc. 7; I12-13, Loc. 8; J7, Loc. 8 and 9; J8-9, Loc. 8; K6-7, Loc. 8	E1-2, Loc. 4	E6-7, Loc. 4	-	F, Loc. 4	Loc. 3 in all excavated squares	MBA
Poss. fourth cultural layer?		E1-2, Loc. 5					
Reddish-brown sterile soil	E14, Loc. 6	E1-2, Loc. 6	E6-7, Loc. 5	-	-	Loc. 4 in all excavated squares	
Bedrock	E10-11, Loc. 13						

Fig. 7. Table comparing the stratigraphy of Area 1, the large trial trench and trenches E1-2, E6-7, E21-22 and F.

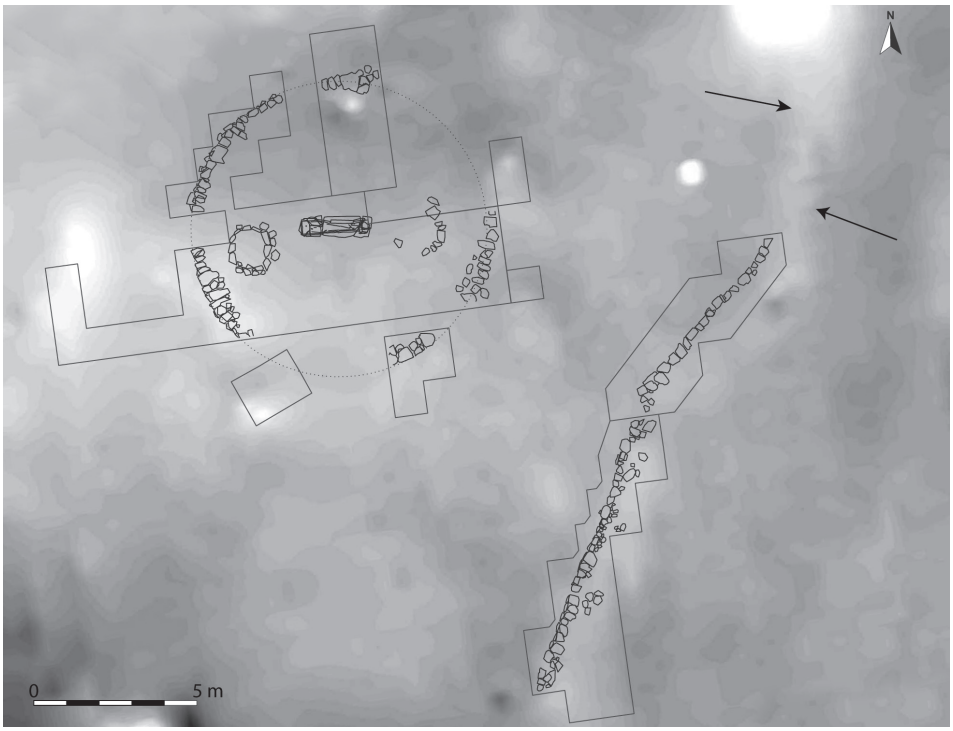
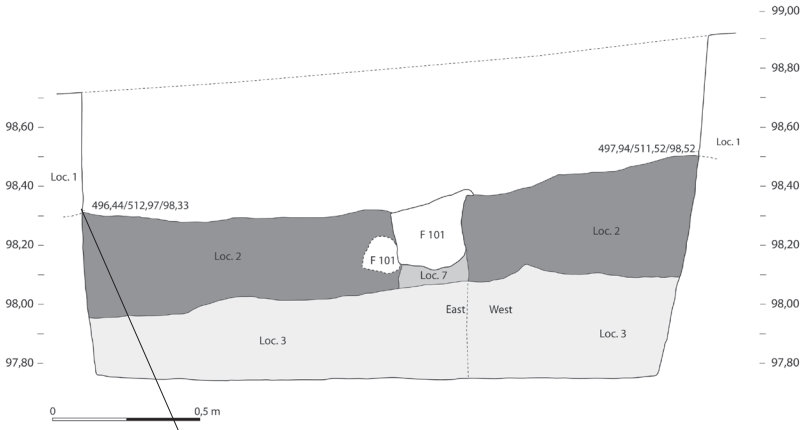


Fig. 8. Magnetometer map of the northern part of Goutsoura, on which the trial trenches, the terrace wall and the tumulus are marked. The approximative continuation of the terrace wall is marked with arrows.

its continuation could unfortunately not be followed due to the beehives. Indications of other walls were visible on the magnetometer map close to Trench D, where also one of the concentrations of phosphorous anomalies had been detected (Fig. 8). On the basis of these findings we decided to continue in 2009-2010 with more extensive excavations in three areas: Area 1 along the terrace wall to the north of the large trial trench of 2008, Area 2 next to Trench D, and Area 3 in the south part of the nook, close to the second concentration of phosphorous anomalies.

Stratigraphy of Area 1

At the beginning of the excavation season of 2009 a general coordinate system for the site was created in which the coordinates grow from east to west and from north to south. This coordinate system was from then onwards followed in all excavation areas, where excavated squares were named according to the coordinates of the square's northeastern corner. Area 1 was located along the continuation of the terrace wall towards the north of the part that had been exposed in 2008. The main aim of Area 1 was to clarify the stratigraphy around the terrace wall and to date the terrace wall. Area 1 covered a total of 13 m^2 and exposed another 7 m of the terrace wall. The size of the squares in Area 1 was 1x1 m, although some half squares also were excavated in order to facilitate the uncovering of the terrace wall (Fig. 9).



