УДК 903.4 (477.84) ”6325”

ISSN 2223-1218
Матеріали і дослідження з археології Прикарпаття і Волині. 2016. Вип. 20. С. 15–25.

ПРОБЛЕМИ. ГІПОТЕЗИ. УЗАГАЛЬНЕННЯ

NEW OBSERVATIONS CONCERNING KULYCHIVKA SITE, LAYER IV

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Preliminary results of new researches of Kulychivka site carried out by the joint Ukrainian-Czech expedition in 2015 are presented at the article. Attention is focused on materials from the cultural layer IV. The results of studying of collection of flint artifacts from the excavations, carried out by V. Savych in 1984. Based on the refitting of artifacts conclusions are made about some features of flint industry of layer IV, including the serial production of elongated Levallois points from the convergent bidirectional and opposed directional cores. Using of this method is a feature of collections of Stránská Skála and Boker-Tachtit layers 1–3. Also radiocarbon dates obtained from samples of charcoal from the pit in 2015 are presented. Two dates are obtained – 41350±770 cal. BP (from the bottom) and 37100±840 cal. BP (from the top) of deposits that correlate with the level of layer IV of excavation of V. Savych. Compliance of chronological sequence of received dates with stratigraphic order horizons, from which samples were selected, according to the authors, denies the possibility of a significant disturbance of deposits during the period after the formation of the cultural layer.

Results of technological and chronological analysis confirm the hypothesis about the belonging of the complex of layer IV of Kulychivka to the wide Emiro-Bohunician techno-complex. They also show a relatively “clean” character of collections of layers III and IV of Kulychivka and possibility to use them as a reliable source for studying of the transition between Middle and Late Paleolithic in Eastern Central Europe. To clarify further the position of Kulychivka between sites, close at the cultural and chronological aspects is necessary to restore fieldworks on the site using modern methods of archeology and natural sciences.

Key words: Levallois, Upper Paleolithic, Kulychivka, Bohunice, flint artifacts, refitting, radiocarbon dating.

1. Introduction

Kulychivka (Western Ukraine) is a multilayered site which yielded a very large collection (about 600,000) of artefacts, recovered from an area of more than 3000 m^2. Numerous questions remain regarding the cultural and chronological interpretations. Researchers have mostly focused on the lower Paleolithic layers (i.e. III and IV), associated with the periods of transition from the Middle to the Upper Paleolithic and the Early Upper Paleolithic. The site is still little understood.

The site is situated on the Kulychivka mountain in the town of Kremenets' (Ternopil region, Ukraine). This territory is on the border of two geographic regions – the northern edge of Podillia Uplands and the lowlands of Male Polissia, watershed of Ikva and Goryn Rivers.

Kulychivka site was discovered in 1937 by O. Cynkałowski [Cynkałowski, 1961]. Numerous, brief surveys were conducted at the site until the 1960s [Рудинський, 1952; Иванова, Ренгартен, 1975]. Between 1968 and 1989 large-scale excavations were carried out by V. Savych and it was established that four Paleolithic layers exist at the site. Methodological issues, as well as disparities in interpretations of the cultural layers based on geological and archaeological data caused ambiguities in cultural and chronological interpretations. Attempts to clarify the ambiguities include both re-

interpretations of museum collections from V. Savych's excavations [for example: Демиденко, Усик, 1990; Ситник, 1996; Коен, Степанчук, 2001; Meignen et al., 2004] and new field research. Later excavations led by O. Sytnyk in 1998, 2004, 2007 and 2010 [Ситник, 1999, 2005, Ситник та ін. 2007] attempted to clarify stratigraphic issues.

Test pits excavated in 1998 and 2007 did not locate lower Paleolithic cultural layers (III and IV). Layer IV was identified in test pits excavated in 2004 and 2010 but without any organic materials suitable for analysis by ^{14}C, however TL-dates were obtained.

