



**HAL**  
open science

## What about the Szeletian leaf point as fossile directeur?

Zsolt Mester

► **To cite this version:**

Zsolt Mester. What about the Szeletian leaf point as fossile directeur?. Študijné zvesti Archeologického ústavu SAV, 2021, Suppl (2), pp.49-62. <10.31577/szausav.2021.suppl.2.4>. <hal-04076632>

**HAL Id: hal-04076632**

**<https://hal.science/hal-04076632v1>**

Submitted on 20 Apr 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization



SUPPLEMENTUM 2

# ŠTUDIJNÉ ZVESTI

ARCHEOLOGICKÉHO ÚSTAVU SLOVENSKEJ AKADÉMIE VIED



FOSSILE DIRECTEUR

MULTIPLE PERSPECTIVES OF LITHIC STUDIES IN CENTRAL AND EASTERN EUROPE

# **ŠTUDIJNÉ ZVESTI**

ARCHEOLOGICKÉHO ÚSTAVU  
SLOVENSKEJ AKADEMIE VIED

**SUPPLEMENTUM 2**

# ŠTUDIJNÉ ZVESTI

ARCHEOLOGICKÉHO ÚSTAVU  
SLOVENSKEJ AKADÉMIE VIED

SUPPLEMENTUM 2

## FOSSILE DIRECTEUR

**Multiple perspectives on lithic studies in Central and Eastern Europe**

**Adrián Nemergut – Ivan Cheben – Katarzyna Pyżewicz  
(editors)**

The publication was supported by projects  
of the Slovak Research and Development Agency (No. APVV-20-0521)  
and the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic  
and the Slovak Academy of Sciences (No. VEGA 2/0101/19 and 2/0075/21).

NITRA 2021

Adrián Nemergut – Ivan Cheben – Katarzyna Pyżewicz (editors)

**Fossile directeur. Multiple perspectives on lithic studies in Central and Eastern Europe**

Študijné zvesti Archeologického ústavu SAV – Supplementum 2, 2021

Recenzovaný časopis / Peer-reviewed journal

Hlavné redaktorky / Editors-in-chief

Gertrúda Březinová, Alena Bistáková

Redakčná rada / Editorial board

Lucia Benediková, Jozef Bujna, Jana Čižmářová, Eva Fottová, Joachim Henning, Ivan Cheben, Alexandra Krenn-Leeb, Ján Rajtár, Peter C. Ramsl, Jozef Zábojník

Technické redaktorky / Technical editors

Daniela Fábiková, Miriama Nemergutová

Počítačové spracovanie / Layout

Beáta Jančíková

Grafický návrh a počítačové spracovanie obálky / Graphic layout and computer elaboration of the cover

Beáta Jančíková, Adrián Nemergut

Príspevky sú indexované a evidované v databázach WoS, Scopus a CEJSH.

Bez predbežného písomného súhlasu vlastníka vydateľských práv nesmie byť žiadna časť tejto publikácie reprodukována alebo rozširovaná v žiadnej forme – elektronicky či mechanicky vrátane fotokópií, nahrávania, prípadne iným použitím informačného systému vrátane webových stránok.

Articles are indexed and covered in WoS, Scopus, and CEJSH databases.

No part of this publication may be reproduced or transmitted in any form – electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, including web pages, without the prior written permission from the copyright owner.

Za znenie a obsah príspevkov zodpovedajú autori. / Authors are responsible for their contributions.

<http://archeol.sav.sk/index.php/sk/publikacie-2/studijne-zvesti/>

<http://archeol.sav.sk/index.php/en/publications/the-studijne-zvesti-au-sav-journal/>

Rozširuje / Distribution

Archeologický ústav SAV, Akademická 2, SK – 949 21 Nitra

e-mail: [nraukniz@savba.sk](mailto:nraukniz@savba.sk)

Tlač / Printed by

VEDA, vydavateľstvo SAV, Bratislava

© Archeologický ústav SAV, Nitra 2021

ISSN 0560-2793

Dátum vydania október 2021

Evidenčné číslo MK SR 3403/09

IČO 00 166 723

---

## OBSAH

### Magda Cieśla

- Keep it or discard it?  
Why the Neanderthals made tools from some rocks ..... 7
- Zachować czy wyrzucić?  
Dlaczego neandertalczyki wykorzystywali niektóre typy skał w produkcji narzędzi ..... 18

### Małgorzata Kot – Natalia Gryczewska

- Found in a box.  
Unknown bifacial leaf point from the Koziarnia Cave ..... 19
- Znalezione w pudełku.  
Nieznane bifacjalne ostrze liściowate z jaskini Koziarni ..... 29

### Krisztián Zandler – András Markó – Attila Péntek

- Szeletian or not Szeletian.  
Bifacial industries from three open-air Middle Palaeolithic sites from the Cserhát Mountains  
(Northern Hungary) ..... 31
- Szeletien alebo nie szeletien.  
Bifaciálna industria z troch otvorených stredopaleolitických lokalít v pohorí Cserhát (severné Maďarsko) ..... 46

### Zsolt Mester

- What about the Szeletian leaf point as *fossile directeur*? ..... 49
- Szeletienky listovitý hrot ako *fossile directeur*? ..... 61

### Katarzyna Pyżewicz – Adrián Nemergut

- First results of use-wear analysis of the leaf points from Moravany nad Váhom-Dlhá ..... 63
- Prvé výsledky trasologickej analýzy listovitých hrotov z lokality Moravany nad Váhom-Dlhá ..... 80

### Marián Soják – Maciej Wawrczak

- Spišské Podhradie-Dreveník, an important Palaeolithic site of the Lower Spiš ..... 83
- Spišské Podhradie-Dreveník, dôležitá paleolitická lokalita dolného Spiša ..... 92

### Yuri E. Demidenko – Petr Škrdla – Joseba Rios-Garaizar – Jaroslav Bartík – Tereza Rychtaříková

- Epiaurignacian industry with Sagaidak-Muralovka-type microliths industry  
in the south of Eastern Europe and Eastern Central Europe and its lithic artefact fossil types ..... 93
- Epiaurignacká industrie s mikrolity typu Sagaidak-Muralovka v období posledního glaciálního maxima  
na jihu východní Evropy a ve východní části střední Evropy a její vúdčí artefakty ..... 109

### Michaela Polanská

- Est-il possible d'identifier des groupes pavloviens sur le territoire d'actuelle Slovaquie ? ..... 111
- Osídľovali pavlovienske skupiny územie dnešného Slovenska? ..... 126

**Sandra Sázelová – Bibiána Hromadová – Angela Perri – Michaela Polanská**

- Aspects of hard tissue modifications.  
Three objects from the Gravettian at Dolní Věstonice II (Czech Republic) ..... 129
- Možnosti modifikace tvrdých tkání.  
Tři gravettské předměty z Dolních Věstonic II (Česká republika) ..... 143

**Michaela Polanská – Martin Novák – Laurent Klaric**

- Fossiles directeurs* variability in Late and Final stages of the Gravettian of Central Europe ..... 145
- Variabilita *fossiles directeurs* v mladom a finálnom gravettiene strednej Európy ..... 161

**Zdeňka Nerudová**

- Can we identify any *fossile directeur* in the Epigravettian? ..... 163
- Je možné nalézt *fossile directeur* pro epigravettien? ..... 173

**Ivan Cheben – Michal Cheben**

- Analysis of chipped industry from the settlement of the Želiezovce group in Bajč ..... 175
- Analýza štiepanej kamennej industrie z lokality želiezovskej skupiny v Bajči ..... 197

**Roman I. Muravev – Evgenia S. Tkach – Dmitriy V. Gerasimov**

- Sinkers and composite fishing hooks in the Neolithic of Eastern Baltic.  
Slate artefacts from Berezovo 2 (Karelian Isthmus, North-West Russia) ..... 199
- Závažia a zložené rybárske háčiky z neolitu vo východnom Pobaltí.  
Bridlicové artefakty z lokality Berezovo 2 (Karelská šija, severozápadné Rusko) ..... 210

**Jaroslav Bartík – Petr Škrdla**

- Raw material as *fossile directeur*?  
A case study of the use of Stránská skála-type chert ..... 213
- Surovina jako *fossile directeur*?  
Případová studie využívání rohovce typu Stránská skála ..... 229

**Lubomíra Kaminská**

- Use of obsidian in Slovak prehistory ..... 231
- Využitie obsidiánu v praveku Slovenska ..... 250

**Magdalena Sudoł-Procyk**

- Chocolate flint outcrops in the Kraków-Częstochowa upland.  
State of knowledge on mining, use and distribution of the raw material  
and further research perspectives ..... 251
- Wychodnie krzemienia czekoladowego na Wyżynie Krakowsko-Częstochowskiej.  
Stan wiedzy nad wydobywaniem, użytkowaniem i dystrybucją surowca  
oraz perspektywy badawcze ..... 262

## WHAT ABOUT THE SZELETIAN LEAF POINT AS FOSSILE DIRECTEUR?

Zsolt Mester

DOI: <https://doi.org/10.31577/szausav.2021.suppl.2.4>

Keywords: Solutrean, Szeletian, research history, typology, morphometry, index fossil, leaf-shaped tools

**Abstract:** The Szeletian is widely accepted as an industry of the Middle to Upper Palaeolithic transition in Central Europe, characterized by the production of leaf points and associated with Neanderthals. In 1953, F. Prošek has introduced the term Szeletian for describing an already existing archaeological unit in Central Europe, which had been defined relative to the Solutrean of Western Europe. He did not define the new unit but applied the fourfold model Hungarian scholars established to describe the development of the Solutrean in Hungary, based solely upon leaf point typology. Here, I argue that the “Szeletian leaf point,” which is thought to characterize this unit, is a typologically undefined tool. However, the analyses of bifacial and leaf-shaped tools from Moravian and Hungarian sites, during the last decade, revealed the existence of certain basic forms which are frequent as far as they could represent types or sub-types among “Szeletian leaf points.” For being considered as *fossile directeur*, these types have to have something specific by which they can be distinguished from other leaf point types, and they have to appear exclusively in the context of Szeletian assemblages. To clarify it needs further joint researches by concerned Central European scholars. Until we can not demonstrate the existence of a specific type of leaf point linked strictly to the Szeletian, it seems to be better to not use the “Szeletian leaf point” as a typological term.

