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KAMYANE-ZAVALLIA, THE EASTERNMOST LINEAR POTTERY CULTURE SETTLEMENT EVER EXCAVATED

ABSTRACT

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The paper presents recent field-work in south-western Ukraine. Three new sites of Linear Pottery Culture were found in the north Odessa region. The Author argues that they constitute a cluster of settlements and indicate the Neolithic colonisation of the region. One of the sites, Kamyane-Zavallia, was excavated. A typical long pit was uncovered, alongside a stone pavement and a narrow, deep trench. They could probably have formed part of a typical LPC house's layout. Ceramic imports of the Dudeşti culture revealed long-distance contacts with the farmers of Lower Danube valley.

Keywords: Neolithic, Linear Pottery Culture, agricultural colonisation, long pits, ceramic imports, Dudeşti culture

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INTRODUCTION

The way Linear Pottery Culture (LPC) expanded and affected vast portions of West, Central and East Europe has been actively debated over the last 30 years (Bogucki 1988, 117; Price *et al.* 2001; Dolukhanov and Shukurov 2004; Dolukhanov *et al.* 2005). However, the reasons why its spread stopped at a certain point are still difficult to understand.

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The scope of this paper is to define and discuss the easternmost distribution of LPC according to new evidence recorded from recent surveys and excavations. They were carried out in the south-western region of present-day Ukraine on the slopes of Podillian upland where it directly faces the Great Eurasian Steppe.

The detailed study of a new excavated settlement in the easternmost part of LPC world would contribute to the interpretation of the eventual relationships between LPC farmers and the autochthonous populations already settled there (Gronenborn 1998). According to some authors, the sites at the eastern fringe could be treated as outposts of the LPC in an alien environment, as a result of the infiltration of LPC bearers into the habitat of the indigenous population (Larina *et al.* 1999). In contrast, they could also be similar to «classic» sites of LPC in the heart of its area and form typical micro-regions of settlement (*Siedlungskammer*).

Although we have reasonable knowledge of the many LPC groups west, north and south of its core area, so far archaeologist have not been attracted by the eastern LPC expansion. J. Pavuk was the first to define the peculiarities of the development of LPC to the east of Carpathians (Pavuk 1969). While the sites of south-eastern Poland were successfully included in the general European discourse on Early Neolithic (Kulczycka-Leciejewiczowa 1970; 1979; Kozłowski 1985; Kadrow 1990; Dębiec 2015), the Ukrainian LPC is still insufficiently known. The eastern "peripheral group of LPC" was defined in Soviet times (Telegin 1979; Telegin 1985; Zaharuk and Telegin 1985). At present, some "characteristic traits" of this "peripheral group" seem to derive from different methods of excavations and the interpretation of the structural and material culture remains, rather than reflect any valid differences in prehistoric reality (Lenartowicz 2013; Saile *et al.* 2016).

In 2011-2016 three new sites of LPC were detected in the Southern Bug valley, north Odessa region, Ukraine. Characteristic potsherds of the *Notenkopf* phase of LPC were collected on the surface of two sites (Syne Ozero and Gnyla Skelia). The third site, Kamyane-Zavallia was excavated (Kiosak 2013; 2016; Kiosak *et al.* 2014a; 2014b; Saile *et al.* 2016). It yielded abundant material of LPC and, while some finds of LPC were discovered to the east of Kamyane-Zavallia, this cluster of sites is the easternmost *Siedlungskammer* of LPC. It is situated some 120-150 km to the east of any other LPC settled micro-region previously known.

The very existence of Kamyane-Zavallia provides new data to the issue of LPC eastward expansion. Were Kamyane-Zavallia and near-by sites outposts in the alien surroundings of a local population? Were there logistical difficulties in conducting a Neolithic way of life so far away from the LPC *Heimatland*? Are there similarities in the material culture and ways of life that could indicate the "realtime" interaction between early farmers and autochthonous groups of Bug-Dniester culture? Is the neolithisation of Southern Ukraine connected with the LBK spread to the east and south? This paper is not intended to solve these problems decisively but presents the results of recent excavations at Kamyane-Zavallia and suggests some ways to interpret them.

THE SITES AT THE EASTERNMOST PERIPHERY OF LPC

There are over 300 LPC sites in Western Ukraine, Moldova and Eastern Romania (Larina 1999; Okhrimenko 2009; Lenartowicz 2013). They form clusters where settlements are packed densely indicating the intense agricultural colonization of a landscape. On the other hand, finds of LPC are scarce to the east of the river Zbruch and the lower stretches of the Dniester. There are 6-7 settlements (1 site is dubious) and *ca* 10 single finds in this territory. As far as O. Larina reserved a name of an "eastern periphery" of LPC to the settlements of western Ukraine and Moldova (Larina 2006; 2010), we suggest the nomination of "easternmost" group for these sites situated to the east of the "eastern region".

The above-mentioned easternmost sites are as follows.

The site of Kamyane-Zavallia has been known since 1974 as a Roman Age settlement (Stanko and Smolianinova 1974). In 2011, the author recovered a few LPC finds from the site itself. The Neolithic site covers an area of over than 6,5 ha, stretching from NE to SW along the hilly first terrace of the eastern bank of Southern Bug river. In the next year, a test-trench opened up a pit of LPC that was extremely rich in bone splinters and potsherds. In 2013-2016, the site was excavated by the didactic field expedition of "I.I. Mechnikov" Odessa National University. Kamyane-Zavallia (Fig. 1: 6) is situated at 48.1996°N and 29.9997°E. It is the easternmost LPC site ever excavated at present.

