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# THE 2019 LOWER PALAEOLITHIC FINDS FROM THE HAREMA TRACT (SKHIDNYTSIA): TECHNOTYPOLOGICAL CHARACTERISTICS AND GEOMORPHOLOGICAL CONTEXT

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The site of Skhidnytsia (Harema tract) is located on a dissected slope of the Skhidnytsia River valley. The cultural horizon was identified within a sequence of sandy and clayey deposits, lacking signs of significant reworking. The artefact-bearing layer lies in situ, without traces of water transport or secondary slope redeposition.

The lithic assemblage is technologically and typologically uniform, consisting predominantly of small and, mainly, medium-sized fragments of hard, fine-grained, bedded rock – presumably argillite – and fine- to medium-grained sandstones, with occasional surface residues of cemented quartz sand. Manganese and iron oxide staining is locally present. Raw material occurred as discoid, tabular, and bar clasts, as well as pebbles; their technological properties varied according to density and consolidation. No volcanic rocks were found in the 2019 assemblage, although they were recorded in the 2018 survey collection.

The artefacts are generally well preserved, covered by a pale-weathering crust up to 1.5 mm thick, often with an underlying ferruginous lamina. The absence of rounding, the joint occurrence of different-sized artefacts, the presence of microartefacts under 10 mm, and the refitting of some fragments confirm primary in situ position. Post-depositional alterations include splitting along bedding planes, and microcracking.

Anthropogenic modification is evidenced by fracture patterns that cut across natural bedding, impact scars, evidence of repositioning, and occasional use of fragments as hammerstones or, in one case, an anvil. Similar morphological effects are observed regardless of raw material type.

The technological aim was to obtain sharp edges through simple methods, primarily bipolar splitting, with occasional free-hand percussion. The assemblage is dominated by mainly retaining cortex massive, short-profile bipolar flakes, among which citrons are most numerous, including the specific «bars» with cortex on both proximal and distal ends.

Typologically, the industry is extremely poor: mostly flakes, cores, segmented pieces of raw materials, and angular fragments and splinters, with intentional retouch virtually absent. A few choppers and chopping tools are present, although their recognition is somewhat conventional.

Overall, the Skhidnytsia (Harema) industry represents an expedient lithic technology with minimal standardization, aimed at fragmenting stone to produce usable sharp edges with no formal tool shaping. The evidence indicates a highly simplified operational sequence and the local exploitation of readily available raw material. The Harema Industry should be attributed to the archaic circle of core-and-flake industries (Mode I). According to geological and geomorphological indications, its age is determined by the interval of the Kryzhanivka, Shyrokyne, and Martonosha stages (Waalian, Bavelian, and Cromerian, respectively).

***Key words:*** Lower Palaeolithic, lithic artefacts, Outer Carpathians, Skhidnytsia, Ukraine.

***Introduction.*** This paper presents a concise analysis of the lithic assemblage recovered in 2019 during excavations conducted by M. Bandrivskyi in the Harema tract, situated near the resort settlement of Skhidnytsia (Lviv Region, Ukraine). The primary aim of this initial study is to characterise the composition, preservation state, techno-typological attributes, and potential cultural affiliation of the recovered materials. The brief techno-typological description of the collection is complemented by a new interpretation of the geological and geomorphological context of the finds, proposed on the basis of a site visit in autumn 2024.

***History of Research.*** The Harema tract, located near the settlement of Skhidnytsia (Lviv Region), first attracted scholarly attention in 2018, when Palaeolithic lithic artefacts were recovered during archaeological investigations at a site of the Holigrady Culture. Although these materials derived from redeposited Holocene colluvial deposits, their morphological and technological characteristics clearly indicated an Early Palaeolithic affiliation. In the following year, 2019, M. Bandrivskyi carried out limited but targeted excavations, which revealed a stratified archaeological complex associated with a core-and-flake industry. The discovery of a new Early Palaeolithic locality – Skhidnytsia II – confirmed the research potential of the area and renewed interest in the assemblages previously obtained by O. Chernysh in the late 1980$^{s}$ and early 1990$^{s}$ in the southern part of Skhidnytsia.

***Brief Overview of O. Chernysh's Research.*** In 1989, Professor Oleksandr Chernysh, during field investigations in the lower part of the Outer Carpathians near Skhidnytsia (upper reaches of the Dniester, Beskids), discovered a substantial concentration of Palaeolithic artefacts on the fifth terrace of the Skhidnychanka River. According to M. Demediuk, this terrace dates to the Günz glaciation (Early Pleistocene). A total of 138 items were collected, including massive cutting tools, choppers, chopping tools, denticulates, scrapers, knife-shaped implements, and seven handaxes. The raw materials consisted of fine-grained glauconitic-quartz sandstones and silicified limestones. Chernysh compared the Skhidnytsia I assemblage with the artefacts from the lower layers of Korolevo (Layers VIII and VII), attributed to the Late Günz and Günz–Mindel periods, concluding that the Skhidnytsia complex should likewise be assigned to the Early Acheulean. Following the researcher's death, his collection was lost, and for a time the very existence of Palaeolithic finds at Skhidnytsia was subject to doubt.