### INTRODUCTION

Since F. Prošek (1953) introduced the term Szeletian for an industry of the Early Upper Palaeolithic characterized by bifacial leaf-shaped tools in the Middle Danube basin, there is not a commonly accepted view of what the Szeletian is (Mester 2014a, 160–165). This is because the scholars from related countries based their views on the archaeological record of their own territories (Bárta 1960; 1990; Gábori 1990; Kaminská 2015; Kaminská *zost.* 2014; Kaminská/Kozłowski/Škrdla 2011; Kozłowski 2000; Neruda/Nerudová 2013; Oliva 1991; 1995; Prošek 1953; Ringer 1989; 2001; Simán 1990; Svoboda/Simán 1989; Valoch 1957; 1990; Vértes 1956; 1968). After the publication of the monograph by P. Allsworth-Jones (1986), the Szeletian became widely accepted as one of the cultural units of the transition from the Middle to Upper Palaeolithic in Central Europe, associated with Neanderthals (Bolus 2004a; Marks/Monigal 2000; Nigst 2006; Svoboda 2001; 2006). This unit is thought to be characterized by bifacial leaf points, although such tools can be found in different cultural and chronological contexts from Great Britain to Russia (Allsworth-Jones 1990; Bolus 2004b; Kot 2014; 2016; Kozłowski 1990; 1995).

I was faced with the problem of the bifacial leaf points following the new interpretation of the archaeological sequence of Szeleta Cave by Á. Ringer (Ringer/Mester 2000). According to his model, the leaf points of the Szeletian appear together with the leaf-shaped tools of the Jankovichian along almost the whole sequence (Ringer/Mester 2000, 268). However, the Jankovichian is considered a Late Middle Palaeolithic unit (Gábori-Csánk 1983; 1993). To look for technological differences for distinguishing types of these two units, I performed analyses of the leaf-shaped tools of Szeleta and Jankovich caves (Mester 2010; 2014b). Surprisingly, more similarities have been found between Early Szeletian and Jankovichian than between Early and Developed Szeletian. This result raised the question of what the meaning of the “Szeletian leaf point” is (Mester 2018a). The main topic of the 16<sup>th</sup> SKAM Lithic Workshop, organized by the Institute of Archaeology Slovak Academy of Sciences in Nitra (Nemergut *et al.* eds. 2019) provided an opportunity to discuss the role of these tools as index fossils of the Szeletian. However, the purpose of

this paper is not to answer the question in the title by defining the “Szeletian leaf point” as a tool type. It aims at opening a discussion about the meaning of this type in the context of the Szeletian in Central Europe.

First, I briefly review the research history to understand why a definition of the type is lacking. After that, I reconsider the typology of the leaf-shaped tools in Szeletian context in order to find elements for a future definition. Finally, I reconsider the role of *fossile directeur*.

## THE UNDEFINED SZELETIAN LEAF POINT

The lack of definition for a “Szeletian leaf point” is a consequence of the complicated research history of the problem of interpretation of the industries with leaf points in Europe (Freund 1952). During several decades of the developing Palaeolithic archaeology in Central and Eastern Europe starting in the late 19<sup>th</sup> century, all lithic assemblages found in “diluvial” (i.e. of Pleistocene age) layers were compared to the classification elaborated in France by G. de Mortillet from the 1870s onward (Bourdier 1967, 45; Brézillon 1972, 160). This French system was laid on the concept of a linear (“Lamarckian”) evolution of the human technical knowledge and society, common in the 19<sup>th</sup> century (cf. Morgan 1877). Mortillet’s classification of the Palaeolithic was conceived as successive stages of the technological development of prehistoric humans from handaxes of the Chellean to high-quality bone industry of the Magdalenian. This classification served as a chronological scheme thought to be universal (Julien 1992, 165, 166). The principle and the methodology have been taken from geology and palaeontology (Pautrat 1993).

After the debate on the existence of a separate Aurignacian between the Mousterian and the Solutrean (Groenen 1994, 162–169), Mortillet’s classification was refined by H. Breuil (1912). In both classifications, bifacial leaf points were attributed to the Solutrean stage only. As a result, lithic assemblages with leaf points found at the sites of Central Europe were classified – automatically – to the Solutrean (Kozłowski J./Kozłowski S. 1996; Mester 2014a; Valoch 1996). At the moment of the discovery, it was evident to link the leaf point assemblages of Szeleta Cave in Hungary to the Solutrean (Kadić 1916). Because of the lower quality of their shaping, the more or less regular leaf points found at Hungarian sites were classified as Proto-Solutrean and Early Solutrean (Hillebrand 1935; Kadić 1934). Moreover, J. Hillebrand (1935, 34) supposed that the Solutrean has been developed in Central Europe and migrated to Southwestern Europe under the effects of the cooling climate. Based on the clear differences in the shaping between the tools of the Solutrean in Western Europe and those of the industries in Central Europe, in the 1930s, Central European scholars tried to introduce a separate stage for the industries with leaf points of the region, with Předmostí in Moravia (F. Wieggers) or Szeleta Cave in Hungary (I. L. Červinka) as eponymous site (Freund 1952, 211–213; Prošek 1953, 144, 145, 187, 188). Following J. Andrée (1930), J. Hillebrand (1935, 31) used the name of “Szeleta-Kultur” for the Proto-Solutrean of Hungary.

At the beginning of the 1950s, the leaf points of Central and Eastern Europe were demonstrated to belong to a period earlier than the Solutrean of Western Europe. Based on her European scale analysis of the evidence, G. Freund (1952) proposed to name them “Prae-Solutrean”. According to stratigraphic observations made during new excavations in Western Slovakia, including Dzeravá skala Cave, F. Prošek (1953) concluded to an age of Würmian 1/2 interstadial for these assemblages in the Carpathian Basin, and described them as “Szeletian” after the first excavated site.

F. Prošek’s proposition for distinguishing the Szeletian as an Early Upper Palaeolithic culture concerned an already existing unit (Solutrean) under a new name and a new chronological position. Probably, that is why he did not give a definition of the new unit but applied the fourfold model Hungarian scholars established to describe the development of the Solutrean in Hungary, although he criticized this model for being based upon solely of leaf point typology. This model was built up after a dozen excavations conducted at cave sites in Northern Hungary (Hillebrand 1935; Kadić 1934; Mottl 1938), it distinguished the phases of a Protosolutrean, an Early Solutrean, a Developed Solutrean and a Late Solutrean. The regular shaped bifacial leaf points in the upper layers at Szeleta Cave represented the top of this evolution, the Developed Solutrean (Fig. 1: 5, 6). The roughly elaborated specimens of the lower layers of Szeleta corresponded to the dawn of the development, the Protosolutrean (Fig. 1: 1–3). The bifacial leaf points of the Jankovich Cave fitted between the two developmental levels, the Early Solutrean (Fig. 1: 4, 7, 8). The bifacial foliate tools of the Puskaporos Rockshelter, associated with Late Glacial fauna, were less regularly shaped like the best types of the Szeleta, therefore they represented the Late Solutrean (Fig.

