Antiquity 2025 page 1 of 8
https://doi.org/10.15184/aqy.2025.10171

Project Gallery

# New evidence for Pleistocene hominin presence in the north-east Arabian Desert, Iraq

Ella Egberts[1,2], Andreas Nymark[3] & Jaafar Jotheri[4,5]

[1] Archaeology, Environmental Changes & Geo-Chemistry Research Group, Vrije Universiteit Brussel, Belgium
[2] School of Archaeology and Ancient History, University of Leicester, UK
[3] Centre for the Archaeology of Human Origins, University of Southampton, UK
[4] Department of Archaeology, University of Al-Qadisiyah, Diwaniyah, Iraq
[5] Department of Archaeology, Durham University, Durham, UK
Author for correspondence: Ella Egberts ✉ ella.egberts@vub.be

Despite lying at a crossroad of Pleistocene hominin dispersals, little is known about human occupation in Iraq during this period. An archaeological survey in the Western Desert is revealing recurrent hominin activity at Shbicha, highlighting the region's potential in advancing our understanding of hominin behaviour and dispersal across South-west Asia.

Keywords: Palaeolithic, Pleistocene, Iraq, Arabian Peninsula, Survey, Western Desert

## Introduction

South-west Asia has been traversed by humans migrating out of and back into Africa and across Eurasia since the Pleistocene (*c.* 2.58 million to 11 700 years ago) (Groucutt *et al.* 2015; Dennell 2018). Global climatic changes over this period caused recurring dry and wet cycles in South-west Asia, periodically transforming this arid region into a greener environment and influencing hominin presence, migration and interactions (Groucutt *et al.* 2021). South-west Asia is therefore a key region for studying the evolution and behavioural adaptation of early humans. Thus far, however, research has largely focused on the Levant (Shea 2003; Dennell 2018), the Zagros Mountains (Solecki 1963; Lindly 2005; Nymark in press) and the Arabian Desert (Scerri *et al.* 2021). The Iraqi Western Desert (IWD), lying at the north-eastern edge of the Arabian desert, has been largely neglected, despite its central location and proven potential (Field 1960; Chmielewski & Kozlowski 1985; Ohnuma 1998). Due to a lack of geomorphological contextual information and the perceived absence of diagnostic material, Palaeolithic finds from the IWD are not often considered in palaeo-anthropological syntheses on human evolution and behaviour. The Geomorphological and Palaeolithic Survey of the Western Desert of Iraq was initiated to address this lacuna. Here, we present the first results from our December 2024 survey.