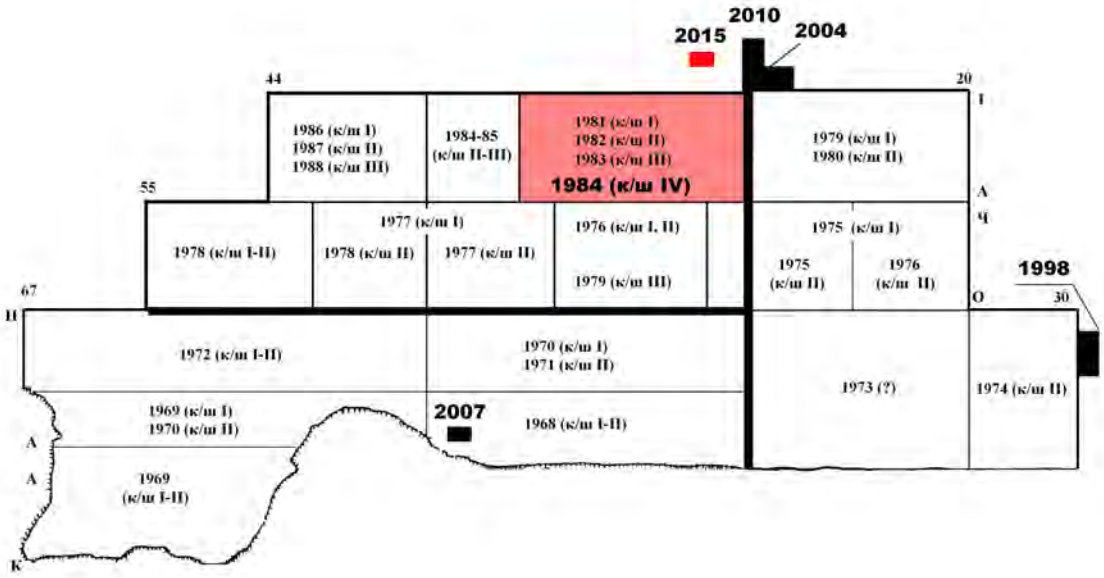

Fig. 1. General plan of excavated part of Kulychivka site with location of 2015 trench (area, researched in 1984, where V. Savych discovered cultural layer IV is marked)

Рис. 1. Загальний план розкопаної частини стоянки Куличівка із зазначенням шурфа 2015 р. (виділено ділянку 1984 р., на якій В. Савичем вперши зафіксовано культурний шар IV)

2. General description of cultural layer IV

Cultural layer IV was recorded by V. Savych only in excavation area IV, at a profile section investigated in 1981–1984 (area of 200 m^2; fig. 1). According to V. Savych the sediment in this layer consists of striped clayish soil with inclusions of light gray and red sands (thickness about 50 cm) at a depth of 3.05–3.50 m from the current surface. Geologically it is a remnant of the destroyed Dubno palaeosol (Bryansk, Vitachiv, Stilfried B according to other schemes) and overlying solifluction. The thickness of the cultural horizon varies between 15–30 cm. More than 10,000 artifacts have been recovered from cultural layer IV. Most of them are flint artifacts and unworked raw material fragments. Osteological remains and pieces of ocher occur sporadically. V. Savych mentions the absence of dwellings or fireplaces in layer IV and the presence of four concentrations of flint products – interpreted by him as places of flint-knapping. Southeastern part of the investigated area has a lower density of finds; the density increases towards the north and west. In interpreting the layer IV collection, V. Savych emphasized the presence of numerous Middle Paleolithic tools and in general perceptible archaic elements in the flint-knapping techniques [Савич, 1986].

The collection of flint artifacts from layer IV curated by the Ivan Krypiakevych Institute of Ukrainian studies numbers approximately 8,500 artifacts. The most important cultural defining feature of this material is the presence of a large number of elongated triangular Levallois points and low "edged end-scrapers", made on cortical flakes. The latter can be interpreted as the result of evolutionary development of Middle-Paleolithic side-scrapers [Ситник, Коропецький, 2010].