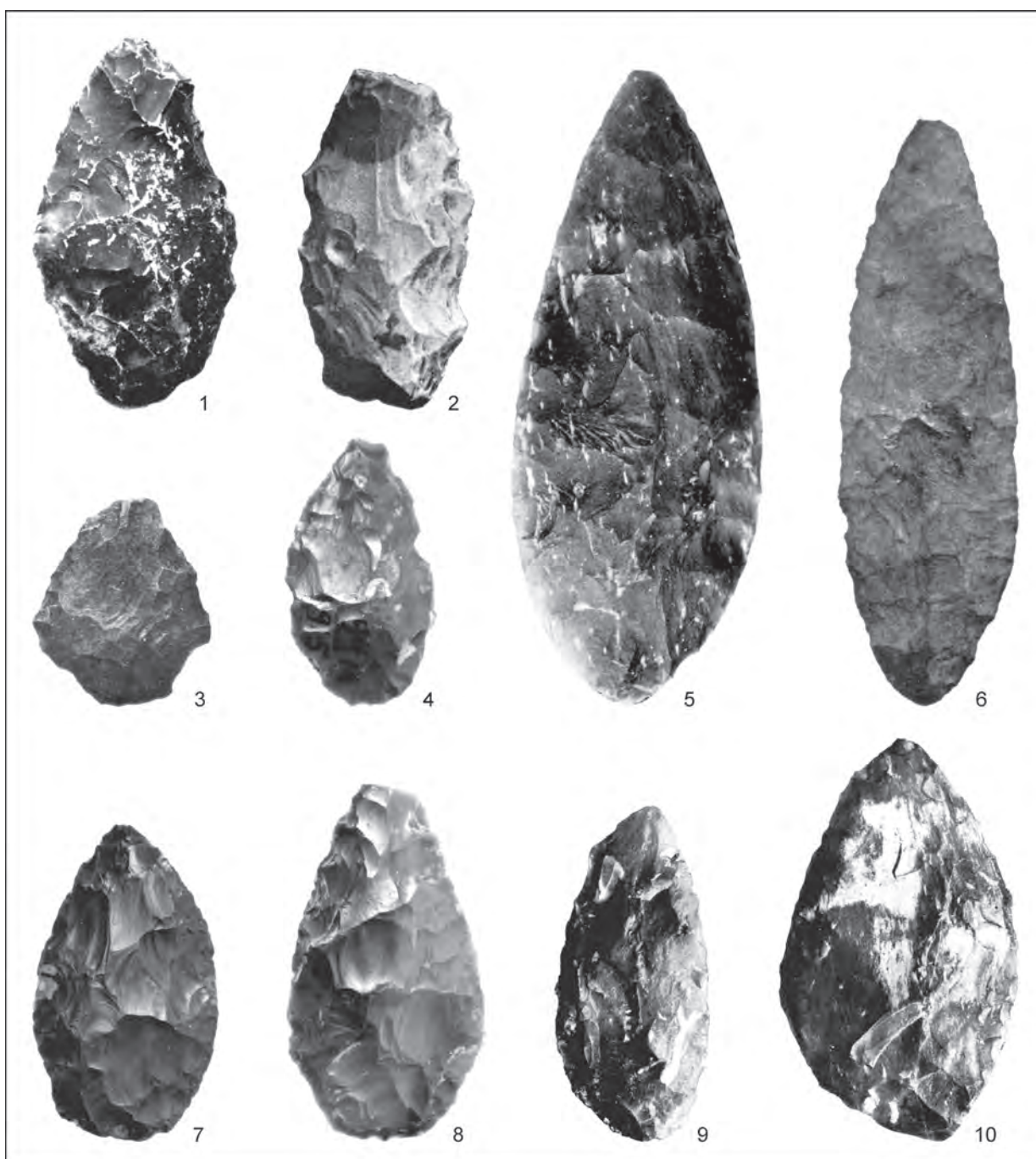


Fig. 1. Leaf points of the phases of the “Solutrean” in Hungary. 1–3 – Protosolutrean from Szeleta Cave (after *Kadić 1934*, pl. IV: 2, 5, 7, original photo by G. Tóborffy); 4–6 – Early Solutrean from Jankovich Cave (after *Gábori-Csánk 1993*, pl. IIb: 5, 8, 10, original photo by A. Dabasi); 7, 8 – Developed Solutrean from Szeleta Cave (after *Kadić 1934*, pl. V: 1, 3, original photo by G. Tóborffy); 9, 10 – Late Solutrean from Puskaporos Rockshelter (after *Kadić 1934*, pl. VI: 2, 7, original photo by T. Dömök). Without scale.

1: 9, 10). This typological sequence of the “laurel leaf points” was built by a biographical approach. It means that the development of a lithic tool-type follows the life of a human: childhood (the early phase after the birth) – adolescence (developmental phase) – adulthood (fully developed phase) – old age (declining phase). F. Prošek completed the characterization of these phases of the Szeletian by describing cores and other tools, too, including the archaeological record of Western Slovakia and the published data from Hungary. He did not identify the late phase of the Szeletian in Slovakia. At the same time,

M. Gábori (1953) revised the Hungarian record and also doubted the integrity of the late phase which he proposed to be included in the developed phase.

F. Prošek's idea intensified the research in Central Europe (Mester 2014a). In Hungary, the investigations aimed at specifying the archaeological meaning of the Szeletian by revising the lithic assemblages of the already excavated cave sites, as well as at demonstrating its origin in the local Middle Palaeolithic, especially in the Mousterian of the Bükk Mountains (Vértes 1956; 1958; 1962–1963; 1968). In Czechoslovakia, intensive field works have been undertaken, focusing on the valley of the Váh River (Western Slovakia) by J. Bárta and the region of Brno and the Krumlovský les area (Moravia) by K. Valoch (Allsworth-Jones 1986). Due to methodological development and changing paradigm in French Palaeolithic research from the 1950s onward, lithic studies shifted from using certain types to include the whole assemblages in defining cultural identity (Julien 1992, 166–172). As a consequence, Central European scholars became interested in the composition of Szeletian industries using statistical approaches (Oliva 1991; 1995; Valoch 1957; 1990; Valoch et al. 1993; Vértes 1968). From the 1980s onward, the question of the Szeletian became part of the discussion about the Middle to Upper Palaeolithic transition (Allsworth-Jones 1986; Camps/ Chauhan eds. 2009; Conard ed. 2006; Farizy dir. 1990; Neruda/Nerudová 2013; Otte ed. 2014; Riel-Salvatore/Clark eds. 2007; Svoboda 2001; Svoboda/Simán 1989). Scholars, were not motivated to establish a detailed typology of the “Szeletian leaf points” on a Central European scale. Only the inner variability of the type was highlighted (Kaminská 2015; Oliva 1991; Valoch 1990; Valoch et al. 1993).

#### ELEMENTS FOR THE TYPOLOGY OF THE SZELETIAN LEAF POINT

Now we are in a strange situation: the Szeletian is widely accepted to be a “Middle to Upper Palaeolithic transitional industry” in Central Europe characterized by the presence of the “Szeletian leaf point” which is a typologically undefined tool. Among the leaf points in Szeletian context, the only exception is the “foliate point of Moravany-Dlhá type” described by J. Bárta (1960, 302): a classic poplar leaf-shaped tip with a relatively straight base, which has the maximum width in the lower quarter of the tool and the overall shape resembles an equilateral triangle. P.-Y. Demars and P. Laurent (1992, 124) gave a very general definition for the “Szeletian leaf point”: a foliate piece that is highly variable in form and retouched usually on the whole surface of both faces. Moreover, their fig. 48 illustrates the type by five artefacts, two of which have a different cultural context: no. 1 from Ilsehöhle Cave and no. 4 from Nietoperzowa Cave now belong to the Lincombian-Ranisian-Jerzmanowician (LRJ) complex (Flas 2011; 2014). Demars and Laurent accepted the possibility that the Jerzmanowice point can also be included in the category of “Szeletian leaf point” as a partially retouched variant. On the contrary, P. Allsworth-Jones (1986, 30, 31) argued to distinguish the “unifacial leaf point” as another tool type. In my view too, the Jerzmanowice point suggests a shaping concept completely different from bifacial leaf points, even if there are partly or totally “unifacial” examples of this latter in the archaeological assemblages (e.g. Bárta 1960, pl. I: 3, 4, 6; III: 2, 4; Nemergut 2010, pl. V: 1–12). Moreover, the Jerzmanowice point seems to be a good *fossile directeur* of the LRJ complex.

In the early 20<sup>th</sup> century, Hungarian scholars had good reasons to base their analyses of the mentioned cave sites on the “laurel leaf points” as *fossile directeur*. On the one hand, the assemblages were attributed to the Solutrean which was characterized by this tool-type in the abovementioned French system. On the other hand, these tools seemed to be of high importance in the region, because the first discoveries in the town of Miskolc (Northeast Hungary) – interpreted as traces of prehistoric humans, which incited O. Kadić to excavate at Szeleta Cave – were bifacial leaf-shaped artefacts (Kadić 1934, 19–23, pl. I; II; Mester 2014a). For a real evaluation of the typology of the leaf points in Hungary, made by Kadić and Hillebrand, we should not forget that they classified their types in comparison with the “classical” laurel leaf points of the Solutrean in France. The definition of the Solutrean laurel leaf point (Brézillon 1968, 216, 217; Demars/Laurent 1992, 132) emphasizes the often symmetrical and pointed form, the totally retouched surface on both sides with flat and parallel negatives. There is a certain variability in forms, whereby P. Smith distinguished 13 variants of the type (Brézillon 1968, 217, fig. 87), but almost all are elongated. From this perspective, the regular and symmetrical, elongated, bifacial foliate points from Szeleta Cave were similar enough to the “classical” type. Moreover, the two basic types recognized by O. Kadić (1916, 238) within the collection of the regular and symmetrical points

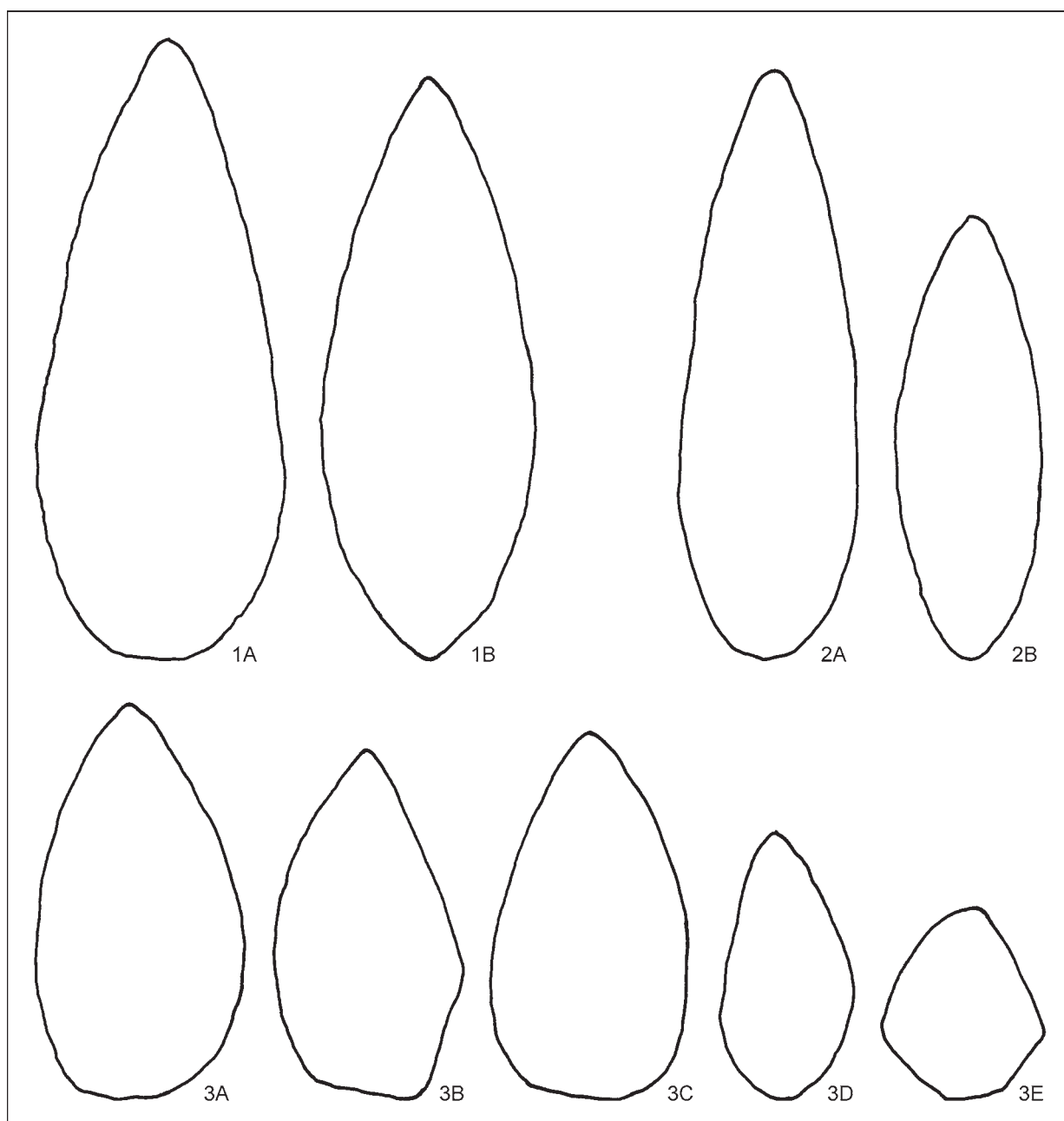


Fig. 2. Recognized modules of Szeleta bifacial foliate tools. 1 – broad, elongated and symmetrical types with rounded base (A) or pointed base (B); 2 – narrow, elongated and symmetrical types with maximum width at the proximal part (A) or at the mesial part (B); 3 – asymmetrical types with laurel leaf shape (A–C), small laurel leaf shape (D), small sub-triangular shape (E); (after Mester 2014b, fig. 12).