Received: 8 February 2025; Revised: 28 April 2025; Accepted: 16 June 2025

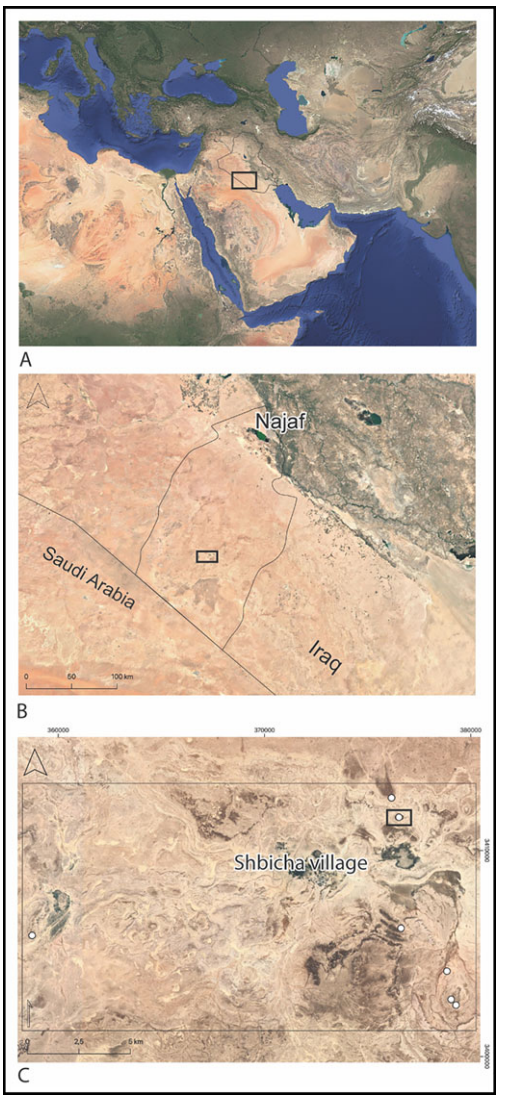


*Figure 1. The location of Najaf province in the Iraqi Western Desert (A & B). The Shbicha region (rectangle in B), around Al-Shabakah/Shbicha, is located approximately 150km south-west of Najaf. Also shown is a Google satellite image of Shbicha (C), showing the village, Palaeolithic findspots and Shbicha-1 (small rectangle) (figure by authors).*

## The Iraqi Western Desert (IWD)

To the north of the Arabian Peninsula the IWD covers the western part of Iraq (Figure 1), extending west into the Syrian Desert and south into the Arabian Desert. In Najaf province, the landscape is characterised by carbonate rocks, shallow valleys and occasional karstic depressions. Between October and April, seasonal lakes form in some depressions.

## Methods

Satellite imagery, elevation (using a forest and buildings removed Copernicus digital elevation model (FABDEM) 30m resolution) and geological data (Sissakian 2000) were analysed in QGIS (v. 3.34-7) and combined with field observations to produce a preliminary geomorphological map of Najaf province. Different geomorphological features were targeted for field-walking to assess their archaeological potential. Temporal constraints meant that only one Palaeolithic findspot (Shbicha-1) could be surveyed systematically in this field season. A 400 × 300m area across the findspot was gridded by a 100m grid. All surface-level artefacts within a 10m radius of each grid point were collected for analysis, systematically sub-sampling the vast quantity of lithics at the site.

## Results

Seven Palaeolithic findspots were identified in a 10 × 20km area around Al-Shabakah/Shbicha (Figure 1C), all associated with flint outcrops on bedrock prominences around the Shbicha depression (Figure 2). Fluvio-lacustrine sediments fill this depression and, though not yet directly dated, deposits likely date back to the Pliocene–Pleistocene (beginning *c.* 5.3 million years ago) (Sissakian 2000). Ephemeral lakes still form in parts of the depression, fed by seasonal





