

# PRAEHISTORIA

New Series Vol. 3 (13)



2021

## PRAEHISTORIA

International Prehistory Journal of the University of Miskolc  
Published by Archaeolingua Foundation & Publishing House

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New Series Volume 3 (13)

Edited by  
Árpád Ringer



Miskolc 2021

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The publication of this volume was supported by the following institutions:

The University of Miskolc, Foundation for the Szeleta Culture,  
Őstörténeti Tudományok Egyesülete (Hungarian Association for Prehistoric Research)  
The publication of booth issues of the New Series of Praehistoria were supported by the  
Bethlen Gábor Alapkezelő Zrt



Front cover illustration:

The face of a Neanderthal child from Suba-lyuk Cave,  
Hungarian Natural History Museum. Reconstruction and photograph by Gy. Skultéty.  
The cleft of the Bársony house found in 1891, Hungarian National Museum.  
Photograph by G. Kulcsár.

Back cover illustration:

The Szeleta Park and Visitor Centre.  
Plan and visual design by Narmer Bt.

HU ISSN 1586-7811

Prof. Dr. Horváth Zita  
Rector of the University of Miskolc  
bears full responsibility for the publication.

2021

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ARCHAEOLOGIA ALAPÍTVÁNY  
H-1067 Budapest, Teréz krt. 13.

Copy editing: Katalin Sebők  
Word processing, desktop editing and layout: Rita Kovács  
Cover design: Erzsébet Jerem  
Printed by Prime Rate, Budapest

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In the memory of Lajos Tóth (1934–2022),  
former sponsor of the 1991 Miskolc Memorial Conference  
“One Hundred Years of Hungarian Paleolithic Research”

## EDITORIAL

The combined volumes 1–2 in the New Series of *Praehistoria*, prepared jointly by the University of Miskolc with other prehistoric research organizations in Northeast Hungary, were published with the support of the Prime Minister’s Office, the National Cultural Fund of Hungary and Gábor Bethlen Gábor Investment Inc. in 2020.

Paolo Biagi welcomed the periodical, in which, following reviews of the University of Miskolc and the 18<sup>th</sup> UISPP Congress in Paris, eighteen studies are published in 343 pages, mostly in colour. He recommended *Praehistoria* as a truly international journal with a Eurasian horizon.

We intended to compile our third issue in 2021 for this honourable evaluation. We are pleased that we have achieved this objective, albeit to a lesser extent, with an even wider horizon. We are grateful to all of our colleagues – American, French, Belgian, Italian, Czech, Ukrainian, and Hungarian – for providing valuable insight from experimental to cognitive archaeology, to the issues of Upper Palaeolithic spirituality and calendars.

The cultural-chronological scope of the present volume encompasses the Early Palaeolithic of Europe and Africa, the Mesolithic of Hungary, and the Chalcolithic in Pakistan, among others.

Nicholas Toth and Kathy Schick apply a cognitive approach in their study about African Acheulean handaxe production; N. K. Anisutkin et al. write about one of the earliest pebble industry sites in Europe; Róbert Kertész and Attila Király re-investigate a long-known but still largely unpublished Hungarian Mesolithic site in their paper; and Paolo Biagi with his colleagues present late Upper Palaeolithic, Mesolithic, Neolithic and Chalcolithic sites discovered by A. R. Khan in the Lower Sind region of Pakistan in the 1970s.

We are especially pleased to include in this volume papers related to the Middle and Upper Palaeolithic industries with leaf-shaped lithic implements from the region of Miskolc and the eastern Bükk region by V. N. Stepanchuk et al., Yuri Demidenko and Petr Škrlda, and Agnes Lamotte et al.

We hope that the papers of Marcel Otte and David Delnoÿ on Upper Palaeolithic spirituality, Bernie Taylor on the lunar timekeeping in the Upper Paleolithic cave art, as well as the Editor-In-Chief and Norbert Németh’s novel study on the dual timekeeping and calendar system in the vast region between the Atlantic shores of Eurasia and Lake Baikal, lend distinct colours to the present volume.