Mainova Balka (Fig. 1: 9) was discovered in 1976 by S.O. Dvorianinov close to Ananiev (north Odessa region, Ukraine; cf. Dvorianinov 1982). It is located east of the long gully flowing down into the Tiligul river, *ca* 50 km from Southern Bug river valley. In 1993 the area was surveyed again by I.V. Sapozhnikov and V.G. Petrenko. They found unornamented potsherds "that look similar to LPC ware" on the western bank of the same gully (Fig. 1: 10). They called the site Mainova Balka III and tentatively attributed it to LPC (Larina *et al.* 1999).

Moving ca 500 km north, in Ukrainian Polissia, two more sites were discovered during archaeological surveys: Fasova (Fig. 1: 2) and Vita Poshtova (Telegin 1979; Gaskevych 1997). The latter is the easternmost site so far discovered with LPC material. It is located on the outskirts of Kyiv, only 25 km from the Dnieper River course (Fig. 1: 1).

In 2016 several typical LPC potsherds were found by the author in a location known as Gnyla Skelia (Fig. 1: 7), on the terrace of the Southern Bug, 2 km south-east of Kamyane-Zavallia. The site yielded also many bones and chipped stone artefacts. Another site, Syne Ozero (Fig. 1: 7), was found by O.S. Peresunchak just 2 km to the north of Kamyane-Zavallia, on the terrace of Southern Bug, close to artificial lake "Syne Ozero". He collected typical *Notenkopf*-ware shards and characteristic lithic implements on the surface of the site. Two latter sites and Kamyane-Zavallia cluster together on 5-km long stretch of Southern Bug river valley forming a micro-region of LPC settlement. The cluster of sites around Zavallia could be treated as typical *Siedlungskammer* and, thus, could indicate a substantial degree of LPC colonisation of the particular landscape in the Southern Bug valley on the very margin of north Pontic Steppe and Podillian upland.

Other few isolated LPC finds were collected from sites of other cultures. Several potsherds with "musical notes" decoration were found in the Bug-Dniester sites of Bazkiv Ostriv (Fig. 1: 4), Gard (Fig. 1: 8) and Gyrzheve (Fig. 1: 11) (Danilenko 1969; Tovkailo 2014; Stanko and Kiosak 2010). A typical coarseware fragment comes from Schurivtsi-Porig (Fig. 1: 5) (Gaskevych 2011). A complete vessel comes from the multi-cultural site of Dobrianka III (Fig. 1: 3) (Zaliznyak *et al.* 2013). Some other finds were published from several other less clear contexts (Kiosak *et al.* 2014a; Saile *et al.* 2016).

EXCAVATIONS AT KAMYANE-ZAVALLIA

At present Kamyane-Zavallia is the only excavated site located at the easternmost fringe of the LPC. The excavations carried out in 2013-2016 covered an area of 130 sqm.

The stratigraphy of the site is as follows:

1. ploughed soil: typical chernozem (black soil); 30 cm;
2. subsoil: grey, quite homogenous; 60-80 cm;
3. transitional layer: grey with yellow clayey inclusions; 30-40 cm;
4. bottom layer: yellow and light-yellow clayey loess-like loam.

A Holocene soil (layers 1-2) is more than 1m thick. This phenomenon is a common feature of the region. There is high degree of bioturbation along the sequence.

Features

Pit 1

Excavation was centered on the pit discovered during the opening of a test-trench in 2012. It consists of an irregular feature, north-east/south west oriented. Most of Pit 1 was excavated during the 2012-2016 field seasons. It is at least 21 m long and up to 2.5 wide in some parts. The pit was firstly observed in the profile of the aforementioned grey subsoil. Pit 1 can be seen in profile starting from a depth -70 cm (from conventional zero, 100-110 cm from the present-day surface) and we were able to find it at 90-110 cm of depth inside a yellowish sediment of the transitional layer in planum. The deepest point of the pit is -187 cm (over 210 cm from the modern surface). So pit 1 has a maximal investigated depth of 1,1 m (187-70=117 cm). It was generally shallower (some 60-70 cm) and the transitional layer (3) is cut by pit 1 and does not exist above the pit.

Four stratigraphic units can be identified in the filling of pit 1: D1' is grey subsoil trampled into the almost filled pit; D1 is a grey ashy dense layer filled with bones and potsherds that covers the pit like a "cap"; D2 is a dark-grey, layer that contained less finds (than D1), but the finds are not so fragmentary, there were some vessels with complete profile; D3 – the blackish, lucid filling of the deepest portions of the pit 1. This stratigraphy reflects the process of pit 1 filling. It stood open for a certain time (formation of D3), then it was filled

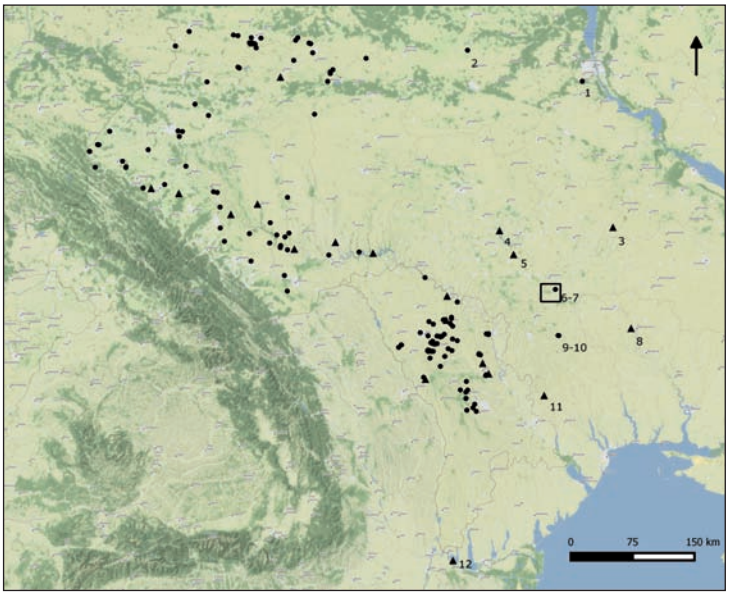

Fig. 1. Map of Linear Pottery culture sites in Ukraine and Moldova. Cirles – settlements, triangles – single finds, square – area of investigation (see Fig. 2 A). 1 – Vita Poshtova, 2 – Fasova, 3 – Dobrianka III, 4 – Bazkiv Ostriv, 5 – Schurivtsi-Porig, 6-7 – Kamyane-Zavallia, Syne Ozero, Gnyla Skelia, 8 – Gard, 9-10 – Mainova Balka, Mainova Balka III, 11 – Gyrzheve, 12 – Orlovca-Cartal