from Szeleta were known in the French Solutrean too (cf. Brézillon 1968, fig. 87: B, C, I): a mainly larger with rounded base (*feuille de laurier* – laurel leaf) and a mainly narrower with pointed base (*feuille de saule* – willow leaf). K. Simán (1990, 192) also distinguished only these two types in the assemblage from the upper layers of Szeleta Cave, however, the morphological analysis demonstrated the existence of both variants (with rounded and with pointed base) for both types (large or narrow symmetrical form; Fig. 2: 1A, 1B, 2A, 2B; Mester 2014b, fig. 12).

F. Prošek's paper (1953) published in *Slovenská archeológia* journal (Czechoslovakia), probably was hardly known to prehistoric archaeologists on the other side of the Iron Curtain. These colleagues could get knowledge of any new results mainly from review articles published in Western European languages

in Western European journals. The major source of information on the Szeletian appears to have been the paper of B. Klíma (1957) in *Quartär* published in Erlangen (West Germany) and, consequently, the article of J. Combier (1962) in *L'Anthropologie* journal (France). This could be the reason why these two publications are referred to for the description of the “Szeletian leaf point” as a type. Relying on a figure published by B. Klíma (1957, 102, fig. 9), P.-Y. Demars and P. Laurent (1992, 124) present three variants – willow leaf point, laurel leaf point, and poplar leaf point – from the Modřice site in Moravia. Klíma’s three variants, supplemented by a fourth one – asymmetrical point – were also cited by M. Brézillon (1968, 330, fig. 199) who used J. Combier’s (1962, fig. 1: 1, 2, 4, 5) illustrations presenting the pieces from Modřice, Neslovce and Dzeravá skala Cave. The poplar leaf point as a variant was originally defined by L. F. Zotz (1951, 183–187), who introduced the name of “foliate point of Moravany type” because a very rich collection has been found at the excavation of Moravany nad Váhom-Dlhá open-air site in Western Slovakia. Zotz pointed out that this type was already found at several sites before, including a top-quality exemplar discovered at a house building at Petőfi Street in Miskolc, which was wrongly attributed to the Late Acheulean by H. Obermaier because of its regular triangular shape (cf. Kadić 1934, pl. II: 2). According to O. Kadić (1934, 23), this artefact from Miskolc had an uncertain stratigraphic position, but needs to belong to the Developed Solutrean by its shaping technique even though this type was unknown in the assemblage of Szeleta Cave.

One can consider the analyses of bifacial and leaf-shaped tools from Moravian and from Hungarian sites accomplished during the last decade as “an attempt to fill the void” (Kot 2014; Mester 2010; 2014b; 2017; 2018b; Neruda/Nerudová 2017; Nerudová 2009; 2011; Nerudová/Neruda/Sadovský 2011). These investigations applied technological and cognitive approaches, including refits, techno-functional analysis, scar-pattern (working stages) analysis, use-wear studies, GIS, 2D morphometry and statistics. The most important aspect of these studies is the attempt to understand human behaviour during tool production and use. This contributed to better estimate the role of re-sharpening and transformation in the final morphology of bifacial tools, as well as to recognize characteristic forms linked to stages of production. All these factors could be the source of variability in a lithic assemblage.

Morphometrical studies, however, revealed the existence of certain basic forms which are so frequent that they could represent types or sub-types among “Szeletian leaf points”. Z. Nerudová described 13 basic shape variants, applied for the analyses of bifacial tools from Moravian sites (Fig. 3; Nerudová 2009, 165–167; 2011, 63; Nerudová/Neruda/Sadovský 2011, 24). In these publications, she analysed 183, 31 and 415 pieces from Szeletian contexts respectively. It is very thought-provoking that the most frequent variants were the B (semi-leaf) and E (sub-leaf) in each case (31.1%, 19.4% and 26.4%, as well as 20.2%, 29.0% and 19.7% respectively), completed by the variants A (willow-leaf; 12.5%, 6.5%, 11.8%) and D (lateral; 7.7%, 19.4%, 7.5%). It looks like these forms have some meanings within the Szeletian bifacial tool production in Moravia.

Taking into account the cognitive framework of the tool production (Inizan *et al.* 1999, 15; Mester 2014b, 43, 44; 2018b, 57; Tixier 2012, 40, 41), the shape variants correspond to different tool ideas. Based on this cognitive model, nine tool ideas termed “modules” had been recognized within the collection of leaf-shaped tools of Szeleta Cave (Fig. 2; Mester 2010, fig. 1; 2014b, 48, fig. 12). Five of them are present among the leaf-shaped tools of Jankovich Cave, too (Mester 2017, 82, 83, fig. 6). Furthermore, some of these modules occur in Szeletian assemblages in Western Slovakia and Moravia as well, and vice versa some shape variants of Nerudová (or modules) occur in assemblages related to the Szeletian in Hungary and Western Slovakia (Mester 2018a, 30).

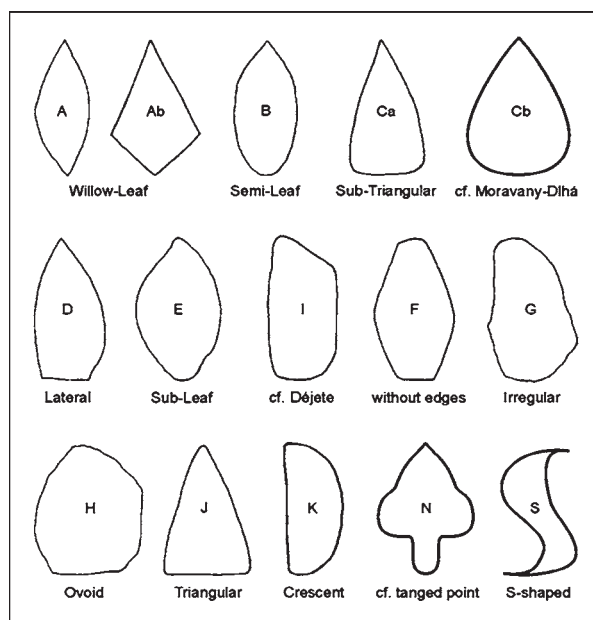


Fig. 3. Morphological shapes of bifacial tools applied in the descriptive schema of pointed bifacial artefacts of Moravian sites (after Nerudová 2011, fig. 2: 3).

In conclusion, it seems reasonable to take these common elements of the Moravian, Slovakian and Hungarian leaf-shaped tool assemblages as a basis, if we are looking for a definition of the “Szeletian leaf point” tool-type.

### THE SZELETIAN LEAF POINT AS FOSSILE DIRECTEUR

The *fossile directeur* or index fossil is a term borrowed from geology. The principle that certain fossils could be used to indicate the geologic age of a rock formation is due to William Smith at the beginning of the 19<sup>th</sup> century, who based the chronostratigraphic sequence of the geological units on the faunal succession for developing the first map of the United Kingdom published in 1815 (Harries 2015). He observed that the distribution of specific fossils through time permit the identification of geologic periods and the correlation of rocks containing these fossils. By analogy, prehistorians of the 19<sup>th</sup> and early 20<sup>th</sup> centuries considered specific tool-types as indicators of levels of the chronostratigraphic sequence of human industries (Leclerc/Tarrête 1988a; Pautrat 1993).

To be able to accomplish this role of indicator, an index fossil in geology have to have the following characteristics, according to P. Harries (2015, 354):

- rapid evolution so that the temporal intervals represented are short;
- wide geographic distribution allowing correlation over a broad area;
- virtually instantaneous range expansion following origination and simultaneous extinction decreasing the likelihood that these boundaries are time transgressive;
- distinctive morphologic characters allowing differentiation from related taxa;
- mineralized skeletal elements that are preserved in the fossil record;
- sufficient abundance affording the likelihood of finding their remains.

These principles were applicable for selecting *fossiles directeurs* among Palaeolithic stone tools when these were used for chronostratigraphic categorization on a continental scale (Leclerc/Tarrête 1988a). For differentiating stages like de Mortillet’s Acheulean, Mousterian, Solutrean and Magdalenian the tool-types like large and regular handaxe, triangular retouched point, bifacial leaf point and bone harpoon were convenient because of their assumed successive appearance and disappearance. Similarly, for defining subdivisions within stages researchers could find tool-types with more limited presence in time, like the backed point of Chatelperron type and that of La Gravette type or the shouldered point with bifacial flat retouch, the *raclette* and the parrot beak burin, indicating respectively Breuil’s Lower Aurignacian, Upper Aurignacian, Upper Solutrean, Magdalenian I and Magdalenian VI (Demars/Laurent 1992, 66, 86, 96, 100, 140).