Árpád Ringer  
Editor-in-Chief





# ARCHAEOLOGICAL SURVEY ALONG THE KHADEJI AND MOL RIVERS (LOWER SINDH, PAKISTAN): PRELIMINARY RESULTS OF THE 2021 SEASON

Paolo BIAGI\*, Carlo FRANCO\*\* & Elisabetta STARNINI\*\*\*

## **Abstract**

*The survey carried out along the terraces of the Khadeji and Mol Rivers in December 2021, has led to the discovery of several chert artefact concentrations, which have been attributed to different prehistoric periods and cultural complexes. This paper presents the results of the survey, the distribution of the lithic findspots, and discusses their chrono-cultural attribution and significance. A few hundred metres south of the surveyed area, the two rivers conjoin to give rise to the Malir, the most important watercourse of the region, which flows into the Arabian Sea near Karachi ca. 40 km south-west. The area under discussion was surveyed by the late professor A. R. Khan of Karachi University in the 1970s. This author was the first to discover late Upper Palaeolithic and Mesolithic artefacts in Lower Sindh and to publish them. The 2021 fieldwork season has confirmed the presence of assemblages belonging to **these two periods, as well as others, which are most probably to be attributed to the Neolithic and Chalcolithic periods.***

## **1. Introduction**

The Arabian Sea coastal zone of Lower Sindh plays an important role in the archaeology of the Indian subcontinent, although the chrono-cultural attribution of the archaeological sites in the region is yet poorly known. The region has been surveyed for the first time by the late Professor A. R. Khan of Karachi University in the 1970s (Khan 1979a), and later by the Italian Archaeological Mission from the 2000s (Biagi *et al.* 2018a). Research has shown the great archaeological potential of the area, rich in different site types, some of which have been recently radiocarbon dated thanks to the presence of organic material, mangrove and marine shells in particular.

The survey carried out in 2014 led to the discovery of an important Mesolithic site along the lower left bank of the Khadeji River. One fragment of a large marine bivalve collected from the surface of site KDJ-1 was radiocarbon

dated. The result (GrA-63862: 8275±45 BP,  $\delta^{13}\text{C}$  -4.44) has confirmed the presence of Preboreal sites in Lower Sindh (Biagi 2019–2020). The same date has shown that mangrove environments were already growing along the Arabian Sea coast of Sindh around the beginning of the Holocene and that Mesolithic hunter-gatherers started to settle close to mangrove swamps during this period.

Following these previous studies, it was decided to resume the surveys along the Khadeji and Mol River terraces in December 2021, starting from their confluence (Fig. 1). The area was chosen after the results achieved in the 1970s, which led to the discovery of several Mesolithic knapped stone artefact scatters along the banks of the two rivers. Unfortunately, the upper part of the Khadeji Gorge is at present inaccessible for military reasons. Therefore, the survey was limited to the lower part of the river valley. Another scope was to check the information

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Fig. 1. Location of the surveyed area between the Khadeji and Mol Rivers (rectangle) and the Mulri Hills (dot) in the Karachi region (drawing by P. Biagi)

left to us by Professor A. R. Khan in the field, which is unfortunately not very detailed, for example, because this author never recorded the precise geographic coordinates of the sites he discovered (Khan 1979a: Table 1). This is one of the reasons why the recording and mapping of the findspots discovered in December 2021 are very important. They help us improve our knowledge regarding some aspects of the prehistoric peopling of Lower Sindh, such as settlement strategy, and inform us how communities of different prehistoric ages moved along the watercourses that flow from the desert landscapes of the interior down to the Arabian Sea coastal zone.

## 2. The surveyed area

The December 2021 a pedestrian survey was carried out along the banks of the lower course of the Khadeji River up to ca. 1.5 km east of site

KDJ-1, which had been discovered in 2014. It lasted three days and was consisted of recording, mapping, and collecting artefacts, by three people, two archaeologists and one geologist. The total extension of the surveyed area covers ca. 0.5 square km. Roughly the same area was covered along the left (eastern) terraces of the Mol River. In the latter case, the research was conducted on some of the alluvial terraces stretching north-south, ca. 500 m east of the Mol River course, where flows an unnamed, small, seasonal stream, which joins the Khadeji River a few hundred metres south. This area was selected because the westernmost part of the same terraces has been partly destroyed by sand quarrying.