Fig. 2. A. – Area of investigation with sites of Kamyane-Zavallia, Syne Ozero and Gnyla Skelia. Topo – Bing Aerial acquired via QGIS. B – Kamyane-Zavallia, view from north-east, area of the site is marked by black line

Fig. 4. Kamyane-Zavallia. Pit 1, northern part, view from south. Excavation of 2016

Fig. 5. Kamyane-Zavallia. Stone pavement. Excavation of 2014

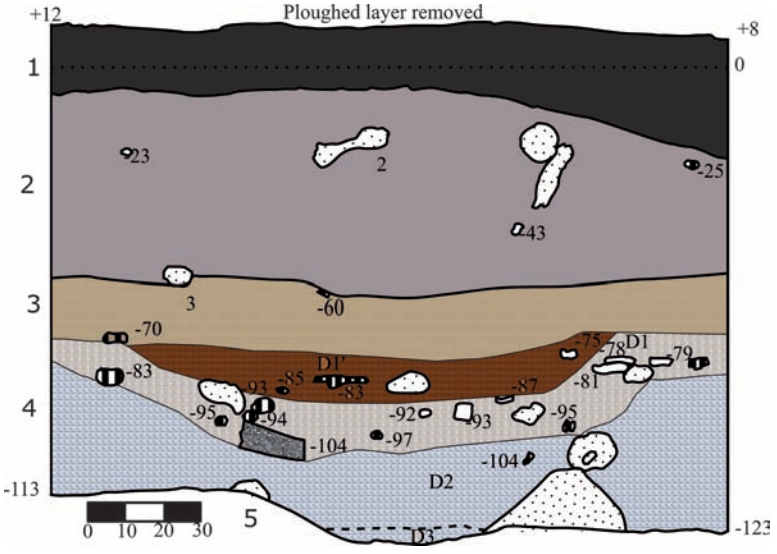

Fig. 6. Kamyane-Zavallia. Stratigraphy of Object 1 (North wall of sq. 7). Empty areas – potsherds, hashed areas – bones, grey area – stone, dotted areas – holes of bioturbation (krotovinas). 1 – ploughed layer; 2 – subsoil; 3 – carbonated layer; 4 – filling of the pit 1 with stratigraphical units D1' – grey soil, D1 – solid grey layer tightly packed with bones, potsherds etc.; D2 – dark-grey loose layer with finds of almost complete vessels; D3 – dark, lucid matter, filling of the deepest parts of the pit 1. 5 – bottom layer, yellowish loam (for a detailed description, see text). Depths are from conventional zero (dotted line in the Fig. 6)

Fig. 7. Kamyane-Zavallia. Tight concentration of swine bones in pit 1, part 3. Excavation of 2015

