

CHAPTER 4

The settlement data of the DSP landscape

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4.1 INTRODUCTION | P. GULDAGER BILDE

This chapter presents the settlement data collected in the course of the DSP fieldwork. It draws together various sources consisting of both published and yet unpublished work as well as DSP's own surveys. The chapter is ordered by landscape type. Section 4.2 focuses on the coastal zone between Černomorskoe to the W and Masliny to the E. It discusses settlement data from excavations and extensive surveys, in Russian referred to as *razvedki*, mainly carried out by Russian teams during the 20th century. Section 4.3 does the same for the major ravines dissecting the DSP study area. Apart from the major sites of the Černomorskoe Settlement and Panskoe I located at the outer ends of the ravines near the coast, the ravines have received little attention in past research. Unfortunately, investigations of this landscape feature by the DSP have necessarily remained limited due to the restricted time frame. They certainly merit further intensive investigations. Survey by the DSP teams was foremost focused on a transect cross-cutting the study area (Fig. 2.1). The settlement data resulting from the DSP survey are presented in Sections 4.4 (the Lowland Ridge and Pediment zone) and 4.5 (the Hillsides and Plateaus/Uplands). In combination, these data serve as the base material for our interpretations of the settlement and land use dynamics presented in Chapter 6.

4.2 THE COASTAL CLIFF/LOWLAND RIDGE: PAST AND CURRENT INVESTIGATIONS | P. GULDAGER BILDE WITH CONTRIBUTION BY T. SMEKALOVA & V. STOLBA

4.2.1 Introduction | P. Guldager Bilde

The coastal zone of the DSP survey area has been explored throughout most of the 20th century both by way of *razvedki*-type of surveys and by excavations (Fig. 1.1). Consequently, it was only investigated extensively in the limited period available by the DSP, foremost as a means to familiarize ourselves with the region. Due to the poor state of publication, the low accessibility of the few existing publications as well as the problem of language to a western audience, we have chosen to include a fairly detailed analysis of the known sites within the individual zones of the DSP survey area along with the new sites identified by the project (see Appendix 1).

Two major ancient settlements along the coast frame the survey area, the Černomorskoe Settlement (conventionally identified as Kalos Limen) to the W and Masliny to the E. In between these two sites is located the settlement of Panskoe I and along the shoreline are further situated a number of fortified and unfortified farmsteads as well as other types of sites.

The coastal zone was much more densely occupied in antiquity than is the case in later historical periods (Figs. 6.7-8, 6.10). In fact, just one of the post-antique sites is truly coastal (Mežvodnoe) and the remaining localities are therefore discussed in the section on the coastal Lowland Ridge N of the Vodopojnoe Ravine/Džarylgač Lake.

The earliest site localized within this part of the DSP study zone is Jarylgač Severnoe, which dates to the Neolithic period (unpublished; mentioned in Blagovolin & Ščeglov 2002, 286, pl. 179.VI; Fig. 6.7). This is the only Neolithic site identified in the area, and therefore, we cannot evaluate, whether this location is typical for the period. However, it is noticeable that the site is in close vicinity of the Panskoe group of sites (ca. 500 m from Panskoe I).

Concerning the Bronze Age, the only coastal site in the area is the multi-period Baj Kijat 1, which was settled already

from the Middle Bronze Age, and which was resettled even in the Hellenistic period (Fig. 4.1). It is located at a gentle slope facing the present coast sheltered by a small bay. 250 m further NW is located Baj Kijat 3, probably a Hellenistic farmhouse (Fig. 4.2). In general, Late Bronze Age sites are not found along the coast; instead, an inland location was preferred (see Chapter 6.2.1). The reason for the coastal location of Baj Kijat 1 may be a different site preference in the Middle Bronze Age. However, coastal erosion may also have had the effect that a number of sites have been irretrievably lost. This situation is for example suggested by the presence of three kurgan-lined roads aiming at two different bays immediately W of Bakal', which seems to suggest that the sites themselves are no longer preserved (See Chapter 6.6).

During the Late Classical-Early Hellenistic period, Greeks settled the coastline of the region. The local centre was the fortified Černomorskoe Settlement situated at the junction of the sea coast and the outflow of the Kelšeich Ravine (see below). Contemporary was the fort U7 of Panskoe I located on the coast of the Sasyk Ravine (see below). During the Hellenistic period, along the coastline proper were constructed a number of isolated fortified (Skalistoe 5, see below) and unfortified farmhouses (Mežvodnoe, Vetrenaja Bay). A number of localities found during the DSP extensive survey, where a small discrete scatter of finds were recorded, may have been farmhouses too (Baj Kijat 3, Burun Eli 5, Groty 2, Masliny 3, Skalistoe 6, 8, and 10; see Appendix 1). According to current knowledge based on published excavations, the only more complex settlement along the coast was Masliny 1-2, a group of fortified farmhouses (Figs. 4.3-5). However, tile was also collected at Groty 1, a possible farmhouse (Fig. 4.6). The sites Burun Eli 2 (Figs. 4.7-10), 3 and 4, Skalistoe 1-4 (Figs. 4.11-12), and perhaps 5 (see below) known prior to the DSP survey, have been interpreted as 'settlements' by their investigators. Revisited during the DSP extensive survey, they proved to be of small extension. In all likelihood, they must qualify as isolated farmhouses too. Found during the DSP extensive survey, Skalistoe 9 is a large scatter almost halfway between two ravines. It is possible that this site was more complex than just an isolated farmhouse. Of the mentioned sites, Groty 1, Masliny 1, Skalistoe 5 and 10 also had a Late Hellenistic component. In terms of finds and assemblage range, these sites (excluding Skalistoe 10) match Panskoe I-II.

4.2.2 Skalistoe 5 | T. Smekalova & V. Stolba

The site is situated on the coast, about 10 km NE of the present-day village of Mežvodnoe, on a high sea-cliff, on the right-hand slope of a wide ravine, close by a modern fishing station. Its N part is obliterated by the shore abrasion (Figs. 4.11-12). The features observable on the surface include two pronounced elevations in the E and W parts of the site, as well as traces of stone masonry exposed in the tracks of the modern dirt road running along the coast. Of the mentioned elevations, the former has a noticeable depression in the middle and is disturbed by four modern linear trenches joining at a right angle. The multiple finds of pottery, including roof-tiles, amphorai and plainware, recovered during the DSP extensive survey, come from the tracks of the road and from the cliff where the ancient material sticks out about 1 m below the modern top soil surface (GS 3027).

In 1973, trial excavations were conducted at the site by Z.Ch. Popandopulo as head of the detachment of the Kharkov University expedition. A trench measuring about 50 m² was tied to the edge of the cliff. The thickness of the cultural layer in it amounted to 0.40-0.50 m, with no architectural remains being recorded. The finds included numerous fragments of transport amphorai and handmade ware, as well as imported black-glaze pottery (fish-plates, bowls, kantharoi) and Chersonesean plainware (red-striped jugs, bowls and louteria). A preliminary date, late 4th through 3rd century BC, was suggested for the site on the basis of the amphora material (Latyševa 1974).

In May 2007, the site was re-visited by the DSP team during the extensive survey of the coastal zone. Except for a tiny corner at the very edge of the cliff, the remains of the 1973 trench are eroded away. This allows to roughly estimate the speed of the coast abrasion, which is significant. A closer examination of the E elevation, which was thought to be a tumulus disturbed by the Romanian military trenches from World War II, proved to be remains of a rectangular tower measuring ca. 9 x 9 m, the stone blocks of which have been removed for re-use elsewhere. The W elevation could be positively identified as an ash hill (see Chapter 5.1.5).

The archaeological sounding of the site was preceded by a detailed geomagnetic survey, which covered its whole area (Figs. 4.13-14). The geomagnetic map allows us to reconstruct the complete plan of this compound the corners of which are oriented to the main cardinal points. Its E corner is reinforced by a tower which from NE and SE is surrounded by a wide, ca. 50 m-long wall and a ditch. The latter occurs on the map as a clear positive anomaly which follows the trace of the wall on the outside. At the S corner of the farmhouse the traces of both the wall and the ditch disappear, possibly as an effect of destruction or rebuilding, to appear again SW of the ash hill as a ca. 15 m-long double (positive and negative) linear anomaly. The entire area embraced by the ditch amounts to ca. 1,550 m².

Inside the compound, about 4 m-wide rows of rooms built along the NW, SW and maybe SE sides of a courtyard can be distinguished. A small displacement in the orientation of these units and that of the tower as well as the fact that some of them are overlaid by an ash hill suggest more than one building period. A negative magnetic anomaly inside the courtyard can be an indication of the pavement or solid stone debris. The above-mentioned ash hill, the E periphery of which expands over the SW wall of the building, emerges on the magnetic map as an extensive positive anomaly (marked with green dashed line on Fig. 4.14). Its position SW of the building should possibly be explained by the prevailing wind directions.

In accordance with the geomagnetic map of the farmhouse, a 2 x 2 m trial trench was laid out in its western periphery where along with the architectural remains the geomagnetic survey indicated the presence of a large ash deposit (Figs. 4.15-20). The actual excavations and interpretation were made by S.B. Lancov and V.F. Stolba.

4.2.3 Conclusions on settlements on the Coastal Cliff/Lowland Ridge | P. Guldager Bilde

We may conclude that permanent settlement in the coastal zone, which started in the Neolithic period, intensified during the Middle and Late Bronze Ages. Whilst MBA sites may have preferred locations near the coast, as a rule, LBA sites are found inland off the coast. However, the low number of prehistoric sites as well as prograding coastal erosion is likely to leave us with a biased pattern.

So far, clear indications of Iron Age settlement lack for the coastal zone discussed here. The area seems only to have been resettled in the Late Classical and Early Hellenistic period, when a string of rural settlements appeared along the coast, some of which were fortified.

In Chapter 6 we will go into the socio-economic and historical significance of the observed settlement pattern.

4.3 THE RAVINES | P. GULDAGER BILDE WITH CONTRIBUTIONS BY P. ATTEMA, S. LANCOV, T. SMEKALOVA & V. STOLBA

A characteristic feature of the West Crimean landscape is the occurrence of long ravines, which, at their outflow, today have turned into salt- or brackish lakes (Fig. 2.3). The longest one is the Donuzlav Lake and Ravine, which stretches no less than 50 km inland and thus separates the Tarchankut Peninsula from southwestern Crimea. In antiquity, the sides of this ravine were densely settled (investigations of P.N. Schulz, cf. Lancov 2004, Fig. 2). We find a similar settlement pattern in the DSP study zone. Here we can observe two such ravines, the Kelšeich Ravine and the Džarylgač Lake/Vodopojnoe Ravine, stretching ca. 15 and ca. 25 km inland respectively, as well as the much smaller Sasyk Ravine extending only 10 km inland. The ravines provided the inhabitants with easy access to fresh water and fishing could have taken place in the lagoons, where also salt could have been extracted. In addition, the ravines gave the inhabitants shelter from the wind, a fact, which is appreciated even today (Fig. 4.21). The outer parts of the Kelšeich and Sasyk Ravines have been investigated by a number of Russian scholars and expeditions (Section 4.2 above), but the Džarylgač Lake/Vodopojnoe Ravine much less so. Due to the limited period available to the DSP fieldwork, the ravines have not been investigated by us. Here we can only make some general observations on their archaeology.

4.3.1 The Kelšeich Ravine | P. Guldager Bilde

Several river valleys have their mouth in the Uzkaja Bay (Fig. 4.22). Of these, the Kelšeich Ravine is the most prominent being deep, winding and much ramified. The topography of the Uzkaja Bay, as defined by the drowned mouth of several rivers, provided a sheltered location for the many sites, which dotted the coastline of the ancient as well as the present bay. The most important of these was the Černomorskoe Settlement, which was situated at the E side of the outer part of the ravine.

4.3.1.1 The Černomorskoe Settlement (Figs. 4.22-26)

Recent stratigraphical investigations have shown that the settlement was founded in the early 4th century BC. The excavators are of the opinion that the earliest settlers were Ionians (Užencev 2006, 21-23; Lancov & Uzhentzev 2006, 701). Whether they came from Olbia, as suggested for nearby Panskoe I by A.N. Ščeglov, whether it was a joint Ionian settlement, or whether it was settled from originally Ionian Kerkinitis is a matter of dispute (Užencev 2006, 110-111;

Lantsov & Uzhentzev 2006, 701). Sparse building remains are reported from this phase (pits and mudbrick buildings on low stone socles). During the mid- or third quarter of the 4th century BC, Chersonesos expanded her territory along the coast at least up to Masliny (see Chapter 7.3). Thus, Chersoneseans took over and resettled the city. During the third quarter of the 4th century BC, the settlement obtained its basic layout (Užencev 2006, fig. 23). It was fortified with a well-built wall having several square towers constructed of mudbricks on an ashlar foundation. Inside the city were built rectangular blocks of houses (Lantsov & Uzhentzev 2006, fig. 11). In the first third of the 3rd century BC the city fortification was further strengthened with an additional tower and with so-called 'anti-ramming belts' around the towers (Fig. 4.25). Nevertheless, by the end of the first third of the 3rd century BC, part of the city's foundations seem to have been destroyed by fire. Apparently, some of the inhabitants abandoned the city and for a period, the occupation of the settlement was much diminished. During the last third of the century, the city was remodelled with a strong fortification called the 'citadel' located in the SW part of the city and taking up ca. 2,500 m² (Lantsov & Uzhentzev 2006, fig. 7). In the middle of the 2nd century BC, the Černomorskoe Settlement was destroyed in an enemy attack believed to be Late Scythians of Skiluros' Kingdom of Scythian Neapolis.

Life in the town continued for a substantial period. Nalivkina has noted layers of the 4th-2nd century BC as well as the 2nd-3rd and 8th-10th century AD (Nalivkina 1957, 271; Užencev 2006, 135) and the same was observed by Ščeglov (1967, 237; 1978, 20). The second half of the 2nd century BC-early 2nd century AD is attributed to the Late Scythian culture. A new type of irregular living houses is built inside the fortification of fieldstones (Užencev 2006, figs. 55-57) in addition to the numerous pit houses dug into the ground (Užencev 2006, figs. 51-52). It is the only locality within the DSP study zone, where evidence for occupation during the Roman period has been recorded.

To the E of the settlement is an immense ash hill (not investigated). The settlement was surrounded by at least three distinct groups of kurgans (Fig. 4.24): to the N and to the S and, with the largest group containing at least 34 kurgans, SE of the settlement (Kutajsov & Pridnev 2007). Of these, 15 kurgans have been excavated. The northern group may be connected with four farmhouses lying at the N outskirts of the fortified settlement (see below).

In antiquity, the settlement of Černomorskoe may have constituted the local centre of the Tarchankut district E of the Kelšeich Ravine with the settlement of Karadža as the local centre of the Tarchankut W of the same ravine (Fig. 1.1.15; see also Smekalova & Smekalov 2006, 238). From these two urban poles, local affairs could have been administered and at the same time they could have functioned as the main market place for exchanging local and foreign products.

The site is normally referred to as Kalos Limen ('the good harbour'). However, the proper ancient name of this locality is disputed (recent overview in Lantsov & Uzhentzev 2006, 698-699). Ancient sources inform us of two localities to be found N of Kerkinitis (present-day Evpatorija)³⁵: Kalos Limen and Tamyrake. According to Fl. Arrianos "from Chersonesos to Kerkinitis is 600 stadia, and from Kerkinitis to Kalos Limen...another 700. From Kalos Limen to Tamyrake, 300" (*PPE* 19.5-20.1; Anon. *PPE* 83). Since there is ca. 75 km along the coast from Chersonesos to Kerkinitis, this measure must correspond to 600 stadia; accordingly, one stadion employed measures ca. 125 m. Thus, the distance from Kerkinitis to Kalos Limen should be 87.5 km. This corresponds precisely to the distance to Karadža, whereas the distance to Černomorskoe is ca. 115 km (920 stadia), thus not even corresponding to the mentioned distance to Tamyrake.³⁶

Even though it is highly uncertain that the ancient fortified settlement of Černomorskoe can be identified as Kalos Limen, it is, as mentioned above, normally thus referred to in scientific and popular literature. This is probably due to the fact that until recently, Černomorskoe was the only one of the two candidates, the other one being Karadža,³⁷ that had been subjected to excavation. In the present publication we will restrain ourselves to use the modern name of the site.

4.3.1.2 Farmhouses in the vicinity of the Černomorskoe Settlement

In the vicinity of the Černomorskoe Settlement, along the shore of the Uzkaja Bay are located at least nine ancient farmhouses (Figs. 4.23; 4.24). Most of them have never been subjected to archaeological investigation. Four are located on the northern outskirts of the fortified settlement (Užencev 2006, fig. 4, Ж 1-4). Presently, one is lying under water (Ж 1), and one can be seen on the beach (Ж 2; Figs. 4.23, 4.26). At the western promontory, at the entrance to the bay

³⁵ *IosPE* I² 352, 353, 401; Arrianos *PPE*, 19, 5; Anon. *PPE*, 57; Mela, *Chorogr.* 2.1.3; Strabon 7.4.2.

³⁶ Incidentally, Panskoe I is located 125 km (1,000 stadia!) from Evpatorija, and thus in fact a better candidate for Tamyrake. It would be strange, though, that this site should be mentioned, not the larger fortified town of the Černomorskoe Settlement. Thus, the proper identification of the sites must be regarded as problematical.

³⁷ Small scale excavations were conducted here in 2005-2006 under the direction of V.A. Kutajsov (unpublished).

have been localized two farm houses (Fig. 4.22 = Ščeglov 1967, fig. 2.10 and 11), and the site, where the Florya Pension in Ul. Revolucii is located must have been the place of yet another farm. At least, when excavating the plot in order to construct the house, a mouth of a well crafted in local lime stone was found (Fig. 4.27). The site has never been investigated archaeologically. Located on the opposite promontory, immediately SW of the settlement, another farmhouse has been referred to (Fig. 4.22 = Ščeglov 1967, 247, fig. 2.9; Hellenistic material is mentioned) and yet another one should be located NE of the settlement (Fig. 4.22 = Ščeglov 1967, fig. 2.8).

Some of the farmhouses around the Černomorskoe Settlement have been excavated, but very little information is at hand. One was excavated by Schulz in 1933 (Fig. 4.22 = Ščeglov 1967, 247, fig. 2.8), but the results were never published. Ščeglov mentions the presence of walls and pits. Of the two farms W of the settlement, stone walls are referred to as well as Hellenistic material such as Sinopean tiles, Chersonesean and Herakleian amphorai, and louteria of the 3rd-2nd century BC (Fig. 4.22 = Ščeglov 1967, 247, fig. 2.10-11). The farm shown in Ščeglov fig. 2.10 apparently continued in the Roman period, because Ščeglov also mentions finds of Red-glossed pottery. Also the Vetrenaja ("Windy") Bay farmhouse belongs to the immediate surroundings of the Černomorskoe Settlement (Figs. 4.28-4.30). This is the only farmhouse we have some information about (Ščeglov 1967, 249-256; fig. 2.5, 9; 1978, figs. 47-48; 2002a pl. 4.22; the structure can be found on the half-verst map of the 1890s too); see Appendix 1.

4.3.2 The Sasyk Ravine | P. Guldager Bilde with contribution by T. Smekalova, V. Stolba

The Sasyk Ravine (today Lake Panskoe) consists of the drowned parts of two seaside river valleys, which were penetrated by sea water during the glacio-eustatic New Black Sea transgression (Figs. 2.2, 2.5, 4.31). Geological and limnological descriptions of the lake and the Jarylgač Bay were carried out in the 1930-1940s by A.I. Dzents-Litovskij and V.V. Longinov (Dzens-Litovskij 1933, 585-595; Longinov 1955, 152-166). The sediments on the bottom of the lake were investigated by drilling in the 1970s within the framework of the Tarchankut expedition (Blagovolin & Ščeglov 2002, 285-302). The results of the mentioned geomorphological studies served as a basis for Ščeglov's reconstruction of the ancient landscape in the environs of the settlement of Panskoe I (Fig. 4.31). Until the 1980s, the lake was separated from the Jarylgač Bay by a massive sandbar, which was cut through, when the port of the "Černomor-neftgaz" was constructed.

The ancient topography of the Sasyk Ravine, as reconstructed by A.N. Ščeglov (Fig. 4.31), mirrors at a much smaller scale that of the Kelšeich Ravine and its outflow in the Uzkaja Bay, and so does the settlement pattern (Fig. 4.22). Close to the Sasyk Ravine's outflow into the sea is located the major settlement of Panskoe I. Along the ravine's sides are at least three more ancient sites: Panskoe II, III (Fig. 4.32), and IV. Panskoe III and IV are farmhouses settled in the 4th century BC; Panskoe II was either a fortified farm or even a fort. It is located at a strategic point at the main thoroughfare between the Černomorskoe Settlement and the Vodopojnoe region, where a road branches off to Panskoe I (see Section 4.3.2.1 below and Chapter 6.6, crossing of Roads XII and XIV).

Undoubtedly, the Panskoe promontory between the lakes of Sasyk/Panskoe and Solenoe was an area densely settled even from an early time. On the tip of the promontory is located the Neolithic site Jarylgač Severnoe mentioned above (Section 4.2.1). Sparse Late Bronze Age elements came to light at the multi-period site of Jarylgač Vostočnoe located ca. 600 m E of Panskoe I, and a large kurgan of the same period is found 1.15 km S of the site, between Panskoe I and II. However, it is in the Late Classical-Early Hellenistic period that the area was most densely settled. Jarylgač Vostočnoe was thought by its investigators to have been a multiple-period settlement. However, in the Late Classical-Early Hellenistic period, it was probably an isolated farmhouse as Panskoe III and IV.

In the 18th century, a small village named Kolbaše was situated at the then inner end of the Sasyk Lake. It was marked as a ruin already on the map of 1817. In the 19th century salt was extracted from the lake.

4.3.2.1 Panskoe I (Figs. 4.33-37)

Panskoe I is one of the most significant and best-studied monuments of the Classical and Hellenistic period in Northwestern Crimea, and it served as the point of reference in the DSP survey area. The settlement, which extended over at least 4 ha, was located at a natural harbour at the mouth of the Sasyk Ravine. Today, the SW part of the settlement is submerged.

The foundation of the settlement took place in the late 5th century BC. The settlers came from an Ionian city, be it Olbia (Ščeglov 1987, 245-246; Čtcheglov 1992, 242-243) or Kerkinitis (Užencev 2006, 110-111; Lantsov & Uzhentzev 2006, 701). The material remains of this phase correspond to the lower stratigraphic horizon called Horizon B. Approximately from the middle of the 4th century BC, following a big fire, considerable changes in the material culture of the settlement, including a certain shift in the ceramic assemblage, in the composition of coin finds, changes in the language of

local inscriptions, the appearance of a new building tradition, etc., can be observed (Ščeglov 1987, 246-247; Stolba 1991, 78-84; 2005a, 158-161). The nearest parallels to the new features come from Chersonesos and from other settlements in Chersonesos' rural territory. This phase in the settlement's existence corresponds to its upper stratigraphical horizon, called Horizon A. Most of the excavations at the site have been concerned with the upper stratigraphical horizon and accordingly were concerned with the site's Chersonesean phase. To this phase belong such completely investigated complexes as U6 (Fig. 4.34),³⁸ U13 and U14, as well as the archeologically unexplored or incompletely investigated remains of U1, U2, U3, U9, U10, and U12 (Figs. 4.35 and 4.36). The lower strata of Horizon B have only been recorded in the central part of the site (U7; Fig. 4.34) and still remain insufficiently studied (Stolba 1991).

Around 270 BC, the life at the site ceased suddenly as an effect of an enemy attack, as testified by multiple finds of arrowheads and skeletons bearing signs of a violent death as well as by traces of a severe fire which destroyed the monumental building U6. A few fragments of mouldmade bowls recorded in U6 (Hannestad, Stolba & Hastrup 2002, 129-130, 142, no. B 144, pl. 73) and U2 (unpublished) as well as Chersonesean amphorai with stamps of the 2nd century BC (Ščeglov 1968, 213) seem to indicate a small-scale habitation during the second half of the 2nd century BC (cf. Hannestad 2005, 191), although the stratigraphic horizon of this period still has to be discovered.

In terms of urban layout, very little has been published. A first sketch plan was published by Wasowicz (1972, fig. 12.I = Fig. 4.37). Originally, it was believed that the layout of the settlement was 'Hippodamic' (Wasowicz 1972, 215-216). From Wasowicz's plan we are informed of the location of the buildings (U)1 to (U)11. A new sketch plan was published by Ščeglov in 1978 (1978, 47, fig. 17). This was made after U13 and U14 had been investigated, and after U6 had been brought to light, but before U7 was excavated. The position of what must originally have been U12 is indicated. This building was partly excavated in 1987, and erroneously published as U2 (see below). In 2002, the latest version of the sketch plan was included in the publication of U6 (Ščeglov 2002a, pl. 6 = Fig. 4.33). In this plan the overall lines of U7 are provided, and it is clearly to be seen that what now is called U7, originally was thought to be four individual houseblocks (U4, U5, U7, and U8).

In 2007 and 2008, the settlement of Panskoe I was surveyed geomagnetically by T.N. Smekalova assisted by A. Čudin (Figs. 4.33, 4.35 and 4.36). The purpose was to supplement the existing sketch plans in order to determine the extension and composition of the settlement's layout.

In 2007 were measured two large tracts S and W of U6 as well as a large tract E of U7 and a smaller one at the E outskirts of the settlement. In 2008 was measured a tract of land 35 m x 85 m E of U6. The results of these measurements allow us to complement the known picture of the settlement history of the site.

Unlike the majority of the other rural settlements of the region, which are represented by isolated fortified and unfortified farmhouses, the layout of Panskoe I is rather unique, as it represents an agglomeration of both well constructed, rectilinear farmhouses and other larger building structures.

Below follows a brief description of the individual houseblocks based on previous excavations supplemented with the results of the geomagnetic survey. The original numbering of the houseblocks has been retained.