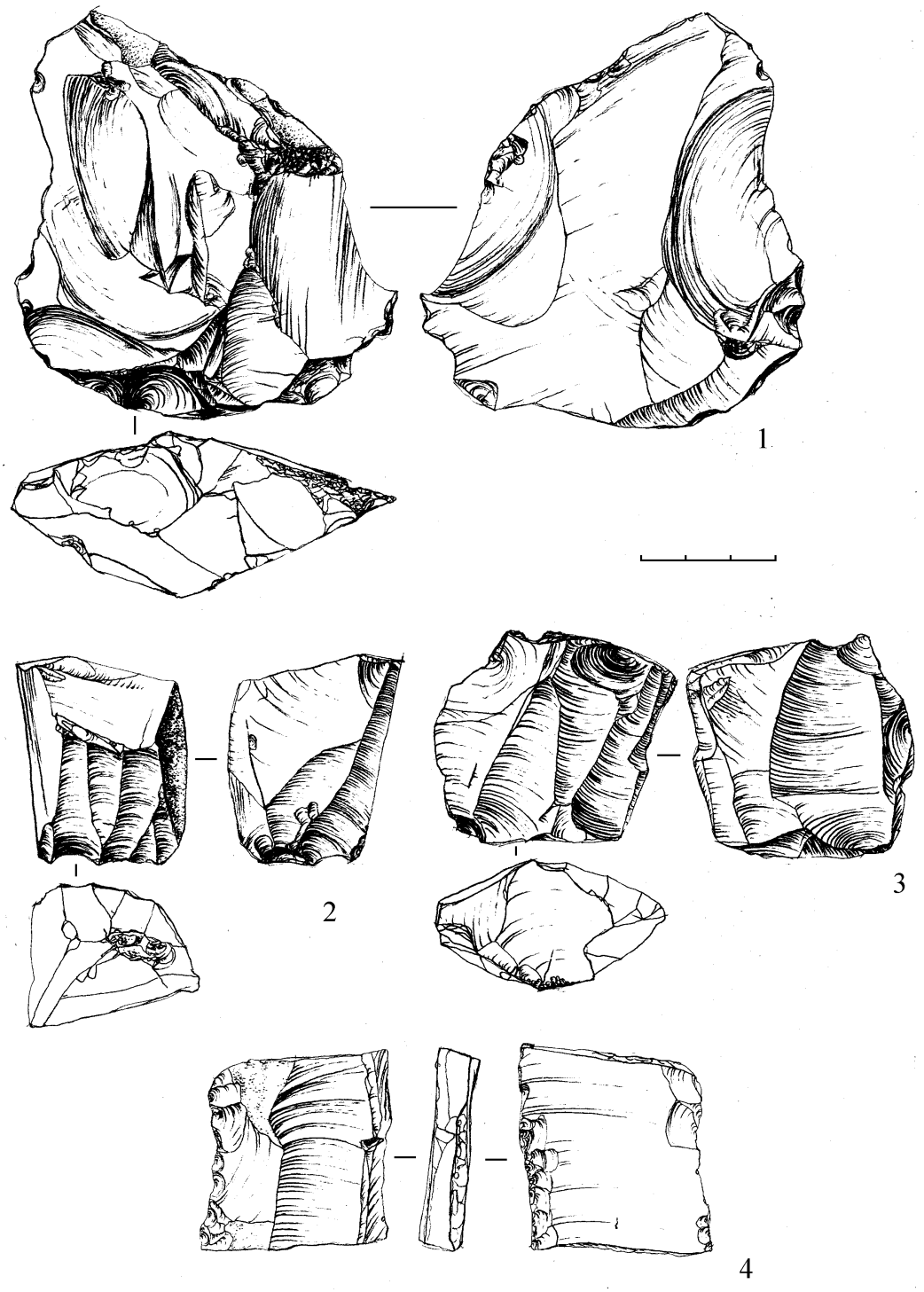

Fig. 2. Selected artifacts from 2015 trench (fig. by Ja. Yakovyshyna)
Рис. 2. Вибірка артефактів з шурфа 2015 р. (рис. Я. Яковишиної)

However, the presence of a minor "Aurignacian-like component" – thick end-scrapers and massive side-scrapers must also be taken into account. Not enough research has been done to determine whether the lithic material in this layer is homogeneous, or whether mixing of different cultural horizons have occurred postdepositionally.