All the investigated area is subtropical desert with scarce vegetation cover. From a geological point of view, it consists of thick alluvium (Khan 1979b: Table 1; Hamid *et al.* 2012: Fig. 1), lying just above the limestone Gaj formations (Khan 1979c:

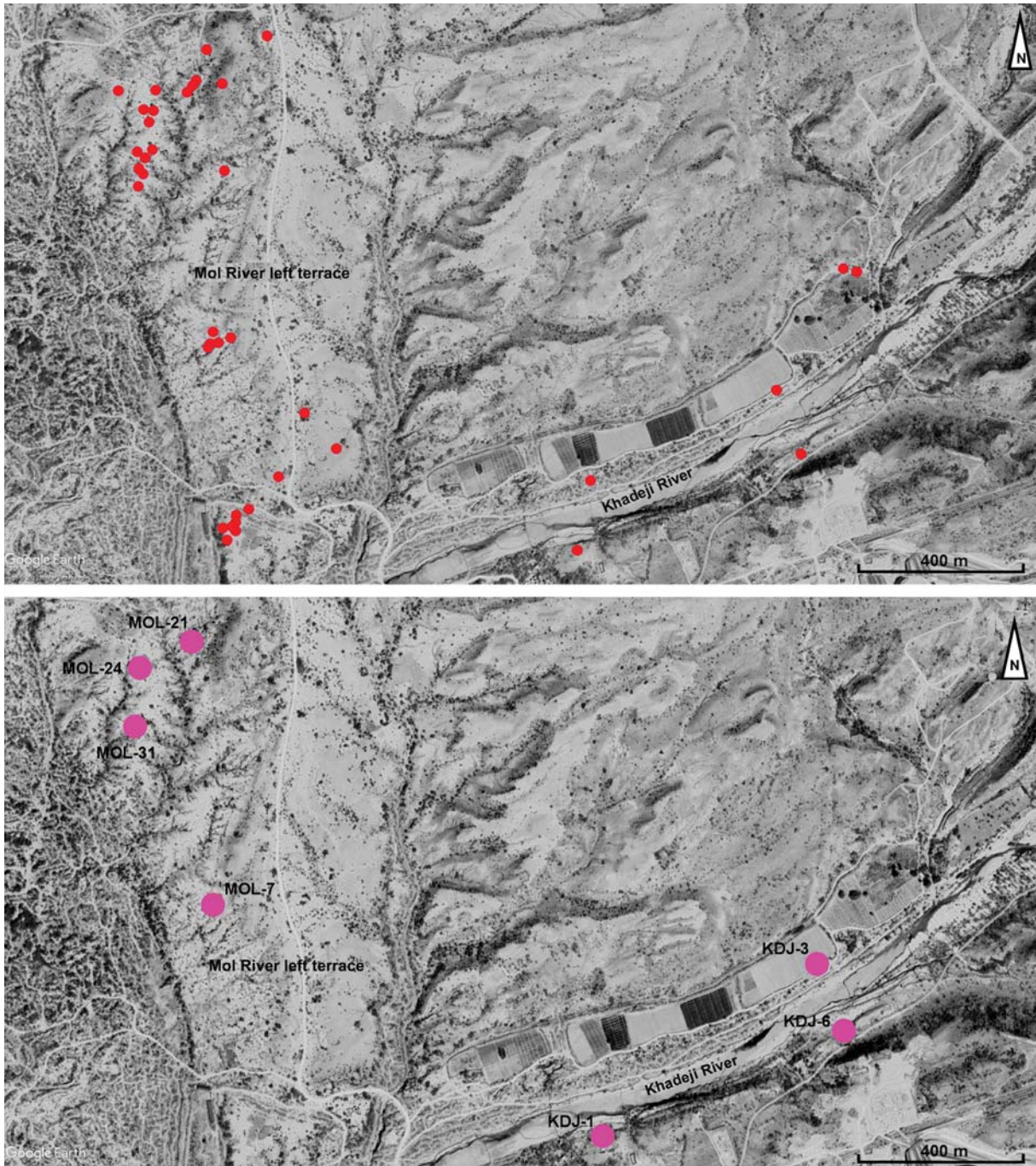


Fig. 2. Distribution map of all the findspots discovered in December 2021 (top), and lithic scatters from which fragments of marine bivalves have been collected (bottom) (map by C. Franco)

28), which, according to W. T. Blanford (1880: 169) are “*much obscured by sub-recent detrital accumulations, conglomerates, gravels...*”.