U7 was the first structure to be built (Figs. 4.33-34). It was a fortified construction, square in plan (42 x 42 m) built on an ashlar foundation with walls of mudbricks with probably four round towers, three of which have been excavated (Ščeglov 1987, fig. 8). It had a single gate turned towards SE and the mainland. Its internal layout is almost completely unknown because it was overbuilt during the Chersonesean period. This first phase had two building horizons separated by a major fire (Ščeglov 1987, 245). During the Chersonesean period, the fortification was abandoned and inside and outside its walls 16-18 smaller farmhouses were constructed almost as a small village inside and immediately outside the former fortification (Ščeglov 1987, figs. 21 and 26; Stolba 1991).

Of the same orientation as U7 but built in the middle of the 4th century BC are U6, U9, and U10.

U6 This building is the only one fully published (Panskoye I 2002; Fig. 4.33). As U7, also this building is square in plan, but not as large (35 x 35 m). The building consists of an ashlar foundation with mudbrick walls; a number of tiles have been found. Its main feature is an immense courtyard surrounded by some 20-odd rooms. In a secondary phase one

³⁸ U=*usadba*, Russian for farm.

further row of rooms was added to the inner W and S side. Also this building had a single gate opening towards SW and thus, U6 flanked the road leading directly to/from U7. In U6's S corner (Room 12) was excavated a small house sanctuary devoted to the cult of Demeter and Dionysos-Sabazios (Panskoye I 2002, 47-50), and in the room added in front (Room 14) was an altar and a relief dedicated to Herakles (Panskoye I 2002, pl. 143.G1; see also Chapter 6.4). The geomagnetic measurements have not revealed further buildings SE of U6.

U9+U10 This structure is located immediately S of U6 (Fig. 4.36). It was originally conceived of as two individual houses (U9 and U10), but since the S walls traced as part of U10 in Stolba, Hannestad & Ščeglov 1995, fig. 4.1 in fact belong to U11 (see below), U9 and U10 may have been part of the same building. Part of two rooms of U10 was excavated by a group of Danish archaeologists in 1987 (Stolba, Hannestad & Ščeglov 1995, fig. 4.2). The central part of the building is obscured by a neat round ash hill, which overlays the building. There may be a fairly large courtyard immediately W of the excavated rooms of U10. In a later phase a series of at least five deep rooms was added to the S part of the building.

A number of buildings follow a more western orientation. This applies to U2, U3, U8, and U13 as well as to the isolated house U7-15 (Ščeglov 1987, fig. 26) and a few rooms built over the S corner of U7.

U2 U2 and U3 are located between two modern tracks (Fig. 4.35). U2 was fully exposed in the geomagnetic survey in 2007. The houseblock is ca. 30 m wide and 25 m long. It consists of probably two living units with two rows of rooms to the NW and one row of rooms to the S of a central courtyard.

U3 The E side of U3 is exposed in the eastern track. This building block was fully revealed in the geomagnetic survey in 2007. It is a large square structure consisting of at least three houses with rows of rooms around smaller courtyards.

U8 is lying under an immense ash hill and its features are therefore much obscured (Fig. 4.36). The geomagnetic data of 2007 revealed a series of square rooms to the N of a large courtyard. The orientation of this house is the same as the southernmost three rooms of a house built over U7. They may either belong to the same house or to a building of the same construction phase.

U1 Part of this house was measured in the geomagnetic survey in 2008 (Fig. 4.33). It is situated NE of U2. It features one row of rooms to the N of a central courtyard and two rows of rooms to the W. It was in all likelihood an isolated house (c. 25 x 25 m). Its orientation differs from all other houses being oriented more to the W.

U13 This house, which is partly submerged, is the northernmost of the houses of the settlement. It seems to be a free-standing house perhaps with a square plan with rooms surrounding a central courtyard. It was partly exposed in 1970 (Ščeglov, Saverkina & Glazunov 1971, 251) and in 1977 (Ščeglov et al. 1978; Ščeglov 1987, fig. 26). According to the investigators the house covered an area of ca. 1,200 m². Preserved are three rooms and a round tower (?) and its date is late 4th-3rd century BC.

Two building blocks have yet another orientation, namely U11 and U14. If we consider the horizontal stratigraphy of the site, U11 and U14 situated in the settlement's margins were probably the last ones to be built along with U1.

U14 The building, which today is completely submerged, is square in plan, each side measuring 32-35 m. It was partly investigated in 1970 and 1971 (Ščeglov, Saverkina & Glazunov 1971, 251; Ščeglov et al. 1972, 342). It was dated to the late 4th-mid 3rd century BC by the investigators.

U11 The complete plan of this building emerged as a result of the geomagnetic survey in 2007 (Fig. 4.36). The stone walls are very clearly visible as negative linear anomalies caused by stone walls on the magnetic map. The resulting structure is rectangular in plan ca. 15 x 20 m. All four sides of the building were occupied by rectangular rooms, ca. 5 x 5 m, around a rectangular courtyard. A weak positive anomaly off the centre can perhaps be interpreted as a well. In several rooms in the N and E side of the building strong positive anomalies testify to burning in the rooms. The building block was free-standing and separated from the building to the N by a passage of a few meters. In terms of plan and size, the building is very similar to U2-2 (Stolba, Hannestad & Ščeglov 1995, fig. 4.1). It should be noted

that the walls traced as part of U10 in Stolba, Hannestad & Ščeglov 1995, fig. 4.1 in fact belong to U11, which also explains the two different orientations.

The geophysical data have shown that there are no further buildings to the S of U11. To the W and SW are two ash hills, which seem to respect the building's S corner. In general, a number of ash hills, which can partly be seen in the terrain and which are especially clear in the geomagnetic data dominate the site. Most of them are located W of the buildings and some overlay them. They attest to the troubled life in the settlement and to clean-up operations.

U12 With the exclusion of the southernmost part, this building block was not covered in the geophysical survey, because heaps of soil left after excavation partly covered the site. It consists of at least four different houses built together. They were partly excavated in 1987 and erroneously published as U2.³⁹ One house is completely brought to light (published as U2-2) whereas of the house to the N, published as U2-3, is revealed only in its E part. Of the two houses to the E, published as U2-0 and 2-1, nothing is known. U2-2 and 2-3 both have two rows of rooms to the E, and at least U2-2 is in addition furnished with rooms to the N and S flanking a rectangular courtyard. The finds inside the building allow us to date it to the second half of the 4th-first third of the 3rd century BC (Stolba, Hannestad & Ščeglov 1995, 52).

Two strong positive magnetic anomalies to the E of U12 may have been caused either by furnaces or by pits filled with strongly magnetic material. Accordingly, there may have been some kind of production here in the outskirts of the settlement.

Due to the intensive interdisciplinary work carried out in Panskoe I, we are well informed about its mixed economy deriving from farming, animal husbandry, hunting and fishing (Janušević & Ščeglov 2002; Kasparov 2002).

300 m NW of the settlement itself is located an extensive tumular necropolis comprising over 60 burial mounds. Along with the burial mounds, the cemetery also contained a number of flat graves dug between the tumuli (Rogov 2011). The Tarchankut Expedition has investigated about one third of its extent (last year of excavation was in 1986). In the period from 1991 to 1993, the unexplored part of the necropolis was subject to intensive illicit digging.

Between the settlement and the necropolis runs a probably ancient road (Road XIV) leading towards the mainland. It follows the orientation of U7 (see also Chapter 6.6 below; Fig. 4.33).

The best parallel for this type of settlement is the one of Albești in the chora of Kallatis. Also here, several large rectangular farm complexes have been excavated, one of which was fortified (Rădulescu et al. 2000-2001; Buzoianu & Bărbulescu 2003; <http://www.cimec.ro/scripts/arh/cronica/detaliu.asp?k=3058>). The similarities may owe to the fact that Kallatis was a sister colony of Chersonesos.

4.3.3 The Vodopojnoe Ravine | P. Guldager Bilde

As mentioned above in Chapter 2.3.1.3, in 2007 as part of the brief visit to previously known sites in the DSP area the ravine E of Vodopojnoe was inspected by the DSP staff in the company of S.B. Lancov and S.D. Koltuchov. Investigations carried out by Koltuchov in the 1980s had located three sites in the northern branch of the ravine (Vodopojnoe 2-4) and one in the southern branch (Vodopojnoe 5). All four sites have been dated to the Late Bronze Age (unpublished; information S.G. Koltuchov; Fig. 6.7).

The Vodopojnoe Ravine splits off in two branches ca. 1 km E of Vodopojnoe (Fig. 2.2). Both branches stretch for more than 15 km further towards NE and SE. One further branch is located immediately S of Vodopojnoe at Novo Ul'janovka. This branch stretches for ca. 15 km towards the S while W of Vodopojnoe the ravine widens into the Džarylgač Lake. The Vodopojnoe Ravine was densely settled in Early Modern times. A number of foremost Tatarian villages are located within short distance from each other, primarily in the northern part of its three branches (see below, Chapter 6.2.3). Almost at the outflow to the sea at the N coast of the ravine is situated the modern town Mežvodnoe. Its present location is at the sea coast, but in antiquity, prior to the establishing of the sand bar stretching from the S coast of the ravine, the site was not located at the sea.

The present village of Vodopojnoe ("Watering place") is located at the major crossing over the ravine (Fig. 4.38). This

³⁹ Stolba, Hannestad & Ščeglov 1995, 50-53; the position in the general plan in Ščeglov 2002a, pl. 6 is turned mirror-reversed and upside-down; correct position: see Stolba, Hannestad & Ščeglov 1995, fig. 4.1.

was probably also the case in antiquity, because several routes converge ca. 1 km E of the village (see below, Chapter 6.6, Roads I, II, III, IV, and X). Vodopojnoe seems to be an obvious place for an ancient settlement with plenty of water and a good location. A 'settlement' called Džarylgač is marked e.g. on a map of Ščeglov (2002, pl. 4.1.28 [wrongly given as Burun Eli] = Fig. 1.1.29), but this site was not verified in the DSP extensive survey in May 2007. An attempt to find the location of an isolated well, which is shown on the half-verst map SW of the village, also failed. The outskirts of the village are completely destroyed due to recent building activities. Moreover, numerous piles of modern soil and garbage are being pushed around in the same area. During our site visit, not a single ancient sherd was collected. The well was not located either, but a pump currently used for watering animals was found probably more or less where the well would have been. It is placed at the lowest point of a small ravine close to the lake. The water is slightly brackish, but still drinkable. At the S coast of the ravine, immediately S of Vodopojnoe is presently a modern 'suburb' to Vodopojnoe, Novo Ul'janovka.

4.3.4 Conclusions on the settlement in the ravines | P. Guldager Bilde

Above, we have discussed current evidence for settlement and land use in the ravines of the DSP study area on the basis of published and unpublished sources as well as on autopsy in the field during our field campaigns. In Western Crimea, the ravines in general appear to have been of major importance during all periods of human presence supplying water, shelter from the wind, and meadows for animals. In the study area we dealt with three major ravines, the Kelšeich Ravine, the Sasyk Ravine and the Vodopojnoe Ravine. A concise overview of past excavations at the sites of the Černomorskoe Settlement and Panskoe I respectively indicates the substantial scale these two settlements had. In Chapters 6 and 7 we will reflect upon the role of these settlements in the wider Crimean context.

Whilst all three ravines merit more intensive archaeological investigations in terms of their long-term histories of settlement and land use, our knowledge in the case of the Vodopojnoe Ravine is especially limited. Unfortunately, because of the fact that the DSP was shortened by a year, it was not possible for us to carry out systematic survey in this ravine. Our knowledge is therefore confined to the mentioned four Bronze Age settlements. The convergence of a number of nomadic routes in the ravine suggests that it was much frequented. It would therefore have been of considerable interest to learn more about this ravine's settlement pattern also in later periods.

4.4 THE LOWLAND RIDGE AND PEDIMENT ZONE | W. DE NEEF & C. WILLIAMSON WITH CONTRIBUTIONS BY P. ATTEMA, P. GULDAGER BILDE, T. DE HAAS & T. SMEKALOVA

This section presents the settlement data resulting from the pilot survey in 2006 and the intensive surveys carried out in the campaigns of 2007 and 2008 in ploughed fields located on the coast N of Lake Džarylgač in the land type defined in Chapter 3 as the Lowland Ridge and in ploughed fields to the S of Lake Džarylgač in the land type referred to as the Pediment. We will first present the summary data of the three campaigns separately (Sections 4.4.1 to 4.4.3) and then proceed with a discussion of known sites within the transect (Section 4.4.4) and new sites found in the DSP survey (Section 4.4.5). The latter sections take the form of a catalogue.

4.4.1 Summary data of the 2006 campaign

A pilot season was undertaken by P. Attema, P. Guldager Bilde and V. Stolba on the 25th to 27th of May 2006. One of the objectives was to make landscape observations and carry out test surveys in order to evaluate the potential of the Tarchankut landscape for an intensive survey project. The area surveyed in the campaign of 2006 consisted of four cultivated fields labelled DSP06 F1 to F4 (Fig. 4.39). The coordinates of the surveyed fields were recorded with a Garmin GPS and sketched on to a 1:25,000 map. Information concerning finds and observations were recorded in a note book. On the basis of the results of this pilot survey, in which evidence was found for small scatters of Hellenistic pottery in the ploughed fields S of Lake Džarylgač, the survey strategy was devised as employed in the surveys of 2007 and 2008 the results of which are discussed in the present publication. The mainly Hellenistic pottery collected during this survey was analysed in 2007 and incorporated in the database.

4.4.2 Summary data of the 2007 campaign

After one trial day, block survey started on the 7th of May and continued up to the 26th. During this period, team 1 spent 15.5 days block surveying, team 2 14.5 days. In total 1,939 blocks with a total surface of 579.2 ha (almost 5.8 km²) were surveyed averaging 19.3 hectares per team per day.

Due to the varying number of surveyors, not all units were surveyed at the same coverage. While 91.3% of all units were surveyed at 20%, the other units were surveyed with a coverage varying between 14 and 28%.

The area surveyed in the campaign of 2007 consisted of eight cultivated fields labelled DSP07 F1 to F8 (Figs. 4.40–41).⁴⁰ Survey conditions in these fields were relatively uniform: part of Field 5 was ploughed in large peds, but all other fields had been recently ploughed and harrowed. In general, visibility was estimated to be relatively uniform as well: 13.1% of all units had excellent overall visibility, 60.3% good visibility and 21.7% average visibility. The distribution of finds (modern material excluded) over the survey area is displayed in Fig. 4.42. In this map, the densities have been corrected for coverage and unit size, but not for visibility.⁴¹ This overview map, together with field observations and specific (combinations of) categories of finds was used as a basis to define sites (see Chapter 2.6). Only 5% lacked good visibility, while no areas with bad visibility were surveyed. The observed variation in visibility conditions is mainly due to the varying influence of weathering (mainly the amount of dust on the surface) and on the varying influence of shade (depending mainly on the weather and walking direction).

During the block survey circa 1,800 finds were collected. Pottery accounted for at least 73% of these, 6% were lithics and 21% were not determined. Within the ceramic finds, amphorai are the most common group, followed by handmade wares, tableware and utilities. Virtually all architectural finds were of recent date. These finds were supplemented by seven grab samples (16 finds) and 46 total samples (835 finds) of mixed composition. For a definition of the various sample types we refer to Chapter 2.3.1.1.1.

4.4.3 Summary data of the 2008 campaign

In 2008, a total of 1,872 blocks were surveyed with two teams. The total surface covered was 481.6 ha (4.8 km²). This lower coverage of ploughed surface compared to the 2007 campaign was mainly due to a sudden case of campylobacter poisoning seriously crippling the teams. During the last three field days, the two teams working in the cultivated zone were reduced to one. Team 1 spent 14.5 days block surveying, team 2 spent 17.5 days covering on average 15 hectares a day.

In 2008, just as in 2007, not all units were surveyed at the same coverage, due to varying unit size or varying amount of field walkers. In 92% of the 1,872 units 20% of the surface was surveyed. The coverage in 6% of the units was 24%. Surface coverage in the remaining units varied between 17% and 28%.

The survey area of 4.8 km² consisted of six separate fields, numbered DSP08-F01 to F06 (Figs. 4.40–41). Field 4 was situated directly S of Lake Džarylgač, while the other five fields were all located on the coastal ridge N of the lake. The surveyed fields were all recently ploughed. Field 4 was partly ploughed into large peds, and part of Field 06 was harrowed during the survey. All other fields were harrowed before survey. Visibility conditions were relatively uniform, although weather conditions had some effect. The first week of the 2008 campaign was cloudy and rainy. Dust was washed away which affected the visibility of flints positively, yet at the same time the muddiness made walking and concentrating difficult. During the three subsequent weeks, the weather was generally sunny causing shade and dust. 11% of the surveyed units were described as having excellent overall visibility, 43% had good overall visibility, 34% had average visibility and 13% were below average (see Chapter 2.3.1.1.1). None of the surveyed units were classified as having a bad overall visibility.

During the intensive survey of the ploughed fields, 2,261 objects were collected. The distribution of finds (modern material excluded) over the survey area is displayed in Fig. 4.42. In this map, the densities have been corrected for coverage and unit size, but not for visibility. Most of these were pottery, 7% were lithics, including flint and stone tools like whetting stones and grinders, and 1% consisted of bone fragments. The finds classified as “indeterminable” (29% of the total amount) were all pottery of which the function could not be classified. These form the largest find group. Of the determinable finds, transport amphora fragments form the largest group (27%), followed by handmade pottery (25%).

⁴⁰ Field 9 is not displayed in Fig. 4.1; it is located directly S of Field DSP07-5 and only two small blocks on the S side next to the lake have been surveyed (these areas are indicated on Fig. 4.1).

⁴¹ The low densities and the limited variation in visibility conditions make it unnecessary and perhaps even misleading to do so.

In total, seven iron objects were collected but after finds processing these were all discarded as (sub-) recent waste. In principle, modern ceramics were not collected.

4.4.4 Previously known sites in the Lowland Ridge and Pediment zone | P. Guldager Bilde

A number of sites have been found in the Lowland Ridge and Pediment zone within the surveyed area before the DSP (Fig. 4.43). The earliest sites are the quite extensive Late Bronze Age settlements of Burun Eli 1 and of Severnoe 1 and perhaps Vladimirovka 1. We are not aware of the precise location of the latter site. Burun Eli 1 and Severnoe 1 are both located on a low promontory at the confluence of two streams. They are connected with a 7 km long, straight kurgan-lined road (Road VI, see Chapter 6.6). Burun Eli 1 was an important multi-period site. In addition to its Late Bronze Age component, it had also a Hellenistic, a Late Hellenistic, a Medieval and an Early Modern component. Further inland on the N bank of the Džarylgač Lake is another Bronze Age site, Vodopojnoe 1 (see also DP07-F05), identified by Kolotuchin.

The same landscape zone was also the location of three Iron Age ‘settlements’ (Vladimirovka 2-4), however, again, we do not know, where precisely they are located, and they have never been published. Only Skalistoe 2 (see also DSP08-F03-02) and Severnoe 2 count as Hellenistic sites found prior to the DSP survey in this part of the landscape. In the DSP extensive survey, which took place primarily along the coast, inland sites were not at all investigated with the exception of near-coastal areas in the vicinity of already known sites. Thus was found Skalistoe 7, perhaps a Hellenistic farmhouse, in addition to the known sites.

Of the Tatarian villages located in this part of the landscape, two of them are near-coastal (Kula Šeich, Burun Eli) as is the outpost (*kordon*) N of Tubaka and the two farmsteads (*chutory*) around Kula Šeich and Skalistoe (e.g. DSP08-F03-01). Typically, they are drawn back from the coast being situated close to the bottom of a small ravine, where there is shelter from the wind and easy access to fresh water from a well.

4.4.5 Catalogue of surveyed fields

DSP06-F01 (Fig. 4.39)

Size 1.3 km length.

Investigations Extensive survey. The field was walked in a rectangular strip with one pass back and forth during which pottery was collected. Coordinates were taken of all collected pottery.

Landscape type Plateaus/Uplands.

Location Field DSP06-F01, where the first test survey was carried out, is a rectangular strip in a much larger plot. It is located approximately 1 km W of the village Krasnosel'skoe, S of the asphalt road that runs to Olenevka (earlier named Karadža). The field is situated at the highest part of an inland ridge, a broad saddle, at about 120 m above sea level. The landscape slopes down gently to the W, in the direction of Olenevka, and to the N and S. From Krasnosel'skoe, the Kelšich Ravine runs down N towards Černomorskoe.

Cartography On the half-verst map, the village of Krasnosel'skoe is called Kunan and it is inhabited by 84 Russians. Just 500 m SE of Kunan is a separate settlement, Čamak, home to 12 Tatars. The buildings in the Russian village are larger and built along a central road, whereas the Tatarian settlement consists of smaller buildings with adjacent enclosures. About 2.5 km to the W, the ruins of a village called Džajlav are marked at the top of a ravine. On the half-verst map, several lines are depicted, parallel and perpendicular to this road. One of the parallel lines, a dashed stripe, runs through the survey field. The system of perpendicular and parallel lines may mark the remains of older land division lines in the landscape (Smekalova & Smekalov 2006, 235-240). From Kunan and Čamak, several tracks lead to the E, but not as systematically spaced as the ones in western direction. Approximately 300 m S of the present survey field, a mound on a hilltop is described with the name “K. [kurgan] Čolbar'oba”, the height of this location is 64.1 sažens (132.68 m). To the NW of the field, another mound at 61.8 sažens (127.95 m) on a hilltop is described as “K. [kurgan] Uč'oba”. These mounds mark both sides of the saddle.

On the mid-20th century map, the names of the kurgans are not mentioned anymore. The village of Kunan is now Krasnosel'skoe and has expanded to the S, the neighbouring Tatarian settlement of Čamak has turned to ruin. On the hilltop to the S of the survey field, two mounds are marked, whereas the hill to the NW has 10 mounds. The road to Olenevka and a parallel track to the S are the remains of the rectangular line system depicted on the half-verst map.

On the 1997 topographical map, two mounds are marked on the hilltop to the S with one star-shaped symbol. Nine of the 10 kurgans on the hill to the N are no longer mapped, only one large one is depicted at the elevation of 136.2

m. Interestingly, some kurgans further to the NW are still known by their specific names (“Kurgan Vysokaja Magoula”, “Kurgan Čurokaja Magoula”) known from the half-verst and mid-20th century maps.

Survey Conditions The rectangular strip had recently been ploughed in large peds. Visibility was even and good over the entire field. Harrowing and a little rain would have increased visibility to optimal survey conditions. Now dust and peds may be considered as slightly adverse.

Sites No sites were located in test Field DSP06-F01. In total, six pottery fragments were collected spread out over the field including an amphora body sherd, a jug handle and three fragments of orange-fired pottery. Also, the possible remains of land division walls were recorded at the southern end of the field (see Chapter 6.3.1).

Relations to the surrounding area South of the field, a kurgan cluster of at least nine kurgans were observed, one of which was larger than the others.

DSP06-F02 (Fig. 4.39)

Size 700 m length.

Investigations Extensive survey. The field was walked in a rectangular strip with one pass back and forth during which pottery was collected. Coordinates were taken of all collected pottery.

Landscape type Pediment.

Location The second test survey field is a large field approximately 3 km E of Černomorskoe, on the SW side of the asphalt road leading along Lake Panskoe. The extensively surveyed area is the northernmost part of a field with an estimated length of 3 km N-S and a width of 1 km E-W. The field was surveyed in one pass walking EW.

The field is situated on the eastern slope of a ridge extending from the Hillsides into the coastal ridge NE of Lake Panskoe. Just to the SE of the surveyed area, a shallow ravine leads from the Hillsides to the southwestern corner of the lake.

Cartography On the half-verst map, Field DSP06-F02 is located just S of a road. This is the same road that at present connects the town of Černomorskoe with Mežvodnoe.

Survey Conditions The field was recently ploughed and harrowed, and therefore had optimal visibility.

Sites No sites were recorded in the surveyed part of the large ploughed field. Four orange-fired sherds were collected in the vicinity of a cut limestone block, but it is unclear what this represents. Spread out over the rest of the field, five more pottery sherds including one band handle were collected.

Relations to the surrounding area No relations to surrounding areas recorded.

DSP06-F03 (Fig. 4.39)

Size Not recorded.

Investigations Extensive, non-systematic survey; pottery was observed but not taken.

Landscape type Lowland Ridge/Pediment.

Location Field DSP06-F03 is a field just S of the known Hellenistic settlement Panskoe II. It is located directly S of the asphalt road between Černomorskoe and Mežvodnoe at the point where the asphalt road to Snežnoe runs off to the SE. This is the lowest part of the DSP research area, a few meters above sea level. Lake Panskoe is 50 m to the N.

Cartography The extensively surveyed part of Field DSP06-F03 is situated around a crossroads on the half-verst map. Here the road along Lake Panskoe crosses a track that connects the ruins of a village called Saja on the Hillside with the salt works on the eastern shore of Lake Panskoe. A small enclosure is depicted N of the field. On the slight ridges to the S and SW of the field, mounds are marked.

Survey conditions The NE corner of the field is not ploughed, and the terrain is bumpy.

Sites DSP06-F03-01 is close to Panskoe II. It is a scatter of ca. 40 m in diameter in a patch of greyish soil containing many stones and post-antique pottery. Finds related to Panskoe II continue for only 60 to 80 m and at places much less and there seems hardly any archaeological effect of this site on the surrounding terrain.

Relations to the surrounding area Panskoe I is located 1.6 km N-NW and there is a small group of kurgans just 450 m NE of Panskoe II.

DSP06-F04 (Fig. 4.39)

Size Not recorded.

Investigations Extensive survey in two rectangular strips with two passes back and forth during which pottery was collected.

Landscape type Pediment.

Location The last test survey field of the 2006 campaign was located right on the southern shore of Lake Džarylgač, approximately 2.5 km N of the present-day hamlet of Zajcevo. Just S of the field, a dirt road leads from Zajcevo to Mežvodnoe crossing the sand bar that closes off Lake Džarylgač.

Cartography On the half-verst map, a track leads through the present survey field. It connects a mound W of the field right on the lakeshore with the village of Kipčak Učkuju 3 km to the SE. Another track leads off this track in a southern direction through the field. Directly S of the surveyed field, a mound is marked on a slight ridge. The ruins of a village called Džajlav are located approximately 1.1 km S of the field.

Neither the tracks nor the ruins are marked on the mid-20th century map, but the mound on the ridge S of the field is still there.