Fig. 11. Kamyane-Zavallia. Antler hammer

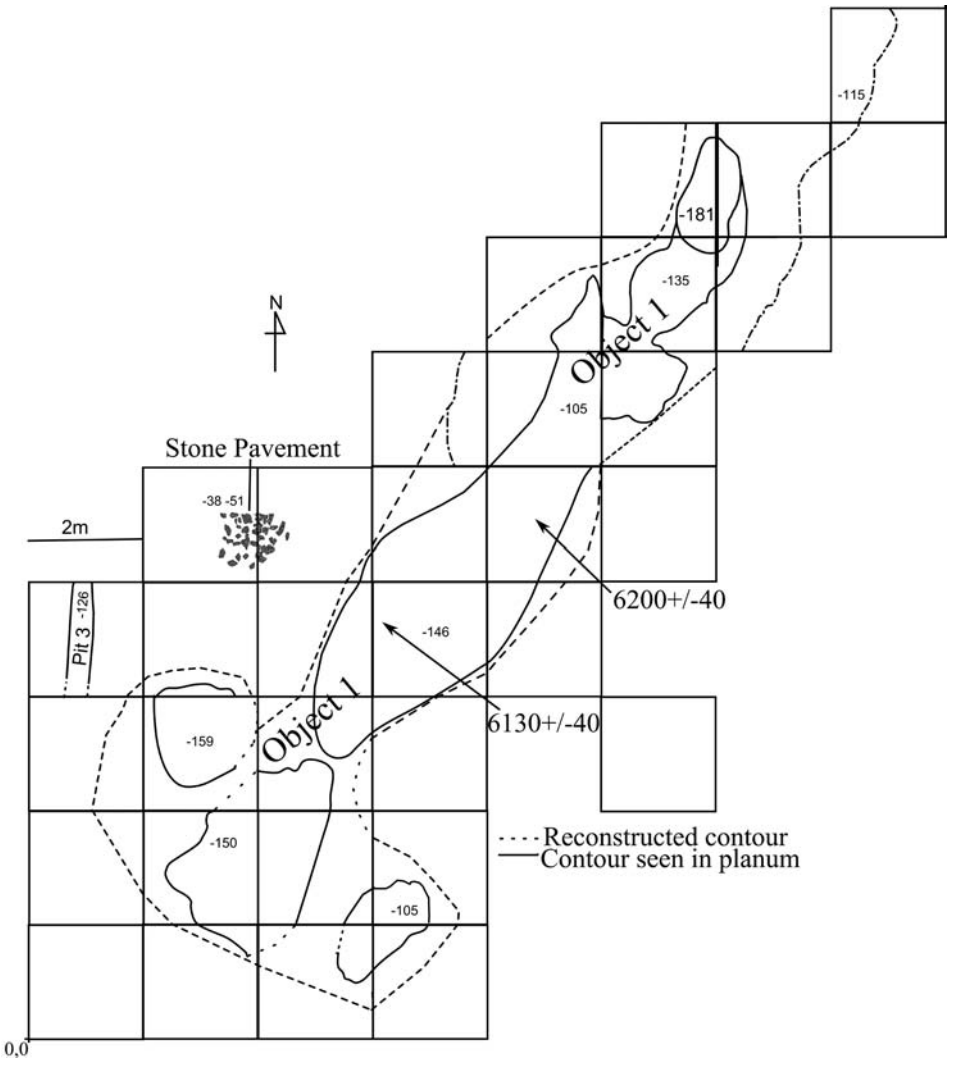

Fig. 3. Plan of Excavation No 1 with position of samples for radiocarbon dating

slowly with freshly broken things and by the natural erosion of its edges (D2), later it was covered by huge masses of garbage (bones, sherds, etc. – D1).

Pit 1 had a complex shape in terms of edges and bottom. There are certain parts of pit 1 where it cannot be found in yellow sediments but obviously it was not deep enough to enter them. These "pedestals" divide pit 1 into several sections – the long main body, almost perfectly oval in shape (pit 1/1) and two larger irregular depressions to the NE and

SW (pit 1/2 and 1/3). The south-west section is bordered by two round pits, probably dug into pit 1/2 filling when it was not completely filled. The north-eastern section included the deepest part of pit 1 (up to -187 cm (210 cm from the modern surface). It was an elongated trough-shaped pit bordered by large stones. Some stones bear traces of use for grinding. They contained densely packed bones and bone fragments.

Pit 1 was dated by radiocarbon method to a time-span 5295-4960 calBC (Poz-67121, 6200 ±40 BP and Poz-67554, 6130 ±40 BP (Gouriveau *et al.*, in preparation)).

Stone pavement

The scattering of stones was found to the NW of pit 1, some 1,5 m away. It was laid at a depth of -48 – -62 cm (88-102 from modern surface). It was composed of flat and (probably) flattened small blocks of stone (mostly locally available quartzite). They seemed to compose a paved surface, fitting each other along breaks quite closely. Sometimes their shapes were probably intentionally changed in order to provide a better fit. The structure contained 3-4 characteristic LPC potsherds, leaving little room for doubt about its age. The pavement could lay on a "walking surface" of the LPC period.

Pit 3 is a narrow trench some 40-60 cm wide and 60-70 cm deep found on the western side of pit 1, close to the pit's part 1/2. It ran more or less in the same direction as pit 1. Pit 3 contained many pieces of burnt clay, charcoals, bone fragments and at least 3 large fragments of LPC vessels. We investigated only 2 m of the pit's length. It resembles closely the foundation trenches for LPC houses.

Finds

There are over 3000 potsherds, mostly found in pit 1. They can be subdivided in four main categories:

I. fine-ware, with thin walls and evenly structured paste with little visible admixtures (sand, sometimes somewhat larger pieces of small pebbles, mica). A group of vessels contained graphite in the paste. It gave them a particular "silver" gloss;

II. coarse-ware, with walls that can be as thick as 25 mm, rough surfaces and larger admixtures as temper;

III. red-ware made of lumpy, bristle paste, three-coloured (red-grey-red) in section;

IV. fine-ware, with lumpy structure in section, larger admixtures, but still finely evened, smoothed or burnished surfaces.

Fine-ware (**I**) includes 2/3 of found potsherds and over half of represented vessels if counted by preserved rims.

Fine-ware is mainly represented by globular or hemispherical bowls of a closed shape, 8 -22 cm in diameter by a rim. They have light yellow, grey or dark grey well-polished outer surfaces and are well-smoothed from inside. There are 5 vessels with a complete or almost complete profile in pit 1 and pit 2 (Fig. 9: 1-5).

