

KATA FURHOLT

LEAVING NO STONE UNTURNED

THE PRODUCTION AND USE OF CHIPPED STONE ARTEFACTS  
AMONG THE LATE NEOLITHIC LENGYEL COMMUNITIES OF SOUTHERN  
TRANS DANUBIA DURING THE FIFTH MILLENNIUM BC

CONFINIA ET HORIZONTES VOL. 3

CONFINIA ET HORIZONTES

VOL. 3

RÖMISCH-GERMANISCHE KOMMISSION  
DES DEUTSCHEN ARCHÄOLOGISCHEN INSTITUTS

ARCHÄOLOGISCHES INSTITUT  
FORSCHUNGSZENTRUM FÜR HUMANWISSENSCHAFTEN  
EÖTVÖS LORÁND FORSCHUNGSENTEWK BUDAPEST

KATA FURHOLT

## **Leaving No Stone Unturned**

# **The Production and Use of Chipped Stone Artefacts Among the Late Neolithic Lengyel Communities of Southern Transdanubia During the Fifth Millennium BC**

With 195 Figures, 58 Tables, 4 Appendices, and 1 Digital Supplement

*Bibliografische Information der Deutschen Bibliothek*

Die Deutsche Nationalbibliothek verzeichnet diese Publikation  
in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten  
sind im Internet über <http://dnb.de> abrufbar.

© 2025 by Römisch-Germanische Kommission des Deutschen Archäologischen Instituts Frankfurt a. M.  
ISBN 978-3-95741-157-0  
ISSN 2701-7435

<https://doi.org/10.34780/xfz3de94>

Verantwortliche Redakteure: Heiko Fischer, Alexander Gramsch, Römisch-Germanische Kommission

Formalredaktion: Heiko Fischer, Römisch-Germanische Kommission

Graphische Betreuung: Lara Hies, Römisch-Germanische Kommission

Satz: Rita Kovács, Archaeolingua; Lara Hies, Römisch-Germanische Kommission

Umschlag: Oliver Wagner, Römisch-Germanische Kommission

Umschlagfoto: Kata Furholt

Druck: Memminger MedienCentrum

Alle Rechte, insbesondere das der Übersetzung in fremde Sprachen, vorbehalten.

Ohne ausdrückliche Genehmigung des Verlages ist es auch nicht gestattet, dieses Buch oder Teile daraus auf photomechanischem Wege (Photokopie, Mikrokopie) zu vervielfältigen oder unter Verwendung elektronischer Systeme zu verarbeiten und zu verbreiten.

Printed in Germany

Printed on fade resistant and archival quality paper (PH 7 neutral) • tcf

# Contents

Series editor's introduction . . . . .	IX
Acknowledgements . . . . .	XVII
1. Introduction and research objectives . . . . .	1
1.1. The south-eastern Transdanubian group of the Lengyel culture . . . . .	1
1.2. Chipped stone tool production activities in prehistory . . . . .	2
2. The Alsónyék-Bátašék site . . . . .	5
2.1. The location of the site and its environment . . . . .	6
2.2. Description of the fieldwork and the settlement parts . . . . .	8
2.2.1. Alsónyék-Kanizsa-dűlő (Site M6 TO10/B) . . . . .	8
2.2.2. The supplementary excavation of the Alsónyék-Kanizsa-dűlő sub-site (Site M6 TO10/B) . . . . .	10
2.2.3. Bátašék-Road 56 (Site M6 TO 5603/1) . . . . .	13
2.2.4. Bátašék-Mérnökségi telep (Site M6 TO 5603/1) . . . . .	14
2.2.5. Bátašék-Malomrét-dűlő (Site M6 TO/11) . . . . .	15
2.2.6. The supplementary excavation of the Bátašék-Malomrét-dűlő sub-site (Site M6 TO/11) . . . . .	16
2.2.7. The extent of the Alsónyék-Bátašék site . . . . .	18
2.3. The settlement features and burials associated with the Lengyel culture . . . . .	19
2.3.1. General characteristics of the settlement features . . . . .	19
2.3.1.1. Timber-framed buildings . . . . .	19
2.3.1.2. Pits . . . . .	20
2.3.1.3. Ditches . . . . .	20
2.3.2. The general traits of the burials . . . . .	21
2.3.2.1. Typical mortuary rites . . . . .	21
2.3.2.2. Grave groups . . . . .	25
2.3.2.3. Burials with oval grave pits . . . . .	26
2.3.2.4. Burials with post-framed rectangular grave pits . . . . .	28
3. Methodology . . . . .	31
3.1. The structure of the study . . . . .	31
3.1.1. The environment . . . . .	31
3.1.2. The settlement . . . . .	32
3.1.3. Burials . . . . .	33
3.2. Lines of enquiry . . . . .	34
3.2.1. The environment: Selection strategies and procurement of knappable rocks . . . . .	35
3.2.2. The settlement: Reconstruction of tool production activities . . . . .	35
3.2.3. Burials: The role of chipped stones in the mortuary rite . . . . .	36
3.3. Analytical techniques . . . . .	38

