

# Lower and Middle Palaeolithic stone toolmaking and language: a preliminary experimental archaeological and psycholinguistic study

---

Gabrić, Petar; Banda, Marko; Karavanić, Ivor; Bulian, Luka

Source / Izvornik: **6th International Scientific Conference "Methodology and Archaeometry", 2018, 49 - 49**

Conference paper / Rad u zborniku

Publication status / Verzija rada: **Published version / Objavljena verzija rada (izdavačev PDF)**

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:131:673214>

Rights / Prava: [Attribution-NonCommercial-NoDerivatives 4.0 International/Imenovanje-Nekomercijalno-Bez prerada 4.0 međunarodna](#)

Download date / Datum preuzimanja: **2024-07-24**

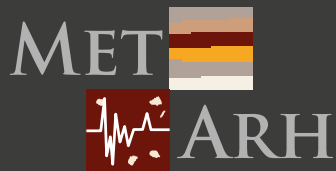


Sveučilište u Zagrebu  
Filozofski fakultet  
University of Zagreb  
Faculty of Humanities  
and Social Sciences

Repository / Repozitorij:

[ODRAZ - open repository of the University of Zagreb  
Faculty of Humanities and Social Sciences](#)





# 06<sup>TH</sup>

INTERNATIONAL  
SCIENTIFIC  
CONFERENCE

METHODOLOGY & ARCHAEOLOGY

Zagreb, 6<sup>th</sup> – 7<sup>th</sup> December 2018

<http://www.ffzg.unizg.hr/metarh/>

## IMPRESSUM

### PUBLISHER

Faculty of Humanities and Social Sciences of the University of Zagreb  
Croatian Archaeological Society

### FOR THE PUBLISHER

Vesna Vlahović-Štetić  
Jacqueline Balen

### EDITOR

Ina Miloglav

### CONFERENCE ORGANISED BY

Department of Archaeology, Faculty of Humanities and Social Sciences of the University of Zagreb  
and the Croatian Archaeological Society

### DESIGN & LAYOUT

Srećko Škrinjarić

### PRINTED BY

Tiskara Zelina

### PRINT RUN

100 copies

### ISBN

Faculty of Humanities and Social Sciences of the University of Zagreb  
978-953-175-745-4  
Croatian Archaeological Society  
978-953-6335-14-5

CIP record 001013095 available in online catalogue of the Zagreb National and University Library.

### FINANCIAL SUPPORT

This year's Conference has been financially supported by the Croatian Archaeological Society, the Faculty of Humanities and Social Sciences of the University of Zagreb and the Ministry of Science and Education of the Republic of Croatia.

previously examined in the late 19<sup>th</sup> century. I used a dry sieving method as well as the Grid-method for sub-sampling since the sample amount was large. The sample contained mostly carbonized cereal grains which are preserved excellent so the determination of species was really successful. The results showed that the most common cereal found was Emmer wheat (*Triticum dicoccon* Schrank; grain, fragments of grain, spikelet fork), other wheat species are less present. Barley (*Hordeum vulgare* L.), millet (*Panicum miliaceum* L.), oat (*Avena sativa* L.) as well as legumes and different seeds of wild fruit and weeds were also found. This kind of research provides insight into the life of prehistoric inhabitants, above all their diet, farming, and environmental impact.

Petar Gabrić<sup>1</sup>, Marko Banda<sup>2</sup>, Ivor Karavanić<sup>2</sup> & Luka Bulian<sup>3</sup>

<sup>1</sup>Department of Linguistics, Faculty of Humanities and Social Sciences, University of Zagreb; <sup>2</sup>Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb; <sup>3</sup>Department of Industrial Engineering, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia

### Lower and Middle Palaeolithic stone toolmaking and language: a preliminary experimental archaeological and psycholinguistic study

**M**any authors suggest that there is a co-evolutionary relationship between Palaeolithic stone toolmaking and language. This assumption is, firstly, supported by experimental studies showing positive effects of verbal compared to a non-verbal demonstration during stone toolmaking acquisition in present-day humans. Secondly, it is backed by neurophysiological studies which demonstrate that both toolmaking and language activate overlapping brain regions and that they exhibit similar hemodynamic lateralization patterns in present-day humans. These studies have mainly been focused on Oldowan flaking and Acheulean handaxe manufacture. Studies on the effects of the verbal and non-verbal transmission modes currently suggest that both Oldowan and Acheulean acquisition are facilitated by non-linguistic gestures rather than purely spoken language. Furthermore, neuroimaging studies have found that the prefrontal cortex, an area typically associated with executive functioning, and the temporal cortex are activated more during Acheulean compared to Oldowan tasks.

We recruited twelve Croatian-speaking subjects with no prior experience in knapping. Subjects were taught the Oldowan chopper and Mousterian sidescraper manufacture in a verbal teaching and non-verbal basic teaching condition. Tool quality was assessed by measurements of various physical attributes and a subjective evaluation by two assessors on a 5-point scale. Subjects were also tested on a neuropsychological battery assessing visual attention, verbal working memory, visuospatial processing, planning, cognitive flexibility, general executive functioning and lexical-semantic processing. We hypothesize that there will be no significant differences between the verbal and non-verbal groups in the chopper manufacture task and that the verbal group will perform significantly better compared to the non-verbal group in the sidescraper manufacture task. Additionally, we hypothesize that chopper manufacture will be significantly positively correlated only with the visual processing tasks, while sidescraper manufacture will also be significantly positively correlated with the prefrontal functioning tasks. The obtained results will be interpreted within the framework of current evolutionary and cognitive theories.