The knapped stone artefacts were recovered in a horizontal position resting on a thin sheet of *kankar* embedding thousands of empty *Zooteucus* sp. land snail shells (Girod & Balzarini 2017).

Altogether, 5 lithic findspots were discovered along the Khadeji River valley, and 33 along the Mol (Fig. 2, top). A complete list of the sites, their location, extension, altitude, number, the total weight of the artefacts, and the suggested chrono-cultural attribution of the different complexes according to the techno-typological characteristics of the finds is given in Table 1.

Table 1. Most important characteristics of the Khadeji and Mol River findspots discovered in December 2021, and their chrono-cultural attribution

Site name	Coll date	Coordinates	Altitude (m asl)	Artefacts (n)	Weight (gr)	Findspot (mq)	Marine shells	Chrono-cultural attribution	Figure
<b>Khadeji River</b>									
<b>KDJ-2</b>	07/12/21	25°02'21.678"N-67°25'16.164"E	113	1	3.84	Isolated find	0	Undefined	
<b>KDJ-3</b>	07/12/21	25°02'29.310"N-67°25'33.300"E	115	0	0	Isolated find	1 f	Undefined	
<b>KDJ-4</b>	07/12/21	25°02'39.444"N-67°25'39.462"E	123	8	102.47	49	0	Upper Palaeolithic	
<b>KDJ-5</b>	07/12/21	25°02'39.156"N-67°25'39.644"E	121	27	143.56	46	0	Upper Palaeolithic	4, bottom
<b>KDJ-6</b>	07/12/21	25°02'24.036"N-67°25'35.550"E	120	46	157.79	52	1 f	Upper Palaeolithic	
<b>Mol River</b>									
<b>MOL-1</b>	08/12/21	25°02'22.014"N-67°24'47.478"E	119	1	8.71	Isolated find	0	Upper Palaeolithic	
<b>MOL-2</b>	08/12/21	25°02'24.378"N-67°24'52.722"E	119	1	13.68	Isolated find	0	Undefined	
<b>MOL-3</b>	08/12/21	25°02'27.414"N-67°24'49.962"E	122	4	15.05	35	0	Undefined	
<b>MOL-4</b>	08/12/21	25°02'27.642"N-67°24'43.020"E	122	17	69.09	38	0	Upper Palaeolithic	
<b>MOL-5</b>	08/12/21	25°02'33.216"N-67°24'47.844"E	120	2	21.46	28	0	Undefined	
<b>MOL-6</b>	08/12/21	25°02'33.162"N-67°24'41.196"E	120	2	15.56	35	0	Upper Palaeolithic	
<b>MOL-7</b>	08/12/21	25°02'34.194"N-67°24'41.430"E	121	1	0.13	Isolated find	1 f	Upper Palaeolithic	
<b>MOL-8</b>	08/12/21	25°02'32.982"N-67°24'41.028"E	119	3	7.43	37	0	Undefined	
<b>MOL-9</b>	08/12/21	25°02'19.326"N-67°24'44.754"E	117	34	51.23	44	0	Mesolithic	4, top
<b>MOL-10</b>	08/12/21	25°02'18.768"N-67°24'43.494"E	115	6	15.89	29	0	Neolithic	
<b>MOL-11</b>	08/12/21	25°02'18.090"N-67°24'43.410"E	115	32	43.51	42	0	Neolithic	
<b>MOL-12</b>	08/12/21	25°02'17.784"N-67°24'43.278"E	115	14	12.40	37	0	Neolithic	
<b>MOL-13</b>	08/12/21	25°02'17.474"N-67°24'43.392"E	115	22	32.39	41	0	Neolithic	
<b>MOL-14</b>	08/12/21	25°02'17.736"N-67°24'43.276"E	114	26	29.94	51	0	Neolithic	
<b>MOL-15</b>	08/12/21	25°02'16.590"N-67°24'42.642"E	114	3	21.70	43	0	Undefined	
<b>MOL-17</b>	10/12/21	25°02'58.878"N-67°24'46.494"E	130	7	43.74	32	0	Undefined	
<b>MOL-18</b>	10/12/21	25°02'54.870"N-67°24'42.366"E	128	4	18.73	40	0	Undefined	
<b>MOL-19</b>	10/12/21	25°02'57.599"N-67°24'41.009"E	129	15	92.03	45	0	Upper Palaeolithic	
<b>MOL-20</b>	10/12/21	25°02'55.128"N-67°24'39.924"E	126	6	14.00	37	0	Neolithic	
<b>MOL-21</b>	10/12/21	25°02'54.744"N-67°24'39.636"E	126	9	28.81	47	1 f	Neolithic	