During his excavations carried out at La Ferrassie and Laugerie-Haute rock-shelters in the 1930s, D. Peyrony observed that the three kinds of Aurignacian of Breuil’s subdivision are not successive in the sequence but the Middle one is parallel with the Lower and Upper ones (Taborin 1992, 360). He interpreted this situation as the existence of two contemporaneous cultures, the Aurignacian and the Perigordian (corresponding to the Chatelperronian and the subsequent Gravettian). Consequently, the meaning of the *fossile directeur* had to be changed from chronological to cultural sens. An archaeological culture or unit is conceived as a specific combination of observable cultural elements which can be outlined in time and space (Leclerc/Tarrête 1988b). As a consequence, the corresponding index fossil needs to show limited distribution too, intimately linked to the context of the specific combination of cultural elements. F. Bordes (1961, 2) cited only four such tool-types: the big flat triangular handaxe of the Mousterian of Acheulean tradition, the typical Solutrean shouldered point of the Upper Solutrean, the multiple borer of the Lower Magdalenian and the parrot beak burin of the Upper Magdalenian.

For this reason, the “Szeletian leaf point” has to be unique for the Szeletian to consider its *fossile directeur*. On the one hand, this type has to have something specific (morphology, technique in shaping or retouching, *chaîne opératoire* in the production, tool concept, etc.) by which it can be distinguished from other types of leaf point. On the other hand, it has to appear exclusively in the context of Szeletian assemblages.

To find specificities for this typological definition is not easy and requires a thorough analysis of the leaf points/leaf tools of the Late Middle Palaeolithic and the Early Upper Palaeolithic in Europe. Logically, it is expectable to find a lot of common elements because of the nature of the bifacial shaping

as a method and the direct percussion with a hard or soft hammer as the applied knapping technique (Inizan *et al.* 1999). Moreover, the observed morphology of bifacial tools is largely influenced by some basic components, like the length/width ratio and the position of the maximal width along the longitudinal axis (Bordes 1961, 50–52; Debénath/Dibble 1994, 130–133; Iovita/McPherron 2011; Roe 1964). Furthermore, the type of the cross-section is the result of the shaping of the two faces by convex and flat removals (Boëda 1995, 58). The combination of these removals on the opposite sides and the dorsal and ventral faces results in a certain number of possible cross-sections. All these elements provide a limited chance to find specificities for the “Szeletian leaf point”. On the contrary, the production process should be characteristic (Kot 2016; Neruda/Nerudová 2017). In this aspect, it is crucial to differentiate the operations for creating from the operations for transforming, re-sharpening and from damages originating from use. In my view, the most promising approach is to look for the tool concept (Mester 2014b; 2018b). The overall form of the leaf-shaped tools (a tendency for symmetry or even asymmetry, dimensions), as well as the combination of components (delineation of the base and the edges, character and angle of the tip, etc.), are linked to the technical system of the human group (Geneste 1991; Lemonnier 1983; 1991), and so are culturally determined.

Several shape variants of bifacial leaf points until now recognized in Szeletian assemblages should be a general type. Nerudová’s shape variant A, the rhomboid bipointed form appears in the context of the Lincombian-Ranisian-Jerzmanowician (LRJ) complex (Flas 2011). Exemplars were published from an East Anglian open-air site (Campbell 1977, fig. 108: 2), from Ranis 2 (Flas 2011, fig. 3: 2) and Mamutowa Cave (Kozłowski 2017, fig. 3: 1). The same variant is known in Bohunician context as well from Brno-Bohunice (Tostevin/Škrdla 2006, fig. 2: 3, 4), and as single finds without cultural context from Haldenstein Cave in the Swabian Jura (Bolus 2004b, fig. 10). My module 3C was also documented in Kent’s Cavern in LRJ context (Campbell 1977, fig. 86: 4). My module 3D is present in apparently Late Middle Palaeolithic context at Musilievo (Kot 2013, fig. 69), in the Aurignacian of Míškovice type at Přestavky (Oliva 1990, fig. 3: 7) and at Míškovice (Oliva 1990, fig. 4: 4), as well as in the context of *Keilmessergruppen* at Rörshain (Kot 2013, fig. 114) and at Wahlen (Kot 2013, fig. 119).

The problem of context has already revealed for the leaf points of the eponymous site (Simán 1990). In the sequence of Szeleta Cave, the most regular and symmetrical leaf points were found in Layer 5 and mainly in Layer 6. In Layer 5 a typical La Gravette point was also found (Kadić 1916, 286, fig. 32: I). This stratigraphic position fitted well in the general chronostratigraphic sequence at that time: the Late Aurignacian (Gravettian) followed by the Solutrean. M. Gábori (1990, 104) interpreted this situation as indicating that the Gravettian appeared earlier than the Developed Szeletian. J. Bárta (1988) unearthed very similar leaf points together with a Gravettian lithic industry at Trenčianske Bohuslavice in the Váh River valley in Western Slovakia (Kaminská *et al.* 2008; Žaár 2007). This discovery shed new light on the Developed Szeletian of Szeleta Cave which was attributed to a Gravettian with leaf points (Lengyel/Mester/Szolyák 2016; Simán 1990). According to the archaeological, radiometric, paleobotanical, stratigraphic, and snail faunal evidence obtained during the recent excavation of Trenčianske Bohuslavice (Wilczyński *et al.* 2020), the bifacial leaf points occur in layer B-1 without diagnostic Late Gravettian tool-types. This layer revealed to be younger than both the Szeletian and the Gravettian. As a consequence, the elongated and symmetrical leaf points of the Szeleta Cave could not be classified typologically as “Szeletian leaf point”.

## CONCLUSION

The Szeletian is widely accepted as an industry of the Middle to Upper Palaeolithic transition in Central Europe, characterized by the production of leaf points and associated with Neanderthals. As a term, the Szeletian was introduced in 1953 for describing an already existing archaeological unit in Central Europe, which had been defined in relation to the Solutrean in Western Europe. Because of this, the cultural unit is far from being clear, and the term inherited many problems coming from altogether more than one hundred years of research history (Mester 2018a).

One of these inherited problems represents the “Szeletian leaf points” tool-type, considered as a kind of *fossile directeur* of this archaeological unit. Originally, the bifacial leaf-shaped points unearthed in Hungarian cave sites were used for subdividing the Solutrean in a developmental concept. This basic concept was not questioned in the framework of the new archaeological unit. On the one hand, this is understandable, taking into account the stratigraphical and chronological problems of the majority

of the concerned lithic assemblages and the regional character of the researches carried out until now. On the other hand, it becomes more and more important to clarify the status of the Szeletian within the archaeological cultures and complexes producing bifacial leaf-shaped tools from the Late Middle Palaeolithic to the Middle Upper Palaeolithic. This clarification requires a comprehensive analysis of the role the leaf-shaped tools played in the processes of the cultural changes during this long period (e.g. Kozłowski 1990). Researches of the last fifteen years dealing with leaf-shaped tools, and especially those in Szeletian context, demonstrated how fruitful the technological analysis combined with a behavioural approach can be. But we have to shift from reconstructing to understanding.

The “Szeletian leaf point” is a typologically undefined term. It has rather “feeling” than “meaning” when we use it on the field. As it was illustrated above, there are variants of leaf-shaped tools in the lithic assemblages attributed to the Szeletian in Central Europe which should be considered as real types or subtypes. However, some of them are quite common in the archaeological record of the Middle and Upper Palaeolithic of Europe. Evidently, these types could not have been *fossiles directeurs* of either the Szeletian or the other cultural units. From Szeletian contexts, the only type among the bifacial leaf-shaped tools which have a definition is the leaf point of Moravany-Dlhá type. It seems to be characteristic enough for representing a typological unit. However, it should not be the *fossile directeur* of the Szeletian because of its limited presence at Szeletian sites.

Until we can not demonstrate the existence of a specific type of leaf point linked strictly to the Szeletian, it seems to be better to not use the “Szeletian leaf point” as a typological term. In my view, it would be more reasonable to define more general types for bifacial leaf-shaped tools (like in the case of side scrapers, for example). With the help of such a typology we could better characterize the composition of the tool-kits of the concerned industries and at the same time avoid ambiguities and misunderstandings.

#### Acknowledgement

I am grateful to Adrián Nemergut for inviting and motivating me to write this paper. I am indebted to Norbert Faragó, György Lengyel and the anonymous reviewers for valuable comments on the first draft of the manuscript.

Translated by author

#### BIBLIOGRAPHY

- Allsworth-Jones 1986 P. Allsworth-Jones: *The Szeletian and the transition from Middle to Upper Palaeolithic in Central Europe*. Oxford 1986.
- Allsworth-Jones 1990 P. Allsworth-Jones: Les industries à pointes foliacées d'Europe centrale. Questions de définitions et relations avec les autres techno-complexes. In: C. Farizy (dir.): *Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Actes du Colloque international de Nemours, 9–11 mai 1988*. Mémoires du Musée de Préhistoire d'Ile-de-France 3. Nemours 1990, 79–95.
- Andrée 1930 J. Andrée: Über die deutschen Benennungen eiszeitlicher Kulturstufen. *Nachrichtenblatt für Deutsche Vorzeit* 6, 1930, 8–11.
- Bárta 1960 J. Bárta: K problému listovitých hrotov typu Moravany-Dlhá. *Slovenská archeológia* 8, 1960, 295–324.
- Bárta 1988 J. Bárta: Trenčianske Bohuslavice un habitat gravettien en Slovaquie occidentale. *L'Anthropologie* 92, 1988, 173–182.
- Bárta 1990 J. Bárta: Blattspitzenindustrien in der Westslowakei. In: J. K. Kozłowski (ed.): *Feuilles de pierre. Les industries à pointes foliacées du Paléolithique supérieur européen*. ERAUL 42. Liège 1990, 235–238.
- Boëda 1995 E. Boëda: Caractéristiques techniques des chaînes opératoires lithiques des niveaux micoquiens de Külna (Tchécoslovaquie). In: *Les industries à pointes foliacées d'Europe centrale. Actes du Colloque de Miskolc, 10–15 septembre 1991*. Paléo – Supplément 1. Les Eyzies 1995, 57–72.
- Bolus 2004a M. Bolus: Der Übergang vom Mittel- zum Jungpaläolithikum in Europa. Ein Bestandsaufnahme unter besonderer Berücksichtigung Mitteleuropas. *Germania* 82, 2004, 1–54.  
DOI: <https://doi.org/10.11588/ger.2004.69198>