3. Research in 2015–2016

A new hypothesis suggests that lower layers of Kulychivka may belong to the Bohunician industry which probably had a wider distribution than originally suggested. Despite the long geographic distances between sites, striking similarities have been identified on several fronts. The geomorphological setting of the sites is very similar: the sites are located on elevation tops which dominate over wide lowland areas and have accessible rich sources of lithic raw material nearby. There are also strong similarities in stone-knapping strategies. Combination of flat and volumetric knapping technique in the industry of Kulychivka layer IV together with the presence of many Levallois points are typological components very similar to other Bohunician sites.

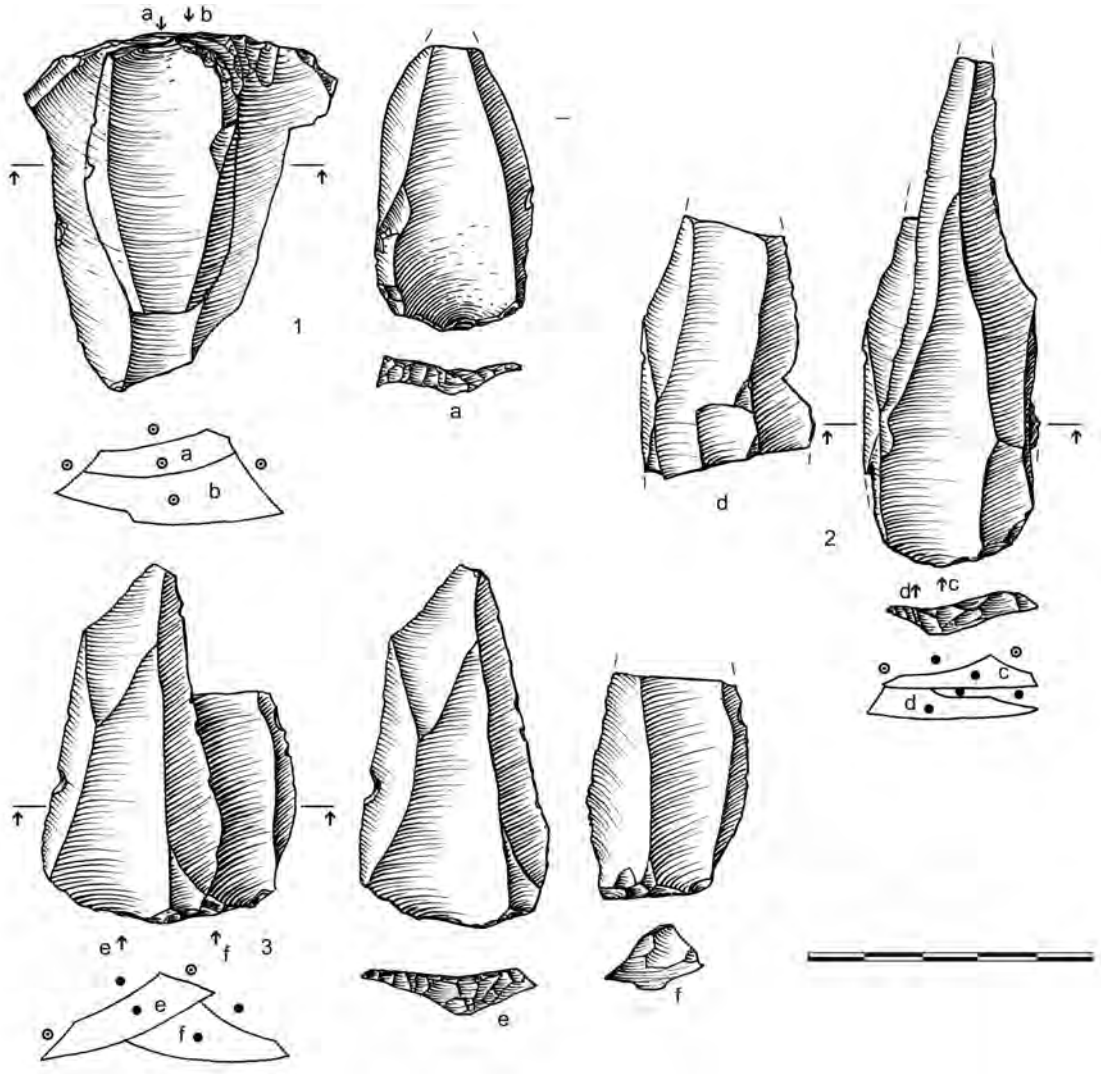

Fig. 3. Refitted sequences of flint artifacts from cultural layer IV (excavations of 1984 led by V Savych)
Рис. 3. Зразки ремонтажу крем'яних виробів з культурного шару IV (ділянка 1984 р з розкопок В. Савича)