Survey conditions Field DSP06-F04 was recently ploughed and harrowed producing a good and even visibility. The field slopes down gently to the lakeshore. In the lower side of the field, nearest to the lake, soils were greyish in colour and contained much stone debris. The higher part of the field had more reddish soils.

Sites In the area with grey soils, a collection of amphora finds were made that in combination suggest the location of a Late Classical-Early Hellenistic site in this area (DSP06-F04-01).

Relations to the surrounding area DSP06-F04-01 is located 470 m due N of DSP07-F02-02, 870 m SE of DSP07-F02-01 and 1,140 m SE of DSP08-F04-03, which may all be contemporary.

DSP07-F01 (Figs. 4.44-45)⁴²

Size 38.4 ha

Units 1005-1083; 2001-2073.

Investigations Intensive survey in 50 x 50 m units except the corner ones. As it was expected to be dense with finds, this field was selected as the 'training grounds' for the 2007 field-walking teams. This was also the initial test site of the standard survey method using pre-mapped grids and GPS on handheld devices to establish unit boundaries (see Chapter 2.2); however, the northernmost units were set out with tape measure and measured in with Total Station.

Landscape type Lowland Ridge.

Location Field DSP07-F01 is located on a small peninsula between Lake Panskoe to the W and the Džarylgač Bay to the N and the E. The field is situated between the ancient sites of Panskoe I at its NW tip (Section 4.3.2.1), and Panskoe II to the SW.

The surveyed field is narrow at the northern end, where it skirts the lagoon and the site of Panskoe I, but widens towards the S. It slopes gently down towards Lake Panskoe in the W. The eastern field boundary follows the highest part of the strip between the lake and the bay. To the S, DSP07-01 borders on a ravine and the grassy strip that separates the field from the higher asphalt road connecting Černomorskoe and Mežvodnoe. W of the field is a grassy and marshy area close to the water separated by a dirt road running N-S from the main asphalt road.

Cartography On the half-verst map, there is no mention of ancient remains at the site Panskoe, but a small promontory is depicted. To the NE on a promontory along the coast are several five-point star symbols probably representing mounds in the area later known to be the necropolis of Panskoe I. A triangle marking the elevation of one of them is shown as 1.87 Ukrainian Height Units (one UHU is 2.07 m). Another mound is depicted directly SE of the field; this is the mound that is still visible today just outside Field 1.

A building is depicted near the eastern shore of Lake Panskoe (called Lake Sasyk on this map), at the border of the NW curve of the field boundary. Three roads lead to the building, one from the NW, another from the S, and the third from the E: these last two connect to the road further S, which coincides with the modern asphalt road between Černomorskoe and Mežvodnoe. A smaller track also leads to the structure from the N, following the curve along the lagoon and along the present survey field. Another track runs across the length of the promontory parallel to the lake and E of the field leading from the southern road to the northern coast, just W of the mounds; the upper eastern border of the field follows this track. Finally, a road follows the coastline joining the E-W road to the S. All of these roads and tracks have now vanished, except for the present asphalt road and the eastern shoreline road.

Lake Sasyk is a salt water lake (*solenoe*); three sides of its shores show salt works (*soljanoe promisl*). One of these is shown directly W of the surveyed field near the building. The eastern part of the lake is nowadays a salty marsh. N of the

⁴² Fig. 4.40 works as a key to the period specific scales and legends of all the distribution maps.

lake on the sandbar that closes off the lake from the Black Sea, a small pier juts out into the sea (*prist.* for *pristan*, pier or wharf). This sandbar is now broken open giving Lake Panskoe and the harbour on the shore opposite of the ancient site, where the northern salt works once stood, access to the sea.

Survey conditions Field DSP07-01 had been recently ploughed, the plough lines ran E-W; this was also the walking direction of the intensive survey teams. The surface soil was brownish-red and included some limestone fragments with a few stonier areas spread out across the field, probably where the underlying limestone bedrock was turned up by the plough.

The northern part of the field contained some modern building debris including asbestos; the southern area also revealed construction material from the road. There was little vegetation, except in the southwestern part of the field. The days of the survey were sunny and windy. The surface visibility was good.

Finds distribution The highest densities of finds in Field DSP07-01 are located, not surprisingly, in the northern, narrow strip near Panskoe I, but also in the southern part of the field W of the large kurgan in the field to the E. Most of the finds collected are Late Classical-Early Hellenistic pottery fragments. In the northern section they form a 'halo' in conjunction with Panskoe I (see below, Relations with surrounding area). In the southern half of the field, the Late Classical-Early Hellenistic material is either connected to the kurgan in the barley field or to the destroyed kurgans (DSP07-F01-02 Features 1-3) discovered during the intensive survey or maybe both.

The survey produced no finds in this field from the Bronze Age or Byzantine periods. A single fragment was found in the middle of the field that could be dated to the Middle Ages, and two dispersed Early Modern sherds were found, over a kilometre apart. Some modern material was collected in two units in the southern area of the field.

Sites Two sites were identified in Field DSP07-F01. The northernmost site, DSP07-F01-01, is located in the narrow strip of the field directly E of Panskoe I near the highest part of the ridge between the lake and the bay. The finds in DSP07-F01-01 are concentrated around the middle section of the strip, across seven units; two units produced among the highest find densities recorded during the DSP survey seasons (Fig. 4.46). To the N and S of the site, find densities dropped notably. The distribution pattern is consistent with a site halo associated with Panskoe I. Finds consisted of Late Classical-Early Hellenistic pottery, mostly storage jars, but also tableware and handmade vessels and stone tools were found. One unit also yielded three pieces of worked flint of uncertain date. Within the concentration, a single green-glazed sherd dates to the Early Modern period.

Site DSP07-F01-02 is a kurgan group consisting of three separate features (kurgans). In the SE part of the field, a relatively high density of pottery fragments was found along the eastern field border (Fig. 4.47). Feature 1 was defined based on this and the proximity to the kurgan in the barley field just a few meters away (Fig. 4.48). The kurgan and this side of the field occupy the highest part of the ridge. The pottery concentration is most likely related to the kurgan, although a closer inspection of the mound itself yielded no finds. Most units along this field border yielded at least a few finds with one unit directly SE of the kurgan producing slightly more Late Classical-Early Hellenistic fragments as well as a single Early Modern sherd. Feature 2 is a ploughed scatter of stones and pottery most likely connected to a ploughed-out kurgan, which was excavated here by local archaeologists during the 1980s (pers. comm. V. Stolba). No noticeable elevation was detected in the field. The site is most likely also the same as the settlement Panskoe V identified by small-scale survey in 1993 (Randsborg 1994). The number of finds collected scarcely differs from the adjacent units: three sherds, two of which were Late Classical-Early Hellenistic, but the concentration and size of stones is consistent with a ploughed-out kurgan. Units N of the scatter yielded no finds; units to the E and S had similar densities. Located about 80 m to the S, Feature 3 is a similar scatter which probably also represents a destroyed kurgan. It is located at the border of four units, all of which yielded a few finds. Most of these were Late Classical-Early Hellenistic including handmade fragments. The scatter is located in the lower western part of the field. It is not known whether this kurgan was also excavated.

Relations to the surrounding area The large Late Classical-Hellenistic settlement Panskoe I is located 250 m NW of DSP07-F01-01 (see Chapters 1.4 and 4.2.1). SW of the field is the Hellenistic farmstead, Panskoe II (see DSP06-F03-01). In the field E of DSP07-01 is a large kurgan, just beyond the edge of the surveyed field.

A Neolithic site (Jarylgač Severnoe) was reported on the promontory NE of the field near the necropolis. This area was investigated in 2007 but was so overgrown that no systematic sampling could be undertaken.

DSP07-F02 (Figs. 4.49-50)

Size 180.5 ha.

Units 1084-1351; 2074-2299.

Investigations Intensive survey in 60 x 60 m units except 60 x 100 m units along the eastern field border as well as geomagnetic survey.

Landscape type Pediment.

Location Field DSP07-F02 is located close to the southern shore of Lake Džarylgač in the lowest part of the Pediment zone. The field lies along the E side of a gravel road that crosses a causeway in the lake separating Lake Džarylgač from the smaller Lake Jarylgač SW and leads to Mežvodnoe further NW. The gravel road intersects with the asphalt road S of the field connecting Snežnoe and Novo Ul'janovka to the E; the hamlet of Zajcevo lies in the NW corner of this intersection.

Field DSP07-F02 is one of the largest fields surveyed during the project. It slopes down from the S and gently undulates towards the lake in the N some 30 m lower than the asphalt road. The northern corner of the field rises slightly taking the shape of an ear as it follows the curve from the lake to the inlet that separates it from Field DSP08-F04 to the E. The waterfront of this promontory is ringed with grass and shrubs. At a macro scale, this elevation is located at the northeastern end of a stretch of land cut by ravines to the SW and NE that empty into the lake. The northeastern ravine cuts across the field from the SW creating a low but increasingly discernible depression through the field as it deepens towards the inlet.

The northern part of DSP07-F02 is partly obscured from the lake and the southern shoreline road by the grassy strip of trees and shrubs. Towards the E is a lagoon or inlet of the lake crossed by a sandbar which continues the shoreline road further E and N of Field DSP08-F04. Field DSP08-F04 is immediately E of DSP07-F02. A ravine defines the northwestern perimeter of the field emptying into a marsh close to the lake. Across this ravine and W of the marsh lies Field DSP06-F02. The western edge is adjacent to the gravel road to Mežvodnoe; except for Field DSP07-F04 this area was fallow. The southern end of DSP07-F02, some 350 m wide had not been tilled in 2007 and was thus excluded from survey.

Cartography Projected onto the half-verst map, DSP07-F02 is situated on the southern shore of Lake Džarylgač; this region may be marshier today than appears on the map. The two lagoons that frame the lake side of the field are shown as inlets cut off from Lake Džarylgač by sandbars. The elevation lines show the ravines that empty into both lagoons from the SW. The eastern lagoon receives run-off from two ravines, one cutting SW across Field DSP07-F02 and another running S-SE just within the boundary of DSP08-F04. The western lagoon receives runoff from a ravine that skirts the NW perimeter of DSP07-F02 and extends first S then SE, all the way from the Hillsides. The ravine originates around Hill 6 separating it from Hill 17. The modern shoreline track does not appear on the half-verst map. However, it does depict a road cutting across the northern corner of the field from the SE and continues across the sandbar of the western lagoon to the NW indicating firmer ground than seems to be the case in this marshy area today. This road connects Džarylgač (modern Mežvodnoe) in the NW with the abandoned village of Kipčak Učkuju to the E.

The half-verst map shows another road that once crossed the middle of DSP07-F02 leading from Kipčak Učkuju to Ak Mečet (modern Černomorskoe) in the W. This middle road runs just N of an area marked on the map as the ruins of Džajlav. The ruins, which have now disappeared, are immediately W of the N-S ravine and E of a road parallel to this ravine continuing N to Džarylgač (modern Mežvodnoe). This middle road follows a straight line for at least 3 km through DSP07-F02 and to the W, up and down the ravines, running E-NE to W-SW. Exactly parallel to this middle road, and N of it by some 500 m is a dashed line on the half-verst map. The same mid-20th century map shows a second dotted row of trees perpendicular to the first; this one runs N-NW to S-SE and probably showing the boundaries of the present field. Though not discernible on the ground today, these lines as well as the old middle road have been interpreted as originally belonging to the field cadastre system set out by the Greek colonists (see Chapters 6.3.1 and 7.3.1).

S of DSP07-F02 is a road on the half-verst map that connects Kipčak Učkuju in the E with the abandoned village of Karlav in the W. This road crosses through an abandoned hamlet named Mussali SW of Field 2 immediately W of the modern hamlet of Zajcevo. Like Džajlav, Mussali is also located just W of the N-S ravine. The modern asphalt road lies further to the S.

The half-verst map also shows some stars within the boundaries marking mounds: one star is at the extreme eastern boundary measuring 21.6 m in elevation; two more stars appear roughly 800 m to the SW. The mid-20th century map only shows one star with an elevation of 26 m. These mounds flank the road leading from Kipčak Učkuju to Mussali on the half-verst map; in fact the road seems oriented towards these mounds.

Survey conditions The surface of DSP07-F02 was reddish-brown with some very low vegetation, and on the whole it was moderately stony. Some very stony patches were observed in areas that did not seem related to surface finds. These occur most likely where the plough has cut into the bedrock bringing the chips to the surface. The field had been tilled E-W, and this was also the direction for field walking. The eastern 'ear' of the promontory in the N was initially left fallow, but it was surveyed later after having been ploughed. The days of survey of DSP07-F02 were sunny and clear. The ploughed surface was dry and very dusty. This had some negative effect on overall surface visibility, as had the limestone rocks. The low and sparse vegetation was hardly an obstruction except for longer cast shadows in the early morning light.

Finds distribution Finds are distributed evenly over the field in an extremely low density. Some adjacent units in the southern section yielded finds, whereas ‘empty’ units were mostly in the northern, middle and southwestern parts of the field.

By far the majority of the material collected dates to the Late Classical-Early Hellenistic period. These finds, including both handmade and wheelmade pottery are evenly spread across the field, with slightly higher densities in the southern part, and two concentrations in the northwestern and northeastern corners. No finds from the Bronze Age were collected in DSP07-F02 at all, nor were fragments dating from the Classical period. One possible Byzantine sherd was collected along the southern edge, and another possibly Medieval fragment was found more to the N. Early Modern finds were collected in four units in the southeastern quarter of the field. Flint was also regularly collected in this field. Low densities of modern fragments were found across the field, including some pottery, iron and asbestos. Some of this was collected, mostly in the middle and southern parts of the field. This may be due to field walkers still being unacquainted with the type of finds in the area, since this was only the second field surveyed.

Sites Although finds were scattered across the field, there were some noticeable concentrations at the northern and southern ends. Ultimately, five sites were identified.

At the upper NE section, DSP07-F02-01 was identified along the SE edge of the ear-shaped promontory (Figs. 4.51-52). The site consists of three discrete clusters of Late Classical-Early Hellenistic material (Features 1-3), including a fairly high amount of handmade pottery and some wheelmade sherds of both fine and coarsewares. Some flint was found further along the NE perimeter of the promontory. This area is very close to the overgrown part that leads towards the ravine and the lagoon separating this field from Field DSP08-F04 to the E. Much less material was found atop the elevation in the units to the NW. The highest densities were thus collected in two nonadjacent units in the SE corner with adjoining units containing no finds in the standard sample. This area affords good shelter from the northern wind coming from the lake; the site may extend further SE here, although a superficial examination of the grassy area beyond the field was inconclusive. Geomagnetic survey produced no structural anomalies except dipole ones suggestive of modern iron scraps.

In the opposite NW part of the field, five corner units showed relatively high densities of Late Classical-Early Hellenistic material from different functional groups including tablewares, amphorai and handmade material (DSP07-F02-02). Finds were dispersed along the corner units and the extent of the site was diffuse (Figs. 4.53-54). These finds may form the halo of a site outside the field boundary, but the thick vegetation precluded any further observations. The concentration was found in a similar setting as DSP07-F02-01 on an elevation near a ravine leading to the lake.

A small discrete concentration of Late Classical-Early Hellenistic handmade pottery, tableware, amphorae and stone tools was found upslope in the southern half of the field (DSP07-F02-03) (Fig. 4.55). It is located up on a slight slope yet is still somewhat sheltered and appears to be related to the ravine that empties into the eastern lagoon. The concentration is located on the border of two units. Adjacent units yielded only two Late Classical-Early Hellenistic fragments.

Further to the E were two small concentrations of Late Classical-Early Hellenistic tablewares, utility wares, amphorai and handmade pottery fragments located approximately 150 m apart (DSP07-F02-04) (Fig. 4.56). In between these, the units all yielded Late Classical-Early Hellenistic material suggesting that these finds may be the remains of a completely ploughed-out site. The two scatters (Features 1-2) and the adjacent units were defined as one site. A single Early Modern fragment was also collected in one of the units. Like DSP07-F02-04, this site is located on a slight slope but seemed less sheltered.

Nearby, a round, ploughed elevation was observed in the SE corner of the field (DSP07-F02-05) (Fig. 4.49-50). No finds were collected in the near vicinity, but a kurgan was depicted at exactly this location on the half-verst map.

No specific finds could unequivocally be associated with the cadastre system recorded across the middle of the field; material was found in units located directly on the divisions, yet this can easily be explained as part of the general pattern of dispersion.

Relations to the surrounding area DSP07-F02-01 and DSP08-F04-07 are located only 250 m apart on opposite sides of the ravine that separates their respective fields. Furthermore, these sites appear connected by the road shown on the half-verst map that stretched from Kipčak Učkuju across the ravine that separates the two sites and over the sandbar to the NW continuing on towards Džarylgač (modern Mežvodnoe); perhaps this route was used in antiquity as well.

The proximity to open water will have been a location factor common to these sites. DSP07-F02-01 and DSP08-F04-07 are located near the ravine that empties into the lagoon between the fields. Roughly 1 km to the S, DSP07-F02-04 appears along the same ravine. Similarly, on the opposite side of the field is DSP07-F02-03 roughly 800 m W of DSP07-F02-01 quite near the ravine that empties into the lagoon NW of DSP07-F02. In the next field to the W, DSP07-F04, are two

more sites related to the same ravine, DSP07-F04-01 and 02; although these are not contemporary with DSP07-F04-01, they do show the importance of water and/or shelter from the wind for settlement activity.

Site DSP07-F05 forms an exception to this pattern. It is located roughly 500 m E of DSP07-F02-01 and 400 m W of the kurgan (DSP07-F02-06). This kurgan is aligned with the long row of kurgans in Field DSP08-F04 further to the NE; these kurgans are visible on the horizon from DSP07-F02. It seems unrelated to the two isolated kurgans shown on the half-verst map (single kurgan on the mid-20th century map), which were not further investigated during the DSP.

DSP07-F02 is highly visible from the Hillsides to the S, e.g. from Hills 6 and 17, but also from across the lake as could be seen from the DSP08-F06.

DSP07-F03 (Figs. 4.57-58)

Size 6.1 ha.

Units 1352-1364; 2300-2304.

Investigations Intensive survey in 60 x 60 m units except corner ones.

Landscape type Pediment.

Location This small triangular field lies some 3.5 km SE of Panskoe I and directly N of the modern village of Snežnoe across the asphalt road that leads to Vodopojnoe. It is located just S of Field DSP06-F01. Just beyond the NW edge of the field is a grassy kurgan mound, now reused as a cemetery and enclosed with a whitewashed stone wall (Fig. 4.59). The southwestern edge of the field borders on a dirt road. A row of trees lines the field to the E. Just S of Snežnoe and DSP07-F03, the Hillsides begin to rise more steeply towards the S. Immediately SW of the field is a ravine that separates Hills 19 and 24 further up and continues NW where it empties into the eastern edge of Lake Panskoe.

Cartography The village of Snežnoe is relatively new: no settlement is shown in this area on the half-verst map. On this map, DSP07-F03 is located N of a road at the foot of the Hillsides between the village of Karlav to the E and the ruins of a village called Saja to the W. Parallel tracks come down the hills towards the N-NW one of which runs through the field and passes SW of the cemetery kurgan. Both the tracks and the road from Karlav to Saja have been interpreted as part of the cadastre set out by the Greek colonists. It is unclear whether the parallel N-S ditches observable today may be related to this cadastre system or not. The kurgan reused as a cemetery by the inhabitants of Snežnoe is depicted on the map marked with an elevation of 11.4 sazens appearing on the mid-20th century map at 27.1 m.

Snežnoe appears on the mid-20th century map; the village of Karlav is renamed Čaikino. A new cluster of buildings called Kostrovka was built on the location of previous Saja. The tracks coming down the hills have disappeared, and a new road runs from Čaikino through Snežnoe towards the NW and Lake Panskoe. The cemetery-kurgan is still in use.

Survey conditions The field was ploughed recently and the surface soil was fine and somewhat powdery. The soil was reddish brown with some stony parts. DSP07-F03 was surveyed on a clear, sunny day. The overall visibility was good. Some parallel shallow ditches running N-S were observed in the central and eastern parts.

Finds distribution Of the 18 units in this field, eleven yielded archaeological finds. In all of these 11 units, Late Classical-Early Hellenistic pottery was collected. Highest densities were recorded in the unit bordering the cemetery-kurgan (Unit 2301) and in Unit 2304 (in the middle of the eastern field border). One unit in the southeastern corner yielded Early Modern material, and modern material was collected throughout the field, but particularly in the vicinity of the cemetery-kurgan.

Sites A group consisting of three ploughed-out kurgans observable as stony elevations were identified in the field (DSP07-F03-01) (Fig. 4.60). One of them, Feature 1, is located in the northwestern part of the field close to the cemetery kurgan; some amphora material could be associated with this. The other two, Features 2 and 3, lie parallel to the eastern field border. Between these two kurgans was a concentration of Late Classical-Early Hellenistic material, including handmade pottery and amphorai fragments, but also a black-gloss rim and an astragal.

Relations to the surroundings area None of the areas immediately surrounding DSP07-F03 were investigated, and no other kurgan groups are recorded in the direct vicinity. DSP07-H11-01 is located approximately 1 km to the SW and Panskoe II 2 km to the NW. No finds could be associated with the supposed cadastre line running through this area; in fact nearly all of the units it ran through were empty of finds.

DSP07-F04 (Figs. 4.61-64)

Size 33.3 ha

Units 1365-1406; 2305-2364.

Investigations Intensive survey in 60 x 60 m units except corner ones.

Landscape type Pediment.

Location Field DSP07-F04 is located approximately 600 m S of Lake Džarylgač. The southern end of the field is rectangular and borders on a fallow field. The northern part extends to a sharp point in the NW where a gravel road separating this field from DSP07-F02 to the E and from DSP06-F02 to the N meets the tree-lined dirt road running N-S along the western side of the field. The gravel road is the main artery to Mežvodnoe across the lake.

Cartography On the half-verst map, the ridge in the western part of the field is clearly visible. At its northern end, a mound is marked with a round-star symbol. A track indicated by a dashed line leads N from this mound towards the lake. In the southern part of the field, another star symbol is shown on the eastern slope of the wide valley. It is possible that this marker is a mound related to the ruins of a village called Džajlav shown roughly 350 m S of the field. These ruins are just S of a road running from the southern shore of Lake Panskoe to the village Kipčak Učkuju. A little over 1 km SW of the northern mound are two more stars, one large and one smaller, indicating two mounds on a ridge W of the ruins of Džajlav; this ridge is the same one running through the western part of the field with the mound just beyond the northern border. Roughly 500 m to the NW of this is yet another mound next to a dashed line; this line is interpreted as stemming from the cadastre system set out by the ancient Greek colonists. The elevation lines reveal most of these mounds to be situated on prominent heights. The half-verst map shows a road W of DSP07-F04 running from the Hillsides in the S through the village of Mussali passing just W of the ruins of Džajlav and continuing N across the wide sandbar W of the lake to the village of Džarylgač (modern Mežvodnoe). Immediately to the E is another dashed line which ends at the boundaries of this field; this is also associated with the cadastre system (see above).

The mid-20th century map shows changes in the area. Mussali is now renamed Zajcevo. Kipčak Učkuju has been abandoned, and the road to Džajlav has disappeared along with Džajlav itself and the feature in the southern part of the field that was marked on the half-verst map with a star. The mound at the northern end of the ridge outside the northern field border is still present and marked at 10.5 m, but it has since disappeared. One of the two mounds further SW is shown at 22.2 m, and the mound to the W is shown at 15.4 m.

The wide road E of the field towards Mežvodnoe was already laid out in the half-verst map. The ancient cadastre system shown on the half-verst map has disappeared.

Survey conditions The field had recently been harrowed in small peds. The western section is distinctly higher than the eastern part of the field. In the mid-eastern area is a wide depression running roughly N-S through part of the ravine that empties into the lagoon at the lake's edge to the NE.

The soil colour changed from brown in the N to more reddish in the middle, to grey in the SE corner. Various stony patches occurred across the field, probably where underlying bedrock had been turned up by the plough. The stones in the northern part were especially distracting since from a distance they resembled sherds in colour and shape being reddish, small and rectangular. In the southern part of the field the quantities of straw, probably from fertilization, negatively affected surface visibility; also low vegetation regularly cropped up across the field. DSP07-F04 was surveyed on a sunny day and general overall visibility was moderate.

Finds distribution Most of the archaeological material has been found in the eastern, lower part of the field, whereas the higher western area was almost devoid of artefacts. Most of the finds were Late Classical-Early Hellenistic, but they occurred in low densities, and no distinct concentrations of Late Classical-Early Hellenistic material were identified. Bronze Age finds were collected in a small concentration within one unit near the northeastern corner of the field. No other finds from this period were collected in the rest of the field. Several Early Modern finds were collected in three units along the southern field border.

Sites Two sites were identified in Field DSP07-F04: the small concentration of Bronze Age material (DSP07-F04-01); and the Early Modern concentration along the southern field border (DSP07-F04-02).

Site DSP07-F04-01 is a small, diffuse scatter of handmade pottery fragments including part of a stone axe head (Fig. 4.65). This tool was found during standard intensive survey, while the pottery was collected when the area around the axe was sampled. Although the pottery fragments were all non-diagnostic, the axe head can be dated with certainty to the Bronze Age; the proximity of the pottery to the axe head suggests a contemporaneous date. The Bronze Age sites DSP08-F06-01 and DSP08-F03-02 across the lake both yielded similar broken stone axe heads. Some flint tools were collected 150 m S of DSP07-F04-01, and roughly 400 m to the N along the northern edge of Field DSP07-F02, but these could not be dated with any certainty. DSP07-F04-01 is located in a sheltered area in the ravine at the bottom of the slope.

DSP07-F04-02 is located along the southeastern border of the field also on the eastern side of the ravine (Figs. 4.66-67). It consists of a concentration of Early Modern utility and tablewares, associated with animal bones. A small elevation is visible, which coincides with the mound depicted on the half-verst map. While sampling the area, a total of

69 Early Modern fragments were collected and one Late Classical-Early Hellenistic amphora sherd. The adjacent units show similar low densities of Late Classical-Early Hellenistic finds. Two Early Modern fragments were collected in two nearby units. Although it may be possible that the Early Modern material postdates the mound on the same location, in which case the mound may be associated with the Late Classical-Early Hellenistic sherds, it is also possible that the mound is of Early Modern origin.