***Geographical Location of the Site.*** Skhidnytsia is situated in the northern, low-mountain part of the Beskid geomorphological subregion, approximately 6–7 km from the orographic margin of the Outer Carpathians (within the Ukrainian segment of the Eastern Carpathians). The site lies on the slope of the valley at the headwaters of the Skhidnychanka River, a left tributary of the Stryi. The lower part of the valley represents a typical transverse structure of the Beskids, yet occupies a distinctive position – near the point where the Stryi, the largest river of the north-eastern macroslope of the Carpathians, changes its course from north-easterly to south-westerly (Fig. 1). Across a low watershed, the Skhidnychanka valley continues into that of the Tysmenytsia River, forming a convenient passageway into the Precarpathian plains. This setting renders the Skhidnytsia area a potential natural corridor between mountain and lowland zones, enhancing its significance for the study of ancient population migration routes in Europe.

***Geomorphological Context and Stratigraphy of the Site.*** The site is located on the southern outskirts of Skhidnytsia, at the foot of the Melnychna Massif (818.7 m), within the high slope levels of the Skhidnychanka River. The investigated area comprises a slope transitioning into a levelled though also inclined surface. The archaeological section was described along the southern wall of a small clay extraction pit, up to 1.5 m deep. Stratigraphically, the section consists of alternating clayey and sandy loam deposits, displaying signs of weathering and slight humus enrichment. The main concentration of artefacts derived from the lower horizons, which were unaffected by later anthropogenic disturbance. Skhidnytsia is located on a terraced slope (GPS: 49.2219 N, 23.3439 E) that has undergone significant anthropogenic impact since the 19$^{th}$-century oil boom. The investigation of the Skhidnytsia site in 2024 included trenching to a depth of 1.2 m.


Fig. 1. Location of the Skhidnytsia site, Harema tract. After Bandrivskyi et al., 2019, photograph 1, modified
Рис. 1. Локалізація місцерозташування Східниці, ур. Гарема. За Bandrivskyi та ін. (2019, фото 1), з доповненнями

Skhidnytsia is located on a terraced slope that has undergone significant anthropogenic impact since the 19th-century oil boom (GPS: 49.2219 N, 23.3439 E). The investigation of the Skhidnytsia site in 2024 included trenching to a depth of 1.2 m. The stratigraphy comprises the following layers (Fig. 2):

1. Up to 0.4 m – Modern soil: Non-dense, grey loam with a with grey spots, non-stratified; the transition to the next layer is distinct.
2. Up to 0.5 m – *pQ1sh* – Proluvium (bedrock redeposited by temporary watercourses): Brown clay with bluish-grey mottles near the base, fissured, dense, with small fragments of hard rock).
3. Up to 0.2 m – Bedrock(?).

The facies characteristics suggest the involvement of proluvial processes (temporary watercourses) in their formation. The high density and considerable thickness of these deposits indicate that they are neither modern technogenic nor Upper Quaternary facies. The absence of red-coloured deposits and the presence of dark bluish-grey interlayers, significant clay content, along with other palaeopedological features, support their identification as pedosediments from the Shyrokyne (sh) stage. Although palaeoclimatic indicators are distorted by intensive redeposition and hydromorphic processes, the facies and palaeopedological analyses limit their chronological range to the Early Quaternary Beregove or Shyrokyne stages (Tiglian or Bavelian).

The terraced slope at Skhidnytsia features a *longitudinal-terrace* topography, bordered by deep ravines. Like the Solne sites (Stepanchuk et al., 2024; Stepanchuk et al., 2025), it comprises two terrace subseries with opposing inclinations. The upper, steeply inclined subseries includes three well-defined terraces of the Kryzhanivka (Waalian), Shyrokyne (Bavelian), and Martonosha (Early Cromerian) stages and the lower, gently inclined subseries contains a continuous sequence of directly younger terraces (subsequence of the *lb-tl, zv-dn*, and *gn-bg* stages), whose scarps are minimally pronounced or not detected at all.


Fig. 2. Skhidnytsia, Harema tract. Eastern wall of the trial pit of 2024: *1* – Modern soil; *2* – Deluvial palaeosol (dedQ1sh); *3* – Proluvium (pQ1sh) – redeposited bedrock; *4* – Bedrock (?). Artefacts are associated with horizons 2 and 3, as well as the 1-2 contact zone. After Stepanchuk et al., 2025, Fig. 3: 3

Рис. 2. Східниця, ур. Гарема. Східна стінка розвідувального шурфу 2024 р.: 1 – сучасний ґрунт; 2 – делювіальний палеґрунт (dedQ1sh); 3 – пролювій (pQ1sh) – перевідкладена корінна порода; 4 – корінна порода(?). Артефакти пов'язані з горизонтами 2 і 3, а також із зоною контакту 1–2. За Stepanchuk et al., 2025, Fig. 3: 3

The Skhidnytsia site is located within the middle terrace of the upper (ancient) subseries, whose age, corresponding to the Shyrokyne (Bavelian) stage, is confirmed by the geological structure of the excavation trench. Further evidence for this dating is provided by the stratigraphic section on a higher terrace, where brown-coloured soil deposits have been traced down to a depth of 1.2 m. The high density, structure, and viscosity of these deposits are characteristic of Kryzhanivka (Waalian) palaeosols in the East Carpathian region (Veklich, 1993).