- Bolus 2004b* M. Bolus: Settlement analysis of sites of the Blattspizen Complex in Central Europe. In: N. J. Conard (ed.): *Settlement Dynamics of the Middle Palaeolithic and Middle Stone Age II*. Tübingen 2004, 201–226.
- Bordes 1961* F. Bordes: *Typologie du Paléolithique ancien et moyen*. Publications de l'Institut de Préhistoire de l'Université de Bordeaux 1. Bordeaux 1961.
- Bourdier 1967* F. Bourdier: *Préhistoire de France*. Paris 1967.
- Breuil 1912* H. Breuil: Les subdivisions du Paléolithique supérieur et leur signification. In: *Congrès international d'Anthropologie et d'Archéologie préhistorique, Compte-rendu*. Genève 1912, 165–238.
- Brézillon 1968* M. N. Brézillon: *La dénomination des objets de pierre taillée. Matériaux pour un vocabulaire des préhistoriens de langue française*. IV<sup>e</sup> supplément à Gallia Préhistoire. Paris 1968.
- Brézillon 1972* M. Brézillon: *Dictionnaire de la Préhistoire*. Paris 1972.
- Campbell 1977* J. B. Campbell: *The Upper Palaeolithic of Britain. The Study of Man and Nature in the Late Ice Age*. Oxford 1977.
- Camps/Chauhan eds. 2009* M. Camps/P. Chauhan (eds.): *Sourcebook of Palaeolithic Transitions. Methods, Theories, and Interpretations*. New York 2009.
- Combiér 1962* J. Combiér: Nouvelles recherches sur le Paléolithique supérieur de la Tchécoslovaquie. *L'Anthropologie* 66, 1962, 558–574.
- Conard ed. 2006* N. J. Conard (ed.): *When Neandertals and Modern Humans met*. Tübingen 2006.
- Debénath/Dibble 1994* A. Debénath/H. L. Dibble: *Handbook of Paleolithic typology I. Lower and Middle Paleolithic of Europe*. Pennsylvania 1994.
- Demars/Laurent 1992* P.-Y. Demars/P. Laurent: *Types d'outils lithiques du Paléolithique supérieur en Europe*. Paris 1992.
- Farizy dir. 1990* C. Farizy (dir.): *Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Actes du Colloque international de Nemours, 9–11 mai 1988*. Mémoires du Musée de Préhistoire d'Ile-de-France 3. Nemours 1990.
- Flas 2011* D. Flas: The Middle to Upper Paleolithic transition in Northern Europe: the Lincombian-Ranisian-Jerzmanowician and the issue of acculturation of the last Neanderthals. *World Archaeology* 43, 2011, 605–627.  
DOI: <https://doi.org/10.1080/00438243.2011.624725>
- Flas 2014* D. Flas: Les industries à pointes foliacées dans les régions septentrionales de l'Europe. In: M. Otte (dir.): *Neandertal/Cro Magnon – La Rencontre*. Arles 2014, 97–122.
- Freund 1952* G. Freund: *Die Blattspitzen des Paläolithikums in Europa*. Quartär-Bibliothek 1. Bonn 1952.
- Gábori 1953* M. Gábori: Solyutreyskaya kul'tura Vengrii (Le Solutréen en Hongrie). *Acta Archaeologica Academiae Scientiarum Hungaricae* 3, 1953, 1–68.
- Gábori 1990* M. Gábori: Aperçus sur l'origine des civilisations du Paléolithique supérieur en Hongrie. In: C. Farizy (dir.): *Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Actes du Colloque international de Nemours, 9–11 mai 1988*. Mémoires du Musée de Préhistoire d'Ile-de-France 3. Nemours 1990, 103–106.
- Gábori-Csánk 1983* V. Gábori-Csánk: La grotte Remete „Felső” (Supérieure) et le „Szeletien de Transdanubie”. *Acta Archaeologica Academiae Scientiarum Hungaricae* 35, 1983, 249–285.
- Gábori-Csánk 1993* V. Gábori-Csánk: *Le Jankovichien. Une civilisation paléolithique en Hongrie*. ERAUL 53. Liège 1993.
- Geneste 1991* J.-M. Geneste: Systèmes techniques de production lithique: variations techno-économiques dans les processus de réalisation des outillages paléolithiques. *Techniques & culture* 17–18, 1991, 1–35.
- Groenen 1994* M. Groenen: *Pour une histoire de la Préhistoire. Le Paléolithique*. Grenoble 1994.
- Harries 2015* P. Harries: Index Fossil. In: W. J. Rink/J. W. Thompson (eds.): *Encyclopedia of Scientific Dating Methods*. Encyclopedia of Earth Sciences Series. Dordrecht 2015, 353, 354.  
[https://link.springer.com/referenceworkentry/10.1007%2F978-94-007-6304-3\\_77#springerlink-search](https://link.springer.com/referenceworkentry/10.1007%2F978-94-007-6304-3_77#springerlink-search) [11.01.2021]
- Hillebrand 1935* J. Hillebrand: *Die Ältere Steinzeit Ungarns*. Archaeologia Hungarica 17. Budapest 1935.
- Inizan et al. 1999* M.-L. Inizan/M. Reduron-Ballinger/H. Roche/J. Tixier: *Technology and Terminology of Knapped Stone*. Préhistoire de la Pierre Taillée 5. Nanterre 1999.
- Iovita/McPherron 2011* R. Iovita/S. P. McPherron: The handaxe reloaded. A morphometric reassessment of Acheulian and Middle Paleolithic handaxes. *Journal of Human Evolution* 61, 2011, 61–74.  
DOI: <https://doi.org/10.1016/j.jhevol.2011.02.007>
- Julien 1992* M. Julien: Du fossile directeur à la chaîne opératoire. In: J. Garanger (dir.): *La Préhistoire dans le monde*. Paris 1992, 163–193.
- Kadić 1916* O. Kadić: Ergebnisse der Erforschung der Szeletahöhle. *Mitteilungen aus dem Jahrbuche der königlichen Ungarischen Geologischen Reichsanstalt* 23, 1916, 161–301.

- Kadić 1934 O. Kadić: Der Mensch zur Eiszeit in Ungarn. *Mitteilungen aus dem Jahrbuch der kgl. Ungarischen Geologischen Anstalt* 30, 1934, 1–147.
- Kaminská zost. 2014 E. Kaminská (zost.): *Staré Slovensko 2. Paleolit a mezolit*. Archaeologica Slovaca Monographiae. STASLO 2. Nitra 2014.
- Kaminská 2015 E. Kaminská: Szeletian finds from Trenčianske Teplice. *Anthropologie* 53, 2015, 203–213.
- Kaminská/Kozłowski/Škrdla 2011 E. Kaminská/J. K. Kozłowski/P. Škrdla: New approach to the Szeletian – chronology and cultural variability. *Eurasian Prehistory* 8, 2011, 29–49.
- Kaminská et al. 2008 E. Kaminská/J. K. Kozłowski/K. Sobczyk/J. A. Svoboda/T. Michalík: Štruktúra osídlenia mikroregionu Trenčína v strednom a mladom paleolite. *Slovenská archeológia* 56, 2008, 179–238.
- Klíma 1957 B. Klíma: Übersicht über die jüngsten paläolithischen Forschungen in Mähren. *Quartär* 9, 1957, 85–130.
- Kot 2013 M. A. Kot: *The earliest Palaeolithic bifacial leafpoints in Central and Southern Europe. Techno-functional approach*. PhD. Thesis. Warsaw University. Warsaw 2013. Unpublished.
- Kot 2014 M. A. Kot: The earliest Palaeolithic bifacial leafpoints in Central and Southern Europe: Techno-functional approach. *Quaternary International* 326–327, 2014, 381–397. DOI: <https://doi.org/10.1016/j.quaint.2013.10.030>
- Kot 2016 M. A. Kot: Technological analysis of bifacial leafpoints from Middle/Upper Palaeolithic transitional industries. *Quartär* 63, 2016, 61–88.
- Kozłowski 1990 J. K. Kozłowski: Certains aspects techno-morphologiques des pointes foliacées de la fin du paléolithique moyen et du début du Paléolithique supérieur en Europe centrale. In: C. Farizy (dir.): *Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Actes du Colloque international de Nemours, 9–11 mai 1988*. Mémoires du Musée de Préhistoire d'Ile-de-France 3. Nemours 1990, 125–133.
- Kozłowski 1995 J. K. Kozłowski: La signification des „outils foliacés”. In: *Les industries à pointes foliacées d'Europe centrale. Actes du Colloque de Miskolc, 10–15 septembre 1991*. Paléo – Supplement 1. Les Eyzies 1995, 91–99.
- Kozłowski 2000 J. K. Kozłowski: Southern Poland between 50 and 30 kyr BP., environment and archaeology. In: J. Orschiedt/G.-C. Weniger (eds.): *Neanderthals and Modern Humans – Discussing the Transition: Central and Eastern Europe from 50.000–30.000 B. P.* Wissenschaftliche Schriften des Neanderthal Museums 2. Mettmann 2000, 76–91.
- Kozłowski 2017 J. K. Kozłowski: Transcarpathian cultural connections and raw material circulation in the Middle/Upper Palaeolithic transition. *Anthropologie* 55, 2017, 27–41.
- Kozłowski J./Kozłowski S. 1996 J. K. Kozłowski/S. K. Kozłowski: *Le Paléolithique en Pologne*. Préhistoire d'Europe 2. Grenoble 1996.
- Leclerc/Tarrête 1988a J. Leclerc/J. Tarrête: Fossile directeur. In: A. Leroi-Gourhan (dir.): *Dictionnaire de la Préhistoire*. Paris 1988, 402.
- Leclerc/Tarrête 1988b J. Leclerc/J. Tarrête: Culture. In: A. Leroi-Gourhan (dir.): *Dictionnaire de la Préhistoire*. Paris 1988, 280.
- Lemonnier 1983 P. Lemonnier: L'étude des systèmes techniques: une urgence en technologie culturelle. *Techniques & culture* 1, 1983, 11–26.
- Lemonnier 1991 P. Lemonnier: De la culture matérielle à la culture? Ethnologie des techniques et Préhistoire. In: *25 ans d'études technologiques en Préhistoire. XI<sup>e</sup> Rencontres Internationales d'Archéologie et d'Histoire d'Antibes*. Juan-les-Pins 1991, 15–20.
- Lengyel/Mester/Szolyák 2016 Gy. Lengyel/Zs. Mester/P. Szolyák: The Late Gravettian and Szeleta Cave, North-East Hungary. *Quaternary International* 406, 2016, 174–183. DOI: <https://doi.org/10.1016/j.quaint.2015.09.014>
- Marks/Monigal 2000 A. E. Marks/K. Monigal: The Middle to Upper Paleolithic interface at Buran-Kaya-III, Eastern Crimea. In: J. Orschiedt/G.-C. Weniger (eds.): *Neanderthals and Modern Humans – Discussing the Transition. Central and Eastern Europe from 50.000-30.000 BP*. Wissenschaftliche Schriften 2. Mettmann 2000, 212–226.
- Mester 2010 Zs. Mester: Technological analysis of Szeletian bifacial points from Szeleta Cave (Hungary). *Human Evolution* 25, 2010, 107–123.
- Mester 2014a Zs. Mester: *Le Szélétien*. In: M. Otte (dir.): *Neandertal/Cro Magnon – La Rencontre*. Arles 2014, 149–188.
- Mester 2014b Zs. Mester: Technologie des pièces foliacées bifaces du Paléolithique moyen et supérieur de la Hongrie. In: K. T. Biró/A. Markó/K. P. Bajnok (eds.): *Aeolian scripts. New ideas on the lithic world. Studies in honour of Viola T. Dobosi*. Inventaria Praehistorica Hungariae 13. Budapest 2014, 41–62.
- Mester 2017 Zs. Mester: Considérations sur le Szélétien en Hongrie. La relation du Jankovičien au Szélétien ancien. *Anthropologie* 55, 2017, 75–92.
- Mester 2018a Zs. Mester: The problems of the Szeletian as seen from Hungary. *Recherches Archéologiques. Nouvelle Série* 9, 2018, 19–48.