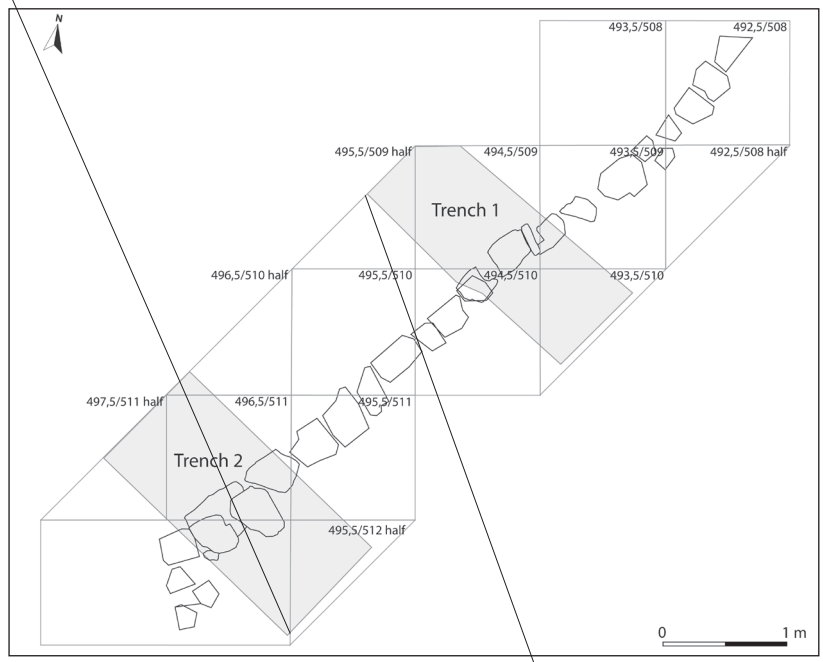


Fig. 9 (right). Excavated squares and trenches in Area 1.

Fig. 10a (above) and 10b (below). Profile drawings of Trench 1 and Trench 2 showing sections cut through the terrace wall.

The topsoil, which was called Loc. 0, was removed by a backhoe. Because the topsoil was thinner here than in the trial trench of 2008 the backhoe accidentally cut somewhat into the uppermost first cultural layer, which was called Loc. 1. The thickness of the part of Loc. 1 that was excavated was thus only ca. 15-30 cm. This layer was brown in colour and included close to no stones, but lots of pottery, although with few lithics and animal bones. The upper part of the wall was encountered already at a depth of some 25-50 cm below surface (closer to surface in the northern part). When the terrace wall became visible it was decided to dig two trenches through the wall. In these trenches, called Trench 1 and Trench 2, the finds were collected separately from the two sides of the terrace wall.

Loc. 2, which is the second cultural layer and begins somewhat below the uppermost part of the terrace wall, was thus excavated as Trench 1 West, Loc. 2 and Trench 1 East, Loc. 2, with the finds from the west of the wall collected separately from the finds originating on the east side of the wall (Fig. 10a-b). The wall itself was considered to belong to the east side of the trench. Loc. 2 is between 20 and 30 cm thick and was characterised by a large number of white pebbles, the number of which was larger on the east than on the west side. It was brown in colour and also included pottery, lithics, animal bones and charcoal. This second cultural layer actually continued slightly below the wall itself. The part of it excavated immediately below the wall was sampled separately as Loc. 5 in Trench 1 and as Loc. 7 in Trench 2. The terrace wall itself consists of only one layer of stones in Trench 1, whereas there are two layers of stones in Trench 2. The soil between the two layers of stones of the wall in Trench 2 was sampled separately as Trench 2 East, Loc. 6.

Below the second cultural layer followed a third cultural layer that was easily recognised through an obvious decrease in the number of white pebbles, although the soil otherwise remained similar to that of Loc. 2. The layer, which was ca. 30-40 cm thick, was homogenous all over Area 1 and was located in its entirety below the terrace wall, which it thus clearly predates. It was characterised by less pottery and lithics, but by an increasing number of animal bones. The number of finds decreased towards the bottom of Loc. 3, when inclusions of reddish soil also began to appear. Below the third cultural layer followed a hard, dry red soil with white gravel limestone and sand inclusions. A small test pit dug into Loc. 4 produced very few finds, seemingly indicating that this is the sterile bottom.

The stratigraphy recorded in Area 1 very much resembles that observed in the large trial trench and in trenches E1-2, E6-7 and F in 2008 (Cf. Fig. 6). Below the topsoil there were thus three consecutive cultural layers. The uppermost first layer clearly postdates the terrace wall whereas the lowermost or third layer antedates it. Two possible solutions can be suggested concerning the chronological relation between the terrace wall and the second cultural layer. Either the wall was dug into this layer at the time of its construction or the layer was formed contemporaneously with the construction of the wall in order to make it sturdier. The fact that this second layer also continued further away from the wall itself, e.g. in squares E1-2 and F, may support the first option, whereby the second cultural layer also would antedate the construction of the wall.

On the basis of the C-14 dates already mentioned above the lowermost or third cultural layer seems to date to the MBA, the wall itself being contemporaneous with LH II or early LH III, whereas the uppermost layer probably dates to the late LBA or possibly even later. The second cultural layer should be early or mid-LBA in date, if it existed before the construction of the terrace wall.

Stratigraphy of Area 2

Area 2 is located next to Trench D. Its main aim was to collect more information about the clean EBA layer that had been encountered in Trench D. Furthermore, we wanted to clarify whether there existed any remains of buildings here, as the faintly visible and possible walls seen on the magnetometer map and the high phosphorous anomalies obtained indicated. The aim of the excavation in this area changed somewhat when the perimeter wall of a tumulus was found during the first week of work. Henceforth we concentrated on uncovering as much as possible of the tumulus,[9] which had been constructed on top of the EBA cultural layer. Area 2 was excavated for two years in 2009-2010 and encompassed a total of ca. 62 m^2. The size of the excavated squares was mostly 2x1 m (Fig. 11).