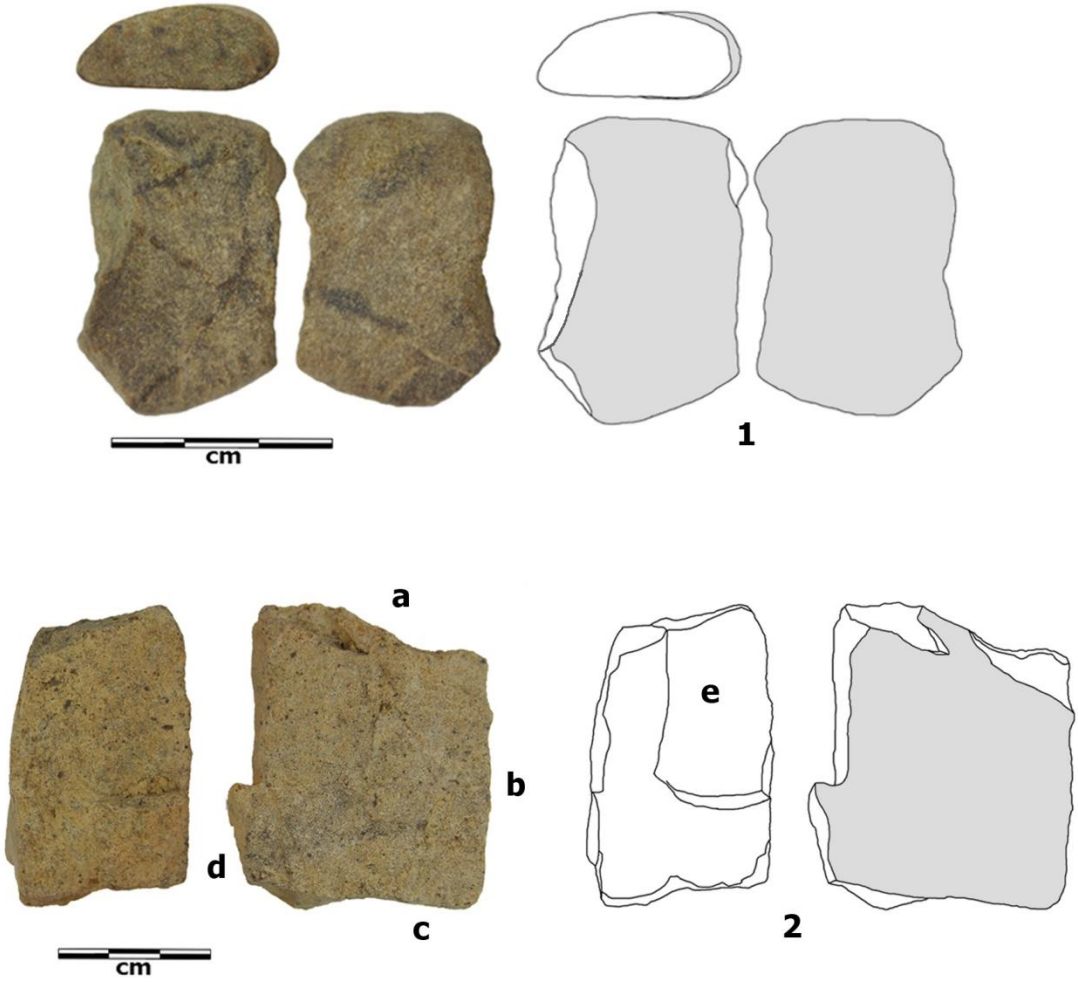


Fig. 3. Skhidnytsia, Harema tract. Sandstone artefacts from 2019 excavation. 1 – Flattened pebble with removed edges (chopper); 2 – core, central part of a flattened piece of raw material, with four edges (a, b, c, d) flaked around the perimeter in a horizontal position. Clearly visible is the negative scar (e) of a flake removed when the core was in a vertical position

Рис. 3. Східниця, ур. Гарема. Артефакти з пісковику з розкопок 2019 р. 1 – сплощена галька з відбитими краями (чопер); 2 – нуклеус, середня частина сплощеної окремості сировини, відсікання чотирьох країв по периметру (a, b, c, d) у горизонтальному положенні. Добре помітний негатив відщепу (e), знятого у вертикальному положенні нуклеуса

Neotectonic research in the area revealed a staging pattern as H0(↑), H1(↑), H2(↓), H3(↓) (Veklych, 2018, p. 249). The Skhidnytsia site differs from Solne in having H2(↓), indicating more intense uplift during the Early Quaternary and less pronounced uplift in the later period.

