THE FLINT INVENTORY OF THE SABATYNIVKA 1 SITE (TRYPILLIA B1)

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Keywords: Trypillia B1, Sabatynivka 1, Ukraine

I. INTRODUCTION

Chipped flint artifacts are quite common on sites of the Trypillia culture. Unfortunately, the potential of this type of find is underestimated. The issues of periodization, chronology and cultural history are treated without applying analysis of these artifacts, with only a few exceptions. Meanwhile, the study of chipped stone collections can clear up some problems of Late Neolithic and Eneolithic prehistory which are difficult to treat based only on the pottery fragments.

This paper is devoted to the description of the flint artifact collection derived from the Sabatynivka 1 settlement. These objects have not received any study since their primary publication in 1952 (Dobrovolsky 1952).

The first stage of investigation consisted of typological analysis. It revealed some interesting problems which are not easily solved and which are not limited only to the Trypillia culture period.

The first scientific systematic descriptions of Trypillian flint tools were written by F. Vok and M. Rudynsky (Vok 1928; Rudynsky 1929). The chipped stone tools had an important place in the outstanding book by B.L. Bogajevsky (Bogayevsky 1937). He took the functional concept as the basis of his work. But the functional determinations had to be limited to guesses, analogies and “common sense” speculations in that “pre-Semenov” era. Nevertheless, B.L. Bogajevsky created the largest catalogue of Trypillian tools of his time and the interesting pattern of archaeological reasoning that was the precursor of following functional analysis development.

In the forties E.U. Krychevsky widely employed knapped stone finds in order to argue for his concept of the origins of Trypillia culture. He treated the common tools of Trypillia culture as a development of Mesolithic microlithic tradition (Krychevsky 1947). The polished stone implements were supposed to be the improvement of macrolithic instruments of the Early Neolithic.

E.V. Krychevsky’s concept was heavily criticized by S.M. Bibikov (Bibikov 1953). The latter proposed his own theory of stone implement evolution in the South-Western Ukraine. According to him, the Trypillian chipped stone assemblage originated directly from the industries of Upper Palaeolithic type which also flourished here without significant change in post-Palaeolithic times. The Trypillian assemblages known to S.M. Bibikov were in fact formally closer to the Palaeolithic ones (Bibikov 1953). The evident absence (in the forties) of any microlithic Mesolithic or Neolithic sites not only in North-Western Prychornomor’ia but also in the whole of adjacent South-Eastern Europe seemed to reflect the real state of matters. The geometric Mesolithic Grebenyky culture and Early Neolithic Buh-Dniester culture had not yet been discovered. This theory was published in 1953 in the excellent monograph on the Luka Vrublevskaya excavations (Bibikov 1953). However, in 1954 P.I. Boriskovsky found the first Mesolithic site with a prominent component of geometric microliths (Grebenyky) (Boriskovsky 1957), meanwhile V.N. Danylenko excavated the Buh-Dniester Neolithic culture sites (Danylenko 1969). Soon afterwards the number of known localities with geometrics reached 60. The concept of the “Palaeolithic continuum” was discarded finally by the works of V.N. Stanko and V.N. Danylenko (Stanko 1967; Danylenko 1969).

We should take into account that the Bibikov’s work was only one of the first attempts to systematize vast material. In the same book he gave one of the best publications of Trypillian settlement with amazing completeness. He was working with a lot of “missing links” and lacunae in the contexts of comparisons available to the researcher at that time but he noticed all the most significant differences in the chipped stone implements in the course of the evolution of the

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Trypillia culture. In fact his book can be treated as one of the first attempts to create the periodization of Trypillian stone assemblage development. Modern investigators have proved his hypothesis about the chronological variations in the lithics of this culture (Engovatova 1993).

In the following half century great attention was paid to the flint mining of the Trypillians. S.M. Bibikov investigated the mines of the Bila Hora and river Studenitsia (Bibikov 1966). His works were continued by V.M. Konoplia (Konoplia 1982), M.M. Klapchuk, B.A. Vasilenko (Klapchuk 1973; Vasilenko 1989), O.V. Tsvak (Tvsek-Movchan 1990, 1997) and others.