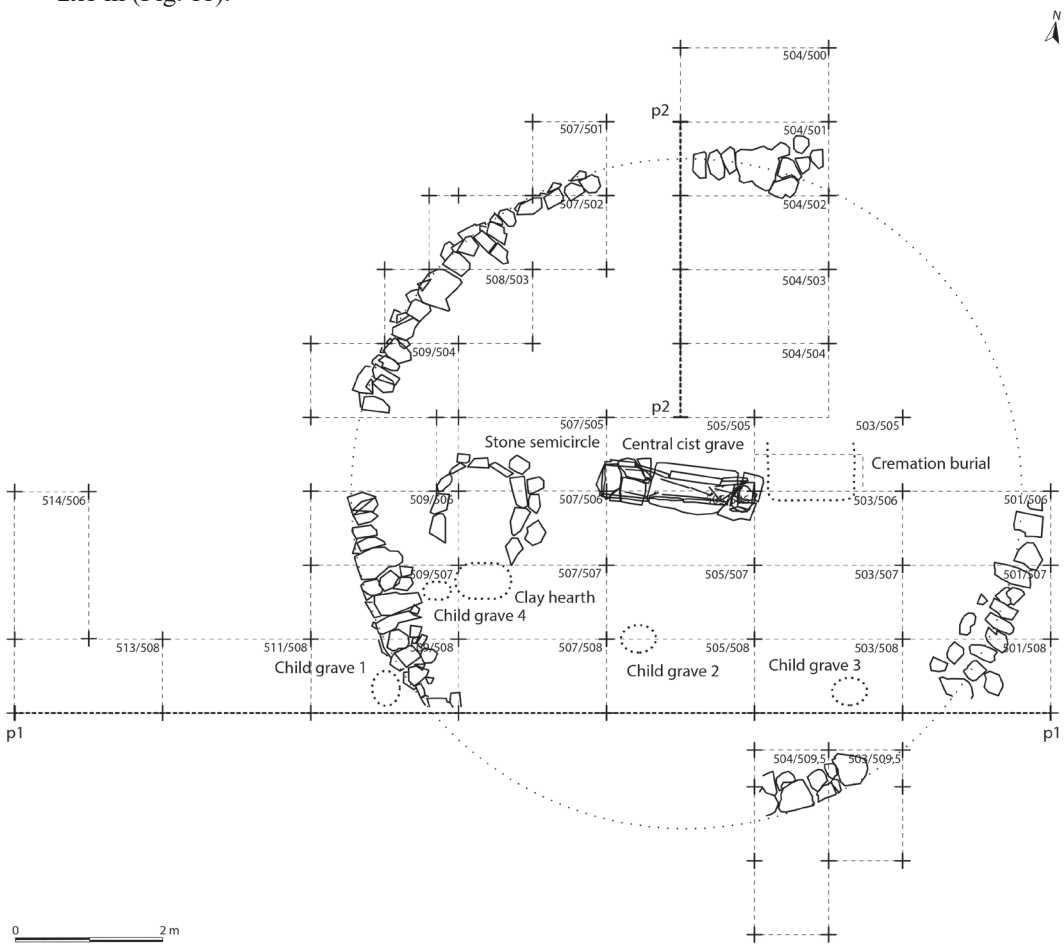


Fig. 11. Excavated squares and features in Area 2. p1 - p1 marks the long section drawn in Fig. 12 and p2 - p2 the shorter section drawn in Fig 13.

[9] For a detailed description of the tumulus and its construction, cf. Lima, this volume.

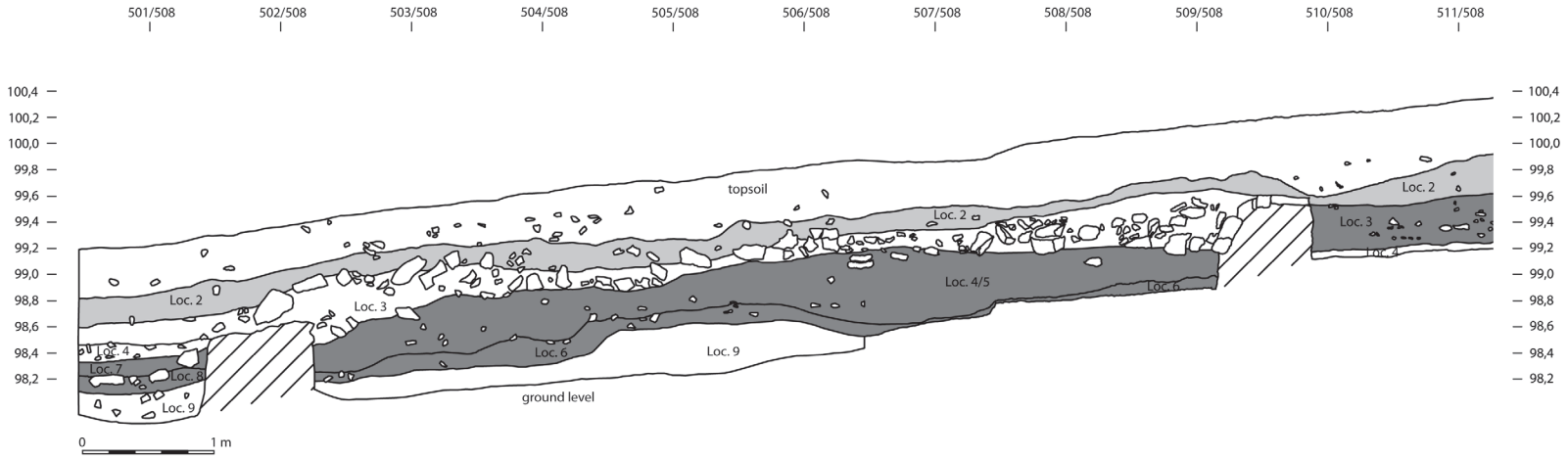


Fig. 12. Profile drawing of the long west to east running section, which cuts through the southern part of the tumulus in Area 2.

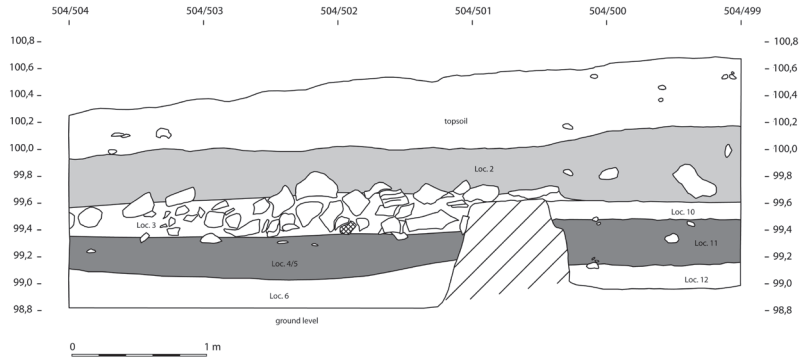


Fig. 13. Profile drawing of the south to north running secondary section, which begins close to the centre of the tumulus.