Relations to the surrounding area No other Bronze Age sites were identified on the Pediment S of the lake. DSP07-F04-02 is located roughly 400 m NE of the ruins of the village Džajlav.

DSP07-F05 (Figs. 4.68-71)

Size 71.9 ha.

Units 1407-1526; 2365-2445.

Investigations Intensive survey in 60 x 60 m units except corner ones.

Landscape type Lowland Ridge.

Location This field is located N of Lake Džarylgač on the lower southern slope of the Lowland Ridge, roughly 500 m W of the present-day village of Vodopojnoe. DSP07-F05 spans a promontory that extends into the eastern branch of the lake some 600 m to the S; the field stretches from the eastern side of this promontory and continues W across the northern part of a large ravine that forms the main northern inlet in the wider part of the branch. The field is bordered to the N by a dirt road. Across this road is DSP07-F06. A minor dirt track runs along the southern border. Fallow land lies to the E, W, and S except for the southwestern corner which had just been deep-ploughed. DSP07-F05 is made up of three contiguous tilled areas, separated by narrow grassy strips. For the sake of reference, these were given one field number. The field slopes down to the S and SW with the southwestern corner being the lowest area of the field.

Cartography On the half-verst map present-day Vodopojnoe is called Kirleut and is located on the N shore of the eastern branch of the Vodopojnoe Ravine. This area must have been dry at times, as a track runs right across it. Kirleut is a crossroad with roads leading in all directions. The road to Džarylgač (present-day Mežvodnoe) still exists today and forms the northern field boundary of DSP07-F05. On the western edge of the village, a farm is depicted at the northern end of a ravine. Minor tracks lead from this building towards the W through DSP07-F05. A line of four mounds is marked on the ridge running down the slope to the lake; this area now coincides with the grassy strip separating the easternmost part of Field DSP07-F05. The southernmost of these mounds is marked at an elevation of 6.6 sažens (13.66 m). Another line of several mounds is depicted on a ridge across the ravine W of the field approximately 400 m from the field border; the second mound from the N of the lower group is marked at 5.9 sažens (12.21 m). The southern track extending from Kirleut to a lagoon further W runs directly along the two mounds marked with elevation levels on this map and they may have figured as points of orientation.

On the mid-20th century map, only one mound appears within the field boundary and perhaps two more just to the S marked at 15.5 m in elevation. The line of mounds W of the field now consists of three mounds on the lower ridge near the lake and a separate one on an elevation 130 m S of the dirt track to Mežvodnoe. This same map reveals that the village of Kirleut is now called Vodopojnoe. The farm on the western edge is marked as abandoned. A dirt track leads around it to the W and now forms the southern border of the field. Part of the field on the western side of the promontory is marked as a vineyard (with \$-symbols). The western boundary of DSP07-F05 seems in reality closer to the ravine than would appear on this map, although a row of shrubs in the grassy area further W probably marks the western boundary of the field depicted on the mid-20th century map. The ravine is visible in the field today only as a very gentle depression.

Survey conditions The grassy strip that separates the two larger areas is located just W of the top of the promontory in the southwestern part of the field. The largest area is the rectangular field in the W. This field was ploughed and harrowed, and its surface visibility was fair except for some stony patches and shade. The soil is generally reddish-brown becoming a little lighter in colour towards the promontory. The two smaller eastern areas of this field had recently been deep-ploughed, but not harrowed. The surface consisted of very large peds, which made walking quite hazardous. Visibility here was below average, partly because of the shade created by the peds, partly because field walkers had to concentrate on staying upright. The days that DSP07-F05 was surveyed were sunny and hot.

Finds distribution Archaeological finds were collected throughout DSP07-F05. Most of these were Late Classical-Early Hellenistic. However, artefacts occurred only in low densities across the field, and widely dispersed. No clear concentrations from this period could be defined. The material consisted primarily of wheelmade pottery, including storage vessels and tablewares. Some handmade pottery was found as well as a few pieces of flint.

Pottery fragments dating to the Bronze Age period were collected in two units in the southwestern part of the field adjacent to DSP07-F05-02, and in one unit in the middle of the surveyed area.

Six units from different parts of the field yielded pottery, possibly from the Medieval period. Along the northern edge, in the E, moreover a high density of Early Modern finds was found. Other units in the eastern part also yielded Early Modern finds, but not adjacent to the concentration. Modern fragments were collected in the easternmost units, and in some dispersed units in the rest of the field. The modern material most likely comes from the nearby village of Vodopojnoe.

Sites Two sites were identified in DSP07-F05 neither of which coincides with the mounds shown on the historical maps. One grassy mound was recorded in the unploughed strip between the two easternmost parts of the field.

DSP07-F05-01 is located in the northeastern corner of the field (Figs. 4.72-73). It was found in the most deeply ploughed area where average visibility was poor; its full extent may therefore not have been recorded accurately. This site consists of a diffuse concentration of primarily Early Modern pottery fragments. Its location near the dirt road may be indicative of a roadside dump, especially since no ruins or buildings are recorded here on the historical map.

The identity of DSP07-F05-02 is based on a single find: a limestone stele with anthropomorphic form (Figs. 4.74-75). Similar limestone markers are known in the Black Sea area and are generally related to Pre- and Protohistoric burials. Although this particular stele was quite worn, its features were nonetheless recognizable. It was found in an elongated low rise spared by the plough on account of the stele. The stone was roughly 0.8-1 m across and about 0.2 m thick. A concentration of small stones was found around the stele, while neighbouring units had stones that were just a little smaller than this stele. Two of the Bronze Age sherds found in this field were located in units just to the SW of the anthropomorphic stele.

Soon after it was discovered and recorded, the stele was collected along with other large stones from this field by a villager with a tractor. Fortunately, most of the field had been surveyed already, and although other relatively large blocks were noticed, the anthropomorphic stone remained a singular find.

Relations to the surrounding area The Early Modern finds and the density of possibly Medieval finds both seem related to the dirt road at the northern edge of this field. Directly N of the dirt road in Field DSP07-F06, another site was identified which included mostly Late Classical-Early Hellenistic (and modern) material, but also some possibly Medieval finds (DSP07-F06-04). Although not contemporary, the proximity of these clusters and more diffused scatters indicates former activity in this area, and the road may have been ancient too.

Further N in Field DSP07-F06 was a pottery scatter including Late Classical-Early Hellenistic material, which may have come from a kurgan (DSP07-F06-02). This scatter is in line with the mounds shown to have existed on the half-verst map approximately 650 m N of the northernmost kurgan on the map.

The anthropomorphic stone, which likely belonged to a Bronze Age burial, appears to have been isolated. Besides, the two sherds found in the units to the SW, one other sherd was collected almost 500 m to the E. Also one Bronze Age sherd was collected near to the lake 700 m to the S at Vodopojnoe 1 (see Chapter 4.3.4), but no habitation sites could be defined.⁴³

DSP07-F06 (Figs. 4.76-77)

Size 45.3 ha.

Units 1527-1610; 2446-2534.

Investigations Intensive survey in 50 x 50 m units except corner ones.

Landscape type Lowland Ridge.

Location DSP07-F06 is located due N of DSP07-F05 and SE of DSP07-F07 on the southern slope of the Lowland Ridge. The village of Vodopojnoe lies about 500 m to the E, and Lake Džarylgač is 1.4 km to the S. The southern part of the field borders on the dirt road between Vodopojnoe and Mežvodnoe; remains of a small concrete building are located just within the southern border of the field. West of the field was a grassy strip with shrubs, separating this field from the recently ploughed field on the other side. The area N and E of the field lay fallow. Just beyond the NW corner are some skeletal concrete structures. A small track leads W to this structure from the northbound road from Vodopojnoe.

⁴³ These finds were collected at the southern edge of a large field that was initially targeted for survey as DSP07-F09. However this field had only been deep-ploughed in large peds. Since the experience in the eastern end of DSP07-F05 already proved such conditions to be too strenuous for effective surveying, the rest of this field was excluded from field-walking. The southern area close to the lake was only surveyed briefly after surveying DSP07-F06. DSP07-F09 is therefore not further discussed here.

The field gently slopes down to the S towards the lake. Some gentle undulations were observed; the dirt road along the southern border, for example, is not quite visible from the northern part of the field. The central area of the field is located atop the northern beginning of the promontory that continues S-SE into DSP07-F05, where the ridge functioned as a platform for the kurgans shown on the half-verst map.

Cartography The half-verst map shows the area of the field as being located just NW of the village of Kirleut (modern Vodopojnoe). It occupies the gentler northern part of the promontory that extends S down to the eastern branch of Lake Džarylgač, and is just N of the main road leading W from Kirleut to Džarylgač (modern Mežvodnoe).

A dashed line indicates a track that leads from this road to the NW cutting across the SW corner of the field. Some 300 m beyond the field, this track bends to the W parallel to the Kirleut-Džarylgač road running just below a group of kurgans near the top of the ridge (see also DSP07-F05); the track ends in DSP08-F05. This track is the only artificial feature shown within the boundaries of DSP07-F06. The modern field is located SW of a main road that leads from Kirleut to the NW. Just NE of the modern field, this road diverges into two sections leading to the two farms along the coast N of Fields DSP08-F02 and DSP08-F03.

The current northern border of the field is shown on the mid-20th century map as a row of trees lining a track running from the northbound Vodopojnoe-Skalistoe road in the E to the parallel N-S track that defines the western edge of DSP07-F07 and continues S (see DSP07-F05). The current eastern and western borders of the field are not depicted on this map although the western border does appear on the 1993 map, where it is adjacent to a vineyard in the W; a large orchard ran diagonally to the NE. The most recent map also shows a hydraulic system running through this field along the ridge continuing S through the eastern part of DSP07-F05, where it makes a turn towards Vodopojnoe; the concrete ruins NW of the field are the remains of a pumping station.

Survey conditions The soil colour is a fairly consistent reddish-brown with some stony patches. The field had been ploughed and harrowed. The days DSP07-F06 was surveyed were sunny and hot, and the surface was somewhat dry and dusty. Still, overall visibility was good.

Finds distribution Widely dispersed over the field archaeological material was collected but more in the southern half of the field than in the northern one. Most artefacts, however, were found in the middle area near the ridge, where some relatively high densities were recorded. Most of the finds date from the Late Classical-Early Hellenistic period. Low densities of possibly Medieval finds were recorded in six units, two in the northern part of the field, four in the southern. Relatively high densities of modern material were collected in units in the southern half of the field near the dirt road.

Sites Three sites were identified in DSP07-F06 based on find densities. All three were located in the mid-southern section of the field close to the ridge. DSP07-F06-01 is a ploughed-out kurgan and is characterized by a stony area with more vegetation than average on a slight elevation (Figs. 4.78-79). Some Late Classical-Early Hellenistic material was found nearby. Less than 100 m to the E is DSP07-F06-02 with a slightly higher density of Late Classical-Early Hellenistic material in one unit including both handmade and wheelmade vessels, as well as some flint (Figs. 4.78-79); both sites are in the middle of an area with a diffusion of Late Classical-Early Hellenistic finds. The higher concentrations of primarily Late Classical-Early Hellenistic material further S roughly 30 m from the dirt road were labelled site DSP07-F06-03 (Fig. 4.80). They consist of three main clusters of material found in two adjacent units consisting of some handmade but primarily wheelmade pottery, both storage vessels and tableware, and a stone tool. Also a single Early Modern fragment was collected here.

Relations to the surrounding area The location of the kurgan DSP07-F06-01 appears somewhat isolated, but it falls within the general alignment of the kurgans shown on the half-verst map on the ridge further down in DSP07-F05. The northernmost kurgan in this group is roughly 500 m S of DSP07-F06-01. In the opposite direction, roughly 2 km to the NW, is another group of kurgans on the coastal ridge at the location where this ridge begins.

DSP07-F06-02 is located near the kurgan. The finds date to the Late Classical-Early Hellenistic period, including a few handmade, tableware and utility ware sherds, imported amphorai from Chersonesos and Herakleia and a single flint.

DSP07-F06-03 is likely to be related to the widely dispersed scatter of Late Classical-Early Hellenistic material found across the field and in DSP07-F05 to the S. The range of finds is similar to DSP07-F06-02 although more pottery was collected and the variety of imports includes Chersonesos, Herakleia Sinope and the South Pontic area. It may also be associated with two dressed limestone blocks that were noted along the road nearby. During the survey of DSP07-F05, we witnessed the collection of these stones by locals.

DSP07-F07 (Figs. 4.81-82)

Size 115.8 ha.

Units 1612-1911; 2536-2702.

Investigations Intensive survey in 50 x 50 m units except corner ones.

Landscape type Lowland Ridge.

Location DSP07-F07 is a large field on the coastal ridge sloping down from the highest part of the ridge towards the S. The northern end of the field borders on the main asphalt road from Mežvodnoe to Razdolnoe. Immediately across the road is DSP08-F02, and to the SE is DSP07-F06. The field is bordered on all sides by fallow, grassy areas, except for one ploughed field to the W. The southern end of the field is a little over 2 km N of Lake Džarylgač. It is rectangular in shape except for the northeastern corner which follows the asphalt road towards the NE. The field spans the gentle ridge as it slopes down to the S through DSP07-F06 and -F05. The lower part of the field is quite flat.

Cartography On the half-verst map, a row of eight mounds is depicted with round stars in the northwestern corner of DSP07-F07; one is located just beyond the field border where the asphalt road now runs. One of the kurgans is marked with a triangle and an elevation of 24.54 sažens (50.79 m). This row of mounds is located at the apex of the coastal ridge aligned from N-NW to S-SE. The row is perpendicular to the ridge, which runs W-SW to E-NE. Interestingly, this direction corresponds to two more ridges that slope down from the coastal ridge to the N-NW and S-SE; these ridges are also dotted with kurgans all following the same alignment. Similar star-shaped symbols occur on the coastal ridge outside the field borders to the W and E; two more groups to the E show a similar alignment (the closest is the group in DSP08-F01), whereas the groups that follow the ridge down to the W-SW appear more clustered. Two more kurgans appear just beyond the northeastern border of DSP07-F07 on the coastal ridge.

Of the eight mounds shown on the half-verst map, three are still depicted on the mid-20th century map as are the two just outside the eastern border of the field. One within the field boundaries is marked as having an elevation of 53.9 m, the one to the E of 49.7 m. To the W, the closest kurgan is depicted one kilometre to the W on top of the ridge; one of the kurgans further E in DSP08-F01 is still shown. The field border is marked with rows of trees along the western, eastern and southern sides on the mid-20th century map.

The modern asphalt road from Mežvodnoe that follows the highest part of the ridge does not yet appear on the half-verst map. A minor track marked with a dashed line runs parallel to the ridge but a bit further down the slope to the S crossing DSP07-F07 just S of the mounds. A main road that extends from the village of Kirleut (Vodopojnoe) to the SE crosses through the northeastern corner of this field and the eastern section of DSP08-F02 continuing towards a farm near the seacoast.

Survey conditions The soil was generally greyish-brown, which made the few stony patches in the field all the more pronounced. There was a large stony area in the middle of the field on the slope and another broad swath roughly 20 to 30 m wide, in the mid-northeastern part running diagonally from NW to SE i.e. the same direction as the ridge. These stony areas are very likely areas where the bedrock has been brought to the surface by the plough. Some shallow ditches were observed running N-S down the slope.

The field had been tilled and harrowed recently in small peds and had practically no vegetation. The days of the survey were hot, sunny days during which the soil was quite dry and dusty. This affected the otherwise optimal surface visibility.

Finds distribution The most noteworthy features in this field are the ploughed-out kurgans discovered in the northwestern units and one on the opposite side along the northeastern edge. These were observed as low elevations as well as in the form of clusters of small stones together with some pottery. For the rest, low densities of material appeared in units spread out over the field. The stony part in the middle of the field yielded however almost no finds at all.

Finds from the Late Classical-Early Hellenistic period, primarily wheelmade but some handmade in the northeastern section associated with the ploughed-out kurgan, were the most pervasive. Although there were no clear concentrations, material from this period was picked up in several consecutive units in the northwestern part and some in the SW. A broken stone axe head collected near one of the kurgans represents the only find from the Bronze Age.

Two units yielded finds possibly from the Byzantine period, one in the middle sloping part of the field and one in the flat southeastern corner of the field. Possibly Medieval sherds were collected in several dispersed units. Early Modern fragments were collected in four dispersed units in the northern part of the field, and three units in the southern end of the field. Relatively high densities of modern material were collected in all parts of the field.

Sites Two sites were defined in DSP07-F07. DSP07-F07-01 is the group of four, ploughed-out kurgans located in the northern part of the field towards the top of the coastal ridge (Fig. 4.83). The kurgans in this group are aligned in a N-S orientation. They are located in the northwestern corner of the field and coincide with the kurgans depicted on the half-verst map, a group that appears to have originally consisted of at least eight mounds.

DSP07-F07-02 is approximately 600 m E of DSP07-F07-01 right up against the northeastern edge of the field but

probably extending beyond it a little (Fig. 4.84). All five kurgans have nearly vanished and were only discernable by stone scatters and slight elevations in the field that were at times only visible from a short distance.

Sherds were collected on and around the mounds but few were diagnostic. Late Classical-Early Hellenistic amphorai fragments appeared in the general area around DSP07-F07-01, Features 1, 3 and 4. Regular intensive survey around Feature 2 yielded no finds, but some amphora sherds were collected when the mound itself was total sampled. The broken stone axe was collected near Feature 3. Regular intensive survey of DSP07-F07-02 yielded some fragments of Late Classical-Early Hellenistic handmade and wheelmade pottery. This kurgan was not located on any map, but it is only some 150 m away from the two eastern kurgans shown on the half-verst map. These are probably represented by weak elevations observed in the grassy field to the E.

Relations to the surrounding area Another row of three kurgans was located in Field DSP08-F01 NE on the coastal ridge about 900 m E of DSP07-F07-01 sharing the same orientation. The group of kurgans to which DSP07-F07-01 belongs lies in the same general orientation as the kurgans that once dotted the ridge leading down S to Lake Džarylgač, two of which were identified in Fields DSP07-F06 and -05 respectively, as well as another group of five on a slope on the opposite side of the coastal ridge further down towards the sea just W of DSP08-F02.

The distance between the DSP07-F07-01 and the Late Classical-Early Hellenistic settlement DSP08-F02-01 is almost 2 km. This settlement may be related to the extensive scatter of mostly Late Classical-Early Hellenistic wheelmade fragments found throughout both fields. It is thus difficult to determine whether the material found on and around the kurgans actually belongs to them or is part of this wider scatter. The isolated Bronze Age axe head found near DSP07-F07-01 Feature 3 makes a dating in the Hellenistic period even less secure. Feature 3 is approximately 2.5 km NE of the large Bronze Age site DSP08-F06-01 and therefore too far away to connect the two.

Finally, some of the Early Modern and modern finds may be associated with the path that once cut diagonally across the northern section of the field just S of the kurgans and parallel to the ridge. No observations were made that could be related to the old Vodopojnoe-Skalistoe road that ran through the northeastern corner of this field. The wide stretches of stone were more to the W.

DSP07-F08 (Figs. 4.85-86)

Size 86.7 ha.

Units 1912-1999; 2703-2802; 5000-5144.

Investigations Intensive survey in 50 x 50 m units except corner ones. Geomagnetic survey.

Landscape type Lowland Ridge.

Location DSP07-F08 is located on the southern slope of the Lowland Ridge. Its southern end is very close to the shore of Lake Džarylgač. To the N, the field borders on the dirt road lined with electricity masts between Mežvodnoe and Vodopojnoe. DSP08-F05 begins immediately across this road. E of this field and just N of the road across from DSP07-F08 is an abandoned concrete structure. Fields of barley lay E and W of DSP07-F08 partly separated from it by trees.

Cartography On the half-verst map the dirt road between the villages of Džarylgač (modern Mežvodnoe) and Kirlaut (modern Vodopojnoe) is depicted. DSP07-F08 is S of this road on the western slope of the ridge that separates this area from DSP07-F05 further to the E. On top of this ridge is a row of seven mounds marked with round-star symbols. A separate mound is depicted further upslope.

A large lagoon cut off from Lake Džarylgač by a sandbar is located SW of DSP07-F08. A minor track runs from this lagoon to the village of Kirlaut crossing the middle of the field continuing between the kurgans on the ridge and E through DSP07-F05. There is a clear E-W running depression across the middle of the field today with a stony patch at its western end which may correspond to this path. S of the field is a much smaller lagoon.

On the mid-20th century topographical map, the track has disappeared, but the small secondary lake is still there. The row of seven kurgans on the eastern ridge is reduced to three. Further upslope of the ridge just S of the dirt road, the separate kurgan is also depicted. The row of trees along the western field border is marked with small circles. In the SW corner just outside the field boundaries is a benchmark showing an elevation of 1.7 m.

The 1993 map shows a track following the shoreline to the W where it makes a sharp turn to the N through the field turning E after 300 m to continue around the vineyard on this side.

Survey conditions The field slopes gently down to the lake. Its eastern end follows the upper part of a ridge. The western end is lower, while the southwestern corner is the lowest part of the field. The surface in this area was quite stony. Smaller stony areas occur throughout the field. One of these in the southwestern part of the field had small pinkish stones which could be confused with pottery at first glance. Some slight ridges as well as low ditches were observed running N-S and

E-W. These were primarily in the northern part of the field. A few small concrete posts were found in the northwestern area as are typically associated with vineyards but it is unclear whether they originate from this field or from across the road.

The soil was generally reddish brown. The field had been ploughed and harrowed, and surface visibility was fine. The days during which the survey took place were sunny, hot and sometimes hazy, and the soil was a bit dusty.

Finds distribution Archaeological material was collected in units throughout the field, with the exception of the low southwestern part of the field, which was almost 'empty'. Most of the artefacts as well as the highest find densities were recorded in the northern highest part of the field. All of the units bordering the dirt road yielded finds.

The Late Classical-Early Hellenistic period was certainly predominant in the material record, as it was collected in units all across the field with higher densities in the northernmost part of the field.

Possibly Medieval pottery appeared in nine units in the southern half of the field with highest densities occurring on the eastern ridge. The origin of this material is unclear since the scatter was diffuse with no real concentrations. Two of the units were near the track on the half-verst map leading to the lagoon. Early Modern fragments were collected in three units in the northern part of the field and three units in the southeastern part. None of these were adjacent and no concentration can be observed.

Relatively high amounts of modern pottery were collected in the northern and southern part of the field often in several adjacent units. The occurrence in the northern part of the field of modern material is most likely associated with the concrete building on the opposite side of the dirt road. The remarkable occurrence of modern material in a N-S strip along the lagoon in the southwestern part suggests some recent activity near to the lagoon perhaps related to the shoreline track that crosses the field on the 1993 map.

Sites Two sites diverse in character were located at the northern end of the field. One consists of discrete concentrations of material that point to settlement activity (DSP07-F08-01), the other of some unusual elevations (DSP07-F08-02).

DSP07-F08-01 is a high density of material found in the northern units along the dirt road (Figs. 4.87-88). The soil here is greyer with occasional loose patches of stone. There appear to be two separate concentrations of archaeological material, one roughly 120 m from the northeastern corner and a second cluster about 180 m to the W. Both clusters are located along a low bank or 'ridge' (see below). This entire area contained a mixture of Late Classical-Early Hellenistic wheelmade pottery, handmade fragments, flint, and stone tools though there seemed to be a higher percentage of amphora fragments at the eastern end. Adjacent units to the S of both clusters form a halo with slightly lower find densities. Apart from pottery, stone tools, a whetting stone, part of a ground stone and flint also some Late Classical-Early Hellenistic tile fragments were found. A single sherd could be dated to the Bronze Age. DSP07-F08-01 is one of only two sites outside of Panskoe in the whole research area where tile was identified in the systematic survey. Because of its extent, DSP07-F08-01 was targeted for geomagnetic survey; however the amounts of concrete and wire and the proximity to the electric lines along the road prevented accurate readings.

DSP07-F08-02 consists of a system of low ridges in the northern part of the field of roughly E-W and N-S orientation (Fig. 4.89). Although the ridges were hardly visible in broad daylight, they were much clearer in the low light of early morning or late afternoon. Together these ridges form a system of somewhat askew blocks of circa 95 x 95 m and were observed for nearly a kilometre S of the dirt road, where they disappeared. The geomagnetic survey did not yield any results. The ridges were some 10 to 20 m in width and were occasionally cut through by shallow ditches roughly 1 m across. The ridges may be the remains of an ancient cadastral system, although this remains speculative; some pottery was found along these ridges, but the wide dispersion of material precludes any unequivocal contexts for these elevations.

The northernmost of the E-W ridges runs through the concentrations of DSP07-F08-01. The eastern cluster, in particular, is situated atop a particularly clear elevation which seemed more round in shape and was located in a patch of smaller stones that are often indicative of kurgans. However, this patch is less dense than normal, and the location of the elevation at the crossroads of the E-W and N-S ridge is peculiar.

Relations to the surrounding area A scatter of Late Classical-Early Hellenistic finds was recorded in DSP08-F05 just across the dirt road from DSP07-F08-01. Almost all of the finds in this concentration were Late Classical-Early Hellenistic except for one sherd which dated to the Bronze Age. Because the dirt road separates both concentrations, it is difficult to say if they in fact make up one larger concentration. Also the overgrown area around the concrete structure makes it impossible to determine whether any of the concentrations extend to the E. None of the fields N of DSP07-F08 revealed elevations similar to DSP07-F08-02.

The row of kurgans depicted on the topographical maps on the ridge to the E is located at about a kilometre SE of DSP07-F08-01. The separate northern kurgan lies about 500 m away to the E of the eastern part of the site. Two km

N of DSP07-F08-01, the half-verst map shows a loosely grouped cluster of kurgans at the apex of the ridge; these were probably visible from Field DSP07-F08 as are the trees lining the road along the coastal ridge today.

Directly across the lake is DSP08-F04 with several kurgans and settlements. Although not all of the lake is visible from everywhere in DSP07-F08 due to the angle of the slope, most of Field 4 is including the kurgans on it, and the slopes beyond.

DSP08-F01 (Figs. 4.90-91)

Size 14 ha.

Units 5145-5166; 6000-6023; 8000-8015.

Investigations Intensive survey in 40 x 50 m units except corner ones. The field was used as a “training ground” to teach new field walkers the DSP methodology, and the inexperience of many field walkers at this point may have had a negative effect on sampling.