The knapping workshops in the different parts of the cultural entity area were extensively excavated and published. The most prominent ones among them are Tavilkivtsi (Movsha 1964), Polyvaniv Jar (Chernysh 1967; Popova 1980; Popova 2003), Bodaky (Skakun 2001), Pekari II (Orchmchikov-Pichkur 2003; Pichkur-Shidlovsky 2004).

The flint collections from residential sites were not published so often. All reports on excavation of Trypillia sites contain a description of the flints so far found. But as a rule they are very general and are not sufficient to be used as reference. Important exceptions include the old but still important works of K.K. Chernysh (Chernysh 1951) and S.M. Bibikov (Bibikov 1953), and more recently V.G. Zbenovich (Zbenovich 1980), V.G. Petrenko and the Sapozhmikovs (Petrenko et al. 1988).

In 1993 A. Engovatova undertook a dissertation study of the Trypillia flint industry. She generated a scheme of chronological development for flint assemblages of Trypillia culture and proposed an historical interpretation of the main shifts (Engovatova 1993).

G.V. Korobkova and N. Skakun have carried out functional analysis of complete knapped flint collections from more than 10 Trypillia settlements (Korobkova 1987; Skakun 1996).

Thus the Trypillia flint assemblages have been studied by all the available methods. Strangely, technological and functional investigations seem to dominate the literature with an obvious lack of detailed typological analysis of residential site collections.

II. DESCRIPTION OF THE SITE

1. Site investigation, location and stratigraphy

Sabatynivka 1 site is situated at the confluence of the Southern Buł river and its right tributary Synytsia, directly in the eponymous village (Fig. 1-2). The locality was discovered by S.I. Chub in 1928. The first test-trenches were opened by an expedition of the Pervomajsk Regional Museum (head – P.V. Harlampovich) in 1932 (Kazubovsky 1933). The large scale excavations were carried out by A.V. Dobrovolsky and E.F. Lagodovskaya in 1938-39 and 1947-48 (Dobrovolsky 1952).

The site stretches along the left shore of the Southern Buł for a distance of 250 m, both on the flat surface of the terrace and on the slope towards the Synytsia. The stratigraphy differs on the slope (the eastern section of the location) and the terrace (the western section of the location) (Fig. 2). The conventional boundary between these two parts is the modern street of Sabatynivka village. According to A.V. Dobrovolsky the succession of geological layers can be described on the terrace as follows:

- 0-1,2 m chernozem and humified loamy soil with the fluent transition between them
- 1,2-3,1loess
- 3,1-... sands

A loess lens runs out into the direction of Synytsia and on the slope it is replaced by thick chernozem and humified loamy sediments transported downslope by rainwater (Dobrovolsky 1941).

2. Cultural succession

Four prehistoric habitation episodes were delimited by the author of the excavations (Dobrovolsky 1941; Dobrovolsky 1952).

Bronze Age layer. The upper layer represents the eponymous site of the Sabatynivka culture of the Late Bronze Age. It was detected at the depth of 0,7-1,3 m in the chernozem. It extended far beyond the Trypillia culture settlement area in the western direction and contained 8 dwellings. The Late Bronze Age and Eneolithic materials are mixed on the slope towards the Synytsia (Dobrovolsky 1952)
The Trypillian layer is situated in “weakly humified loamy sediments covering the washed out loess” (Dobrovolsky 1952) at the depth of 1.6-2.3 m. The cultural deposits included pavements made from burnt clay rollers and had a high density of artifacts between pavements. Having a normal thickness of 70 centimetres, it reached a thickness of 1.5 m in particular places. It is stratigraphically separated from the upper layer in the western part of site and intermixed with the latter closer to the Syntyshia (Dobrovolsky 1952).