The stratigraphy of Area 2 is rather simple, although there are minor differences between the parts excavated in 2009 and 2010, depending on who functioned as trench master. A 14 m long west to east running section was created through the tumulus (Fig. 12). Another shorter, only 5 m long south to north running section was drawn roughly from the centre of the tumulus towards the north (Fig. 13). These profile drawings describe the stratigraphy rather well. Below the 20-40 cm thick topsoil (excavated as Loc. 0 and Loc. 1), which consisted of brown granular soil mixed with some stones, but only few finds, followed the first cultural layer that covered the tumulus itself. This uppermost or first cultural layer was throughout Area 2 excavated as Loc. 2, except for squares 503/509.5 and 504/509.5, where it was excavated as Loc. 2-5 and Loc. 2-4, respectively (Fig. 14). The first cultural layer consisted of dark brown clayish soil with plenty of pottery, lithics, bones and some charcoal, but very few stones. Its thickness varied between ca. 10-15 (above the tumulus) and 30-40 cm (outside the tumulus).

The border between the end of the topsoil and the first cultural layer was sometimes difficult to distinguish and in some squares the change from Loc. 1 into Loc. 2 may have been made somewhat too late. This at least seems to be the case in some squares where the number of finds towards the bottom of Loc. 1 increases. Another example is constituted by 503/508, Loc. 51, a child burial which, according to the trench master report, was found in the lowermost part of Loc. 1. This grave (Child grave 3) is clearly secondary to the tumulus, but could, due to its location close to the border of Loc. 1 and Loc. 2, perhaps also be part of the uppermost first cultural layer. It would then belong to the same uppermost cultural layer that covers the tumulus as also Child grave 4 in square 509/507).

Inside the perimeter wall the tumulus was filled with stones of fist- and head-size mixed with pottery, lithics, bones and dark brown soil. The fill of the tumulus was called Loc. 3 and was 20-40 cm thick. The central cist grave of the tumulus was inserted into Loc. 3 which also contained a child burial (Child grave 2) in square 505/508, sampled as C, with a possible cover slab close by in square 505/507. Part of the finds in Loc. 3, as well as inside the cist grave, has clearly come together with the soil and stones collected to cover the area inside the perimeter wall of the tumulus, and thus predate the tumulus itself. Loc. 3 and the filling of the central cist grave thus include quite a few finds from the EBA cultural layer on top of which the tumulus was constructed.

Below the stone filling of the tumulus followed a clear second cultural layer, which sometimes was excavated as two different loci, Loc. 4 and Loc. 5. Both loci were dark brown in colour and contained large amounts of finds, although there were somewhat more stones in Loc. 4 and the amount of charcoal increased from sporadic spots to wider areas in Loc. 5. Loc. 4 and Loc. 5 most likely belong to one and the same cultural layer, the thickness of which is ca. 30-40 cm. A third possible cultural layer, Loc. 6, with a thickness of 10-20 cm, occasionally followed below the second cultural layer. Loc. 6 was reddish dark brown in colour and contained more sand than Loc. 5, but was still clayey. There were some pieces of charcoal, but the number of finds clearly diminished when compared to Loc. 5. The composition of Loc. 6 slowly changed into reddish gravel when approaching the sterile layer Loc. 9. Loc. 6 has in Figs. 12-13 been separated as a possible third cultural layer of its own, but it may as well constitute the lowermost part of the second cultural layer, i.e., belong together with Loc. 4 and Loc. 5.

The second cultural layer contained large amounts of Corded Ware pottery, lithics (including some sickle elements on blades with silica gloss), spindle whorls, bobbins

	Above, inside and below tumulus	Outside the tumulus	Date of layer
Topsoil	501/507, Loc. 1; 501/508, Loc. 1; 503/506, Loc. 0-1; 503/507, Loc. 1; 503/508, Loc. 1; 503/509.5, Loc. 1; 504/509.5, Loc. 1; 505/505, Loc. 1; 505/506, Loc. 1; 505/507, Loc. 1; 505/508, Loc. 1; 507/501, Loc. 1; 507/502, Loc. 1; 507/505, Loc. 1; 507/506, Loc. 1; 507/507, Loc. 1; 507/508, Loc. 0-1; 508/503, Loc. 1; 509/504, Loc. 1; 509/506, Loc. 0-1; 509/507, Loc. 1;	511/508, Loc. 0-1; 513/508, Loc. 0-1; 514/506, Loc. 0-1	?
Child burial in lower topsoil/upper first cultural layer	503/508, Loc. 51		
Uppermost/first cultural layer	501/506, Loc. 2; 501/507, Loc. 2; 501/508, Loc. 2; 503/506, Loc. 2; 503/507, Loc. 2; 503/508, Loc. 2; 503/509.5, Loc. 2-5; 504/500-504, Loc. 2; 504/509.5, Loc. 2-4; 505/505, Loc. 2; 505/506, Loc. 2; 505/507, Loc. 2; 505/508, Loc. 2; 507/501, Loc. 2; 507/502, Loc. 2; 507/505, Loc. 2; 507/506, Loc. 2; 507/507, Loc. 2; 507/508, Loc. 2; 508/503, Loc. 2; 509/504, Loc. 2; 509/506, Loc. 2; 509/507, Loc. 2	504/500-501, Loc. 10 (?); 511/508, Loc. 2; 513/508, Loc. 2; 514-506, Loc. 2;	Late LBA and/or EIA
Stone filling of tumulus	501/506, Loc. 3; 501/507, Loc. 3; 503/506, Loc. 3; 503/507, Loc. 3; 503/508, Loc. 3; 504/502-504, Loc. 3; 505/505, Loc. 3; 505/506, Loc. 3; 505/507, Loc. 3; 505/508, Loc. 3; 507/505, Loc. 3; 507/507, Loc. 3; 507/508, Loc. 3; 509/507, Loc. 3	509/508, Loc. 3 (child burial below flat stone just outside of tumulus perimeter wall, same depth as stone filling)	Late MBA or early LBA
Cremation burial below tumulus	Upper part of 503/505, Loc. 5-6 (excavated as one entity), probably mainly p. 1.		MBA
Second cultural layer, partly below tumulus	501/506, Loc. 4-5; 501/507, Loc. 5; 501/508, Loc. 5; 503/506, Loc. 4-5; 503/507, Loc. 4-5; 503/508, Loc. 4-5; 504/502, Loc. 4-5; 504/503, Loc. 4-5; 504/504, Loc. 4-5; 505/507, Loc. 4-5; 506/507, Loc. 4; 505/508, Loc. 4-5; 507/505, Loc. 4-5; 507/507, Loc. 4-5; 507/508, Loc. 4-5; 509/507, Loc. 4	501/507, Loc. 7 (?); 501/508, Loc. 7 (?); 501/507-508, Loc. 8; 504/500-501, Loc. 11; 509/508, Loc. 4; 511/508, Loc. 3-4; 513/508, Loc. 3	EBA
Possible lowermost cultural layer below tumulus	501/506, Loc. 6; 501/507, Loc. 6; 501/508, Loc. 6; 503/506, Loc. 6; 503/507, Loc. 6; 503/508, Loc. 6; 504/502-504, Loc. 6; 504/504, Loc. 6; 505/507, Loc. 6; 505/508, Loc. 6		EBA
Sterile soil	501-505/508, Loc. 9	504/500-501, Loc. 12	