- Mester 2018b Zs. Mester: Technology and typology of Szeletian leaf-shaped tools: Theoretical and methodological considerations. In: P. Valde-Nowak/K. Sobczyk/M. Nowak/J. Żrałka (eds.): *Multas per gentes et multa per saecula. Amici magistro et collegae suo Ioanni Christopho Kozłowski dedicant*. Kraków 2018, 55–61.
- Morgan 1877 L. H. Morgan: *Ancient Society: or researches in the lines of human progress from savagery, through barbarism to civilization*. New York 1877.
- Mottl 1938 M. Mottl: Faunen, Flora und Kultur des ungarischen Solutréen. *Quartär* 1, 1938, 36–54.
- Nemergut 2010 A. Nemergut: Paleolitické osídlenie v Moravanoch nad Váhom-Dlhej. Výsledky výskumov Juraja Bárta z rokov 1963 a 1990. *Slovenská archeológia* 58, 2010, 183–206.
- Nemergut et al. eds. 2019 A. Nemergut/I. Cheben/J. Ruttkayová/K. Pyżewicz (eds.): *16<sup>th</sup> SKAM Lithic Workshop. "Fossile directeur" – A phenomenon over time and space. 21–23 of October 2019, Nitra, Slovak Republic. Abstract Book*. Nitra 2019.
- Neruda/Nerudová 2013 P. Neruda/Z. Nerudová: The Middle-Upper Palaeolithic transition in Moravia in the context of the Middle Danube region. *Quaternary International* 294, 2013, 3–19. DOI: <https://doi.org/10.1016/j.quaint.2011.08.035>
- Neruda/Nerudová 2017 P. Neruda/Z. Nerudová: Technology of Moravian Early "Szeletian leaf point" shaping: A case study of refittings from Moravský Krumlov IV open-air site (Czech Republic). *Quaternary International* 428, Part A, 2017, 91–108. DOI: <https://doi.org/10.1016/j.quaint.2015.09.065>
- Nerudová 2009 Z. Nerudová: Archeologie szeletianské vrstvy 0 z Moravského Krumlova IV. Archaeology of Szeletian layer 0 from Moravský Krumlov IV. In: P. Neruda/Z. Nerudová (eds.): *Moravský Krumlov IV – vícevrstevná lokalita ze středního a počátku mladého paleolitu na Moravě. Moravský Krumlov IV – multilayer Middle and Early Upper Palaeolithic site in Moravia*. *Anthropos* 29 (N. S. 21). Brno 2009, 148–173.
- Nerudová 2011 Z. Nerudová: Analysis of bifacial artefacts from the Palaeolithic site of Trboušany IIb (South Moravia, Czech Republic). *Anthropologie* 49, 2011, 59–78.
- Nerudová/Neruda/Sadovský 2011 Z. Nerudová/P. Neruda/P. Sadovský: Srovnávací analýza paleolitických bifaciálních artefaktů. *Památky archeologické* 102, 2011, 21–58.
- Nigst 2006 Ph. R. Nigst: The first Modern Humans in the Middle Danube area? New evidence from Willendorf II (Eastern Austria). In: N. J. Conard (ed.): *When Neandertals and Modern Humans met*. Tübingen 2006, 269–304.
- Oliva 1990 M. Oliva: La signification des pointes foliacées dans l'Aurignacien morave et dans le type Miškovice. In: J. K. Kozłowski (ed.): *Feuilles de pierre. Les industries à pointes foliacées du Paléolithique supérieur européen*. ERAUL 42. Liège 1990, 224–232.
- Oliva 1991 M. Oliva: The Szeletian in Czechoslovakia. *Antiquity* 65/247, 1991, 318–325.
- Oliva 1995 M. Oliva: Le Széletien de Tchecoslovaquie: industrie lithique et répartition géographique. In: *Les industries à pointes foliacées d'Europe centrale. Actes du Colloque de Miskolc, 10-15 septembre 1991*. Paléo – Supplément 1. Les Eyzies 1995, 83–90.
- Otte ed. 2014 M. Otte (ed.): *Neandertal/Cro Magnon – La Rencontre*. Arles 2014.
- Pautrat 1993 J.-Y. Pautrat: „Le Préhistorique” de Gabriel de Mortillet (1883): une histoire géologique de l'homme. *Bulletin de la Société préhistorique française* 90, 1993, 50–59.
- Prošek 1953 F. Prošek: Szeletien na Slovensku. *Slovenská archeológia* 1, 1953, 133–194.
- Riel-Salvatore/Clark eds. 2007 J. Riel-Salvatore/G. A. Clark (eds.): *New approaches to the study of Early Upper Palaeolithic 'transitional' industries in Western Eurasia. Transitions great and small*. BAR International Series 1620. Oxford 2007.
- Ringer 1989 Á. Ringer: L'origine du Széletien de Bükk en Hongrie et son évolution vers le Paléolithique supérieur. *Anthropologie* 27, 1989, 223–229.
- Ringer 2001 Á. Ringer: Le complexe techno-typologique du Bábonyien-Széletien en Hongrie du Nord. In: D. Cliquet (dir.): *Les industries à outils bifaciaux du Paléolithique moyen d'Europe occidentale. Actes de la table-ronde internationale organisée à Caen (Basse-Normandie – France) 14 et 15 octobre 1999*. ERAUL 98. Liège 2001, 213–220.
- Ringer/Mester 2000 Á. Ringer/Zs. Mester: Résultats de la révision de la grotte Szeleta entreprise en 1999 et 2000. *Anthropologie* 38, 2000, 261–270.
- Roe 1964 D. A. Roe: The British Lower and Middle Palaeolithic. Some problems, methods of study and preliminary results. *Proceedings of the Prehistoric Society* 30, 1964, 245–267.
- Simán 1990 K. Simán: Considerations on the "Szeletian unity". In: J. K. Kozłowski (ed.): *Feuilles de pierre. Les industries à pointes foliacées du Paléolithique supérieur européen*. ERAUL 42. Liège 1990, 189–198.
- Svoboda 2001 J. Svoboda: La question széletienne. In: D. Cliquet (dir.): *Les industries à outils bifaciaux du Paléolithique moyen d'Europe occidentale. Actes de la table-ronde internationale organisée à Caen (Basse-Normandie – France) 14 et 15 octobre 1999*. ERAUL 98. Liège 2001, 221–230.