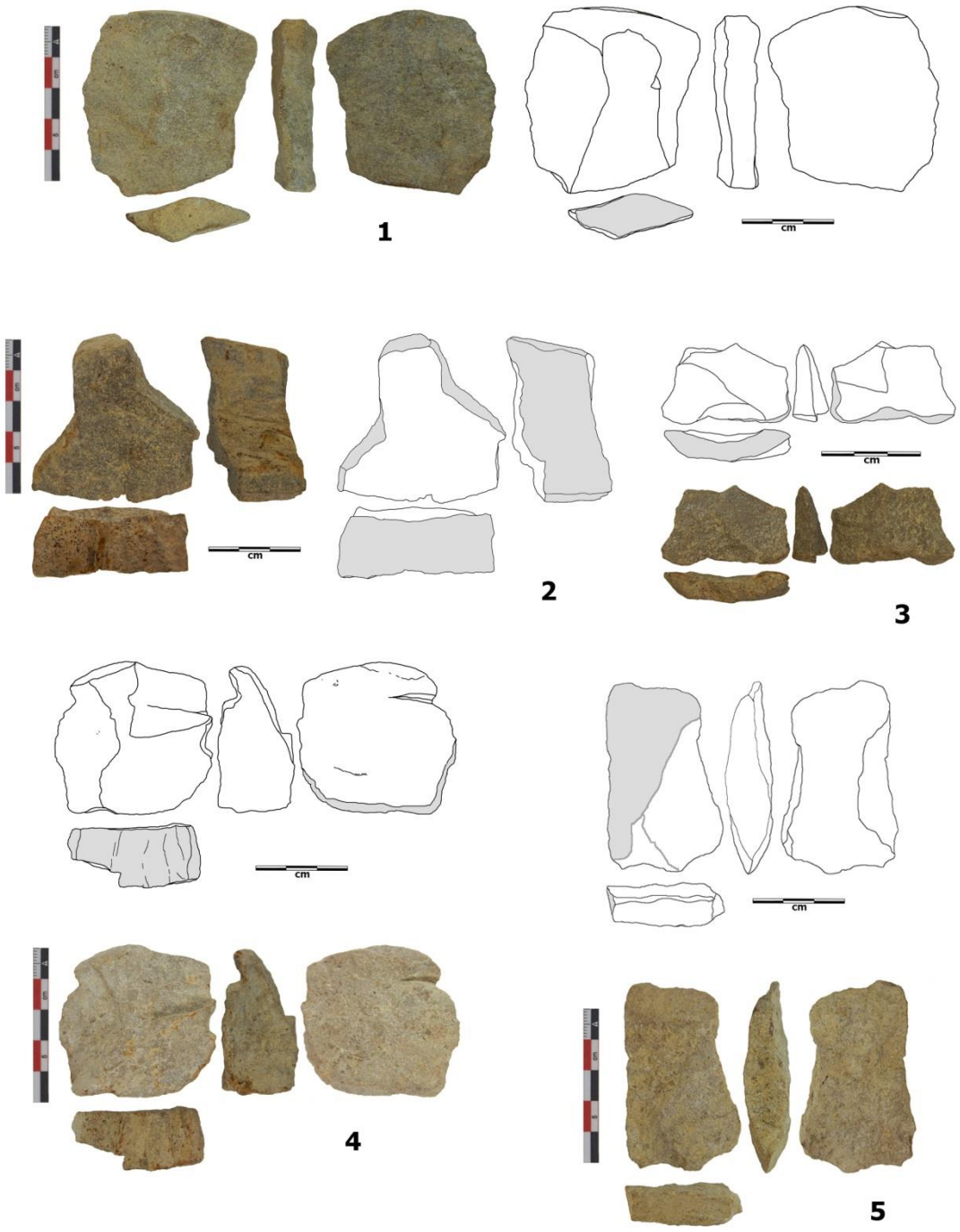


Fig. 4. Skhidnytsia, Harema tract. Sandstone artefacts from the 2019 excavation. 1 – bipolar flake, «bar» type; 2 – bipolar flake, «citron» type; 3 – bipolar(?) flake; 4 – bipolar flake, «citron» type; 5 – bipolar(?) flake, removal of both longitudinal edges

Рис. 4. Східниця, ур. Гарема. Артефакти з пісковику з розкопок 2019 р. 1 – біполярний відщеп, тип «стовпчик»; 2 – біполярний відщеп, тип «цитрон»; 3 – біполярний(?) відщеп; 4 – біполярний відщеп, тип «цитрон»; 5 – біполярний(?) відщеп, відсікання обох поздовжніх країв

The absence of a Quaternary cover on the Shyrokyne terrace, contrasted with its presence on the Kryzhanivka terrace, along with geoarchaeological surveys in the Skhidnychanka River valley, defined the *geoaeolian staging* as H0(-), H1(-), H2(-), H3(+) (Veklych, 2018, p. 249). The site remained exposed throughout the Quaternary, explaining the presence of Early Homo artefacts both within the shallow (up to 1.5 m) sediment cover and on the modern surface, particularly on higher slope sections.

The geological and geomorphological position of Skhidnytsia closely matches that of the Solne 2 site (Stepanchuk et al., 2024; Stepanchuk et al., 2025). The accumulation of human-modified stone artefacts at the Skhidnytsia site likely occurred during the period between the Kryzhanivka and Martonosha stages, corresponding to the Waalian and Cromerian periods, respectively. This places the site's occupation within a timeframe of approximately 1.5 to 0.9 million years ago. The integrated geomorphological and geological data allow the age to be assigned to the Shyrokyne Stage (Bavelian) and narrowed to an interval of 1.3–1.1 million years ago.

***Stone Industry.*** The assemblage represents a homogeneous series of artefacts characterised by high fragmentation and the absence of formalised tool types (Fig. 3; 4). The principal raw materials were clay shales and fine-grained sandstones, displaying variable knapping properties. Both bipolar anvil techniques and freehand percussion were employed. The artefacts bear traces of use, yet intentional retouch is virtually absent. A few choppers and chopping tools with alternating edge flaking have been recorded.