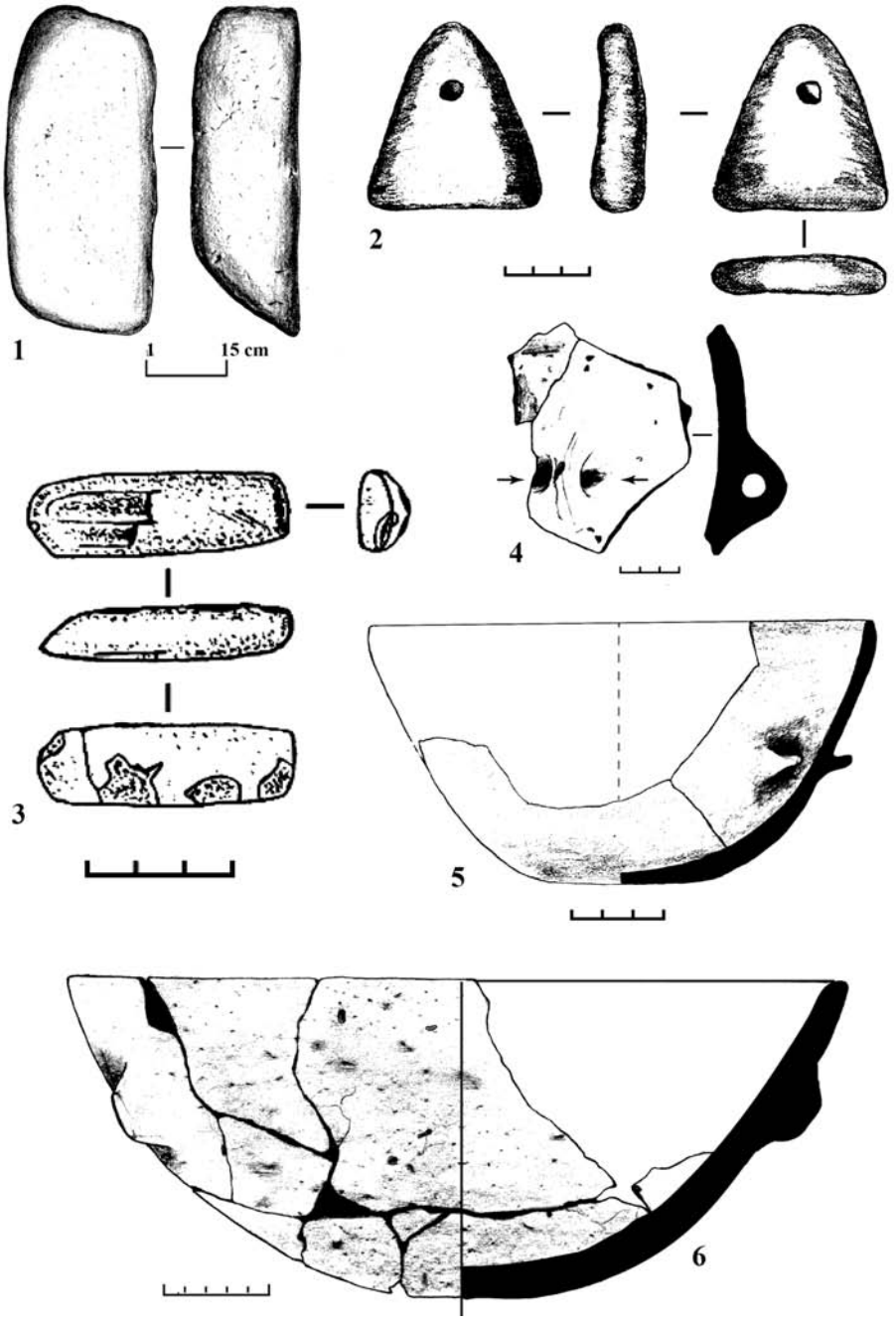

Fig. 8. Kamyane-Zavallia. Various finds: 1 – grinding stone; 2 – ceramic weight; 3 – *Schuleistenkeil* adze; 4 – handle on coarse-ware vessel; 5-6 – ceramic vessels

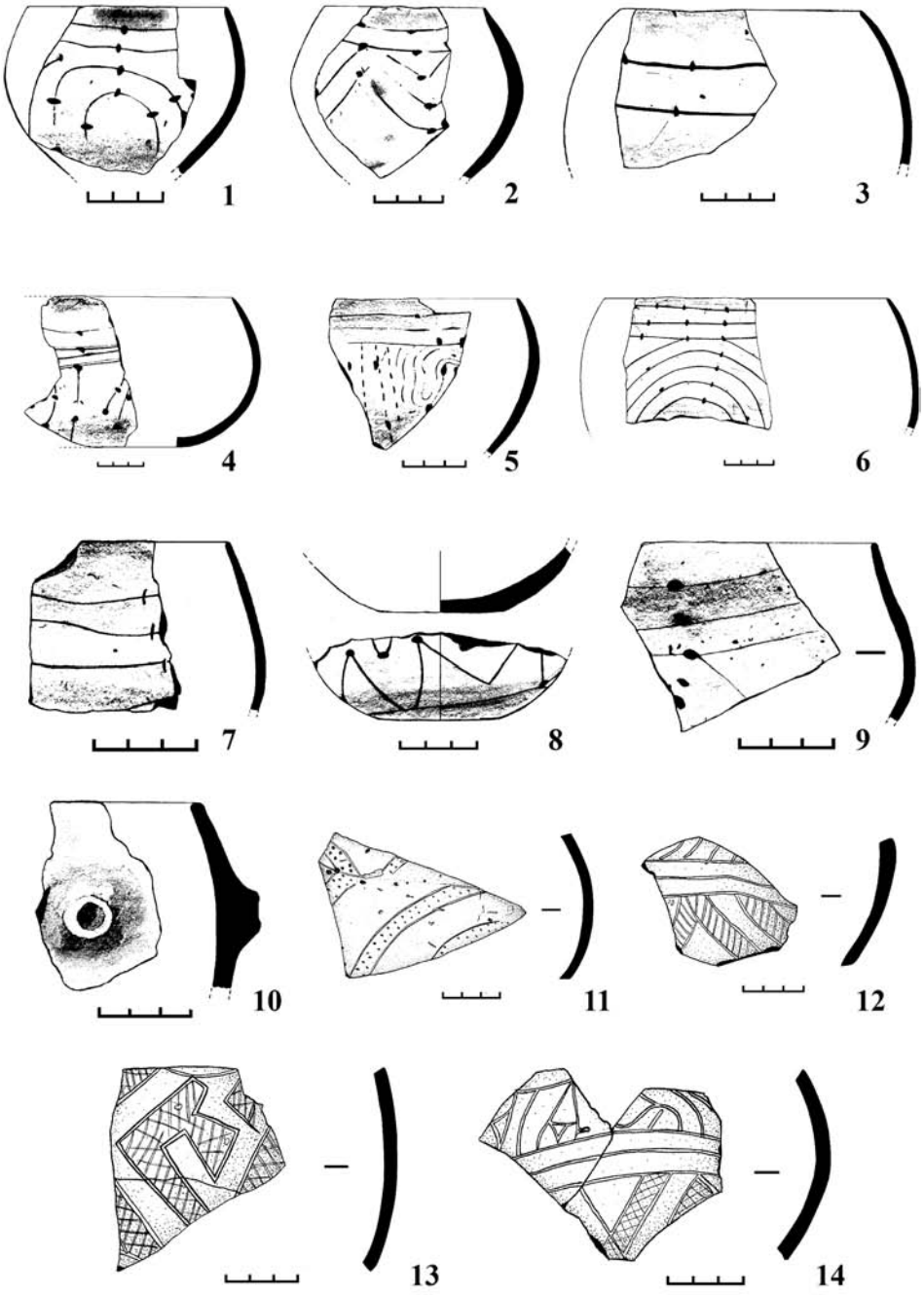

Fig. 9. Kamyane-Zavallia. Pottery. 1-9 Notenkopf-ornamented ware; 10 – knob decoration, 11 – "pseudo-Vinca stripe" decoration; 12-14 – potsherds ornamented in Dudeşti style

Open bowls are not so numerous. The only almost complete specimen of this type stood 8 cm high, had a diameter of 16 cm at the rim and 6 cm at the bottom. It was decorated with four knobs and had a well-smoothed surface (Fig. 8: 5).