- Svoboda 2006* J. A. Svoboda: The Danubian gate to Europe: patterns of chronology settlement archaeology, and demography of late Neandertals and early Modern Humans on the Middle Danube. In: N. J. Conard (ed.): *When Neandertals and Modern Humans met*. Tübingen 2006, 233–267.
- Svoboda/Simán 1989* J. Svoboda/K. Simán: The Middle-Upper Paleolithic transition in Southeastern Central Europe (Czechoslovakia and Hungary). *Journal of World Prehistory* 3, 1989, 283–322.
- Taborin 1992* Y. Taborin: L'Aurignacien. In: J. Garanger (dir.): *La Préhistoire dans le monde*. Paris 1992, 359–378.
- Tixier 2012* J. Tixier: *A method for the study of stone tools/Méthodes pour l'étude des outillages lithiques*. ArchéoLogique 4. Luxembourg 2012.
- Tostevin/Škrdla 2006* G. B. Tostevin/P. Škrdla: New Excavations at Bohunice and the Question of the Uniqueness of the Type-site for the Bohunician Industrial Type. *Anthropologie* 44, 2006, 31–48.
- Valoch 1957* K. Valoch: Étude statistique du Széletien. *L'Anthropologie* 61, 1957, 84–89.
- Valoch 1990* K. Valoch: Le Szeletien en Moravie. In: J. K. Kozłowski (ed.): *Feuilles de pierre. Les industries à pointes foliacées du Paléolithique supérieur européen*. ERAUL 42. Liège 1990, 213–221.
- Valoch 1996* K. Valoch: *Le Paléolithique en Tchéquie et en Slovaquie*. Préhistoire d'Europe 3. Grenoble 1996.
- Valoch et al. 1993* K. Valoch/A. Kočí/W. G. Mook/E. Opravil/J. van der Plicht/L. Smolíková/Z. Weber: Vedrovice V, eine Siedlung des Szeletien in Südmähren. *Quartär* 43/44, 1993, 7–93.
- Vértes 1956* L. Vértes: Problematika szeletieniu. *Slovenská archeológia* 4, 1956, 318–340.
- Vértes 1958* L. Vértes: Beiträge zur Abstammung des ungarischen Szeletien. *Folia Archaeologica* 10, 1958, 3–15.
- Vértes 1962–1963* L. Vértes: Einige Angaben des ungarischen Szeletien. *Arheološki Vestnik* 13–14, 1962–1963, 167–195.
- Vértes 1968* L. Vértes: Szeleta-Symposium in Ungarn. *Quartär* 19, 1968, 381–390.
- Wilczyński et al. 2020* J. Wilczyński/O. Žaár/A. Nemergut/B. Kufel-Diakowska/M. Moskal-del Hoyo/P. Morczek/B. Páll-Gergely/T. Oberc/Gy. Lengyel: The Upper Palaeolithic at Trenčianske Bohuslavice, Western Carpathians, Slovakia. *Journal of Field Archaeology*, 2020. DOI: <https://doi.org/10.1080/00934690.2020.1733334>
- Zotz 1951* L. F. Zotz: *Altsteinzeitkunde Mitteleuropas*. Stuttgart 1951.
- Žaár 2007* O. Žaár: *Gravettienska stanica v Trenčianskych Bohuslaviciach*. MA. Thesis. Constantine the Philosopher University in Nitra. Faculty of Arts. Nitra 2007. Unpublished.

## Szeletieny listovitý hrot ako *fossile directeur*?

Zsolt Mester

Súhrn

Odkedy F. Prošek (1953) zaviedol pre industriu zo staršej fázy mladého paleolitu pojem szeletien, charakteristický bifaciálnymi listovitými nástrojmi v oblasti stredodunajskej kotliny, neexistuje všeobecne akceptovaný názor na to, čo termín szeletien presne predstavuje (Mester 2014a, 160–165). Dôvodom je, že vedci z jednotlivých krajín svoje názory založili na archeologických záznamoch zo svojich území (Bárta 1990; Gábori 1990; Kaminská zost. 2014; Kaminská/Kozłowski/Škrdla 2011; Neruda/Nerudová 2013; Ringer 2001; Svoboda/Simán 1989; Valoch 1990; Vértes 1968). Po publikovaní monografie P. Allsworth-Jonesa (1986) bol szeletien všeobecne akceptovaný ako jeden z kultúrnych celkov prechodu stredného paleolitu a staršej fázy mladého paleolitu v strednej Európe, súvisiacich s neandertálcami (Bolus 2004a; Marks/Monigal 2000; Nigst 2006; Svoboda 2006). Predpokladá sa, že tento celok charakterizujú bifaciálne listovité hroty, hoci takéto nástroje možno nájsť v rôznych kultúrnych a chronologických kontextoch od Veľkej Británie po Rusko (Allsworth-Jones 1990; Bolus 2004b; Kot 2014; Kozłowski 1995).

Návrh F. Proška na definovanie szeletieniu, kultúry zo včasného mladého paleolitu, sa vzťahoval už na existujúci celok (solutréen), avšak s novým názvom a novou chronologickou pozíciou. Nevytvoril definíciu nového celku, ale aplikoval model, ktorý maďarskí bádatelia vytvorili na opísanie vývoja solutréenu v Maďarsku. Tento model bol založený výlučne na typológii listovitých hrotov (Hillebrand 1935; Kadić 1934; Mottl 1938) a rozlišuje protosolutréen,

včasný solutréen, rozvinutý a neskorý solutréen (obr. 1). Maďarskí archeológovia klasifikovali ich typy v porovnaní s „klasickými“ vavrínovými listovitými hrotmi solutréenu vo Francúzsku. V dôsledku toho je „szeletiansky listovitý hrot“ typologicky nedefinovaným nástrojom. Jedinou výnimkou je „listovitý hrot typu Moravany-Dlhá“, ktorý opísal J. Bárta (1960, 302).

Počas posledného desaťročia boli vykonané analýzy bifaciálnych a listovitých nástrojov z moravských a maďarských lokalít (Kot 2014; Mester 2014b; Neruda/Nerudová 2017; Nerudová 2009; Nerudová/Neruda/Sadovský 2011). Tieto výskumy využili technologické a kognitívne prístupy, vrátane spätného skladania artefaktov, technicko-funkčnej analýzy, skúmania operačného reťazca, opotrebovania, GIS, 2D morfometrie a štatistiky. Morfometrické výskumy však odhalili existenciu istých základných foriem, ktoré sú časté a mohli by reprezentovať typy alebo subtypy „szeletiansky listovitých hrotov“. Z. Nerudová (2009, 165–167) opísala 13 základných tvarových variantov, ktoré aplikovala na analýzu bifaciálnych nástrojov z moravských lokalít (obr. 3). Najčastejším variantom bol B (takmer listovitý) a E (čiastočne listovitý), doplnené variantmi A (v tvare vrbového listu) a D (laterálny).

Ak vezmeme do úvahy kognitívny rámec výroby nástrojov (Inizan et al. 1999, 15; Tixier 2012, 40, 41), tieto tvarové varianty zodpovedajú rôznym nástrojom. Na základe tohto modelu bolo v súbore listovitých nástrojov z jaskyne Szeleta definovaných deväť druhov nástrojov, nazvaných „moduly“ (obr. 2; Mester 2014b, 48). Päť z nich sa nachádzali aj medzi listovitými hrotmi z jaskyne Jankovich (Mester 2017, 82, 83). Niektoré z týchto modulov sa objavili v szeletianskych súboroch zo západného Slovenska, Moravy a naopak, niektoré z variantov Z. Nerudovej boli zistené v súboroch súvisiacich so szeletienom v Maďarsku a na západnom Slovensku (Mester 2018a, 30). Zdá sa, že použitie týchto spoločných prvkov pre súbory moravských, slovenských a maďarských listovitých nástrojov ako základ pri hľadaní definície typu nástroja „szeletianskeho listovitého hrotu“ je dostatočne opodstatnené.

*Fossile directeur*, resp. vedúca fosília je termín zapožičaný z geológie. Princíp, že isté fosílie by mohli indikovať geologický vek skalnej formácie sa objavuje na začiatku 19. stor., vďaka Williamovi Smithovi (Harries 2015). Vypozoroval, že rozšírenie špecifických fosílií v čase nám dovoľuje identifikovať geologické obdobia a koreláciu hornín obsahujúcich tieto fosílie. Prehistorici 19. a 20. stor. analogicky považovali konkrétne typy nástrojov za indikátory úrovne chronostratigrafickej sekvencie ľudských činností (Leclerc/Tarrête 1988a; Pautrat 1993). Na to, aby bol „szeletiansky listovitý hrot“ *fossile directeur*, musí mať niečo špecifické (morfológiu, techniku tvarovania alebo retušovania, *chaîne opératoire* vo výrobe, koncept nástroja, atď.), čo ho odlišuje od iných typov listovitých hrotov a musí sa vyskytovať výlučne v kontexte szeletianskych súborov. Kým nemôžeme demonštrovať existenciu špecifického typu listovitého hrotu spojeného len so szeletienom, je zrejme lepšie nepoužívať pojem „szeletiansky listovitý hrot“ ako typologický termín.

- Obr. 1. Listovité hroty z fáz „solutréenu“ v Maďarsku. 1–3 – protosolutréen z jaskyne Szeleta (podľa Kadić 1934, tab. IV: 2, 5, 7, pôvodná fotografia G. Toborffy); 4–6 – raný solutréen z jaskyne Jankovich (podľa Gábori-Csánk 1993, tab. IIb: 5, 8, 10, pôvodná fotografia A. Dabasi); 7, 8 – rozvinutý solutréen z jaskyne Szeleta (podľa Kadić 1934, tab. V: 1, 3, pôvodná fotografia G. Toborffy); 9, 10 – neskorý solutréen zo skalného previsu Puskaporos (podľa Kadić 1934, tab. VI: 2, 7, pôvodná fotografia T. Dömök). Bez mierky.
- Obr. 2. Rozlíšené moduly bifaciálnych listovitých nástrojov z jaskyne Szeleta. 1 – široké, predĺžené a symetrické typy so zaoblenou bázou (A) alebo hrotitou bázou (B); 2 – úzke, predĺžené a symetrické typy s maximálnou šírkou v proximálnej časti (A) alebo v stredovej časti (B); 3 – asymetrické typy v tvare vavrínového listu (A–C), tvar malého vavrínového listu (D), malý subtriangulárny tvar (E); (podľa Mester 2014b, obr. 12).
- Obr. 3. Morfológické tvary bifaciálnych nástrojov aplikované v opisnom systéme hrotitých bifaciálnych artefaktov z moravských lokalít (podľa Nerudová 2011, obr. 2: 3).

Preložila Viera Tejbusová

Zsolt Mester Dr. habil. CSc.  
Institute of Archaeological Sciences  
Eötvös Loránd University  
Múzeum krt. 4/B  
HU – 1088 Budapest

and

UMR 7194 HNHP CNRS/MNHN/UPVD  
Equipe NOMADE  
Institut de Paléontologie humaine  
1 rue René Panhard  
FR – 750 13 Paris  
mester.zsolt@btk.elte.hu