Fig. 14. Table summarising the stratigraphy of Area 2. Locus entities that could not be included into this table were: 503/505, Loc. 0-4 or Loc. 1-4 (removed as one entity in order to reveal cremation burial on last day of excavation 2010, lowermost part may belong to cremation burial itself); 501/507, Loc. 3 and 501/508, Loc. 3 (most of these entities belong to the stone filling inside the tumulus, but the entities were also extended outside the tumulus perimeter wall, where they probably belong to the uppermost cultural layer); 501/507, Loc. 4 and 501/508, Loc. 4 (most of these entities belong to the cultural layer following below the tumulus, but the entities were also extended outside the tumulus perimeter wall, where they probably belong to the uppermost cultural layer).

and some bone artefacts (including a bone needle). Large amounts of mostly unburnt animal bones were also collected. Pieces of daub and burnt clay indicate the existence of huts, although their exact location was not found. A burnt area was found in square 507/507, Loc. 4, where we in 2009 encountered a ca. 80x70 cm large and 10 cm thick area consisting of lots of charcoal, burnt clay, bones (including some burnt examples) and only few finds. This feature was interpreted as a possible hearth, as all the bones collected here were animal bones.

The clear-cut stratigraphy inside the perimeter wall of the tumulus was disturbed by the find on the last days of the excavation season in 2010 of an approximately 110 cm long and 5-6 cm thick charcoal layer which was spotted in the northern profile of 503/506 (cf. Fig. 6 in Lima, this volume). This layer is located ca. 95 cm below surface roughly along the border between Loc. 4 and Loc. 5. Part of this charcoal layer had been noted while digging the northernmost side of square 503/506, but had not been treated as an entity of its own. During the last day the trench was extended northwards by 0.5 m in the hope that we would be able to document this feature in its entirety, a hope that finally proved in vain, as the feature continued even further towards the north.

The soil above the charcoal layer in square 503/505 was removed in one entity as 503/505, Loc. 0-4. Some 20 cm above the charcoal layer almost half of a vessel was found together with the top of a bone needle. The charcoal layer itself was excavated together with the find-rich layer below it as one entity called 503/505, Loc. 5-6. The soil from the charcoal layer and just above it contained burned human bones. We are thus here dealing with a cremation burial, which took place in a shallow pit dug into the pre-existing second cultural layer. Due to the lack of time the stratigraphy of the cremation grave is unclear. The grave probably consisted of the charcoal layer connected with the soil covering it, whereas the soil below the charcoal layer belonged to the EBA cultural layer.

C-14 samples help us in dating the stratigraphical sequence observed next to the tumulus.[10] The second cultural layer can thus, together with rather homogenous pottery finds, be dated to the early or mid-EBA (2920-2615 cal. BC). The cremation burial in its turn can be dated to the early or mid-MBA (1955-1865 cal. BC). For the tumulus, which had been constructed on top of the EBA cultural layer and the MBA cremation burial, we have only one C-14 sample that was taken from a human bone from the central cist grave. The date of this sample (1780-1610 cal. BC), indicates that the tumulus itself was constructed at some stage during the late MBA or early LBA. The uppermost cultural layer that covers the tumulus postdates the tumulus. Here we have no C-14 samples, but it seems, on the basis of stratigraphy, pottery and a comparison with the similar-looking uppermost layer in Area 1 and Area 3, to date to the late LBA or EIA.

Finally, Area 2 was also extended somewhat outside the perimeter wall of the tumulus. On the west side of the tumulus the upper stratigraphy was simple (Fig. 12). The topsoil was ca. 40 cm thick. Below it followed the same uppermost cultural layer that was also observed above the tumulus. At a depth of ca. 80 cm below surface a thin layer of small stones was encountered, which indicated the beginning of the second cultural layer. It was excavated as two different loci, Loc. 3 and Loc. 4, together having a thickness of ca. 30-40 cm. Below this second cultural layer followed a sterile reddish gravel layer.

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[10] Further on the dates of the C-14 samples and the implication for the tumulus, see Appendix and Lima, this volume.

This stratigraphical sequence seems to be correct except for next to the perimeter wall of the tumulus, where part of Loc. 3 must belong to a phase contemporaneous with the tumulus. This is illustrated by the child burial (Child grave 1), which was found below a flat stone block in square 509/508, Loc. 3 just outside the perimeter wall.