***Description of the Assemblage and Raw Material Characteristics.*** The collection is notably homogeneous in terms of morphology, physical properties, and the composition of the raw materials. Large or complex forms are almost entirely absent, as are foreign inclusions markedly differing in the above parameters.

The assemblage is composed predominantly of fragments made from sandstone with a bedded structure and from a clay-rich lithology, most likely a variety of argillite. In some specimens, the material contains palaeontological remains and inclusions of dark mineral particles, or bears surface residues of fine-grained quartz sand. Superficial and, in some cases, internal laminae are locally stained with manganese and ferruginous oxides. The surfaces of certain pieces display characteristic 'sliding' wear traces, probably of natural origin.

The original raw material occurred as disc-shaped, slab-like, and block-like clasts, as well as pebbles. Discs reached up to 100 mm in diameter and 35 mm in thickness; in reconstructed form, up to 200 mm and 70 mm respectively. Slabs were up to 30 mm thick, while blocks measured up to 50 mm across. The nearly complete discs in the assemblage average 58×44×17 mm, and the pebbles 65×58×25 mm. The raw material type is reflected in the distribution of flakes by plan shape (table 1), with products from the knapping of tabular and block-like blanks predominating.

The isotropic properties of the material vary depending on density and degree of consolidation: dense samples produce a ringing sound upon impact, while less compact ones sound dull. In addition to argillite, the assemblage contains specimens of sandstone of varying grain size and colour (grey or greenish), mostly in the form of tabular pieces and also water-worn pebbles. Among the 2018 finds, items made from volcanites were identified (Bandrivskyi et al., 2018), but no volcanite specimens are present in the material from the 2019 excavation.

***Preservation State and Taphonomy.*** The preservation of the assemblage varies but is generally assessed as high. Almost all items are covered with a pale buff weathering crust, often underlain by a reddish iron-rich sublayer. The thickness of the crust depends on the density of the raw material and in some cases reaches 1–1.5 mm. These features indicate a prolonged presence in stable and uniform physico-chemical conditions – initially in a moist, oxygen-rich environment, followed by a phase of intensive chemical weathering. Some pieces bear iron-rich to black coatings, most likely formed within the primary depositional layers of the stone raw material.

The absence of water-rolled surfaces and nature fragmentations confirms the predominantly primary position of the finds. In several cases, fragmentation follows natural planes of weakness,

resulting from unsuccessful blows and subsequent natural processes (Stepanchuk, Naumenko, 2024). Instances of delamination along natural bedding planes are recorded.