More research is needed to verify these assumptions including refitting and obtaining new reliable dates. Some preliminary results are presented in this article. In 2015 a short field season at this site was conducted by a joint Ukrainian-Czech expedition. Its main goal was to collect samples for dating by ^{14}C analysis.

A trench 3×1.5 m in size was excavated in a north-south orientation and situated in the southern area of an unfinished part of excavation IV. In 1989 this area was expanded in easterly direction, but only two upper layers (Bronze Age and Iron Age) were investigated. It was the last field

season of V. Savych's work at Kulychivka. The surface was subsequently slightly disturbed by natural and anthropogenic factors and in most of the excavated area, cultural layers I and II had already been removed. During the 2015 excavation, 114 flint artifacts were collected (fig. 2) and charcoal samples were taken from two stratigraphic levels previously correlated with cultural layer IV.

Museum collections of lithic artifacts excavated from layer IV were also investigated at the Ivan Krypiakevych Institute of Ukrainian studies. Until recently comparison of chaîne opératoire between Kulychivka layer IV and Bohunician sites were complicated by the absence of refitting of the Kulychivka material. As a result attempts were made at refitting the flint artifacts, reconstructing the fragmented products and clarifying the the peculiarities of flint-knapping in layer IV. The main focus was on the Levallois point production.

4. Refittings

In spring 2015 a team of three experienced people spent nine days of intensive work in an attempt to refit technologically significant sequences. All of the available material from V. Savych's 1984 excavation of layer IV was used. The refitting was complicated by the high quality chert of very homogeneous color and probably missing artifacts from V. Savych's 1984 layer IV collection. We were able to refit three important production sequences that are described in following paragraphs.

Refit 1 (fig. 3, 1)

Levallois point with convergent (the removals were directed from the same platform) dorsal scar pattern and faceted striking platform was refitted to a core fragment. The pointed shape of the core face was formed by two removals from the same platform where the point was removed. The struck Levallois point (fig. 3, 1a) has a broken tip and was slightly retouched along the intersection of lateral edge and butt – similar retouch was documented also in Boker Tachtit and in the Moravian Bohunician [e.g. Marks, Kaufman 1983; Demidenko, Usik 1993; Škrdla 1996]. After this point removal, the knapper tried to produce a second point, probably unsuccessfully. The core front as well as striking platforms was not re-prepared. However, this attempt was compromised by an inner inhomogeneity that initialized a crack breaking the core – the resulting flake has some of the core mass attached on the ventral side of its proximal end (fig. 3, 1b). This sequence documents a serial production of Levallois points.

Refit 2 (fig. 3, 2)

Elongated Levallois point with opposed directional (the removals were directed from the opposite platform) dorsal scar pattern and faceted striking platform (fig. 3, 2c) was joined to a medial fragment of probably another Levallois point, (fig. 3, 2d) in this case with a bidirectional (the removals were directed from both opposed platforms) dorsal scar pattern. The pointed shape of the first Levallois point was achieved by two removals directed from the opposed platform, then the point was removed. After this point removal, the frontal core face was re-prepared by a series of removals directed from the same platform as the struck point. There are scars of two removals on the right lateral edge and one on the left lateral edge on the following artifacts. Although we have only a small medial fragment, the shape indicates that the artifact was most probably a Levallois point. The dorsal scar pattern is bidirectional. This sequence again documents serial production of Levallois points (in this case with re-preparation – thinning – of the frontal core face) and utilization of two opposed striking platforms.

Refit 3 (fig. 3, 3)

Levallois point with a bidirectional dorsal scar pattern and facetted striking platform (fig. 3, 3e) was refitted to a Levallois blade with a convergent dorsal scar pattern and a faceted striking platform (fig. 3, 3f). The pointed shape of the Levallois point was determined by removals directed from both opposed platforms. After this point removal, the frontal core face was re-shaped by minimally two blade removals directed from the same platform as the point. A proximal fragment of one of these blades was refitted.