The “Neolithic episode” was only hypothesized by A.V Dobrovolsky due to the presence of specific comb-ornamented pottery fragments. He supposed that the shell-midden found in the lower layers of humified sediments and on the loess surface could be part of this earlier settlement (Dobrovolsky 1952, 83, reference). This structure was 1 m wide, 1 m high, about 10 m long, had a “rolling-pan” shape and was perpendicular to the shore of the Southern Bug (Dobrovolsky 1941, 46). The dense flint scatter was found close to the shells.

The “Paleolithic episode” was recognized by A.V. Dobrovolsky with a sufficient degree of certainty. The scatter of brown-coloured flints was found in a red streak into the loess. The red colour of the streak is due to the concentration of artificial dye. The retouched pieces included burins on a truncation and truncated blades (Dobrovolsky 1941; Boriskovskij-Kraskovskij 1961; Smolianinova 1989).

3. Finds and chronology

Two types of pavements were found on the site. The first class included small round and rectangular platforms usually with an area of about 2 sq. m. The second group consisted of larger rectangular structures which are real “Trypillian platforms”. The absence of artifacts on the latter, observed in the course of investigation, is intriguing. Both types were made in a similar way. The clay rollers (diameter up to 8 cm) were put together and fired. The chunks were filled with clay putty in order to form a horizontal floor. The reddish colour of the latter reflects high temperatures in the course of firing (Dobrovolsky 1952, 79).

The pottery can be divided into three groups (Dobrovolsky 1941, 46-51; Dobrovolsky 1952, 80-83):

1) plain yellowish wares. They were made by hand in quite a coarse technique. The clay contained admixtures of pounded shells and sand. They are mainly ornamented by a triangular stamp and sometimes by cones.

2) yellowish wares with thin walls. These vessels were made by a finer technique. The amount of coarse admixtures is less. The ornaments include cones, comb, furrows, pits and flutes. Each vessel was covered by combination of at least two ornamental types. Sometimes, comb impressions and furrows were filled with dye.

3) painted pottery. Fine, thin, scarce, well-baked fragments covered with painted ornament. Red, brown and white dyes were used.

The pottery complex is typical for stage B1 of the Trypillia culture (Burda 2004, 457).

The metal artifacts are represented by 6 awls, one needle and a pin (Dobrovolsky 1952, 88).

The bone artifacts can be divided into ornaments and implements. The first group included a fragment of bracelet, a pin and pieces with ornaments. A sickle, awl, mattocks and a comb-like stamp comprise the bone tool list (Dobrovolsky 1952, 83-84).

The threshing of grain was carried out using pieces of granite which showed characteristic macrotraces of use. Some pieces of sandstone had strange depressions. The polished adzes are polygonal in section and have an asymmetrical working edge (Dobrovolsky 1941, 53; Dobrovolsky 1952, 83).

The bone assemblage was studied by A.A. Brauner. Both wild and domesticated species were encountered. The species list is as follows:

- domestic: Bos taurus, Sus scrofa domestica, Ovis aries (maybe also goat), Canis palustris
- wild: Bos primigenius, Equus caballus, Sus scrofa fera, Cervus elaphus, Capreolus capreolus, Ursus arctos, Alces alces, Felix silvestris, Castor fiber, Meles meles, Martes martes.

The domestic fauna dominates (Dobrovolsky 1952, 80). The possibility of earlier intermixture should be taken into account.

Also fish bones and remains of tortoise were gathered (Dobrovolsky 1941, 47).

The site was dated by radiocarbon method to 5805±55 BP or, calibrated, 4800-4490 calBC (C 53) (Ki-7202). It corresponds to the calendar dating of Trypillia stage B1: 4700-4300 calBC (Burda - Vidéko 1998, Bronk Ramsey 1995, 2001) (Fig. 3).
III. THE CHIPPED STONE ASSEMBLAGE

1. Raw material and Primary Knapping

The flintknappers from Sabatynivka used raw material which exhibits great diversity in structure and colour and also in knapping quality. The raw material can be divided primarily into three large groups (each of them also has some prominent varieties):

1) Raw material of bad quality and various colours with a lot of internal fractures, voids and inclusions which we conventionally call "local".