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

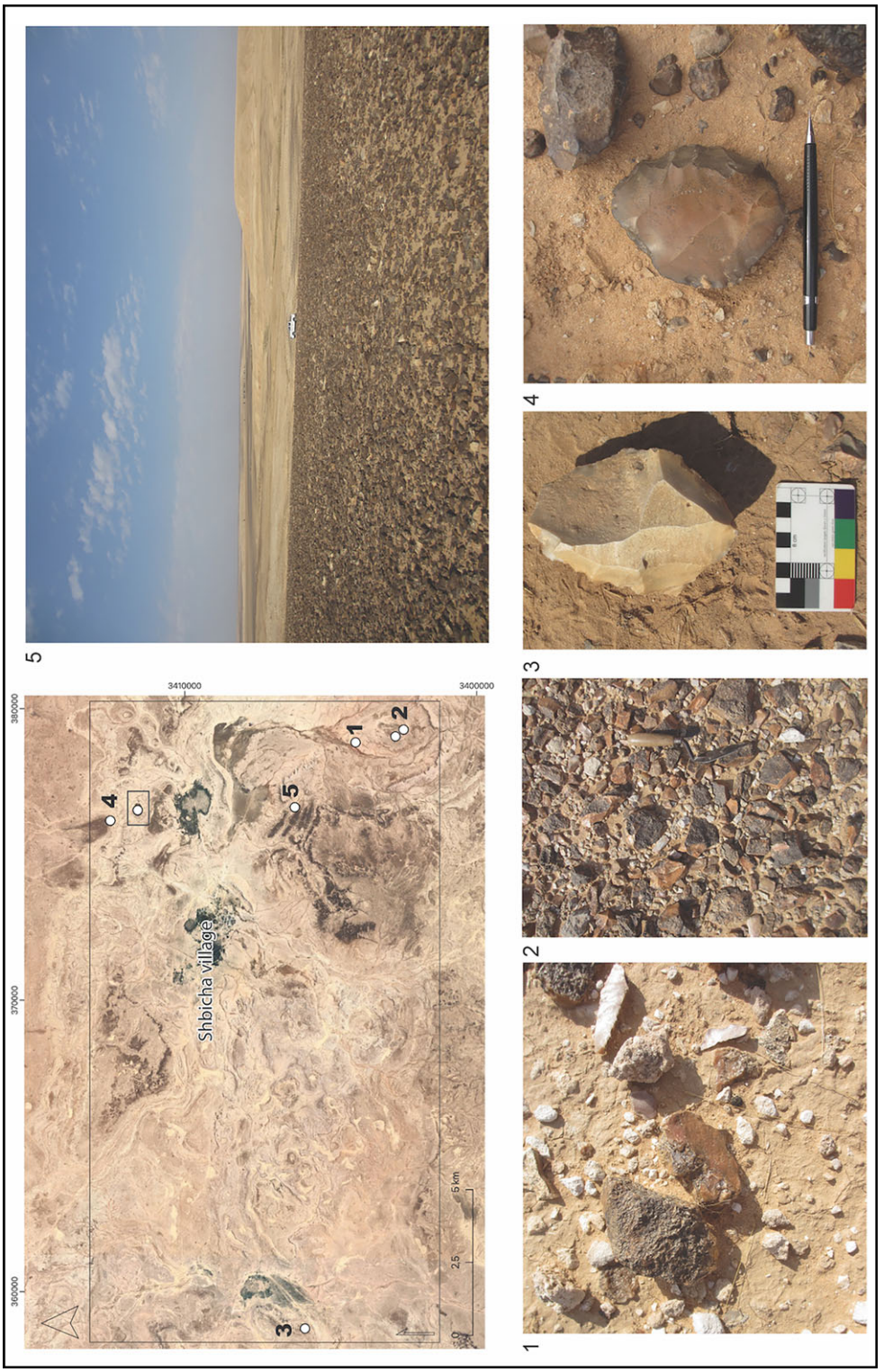


*Figure 2. Examples of finds and raw material sources at identified Palaeolithic findspots. Numbers correspond to those on the map (figure by authors).*