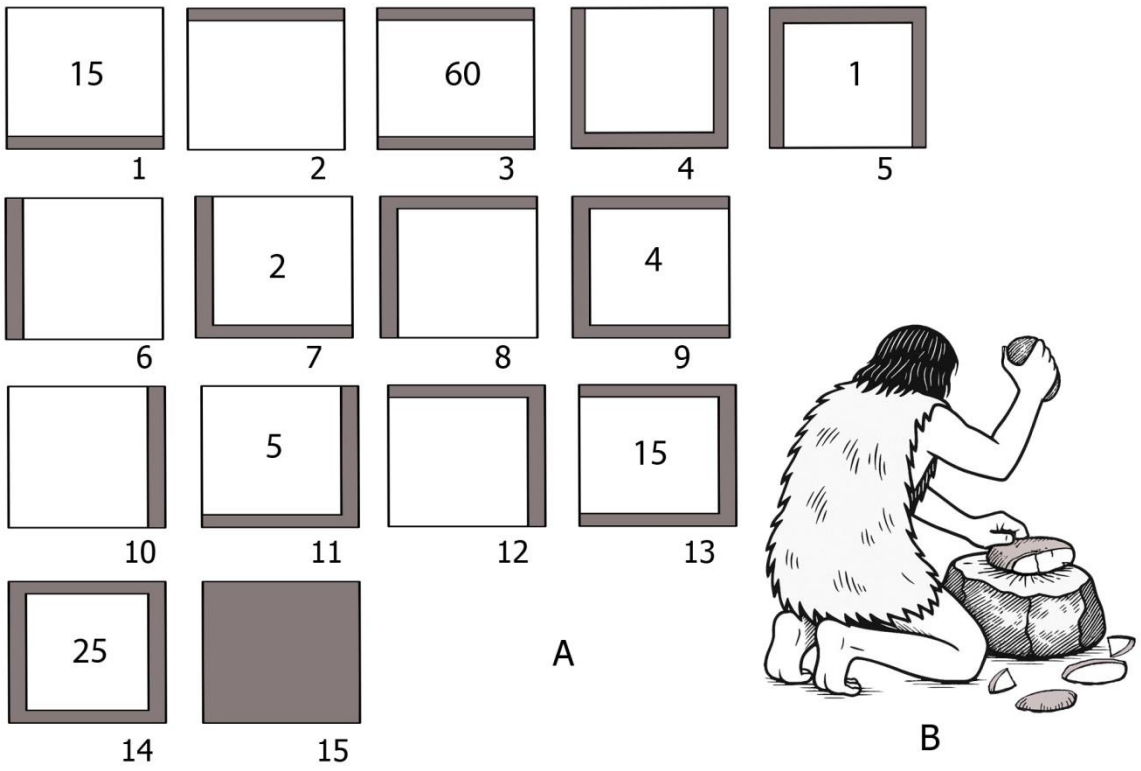


Fig. 5. A. Variability of bipolar flakes retaining portions of the cortex of the original raw material fragment. The numeral within positions 1, 3, 5, 7, 9, 11, 13, and 14 indicates the number of flakes with the corresponding characteristics in the Skhidnytsia (Harema) assemblage from the 2019 excavations. Key: P – proximal position, D – distal position, L – left position, R – right position, E – cortex present everywhere. 1 – P, 2 – D, 3 – PD, 4 – LPR, 5 – LDR, 6 – L, 7 – LP, 8 – LD, 9 – LPD, 10 – R, 11 – RP, 12 – RD, 13 – RPD, 14 – PDLR, 15 – E.
B. Bipolar knapping: a right-handed knapper produces flakes with the cortex predominantly in the R position
Рис. 5. А. Варіативність біполярних відщепів, що зберегли ділянки кірки вихідного фрагмента сировини. Цифра всередині позицій 1, 3, 5, 7, 9, 11, 13, 14 означає кількість відщепів із відповідними характеристиками в асембляжі Східниця (Гарема) з розкопок 2019 р. Ключ: P – проксимальна позиція, D – дистальна позиція, L – ліва позиція, R – права позиція, E – повсюдне розташування. 1 – P, 2 – D, 3 – PD, 4 – LPR, 5 – LDR, 6 – L, 7 – LP, 8 – LD, 9 – LPD, 10 – R, 11 – RP, 12 – RD, 13 – RPD, 14 – PDLR, 15 – E
В. Біполярне розщеплення: праворукий майстер виробляє відщепи, на яких кірка переважно розташована по правому краю

Artefact surfaces are covered with a dense pale buff crust, frequently underlain by an iron-enriched layer. The lack of rounding and the presence of microartefacts indicate that the assemblage is *in situ*. This is further supported by the co-occurrence of artefacts of various sizes and by the presence of microartefacts smaller than 10 mm. Evidence of post-accumulation damage includes delamination along cleavage planes and the development of microcracks. On some pieces, remnants of clayey or organo-mineral deposits have been preserved. Several cases of artefact refitting have also been documented.

***Evidence of Anthropogenic Modification.*** The combination of attributes points to a clearly anthropogenic origin of the assemblage. A key indicator is the widespread fragmentation of raw material in directions unrelated to its natural bedding, a pattern rarely produced by natural forces. Traces of deliberate mechanical action are common: percussion marks, surface depressions, indirect signs of artefact holding, and its changes in orientation during knapping. Some fragments may have served as hammerstones, and one appears to have been used as an anvil. Across all raw material types, the morphological results of knapping are consistent, with well-documented instances of core reorientation during reduction (fig. 3, 2).

***Technological Characteristics and Typology.*** Lithic raw material was processed with the primary aim of producing sharp cutting edges by the simplest possible means. The dominant method was bipolar knapping, with freehand percussion occurring less frequently. Freehand flakes are distinguished by their curved profile, well-defined striking platform, and the presence of a bulb of percussion. Such flakes constitute only 6 % of the total assemblage from Skhidnytsia (Harema). It should be noted that a small proportion of flakes with such features could have been incidental by-products of bipolar knapping; consequently, the identification of freehand knapping is best regarded as a tentative inference rather than a secure conclusion.

The Harema flakes themselves are quite distinctive: massive, short-edged pieces predominate, with a high frequency of citron-like flakes retaining portions of cortex covering surfaces of the processed raw material blanks. Particularly characteristic are so-called «bars», with cortex preserved on both proximal and distal ends (table 2; fig. 4, *1*). The collection is typologically impoverished, dominated by flakes, medial fragments from bipolar reduction of raw material clasts (cores), raw material pieces and occasional pebbles with trimmed edges and signs of segmentation, and various fragments and splinters (table 1; fig. 3; 4). Intentional retouch is virtually absent, although a few pieces exhibit deliberate edge removals, interpreted as trimming on an anvil (fig. 4, *5*). A very small number of choppers and chopping tools are present in assemblage under discussion, although the distinguishing these forms is largely conventional (fig. 3, *1*).

The Skhidnytsia (Harema) industry is thus characterised by an unequivocal focus on an extremely simplified *chaîne opératoire*, accompanied by a marked typological indistinctness. Breaking a piece of stone and using the sharp edge of the resulting flake, fragment, or splinter succinctly encapsulates the techno-typological character of the industry.

***Technological Characteristics.*** The assemblage exhibits clear evidence of predominant bipolar-on-anvil knapping technology, with numerous fragments displaying diagnostic macroscopic features of this method (Naumenko & Stepanchuk, 2020; Naumenko & Stepanchuk, 2024). Secondary modification of edges is virtually absent. No retouched tools are represented in the assemblage under discussion; pieces with trimmed edges are rare. In geographically proximate and chronologically comparable assemblages from Solne 1 and 2 (Stepanchuk et al., 2024; Stepanchuk et al., 2025), flakes and fragments with pronounced utilisation retouch are present. The absence of such use-worn pieces at Skhidnytsia appears to reflect both the properties of the local raw material and taphonomic factors. Denser materials may have been worked by freehand percussion or splitting. There is no evidence for modification using metal or otherwise anachronistic tools.