4. Lithic raw materials and raw material economy . . . . .	41
4.1. Raw material types of the chipped stone assemblage and their deposits . . . . .	41
4.1.1. Radiolarites . . . . .	41
4.1.1.1. Mecsek radiolarite . . . . .	41
4.1.1.2. Bakony radiolarite . . . . .	41
4.1.2. Cherts . . . . .	42
4.1.3. Limnic quartzites . . . . .	42
4.1.4. Obsidian . . . . .	43
4.1.5. Flints . . . . .	43
4.1.5.1. Northern flints . . . . .	44
4.1.5.1.1. Cracow Jurassic flint . . . . .	44
4.1.5.1.2. Chocolate flint . . . . .	44
4.1.5.1.3. Volhynian flint . . . . .	44
4.1.5.1.4. Plattensilex . . . . .	44
4.1.5.2. Southern flints . . . . .	45
4.1.6. Geoarchaeological fieldwork in the eastern Mecsek Mountains . . . . .	46
4.1.6.1. The prelude to the fieldwork . . . . .	46
4.1.6.2. The goal of the fieldwork . . . . .	46
4.1.6.3. Selection of the study area . . . . .	46
4.1.6.4. Preparation of the reconnaissance map and the documentation . . . . .	48
4.1.6.5. Preliminary results . . . . .	48
4.1.7. Colour analysis of Mecsek radiolarites . . . . .	55
4.1.7.1. Goal of the colour analysis . . . . .	55
4.1.7.2. The colour analysis . . . . .	57
4.1.7.3. Results of the colour analysis . . . . .	58
4.2. Distribution of the chipped stones . . . . .	60
4.2.1. Distribution of chipped stones according to sub-sites . . . . .	60
4.2.2. The chipped stones from the settlement features . . . . .	65
4.2.3. The chipped stones from the burials . . . . .	65
4.3. The raw material supply zones of the settlement . . . . .	66
4.3.1. Conceptual framework and interpretation of supply zones . . . . .	66
4.3.2. The local supply zone . . . . .	68
4.3.3. The regional supply zone . . . . .	69
4.3.4. The supra-regional supply zone . . . . .	70
4.4. The choice of raw material . . . . .	71
4.4.1. Knappability . . . . .	71
4.4.2. Location of lithic sources, the difficulties of extraction and collection, and the energy invested in procurement . . . . .	71
4.4.3. Cultural tradition . . . . .	72
4.5. Raw material distribution of the chipped stone assemblage from the settlement features . . . . .	73
4.5.1. Handling of the quantitative data . . . . .	73
4.5.1.1. RStudio . . . . .	73
4.5.1.2. Descriptive statistics . . . . .	73
4.5.1.3. Spatial statistics . . . . .	74
4.5.1.3.1. Point pattern analysis . . . . .	74
4.5.1.3.2. Kernel density analysis . . . . .	75
4.5.2. Raw material distribution of the chipped stone assemblage from settlement features according to sub-sites . . . . .	75
4.5.2.1. Alsónyék-Kanizsa-dűlő . . . . .	75
4.5.2.2. Bátaszék-Road 56 . . . . .	76
4.5.2.3. Bátaszék-Mérnökségi telep . . . . .	78
4.5.2.4. Bátaszék-Malomrét-dűlő . . . . .	79
4.5.3. Raw material distribution of the chipped stone assemblage from the settlement features . . . . .	81