We can conclude that although we refitted only a very small number of sequences, the three sequences are technologically significant and document a serial production of elongated Levallois points from convergent, bidirectional and opposed directional cores, which is a characteristic feature

of refitted assemblages from Stránská Skála [Škrdla, 2003] as well as Boker Tachtit, levels 1–3 [Marks, Volkman, 1983], i.e. generally for Emiro-Bohunician assemblages. Our refitting attempt documents a striking similarity of Kulychivka, layer IV collection with the Moravian Bohunician and with Boker Tachtit, levels 1–3, allowing us to place these three assemblages into the same techno-complex.

5. Dating

There were three dating attempts realized at Kulychivka (fig. 4). The first date was obtained already by V. Savych [Савич, 1995] and the second series of dates was recently obtained by a Ukrainian – French team [Ситник та ін., 2012]. The authors of this article collected more samples in 2015.

A single radiocarbon date of 31,000 BP (with missing standard deviation and Laboratory number) from V. Savych [Савич, 1995, с. 22] is significantly younger than the generally accepted age for the Bohunician [cf. Meignen et al., 2004, p. 63]. However, the sample location as well as stratigraphic provenance is not clear.

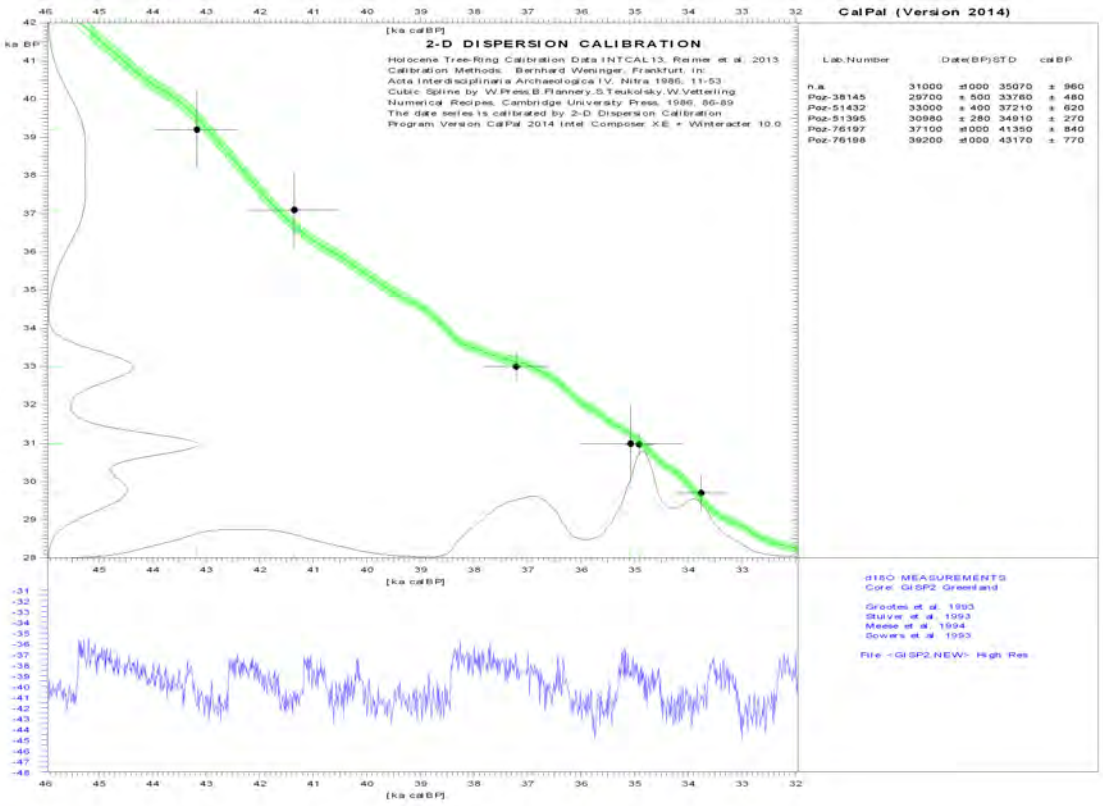

Fig. 4. A review of radiocarbon dating
Рис. 4. Огляд радіовуглецевих дат

The second series of dates was obtained both from V. Savych's material and the 2010 test pit.

