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STONE TOOLS OF PREHISTORIC ARABIA

*Papers from the Special Session of the Seminar for Arabian Studies
held in July 2019 in Leiden*

edited by

K. Bretzke, R. Crassard & Y.H. Hilbert

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Guidelines and Transliteration

Guidelines for Authors

For details on the submission of papers and the preparation of papers for publication, authors are requested to consult and follow the latest *Guidelines for Authors*. These are available on the The International Association for the Study of Arabia website at <https://www.theiasa.com/seminar/publication/>. Please contact the editors on <https://www.theiasa.com/seminar/publication/> for further information.

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The IASA System of Transliteration of Relevant Characters

Quotations, single words, and phrases from Arabic or other languages written in non-Roman alphabets, are transliterated according to the systems set out below.

- We firmly encourage authors to use the correctly transliterated form of any place name, but the names used for types of pottery, archaeological periods, and cultures which have become archaeological standards should be used in that form: Umm an-Nar, Julfar ware, etc. If any place name needs to be given in a non-standard format, the correctly transliterated form should be added in the first instance in any paper (see *Guidelines for Authors* for more details).
- Personal names, toponyms, and other words that have entered English or French in a particular form, should be used in that form when they occur in an English or French sentence, unless they are part of a quotation in the original language, or of a correctly transliterated name or phrase. In the latter cases, they should be correctly transliterated, even when they occur in an English or French sentence.

1. Arabic

ء	د	ج	j	ذ	dh (dh)	ش	sh (sh)	ظ	ẓ	ق	q	ن	n
ب	b	ح	ḥ	ر	r	ص	ṣ	ع	ʿ	ك	k	ه	h
ت	t	خ	kh (kh)	ز	z	ض	ḍ	غ	gh (gh)	ل	l	و	w
ث	th (th)	د	d	س	s	ط	ṭ	ف	f	م	m	ي	y
Vowels	a i u ā ī ū	Diphthongs		aw	ay								

The underlined variants can be used to avoid any ambiguity, e.g. *lam yushir* vs. *lam yushir*.

Initial *hamzah* is omitted.

Alif maqṣūrah is transliterated as ā.

The *lām* of the article is not assimilated before the ‘sun letters’, thus the form should be *al-shams* but not *ash-shams*.

The *hamzat al-waṣl* of the article should be shown after vowels except after the preposition *li-*, as in the Arabic script, e.g. *wa-^l-wazīr*, *fī-^l-bayt*, but *li-l-wazīr*.

Tāʾ marbūṭah (ة) should be rendered *-ah*, except in a construct: e.g. *birkah*, *zakāh*, and *birkat al-sibāḥah*, *zakāt al-ḥiṭr*.

2. Persian, Urdu, and Ottoman Turkish

Please transliterate these languages using the system set out for Arabic above with the additional letters transliterated according to the system in the *Encyclopaedia of Islam* (<http://referenceworks.brillonline.com/entries/encyclopaedia-islamica/system-of-transliteration-of-arabic-and-persian-characters-transliteration>) except that ž is used instead of zh. There is a useful table to convert Ottoman Turkish to modern Turkish characters on http://en.wikipedia.org/wiki/Ottoman_Turkish_language.

3. Ancient North and South Arabian Consonants:

ʾ b t ṭ ḥ g ḥ d ḏ r z s¹ s² s³ š
ḍ ṭ ṣ ʿ ġ f q k l m n h w y

4. Other Semitic languages

Please use the transliteration systems outlined in the *Bulletin of the American Schools of Oriental Research* (BASOR) 262 (1986), p. 3. (www.jstor.org/stable/i258780).

Editors' Foreword

During the Seminar for Arabian Studies in July 2019 in Leiden, a special one-day session on the Stone Tools of Prehistoric Arabia was held. It gathered sixteen participants who delivered twenty-minute papers, with a broader attendance by the other participants of the Seminar. The present Supplement to Volume 50 of the *Proceedings of the Seminar for Arabian Studies* is the result of this Leiden session, presenting twelve articles on the lithic materials recently found in Arabia, all having been peer-reviewed and edited by the co-organizers and external reviewers.