Landscape type Lowland Ridge.

Location DSP08-F01 is located N of Lake Džarylgač on the highest part of the Lowland Ridge between the lake and the coast. The field lies directly S of the asphalt road between Mežvodnoe and Razdolnoe. To the E, the field borders on a dirt road that connects the asphalt road and the village of Vodopojnoe. To the S is a field of barley. The coast line is approximately 2.5 km to the N.

Cartography On the half-verst map, a track indicated by a dashed line lies S of the field. Another track leading S from Skalistoe farm (“xyT.” is short for *chutor*) near the coast crosses the western part of the field. This track also runs through DSP08-F03. These tracks are no longer visible.

To the E of the field, a group of kurgans is depicted near a crossroads along the track S of DSP08-F01. In the field itself one mound is marked.

Survey conditions The field lies at the highest part of the coastal ridge and is almost flat. From this field there is a clear view towards Lake Džarylgač, the Pediment, Hillsides and Plateau in the S, as well as a view across the fields that slope down to the coast line in the N.

The soil had recently been ploughed in an E-W direction except for the field boundaries where the plough followed the field edge. The surface was somewhat dusty with scattered low vegetation. The western part of the field was stonier than the rest. A large grassy elevation spared by the plough was clearly visible and had already been identified on the map as a kurgan prior to the intensive survey.

DSP08-F01 was surveyed on a sunny but very windy day. Shadows on the ploughing peds, dust and stones affected the overall visibility.

Find distribution Most of the finds were recovered in the middle part of the field, and the northeastern part yielded no finds except in one unit. The same can be said of the western end of the field, which was largely empty except for one corner.

In one unit in the middle of the field a fragment dating from the Classical period was found. Late Classical-Early Hellenistic sherds were collected in units spread out over the field including several adjacent units in the central part of the field. Four possibly Medieval and Early Modern sherds were found SE of the kurgans. As there is no indication of Medieval or Early Modern activity nearby on either the historical maps or in the landscape, it is unclear where the finds from these periods came from.

Sites DSP08-F01-01 consists of a group of three kurgans aligned in a row running NW-SE (Figs. 4.92-93). Only the southernmost mound, Feature 3, is a grassy elevation. This is most probably also the mound marked by a star on the map of half-verst. One Late Classical-Early Hellenistic sherd was collected in the unit in which the grassy kurgan was located, as well as three possibly Medieval fragments. A closer inspection of the kurgan yielded no extra finds, but it did appear to have been partially dug out. Directly S of the grassy mound two slight elevations of lighter-coloured soil and stones were observed. These were interpreted as kurgans destroyed by agriculture (Features 1 and 2). There were very few finds around these kurgans. The unit directly to the E yielded eight fragments of Late Classical-Early Hellenistic pottery which are associated with the kurgans but dislocated by agricultural activities. The units to the N of the kurgans each yielded one Late Classical-Early Hellenistic sherd. As there are no finds from other periods, the three kurgans should most likely be dated to the Late Classical-Early Hellenistic period.

Relations to the surrounding area The closest archaeological sites are a single kurgan (DSP07-F07-02) approximately 900 m SW and a group of kurgans (DSP07-F07-01) another 600 m to the W. All the kurgans in DSP07-F07 and DSP08-F01 follow the same orientation, NW-SE. The kurgan group near the crossroads marked on the half-verst map lies at

roughly the same distance in the opposite direction. Additional Late Classical-Early Hellenistic kurgans and/or settlements are located approximately 2.7 km to the S (DSP07-F06-01-3) and 1.8 km to the NW (DSP08-F02-01).

The nearest Early Modern settlements are the farms near Skalistoe approximately 2 km to the N such as DSP08-F03-01 and the village of Kirleut (modern Vodopojnoe) 2.9 km to the S.

DSP08-F02 (Figs. 4.94-95)

Size 111.5 ha.

Units 6024-6225; 8016-8143; 8164-8209.

Investigations Intensive survey in 60 x 50 m units except for westernmost row of units (50 x 50 m) and corner ones.

Landscape type Lowland Ridge.

Location Field DSP08-F02 is located just N of DSP07-F07 in the coastal zone. To the S, the field is bordered by a ravine and a vegetation strip separating it from the asphalt road running from Mežvodnoe to the E. To the W and E of the field, dirt roads extend from the asphalt road towards the coast. Just outside the northern edge of the field is a farm with sheds and a private graveyard.

Cartography On the half-verst map, a *chutor* (farm or small village) is located at approximately the same place as the present farm. Directly W of this farm are ruins named Kūla Šeičh, perhaps the ruins of a tomb of a Turkish nobleman as suggested by the name. Another farm is located further to the NE. The farms are connected by two tracks one of which runs diagonally through DSP08-F02 to the SW. The other one runs S through DSP07-F07 down to a farm close to Kirleut (modern Vodopojnoe). Two tracks run parallel to the coastline, one directly N of the survey field and one diagonally through it. These features have disappeared. W of DSP08-F02, a row of four kurgans indicated by round-star symbols are shown on a ridge roughly 280 m away from the western edge of the field.

On the mid-20th century map, the farm N of the village is replaced by a large square complex under the Russian name Skalistoe. Several sites have been found in this area ranging in date from the Bronze Age to the Roman period (Section 4.2.3).

Survey conditions The asphalt road to the S of the field runs along the highest part of the Lowland Ridge. From here, the field slopes gently down towards the sea. In the northwestern part, wide ravines cut through the field diagonally from the SW to the NE, whereas in the northeastern part they run from the SE to the NW. The difference in elevation between the ravine bottoms and the surrounding field was up to 2 m. No augering was conducted in this field, but the ravines indicate that the sediment is at least 2 m thick here.

Ploughing and harrowing had taken place recently resulting in small peds. The ploughing direction was N-S as was the walking direction of the survey teams. Some stony patches were observed on the field surface. In the northern part of the field near the farm, straw and other vegetation occurred on the surface, most likely the result of field manuring.

The days during which the survey of DSP08-F02 took place were cloudy, windy and partly rainy. The surface visibility was good.

Find distribution The overall distribution map shows a wide dispersal of finds throughout the field with a concentration near the northern field boundary. Late Classical-Early Hellenistic material was collected in several units in all parts of the field. Although there was a slight concentration of handmade ware along the southern edge, higher densities were found in the N. Early Modern material was mostly found in the units near the northern concentration of finds, less in other parts of the field.

No finds from the Bronze Age or Classical period have been located in this field, and only two units at opposite ends of the field yielded finds which may date to the Byzantine period. However, there is a diffuse scatter of small numbers of possibly Medieval finds, including one unit with a somewhat higher density. Relatively high densities of modern fragments were recorded throughout the field.

Sites Only one site was identified. DSP08-F02-01 is located at the northern end of the field on a gentle NE slope (Figs. 4.96-97). Most of the material from this concentration dates from the Late Classical-Early Hellenistic period although some units also yielded Early Modern material. The core of the Late Classical-Early Hellenistic material was located in an area across three units, but there was also a significant “halo” of material in the adjacent units and a secondary concentration ca 100 m to the S. Straw and other refuse from the modern farm N of the field was spread out over the area suggesting that manuring or levelling had taken place. During this process, earlier remains may have been dislocated as well resulting in the “halo” around site DSP08-F02-01. The material includes transport- and utilitywares, parts of whetting stones and a stone sinker, probably used for weighing down a fishing net. The distance to the present coastal cliffs is approximately 700 m. The site may very well extend to the N into the grassy area around the modern farm. The Early Modern finds

constitute most likely off-site material related to this farm and its predecessors. The local cemetery suggests that the location may have been in use for a longer period of time. A ravine runs diagonally NE-SW through DSP08-F02-01. It is possible that the ravine is a remnant of the track visible on the half-verst map; although its origin is unknown, it may have been used during the Medieval and Late Classical-Early Hellenistic periods as well.

Relations to the surrounding area Skalistoe 5 is the nearest Late Classical-Early Hellenistic settlement about 1.6 km to the NE. Several groups of kurgans are located on the coastal ridge approximately 2 km to the S (see DSP07-F07 and DSP08-F01) and at least some of these e.g. DSP08-F01-01 appear to be Late Classical-Early Hellenistic. The Early Modern farm drawn on the half-verst map is located approximately 1.3 km to the NE (DSP08-F03-01).

DSP08-F03 (Figs. 4.98-101)

Size 43.4 ha.

Units 6234-6267; 8210-8311.

Investigations Intensive survey in 50 x 60 m units except corner ones. Geomagnetic survey.

Landscape type Lowland Ridge.

Location DSP08-F03 is the northernmost field surveyed. The field lies parallel to the coast, which is about 450 m to the N, and close to Skalistoe 5 (Section 4.2.3). The view towards Lake Džarylgač is blocked by the Lowland Ridge. The field is bordered on all sides by uncultivated land overgrown with grass. A track following the coastline runs N of the field. A fishing station is located towards the W at a low point along the cliff with a small jetty jutting out into the water. This is the modern location of Skalistoe, which is located next to the archaeological site Skalistoe 1.

Cartography The elevation model of the half-verst map clearly shows the ravine in the southwestern corner of the field. This ravine continues towards the coast where several tracks meet in the area of the modern fishing station. The NW corner of this field partly coincides with a farm named Skalistoe *chutor*, which is marked on the same map. From the farm four tracks lead in different directions. Two lead to a path running parallel to the coastal cliff. Another one leads to a farm located further SW (the farm N of DSP08-F02). The fourth track heads S to the village of Kirleut (modern Vodopojnoe) just W of DSP08-F02 continuing S towards DSP08-F01.

Survey conditions The field slopes down from the SE to the NW. About halfway is a ridge from where the field dips down more sharply to the W. The surface of this ridge is rich in stones probably ploughed up from the underlying bedrock. The lowest part of the field is in the southwestern corner. Here the soil was more greyish than in the rest of the field, where it was reddish-brown. Just outside the southwestern border of the field is an elevation overgrown with grass.

The field was ploughed and harrowed, and apart from some vegetation and stony patches the surface visibility was good. The days of survey were cold and stormy; extremely muddy soil and approaching whirlwinds were challenging conditions for fieldwork.

Finds distribution Most of the finds in Field DSP08-F03 were collected in the lower areas in the W. Although the higher eastern part also yielded material, find densities were much lower here.

Late Classical-Early Hellenistic pottery fragments were found all across the field, but a concentration is visible in the southwestern corner of the field. Additionally, all units in the westernmost row of units yielded Late Classical-Early Hellenistic fragments.

In the same southwestern corner was a marked concentration of Bronze Age material. Finds from this period are not dispersed over the field, but cover four adjacent units near the field boundary and one unit a bit upslope to the E. The highest density of Bronze Age material was found in one of the corner units at the northern edge of the grassy elevation.

No finds from the Classical period were collected in DSP08-F03. Two units in the western part of the field yielded material possibly from the Byzantine period. As no Byzantine finds were collected in the surrounding units, it is uncertain what these finds represents.

Finds possibly from the Medieval period were collected in nine units in the middle and western parts of the field. Early Modern fragments were also found in the middle and western parts, with one clear concentration in the northwestern corner of the field.

Relatively high densities of modern finds were recorded in the northwestern and southwestern parts of the field and in one unit upslope in the eastern part. These finds may be related to the nearby fishing station.

Sites Two sites were identified in Field DSP08-F03. DSP08-F03-01 is located in the northwestern part of the field (Figs. 4.102-104). Apart from a small Late Classical-Early Hellenistic component in the find assemblage, most of the collected material dates from the Early Modern period. The main concentration is located in the most northwestern unit and likely continues beyond the field boundaries where was (Skalistoe) *chutor* on the half-verst map. At present, there

are no standing structures although the quantities of modern construction debris found here indicate more recent activity, although this predates the mid-20th century map. The assemblage consists of a high proportion of cookingwares, a category of finds that has not been identified at any other Early Modern site in the cultivated zone. This may indicate that the site was abandoned before metal pots became predominant.

DSP08-F03-02 is an artefact concentration at the southwestern corner of the field corresponding to the Bronze Age site Skalistoe 2, which was briefly investigated by V.A. Kolotuchin in the 1970s (Figs. 4.105-107). A ravine marks the border of the ploughed field in this area, and the concentration was found along its edges. On the other side of this ravine was a grassy plateau which could not be surveyed systematically. It is likely that the site extends onto this Plateau, which seems to be an ideal settlement location; however, geomagnetic prospection was inconclusive. Six or seven weak positive anomalies were recorded that may be indicative of pit houses (Fig. 4.108), but further research is necessary. In the ploughed area around the ravine, the soil was much greyer and ashy than in the rest of the field and was quite stony as well. Augering showed the bedrock to be at a depth of about 0.6 m. DSP08-F03-02 has two components: a strong Bronze Age presence, which has the highest concentration in the unit immediately NE of the ravine, and a Late Classical-Early Hellenistic presence, which follows the course of the ravine.

Relations to the surrounding area So far, no other Bronze Age sites have been identified in the vicinity of Field DSP08-F03. A large Bronze Age site was identified about 5 km to the SW (DSP08-F06-01), and there may have been a Bronze Age kurgan roughly 5.5 km to the S (DSP07-F07-01 Feature 3). Neither of these sites would have been visible from DSP08-F03-02.

The Late Classical-Early Hellenistic component of this site is approximately 800 m to the S of the Late Classical-Early Hellenistic farmstead at Skalistoe 5, and roughly 1 km NE of the Late Classical-Early Hellenistic site DSP08-F02-01.

DSP08-F04 (Figs. 4.109-112)

Size 224.2 ha.

Units 8312-8869; 6268-6626.

Investigations Intensive survey in 50 x 50 units except corner ones.

Landscape type Pediment.

Location This field is the largest of all the fields surveyed by the DSP. It is located on the southern shore of Lake Džarylgač. To the N, a strip of trees, a dirt track and a marshy area separate the field from the lake. The same dirt track continues W and E of the field along the strip of grass and trees bordering the field. The area E of the field beyond the track was overgrown with grass. The western edge of the field directly adjoins DSP07-F02.

The southern shoreline of the lake is characterized by inlets or lagoons. W of the field is a large lagoon and marsh separating it from DSP07-F02. Towards the E are two inlets created by ravines cutting through DSP08-F04. The large easternmost inlet is fed by the water of two ravines that from the S come down from Hills 16, 8, and 20; the western ravine begins along the W flank of Hill 16 and meanders down the middle of DSP08-F04 until it exits just S of the central eastern field boundary continuing E and emptying into the inlet. Wide ravines running N-S were also apparent in the northern lower part of the field probably also due to erosion. The southern end of both fields borders on the asphalt road between the villages of Snežnoe and Vodopojnoe.

Cartography Several features pertaining to this field are visible on the half-verst map. First of all, eight stars marking mounds are shown in a row from N to S roughly through the centre of the modern field. These mounds correlate with the mounds still visible today (see Sites). Directly E of the field is a village named Kipčak Učkuju. It encompasses several buildings, wells ("K." for *kalodeč*) and three windmills, two of which are located near the eastern edge of the field. The half-verst map also shows several roads passing through the village connecting it with Kurama Kostel' in the E and the villages of Mussali (modern Zajcevo) to the SW, Džarylgač (modern Mežvodnoe) to the W-NW, and Ak Mečet (modern Černomorskoe) farther W. These roads also pass through DSP08-F04, and some continue through DSP07-F02. Near the mounds, the road from Džarylgač (modern Mežvodnoe) splits into two routes heading E: one enters Kipčak Učkuju from the N and the other veers S and connects to Kipčak Učkuju from the W. Though no longer existing, some of these E-W roads have left their traces across the field as deepening. Other roads just E of DSP08-F04 apparently follow the natural ravines, as they lead S from Kipčak Učkuju up the Hillsides towards the ridge. On the mid-20th century map, the village is depicted as a ruin by the Russian name of Majorovo.

Survey conditions The most remarkable aspect about Field DSP08-F04 is its sheer size: nearly 3 km in length and in some places 1 km across. It took two field teams a full week to survey it. The field is oblong, spreading out from S-SE to N-NW. The surface is gently undulating and sloping down from the asphalt road towards the lake some 40 m lower.

Marked features are the mounds running N-S in a row from roughly the middle of the field towards its northeastern corner. On the largest mound (DSP08-F04-05 Feature 2) is a small beacon corresponding with the measuring point of 17.8 m on the mid-20th century map.

The soil of this vast field is quite varied. In the northern section, it was generally hard and brittle and had been ploughed in very large peds making walking difficult and visibility relatively low due to the strong contrasts in light and shade. The southeastern section had similar conditions though less extreme, while the southwestern part was generally much softer in texture and lighter in colour with much smaller peds. Stony sections appeared in various parts of the field most likely caused by ploughed up bedrock. There were also patches of grey in the otherwise brownish-red soil with the exception of an elevated strip in the northern half of the field, where it was distinctly red. A section of the field along the southeastern edge (1.8 km from the northeastern corner) had not been ploughed. The part of this area close to the road was planted with vines, and the part towards the centre of the field lay fallow, but had concentrations of larger stones probably collected from the field. The extreme southeastern corner was excluded from survey due to cultivation.

A row of augerings was taken along the western edge of the field as part of the larger cross-section through the research transect (Chapter 3.3) and more were carried out at two of the larger sites (DSP08-F04-03 and -07). Since these samples show that the loess sediment on top of limestone bedrock is generally about 1 m thick except for the area closest to the lake, some of the sites have intact stratigraphies.

Finds distribution Archaeological finds were collected throughout Field DSP08-F04 although they were more sparsely distributed across its northern part. Most of the material dates from the Late Classical-Early Hellenistic period. The distribution map shows a fairly even distribution of finds with a few concentrations.

The entire field yielded very little that could be dated with any certainty to the Bronze Age (DSP08-F04-04 Feature 3). Several pieces of flint were collected but they cannot be dated securely. A few finds from the Classical period were collected in this field at site DSP08-F04-03. Some possibly Byzantine and Medieval material was collected in units dispersed over the field. Finds possibly from the Medieval period were collected in three units near the lake, a unit near the kurgan row, and on the eastern field border near the location of the abandoned village of Kipčak Učkuju where also off-site scatters of Early Modern finds were collected. Relatively large amounts of modern material were collected across the entire field.

Sites A total of seven sites were defined in Field DSP08-F04. Five of these are interpreted as settlement locations, the other two as kurgan groups.

The three discrete features in DSP08-F04-01 have all been destroyed by agricultural activities. They were recognized in the field as slightly elevated stony scatters with lighter-coloured soil (Figs. 4.113-114). The soil of Feature 3 was very grey as opposed to the surrounding area, where the soil was distinctly reddish-brown. This feature may be interpreted as an ash heap. Ash heaps occur as refuse dumps near Tatarian households but are also well-known from the Late Classical-Early Hellenistic period (see discussion in Chapter 5.1.5). The diagnostic material found in the units around all three elevations is primarily Late Classical-Early Hellenistic although one louterion fragment of Sinopean provenance is dated to the Classical period. Apart from Sinope the handful of imported fragments originate in Chersonesos and Herakleia. A high density of mostly Late Classical-Early Hellenistic finds was located in the unit containing Features 2 and especially Feature 3. A piece of worked flint was collected near Feature 1, but it cannot be securely dated.

DSP08-F04-02 consists of two discrete clusters on slight elevations of lighter soil (Figs. 4.115-116). The clusters are located at the highest point of a ridge W of the row of kurgans. High densities of finds were collected here with concentrations of Late Classical-Early Hellenistic material. Around the site, find densities drop off sharply. Adjacent units yielded either singular Late Classical-Early Hellenistic finds or none at all. A large proportion of the pottery was handmade, but imported fragments of amphorai and tablewares originated in Chersonesos, Sinope, Herakleia, Thasos and possibly Mende as well as a possible louterion from Chersonesos.

A larger site, DSP08-F04-03, was identified in the northwestern corner of the field (Figs 4.117-118). A grab sample had been taken here in 2007, when the field was not ploughed. Immediately to the W is a small grove of trees in a grassy area; the site most likely extends in this direction. In the field itself a wide ravine probably caused by erosion borders the eastern edge of the site. The site is located at the northern end of a ridge just S of Lake Džarylgač. On the half-verst map, a water-carrying ravine runs W of this ridge. This ravine was, however, not well visible during the DSP survey seasons. The soil in the area of DSP08-F04-03 is dark greyish-brown, and less reddish than the rest of the field. The site has a distinct concentration of finds in one of the corner units, while densities drop off sharply in the units surrounding it forming a “halo” around the centre. All finds in and around the site are dated to the Late Classical-Early Hellenistic period. Almost no finds were collected E of the ravine. A large proportion of the pottery was handmade, but a fragment of a possible Attic black slip cup as well as imported fragments of amphorai and tablewares from Chersonesos, Sinope, Herakleia, Thasos

and possibly Knidos were also collected. Five augerings were conducted across the units with the highest finds densities. The bedrock was reached within 1.10 and 1.85 m below the surface. No clear culture layer was discerned in any of the soil samples, yet a very hard, compact layer was present at 0.4 m below the topsoil in three augerings implying that at places archaeological features may be preserved.

A fourth settlement, DSP08-F04-06, was identified on account of high densities of finds in the units along the eastern edge near the abandoned village of Kipčak Učkuju (Figs. 4.119-121). Besides the Post-Medieval, Early Modern and modern fragments that one indeed would expect close to a near-recent village, also many Late Classical-Early Hellenistic finds were collected consisting mostly of wheelmade wares and some handmade. Most of the latter finds were recorded in a stony ravine running roughly NE-SW. The site is probably related to one of the roads close to Kipčak Učkuju following the ravine that leads further NE to an inlet of Lake Džarylgač. Being so close to the edge of the field, this concentration may well extend beyond the borders of the field to the E near or under the abandoned village. Some handmade pottery and a single fragment of a Herakleian import was recorded as well as some sherds of possible Medieval and of Early Modern date.

The fifth settlement, DSP08-F04-07, was identified by high densities of finds directly W of the unploughed area in the middle of the field (Figs. 4.122-123). A rather compact oblong elevation is visible in this S-central area extending from the E with its steepest sides in the S and N. The northern side of this 'ridge' borders on a depression due to a ravine leading NE over the field to the inlet of Lake Džarylgač. This depression is greener than the rest of the field, and the ploughed area of the site quickly turned green during survey due to water transport along this ravine. The elevation appears along the northern fork of the road leading SW from Kipčak Učkuju to Mussali on the half-verst map. Almost all the datable material collected here was Late Classical-Early Hellenistic consisting of both handmade and wheelmade pottery. Like DSP08-F04-03, this site also appears to have a "halo" of units with lower densities of Late Classical-Early Hellenistic material. A large proportion of the pottery collected was handmade as well as imported fragments of amphorai and tablewares from Herakleia, Sinope, Thasos and Chersonesos and fourteen pieces of flint. It is very likely that the site extends to the E in the unploughed area although a quick investigation of this area was inconclusive revealing only a few amphora fragments and clusters of stones, which could easily have been collected in the ploughed area and dumped there. Two augerings were conducted at this site. A distinct culture layer was found in one of these at a depth of 0.4-0.52 m below the surface containing small fragments of pottery. The limestone bedrock was reached at 2 m and at 1.48 m, respectively. Between the ploughed topsoil of 0.3 m and the underlying bedrock, the sediment was compact.

All kurgans in the field are aligned N-S and located on the highest ridge in the field from where the field clearly slopes down towards the W. They can be divided into two groups:

The mounds in the northernmost kurgan group, DSP08-F04-04, are visible in the field as grassy elevations or patches on the highest ridge of the field (Figs. 4.124-126). The soil around them was red, while the rest of the field was more brownish-red. This may have been an effect of limestone erosion. The five kurgans in this group coincide with the locations of the mounds depicted on the half-verst map. All five kurgans have been spared by the plough, although all are damaged. Kurgans, Features 3 and 4, had recently been robbed. In Kurgan 3, the robbers had left half a pot *in situ* in the western section of the burial chamber. This vessel could be dated to the Bronze Age, and the kurgan is the only certain feature from the Bronze Age in this field. No other finds from the Bronze Age were collected in the vicinity. In the unit to the NW, one Late Classical-Early Hellenistic sherd was collected. Five more Late Classical-Early Hellenistic sherds were collected about 100 m to the W. No other finds were collected in the vicinity of the five kurgans, with the exception of an Early Modern fragment near Kurgan 2.

The southern group of three mounds, DSP08-F04-05, is located on the southern end of the ridge (Figs. 4.127-128). The northernmost of these has been ploughed out in the past and is now left grassy (Feature 1). The southernmost one is likewise ploughed out although a small stony elevation is visible (Feature 3). The middle one is intact (Feature 2), and it is the highest in the field and therefore marked with a beacon. On the half-verst map, the road extending from Kipčak Učkuju to Ak Metčet (modern Černomorskoe) heads straight for this kurgan, skirting the southern flank to continue in a western direction; this is indicative of its continued function as an orientation marker. Several units in the vicinity of the three kurgans yielded finds, yet without clear concentrations even in the units which contained the mounds. Two units to the NW of Kurgan/Feature 1 each yielded one Early Modern sherd. Late Classical-Early Hellenistic fragments were collected in the three units around its southern perimeter. No finds were collected on or around the large Kurgan 2, but one Late Classical-Early Hellenistic sherd was picked up E of Kurgan 3.

Relations to the surrounding area In Field DSP07-F02, directly to the W of DSP08-F04, four settlement sites were identified. Near DSP08-F04-03 250 m across the marshy inlet of Lake Džarylgač is a small Late Classical-Early Hellenistic settlement (DSP07-F02-01). Both sites were connected by the ancient Road XII (Chapter 6.6).

The Late Classical-Early Hellenistic finds concentrations in the southern part of Field DSP07-F02 (-03 and -04) are located at a distance of 1.1 and 0.8 km to the SW of DSP8-F04-07. The single kurgan in DSP07-F02 (-05) lies higher up the ridge on which the row of kurgans in DSP08-F04 is located and is certainly a continuation of this row. The distance between DSP07-F02-05 and the southernmost mound in DSP08-F04 is 600 m.

To sum up on the location of sites in DSP08-F04 and DSP07-02, kurgans appear on the higher ridges, whereas possible habitation sites are generally located lower down closer to ravines or the lake (with DSP07-F02-04 as a possible exception). An excellent view is provided of this area from the Hillsides and vice versa.