2) Better raw material exhibiting a variety of grey and green tints with white inclusions. We will conventionally call it the "Dniester type".

3) Flint of the highest quality, black and glossy. Some varieties can be brown or yellowish. We will conventionally call it the "imported type".

The artifacts made from the "local" material dominate the collection. This raw material includes almost all the cores, chips and flakes present on the site. The cores have irregular shapes and seem well exhausted. The working surfaces of these nuclei bear traces of utilitarian efforts to obtain flakes from any suitable angle.

The second type of raw material includes some characteristic blades, and a definitely higher proportion of retouched pieces. Two regular pyramidal cores for blades also belong to "Dniester flint" group.

The "imported" flint group does not include any waste pieces. Only one core was made of this material - one small nucleus for bladelets with two opposite working surfaces on the butts of the object.

Thus the exploitation of different raw material groups was based on different flaking strategies and blank selection patterns.

The "imported" flint was brought to the site in most cases in the form of blades and/or prepared tools. "Local" material was widely employed for manufacture of the utilitarian implements which did not require a standardized blank but could be produced on any piece with suitable edge. The tools which required a standardized blade blank were done on the "imported" raw material.

The high percentage of retouched pieces seems extraordinary against a background of other well-published Trypillian culture chipped stone collections. We can speculate that this fact is due to the residential character of the Sabatynivka site as opposed to most of other sites which were either knapping workshops (Bodaky) or included large areas which were such workshops (Polyany Jar). However the possibility of differential recovery could not be rejected.

Scrapers (Fig. 4) dominate the retouched objects. They often have more than one retouched edge (Fig. 4: 6,11) but typical double scrapers (with two working edges on the opposite ends of the flake) are few. The combination of retouched end and side is the most common one. The sides are usually retouched by semi-abrupt retouch and the ends by abrupt retouch. An interesting type is represented by a regular combination of secondary treatment: the scraper working edge was formed on the end of a blade or laminar flake, both sides bore high semi-abrupt ("scraper") retouch (Fig. 4: 6,8) and sometimes also the ventral surface was trimmed in the proximal part of the flake (Fig. 4: 12). Simple scrapers on shortened flakes are predominant (Fig. 4: 7,12,13,15). Burnt spalls negatives are quite common on the scrapers (Fig. 4: 39). They were detached from the scraper’s working edge and also from the opposite end of the flake.

Burns are represented by burns on truncation (Fig. 5: 3,5,7), dihedral (Fig. 5: 1,6), double (Fig. 5: 2) and simple (Fig. 5: 4) (done from the natural platform or blade break negative).

The pointed items could be subdivided into two main groups

1) Points, formed by high ripple-marked retouch, which fully or partially covers the both sides of the flake. Sometimes they also have a retouched base. They are usually called borers because of their rounded smooth tips (Fig. 7: 1,2,4,6).

2) Points with arched back (Fig. 7: 5).

Among other instruments, we should mention notched flakes (Fig. 7: 7). The notches on blades are not characteristic at all. Quite a large number of flakes bear traces of trimming.

The small triangular bifaces, traditionally called arrowheads or darts, are represented by one complete specimen and 4 diagnostic fragments (Fig. 6: 1-4). One of them is produced on a piece of fine-grained quartzite.

I treat two trapezes recorded on site as outliers (Fig. 7: 8). One of them has a specific negative of curved detachment on its side (macromant?)