4.6. Raw material distribution of the chipped stone assemblage from the burials . . . . .	83
4.6.1. Raw material distribution according to sub-sites . . . . .	83
4.6.1.1. Alsónyék-Kanizsa-dűlő . . . . .	83
4.6.1.2. Bátaszék-Road 56 . . . . .	85
4.6.1.3. Bátaszék-Mérnökségi telep . . . . .	87
4.6.1.4. Bátaszék-Malomrét-dűlő . . . . .	88
4.6.2. Raw material distribution of the chipped stone assemblage from the burials . . . . .	90
5. The technological-typological assessment of the chipped stone assemblage . . . . .	95
5.1. The technological-typological categories used in the assessment of the chipped stone assemblage . . . . .	96
5.2. Distribution of the technological-typological categories in the settlement assemblage . . . . .	98
5.2.1. Alsónyék-Kanizsa-dűlő . . . . .	98
5.2.2. Bátaszék-Road 56 . . . . .	100
5.2.3. Bátaszék-Mérnökségi telep . . . . .	100
5.2.4. Bátaszék-Malomrét-dűlő . . . . .	101
5.2.5. Assessment of the raw material and technological-typological distribution of the chipped stone assemblage from the settlement . . . . .	104
5.3. Distribution of the technological-typological categories in the burial assemblage . . . . .	105
5.3.1. Alsónyék-Kanizsa-dűlő . . . . .	105
5.3.2. Bátaszék-Road 56 . . . . .	110
5.3.3. Bátaszék-Mérnökségi telep . . . . .	110
5.3.4. Bátaszék-Malomrét-dűlő . . . . .	112
5.3.5. Assessment of the raw material and technological-typological distribution of the chipped stone assemblage from the burials . . . . .	113
5.4. Discussion: Similarities and differences between the chipped stone assemblage from the settlement features and the burials . . . . .	119
6. Tool production activities . . . . .	121
6.1. Reconstructing the chaîne opératoire . . . . .	121
6.2. Spatial analysis of the raw material distribution . . . . .	121
6.2.1. Alsónyék-Kanizsa-dűlő . . . . .	121
6.2.2. Bátaszék-Road 56 . . . . .	124
6.2.3. Bátaszék-Mérnökségi telep . . . . .	124
6.3. Spatial analysis of the technological categories . . . . .	128
6.3.1. Alsónyék-Kanizsa-dűlő . . . . .	128
6.3.2. Bátaszék-Road 56 . . . . .	128
6.3.3. Bátaszék-Mérnökségi telep . . . . .	128
6.4. Discussion: Tool production activities . . . . .	132
7. The role of chipped stones in the mortuary rite . . . . .	137
7.1. The frequency of chipped stones as grave goods . . . . .	138
7.2. The grave groups of the Alsónyék-Kanizsa-dűlő sub-site . . . . .	139
7.2.1. Grave group 1 . . . . .	143
7.2.2. Grave group 5 . . . . .	146
7.2.3. Grave group 13 . . . . .	148
7.2.4. Grave group 14 . . . . .	151
7.2.5. Grave group 15 . . . . .	154
7.2.6. Discussion . . . . .	157
7.3. Chipped stones as grave goods: A comparison of oval and post-framed burials . . . . .	160
7.3.1. Oval burials . . . . .	160
7.3.1.1. Alsónyék-Kanizsa-dűlő . . . . .	160
7.3.1.2. Bátaszék-Road 56 . . . . .	162
7.3.1.3. Bátaszék-Mérnökségi telep . . . . .	163
7.3.1.4. Bátaszék-Malomrét-dűlő . . . . .	165

7.3.2. Post-framed burials . . . . .	165
7.3.2.1. Alsónyék-Kanizsa-dűlő . . . . .	165
7.3.2.2. Bátaszék-Road 56 . . . . .	167
7.3.2.3. Bátaszék-Mérnökségi telep . . . . .	168
7.3.2.4. Bátaszék-Malomrét-dűlő . . . . .	170
7.3.3. Discussion: The salient features of the oval and post-framed burials . . . . .	170
7.4. The position of the chipped stone grave goods in the burials . . . . .	177
7.4.1. The body and burial regions . . . . .	177
7.4.2. Oval burials . . . . .	180
7.4.2.1. Alsónyék-Kanizsa-dűlő . . . . .	180
7.4.2.2. Bátaszék-Malomrét-dűlő . . . . .	180
7.4.3. Post-framed burials . . . . .	180
7.4.3.1. Alsónyék-Kanizsa-dűlő . . . . .	180
7.4.3.2. Bátaszék-Malomrét-dűlő . . . . .	188
7.5. Discussion: The chipped stone grave goods of the oval and post-framed burials . . . . .	188
7.6. Anthropological correlation . . . . .	190
7.6.1. Oval burials . . . . .	191
7.6.1.1. Alsónyék-Kanizsa-dűlő . . . . .	191
7.6.1.2. Bátaszék-Malomrét-dűlő . . . . .	194
7.6.2. Post-framed burials . . . . .	194
7.6.2.1. Alsónyék-Kanizsa-dűlő . . . . .	194
7.6.2.2. Bátaszék-Malomrét-dűlő . . . . .	199
7.6.3. Correlation between the anthropological data and the chipped stone grave goods of the oval and post-framed burials . . . . .	200
7.7. Extraordinary chipped stone grave goods . . . . .	202
7.8. The custom of depositing trapezes in the grave . . . . .	218
8. The chipped stone assemblages associated with the Lengyel culture in south-eastern Transdanubia . . . . .	221
9. From convergent mortuary rites to the emergence of cemeteries . . . . .	231
10. References . . . . .	235
11. Abstract . . . . .	257
12. Zusammenfassung . . . . .	258
13. Absztrakt . . . . .	259
14. List of Figures . . . . .	261
15. List of Tables . . . . .	269
16. Appendices . . . . .	271
16.1. Appendix 1: Maps and Plans . . . . .	273
16.2. Appendix 2: Supplementary Figures . . . . .	317
16.3. Appendix 3: Supplementary Tables . . . . .	333
16.4. Appendix 4: Plates . . . . .	353
16.5. List of Maps and Plans (Appendix 1) . . . . .	379
16.6. List of Supplementary Figures (Appendix 2) . . . . .	382
16.7. List of Supplementary Tables (Appendix 3) . . . . .	383
16.8. List of Plates (Appendix 4) . . . . .	384