Two different layers, Loc. 10 and Loc. 11 were noted below the first cultural layer on the north side of the tumulus (Fig. 13). The lower one, Loc. 11 is probably contemporaneous with the second cultural layer represented by Loc. 4-5 inside the tumulus, whereas Loc. 10, due to some possible iron slag, should more likely be interpreted as part of the uppermost cultural layer. Two loci, Loc. 7 and Loc. 8, on the south side of the tumulus, have also been interpreted as belonging to the second cultural layer (Fig. 12).

If the interpretation of the stratigraphical sequence outside the tumulus perimeter wall in Area 2 is correct, then the perimeter wall must, at the time of its construction, have been dug down into the EBA cultural layer. The soil thereby removed was probably partly used for the stone/soil filling inside the perimeter wall (Loc. 3), which would explain why so much EBA pottery also was found in that layer.

Stratigraphy of Area 3

Area 3 is located some 70 m to the south of Area 2. Our interest was turned to this part of the nook by the anomalous concentration of phosphorous recorded here. Some prehistoric pottery had also been noted here on the surface while taking the soil samples in 2008 (Fig. 4). Work in Area 3 was launched in 2009 by the opening of a small trial trench, called Trench L. The size of Trench L was originally 2x1 m, although it later was enlarged into 2x2 m. Trench L revealed a cist grave (Grave 1). In order to find out whether this cist grave possibly belonged to a second tumulus we opened up Area 3 around it in 2010. The total size of Area 3 (including Trench L) was 50 m^2. The size of the excavated squares in Area 3 was 2x2 m, although in some cases only half of a square was excavated (Fig. 15).

The stratigraphy recorded in Trench L above the cover slab of the cist grave consisted of three layers. The topsoil (Loc. 1) was a ca. 15-20 cm thick loose granular dark brown soil, including limestone blocks of different sizes, but only few finds. Below it followed a ca. 20 cm slightly less brown, loose soil layer (Loc. 2) with only a few small stones and some pottery, below which lay a ca. 20 cm thick brown soil layer (Loc. 3) with both small limestones and some larger ones. This layer, in which most of the pottery, lithics and bones was found, stopped at a depth of ca. 60 cm below surface when the cover slab of the cist grave was revealed.

The same stratigraphy observed in Trench L could in general be observed in all of Area 3, although the stratigraphical sequence was never pursued well enough due to all the time and effort the excavation of the cist graves required. The general stratigraphy was pretty simple and can be followed by comparing the profile drawing of the south to north running section (Fig. 16) with the table comparing the differing locus numbering in the excavated squares (Fig. 17). The topsoil, which had a depth of ca. 25-30 cm and a dark reddish brown colour, was entirely removed by backhoe. It included some single finds, but much less than the subsequent loci. Below the topsoil followed a cultural layer which was slightly redder than the topsoil and included more pottery, lithics, animal bones and some charcoal particles. This layer, the depth of which was 10-20 cm, covered all of Area 3 and thereby also all the graves.

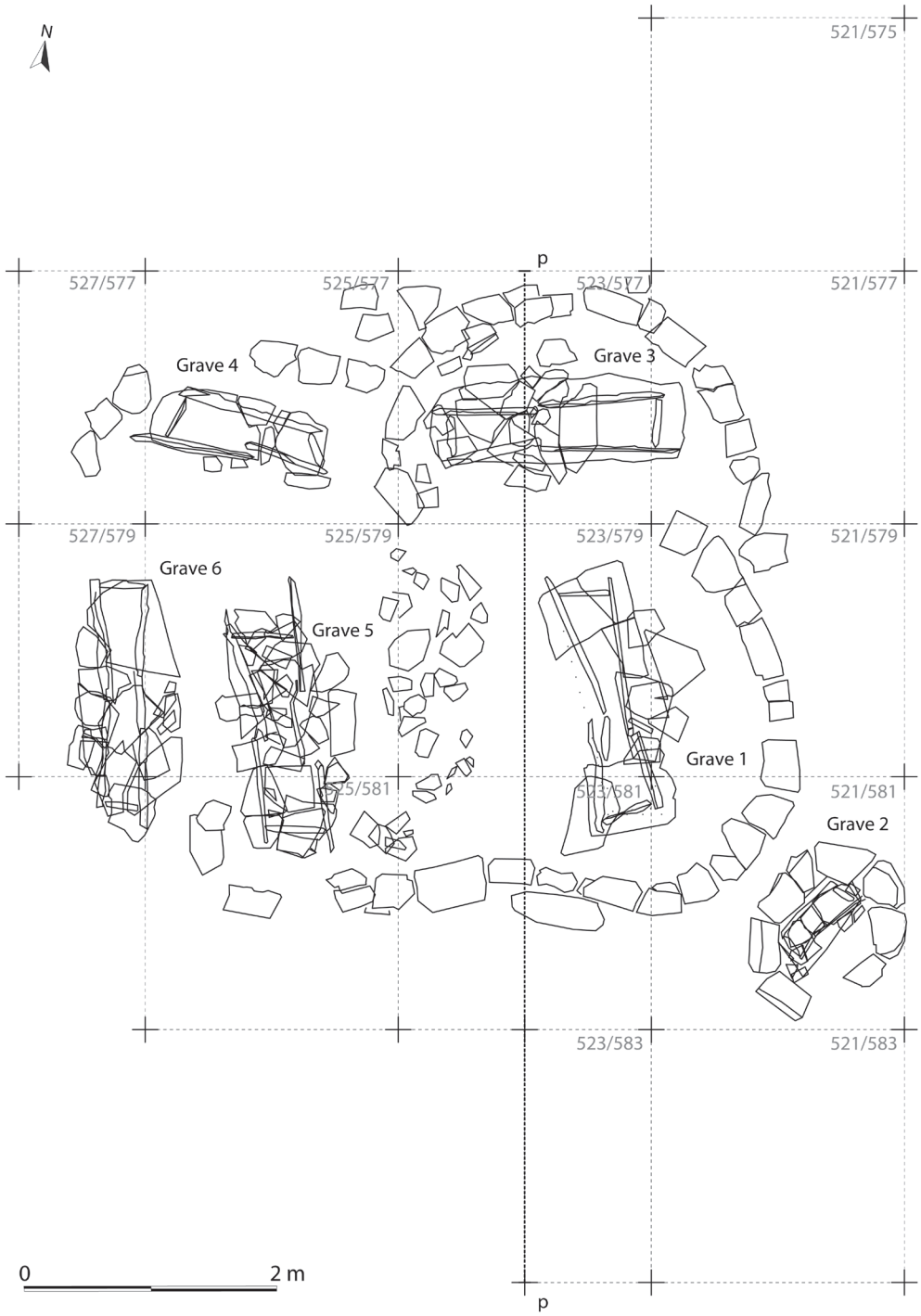

Fig. 15. Excavated squares and graves in Area 3. p - p marks the section drawn in Fig. 16.