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2. Retouched items
The typological characteristics of the collection are briefly summarized in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material shatter</td>
<td>7</td>
<td>0.91%</td>
</tr>
<tr>
<td>Cores</td>
<td>34</td>
<td>4.40%</td>
</tr>
<tr>
<td>Core-like fragments</td>
<td>3</td>
<td>0.39%</td>
</tr>
<tr>
<td>Rejuvenation flakes</td>
<td>7</td>
<td>0.91%</td>
</tr>
<tr>
<td>Ribbed flakes</td>
<td>3</td>
<td>0.39%</td>
</tr>
<tr>
<td>Blades, bladelets and their fragments</td>
<td>90</td>
<td>11.64%</td>
</tr>
<tr>
<td>flakes and fragments</td>
<td>187</td>
<td>24.19%</td>
</tr>
<tr>
<td>Blades with irregular retouch</td>
<td>27</td>
<td>3.48%</td>
</tr>
<tr>
<td>Flakes with irregular retouch</td>
<td>38</td>
<td>4.92%</td>
</tr>
<tr>
<td>Shatter</td>
<td>23</td>
<td>2.98%</td>
</tr>
<tr>
<td>Burinspalls</td>
<td>4</td>
<td>0.52%</td>
</tr>
<tr>
<td>Retouchedpieces</td>
<td>350</td>
<td>45.28%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>773</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

The list of retouched pieces

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrapers</td>
<td>140</td>
<td>40.00%</td>
</tr>
<tr>
<td>Burins</td>
<td>27</td>
<td>7.71%</td>
</tr>
<tr>
<td>Points</td>
<td>20</td>
<td>5.71%</td>
</tr>
<tr>
<td>Perforators</td>
<td>4</td>
<td>1.14%</td>
</tr>
<tr>
<td>Trapezes</td>
<td>2</td>
<td>0.57%</td>
</tr>
<tr>
<td>Retouched blades</td>
<td>56</td>
<td>16.00%</td>
</tr>
<tr>
<td>Retouched flakes</td>
<td>73</td>
<td>20.85%</td>
</tr>
<tr>
<td>Trimmed flakes</td>
<td>7</td>
<td>2.00%</td>
</tr>
<tr>
<td>Adze-liketools</td>
<td>7</td>
<td>2.00%</td>
</tr>
<tr>
<td>Tools with flat invasive retouch (and bifacially retouched pieces)</td>
<td>10</td>
<td>2.80%</td>
</tr>
<tr>
<td>Combined tools</td>
<td>3</td>
<td>0.80%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.29%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>350</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
IV. INTERPRETATIONS

1. Admixtures

We have not managed to separate finds from the Palaeolithic layer out of the collection. We were looking for brown-coloured truncated blades and burins on truncation but were unable to define with precision whether the tools we found had originated from the red-coloured streak mentioned by A. V. Dobrovolsky (Dobrovolsky 1941).

The Bronze Age Sabatynivka culture sites usually produced only a few non-characteristic flints (Chernjakov 1985). The possibility of their presence in the collection seems quite genuine. But they cannot obscure the general typological pattern.

Our study provides us with an additional line of argument in favour of the presence of a "Neolithic episode" in the site history. First of all, two symmetrical trapezes could indicate Neolithic habitation. Geometries occur in Trypillia culture as a significant component of lithic complex at least twice. At the very beginning, they are discovered at the earliest site of Trypillia A – Bernashivka (Zhenovitch 1980). A quite representative series of these microliths also originates from the latest stage of the Trypillia cultural entity: Usatove culture (Petrenko et al., 1994). But both of them are chronologically quite distant from the period of Trypillia B1 which we are discussing now. Trapezes were widespread both in Mesolithic and Early Neolithic times in valleys of the Southern Buh and its tributaries (Stanko 1967; Damienko 1969).

Some forms of prismatic cores closely resemble those of the Grebenyky and Buh-Dniester cultures. In fact, the typological difference between Late Mesolithic and Early Neolithic assemblages are quite subtle in this region and it is almost impossible to infer the exact position of a particular complex based exclusively on the typology of a mixed collection (Covalenko - Chetnaru 1999). But the coexistence of the shell-midden, a pottery fragment of specific fabric, and trapezes points to the Early Neolithic dating of this stratum.

Mesolithic sites usually are situated at higher altitudes and not on the main rivers, but in a more inland position as opposed to Neolithic ones which tend towards big rivers and lower terraces.