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

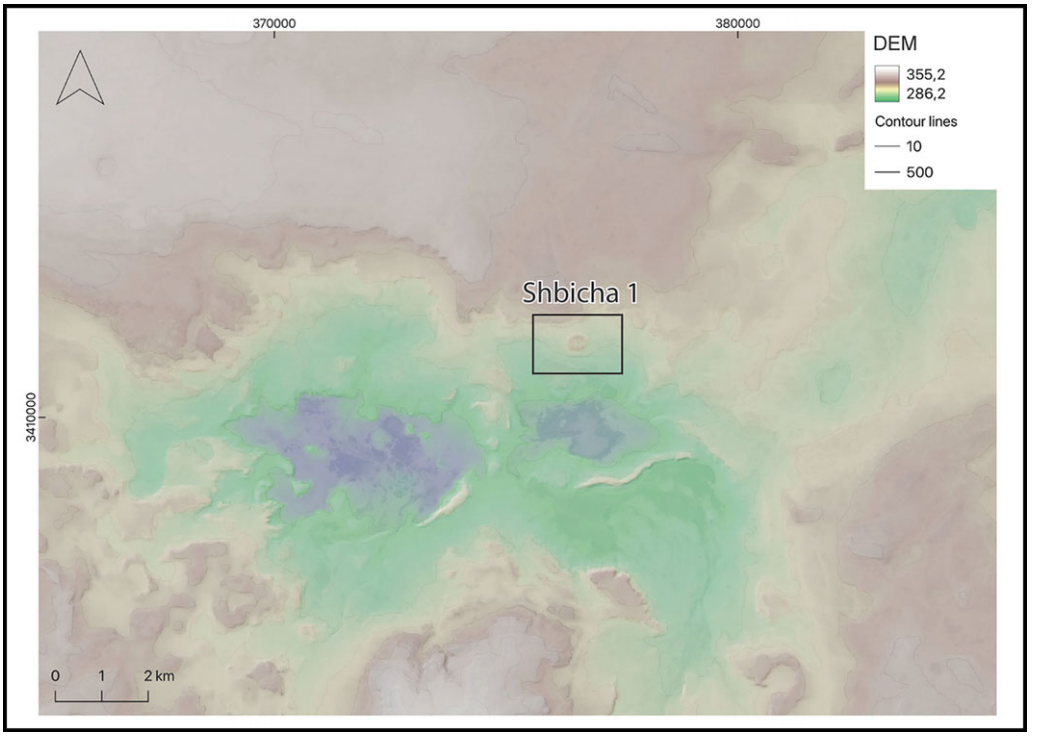


*Figure 3. Digital elevation model (FABDEM) of Shbicha (figure by authors).*

rainwater. Today one largely dried up spring is located centrally in the Shbicha depression along an escarpment, and a valley runs north-east of the depression towards the Mesopotamian floodplain.

Lower and Middle Palaeolithic artefacts are identified at all findspots; these are predominantly made on local flint, demonstrating localised exploitation of raw materials at various points throughout the Pleistocene.

## Shbicha-1

This findspot is located on a bedrock prominence along the northern edge of the Shbicha depression (Figure 3). Here, limestone bedrock is capped by locally variable flint beds that break up and erode from it. To the south the prominence looks out over the depression, approximately 1200m from the current-day extent of seasonal wetlands. Systematic survey revealed the extent of lithic scatters (Figure 4) and sub-sampling saw the collection of 722 flint cores, flakes, tools and handaxes attributed to the Lower or Middle Palaeolithic (Table 1 & Figure 5). Techno-typological assessment, including distribution analysis, is ongoing, but Middle Palaeolithic material is most prevalent. Handaxes exhibit various typological morphologies, with two comparable to examples from An Nasim (Scerri *et al.* 2021), some 400km south-west of Shbicha-1. Levallois





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

**Table 1. Shbicha-1 artefact types.**

| Shbicha-1 | Lower Palaeolithic | | Middle Palaeolithic | | Low/Mid Palaeolithic (to be analysed) | |
|---|---|---|---|---|---|---|
| Cores | | | | | | |
| | | | Unidirectional | 1 | | |
| | | | Bidirectional | 8 | | |
| | | | Unidirectional-convergent | 8 | | |
| | | | Re-prepared but unexploited | 2 | | |
| | | | Indeterminate | 2 | | |
| | | | Sub-total | 21 | 237 | 258 |
| Handaxes | | | | | | |
| | Ovates | 3 | | | | |
| | Pointed | 4 | | | | |
| | Sub-total | 7 | | | – | 7 |
| Flakes | | | | | 457 | 457 |
| **Total** | | | | | | **722** |