Stone tools are generally associated with the oldest archaeological periods of human existence, the Palaeolithic, and are the most lasting vestiges of our ancestors' productive activities. In Arabia, stone tools (or lithics) are found on the deflated surfaces close to raw material outcrops, high on the top of mountains and deep within valleys and terraces, on lake relics at the heart of the many sand seas, and even under water. For a long time, however, stratified archaeological records were rare and developing chronological frameworks was therefore a challenge. The discoveries made by international archaeological projects conducted across Arabia in recent years have made vital contributions to our field; the archaeological investigation of human origins in the Arabian Peninsula and a better understanding of cultural diversification throughout prehistory are good examples. The interpretation of the new finds provides alternative scenarios for how prehistoric human populations interacted with the diverse landscapes of Arabia as raised by Bretzke and Conard (2017) where the Peninsula was not merely a crossroads or superhighway of expansion for anatomically modern humans but also functioned as a human habitat throughout the Pleistocene. The topic of this special session addresses these and many particularly emerging interests on the deep past of the Arabian Peninsula.

Patterns in lithic production and their evolution through time are often thought to reflect human adaptation to changing climatic and palaeoenvironmental conditions, increasing cognitive

capabilities, growing raw material economization, or changing socio-economic backgrounds. The wide range of survival strategies developed by our ancestors shows remarkable flexibility and a propensity for adaptation. Morphological variability of stone tools may relate to a plethora of cultural and environmental elements of which hafting technology, function, and raw material are assessed from the archaeological record. The study of the evolution of human populations in Arabia has produced a multitude of data adding to our understanding of the different lithic industries through the climate oscillations of the Pleistocene. (Boivin et al. 2013; Parton et al. 2015; Petraglia & Rose 2009). Researchers have conventionally viewed Arabia either as a bridge or a barrier to Late Pleistocene human movements (Rosenberg et al. 2011). This bridge/barrier dichotomy is apparent in the paradigms used by archaeologists to model the prehistoric occupations of the Peninsula. One of these models, 'tabula rasa', argues that the harsh environmental conditions throughout climatic downturns during MIS 4 (75–60 ka) and MIS 2 (20–10 ka) caused the complete depopulation of Arabia (Rose, Černý & Bayoumi 2013; Uerpmann, Potts & Uerpmann 2009). Others have argued that the now submerged landscape of the Gulf (Rose 2010) and along the coast of the Red Sea (Bailey et al. 2015) may have served as refugia from human populations during these periods of aridity. These demographic models often envision a desert devoid of human activity, although anthropological and ethnographic research demonstrates that arid-adapted hunter-gatherers made targeted trips to specific events in which specific resources became available periodically and predictively within the landscape (Tanaka 1982; Yellen 1977).

While on a geographical and chronological macro-level such historical narratives and interpretations may be appropriate, identifying potential drivers at regional or local levels requires precise observations from the local archaeological records and the specific regional or local geographic and climatic contexts. We argue, however, that Arabia provides excellent potential for testing ideas about processes involved in the evolution

of diversity in lithics, given the specifics of the Arabian archaeological record that provides a rich archive of lithic production under different climatic conditions and a variety of subsistence strategies embedded in the extreme environments of the region.

To discuss geographic and chronological patterns in continuity and breaks in lithic technology from Arabia and provide insights from experimental, traceological, technological, and typological research, we brought together for this session lithic experts working on Arabian pre- and proto-history. We hoped to provide insights in deep-time evolution and give experts working on Pleistocene and Holocene lithic assemblages the opportunity to communicate their insights from high-resolution records in great detail and set them in a palaeoenvironmental/chronological context. Our goal was to compile an overview of spatio-temporal patterns in lithic typo-technology in Arabia. From this foundation, we could discuss the evolution of stone tools in Arabia — the possible factors behind this process and their potential implications. The following questions guided the discussion: are there differences in the form and diversity of stone-tool manufacture among the different archaeological periods and in other regions of Arabia? What differences in the lithic assemblages do we observe among the mobile peoples of the Stone Age and the more sedentary peoples of later periods? Do the nomadic peoples of the Pleistocene and Holocene share behaviour patterns in relation to stone-tool production? Are there lithic traditions that 'cross' traditional archaeological periods?