Sites of the Buh-Dniester culture are quite common in this region. The well-known site of Melnychuk Kruch is situated close to the Sabatynivka site, on the opposite shore of the Southern Buh (Damienko 1969).

The Buh-Dniester culture habitation episode seems quite possible within the Sabatynivka site cultural succession.

The study of Sabatynivka chipped stone artifacts provides enough material to raise an inverse issue – the problem of detecting Trypillian ingredients in the earlier collections. Usually, the characteristic Trypillian forms are easily distinguished from the Mesolithic or Palaeolithic ones. The rippled retouch, imported raw material, long scrapers with retouched sides, elongated borers, bifacial arrowheads are the obvious admixtures in the Stone Age context. But it is almost impossible to identify the exact origin of the results of “plain flintworking”, like scrapers on flakes, burins, backed pieces, in the mixed assemblage. The same can be said about most of the cores and debitage. Some very important Mesolithic collections (Poznańska, Kinets' pil') are intermixed with the Trypillian materials. Now we can approach this issue from a new perspective and the “definite separation” of later complexes does not look as obvious as it was before.

The unidentified Trypillian admixture should give an “archaic” aspect to the assemblage, due to a relatively less microlithic outlook. In the Late Mesolithic contexts the Eneolithic admixture should result in a more “Kukrekian”-looking collection.

2. Typological Similarities

The typological outlook of the Sabatynivka chipped stone collection is in general agreement with its chronological attribution made by means of the pottery analysis. In order to come to this conclusion we use five main “chronological markers”. The network of workshops and raw material circulation were set only in the developed stage of Trypillia culture. Thus the presence of “imported flints” could be an indirect evidence of the site's age. The small bifacially treated triangular points had spread in Trypillia B1 (Bunyko 2001). We found only a quite coarse specimen of a complete “arrowhead” in the Sabatynivka assemblage. The scrapers with two sides retouched by high, rippled retouch and trimming of the bulbar part are typical for middle period of the cultural unit we are discussing. The borers with similar treatment could be also chronologically significant. The variety of burins could represent an archaic feature.
Passing on to direct comparisons, we would like to employ the site of Polyvaniv Jar as a reference site. It has a succession of five Trypillian habitation episodes and an abundant lithic collection, which was exhaustively published recently (Popova 1999). The earliest and the richest habitation – Polyvaniv Jar III, is the closest analogy to the Sabatynivka site, both in percentages of retouched items and in the morphology of the above-mentioned specific tools.

3. “Plain” Flintworking

80% of knapping on the Sabatynivka site was carried out in a utilitarian way in order to provide necessary tools immediately, as needs arose. The utilization of “local” material was the best choice for such production optimizing efforts in searching for flint nodules, preparation and transportation. This sphere of flintworking has its own raw material and its own chaines opérateurs (operative sequence).

We support the view of G.N. Popleveko on the eolithic blade assemblages being formed by at least two chains opérateurs: the first connected with pressure technique and the second related to direct percussion (Popleveko 2007). We will direct forthcoming technological investigation of the Sabatynivka collection to the clarification of this issue. The preliminary examinations and measurements of blades seem to be in accordance with a hypothesis of two different chaines opérateurs for blades. “Local” raw material is badly suited for application of pressure. Flake production also formed at least one separate chain opérateur.

From our point of view such a situation is common to most of the residential sites of the Trypillia culture (at least at stages A and B1). “Plain” flintworking has its own significance in Trypillian lithic assemblage and should be studied more carefully.