DSP08-F05 (Figs. 4.129-130)

Size 38.5 ha.

Units 8870-9034.

Investigations Intensive survey in 50 x 50 m units.

Landscape type Lowland Ridge.

Location This field is located roughly 1.5 km N of Lake Džarylgač on the southern slopes of the Lowland Ridge sloping down towards the S. South of the field is a dirt road connecting the villages of Vodopojnoe and Mežvodnoe. The same road separates DSP07-F05 from DSP07-F06 further E. On the N side of this road close to the southeastern corner of this field, is an abandoned concrete structure. DSP07-F08 lies across the road to the S. Two other dirt tracks border the field to the E and N separated from the ploughed area by a strip of grass. To the W is a vineyard partly overgrown in the southern part. To the E is a large ploughed field. Immediately to the N on the other side of the dirt track lies DSP08-F06.

Cartography On the half-verst map, a dashed line depicting a minor track starts in the northern section of DSP08-F05 and ends W of the village of Kirlaut (modern Vodopojnoe). The (dirt) road between Kirlaut and the village of Džarylgač (modern Mežvodnoe) is the same as the present dirt road just S of this field. E of the field a ridge can be seen extending S towards the lake. On this ridge, a row of mounds is depicted SE of the field. A separate mound is depicted further upslope to the N closer to the field. Directly E of the field, a cluster of four small stars marks the presence of low mounds. None of these features were observed during the DSP08 season.

The 1993 map indicates that this field was at one time part of the large vineyard that extends to the W.

Survey conditions DSP08-F05 had been ploughed and harrowed. The soil was reddish-brown. Two ravines probably caused by erosion ran parallel down the slope through the field. The days of survey were cloudy and partly rainy. Visibility was optimal.

Find distribution Of all the surveyed fields, this one yielded the lowest amount of archaeological material. The field was archaeologically speaking practically “empty,” except for the units along the eastern and southeastern field boundary. A distinct concentration of Early Modern pottery fragments was encountered along the eastern field boundary. Lower densities of Late Classical-Early Hellenistic finds were spread out in the easternmost units and the southeastern field corner.

Sites DSP08-F05-01 consists of a low density concentration of Early Modern finds along the eastern field border, but too low to define the concentration as a site (Figs. 4.131-132). As it is located along on the outer edge of the field, the finds from DSP08-F05 may be the halo of a site located in the unploughed zone to the E. Some adjacent units yielded Early Modern material as well.

The Late Classical-Early Hellenistic finds collected in this part of the field likewise may constitute the halo of a site located outside the ploughed field (DSP07-F08-01 immediately to the S) (Figs. 4.131-132).

Relations to the surrounding area South of DSP08-F05 just across the dirt road is DSP07-F08-01, a settlement dated to the Late Classical-Early Hellenistic period and contemporary finds in the southeastern corner of DSP08-F05 most likely form part of the halo of this site. To the N, more Late Classical-Early Hellenistic sherds were collected in the northeastern section of DSP08-F06 (-03). The row of mounds depicted on the half-verst map is located approximately 350 m E of the northeastern edge of the field. There is also an isolated kurgan in the field to the N (DSP08-F06 (-02)).

DSP08-F06 (Figs. 4.133-135)

Size 48 ha.

Units 9040-9240.

Investigations Intensive survey in 50 x 50 m units except corner ones.

Landscape type Lowland Ridge.

Location DSP08-F06 was the last ploughed field to be surveyed during the DSP seasons. It is a long narrow field

located directly N and NW of DSP08-F05 located higher up the slope of the Lowland Ridge. It is the westernmost field surveyed N of Lake Džarylgač. In the N it is adjacent to a field that at the time of survey was overgrown with tall grass and wild flowers. Beyond this to the N is the main asphalt road running atop the coastal ridge from Mežvodnoe, continuing on to Razdolnoe in the E. The field is bordered along the eastern side by the same small track that runs along DSP08-F05. At the western end of the field a large, partly ruined but still used agricultural complex overlooks the area.

Cartography The half-verst map shows no distinctive features within the field boundaries. There is no kurgan symbol at the location where now a grassy elevation with a central depression can be observed, most probably a looted kurgan, although there is a mound depicted on the modern 1993 map roughly 160 m NE of the field.

The modern dirt road between Vodopojnoe (Kirlaut) and Mežvodnoe (Džarylgač) is depicted S of the field as well as two minor tracks ending S of DSP08-F06 and heading towards the E and W. On the top of the coastal ridge N of the field, groups of mounds are marked on either side of the road.

Survey conditions The field had recently been ploughed and during the survey it was still being harrowed by two tractors in the northern part. Remains of concrete poles in the field indicate past vine growing. There still is a vineyard in the field to the SW and W of DSP08-F05. The surface of the field is gently undulating with the western part being slightly higher than the rest. Some areas in the middle section were quite stony. This is most likely due to the plough bringing the underlying limestone bedrock to the surface. These stony patches run N-S following the natural ridges; one is in the mid-western area and the other is concentrated more in the northern section. In the eastern part of the field were two wide ravines running N-S. These have probably formed as a result of downslope erosion from the coastal ridge. The soil was generally brownish in colour except for a grey area in the western part of the field. Here a large unploughed roughly circular area was observed just NW of the grey soil. The area is characterized by large stone blocks (>0.4 m) and a depression of about 1 m in the western end. Lack of time prevented us to survey the rest of the field W of this grassy area.

The largest part of the field was surveyed during overcast, windy days, when surface visibility was optimal. The westernmost units were surveyed during a sunny day, when shade affected visibility a bit.

Finds distribution Significant quantities of Bronze Age material were found in nine adjacent units in the central and western part of the field SE of the grassy area. Outside of this, very little Bronze Age material was found in the rest of the surveyed area.

A very diffuse distribution of Late Classical-Early Hellenistic material was found throughout the surveyed area of this field with a markedly higher concentration in one unit in the northeastern corner. A few Byzantine, Medieval, Early Modern, and Modern artefacts were collected in units dispersed throughout the field.

Sites Three sites were identified in Field DSP08-F06. The first, DSP08-F06-01, is the concentration of Bronze Age finds coinciding with the grey patch of soil (Figs. 4.136-138). As noted, the site is located in the higher western part of the field but not at its highest point. Instead, it is situated on the gentle slope going down towards the E in a somewhat sheltered position on the northern and western sides. A ravine caused by erosion leads down from the NW to the SE continuing just E of this site. The grey soil visible from afar was rather stony but also very soft and ashy with large quantities of bone. Finds here included high densities (in the hundreds) of handmade ware, but also some stone tools and large quantities of flint. One unit yielded 17 flint fragments in the standard survey alone. The Bronze Age finds were tightly related to the area of the grey soil, very few were collected outside this area. Although a few Late Classical-Early Hellenistic wheelmade fragments were found within the perimeter of the Bronze Age site, this most likely equals the off-site density that is typical for the rest of this field. 11 augerings were conducted at the site: seven in a N-S orientated row and four at right angles of this line. The soil on top of the limestone bedrock is very thin, between 0.3 and 0.5 m. This is about the depth of a tractor plough. This means that the original stratigraphy of the site will have been completely destroyed by ploughing. The augering conducted in the centre of the site yielded a pottery fragment and probably spots of ash at 0.35 m below the surface from a dark brown, damaged find layer. The bedrock was reached here at a depth of 0.45 m.

The second site, though not designated as such on the map, the grassy area to the NW (DSP08-F06-02) is tentatively interpreted as part of a kurgan due to its fairly prominent location, the elevation albeit slight (about 1 m), and the presence of large stones which would have been suitable for the construction of a burial chamber (Figs. 4.136-138). The pit, about 1 m deep, was located roughly 40 m W of the elevation, and is probably related to illegal excavation activities. Two Late Classical-Early Hellenistic sherds and two Early Modern sherds were found in the adjoining units, meaning that a dating for this kurgan remains insecure (visibility was very poor in the grass).

The third site, DSP08-F06-03, is the concentration of Late Classical-Early Hellenistic pottery consisting of eight amphora fragments, found in a single unit in the northeastern section of the field (Fig. 4.139). Since this unit is almost

adjacent to the eastern edge of the field, it is possible that this concentration should be related to higher densities below the road or in the fallow field to the E.

Relations to the surroundings From DSP08-F06-01, one has a clear view down the slope to the E and towards Lake Džarylgač and beyond across DSP08-F04 and DSP07-F02 towards the Hillsides. DSP08-F06-01 is clearly visible from DSP07-F04-01 4.5 km to the SW. The Bronze Age site near the coast at Skalistoe, DSP08-F03-02 (Skalistoe 2), about 5 km to the NW is not visible since it is on the opposite side of the coastal ridge.

The Late Classical-Early Hellenistic concentration in the NE section as well as the dispersed off-site material may correspond to similar findings to the S along the eastern edge of DSP08-F05. These could be contemporary with the large Late Classical-Early Hellenistic site discovered in Field DSP07-F08, about 1 km to the S.

4.5 THE HILLSIDES AND THE PLATEAUS/UPLANDS | K. WINTHER-JACOBSEN WITH CONTRIBUTIONS BY P. ATTEMA, S. LANCOV, T. SMEKALOVA & V. STOLBA

4.5.1 Introduction

The Hillsides and the Plateaus/Uplands make up two separate land types according to the classification of Delvigne (see Chapter 3).⁴⁴ The Plateaus/Uplands zone is the relatively flat area above the Hillsides (Chapter 3.4.2). The Hillsides are the area between the Plateaus/Uplands and the Pediment, covering a vertical distance of some 70 m from approximately 125 m above sea level (Chapter 3.3.2) (Fig. 3.4). Generally, the slope angles vary around 10-12%. The slopes are dissected by ravines eroded by running water; however, according to Delvigne, the natural vegetation composed of a mat of mosses, dead vegetation parts and living leaves which spread out over the soil surface provides good protection against rain drop and running water erosion. Nevertheless, cultivation, especially ploughing, will have encouraged wind and water soil erosion.

Due to the vegetation, surface visibility is generally very low and only where burrowing animals, of which there is abundant evidence on the surface, make heaps of loose soil material, a glimpse of the subsoil is offered. The area is characterized by shallow soils mainly and today is predominantly used for grazing, but there are many pockets of deeper soils which have agricultural potential. The Plateaus/Uplands at the top of the ridge are currently cultivated, but changes in the vegetation and traces on the geomagnetic map clearly reveal that additional areas have been cultivated in the past, although this is difficult to date. Few of the roads appear on the old topographical maps from 1837/1865, as well as on the half-verst- and the mid-20th century maps. Generally, roads and dirt tracks are very “mobile” which may have to do with the location of fields. Cultivated areas on the Hillsides are indicated on the mid-20th century map, some of which are still exploited. The fields on the Hillsides tend to be laid out in long narrow strips following the contour of the slopes.

On the slopes, springs occur in the ravines, while the ravines themselves will have been used to store water by deepening or damming the reaches (Fig. 4.140). The water-bearing Sarmatian sediments which produce water of a very high quality are closest to the surface (less than 8 m below) at the bottom of the Hillsides and old maps reveal a series of Tatar villages located along this line. Today, there are only two settlements at the bottom of the Hillsides: Snežnoe and Zajcevo. At least one ancient settlement (DSP07-H11-01) was located at the bottom of the Hillsides.

Two post-depositional histories appear to dominate. Settlements tend to be located on deeper soils, but only in rare cases have the areas been cultivated pushing artefacts to the surface (e.g. DSP08-H11-01, DSP08-H12-01, DSP08-H21-01, Units 20041-20042). In most cases, there are few artefacts at the surface due to soil build-up and/or erosion.

In terms of pure surface observation, the slopes are characterised by three general types of alternating soils:

1. Large exposed patches of bedrock alternating with stone circles filled with soil often located along the edges of the promontories and on the floor of the ravines, but not exclusively so (Fig. 3.6);
2. Shallow soils with many tiny rock fragments suggesting the bedrock has been disturbed (Fig. 4.141);
3. “Deep” soils with no or little exposed bedrock, often, but not exclusively, located in shallow depressions (Fig. 4.142).

⁴⁴ When both zones are referred to the non-geomorphological term “the slopes” is applied.

As a rule, the actual depth of these soils may not exceed 0.2 m as indicated by the drilled cores observed in Units 20019-20020 (Fig. 4.143). Where the soil is thicker, the colours range from almost black to red. The deep pockets of red loess are most visible where they build up at the tip of promontories due to erosion (Fig. 4.144). Although settlements appear to be located on the thicker darker soils, the locations of kurgans are less clearly correlated to the actual surface. To this should be added a rich variety of flowers, mosses and grasses, which are also indicative of human activities. Thistles and low shrub almost always grow on settlements and in the kurgan chambers, but not exclusively so, while some flax and rape is usually also present on sites of more recent activities. No doubt a thorough botanical investigation would provide firm evidence for the correlation between certain types of vegetation and human activities.

Although clear settlement patterns emerged already in 2007, to test our own assumptions we persisted in a systematic investigation of the slopes in 2008. Consequently, areas surveyed in 2007 were recorded as hills whereas predetermined survey units were laid out in 2008. Survey on the slopes in 2007 involved systematic intensive, extensive and *razvedki*-style survey, and recording of the results was inconsistent. As explained in the chapter on methodology (see Chapter 2.3.1.2.1), in 2008 certain restraints were placed on our research strategy by the local authorities forcing us to focus on a prioritized list of areas; however, as we were also instructed to survey larger coherent areas, we chose to survey long lines running roughly N-S from the bottom of the Hillsides to the Plateaus/Uplands and a few lines running E-W using the windmill foundations as focal points. Because of this, the lines cut across geomorphologically diverse units such as promontories and ravines. Since the weather changed several times while surveying due to the size of the units, specific weather conditions were not recorded. In 2008, we surveyed a total of 16 lines in 32 units including 37 windmill foundations and 24 km of projected cable- and road lines. Furthermore, we did a complete survey of seven sites, two of which were identified during the 2007 campaign.

4.5.2 Previously known sites in the area

The half-verst and the mid-20th century maps reveal only tracks and dirt roads and kurgans on the slopes (Figs. 2.4 and 2.5). In fact, prior to the 2007 campaign of the DSP, no ancient settlements had ever been identified on the slopes, only kurgans. We have verbal information from S. Koltuchov on controlled excavations of a number of kurgans on the slope carried out during the Northwestern Crimea Expedition (e.g. DSP07-H19-01 kurgans 1-3) (Chapter 5.3).

On the Pediment, along the bottom of the Hillsides, is a series of current villages (Snežnoe and Zajcevo) and abandoned ones (Aldermen, Aldermenskaja Skala, Saja/Kostovka, Karlav/Čaikino and Mussali, Kipčak-Učkuju and Kurama Kostel') as well as properties (*nostrówka*) marked on the maps (Chapter 4.3.4). The location of these villages is guided by the fresh water accessibility (Chapter 3.2.3.2). On the maps, the villages are connected with a road in the Uplands running E-W by dirt roads and tracks cutting across the Hillsides. These roads and tracks tend not to follow the ridges of the individual promontories, but rather shallow depressions. Some of the tracks are still visible on the slopes where some have multiplied into broad lanes of tracks laying side by side.

4.5.3 Catalogue of surveyed hills and units (Figs. 4.145-146)⁴⁵

Hill 1 (Figs. 4.147-148)⁴⁶

Investigations Partial intensive survey, geomagnetic survey, two trial trenches.

Landscape type Hillsides.

Location Short wide promontory in the upper part of the Hillsides.

Cartography On the mid-20th century map the southwestern part of Hill 1 is indicated as cultivated.

Finds distribution All finds were associated with the site.

Sites Concentration of pottery (GS3043, GS3045-3046 and GS3049-3060) associated with rectangular stone structure recorded in the northern end of the slope on the western side (DSP07-H01-01) (Figs. 4.149-150). The pottery consists of mostly indefinable wheelmade sherds, but there are also two fragments of Sinopean transport amphorai and a handmade sherd of Late Classical-Early Hellenistic date. The geomagnetic survey confirmed the presence of a settlement consisting

⁴⁵ Please note that survey conditions are not noted for the slopes, because they were often surveyed over several days.

⁴⁶ Fig. 4.40 works as a key to the legends of all the distribution maps.

of several buildings, household pits and a double pen (Figs. 4.151-152). From Google Earth can clearly be distinguished a significant ash concentration at the promontory's northern end (Fig. 4.148). An aerial photo of the hill revealed that the long linear negative and positive anomalies which appear to cross under the site are consistent with a recent agricultural episode (Fig. 4.153). The same phenomenon was observed on the geomagnetic maps of Hills 6, 8 and 18 (Figs. 4.201, 4.235; 4.251). Material from a circular household pit (Feature 18) of dark ashy phosphorous soil with small stones including fragments of Chersonesean, Thasian and Sinopean amphorai, multiple handmade sherds and two jug fragments confirmed the Late Classical-Early Hellenistic date (Figs. 4.154-155). The topsoil also included a Herakleian amphora fragment apart from sherds of similar type to what was recovered from the pit. Another trial trench in Feature 5 revealed a layer of stones on an ashy bed, a possible floor. The finds consisted of mostly handmade Late Classical-Early Hellenistic sherds but also three Bronze Age fragments (Figs. 4.156-158). Unfortunately, fragments of the same vessels were found in different strata, and it was impossible to establish a relative chronology. The number of structures and the double pen suggests a fair-sized settlement associated with livestock rearing although not all the structures may be contemporary. The artefacts suggest a date in the Late Classical-Early Hellenistic period, possibly preceded by a Bronze Age settlement at the same site. The elements of the site appear to be very similar to DSP08-H08-01 (Fig. 4.251) dated to the Bronze Age and DSP07-H02-01 (Fig. 4.163). Further S, three kurgans and a linear elevation that seemed to be connected to at least one kurgan were observed, but not recorded.

Relations to the surrounding area DSP07-H01-01 is located 1 km due N of the settlement on Hill 12 (DSP08-H12-01) (Fig. 4.296). There is a group of kurgans located only 300 m W of the settlement across the ravine.

Hill 2 (Figs. 4.159-160)

Investigations *Razvedki*, partial extensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location Short wide promontory in the upper part of the Hillsides.

Cartography On the mid-20th century map there are three strips of cultivated land indicated on Hill 2.

Finds distribution Seven grab samples (GS3077-3082, 3096) were collected on Hill 2. All were assumed to be related to the site, having been collected in relation to structures visible on the surface, but no coordinates were recorded; however, due to the flint tool mentioned in the notes, GS3081 can be placed on the western tip of the promontory. The total grab sample consists of 111 Late Classical-Early Hellenistic wheelmade sherds including Herakleian, Thasian and Chersonesean transport amphora fragments, one Late Classical-Early Hellenistic handmade sherd, 14 Bronze Age handmade sherds, two flint tools and a piece of bone.

Sites Various structures were observed on the lower northern part of the slope during the surveys (Figs. 4.161-162). DSP07-H02-01 consists of an area of very ash-rich soil located on the higher western tip of the promontory. A flint tool was collected here as well as nine handmade sherds of the Bronze Age and a piece of bone (GS3081). Geomagnetic survey revealed a double pen (Fig. 4.163). DSP07-H02-02 located 145 m to the NE consisted of three stone structures with double walls of standing slabs on the lower tip of the promontory (Fig. 4.164). Geomagnetic survey revealed a group of four angular structures with one to two rooms as well as one with a possible courtyard. DSP08-H02-03 is a double faced wall of large stones damming the eastern ravine (Fig. 4.140; 4.159; 4.161). The number of structures and the double pen suggests a fair-sized settlement associated with livestock rearing although not all the structures may be contemporary. The artefacts suggest a date in the Late Classical-Early Hellenistic period, preceded by a Bronze Age settlement at the same site. The elements of the site appear to be very similar to DSP08-H08-01 (Fig. 4.251) and DSP07-H01-01 (Fig. 4.149).

Relations to the surrounding area There are several kurgans located on the ridge of Hill 17 (see Units 20003, 20005 and 20006) approximately 500 m NE. Approximately 650 m due N is another settlement (see Hill 7).

Hill 3 (Fig. 4.165)

Investigations *Razvedki* and partial extensive survey.

Landscape type Hillsides.

Location Wide promontory in the lower part of the Hillsides.

Cartography A symbol indicating a pit is marked on both the half-verst and mid-20th century maps.

Finds distribution Some pottery (GS3041-3042, 3047) and features were mapped, especially in the lower northwestern part. Most of these features belong to Early Modern/Modern, perhaps Tatarian structures as suggested by two tile fragments.

Sites No sites recorded (see also Units 20033-34).

Relations to the surrounding area The area with the possible Tatarian structures is located due S of the village Karlav on the half-verst map. According to the mid-20th century map, this village had been abandoned.

Hill 4 (Figs. 4.166-167)

Investigations Partial intensive survey.

Landscape type Hillsides.

Location Small promontory in the upper part of the Hillsides. Dominated by exposed bedrock and stone circles.

Cartography No features indicated.

Finds distribution All finds associated with sites.

Sites In the northern lower part, several rectangular structures were mapped. DSP07-H04-01 consists of four rectangular stone structures roughly associated with a small cluster of five indefinable wheelmade sherds tentatively dated to the Late Classical-Early Hellenistic period (GS3068-3072) (Figs. 4.168-169). DSP07-H04-02 is a small settlement located in a shallow ravine on the northern edge of Hill 4 (Figs. 4.170-171). A single sherd (GS3075) of possibly Medieval date was associated with rubble and several pits were indicated by the vegetation. DSP07-H04-03 consists of a patch of intense vegetation suggesting a subsurface structure associated with a single indefinable wheelmade sherd (GS3074) (Fig. 4.172).

Relations to the surrounding area No specific relations observed.

Hill 5 (Figs. 4.173, 4.167)

Investigations Partial intensive survey.

Landscape type Hillsides, Plateaus/Uplands.

Location Small promontory in the upper part of the Hillsides. Dominated by exposed bedrock and stone circles.

Cartography No features indicated.

Finds distribution No finds recorded.

Sites No sites identified.

Relations to the surrounding area No specific relations observed.

Hill 7 (Fig. 4.174)

Investigations *Razvedki* and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location Hill 7 is a long promontory running from the Uplands to the Pediment. See also Units 20064-20065.

Cartography On the half-verst map there is a track running S from Karlav splitting into two. On the mid-20th century map is a strip of cultivated land in the shallow area between Hills 25 and 7 and a track from Karlav/Čaikino leads to it.

Finds distribution Two grab samples were recorded (GS3062-3063) both associated with the sites. More finds were collected in June 2007 reported as Finds Lists 9 and 10 in the original report but never integrated into the official finds recording system.

Sites DSP07-H07-01 consists of two rectangular stone structures associated with four jug fragments of indeterminable date (2007 FL09) as well as five Late Classical-Early Hellenistic amphora and handmade sherds and pieces of bone (Fig. 4.175).

Geomagnetic survey revealed a rectangular structure with two rooms with a possible pit or oven inside as well as several household pits and a possible track leading to the entrance of the house (Fig. 4.176). DSP07-H07-02 consisted of a possible linear feature associated with seven amphora fragments and a thin-walled jug fragment of indeterminable date (2007 FL10). Geomagnetic survey revealed another rectangular structure of two rooms, one L-shaped as well as a round structure possibly bordered by posts (Fig. 4.177). For DSP08-H07-03-04, see Units 20064-20065.

Relations to the surrounding area Approximately 650 m due S is the settlement on Hill 2 (see Hill 2).

Hill 9 (Fig. 4.178)

Investigations *Razvedki* and geomagnetic survey.

Landscape type Hillsides.

Location Hill 9 is a long promontory running from the Uplands to the Pediment.

Cartography On the half-verst map there is a property marked on the bottom tip of Hill 9 and it was crossed by a track from Saja/Kostovka running SW but ending at an unmarked location on the Hillsides. On the mid-20th century map there is a track running on the western slope of Hill 9 to a strip of cultivated land.

Finds distribution Three grab samples GS3088-90 were recorded in this area, but unfortunately without coordinates. They consist of a mixed batch including two possibly Late Classical-Early Hellenistic handmade sherds, nine fragments of a possibly Medieval vessel, one Early Modern fragment and five indefinable wheelmade sherds. More finds were collected on Hill 9 in June 2007 reported as Finds List 14 in the original report but never integrated into the official finds recording system. All finds are assumed to be associated with the sites.

Sites On the eastern and western edge of the promontory towards the lower end linear stone walls of standing blocks were recorded (Fig. 4.179). On the eastern edge geomagnetic survey revealed a rectangular structure with a possible courtyard (DSP08-H09-01) (Fig. 4.180). On the western edge geomagnetic survey revealed another stone structure (DSP08-H09-02) (Fig. 4.181). According to Smekalova, the sites were Tatarian, which cannot be confirmed by the pottery collected.

Relations to the surrounding area No specific relations observed.

Hill 10 (Fig. 4.182)

Investigations *Razvedki* and geomagnetic survey.

Landscape type Hillsides.

Location Hill 10 is a small, roughly N-S oriented promontory.

Cartography No features indicated.

Finds distribution Three grab samples (GS3084, GS3086-3087) were collected on Hill 10 and 18, but the coordinates were not recorded. These consist of seven Late Classical-Early Hellenistic sherds including three transport amphorai, one possibly from Herakleia, a tableware fragment and three handmade sherds one of which may be Bronze Age and a piece of flint. More finds were collected on Hill 10 in June 2007 reported as Finds List 13 in the original report but never integrated into the official finds recording system. All finds are associated with the sites.