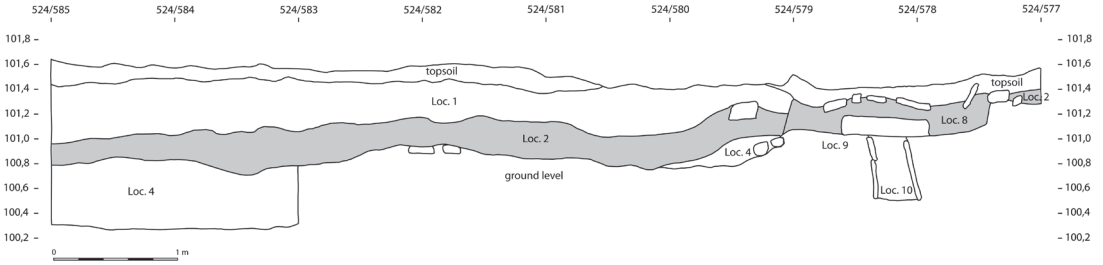

Fig. 16. Profile drawing of south to north running section, which cuts through Area 3.

	Trench L	Area 3	Date
Topsoil	Loc. 1	Removed by backhoe	
Uppermost cultural layer	Loc. 2	521/575, Loc. 0; 521/577, Loc. 0; 521/579, Loc. 0; 521/581, Loc. 0, p. 1; 521/583, Loc. 0, p. 1-2; 523/577, Loc. 0; 523/579, Loc. 1; 523/581, Loc. 1; 523/583, Loc. 1; 525/577, Loc. 1; 525/579, Loc. 1; 525/581, Loc. 1	Late LBA to EIA
Pebble layer above and on the outer side of stone circles	Loc. 3	521/575, Loc. 1; 521/577, Loc. 1; 521/579, Loc. 1; 521/577-579, Loc. 3; 521/581, Loc. 0, p. 2-3; 521/581, Loc. 1; 521/583, Loc. 0, p. 3-4 and Loc. 1; 523/579, Loc. 2; 523/581, Loc. 2; 523/583, Loc. 2; 525/579, Loc. 2; 525/581, Loc. 2	Late MBA to Early LBA
Soil layer above and on the outer side of stone circles		523/577, Loc. 2; 525/577, Loc. 2 and Loc. 11; 527/577, Loc. 2; 527/579, Loc. 2	
Soil layer inside stone circles		521/577, Loc. 8 (2); 521/581, Loc. 2E; 521/581, Loc. 7; 523/577, Loc. 8 and Loc. 9; 525/577, Loc. 12; 525/579, Loc. 12; 525/581, Loc. 12; 527/577, Loc. 12; 527/579, Loc. 4	Late MBA to Late LBA
Graves	Grave I	521/581, Loc. 5-6 (Grave 2, Loc. 5 between the two different cover slabs, Loc. 6 the actual cist filling); 523/577, Loc. 10 (Grave 3); 525/577, Loc. 13 (Grave 4); 525/579, Loc. 14 and 15 (Grave 5); 527/579, Loc. 16 (Grave 6)	Late MBA to Late LBA
Sterile bottom		523/583, Loc. 4 (only excavated in this square); 521/577, Loc. 9; 523/577, Loc. 9 (including a handful of pottery)	

Fig. 17. Table summarising the stratigraphy of Area 3.

Below the uppermost cultural layer followed a pebble layer, which consisted of similar soil as in the uppermost cultural layer, but here was mixed with a large amount of small white limestone pebbles. Most of the finds from Area 3 came from this layer which, especially in squares 521/577-579 and 523/581-583, produced large amounts of pottery, lithics, a biconical spindle whorl and animal bones. In 521/577-579 a darker spot was noted inside the pebble layer and was excavated separately (Loc. 3). The pebble layer covered the grave circles and cist graves of Grave 1, 2 and 5. The pebbles continued deeper below the uppermost stones of the grave circle, but only on the outer side of the

circles. On the inner side of the grave circles the pebble layer, immediately after the uppermost stones, was followed by soil of similar colour, which was void of stones and comprised only a small number of finds.

It should be noted that the grave circles and blocks covering Grave 3 were revealed immediately below the uppermost cultural layer, i.e., they were obviously not covered by the pebble layer as was the case with the other graves. Between the uppermost cultural layer and the grave circles and blocks covering Grave 4 and 6 there was a layer of soil (525/577, Loc. 2 – above Grave 4, 527/579, Loc. 2 – above Grave 6) which was excavated as a separate entity. These loci may either be the lower part of the uppermost cultural layer covering the graves or they constitute a separate soil layer covering the graves before the uppermost cultural layer was formed. Which of these interpretations is correct cannot unfortunately be settled with certainty and these loci have therefore not been included as part of the uppermost cultural layer in Fig. 17.