There are also necked vessels ("amphorae"?). They are represented by fragments of relatively narrow (5-6 cm) necks.

Some of the vessels stood on low, hollow pedestals.

The typical decoration pattern is 2-3 horizontal incised lines immediately below the rim and groups of straight or curved lines, triangles and arcs of circle running down a body of the bowl (Fig. 9: 1-4, 6-9). The lines are divided by small dots ("music notes").

There are some particular types of decoration: stripes of dots or hatches flanked by incised lines (Fig. 9: 11). The exact attribution of these stripes was a subject of debate. O. Larina treated them as Balkan influence and called a "Vinča stripe" (Larina 1999). N. Kotova pointed out that similar decoration is known in group Šarka in Silesia (Kovaliukh *et al*. 2007). They are a common, but never prevailing, component in *Notenkopf* complexes of south-east Poland (Kadrow 1990). Some potsherds have decoration that combine well-polished zones and intentionally made rough surfaces.

The coarse-ware (**II**) had different tempers in their paste and offhandedly finished surfaces. The commonest group (**II-4**) had coarse temper of stone fragments and pebbles which gave a rough appearance to the surfaces. The latter were often smoothed by fingers in a manner that left finger channels still visible. The surfaces, if even smoothed, still exhibit pieces of stones stretching from the walls. Large vessels with walls up to 25 mm thick were made in this technique. Some of them were necked and had handles. Decorations are knobs, finger imprints and nipples. Sometimes the neck of thick-walled vessel was decorated by plastic clay roll, divided by finger imprints. One vessel was ornamented by incised lines. The only preserved shape is represented by a large open bowl, 38 cm in diameter at rim (Fig. 8: 6).

The organically tempered ware (**II-1**) is not that common and shapes seem to be limited to relatively small open bowls.

There are also some potsherds (**II-2**) with paste tempered by fine mineral admixture (sand and mica) and well-smoothed surfaces. They are few and took an intermediate position between fine and coarse-ware (*ceramica semi-fina* of Romanian researchers) (Ursulescu 1990).

The red-ware (**III**) differs from the fine-ware by means of a typical paste which is badly burnt. The paste was not that carefully prepared and included some organic chaff inside. It made the section appear three-coloured with the outer parts burnt to red, while the middle part is still raw and grey and in general gave a lumpy outlook to the paste. There are some, usually undecorated potsherds of this ware and three miniature bowls made in this technique. The largest bowl is decorated with asymmetrically placed knobs.

The **IV**th category includes fine-ware made from paste that differs from typical Notenkopf fine-ware. The shapes cannot be reconstructed but some potsherds came from necked