None of those dates are directly connected to the Kulychivka lower layer (IV). Two new ^{14}C dates (29700±280 ^{14}C BP, Poz-38145, and 33000±400 ^{14}C BP, Poz-51432) and in addition a TL date (34±4 BP_{TL}, Lub-4920) provide an age for layer III [Ситник та ін.., 2012] in the sector excavated by V. Savych during 1981–1984 (cf. fig. 1) overlying level IV. While the TL date and one calibrated radiocarbon date (34020±270 cal BP) overlap with GIS-6, the second radiocarbon date (37300±820 cal BP) falls into GIS-8. If the latter date is accepted as the oldest date for layer 3, then layer IV – stratigraphically below layer III – must be older and will overlap with the large probability distribution of the Moravian Bohunician dating results [Škrdla, Nikolajev 2014].

The third dating attempt was realized by the authors in 2015. The test pit was located as close as possible to the area where V. Savych identified layer IV in 1984 (cf. fig. 1). Although we excavated a small trench area and the artifact density was low, we identified lighter-colored and more loessic sediment with several charcoal lenses and several artifacts below layer III. We collected charcoal samples from both lowermost charcoal lenses for dating. The charcoal samples were all identified as larch.

Table 1

Overview of available radiocarbon dates from Kulychivka. Dates were calibrated using CalPal 2014 software (Weninger, Jöris, 2008) on IntCal13 (Reimer et al., 2013) curve

Lab no. note	14C	Std.	Cal BP	Std.		Material	Layer	Reference
n.a.	31000		35000		n.a.	n.a.	3	Savich1995
Poz-38145	29700	500	33760	480	Test pit 01-2010	charcoal	3	Sytnik et al 2012
Poz-51432	33000	400	37210	620	Old sample from V. Savych's excavation	charcoal	3	Sytnik et al 2012
Poz-51395	30980	280	34910	270	Old sample from V. Savych's excavation	Mammoth teeth (molar?)	2	Sytnik et al 2012
Poz-76197	37100	1000	41350	840	2015 trench, layer 20 cm above sterile sediment	charcoal	4	
Poz-76198	39200	1000	43170	770	2015 trench, lowermost lens on the sterile sediment	charcoal	4	

The sample from the lowermost charcoal layer just above the underlying sterile sediment yielded a result of 41350±770 cal BP and the sample from a lens 20 cm higher yielded a result of 37100±840 cal BP. The results are in stratigraphic order which eliminates the possibility of postdepositional disturbance. We can conclude that the new dates are most probably associated with V. Savych's layer IV and statistically overlap with a large probability distribution of Moravian Bohunician dates (fig. 5).

5. Conclusion

The hypothesis of technological and chronological similarity and classification of Kulychivka, layer IV assemblage as a part of broadly distributed Emiro-Bohunician techno-complex is supported by new technological and chronological data.

The results of our morphological analysis demonstrating a similarity between Kulychivka, layer IV and the Moravian Bohunician [Ситник, Коропецький, 2010; Škrdla, Nikolajev 2014], were supported by the refitting analysis. In addition, the probability plot of recently obtained radiocarbon dates from layer IV significantly overlaps with the probability plot for the Moravian Bohunician and suggests they belong to the same chronological period.