Sites DSP07-H10-01 is located near the tip of the promontory (Fig. 4.183). Four well-preserved, rectangular stone structures built with double walls of standing blocks were recorded on the surface, and also noted on satellite photos (Figs. 4.184-185). Geomagnetic survey revealed four rectangular stone structures and several household pits (Fig. 4.186). Feature 2 consisted of at least six rooms around a courtyard. Trial excavation on the NE perimeter of Feature 2 revealed a double wall constructed of field stones and roughly cut boulders packed with rubble in-between (Figs. 4.187-191). Sitting directly on the soil, the wall consisted of at least two courses; the upper one had collapsed creating the debris inside the structure. The original thickness of the wall must have been ca. 0.8-0.82 m, the currently preserved height is 0.32 m, and it can be clearly traced on the surface beyond the excavated area. No traces of mud brick were found. Below the stone debris were found several large fragments of Chersonesean transport amphorai. No other pottery was associated with the wall. Trial excavation at Feature 5 included two circular household pits (Figs. 4.192-194). The northern pit (Pit 1) was roughly piri-form with concave bottom, its filling was homogeneous. A large flag stone was found at the bottom. Pit 1 was associated with fragments of Chersonesean and Sinopean transport amphorae as well as handmade pottery, animal bones, cereals and burnt mud brick. The eastern pit (Pit 2) is of the same shape as Pit 1 but much deeper (Fig. 4.194). To a depth of 0.8 m, the upper fill was dark brown soil while the lower fill was densely packed with stone boulders. These two layers were associated with a few fragments of Chersonesean, Sinopean and possibly Herakleian amphorai, handmade pottery, joining fragments of black-glossed tableware, a fragmentary whetstone, animal bones, Helix shells and cereals. The bottom of the pit consisted of an ashy layer with slightly more finds of Chersonesean and Herakleian amphorai fragments, handmade pottery including a restorable handmade pot, animal bones, Helix shells and cereals. Similar types of pottery as well as several jug fragments were found in the fill above the pits. The pottery dated both the features to the late 4th-early 3rd century BC. A single wheelmade sherd did not come from an amphora. A large stone was found blocking a burrow of some animal at the bottom of Pit 2 and this may have been the reason for abandoning the pit and filling it with stones. Sherds of the same vessels were found over 0.2-1.3 m suggesting that the pit was filled in one episode. The date of the bowl (FL 9 no. 5) suggests that the pit was given up in the early 3rd century BC which is consistent with the Chersonesean amphora rim (FL 5 no. 1). Including the structures on Hill 18 (DSP07-H18-01), the number of structures and the range of finds suggest a sizeable settlement. The building technique suggests this settlement is closely related to DSP08-H12-01 (Figs. 4.299-300).

Relations to the surrounding area DSP07-H10-01 is located across a shallow ravine only 135 m E of DSP07-H18-01; the sites are likely to be associated (Fig. 4.200). Two small groups of kurgans are located 600 m to the NW and 300 m to the NE.

Hill 11 (Fig. 4.195)

Investigations *Razvedki* and geomagnetic survey.

Landscape type Hillsides.

Location Long promontory running from the Uplands to the Pediment.

Cartography On the mid-20th century map there is a track running on the western slope of Hill 11 to a strip of cultivated land, and two kurgans are marked some distance apart on the upper part of the hill.

Finds distribution All finds are associated with the site.

Sites At DSP07-H11-01 located at the bottom of Hill 11 (the Pediment), large grab samples were collected after ploughing (GS3083 and GS3093) (Figs. 4.196-197). The range of finds is equivalent only to Panskoe I including Late Classical-Early Hellenistic Herakleian, Chersonesean, Sinopean, Thasian and possibly Chian transport amphorai, fragments of tile, table- and utility ware from Sinope, grey tableware, handmade pottery of the Late Classical-Early Hellenistic period and (possibly Middle and) Late Bronze Age both as well as four lithics. The stones on the surface seem natural with the possible exception of a line of stones on the E bank of the shallow ravine which may be a check dam (Fig. 4.198). Geomagnetic survey revealed no preserved architectural remains (Fig. 4.199).

Relations to the surrounding area DSP08-H11-02 is located approximately 1 km due N at the bottom of the slope (see Units 20050-20055) (Fig. 4.277; 4.289).

Hill 18 (Fig. 4.200)

Investigations *Razvedki* and geomagnetic survey.

Landscape type Hillsides.

Location The eastern spur of Hill 18 a long wide promontory.

Cartography No features indicated.

Finds distribution Three grab samples (GS3084, GS3086-3087) were collected on Hills 10 and 18, but the coordinates were not recorded. They consisted of seven Late Classical-Early Hellenistic sherds including three transport amphorai, one possibly from Herakleia, a tableware fragment and three handmade sherds as well as a piece of flint. All finds are associated with the sites.

Sites Four possible stone structures were visible on the surface, one at least partly built with standing blocks (Feature 3) (Fig. 4.201). Geomagnetic survey revealed at least four structures and household pits. For interpretation, see Hill 10.

Relations to the surrounding area DSP07-H18-01 is located across a shallow ravine only 135 m W of DSP07-H10-01 (Fig. 4.200), and the sites are likely to be associated. Two small groups of kurgans are located 600 m to the NW and 300 m to the NE.

Hill 19 (Figs. 4.202, 4.148)

Investigations *Razvedki*, partial intensive, topographical and geomagnetic survey and trial excavation.

Landscape type Hillsides.

Location Long promontory running from the Pediment to the Uplands.

Cartography Eight kurgans are marked on the half-verst map (fig. 4.203); seven in a row near the Uplands and a solitary one on a large plateau further N. On the mid-20th century map the solitary kurgan, five of the six kurgans and an additional two on another Plateau even further N are marked. On the map produced by S. Koltuchov 18 kurgans are marked mainly clustered around the already known groups.

Finds distribution GS3033-3039, GS3099-3100. Except for GS3036, the grab samples are all associated with the sites. The total number is 10 sherds, mostly transport amphorai whose type could however not be identified. Nine of these are tentatively dated to the Late Classical-Early Hellenistic period. See also Units 20036-20037.

Sites Along the ridge of Hill 19, 31 kurgans were identified during the topographical survey (for the individual kurgans, see Appendix 1). They appear in eight distinct groups based on intermediary distance (Figs. 4.204-227). Within each group, diameters and heights of kurgans may vary. Their present form, however, has in all cases been altered by excavation, looting and/or erosion. It is thought that all kurgans would have had a so-called krepis wall that would have held the soil of the mound in place. If true, this would mean that all kurgans mapped by us, originally were smaller in diameter, as we must assume that soil from the mound has washed over the krepis wall to form the sloping mounds that we see today. Indeed, in a number of kurgans wall remains were noted at the surface forming a circle halfway through the present mounds (most significantly Kurgan 10). Rather than as carefully constructed retaining walls, these appear however in most cases (possibly with the exception of Kurgan 10) as loosely placed stone circles. Other kurgans show no sign of a krepis wall or stone circle whatsoever at the surface. As far as the grave architecture is concerned, it was possible to reconstruct the orientation on the basis of still protruding head stones (e.g. Kurgan 8 and 10) based on the evidence

from the excavated kurgans (see Section 4.4.1 and Kurgan 1, 2 and 4). Their orientation corresponds more or less with Kurgans 1 and 2.

Allowing for considerable changes over time to have happened to the original morphology of the kurgans on this slope, we nonetheless may note differences within clusters that are unlikely to have been caused by changes that have occurred after erection of the mound. The cluster comprising Kurgans 1-4, for instance, has three larger and/or higher (1-3) kurgans and one smaller and lower specimen (4). This height/diameter differentiation applies to all other groups except for the cluster made up of Kurgans 16 and 17 both of which show approximately the same diameters and height in their present form.

On basis of the excavations of the Northwestern Crimea Expedition, it is assumed that although not many datable artefacts had been found in the chamber graves, the graves date between the late 5th and late 4th century BC. Such a chronology seems now confirmed by ceramic finds from a trial trench dug during the 2007 campaign approximately 10 m SE of Kurgan 3 at a spot where a clear anomaly had turned up in the geomagnetic map (Fig. 4.204). As far as the dating of this feature is concerned, we should, however, realize that no stratigraphic relationship was established between the trial trench and the kurgan. The sherds found in the trial trench SW of Kurgan 3 may tentatively be connected to ritual practice: it is possible that feasting occurred around the burial mounds, and the amphora sherds in the trial trench could testify to this (pers. comm. T. Smekalova). It is reported that artefacts collected from the tombs in the mounds in the 1970s excavations consisted of iron knives and arrow heads. It is possible that the excavated mounds had been robbed of other materials prior to the excavation (pers. comm. S. Koltuchov).

Relations to the surrounding area The kurgans on the southern part of the ridge of Hill 19 (Groups 1 and 2) are located less than 200 m W of DSP08-H12-01, although they are not at present visible in the viewscape of the site. Group 3 is located 350 m due N of DSP08-H12-01. Group 4 is located across the ravine 300 m W of DSP07-H01-01. Groups 6-8 are located in the Uplands 1.3 km S of DSP08-H12-01 and 1 km SE of DSP08-H13-01. See also Units 20035-20036 (Fig. 4.270).

Hill 27 (Fig. 4.228)

Investigations Extensive survey.

Landscape type Hillsides.

Location Low promontory on the eastern edge of the survey area.

Cartography The map of Koltuchov indicates a settlement in this area.

Finds distribution No finds.

Sites Site on the NW edge of Hill 27 indicated by large roughly square patch of intense vegetation with cut-away corners towards the N (DSP08-H27-01).

Relations to the surrounding area It seems probable that this site was associated with the exploitation of the cultivated area to the N at the lower end of the Hillsides. A very similar site, DSP08-H15-01, is located 400 m to the E (Fig. 4.264).

Hill 28 (Fig. 4.229)

Investigations Extensive survey.

Landscape type Hillsides.

Location Wide promontory in the lower part of the Hillsides.

Cartography The map of Koltuchov indicates a settlement in this area.

Finds distribution No finds.

Sites Site by the edge of the steep NE ravine consisting of one roughly square structure and two possible pits suggested by vegetation (DSP08-H28-01).

Relations to the surrounding area No specific relations observed.

Units 20000-20001 (Hill 26) (Fig. 4.230)

Size 2.7 ha.

Investigations Intensive survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line runs 2 km roughly N-S from the road between Zajcevo and Novaja Ul'janovka at the bottom of the Hillsides to the Uplands running parallel with the road to Krasnaja Poljana on either side. It passes Foundation 49 on the western side of the road where it is crossed by Units 20029-30. The area is characterised by earth works and garbage dumping related to the road.

Cartography The road was constructed after 1955. On the half-verst map, four kurgans are marked while the map of Koltuchov shows two kurgans on the western side of the road and six on the eastern side of the road.

Finds distribution All finds are associated with sites.

Sites The road cuts a group of kurgans, three on the eastern side (DSP08-H26-02) and one possibly two on the western side (DSP08-H26-01) (Figs. 4.231-232). The easternmost one on the western side and the three smaller ones on the eastern side are either very much destroyed or possibly spoil heaps. A total of seven sherds were recorded in relation with the kurgans on both sides of the road. Among these are two Herakleian amphora fragments dated to the Late Classical-Early Hellenistic period (see also Units 20029-30 and GS3200).

Approximately 300 m S of the kurgans on the western side of the road, Unit 20000 cuts across a small promontory onto a larger one, Hill 6. Here and immediately to the E, four handmade sherds were recorded (GS3201-3) associated with DSP07-H06-01 (see Units 20002 and 20007).

Relations to the surrounding area The group of kurgans is located in an area where the slope becomes steeper to the N while it flattens out to the S. This is only 450 m due W of the settlement on Hill 6 (see Units 20002 and 20007).

Units 20002 and 20007 (Hills 6 and 17) (Figs. 4.233-234)

Size 8.4 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs just under 1 km roughly E-W from the Krasnaja Poljana road to Foundation 54. The line cuts across Hill 6, a medium-sized promontory oriented broadly E-W, onto Hill 17 which is a large promontory running from the Uplands to the bottom of the Hillsides. The northeastern side of Hill 6 was characterised by patches of exposed bedrock and stone circles.

Cartography On the half-verst and mid-20th century maps, dirt roads from Karlav and Mussali meet on Hill 17 and continue together SE. The road from Mussali existed already on the 1865 map. Another dirt road from Mussali also on the 1837/1865 and half-verst maps runs SW, whereas a road running between the southeastern and southwestern road no longer existed on the half-verst map. On the mid-20th century map is a long strip of cultivated land to the S. At the time of survey, the cultivated area extended all the way to the Zajcevo-Krasnaja Poljana road.

Finds distribution Apart from a single sherd (20007/1) recorded on Hill 17, all finds were associated with sites. More finds were collected on Hill 6 in June 2007 reported as Finds List 8 in the original report but never integrated into the official finds recording system.

Sites In June 2007 geomagnetic survey revealed a double pen and a possible small stone structure close by in the central part of Hill 6 (DSP07-H06-01) (Fig. 4.235). The satellite image of Google Earth clearly shows a significant ash accumulation over the pen (Fig. 4.234). The site is crossed by long linear negative and positive anomalies at regular intervals. The same phenomenon was observed on Hill 1 where aerial photography has revealed the lines to be consistent with a recent agricultural episode (Fig. 4.153). A grab sample collected at the start of the season consisted of one handmade sherd (GS3085) and furthermore, a stone with a circular depression was recorded (Fig. 4.236). A total of nine sherds and a piece of flint were recorded on Hill 6 and immediately to the E in 2007 and 2008. Grab samples from 2008 consisted of four handmade sherds (GS3201-3203). The piece of flint and five sherds were recorded in Units 20002 and 20007. One of the sherds was a Late Classical-Early Hellenistic handmade one, and for two of the sherds a Medieval date was tentatively proposed. Based on the double pen, the site was interpreted as a settlement tentatively dated to the Late Classical-Early Hellenistic period that was involved in livestock rearing.

On the eastern edge of Hill 17 on a wide spur, an ancient settlement was identified by S. Lancov & S. Koltuchov in 2007, but no surface finds or features were recorded by the survey in 2008 apart from a single possibly Early Modern sherd (20007/1). Geomagnetic survey revealed a cluster of possible archaeological anomalies in the central part of Hill 17 (DSP08-H17-01), and a single indefinable body sherd (GS3204) may be associated with this site (Figs. 4.237-238).

Relations to the surrounding area There is a group of kurgans (DSP08-H26-01-02) 450 m due E of the settlement on Hill 6 (see Units 20001).

Units 20003 and 20006 (Hill 17) (Figs. 4.239, 4.234)

Size 5.1 ha.

Investigations Intensive survey.

Landscape type Hillsides.

Location The line runs approximately 600 m roughly N-S from Foundation 54 on either side of and parallel to a dirt track on the ridge of Hill 17.

Cartography Five kurgans are marked on the 1837 map on the eastern side of a roughly N-S running dirt road from Mussali. The half-verst map however shows only four kurgans along the same road. On the mid-20th century map a track that appears to be the same track runs roughly N-S on the western side of three kurgans. Six kurgans are marked on the map by Koltuchov with the track running through it. Also on the mid-20th century map is depicted a long strip of cultivated land to the SE. Nowadays, the cultivated area has extended all the way to the Zajcevo-Krasnaja Poljana road.

Finds distribution All finds are associated with sites.

Sites A piece of flint and four sherds including a Thasian amphora handle (also GS3205-6) were recorded in relation to a group of five kurgans located on the western side of the track (DSP08-H17-02) (Fig. 4.240).

Relations to the surrounding area The group of kurgans is located 500 m W of DSP07-H06-01 (Fig. 4.233) and approximately 800 m NE of DSP07-H01-01 (Fig. 4.147), but none of these sites are located within the viewscape of the kurgans.

Units 20004-20005 (Hill 17) (Figs. 4.241, 4.234)

Size 2.7 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs approximately 300 m roughly E-W from the dirt track (see Units 20003 and 20006) to Foundation 59 on a short wide spur on the western edge of Hill 17.

Cartography On the 1837/1865 and the half-verst maps, a dirt road from Mussali runs SW across Hill 17.

Finds distribution No finds recorded.

Sites Unit 20005 bypassed a single kurgan (DSP08-H17-03) on the S side close to the dirt track 375 m S of the southernmost kurgan of DSP08-H17-02.

Towards the western tip of the spur, which is dominated by patches of exposed bedrock, a stone circle was excavated by the project in 2007 (Fig. 4.242). The context was empty of finds, and indeed the geological observations done in 2008 (see Chapter 3.3.2.6) determined that these very common features are natural phenomena caused by limestone erosion (karst). Of course, this does not rule out cultural uses, but so far only one tiny sherd has been recorded in areas of stone circles (see Unit 20010).

Relations to the surrounding area The spur lies adjacent to Hill 2 with settlements DSP07-H02-01-03 (Fig. 4.159).

Units 20008-20009 (Hills 16, 8 and 20) (Fig. 4.243)

Size 18.6 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line runs approximately 1.5 km in a more or less N-S direction from Foundation 42 to Foundation 44 in the Uplands. The line starts on Hill 19 at Foundation 42 towards the S and crosses over to Hill 8 following the eastern edge of this past Foundation 43 until it crosses over to Hill 20 with Foundation 44 in the Uplands. South of Foundation 44 the Uplands are cultivated. Vegetation and evidence of field clearance indicates that the cultivated zone started approximately 300 m further N at some time prior to the present, which is consistent with observations made in Units 20010-20012 (Fig. 4.244).

Cartography On the mid-20th century map, the Uplands were cultivated as is currently the case. The map of Koltuchov marks a settlement on the lower part of Hill 8 which was identified by the project in June 2007 (DSP07-H08-01) and another site on the eastern edge of Hill 8 further to the S in an area of stone circles.

Finds distribution Only Early Modern sherds were recorded on the Hillsides: 16 fragments of a glazed jar were found unrelated to other observations (Cat. 822), and a single sherd was noted approximately 70 m S of the stone circle site identified by Koltuchov. All other finds were associated with sites.

Sites On the S slope of Hill 16 N of Hill 8 several shallow banks were observed (DSP08-H16-01). In the same area geomagnetic survey revealed a rectangular bank open towards the W (Fig. 4.245). Inside is a square structure associated with a circular structure and another small square structure. No surface finds were recorded on this slope, but this may be due to erosion on the slope. The architecture suggests a settlement associated with the exploitation of the landscape possibly of more recent date.

At the bottom of Hill 16 where the line crosses over to the western edge of Hill 8, two possible stone foundations were recorded in a shallow area with dark soil and high grasses which belonged to the southern part of DSP07-H08-01 (see Units 20013-15) (see also Fig. 4.249).

On the eastern edge of Hill 8, the line crossed a shallow area where the map by Koltuchov identified a site consisting of stone circles, a heap of small stones and a small mound of soil. In 2008 we recorded an L-shaped elevation associated with a possible spoil heap. These earth works are likely to be related to a possible pipeline or cable visible as a shallow elevation crossing the area. The results of the geomagnetic survey support the predominance of modern activities in this area.

In the Uplands of Hill 20, the small cluster of finds was interpreted as evidence for the location of a Late Classical-Early Hellenistic site located in the cultivated field to the S (DSP08-H20-01). This included two Late Classical-Early Hellenistic handmade fragments, a possibly Late Classical-Early Hellenistic transport amphora fragment and two pieces of flint.

Relations to the surrounding area The settlement on Hill 16 would be within the viewscape of the settlements on the lower part of Hill 8 (DSP07-H08-01 and DSP08-H08-02) (Fig. 4.248). DSP08-H20-01 is associated with finds in Units 20011 (Fig. 4.247).

Units 20010 and 20012 (Hill 20) (Fig. 4.246)

Size 15.9 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line runs approximately 1.4 km in a more or less N-S direction from Foundation 41 to Foundation 39 in the Uplands. South of Foundation 39, the Uplands are cultivated. Vegetation and evidence of field clearance indicates that the cultivated zone started approximately 300 m further N at some time prior to the present, which is consistent with observations made in Units 20008-9 and 20011 (Fig. 4.244).

Cartography On the mid-20th century map the Uplands were cultivated as is currently the case. The area believed to have been previously cultivated is not indicated as such on the mid-20th century map suggesting a partly abandoned extension of the cultivated area since 1955. The map of Koltuchov indicates two sites associated with stone circles.

Finds distribution One tiny possibly red-slipped sherd was recorded at one of the stone circle sites identified by Koltuchov near Foundation 40. The condition of the sherd and the character of the area suggest erosion as a likely cause for its location in this particular area. It was the only sherd found in relation to stone circles, and although cultural use of these natural features cannot be completely rejected, there is no positive evidence to suggest it.

A possible Late Classical-Early Hellenistic amphora body fragment was recorded in the previously cultivated area in the Uplands.

Sites No sites identified.

Relations to the surrounding area No specific relations observed.

Unit 20011 (Hill 20) (Fig. 4.247)

Size 3.7 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Uplands.

Location The line runs approximately 400 m roughly E-W between Foundations 39 and 44 parallel to a large cultivated field in the Uplands. Deep soils dominate, and the vegetation as well as evidence for field clearance suggests that this area was cultivated at some time in the past.

Cartography The mid-20th century map indicates that the western half of the surveyed Uplands were cultivated. The area believed to have been previously cultivated is not indicated as such on the mid-20th century map suggesting a partly abandoned extension of the cultivated area since 1955.

Finds distribution A piece of flint and two sherds, one Early Modern, the other recent, were recorded on the edge of the cultivated field.

Sites No sites identified.

Relations to the surrounding area The flint is probably associated with the finds in the southern end of Unit 20009 (DSP08-H20-01) (Fig. 4.243).

Units 20013-20018 (Hill 8) (Fig. 4.248)

Size 11.5 ha.

Investigations Intensive and geomagnetic survey, trial excavation.

Landscape type Hillsides.

Location The line runs approximately N-S, the units form a block in the lower northern part of Hill 8 although they stop some 270 m short of the tip of the promontory. The western edge of the lower part of Hill 8 is grassy and has deep soils while the central and eastern side is dominated by patches of exposed bedrock. The vegetation suggests that the tip of the promontory may have been cultivated in the recent past.

Cartography The map of Koltuchov indicates a settlement in this area which was identified by the project in June 2007 (DSP07-H08-01).

Finds distribution Four clusters of finds were recorded all associated with architecture. Three of the clusters were located along the western edge of Hill 8 and the last one on the eastern edge. More finds were collected on Hill 8 in June 2007 reported as Finds Lists 11-12 in the original report but never integrated into the official finds recording system. Two Early Modern tableware sherds were recorded in the southern half of Unit 20017 (no. 1). These were however not associated with any archaeological structural remains.

Sites The distribution of pottery suggests at least two distinct scatters. The three clusters of finds on the western edge are associated with four stone foundations and several pits that can be recognized by intense vegetation on top of them (DSP07-H08-01) (Figs. 4.249-250). The entire area covers 2 ha. The northernmost cluster, a discrete scatter of eight sherds included three handmade Bronze Age sherds as well as Late Classical-Early Hellenistic ones (20013-1-2, 20014-1-2 and 20015-1-3). A grab sample (2007-FL11) from the broader area from 2007 included 20 handmade sherds dated to the Bronze Age. Geomagnetic survey revealed a double pen (Feature 2), and finds from the trial excavation, handmade pottery and numerous animal bones, suggested a Bronze Age date for this structure. The wall of the double pen was constructed as a double wall of large blocks filled-in with rubble (Figs. 4.251-254). The width could not be reconstructed. In the western corner of the trench, in stratum 4 was a small concentration of small stones associated with a concentration of animal bones. The middle, less discrete cluster of pottery consisted of six sherds most of them handmade Late Classical-Early Hellenistic sherds and a piece of flint located approximately 80 m to the SW (20015-4-10 and 20016-4). A grab sample (2007-FL12) from the broader area surveyed in 2007 included 13 handmade sherds dated to the Bronze Age. Geomagnetic survey revealed a complex of rectangular stone structures with multiple rooms as well as circular structures. A trial trench at Feature 7 revealed a collapsed stone wall in a layer of ashy soil which also contained the majority of the artefacts excavated, handmade pottery and lithics dated to the Bronze Age as well as animal bones (Figs. 4.255-256). The orientation of the wall is N-S, and it is 0.8-1 m wide. The wall is sitting on an ashy floor where a flint knife was found, several fragments of handmade pottery and animal bones (FL bag 31). The southernmost small cluster of three sherds, one Early Modern and two handmade Late Classical-Early Hellenistic ones, was located 55 m further SW (20008-9, 20016-1-3). Geomagnetic survey revealed three rectangular and more irregular stone structures with multiple rooms, pits and possible enclosure walls. The number of structures and the double pen suggest a settlement of substantial size associated with livestock rearing although not all the structures may be contemporary. The artefacts suggest a date in the Bronze Age. The range of vessel types is impossible to estimate based on the small handmade fragments. The elements of the site appear to be very similar to DSP07-H01-01 and DSP07-H02-01 which both were occupied during the Late Classical-Early Hellenistic period as well as sometime during the Bronze Age. The Late Classical-Early Hellenistic element at Hill 8 is however much more spread out over the hill.

Two Early Modern sherds found on the eastern edge are associated with a square stone foundation (DSP08-H08-02) (Figs. 4.257-258).

Relations to the surrounding area The settlements on the lower Hill 8 would be within the viewscape of the settlement on Hill 16 (DSP08-H16-01) (Fig. 4.243).

Units 20019-20020 (Hill 16) (Fig. 4.259)

Size 8 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs approximately 800 m roughly N-S from Foundation 46 to 47 on the western part of Hill 16. A large cultivated field runs parallel to the upper half of the line on the western side. Just SW of Foundation 46, there was an approximately 12 m long shallow elevation oriented N-S, but no finds were recorded. At both windmill foundations,

three cores were drilled the day before our survey and five of them were left on the surface (e.g. Fig. 4.260). According to these, the soil is no more than 0.2 m deep.

Cartography A strip of cultivated land parallel to the upper half of the line on the western side is marked on the mid-20th century map. The map of Koltuchov marks a group of five kurgans some distance W of the line, but only one was observed by the survey in 2008.

Finds distribution A single piece of flint was recorded just N of Foundation 46.

Sites No sites identified.

Relations to the surrounding area From the ridge of this hill is a fine view of DSP07-F02 and DSP08-F04.

Units 20021 and 20024 (Hill 14) (Fig. 4.261)

Size 5.6 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line runs approximately 800 m roughly N-S from Foundation 31 to 32. The line follows a shallow ravine with deep soils into the Uplands.

Cartography The map of Koltuchov indicates four kurgans at some distance W of the line.

Finds distribution A single indefinable sherd was noted.

Sites The line passed the western edge of a Bronze Age site (DSP08-H14-01), but no finds were recorded (see Units 20043-20048).

Relations to the surrounding area See Sites.

Units 20022-20023 (Hills 14 and 21) (Fig. 4.262)

Size 4.6 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line runs approximately 500 m roughly E-W from Foundation 32 to 34 crossing a N-S running dirt track to run parallel to another dirt track on the southern side. The area is dominated by deep soils, and the vegetation and evidence for field clearance suggests that the area was cultivated at some point in the past. Some modern material is found along both tracks.