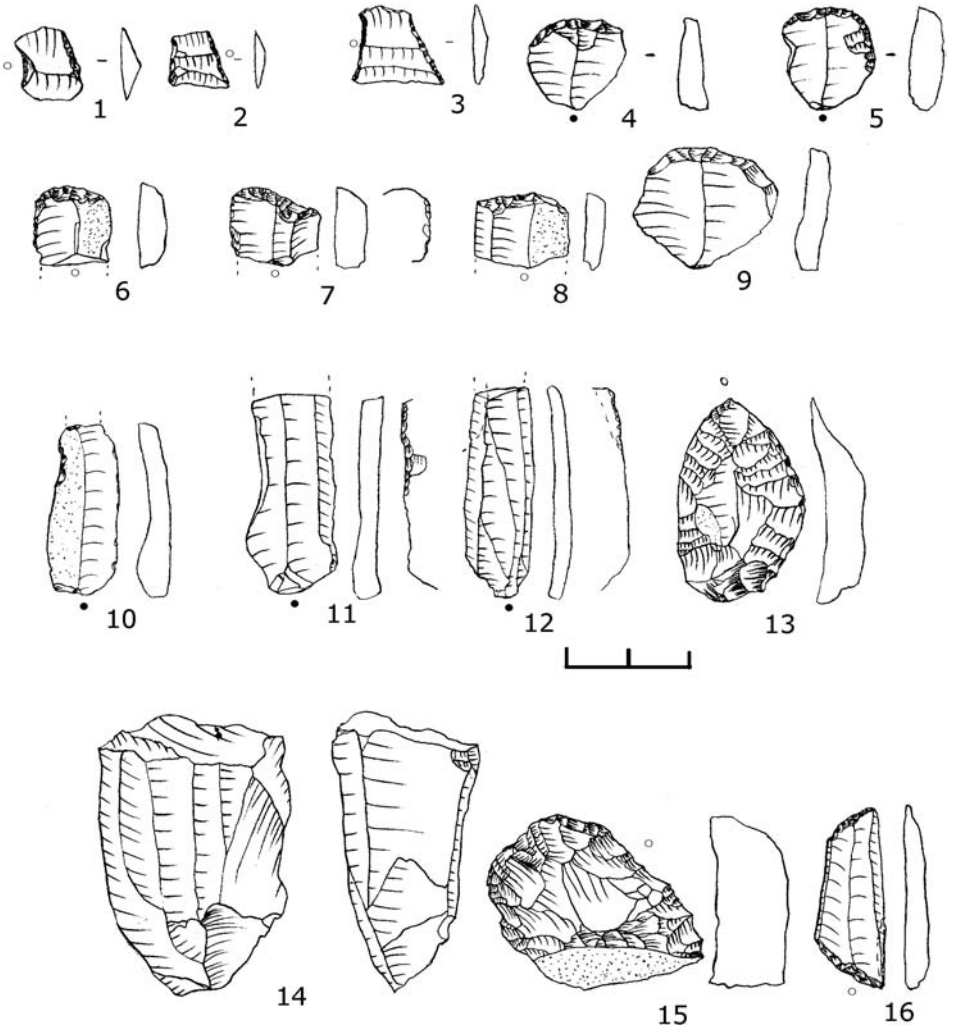

Fig. 10. Kamyane-Zavallia. Lithic implements

vessels and some – from vessels with prominent rib at the maximum width of the body. They are decorated in different style or styles. Some pieces have channelled surfaces. The channels are subcircular and appear to form a quite complex "concentric" pattern. Six shards originated from vessels with prominent rib that divided the body into two parts. The upper was decorated with curvilinear incised decorations. The lines are wider than usual for LPC and are done in a different style. The lower part is covered with complex angular figures filled with an incised net motif (Fig. 8: 12-14). Similar ceramics are known

in Early and Late Dudesti, Dudesti/Vadastra or Vadastra I phases (Neagu 2003; Dragoman 2013; Thissen 2013) and to a lesser extent – in Boian-Bolintineanu (Hansen *et al.* 2012, 24) and Hotnitsa (Todorova and Vaisov 1993, 133) cultures or in contexts attributable to the Middle Neolithic in general (Hansen *et al.* 2012, 32).

There are some particular ceramic finds: ceramic weight (Fig. 8: 2), perforated items, rhyton-like vessel etc.

Pottery assemblage from Kamyane-Zavallia is characteristic for LPC culture of Ukraine and Moldova. Fine-ware decorations are indicative for Notenkopf II/III, or middle stage of music note phase in Ukraine and Moldova (Dębiec 2015). Variability of coarse-ware finds analogies in near-by Ukrainian sites (Okhrimenko 2009) and sites from Moldova (Larina 1999; 2006). Further research is needed in order to establish whether there are traces of interaction with the aboriginal pottery-bearing population.

The chipped stone assemblage numbers 690 items (from excavations and those gathered on the surface, 2011-2016). It is made from two varieties of flint with 90% of the artefacts made from dark-grey, transparent when thin, fine-grained, plastic flint. This raw material is not known in the vicinity of the site. There are outcrops of flints that have similar quality as far as Middle Dniester valley (some 180 km to NW) and in Volyhnia (over 250 km to the NNW) (Petrougne 1995). Some flakes were knapped also from pebble flint of poor quality that could be local.

There are 3 hammerstones made from pebbles of flint. Some (3) cores were re-used later as hammerstones. 12 cores are mostly prismatic or subprismatic with sub-triangular working surfaces (Fig. 10: 14). A core can be characterized as a flat core, resulting from maximum possible exploitation for serial production of blades and bladelets. There are also polyhedric cores for flakes and secondary cores for flakes (made on another thick flake).

Technological flakes include various products aimed at the installation of serial knapping. There are crested blades of various types: crete, sous-crete, semi-crete etc. They are mostly connected to the maintenance of a core in the course blade/bladelet detachment.

Blades and bladelets out-number microblades in contrast with local Recent Mesolithic lithic collections. Their butts are usually quite thick and large, sometimes without preparation and removal of overhang. The angle of percussion is around 85-95 degrees. Their sides and arrises are regular and parallel even if a little bit wavy. These observations are consistent with technical traces of punch technique rather than with pressure blades detachment or soft organic percussion.

The most common tools are end-scrapers which exhibit considerable formal variability (Fig. 10: 4-9). They are almost evenly split between items done on flakes and on blades. There are semi-circular, circular end-scrapers, microscrapers. The next most frequent are retouched blades/bladelets and their segments (Fig. 10: 10-11, 16). The less numerous categories include some side-scrapers (Fig. 10: 15), points and perforators (Fig. 10: 13), simple burins. Some blade segments bear characteristic oblique “sickle gloss” (Fig. 10: 12).

"Sickle gloss" that is observed on some blades in local Kukrek and Bug-Dniester cultures is never oblique, but rather covers the very edge of a piece (Sapozhnikov and Sapozhnikova 2011). 5 trapezes were found in Kamyane-Zavallia. Two of them come from pit 1 and, thus, can be linked to LPC assemblages without any doubts. They are made of raw material of group 1. They are asymmetrical (Fig. 10: 1-3), done on narrow bladelets in a way that differs from techniques for production of Recent Mesolithic and Bug-Dniester scalene trapezes. They have retouched notch on an edge and oblique truncation on another. Similar asymmetrical microliths are known from Romanian sites of LPC (Păunescu 1970) and in particular, from Criş site of Sacarovca in Moldova (Dergaciov and Larina 2015).

In Ukraine and Moldova LPC had 2 local variants of lithic industry: Dniester (south-eastern) and Vohlynian (northern). Dniester variant is characterized by presence of sub-conical cores, scalene trapezes, semi-circular end-scrapers on flakes etc. while they are absent in Vohlynia (Gaskevych 2003, 6). Kamyane-Zavallia is closer to the Dniester variant by typology of lithic assemblage.

Stone tools include pestles, hammerstones, and grinding stones. Grinding stones are numerous, both complete and in fragments. Some items are dubious but there are at least five stones with a well-polished working surface and having a navicular shape (Fig. 8: 1). They are made from local white stone (graphite quartzite) which can be found on the site itself and in a near-by modern quarry (as defined by L.Z. Skakun, "I. Franko" Lviv National University).