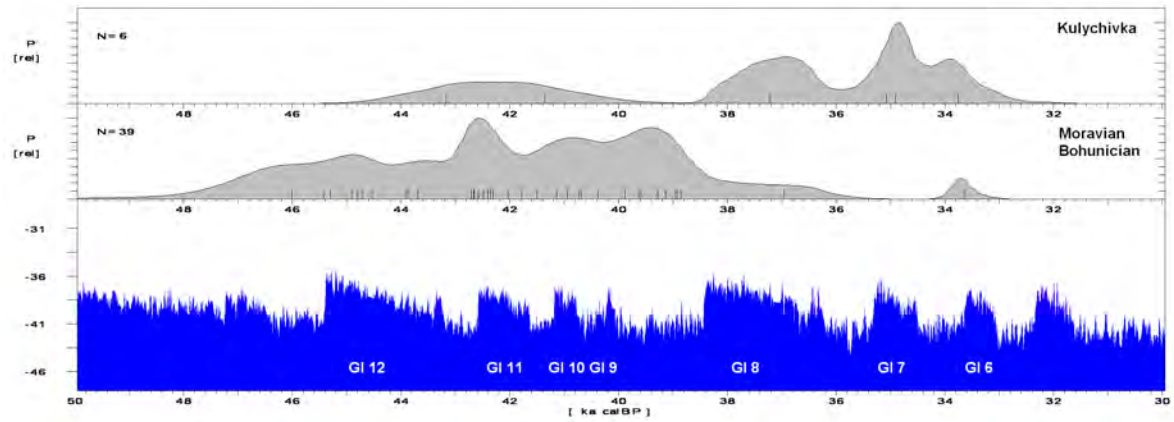

Fig. 5. Chronological position of Kulychivka, layer IV and the Moravian Bohunician
Рис. 5. Хронологічні позиції шару IV стоянки Куличівка та пам'яток Моравського Богуніце

We conclude that artifact bearing horizons of both layers III and IV were not exhausted during V. Savych's excavation and we advocate the re-opening of Kulychivka as a key site for the Middle to Upper Paleolithic transitional period in Eastern Central Europe for new field work using modern excavation techniques. For a more detailed general understanding, better understanding of site formation processes and comparison with sites belonging to the same techno-complex, stratigraphic and micromorphological analyses are needed.

Acknowledgements

The study and field work in Ukraine were supported by Grant Agency of the Czech Republic, project No. 15–19170S. We would like to express our gratitude to Yuri. E. Demidenko and Jan Eigner for assistance with refitting V. Savych's layer IV material and to students digging with us in the field. The charcoal species were kindly determined by Jan Novák.

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Стаття: надійшла до редакції 17.10.2016
прийнята до друку 10.11.2016

РЕЗУЛЬТАТИ НОВИХ ДОСЛІДЖЕННЯ КУЛЬТУРНОГО ШАРУ IV СТОЯНКИ КУЛИЧІВКА

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Викладено попередні результати нових польових та камеральних досліджень стоянки Куличівка, проведених спільною українсько-чеською експедицією у 2015 р. Увагу зосереджено на матеріалах з культурного шару IV. Подано результати опрацювання колекції крем'яних виробів з розкопок В. Савича 1984 р. На основі ремонтажу артефактів зроблено висновки щодо певних особливостей крем'яної індустрії шару IV, зокрема серійного продукування видовжених левалуазьких вістер з конвергентних біпоздовжніх ядрищ. Використання цього методу є характерною рисою збірок стоянок Странська Скала та Бокер-Тахтіт, шари 1-3. Також представлено радіовуглецеві дати, отримані із зразків деревного вугілля з шурфа 2015 р. Здобуто дві дати – 41350±770 cal BP (з нижньої частини) та 37100±840 cal BP (з верхньої частини) відкладів, які співвідносяться з рівнем шару IV з розкопів В. Савича. Відповідність хронологічної послідовності одержаних дат стратиграфічному порядку горизонтів, з яких відібрано зразки, на думку авторів, заперечує можливість значного порушення ґрунтових відкладів у період після утворення культурного шару.

Одержані результати технологічного та хронологічного аналізу дозволяють підтвердити гіпотезу про приналежність комплексу шару IV стоянки Куличівка до еміро-богуніцького технокомплексу. Вони також свідчать, про порівняну "чистоту" збірок шарів III та IV Куличівки та можливість використовувати їх як надійне джерело для вивчення періоду переходу від середнього до пізнього палеоліту у Центрально-Східній Європі. Для подальшого з'ясування позиції Куличівки серед пам'яток близьких у культурному та хронологічному аспектах необхідне відновлення польових досліджень стоянки із застосуванням сучасних методів археології та природничих наук.

Ключові слова: левалуа, верхній палеоліт, Куличівка, Богуніце, крем'яні вироби, ремонтаж, радіовуглецеві датування.