Statistical analysis of flake distribution by location of preserved cortex from the original raw material (fig. 5, *A*) revealed a marked asymmetry: flakes retaining cortex along the right margin significantly outnumber those with cortex on the left. The relative surplus is 20 % when all flakes are counted, rising to 38 % when specimens with cortex around the entire perimeter are excluded. Notably, these flakes belong to the intermediate phase of reduction, as indicated by dorsal negatives of previous removals. This distribution is interpreted as reflecting kinematic features of the knapping technique, particularly the predominance of right-handed knappers who consistently held the core on the anvil with the left hand while delivering sequential blows with the hammerstone in the right hand (fig. 5, *B*).

***Typological Characteristics.*** The typological spectrum of formal tool types is highly restricted (Table 3). The assemblage is dominated by flakes (fig. 4, *1–5*) and raw material fragments with removed edges (fig. 3, *1*). A few discoidal raw material blanks exhibit marginal modification, while the collection also contains a small number of simple choppers and a single chopping tool with alternating edge flaking. Citron-like flakes are markedly predominant (fig. 4, *1–4*). Evidence of use-ware is observed on six specimens, and edge-trimming on nine. Overall, the material appears technologically rudimentary and morphologically monotonous. The present data correspond fully with the techno-morphological parameters of the series recovered from the 2018 excavations at the site (Bandrivskyi et al., 2018).

***Conclusion.*** The materials recovered in 2019 from the Skhidnytsia site (Harema tract) constitute an archaeologically coherent assemblage associated with the earliest phases of human settlement in the eastern part of Central Europe and the westernmost outskirts of Eastern Europe. The technological character of the industry aligns it with Lower Palaeolithic core-and-flake industries known from a number of African and Eurasian sites including Ukrainian (Ryzhov et al., 2017; Skorikov, 2015; Stepanchuk et al., 2021; Vetrov, 2014). The new evidence supports earlier hypotheses regarding the presence of Early Palaeolithic occupations in the Skhidnytsia area and underscores the significance of the Eastern Carpathians as a potential migration corridor between Central and Eastern Europe.

The assemblage forms a homogeneous complex preserved in a stable depositional environment, with no evidence of significant post-depositional movement. The joint occurrence of artefacts of various sizes and the presence of small objects (less than 10 mm) further confirms it's *in situ* nature. From a techno-typological perspective, the industry belongs to the archaic group of Mode I core-and-flake industries, with its attribution to the Lower Palaeolithic beyond doubt. The finds from the 2019 excavations at Harem corroborate the conclusions drawn from the 2018 materials and provide no evidence contradicting their chronological or cultural interpretation. The total number of artefacts from the locality now reaches 450 specimens. The age of the industry falls within the interval between the Kryzhanivka and Martonosha stages, corresponding to the Waalian and Cromerian periods (c. 1.5–0.9 million years ago).

*Table 1*

Composition of the Industry from Skhidnytsia, Harema tract, Excavations of 2019

| Category | Quantity, pcs | Additional Information | |
|---|---|---|---|
| pebbles with alternating edge flaking | 1 | | |
| pebbles with trimmed edges and signs of crushing on the anvil | 23 | including signs of being used as a hammerstone | 6 |
| pebble crushing fragment | 2 | | |
| fragment of a trimmed edge of a pebble | 7 | | |
| median fragments of bipolar knapping of raw material pieces (cores) | 19 | including signs of being used as a hammerstone | 2 |
| sharp-edged fragment | 15 | | |
| sharp-edged splinter | 13 | including citrons | 1 |
| flake | 1 | including trimmed edges | 1 |
| flake, a product of freehand knapping | 9 | including citrons | 6 |
| flake, a product of bipolar knapping | 142 | including citrons | 52 |
| *Total, pcs* | **232** | | |

*Table 2*

Flakes from the Skhidnytsia, Harema Tract, 2019 Excavations:
Patterns of Plan-View Outline Distribution in Relation to the Position
of Cortical Surfaces and Mean Dimensions

| Type of flake | Position of cortical area | Mean Dimensions (LWT, mm) | Flake shape in plan view | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | % |
| common | P | 40×42×17 | 1 | | | 1 | 3 | | 7 | 1 | | 13 | 11 |
| bar | P D | 34×39×15 | 4 | 4 | | 7 | 26 | 9 | | 5 | | 55 | 46.6 |
| citron | P D L (R) | 31×42×13 | 5 | 1 | 1 | 3 | 6 | 2 | | 1 | | 19 | 16 |
| citron | P D L R | 29×43×15 | 11 | 3 | 2 | 1 | 2 | | 5 | | 1 | 25 | 21.2 |
| citron | P L (R) | 31×38×9 | 2 | 1 | | 1 | 1 | | 1 | | | 6 | 5.1 |
| TOTAL | | | 23 | 9 | 3 | 13 | 38 | 11 | 13 | 7 | 1 | 118 | |
| % | | | 19.5 | 7.6 | 2.5 | 0.9 | 32.2 | 9.3 | 0.9 | 5.9 | 0.85 | | 100 |

Key: LWT – length, width, thickness; P – proximal, D – distal, L – left, R – right; 1 – flattened oval, 2 – oval, 3 – rounded, 4 – shortened rectangle, 5 – rectangle, 6 – long rectangle, 7 – triangle, 8 – trapezoid, 9 – segment.