The data, patterns, and interpretations presented in the present articles are an attempt to clear a path through the mist that still shrouds the tools used by our ancestors and which, it is hoped, will one day answer some of these questions. An overview of the Lower Palaeolithic and Middle Palaeolithic occupations in Central Arabia are depicted in Crassard and Hilbert (pp. 43-64). In Crassard et al. (pp. 1-14) and Hilbert and Crassard (pp. 27-42), the authors describe recent discoveries from north-western and northern Saudi Arabia. The presence of Acheulean and Levallois technology in particular questions the early dispersals of still unidentified human species and their cultural identities across the Peninsula. These three articles aim to provide a frame of reference for foot survey-based archaeological field missions

working across the Peninsula. The authors place some emphasis on site and assemblage descriptions. In his contribution, Bretzke (pp. 15-26) provides an overview of the Palaeolithic record from south-eastern Arabia and describes observations on the chronological and typo-technological diversity. The Middle Palaeolithic and the Nubian Levallois technology — thought to be a north/north-eastern African techno-complex — its possible chronological depth, and the cause of technical orthodoxy in Arabia are addressed by Beshkani (pp. 65-82) using both a theoretical and a technical approach.

The Holocene is well represented by the earliest evidence presented by Maiorano et al. (pp. 83-100) from the Rub' al-Khali in south-western Oman. The presence of a significant variability of Neolithic projectile points and other lithic objects, as well as the richness of the sites, reveal a redrawn picture of how the inland regions and especially the sand deserts were conquered during the Holocene climatic optimum. Kallweit and Beech (pp. 121-136) present the Neolithic occupations of the Gulf Islands in the United Arab Emirates (UAE). This paper shows, once again, a definite adaptation of human groups to specific environments. Away from the coast, the newly excavated site presented by Mateiciucová et al. (pp. 101-120) reveals another case of adaptation, in the mountainous environment of the Jabal Akhdar in Oman. Although undated, the lithic industries could go back to the Upper Palaeolithic and up to the Middle Holocene. The articles dealing with more recent periods include that by Buchinger et al. (pp. 137-148), with a depiction of Early Bronze Age lithic traditions from Hili in the UAE, showing clear continuity with Neolithic traditions as well as useful innovations, as demonstrated by the presence of microliths. These types of artefacts were also observed in significant number at Saruq al-Hadid, even in the UAE, and carefully described in Moore et al.'s (pp. 149-166) article. A final example of a Bronze Age lithic assemblage from Oman and dated to the Hafit period is described by Ochs (pp. 167-176). Finally, the Iron Age in Oman also yielded some stone tools, as explained by Hilbert and Lischi (pp. 177-191), showing a variety of productions, including the use of Yemeni obsidian in the making of typical geometric microliths.

The special session on Stone Tools of Prehistoric Arabia and this supplement to Volume 50 of the *Proceedings of the Seminar for Arabian Studies* are an important source of data on human behaviour and

the productive capabilities of our ancestors. Most importantly, they provide a platform for scientific exchange between researchers working in different periods that, at times, face the same problems. Due to the evident taphonomic constraints that prevent the preservation of organic material, archaeologists are often faced with nothing but lithics, and even those are sometimes in a very poor state of preservation. Temporal depths of surface assemblages are usually estimated by comparing the technologies and tool types with those from areas that have seen substantially more research. The research presented here demonstrates how lithic experts are working towards the establishment of a local frame of reference to provide data to answer their specific research objectives. We hope that further research into these subjects will follow.

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