There is also a *Schuleistenkeil adze* (Fig. 8: 3). It is really small, 57x15 mm, and made from an unknown grey stone. There are no outcrops of such stone in the vicinity of the site. Probably it is a replica of real large *Schuleistenkeil* adze. It is the easternmost *Schuleistenkeil* so far known (Saile *et al.* 2016).

Animal bones belonged to both domestic and wild animals: red deer, swine, cattle (definition of O.P. Sekerska). There are bones with polishes indicating usage, worked bones, grooved antler and antler hammer (Fig. 11) in the collection.

INTERPRETATION

There are not so many sites of LPC to the east of the Dniester. Previously, they could have been treated as outposts of LPC in mostly alien territory, surrounded by local groups (Larina *et al.* 1999). Now, there are four-five settlements and five find spots in a limited area between Dniester and Southern Bug rivers in south-eastern outskirts of the hilly Podillian upland. Here they seem numerous enough to treat this space as an area regularly settled by LPC bearers. One can hypothesize that more LPC sites will be found here.

Kamyane-Zavallia is to date the only excavated site in the easternmost periphery of LPC and the limited area of excavations could perhaps hamper interpretation. However, the excavations yielded a "standard" LPC package": pottery decorated in Notenkopf style, ceramic weight, grinding stones, blade sections with characteristic gloss (so called "sickle

inserts"), and the bones of domestic animals. The *Schuleistenkeil* adze was found on the surface of site and finds are characteristic for LPC residential sites.

Pit 1 is likely a typical "long pit" extensively known from Central Europe. They flank houses in multiple cases, sometimes similar pits stand alone. The latter are conventionally named "clay-extraction pits" (*Lehmahnamegrube*) (Birkenhagen 2003). The comparable pits are also found almost at each excavated settlement of LPC in west Ukraine and Moldova. They were usually interpreted as pit-houses in contrast with their interpretation in Central Europe (Passek and Chernysh 1963; Okhrimenko 2009). This incongruence arose partially from different taphonomic conditions: in Central Europe the long houses' layout are usually well visible in yellow loess and loess-like sediments immediately under the topsoil, while in Ukraine and Moldova, the LPC remains are covered by thick (sometimes over 1 meter) layers of black soil (*chornozem*) and deepened structures are difficult to detect in it. Recently, some of the "long pits" from old excavations were re-interpreted and are not treated as pit-houses anymore (Saile *et al.* 2016). Pits from Kotovane are supposed to flank the long house (Lenartowicz 2013) as far as "pit-houses" from some Moldovan sites do (Saile *et al.* 2016).

Pit 1 has a typical shape and orientation. Its irregular edges and bottom, elongated shape and rubbish fill makes it difficult to interpret it as "pit-house". It is either a long pit or clay-extraction pit of LPC. Pit 3 is a narrow trench that resembles the foundation trenches found in some LPC long houses. Pit 1 and pit 3, when treated together, seem to form a part of the typical layout of a LPC house – a "long pit" that stood along the wall and the part of the foundation trench for a wall. However, this layout should be opened completely by future excavations in order to state this with complete certainty. In this case Kamyane-Zavallia would yield the easternmost house of LPC.

LPC were not the first farmers to enter the territory of Moldova and western Ukraine. There are sites of Criş culture in the region as far as sites of local cultures equipped with pottery and acquainted with domestic crops (Bug-Dniester culture being the most relevant for our discussion) (Danilenko 1969).

Pit 1 yielded some potsherds that are very similar to Middle Neolithic ceramics from the Danube catchment (particularly of Dudesti culture). It indicates that LPC bearers interacted in a lively manner and over large distances (over 300 km from Kamyane-Zavallia to Danube) with early farmers from Balkans and Danube valley. Probably, the general similarity of material culture and lifeways simplified these contacts.

This fact is of paramount importance for interpretation of Early Trypillian expansion that came from eastern slopes of Carpathians (Precucuteni I sites) and covered roughly the area of easternmost periphery of LPC (Videiko 2004). LPC groups can be seen as precursors of Trypillia-Cucuteni people in "domesticating" the fertile black soils of Central Ukraine.

The lithic industry is done from non-local flint and finds little correspondence in complexes of local Mesolithic (Kukrek) and Bug-Dniester culture. The scalene trapezes could

be treated as evidence of such influence. However, they found closer parallels in early farmer settlements from Moldova and Romania than in the roughly contemporary sites of Bug-Dniester culture.

LPC appear in the region as a migratory phenomenon with little connection to the local Mesolithic or Neolithic background. There is no "contact zone" where LPC characteristic traits are mixed with local traits. Kamyane-Zavallia is strikingly similar to its Central European contemporaries and is markedly different from any site of local Bug-Dniester culture, despite the fact that some sites of the latter are situated at a distance of only 5 km (namely sites of Zavallia and Zhakchik (Danilenko 1969). Few characteristics of Kamyane-Zavallia artefacts could be locally acquired, but even if this were to be proved true, it would not change the general "central-European" outlook of the assemblage. These facts correspond well with an explosive-like LPC expansion rather than with models which suppose that this spread was slow and involved certain stages of interaction with the autochthonous population.

Furthermore, the supposed differences between the "eastern variant" of LPC (limited by former borders of USSR) and typical *Notenkopf* sites of Central Europe seems to be exaggerated largely. The material culture of the easternmost ever excavated site of LPC resembles the latter to such an extent that gives us reason to doubt the very existence of an eastern "peripheral group" of LPC as a meaningful taxonomic category. Perhaps the best option would be to return to the primary definition of J. Pavuk, which encompassed the LPC sites to the east of Carpathians as a single entity (Pavuk 1969), rather than artificially divide the sites of South-Eastern Poland and Ukraine-Moldova.

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