MOL-22	10/12/21	25°02'54.348"N-67°24'36.258"E	125	4	10.97	51	0	Chalcolithic	
MOL-23	10/12/21	25°02'54.168"N-67°24'36.234"E	124	7	10.76	46	0	Chalcolithic	
MOL-24	10/12/21	25°02'52.710"N-67°24'35.028"E	123	41	52.37	50	1 f	Neolithic/Chalcolithic	
MOL-25	10/12/21	25°02'52.590"N-67°24'35.952"E	123	7	13.02	41	0	Undefined	
MOL-26	10/12/21	25°02'51.624"N-67°24'35.544"E	123	18	69.26	48	0	Upper Pal/Chalcolithic	
MOL-27	10/12/21	25°02'54.258"N-67°24'32.826"E	124	2	3.45	37	0	Burial mound, Undefined	9
MOL-28	10/12/21	25°02'49.356"N-67°24'35.916"E	122	5	35.50	47	0	Undefined	
MOL-29	10/12/21	25°02'49.139"N-67°24'34.446"E	122	5	5.57	43	0	Undefined	
MOL-30	10/12/21	25°02'48.624"N-67°24'35.148"E	122	3	7.32	41	0	Undefined	
MOL-31	10/12/21	25°02'47.862"N-67°24'34.644"E	121	14	207.60	48	2 f	Neolithic	
MOL-32	10/12/21	25°02'47.322"N-67°24'35.058"E	121	13	27.17	44	0	Neolithic/Chalcolithic	
MOL-33	10/12/21	25°02'46.290"N-67°24'34.560"E	121	10	14.90	46	0	Neolithic	
MOL-34	10/12/21	25°02'47.598"N-67°24'42.492"E	123	10	30.34	39	0	Upper Palaeolithic	

Table 2. Most important techno-typological characteristics of the knapped stone assemblages recovered from the Khadeji and Mol River findspots discovered in December 2021: flat=flat, dihe=dihedral, linear=linear, facet=faceted, punc=punctiform, thin=thinned, cort=corticated

Site name	Complete	Broken	Corticated	Instruments	Unretouched	Coresh	Core Rejuv	Plunging	Rejuv crests	Butt type	Burnt	Patinated	Notes
Khadeji River													
KDJ-2	1	0	0	0	1	0	0	0	0	1flat	0	0	
KDJ-3	0	0	0	0	0	0	0	0	0		0	0	
KDJ-4	2	5	7	0	7	1	0	0	0	2flat	0	8	
KDJ-5	10	13	9	2	23	2	0	0	0	6flat, 5dihe	1	26	
KDJ-6	7	33	22	1	40	2	2	0	0	3flat, 4dihe	2	44	
Mol River													
MOL-1	0	1	0	0	0	0	1	0	0	1flat	0	1	
MOL-2	0	1	1	0	0	1fr	0	0	0		0	1	
MOL-3	2	2	0	0	3	0	1	0	0	3facet	0	3	
MOL-4	7	7	9	1	15	1	0	1	0	1flat, 3dihe, 1punc, 1cort, 1thin	0	17	
MOL-5	1	1	2	0	2	0	0	0	0	1flat	0	1	Red chert