Cartography The half-verst- and mid-20th century maps reveal both a N-S running dirt road from Kurama Kostel' in the S while also an E-W running track is marked on the mid-20th century map that appears to wind between strips of cultivated land in the Uplands.

Finds distribution No finds recorded.

Sites Just W of Foundation 34, a large angular patch of high vegetation and thistles indicate the presence of a structure probably of more recent date although no structures are visible on the half-verst- or mid-20th century maps (DSP08-H21-01) (Fig. 4.263). A piece of iron was embedded in the soil which may have been a plough fragment caught on a stone although no large stones were visible. The site must have been occupied between 1897 and 1955 or more likely after 1955.

Relations to the surrounding area It seems probably that this site was associated with the exploitation of the cultivated area to the S in the Uplands.

Units 20025-20028 (Hill 15) (Fig. 4.264)

Size 3.6 ha.

Investigations Intensive survey.

Landscape type On the transition between Hillsides and Pediment.

Location Running E-W, the units form a block on the shallow northern part of Hill 15 near the bottom of the Hillsides. Deep soils dominate. There is a dirt track running E-W just to the N.

Cartography On the 1955 map, the area to the S is cultivated. The map by Koltuchov indicates a settlement.

Finds distribution No finds recorded.

Sites The large angular patch of intense vegetation on the western slope of Hill 15 suggests the presence of a structure confirmed by near contemporary building debris (DSP08-H15-01) (Fig. 4.265). The site must have been occupied between 1897 and 1955 or more likely after 1955 as it is not indicated on either of these maps.

Relations to the surrounding area It seems probable that this site was associated with the exploitation of the cultivated area to the N at the lower end of the Hillsides. A very similar site, DSP08-H27-01 is located 400 m to the W (Fig. 4.228).

Units 20029-20030 (Hill 26) (Fig. 4.266)

Size 4.1 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs approximately 575 m roughly N-S between Foundations 48 and 49 on Hill 26 cutting across the road between Zajcevo and Krasnaja Poljana and Units 20000-1. The area near the road is characterised by earth works and garbage dumping related to the road. Generally, this side of the hill is dominated by deeper soils.

Cartography The road was constructed after 1955. On the half-verst map four kurgans are marked while the map of Koltuchov shows six on the eastern side of the road and an undated structure 160 m northeast of Foundation 48.

Finds distribution All finds were associated with sites.

Sites For DSP08-H26-02, see Unit 20001 (Fig. 4.230; 4.232). On the site marked on the map of Koltuchov NE of Foundation 48 on the northeastern edge of the promontory, two patches of low bushes revealed the outline of two structures, the larger one measuring 120 m². No finds were recorded. The vegetation was similar to the kind recorded on structures at DSP08-H12-01.

Relations to the surrounding area See Unit 20001 (Fig. 4.230).

Units 20031-20032 (Hill 25) (Fig. 4.267)

Size 11.7 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs approximately 1.3 km roughly N-S between Foundations 60 and 63 on Hill 25. Deeper soils dominate the northern part of the line while thinner soils and exposed patches of bedrock characterise the southern part.

Cartography On the half-verst map runs a dirt road from a farm between Karlav and Mussali SW on the western slope of Hill 25 where it crosses another dirt road from Karlav coming over Hill 3. The road from Karlav (here named Čaikino) is marked in the 1955 map running in the shallow ravine between Hills 3 and 25, as well as a strip of cultivated land in the shallow ravine between Hills 25 and 17. The map by Koltuchov indicates two kurgans between Foundations 60 and 61.

Finds distribution All finds were associated with sites.

Sites Midway between Foundations 60 and 62, the line crossed three kurgans. One indefinable body sherd was found just S of the kurgans, but no datable finds were associated. The southernmost kurgan was confirmed by geomagnetic survey (DSP08-H25-01). Approximately halfway between Foundations 62 and 63 a small mound with some very large stones in it was identified. An indefinable wheelmade sherd was recorded 8 m NE of the kurgan, but no datable finds were associated. Geomagnetic survey confirmed this is a kurgan as well as identified another one to the NW (DSP08-H25-02) (Fig. 4.268).

Relations to the surrounding area Just S of Foundation 63, a settlement was identified in Units 20064-20065 (DSP08-H07-03-04) (Fig. 4.304). East of the settlement, three kurgans were observed.

Units 20033-20034 (Hill 3) (Fig. 4.269)

Size 0.6 ha.

Investigations Intensive survey.

Landscape type Hillsides.

Location Running N-S, the units form a block basically covering Foundation 61. Deep soils dominate.

Cartography To the SW there is a symbol indicating a pit on both the half-verst- and the mid-20th century maps.

Finds distribution A fragment of modern tile was grab-sampled just W of the line.

Sites No sites were identified (see also Hill 3).

Relations to the surrounding area No specific relations observed.

Units 20035-20036 (Hills 19 and 12) (Fig. 4.270)

Size 2.3 ha.

Investigations Intensive and geomagnetic survey, augering.

Landscape type Hillsides, Plateaus/Uplands.

Location The line zigzags 2.6 km roughly N-S between Foundations 68 and 71 on Hill 19 and 12. In the area of Foundation 70, the line crossed a series of earth works associated with an abandoned well. There is plentiful modern garbage in the wider area as well as earth works associated with pipelines. The well post-dates the 1955 map. Still operating, there is another one like it close to the Zajcevo-Krasnaja Poljana road.

Cartography The half-verst map marked a line of seven kurgans near the Uplands and a single one on a long plateau approximately 1 km N of this. These are also marked on the 1955 map except that the line of kurgans is reduced to six. This map also marks two kurgans towards the bottom of the hill. Also on the 1955 map are tracks running from Čaikino and Snežnoe to a strip of cultivated land in the shallow area between Hills 24 and 19. The Koltuchov map marks a quarry just N of Foundation 69 and 11 kurgans between Foundations 70 and 71 as well four kurgans on the long plateau to the N. There are also three kurgans N of Foundation 68.

Finds distribution 22 sherds of an Early Modern pot (*Cats.* 568-569) were recorded midway between a group of kurgans (DSP08-H19-02) and a settlement in the Uplands (DSP08-H12-01). A handmade sherd was found just N of Foundation 71 (20035/10). All other finds were associated with sites.

Sites In the area of Foundation 69 and S towards Foundation 70, the line crossed an area of exposed bedrock of which several were quarried (DSP08-H19-09) (Figs. 4.271-272). An Early Modern tableware rim, a piece of flint and a ground stone were recorded in this area (*Cat.* 570 and 20035/2-3). Another Early Modern tableware sherd found 100 m to the S may be associated with other quarries in the wider area.

Just N of Foundation 70, the line bypassed a group of four kurgans to the NE. This is close to an abandoned well, where two sherds were recorded (20036/19-20) although they may be part of the modern rubbish associated with this area.

11 ancient sherds were recorded around a group of four kurgans S of Foundation 70 (DSP07-H19-03) (Fig. 4.207). They consisted of Late Classical-Early Hellenistic amphora fragments with among them a Herakleian fragment (20035/5-6 and 20036/14-18).

In the Uplands, the line by-passed seven kurgans positioned roughly in line (DSP07-H19-01-02) (Figs. 4.205-206). Due E of these, a patch of exposed bedrock with evidence for quarrying was recorded as well as low shrubs that suggested the location of four structures. The latter were associated with four sherds and a piece of flint (*Cat.* 537, 20035/7-8, 20036/11 and GS3208). Also associated is a cluster of 11 sherds and a piece of flint (20035/9 and 20036/1-10) recorded in the upland zone in a shallow depression with dark loose soils and high grassy vegetation associated with DSP08-H12-01 (see Units 20061-20063). Most of these sherds are of amphorai including a Sinopean, a Herakleian and a possible Thasian fragment. Geomagnetic survey clearly indicates that this area was cultivated at some point in the nearer past, but only the remains of one structure were found preserved below the surface (Figs. 4.302-303). In a core drilled in this area, tiny pottery fragments were detected in a cultural layer 0.23 m deep (see DSP08-H12-01 Auger S14-S15).

Relations to the surrounding area The quarrying in the southern part of Hill 19 may be associated with Snežnoe. The structures and pottery on the upper eastern slope of Hill 19 form the western edge of DSP08-H12-01, a large settlement spreading across two smaller promontories to the E (see Units 20061-20063) (Fig. 4.296). It is tempting to associate the kurgans on the upper part of Hill 19 with either of the two large settlements to the E (Figs. 4.148 and 4.296). The kurgans on the southern part of the ridge of Hill 19 are located less than 200 m W of DSP08-H12-01, although they are not at present visible in the viewscape of the site. The kurgans N of Foundation 70 are located only 300 m W of the settlement across the ravine on Hill 1.

Units 20037-20038 (Hill 11) (Fig. 4.273)

Size 5.8 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs 725 m roughly N-S between Foundations 86 and 87. The line follows a shallow ravine crossing an area of stone circles.

Cartography On the 1955 map there is a strip of cultivated land to the N and W.

Finds distribution No finds recorded.

Sites No sites identified.

Relations to the surrounding area No specific relations observed.

Units 20039-20040 (Hill 24) (Fig. 4.274)

Size 2.1 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line runs 2 km in an approximately N-S direction between Foundations 75 and 78. The line follows the western slope of Hill 24, a long promontory characterised by larger areas of exposed bedrock and stone circles.

Cartography A single kurgan is marked on the half-verst map in the lower part of the hill, while the 1955 map shows two kurgans at this location. The map of Koltuchov records eight kurgans in the same location and an area of stone circles between Foundations 75 and 76. Both the half-verst- and mid-20th century map show a track running roughly N-S on the western slope of Hill 24 probably linking several strips of cultivated fields marked in the 1955 map directly W of the track.

Finds distribution Apart from one sherd recorded (20040/5) SE of Foundation 78, there is a scatter of three sherds and two pieces of flint (*Cat.* 574, 20039/1-2 and 20040/2,4) recorded between the two kurgan groups crossed by this line. In terms of post-depositional processes, these fragments are most likely to have come from the southern group (DSP08-H24-02).

Sites Two groups of kurgans and a structure associated with a possible quarry were recorded. The northern group of eight kurgans is located NE of Foundation 77 (DSP08-H24-01) (Fig. 4.274). In this area there is also evidence for quarrying, which is the only instance of a close geographical correlation between kurgans and a quarry. A single amphora sherd was recorded in one of the kurgans (GS3217).

The southern group of five kurgans is located NE of Foundation 76 (DSP08-H24-02). Four of these kurgans were confirmed by geomagnetic survey (Fig. 4.274). In this general area, 12 sherds were recorded, apart from a possible Late Classical-Early Hellenistic amphora fragment all of unknown date (20039/3-9 and 20040/1). Nine of these sherds were collected in an area characterised by loose dark soil W of the kurgans.

Past Foundation 76, the line crossed an area of exposed bedrock and stone circles. Here vegetation suggested the location of a structure and a possible Late Classical-Early Hellenistic transport amphora rim (*Cat.* 575) was found just S of it (DSP08-H24-03). A possible quarry was located 85 m E of the structure (Figs. 4.275-276).

Relations to the surrounding area Apart from Hill 19, Hill 24 has the highest number of kurgans recorded.

Units 20041-20042 (Hill 23) (Fig. 4.277)

Size 2.4 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides.

Location The line zigzags 2.1 km roughly N-S between Foundations 79 and 82. The line follows the western side of Hill 23, a long promontory characterised by large areas of exposed bedrock and stone circles.

Cartography Both the half-verst- and mid-20th century map show a track running roughly N-S on the western slope of Hill 23, probably linking several strips of cultivated fields marked in the 1955 map directly W of the track. The Koltuchov map marked an area of stone circles between Foundations 80 and 81. SE of this are three kurgans.

Finds distribution A small diffused cluster consisting of four possibly Late Classical-Early Hellenistic sherds, one of which is a Sinopean amphora fragment, three indefinable and one Early Modern sherd (20041/1-5 and 20042/3-4) were recorded on the northern side of Foundation 80. 20041/1-5 came from an area of dark loose soil and high grasses similar to conditions in the southern part of DSP08-H12-01; however, no structures were recorded. This type of soil is usually associated with cultivation on the slopes. Post-depositional processes may have produced the cluster by moving artefacts to the surface. A visit to a small promontory adjacent to this area did not produce any additional finds. An Early Modern sherd was recorded just N of Foundation 82 (20041/7).

Sites Eight kurgans were recorded between Foundations 80 and 81 in an area of exposed bedrock and stone circles (DSP08-H23-01) (Fig. 4.277). Only a single sherd of undeterminable date was recorded (*Cat.* 573).

Two sherds, of which one was possibly Late Classical-Early Hellenistic (20041/6 and 20042/1), were recorded between Foundations 81 and 82 (DSP08-H23-02). Here the geomagnetic survey revealed the remains of an angular structure probably associated with a curved feature approximately 70 m to the NW (Fig. 4.277).

Relations to the surrounding area The cluster of pottery on the lower northern part of the hill may be associated with the large settlement located 260 m to the W (DSP08-H11-02).

Units 20043-20048 (Hill 14) (Fig. 4.278)

Size 9 ha.

Investigations Intensive and geomagnetic survey, trial excavation.

Landscape type Transition between Hillsides and Pediment.

Location The block of units runs N-S on the lower northern part of Hill 14 near the bottom of the Hillsides. Deep dark soil dominated by high dense grasses affecting surface visibility.

Cartography The site was identified by the project in June 2007 and marked on the map of Koltuchov.

Finds distribution A discrete concentration of pottery was recorded on the border of Units 20047 and 20048 within a more diffuse pottery scatter spreading from 20045 to 20048. Additionally, a Late Classical-Early Hellenistic amphora handle and an Early Modern sherd (Cat. 539 and 20046/1) were recorded 140 m to the S, also a piece of flint (20048/4) was recorded 140 m to the N.

Sites A site was supposed in June 2007 when a grab sample of 34 handmade sherds was collected (DSP08-H14-01). Although rocks were visible on the surface, no clear structures could be made out (Fig. 4.279). The core of this site is represented by 16 sherds of which 15 are handmade (20047/2-3 and 20048/2-3); however, due to the grab sampling the spatial distribution is not reliable. Three of the handmade sherds were dated to the Bronze Age, but the date of the remainder may be Late Classical-Early Hellenistic. Geomagnetic survey revealed six possible structures (Figs. 4.280-281). Trial excavation at Feature 2 confirmed the presence of a structure with a small square stone cist dated to the Bronze Age (Figs. 4.282-284). Below the topsoil was a sterile erosion layer which had helped to protect the archaeological remains. The archaeological remains sit in a grey ashy layer associated with handmade pottery and animal bones. In the northern half of the trench was a layer of field stone debris. In the southern half was a rectangular stone cist (1.2 x 0.9 m) constructed of small slabs: 3-5 cm thick and 5-10 cm high, sitting directly on the bedrock. In the middle of the cist is a natural depression filled with dense loam and rubble, but empty of artefacts. The more diffused pottery scatter consisted of two Late Classical-Early Hellenistic transport amphora fragments, one Sinopean, a possibly Byzantine transport amphora fragment and a Late Classical-Early Hellenistic handmade fragment (20045/1-2, 20048/1 and 3).

Relations to the surrounding area It is possible that the site was associated with the exploitation of the cultivated area to the N at the bottom of the Hillsides.

Units 20049 and 200058-60 (Hill 13) (Fig. 4.285)

Size 4.8 ha.

Investigations Intensive and geomagnetic survey, augerings.

Landscape type Plateaus/Uplands.

Location Running N-S, the units form a block on Hill 13, a small promontory. There is evidence for agriculture on the southern part of the promontory, and although the soil appears deep there are also areas of exposed bedrock. The tip of the promontory is flanked by two small peaks with stone structures on top of them.

Cartography The site marked on the map of Koltuchov was identified by S. Lancov and S. Koltuchov in the autumn of 2007. According to the map, it is a settlement of the Bronze to Early Iron Age.

Finds distribution The pottery is found on the southern part of the promontory, 100 m S of the flanking peaks. It consisted of a possible Herakleian tile fragment, two Late Classical-Early Hellenistic transport amphora fragments, one Thasian, a Late Classical-Early Hellenistic handmade sherd, an Early Modern sherd, a modern sherd and five indefinable sherds (Cat. 538, 20049/1-3, 20059/1-2 and 20060/1-4).

Sites Remains of six possible structures were visible on the surface of the peaks and 100 m S of the tip on the central part of the promontory, but no pottery was recorded in the vicinity (DSP08-H13-01) (Figs. 4.286-287). Geomagnetic survey recorded the remains of only three rectangular structures (Features 2, 3 and 6), one of which is on the eastern peak (Feature 2) (Fig. 4.288). Augerings on the peaks revealed no secure cultural layers. Based on the rectangular structures the site was interpreted as a possible settlement.

Relations to the surrounding area It is possible that the site was associated with the exploitation of the cultivated area to the S in the Uplands. The ravines cutting Hill 13 from the surrounding landscape continue N to settlement DSP08-H11-02 (see Units 20050-20055) (Fig. 4.277). Kurgan Group 7 is located in the Uplands 1 km SE of DSP08-H13-01.

Units 20050-20055 (Hill 11) (Fig. 4.289)

Size 11.6 ha.

Investigations Intensive and geomagnetic survey, trial excavation.

Landscape type Hillsides.

Location Running N-S, the units form a block on the eastern slope of Hill 11, a long promontory. The eastern slope of Hill 11 has a long narrow spur. Towards the northern tip, the soil is deeper but towards the S, the soil becomes gradually thinner.

Cartography No features indicated.

Finds distribution All finds are associated with the site spread over an area of 7 ha. The finds of the intensive survey tend to cluster in the northwestern part of the promontory spreading onto the eastern slope of the main body of Hill 11 over an area of approximately 3 ha. Unfortunately, two large grab samples (GS3094 and GS3218) were taken prior to the systematic survey, which has corrupted the spatial distribution of the clustering.

Sites The discrete cluster of artefacts associated with architectural remains was identified as a site spreading over 2.6 ha (DSP08-H11-02) (Fig. 4.290). Remains of ten possible stone structures are visible on the surface. The architecture seems concentrated at some distance S of the tip as was the case with the settlement on Hill 8 (DSP07-H08-01) (Fig. 4.248). Of course this may have been caused by erosion and soil build-up at the tip, which appears to have been the case at DSP08-H12-01 (see Units 20060-20063) (Fig. 4.296). Three additional structures are located 85 m to the N on the E slope on the main body of Hill 11. A total of 104 sherds and three lithics were collected from DSP08-H11-02. Apart from a single possible Bronze Age sherd, the pottery consists of Late Classical-Early Hellenistic transport amphorai from Herakleia, Chersonesos, Sinope, Thasos and possibly Chios, a Sinopean louterion and handmade sherds as well as many unidentified wheelmade body fragments of red clay some of which are Early Modern. The most closely dated artefact is a Sinopean amphora fragment dated ca 350-250 BC (Cat. 494). One amphora fragment shows traces of repair (Cat. 497). Geomagnetic survey revealed eleven poorly defined anomalies indicating possible structures up to 30 to 70 m apart and household pits (Fig. 4.291). Trial excavation at Feature 9 revealed an irregularly shaped pit house with a S entrance dated to the Late Classical-Early Hellenistic period (Figs. 4.292-294). The diameter of the main pit is 2.8 m. Above the pits was an ashy layer associated with fragments of Chersonesean and Sinopean amphorai, handmade pottery, tableware as well as a jug of possibly Samian origin and animal bones. The loamy sand-filling of the pits was associated with Chersonesean, Sinopean, Thasian and Herakleian amphora fragments, handmade pottery, tableware and animal bones as well as a fragmented stone slab of possible southeastern import. The number of structures and the range of finds suggest a settlement of substantial size dated to the Late Classical-Early Hellenistic period. The architecture makes this settlement unique among the sites identified so far.

Relations to the surrounding area DSP08-H11-01 is located approximately 1 km due S at the bottom of the slope (Fig. 4.195). The ravine E of the site continues S to settlement DSP08-H13-01 (see Units 20049, 20058-20060) (Fig. 4.195). Across the ravine approximately 260 m to the E was recorded a small cluster of ceramics (see Units 20041-20042) (Fig. 4.277).

Units 20056-20057 (Hill 22) (Fig. 4.295)

Size 15.4 ha.

Investigations Intensive and geomagnetic survey.

Landscape type Hillsides, Plateaus/Uplands.

Location The line zigzags 1.6 km roughly N-S between Foundations 92 and 94. The line roughly follows the ridge of Hill 22, a long promontory. Patches of exposed bedrock and stone circles are mainly observed in the southern part between Foundations 92 and 93. Towards the Uplands, the soil becomes visibly darker.

Cartography A single kurgan is marked on the half-verst map in the Uplands while on the map of Koltuchov six kurgans appear. This map also indicates three kurgans NE of Foundation 93 and another one to the SE.

Finds distribution The only pottery recorded in these units is six fragments of an Early Modern cooking pot (Cat. 572) collected S of Foundation 93 NW of a lone kurgan.

Sites Northeast of Foundation 93, a group of three kurgans was recorded (DSP08-H22-01) and to the SE a single kurgan (DSP08-H22-02) (Fig. 4.295). In the Uplands were a quarry as well as seven kurgans and remains of more recent structures revealed as patches of intense vegetation and stone foundations (DSP08-H22-03). This is the only recorded instance of a near recent settlement being located adjacent to ancient kurgans on the slopes. No finds were collected in this area, and the geomagnetic survey revealed a number of irregular ditches of different sizes (Fig. 4.295).

Relations to the surrounding area No specific relations observed.

Units 20061-20063 (Hill 12) (Figs. 4.296, 4.148)

Size 6.7 ha.

Investigations Intensive and geomagnetic survey, augering.

Landscape type Plateaus/Uplands.

Location Running N-S, the units form a block on the small promontory of Hill 12 spreading E onto another small promontory (see also Units 20035-36). Deep soils dominate the area especially to the S where the soil is dark and loose and dominated by high grasses. The site cuts across two shallow ravines with relatively steep banks.

Cartography No features are indicated.

Finds distribution All finds are associated with the site, which spreads out over a total area of 6 ha (see also 20035-20036). Finds tend to cluster in the S (20035-20036) on the tip of Hill 12 (GS3209-3216) and on the western slope of the small promontory adjacent to Hill 12 (20063). The cluster on the tip is probably the result of post-depositional processes of soil accumulation and subsequent erosion. The cluster in the S may likewise be the result of post-depositional processes. Because of cultivation of this area in the recent past, artefacts have been ploughed out into the surface.

Site DSP08-12-01 is located near the tip of Hill 12, but the architecture spreads onto the eastern slope of Hill 19 and the western slope of a small promontory E of Hill 12 (Figs. 4.297-298). At least 14 stone structures are visible on the surface, some covered with shrub (Figs. 4.299-301). At least one of these was constructed with double walls built with standing blocks. Including the artefacts from 20035-36, a total of 53 sherds (20035/7-10, 20036/1-9, 20036/11-12, 20061/1-4, 20062/1-7, 20063/3-9, 20063/11, GS 3209-3216) and six lithics (20036/10, 20063/2, 20063/10 and GS3208) were collected from DSP08-H12-01. The pottery consists of Late Classical-Early Hellenistic handmade pottery and transport amphorai from Herakleia, Sinope, and possibly Thasos and Chios as well as some unidentified wheelmade fragments of red clay. One handmade sherd may be dated to the Bronze Age and for two amphora sherds, a Byzantine and Medieval date has been tentatively suggested. Geomagnetic survey suggests the presence of 11 architectural complexes some consisting of one to three rooms, but at least four complex multi-room structures, and multiple household pits (Figs. 4.302-303). Several attempts at augering inside the structures were unsuccessful due to stones. The number of stone structures of relative complexity and the range of finds suggest a settlement of a substantial size of the Late Classical-Early Hellenistic period, although not all of the structures may be contemporary. If the curved feature in the northeastern part of the settlement is a double pen, the architectural elements appear to be consistent with DSP07-H01-01, DSP07-H02-01 and DSP07-H08-01; however, only one Bronze Age sherd was identified and the technique of constructing the foundation of standing blocks has not been observed at the Bronze Age sites.

Relations to the surrounding area DSP08-H12-01 is located 1 km due S of the settlement on Hill 1 (DSP07-H01-01) (Fig. 4.270). The kurgans on the southern part of the ridge of Hill 19 (Groups 1-2) are located less than 200 m W of DSP08-H12-01, although they are not at present visible in the viewscape of the site (Fig. 4.270). Kurgan Group 4 is located 350 m due N, and Groups 6-8 are located in the Uplands 1.3 km to the S.

Units 20064-20065 (Hill 7) (Fig. 4.304)

Size 1.4 ha

Investigations *Razvedki*, intensive and geomagnetic survey.

Landscape type Transition between Hillsides and Plateaus/Uplands.

Location The line runs approximately 150 m N-S in a lower area between Hills 25 and 7 near the Uplands just S of Foundation 63. The soil is deep and vegetation dominated by high thick grasses accounting for a very poor visibility. Only 100 m to the S the cultivated zone in the Uplands begins.

Cartography On the half-verst map, the area is crossed by two dirt roads running SW from Karlav. On the mid-20th century map, the area is indicated as cultivated. The Koltuchov map indicates three kurgans to the NE.

Finds distribution The original survey in June 2008 produced only five tiny sherds (20064/1 and 20065/1-4). The low number was probably due to poor visibility. A later visit when the vegetation was dry produced a grab sample of six sherds around the largest ash hill (GS3221), four of which were Early Modern, but also one handmade sherd. All finds are associated with the site.

Sites At least three rectangular stone structures and three possible ash hills are visible at DSP08-H07-03 (Fig. 4.305). Additionally, geomagnetic survey revealed a number of household pits and a cluster of three fireplaces (Figs. 4.306-307). The architecture and finds suggests an Early Modern settlement.

Relations to the surrounding area There is a dam (DSP08-H07-04) consisting of two roughly L-shaped earth banks in the shallow ravine 110 m SW of DSP08-H07-03 and probably associated with the site (Fig. 4.308); however, just 130 m to the W is a small scatter of sherds associated with the settlement on Hill 1 (DSP07-H01-01) (Fig. 4.147). It seems probable that DSP08-H07-03 was associated with the exploitation of the cultivated area to the S in the Uplands.