The grave circles seem to have been constructed upon sterile soil and the cists also to have been cut into sterile soil. The pebble layer is probably contemporaneous with the older graves that it covered. It may originally have formed some kind of mound on top of the graves. The absence of this pebble layer on top of Graves 3, 4 and 6 may indicate that these were constructed at a somewhat later stage, whereby the pebble layer was removed. Such a difference in date may also be assumed on the base of C-14 samples taken from Graves 1, 2, 3 and 6, which seem to indicate that Graves 3 and 6 (mid- to late LBA) are somewhat later than Graves 1 and 2 (late MBA or early LBA).[11] Consequently, the pebble layer dates to the late MBA or early LBA, whereas the uppermost cultural layer dates to the late LBA or the EIA. The uppermost cultural layer in Area 3 thus seems to belong to the same phase as the uppermost cultural layer noted in Area 1 and Area 2.

Conclusion

The site Goutsoura was settled during the early and mid-EBA (ca. 2920 to 2400 cal. BC). Remains of this phase of activity were found in Area 2 and in Trench A and D. High levels of phosphorous recorded some 10 m to the east of Trench A probably indicate that the settled area continued somewhat further in that direction. The settlement was concentrated in the northernmost part of the nook and covered an area of ca. 60x20 m. The absence of diagnostic ceramics and C-14 samples dating between 2400 and 2000 cal. BC imply that Goutsoura was abandoned during the late EBA.

Human activity at Goutsoura was resumed at some stage after 2000 cal. BC, first with a cremation burial (1980-1755 cal. BC). After that the site functioned as a cemetery during the late MBA and most of the LBA (1780-1255 cal. BC). To this phase belongs the northern tumulus with a central cist grave and some child graves in Area 2, the southern cemetery in Area 3 and the terrace wall in Area 1, which altogether covered ca. 30x100 m. The cemetery phase was in Area 1 and Trench E, F, G, I, J and K preceded by an earlier cultural layer, which on the basis of one C-14 sample preliminarily has been dated to the MBA (1920-1730 cal. BC).

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[11] Further on the C-14 dates and their implication for the southern cemetery, cf. J. Forsén this volume and Lima, this volume.

All the remains of the cemetery phase are covered by what seems to be a homogenous uppermost cultural layer. This layer was documented across the whole site with exception of Trench A, B, C and H. The layer, on the basis of some diagnostic pottery (wishbone handles, kylix stems) and one C-14 sample (1320-1100 cal. BC), can be dated to the late LBA and/or EIA. This final cultural layer at Goutsoura does not contain any explicit signs indicating that the site would have been settled, although there are abundant remains of some kind of activity (pottery, animal bones and lithics). It thus remains uncertain whether the site anew was settled (perhaps on a seasonal basis?) or whether the uppermost cultural layer rather was created by people revisiting the cemetery as a place of communal memory and ongoing tradition.

Appendix. The AMS date sequence

During the excavations at Goutsoura a total of 16 accelerator mass spectrometry (AMS) samples were taken and analysed. Three samples are from Area 1 or the large trial trench, seven from Area 2 or Trench D, four from Area 3 and finally another two from the small trial trench A. The results of the analyses are summarized in Fig. 18 as calibrated BC at a 95.4 percent probability (± 1 σ).

Area 1 and the large trial trench of 2008 are both transected by a terrace wall. The three AMS samples from Area 1 were all taken next to the terrace wall: Hela-1807 from a piece of charcoal from the lowermost cultural layer (K6-7, Loc. 8), which predates the terrace wall, Hela-2105 from a small animal bone found built into the terrace wall (Trench 2East, Loc. 6), and Hela-1809 from a piece of charcoal from the uppermost cultural layer, which is accumulated on top of the terrace wall (J8-9, Loc. 2).

A total of seven AMS samples were taken from Area 2 or next to it, where we had a EBA cultural layer, superseded first by an MBA cremation burial and then by a tumulus. Four of these samples were taken from charcoal collected from the EBA cultural layer: Hela-1808 from Trench D2, Loc. 5, Hela-2103 from square 508/508, Loc. 5, Hela-2104 from the possible fireplace in square 507/507, Loc. 4, and finally Hela-2499 from square 504/503, Loc. 5). Two charcoal samples belong to the MBA cremation grave: Hela-2497 (503/505, Loc. 5) and Hela-2498 (503/506, Loc. 5), whereas a final one was taken from a piece of bone from the burial in the central cist grave of the tumulus: Hela-2102 (505/505, Loc. 3).

The main characteristic of Area 3 is a cemetery consisting of at least six cist graves surrounded by stone circles. Small pieces of human bones sampled from four of the cist graves were AMS dated. Hela-2101 is from Grave I, Hela-2501 from Grave II, Hela-2502 from Grave VI and Hela-2503 from Grave III. It has to be added that the detailed study of the human remains in the cist graves of Area 3 have proven that they belong to several different individuals, some of which are only represented by single bones. Unfortunately it is not possible to define with certainty from which of the individuals the AMS samples were taken.

	Lab. No.	Dat. BP	Dat. cal BC	Trench	Locus	
1.	Hela-1535	4050±40	2700 - 2470	A1	4	Trench A
2.	Hela-1536	3985±40	2620 - 2400	A2	1	
3.	Hela-1808	4050±35	2680 - 2470	D2	5	
4.	Hela-2103	4230±37	2820 - 2670	505/508	5	
5.	Hela-2104	4234±37	2920 - 2840	507/507	4	AREA 2
6.	Hela-2499	4139±34	2875 - 2615	504/503	5	
7.	Hela-2102	3415±36	1780 - 1610	505/505	3	
8.	Hela-2497	3535±31	1955 - 1755	503/506	5	
9.	Hela-2498	3560±30	1980 - 1865	503/506	5	
10.	Hela-1807	3495±35	1920 - 1730	K6-7	8	
11.	Hela-1809	2980±35	1320 - 1110	J8-9	2	AREA 1
12.	Hela-2105	3222±35	1560 - 1410	Trench 2East	6	
13.	Hela-2101	3295±36	1690 - 1490	Grave 1	2	
14.	Hela-2501	3284±30	1755 - 1605	Grave 2	6	AREA 3
15	Hela-2502	3236±30	1565 - 1430	Grave 6	16	
16.	Hela-2503	3055±30	1415 - 1255	Grave 3	10	

Fig. 18. AMS dates from Area 1, Area 2, Area 3 and Trench A of Goutsoura.

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