BIBLIOGRAPHY

Berezanskaia 1994,

Bibilov 1966,

Bojnevskii 1937,

Boriskovskii, Kraskovskii 1961,

Boriskovskii 1967,

Bronk Ramsey 1995,

Bronk Ramsey 2001,

Burd0 2001,
Burd0 N., Zbroja plemen kul’tury Trypillia-Cucuteni [The Trypillia-Cucuteni tribes armament]. In Hiskovostorochenii al’manach, 3 (2001). (in Ukrainian)

Burd0 2004,

Chernyakhovskii 1985.
Chernyakhovskii I.T., Severo-zapadnoe Prichernomor'e so vtoroj polovinu II tys. do n.e. [The North-Western Part of the Black Sea littoral in the second half of the II mill. BC]. Naukova dumka, Kyiv (1985). (in Russian)

Chernysh 1951.
Chernysh E.K., Tripol'skie osadki truda s poselennia u s. Vladimirovskoi [Trypillian tools from the settlement close to the village Vladimirovka]. In Kratkie soobshcheniya Instituta istorii material'noi kultury, 40 (1951): 85-95. (in Russian)

Chernysh 1967.
Chernysh E.K., Tripol'skie material'ia po obrabotke kremen' [Trypillian workshops for the flintworking]. In Kratkie soobshcheniya Instituta archeologii, 111 (1967): 60-66. (in Russian)

Covalenko - Chetru 1999.

Danilenko 1969.

Dobrovolsky 1941.

Dobrovolsky 1952.
Dobrovolsky A.V., Pershe Sabatynivts'ke poselennia [First Sabatynivka Settlement]. In Arheologichni pam'ятky USSR, 4 (1952): 78-83. (in Ukrainian)

Engovatova 1993.


Koropilov 1982.

Korobkova 1987.

Kozubovsky 1933.

Krychevsky 1947.

Movsha 1964.
Movsha T.G., Pizniy tepel'nik v s. Tiskivitse [Late Trypillia dwelling - workshop from the Tiskivitse village]. In Arheologiya, 23 (1964): 129-141. (in Ukrainian)

Петренко і інші 1994.


Попова 2003.

Поплевко 2007.

Рудяньский 1929.
Рудяньский М., Z матеріалом до вивчення передісторії Підмісії [To the prehistory of Podilia]. In *Antropologia*, 11 (1929). (in Ukrainіan)

Скаленко 1996.
Скаленко Н.М., K впросу о кременонабивній системі у ступені в Юго-Західній Європі [To the issue of the flintworking in the cromlech South-Western Europe]. In *Archaeologia*, 3 (1996): 124-131. (in Russian)

Скаленко Н.М., Старка Е.Г., Самун А., Матеева Б., Богдан - поселення-мастерські на східному заході тріпільської культури [Bogdan - settlement-workshop on the North-Eastern part of the Trypillian culture area]. In Gondhar Ľ. (ed.) *Trypil's joy svit*, Zbarazh: 54-55. (in Russian)


Стако 1967.

Тевець, Мовчан 1990.
Тевець О.В., Мовчан І.І. - Охоронні дослідження пам'яток кулітур Трипілля-Сієцітове [The rescue investigations of the Trypillia-Cucuteni sites]. In *Тези докладів з ІІ обласної наукової конференції*, Винниця (1990): 83-84. (in Ukrainian)

Тевець - Мовчан 1997.

Васютенко 1989.

Вовк 1928.
Вовк Ф.К., Артефакти передників кого типу в неолітичних поселеннях на Україні: будова і характеристика поселень [Artifacts of the precincts type from the Neolithic sites in Ukraine: structure and characteristic of the sites]. In *Antropologia*, 1 (1928): 9-28. (in Ukrainian)

Збенович 1980.
Fig. 1A. Sabatynivka on the map of Europe, 1B. The Lower Southern Buh valley and Sabatynivka site location.
Fig. 2. Plan of the site (redrawn after Dobrovoljsky, 1 952)

Fig. 3. Radiocarbon date calibration (OxCal 3.10)
Fig. 4. Scrapers from the Sabatynivka site
Fig. 5. Burins from the Sabatynivka site

Fig. 6. Bifacial forms from the Sabatynivka site
Fig. 7. Other tools from the Sabatynivka site. 1, 2, 4, 6 – "borers"; 3 – retouched blade; 5 – point with arched back; 7 – retouched flake; 8 – trapeze.