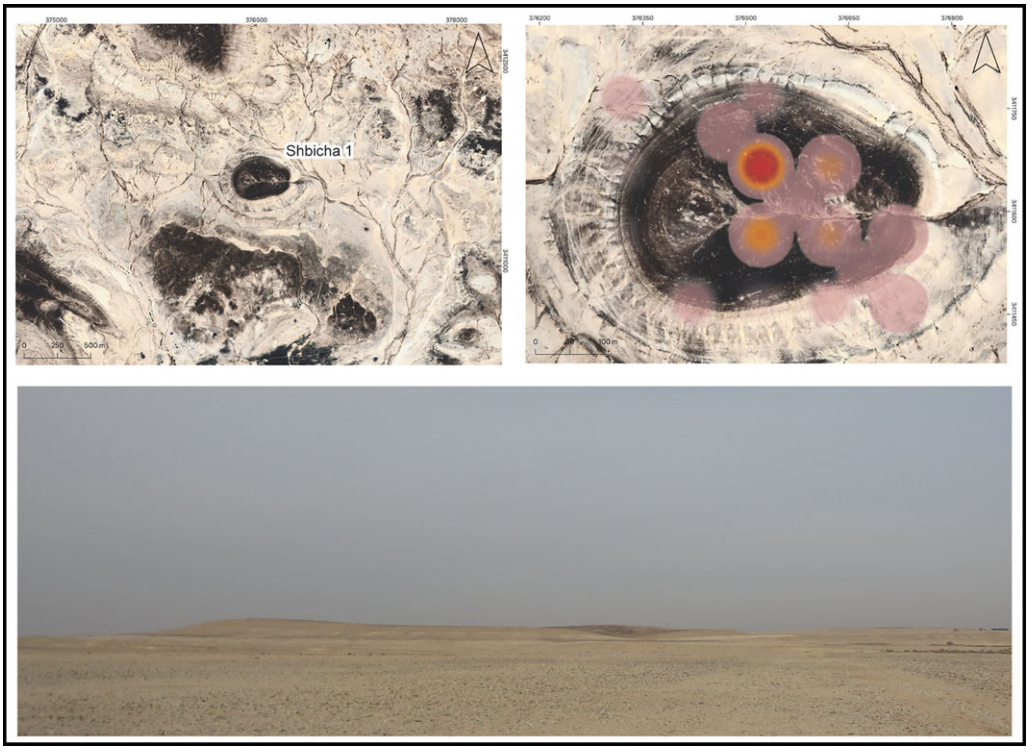


*Figure 4. A) Google satellite image of Shbicha-1; B) artefact distribution across Shbicha-1; C) view of the site, looking north (figure by authors).*