*Table 3*

The main formal tool types represented in the Skhidnytsya (Harema) 2018–2019 assemblage in comparison with the Kamianka 19/1, Medzhibozh 1 layer IV and Crețești assemblages (after Stepanchuk, Veklych 2025; Stepanchuk, Naumenko 2024 and Anisyutkin et al. 2021, modified)

| | Skhidnytsya (Harema) | | Kamianka 19/1 | | Medzhibozh 1: IV | | Crețești | |
|---|---|---|---|---|---|---|---|---|
| The prevailed raw materials | Sandstone plates | | Flint nodules | | Flint pebbles | | Flint nodules | |
| | N | % | N | % | N | % | N | % |
| hammerstones | – | – | – | – | 3 | 9.68 | 1 | 3.85 |
| chopper-hammerstone | 6 | 21.4 | 1 | 10 | 1 | 3.23 | - | – |
| various choppers | 18 | 64.3 | 7 | 70 | 19 | 61.29 | 11 | 42.31 |
| sidescrapers | 4 | 14.3 | 1 | 10 | – | – | 4 | 15.38 |
| flake points | – | – | 1 | 10 | 5 | 16.13 | 5 | 19.23 |
| flake endscrapers | – | – | – | – | 3 | 9.68 | 5 | 19.23 |
| *Total* | 28 | 100 | 10 | 100 | 31 | 100 | 26 | 100 |

**Author's contribution.** MB: investigation; data curation; writing – review & editing; YV: methodology; investigation; visualization; writing – review & editing; VS: conceptualization; methodology; investigation; writing original draft; visualization; writing review & editing.

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# НИЖНЬОПАЛЕОЛІТИЧНІ ЗНАХІДКИ 2019 РОКУ В УРОЧИЩІ ГАРЕМА (СХІДНИЦЯ): ТЕХНОТИПОЛОГІЧНІ ХАРАКТЕРИСТИКИ ТА ГЕОМОРФОЛОГІЧНИЙ КОНТЕКСТ

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Зазначено, що стоянка Східниця (ур. Гарема) розташована на розчленованому схилі долини р. Східниця. Культурний горизонт зафіксовано в межах товщі піщаних і глинистих відкладів, без ознак значної перевідкладеності. Зауважено, що артефактоносний шар перебуває *in situ*, без ознак водного перенесення чи вторинного переміщення по схилу.

Встановлено, що кам'яна індустрія технологічно та типологічно однорідна, представлена переважно дрібними й середніми фрагментами із твердих тонкозернистих лускуватих порід, імовірно аргілітів, і здебільша дрібно- та середньозернистих пісковиків, подекуди з поверхневими рештками цементу кварцового піску. Місцями зафіксовано забарвлення поверхні оксидами марганцю та заліза. Зазначено, що сировина траплялася у вигляді дископодібних, плитчастих і брускоподібних окремостей, а також гальки; технологічні властивості залежали від щільності та ступеня консолідації. Вулканічні породи в колекції 2019 р. відсутні, хоча їх було зафіксовано у збірках робіт 2018 р.

Констатовано, що збереженість матеріалу загалом висока; поверхні вкриті блідо-вивітрілою кіркою завтовшки до 1,5 мм, часто з підповерхневим озалізненим прошарком. Відсутність обкатаності, спільне залягання різнорозмірних артефактів, наявність мікроартефактів розміром до 10 мм і випадки рефітингу свідчать про переважно інситне залягання. Спостережено, що постакумуляційні зміни охоплюють розпадання за площинами шаруватості, мікротріщинуватість.

Вказано, що антропогенність комплексу підтверджують тріщини, що перетинають природну шаруватість, сліди ударів, свідчення переорієнтації заготовок, а також сліди використання окремих уламків як відбійників, так і в одному випадку ковадла. Подібні морфологічні наслідки обробки спостережено незалежно від типу сировини.

Зазначено, що технологічною метою було отримання гострих ріжучих кромок за допомогою найпростіших прийомів, передусім біполярного розщеплення, рідше – відбивання «в руках». Зауважено, що переважають масивні, короткопрофільні, часто з рештками кірки, біполярні сколи, серед яких домінують скибкові сколи, зокрема специфічні «стовпчики» з кіркою на проксимальному та дистальному кінцях і більш типові цитрони. Типологічно індустрія вкрай бідна: відщепи, нуклеуси, сегментовані фрагменти сировини, уламки та скалки; цілеспрямована ретуш практично відсутня. Зафіксовано поодинокі чопери й чопінги, хоча їх розрізнення значною мірою умовне.

Виснувано, що загалом індустрія Східниці (Гарема) демонструє доцільність із мінімальною стандартизацією, спрямованою на розколювання каменю для отримання гострих кромок без додаткової обробки, що свідчить про надзвичайно спрощену технологічну послідовність і ситуативне використання доступної сировини. Рекомендовано індустрію пам'ятки віднести до архаїчного кола індустрій нуклеусно-відщепного типу (мод I). За геолого-геоморфологічними ознаками її вік визначено інтервалом крижанівського, широкинського та мартоношського етапів (1,5–0,9 млн років тому).

***Ключові слова:*** нижній палеоліт, кам'яні артефакти, зовнішні Карпати, Східниця, Україна.