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

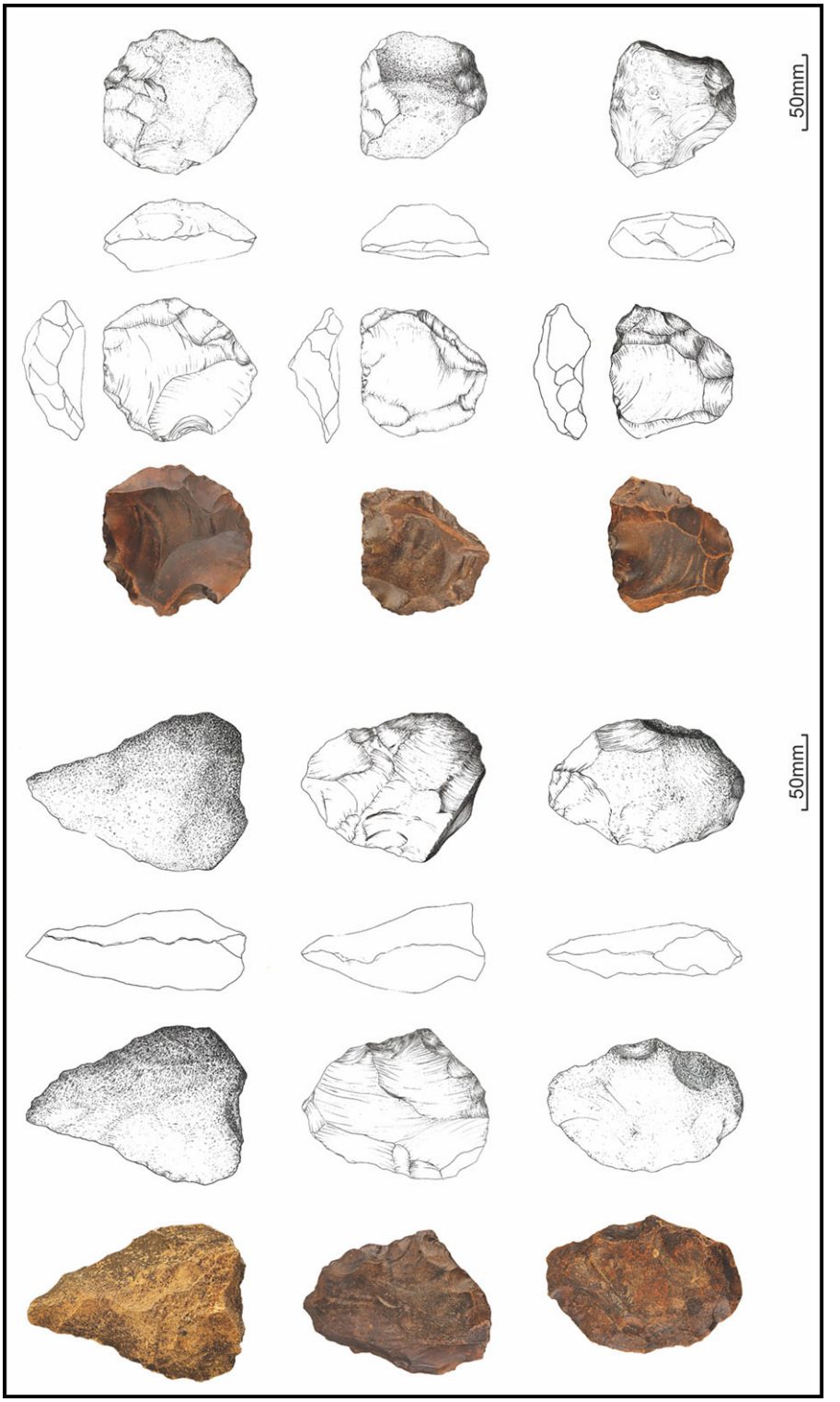


*Figure 5. Examples of handaxes and Levallois cores from Shbicha-1 (figure by authors).*





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

cores with uni- and bi-directional and convergent preparation are present, resembling prepared cores from sites in the Arabian Peninsula (Groucutt *et al.* 2015).

## Discussion and conclusions

Lithics from Shbicha region demonstrate repeated episodes of localised raw material exploitation over long periods during the Pleistocene, suggesting well-developed knowledge of the local physical environment. The findspots are located near seasonal lakes, which were likely more prevalent during the wetter phases of the Pleistocene, offering access to raw material in proximity to water and the animals that the lakes attracted.

Shbicha-1 is the first site in the IWD to produce a substantial number of Lower and Middle Palaeolithic artefacts from a well-defined context. These finds enable the first quantitative regional techno-typological analysis, enhancing our understanding of the Palaeolithic in the wider region. The Acheulean material can improve our knowledge of early hominin dispersals, dated in the Arabian Desert to 400–200ka (Groucutt *et al.* 2021); similarities in the types of handaxes found at Shbicha-1 and An Nasim potentially reveal routes for migration or cultural transmission.

Evidence from the IWD could also be informative for tracking northward dispersal routes of *Homo sapiens* or for defining the southernmost extent of Neanderthal migration (Groucutt *et al.* 2018; Heydari-Guran *et al.* 2024). Elucidation of techno-typological links between the IWD, the Levant, Zagros and Arabian Peninsula will further enhance our understanding of hominin technological variability, dispersal, expansion and landscape use in South-west Asia.

Future research will focus on the systematic survey of other findspots, techno-typological lithic analyses and spatio-temporal patterns in hominin landscape use and raw material exploitation. Identification of *in situ* archaeological deposits and palaeoenvironmental records will help situate these lithics in chronostratigraphic and environmental contexts. The insights in findspot distribution and geomorphological history from Shbicha provide a basis for further investigation of the wider Iraqi Desert.

### Acknowledgements

This work was conducted under the permission of the Iraqi State Board of Antiquities and Heritage and we thank them for their support. We are grateful to the governor and residents of Shbicha for their hospitality.

### Funding statement

This fieldwork was funded by a British Institute for the Study of Iraq Pilot Project Grant, 2023.

### Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.





https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press

## Author contributions: using CRediT categories

**Ella Egberts:** Conceptualization-Lead, Data curation-Equal, Formal analysis-Equal, Funding acquisition-Lead, Investigation-Equal, Methodology-Equal, Project administration-Lead, Resources-Equal, Visualization-Lead, Writing - original draft-Lead, Writing - review & editing-Equal. **Andreas Nymark:** Data curation-Equal, Formal analysis-Lead, Investigation-Equal, Methodology-Equal, Writing - original draft-Supporting, Writing - review & editing-Equal. **Jaafar Jotheri:** Conceptualization-Supporting, Data curation-Equal, Funding acquisition-Supporting, Investigation-Equal, Project administration-Equal, Resources-Equal, Writing - review & editing-Supporting.

## References


CHMIELEWSKI, W. & S.K. KOZLOWSKI. 1985. Preliminary results of the study of flint industries from the Haditha Region, Iraq. *Jahrbuch des Bernischen Historischen Museums* 63/64 (*Jagen und Sammeln: Festschrift für Hans-Georg Bandi zum 65. Geburtstag*): 5–68.

DENNELL, R.W. 2018. The Acheulean assemblages of Asia: a review, in R. Gallotti & M. Mussi (ed.) *The emergence of the Acheulean in East Africa and beyond: contributions in honor of Jean Chavaillon*: 195–214. Cham: Springer. https://doi.org/10.1007/978-3-319-75985-2_10

FIELD, H. 1960. *North Arabian desert archaeological survey, 1925–50*. Papers of the Peabody Museum of Archaeology and Ethnology 45(2). Cambridge (MA): Peabody Museum.

GROUCUTT, H.S. *et al.* 2015. Rethinking the dispersal of *Homo sapiens* out of Africa. *Evolutionary Anthropology* 24: 149–64.

– 2018. *Homo sapiens* in Arabia by 85,000 years ago. *Nature Ecology & Evolution* 2: 800–809. https://doi.org/10.1038/s41559-018-0518-2

– 2021. Multiple hominin dispersals into Southwest Asia over the past 400,000 years. *Nature* 597: 376–80. https://doi.org/10.1038/s41586-021-03863-y

HEYDARI-GURAN, S.H., M. YOUSEFI, A. KAFASH & E. GHASIDIAN. 2024. Reconstructing contact and a potential interbreeding geographical zone between Neanderthals and anatomically modern humans. *Scientific Reports* 14. https://doi.org/10.1038/s41598-024-70206-y

LINDLY, J. 2005. *The Mousterian of the Zagros: a regional perspective*. Tempe: Arizona State University.

NYMARK, A. in press. The Zagros Mousterian revisited – a view from above, in F. Biglari, S. Shidrang & M. Mashkour (ed.) *The Pleistocene archaeology of Zagros, and the neighbouring regions* (Interdisciplinary Contributions to Archaeology). Cham: Springer Nature.

OHNUMA, K. 1998. Lithic artifacts from Haditha, Iraq. *Al-Rāfidān* 19: 33–52.

SCERRI, E. *et al.* 2021. The expansion of Acheulean hominins into the Nefud Desert of Arabia. *Scientific Reports* 11. https://doi.org/10.1038/s41598-021-89489-6

SHEA, J.J. 2003. The Middle Paleolithic of the East Mediterranean Levant. *Journal of World Prehistory* 17: 313–94. https://doi.org/10.1023/B:JOWO.0000020194.01496.fe

SISSAKIAN, V. 2000. Geological map of Iraq. Scale 1-1000000. Sheet no.1, third edition. Baghdad: Ministry of industry and minerals, State company of geological survey and mining.

SOLECKI, R.S. 1963. Prehistory in Shanidar Valley, Northern Iraq: fresh insights into Near Eastern prehistory from the Middle Paleolithic to the Proto-Neolithic are obtained. *Science* 139: 179–93. https://doi.org/10.1126/science.139.3551.179






https://doi.org/10.15184/aqy.2025.10171 Published online by Cambridge University Press