Site name	Complete	Broken	Corticated	Instruments	Unretouched	Cores	Core Rejuv	Plunging	Rejuv crests	Butt type	Burnt	Patinated	Notes
MOL-6	0	0	0	1	0	1	0	0	0		0	1	
MOL-7	0	0	0	1	0	0	0	0	0		0	1	
MOL-8	0	2	0	1	2	0	0	0	0	1flat, 1dihe	0	2	
MOL-9	8	17	6	6 (3 Lunates)	25	1	0	0	2	7flat, 3punc	0	26	Red chert
MOL-10	0	4	1	1	4	1	0	0	0		0	6	Laminar blanks
MOL-11	2	21	4	7	24	0	1	0	0	3flat, 2dihe	9	17	Laminar blanks
MOL-12	0	10	2	4	10	0	0	0	0	1facet	6	3	Laminar blanks
MOL-13	1	15	1	4	16	0	0	0	0	1flat, 1dihe, 1linear, 1facet	11	8	Laminar blanks
MOL-14	0	11	1	12	10	0	0	0	0	2flat	9	5	Laminar blanks
MOL-15	0	2	1	0	2	0	1 Tablet	0	0	1punc	0	3	
MOL-17	1	3	2	0	4	2	0	0	0	1flat	0	4	
MOL-18	0	2	3	2	2	0	0	0	0	2flat, 1dihe	0	3	
MOL-19	6	5	6	0	11	3	0	0	0	2flat, 2dihe, 2linear, 2punc, 1cort	1	14	
MOL-20	0	5	2	1	5	0	0	0	0	1dihe, 1linear	1	5	Laminar blanks
MOL-21	4	5	3	2	7	0	1 Tablet	0	0	2flat, 3dihe, 1punc, 1cort	0	9	Laminar blanks
MOL-22	1	2	0	1	3	0	0	0	0	1flat	0	3	
MOL-23	0	3	3	4	3	0	0	0	0	1dihe, 1linear	0	7	Laminar blanks
MOL-24	6	27	6	8	33	1	0	0	0	5flat, 1dihe, 3facet, 2linear, 1punc	0	28	Laminar blanks
MOL-25	0	7	2	0	7	0	0	0	0	1thin, 1linear, 2cort	0	7	Laminar blanks
MOL-26	7	8	4	1	15	1	1	0	0	2flat, 2dihe, 1facet, 1punc, 2cort	0	13	Laminar blanks
MOL-27	0	1	0	1	1	0	0	0	0	1punc	0	2	Burial mound
MOL-28	2	3	2	0	5	0	0	0	0	1flat, 2dihe, 1linear	0	2	
MOL-29	0	4	0	1	4	0	0	0	0	1flat	0	5	
MOL-30	3	0	0	0	3	0	0	0	0	2flat, 1punc	0	1	
MOL-31	3	8	5	3	11	0	0	0	0	6flat, 1dihe	2	11	Laminar blanks
MOL-32	3	7	3	3	10	0	0	0	0	1flat, 1dihe, 1punc, 1cort	2	9	Laminar blanks
MOL-33	4	3	1	2	8	0	0	0	0	1flat, 1dihe, 1cort, 1thin	1	6	Laminar blanks
MOL-34	2	4	3	0	6	1	0	0	0	2punc	1	5	

Table 3. Most important characteristics of the artefacts from the Khadeji and Mol River findspots discovered in December 2021

Site name	Artefact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
Khadeji River												
KDJ-4	Bladelet Core	Prismatic, 2 opposed, prepared platform	-	Nodule	-	Complete	25	2.5Y8/2, pale yellow	38x29x23.5	22.76		5.1
KDJ-5	Bladelet Core	Subconical, 1 prepared platform	-	Nodule	-	Complete	50	2.5Y8/2, pale yellow	25x36x22	24.55		6.4
KDJ-5	Bladelet Core	Dihedral, 1 prepared platform	-	Flakelet	-	Complete	10	2.5Y8/2, pale yellow	38x34.5x21	16.47		5.4
KDJ-5	Curved point	Curved, unilateral backed point	Deep, direct, right	Flakelet	Flat	Complete	0	2.5Y8/2, pale yellow	34x15x6.5	3.22		5.2
KDJ-5	Curved point	Curved, unilateral backed point	Deep, bipolar, right	Flakelet	Punctiform	Complete	0	2.5Y8/2, pale yellow	31x20.5x6	3.03		5.3
KDJ-6	Bladelet Core	Subconical, 1 prepared platform	-	Nodule	-	Complete	25	10YR5/3, brown; whitish spots	28x22x17	11.31		-
KDJ-6	Bladelet Core	Prismatic, 1 prepared platform	-	Flakelet?	-	Fragment	0	7.5YR4/4, brown	20x22x9.5	5.28		-
KDJ-6	Core rejuvenation	Microflakelet detachments	-	Flakelet	Missing	Fragment	10	2.5Y8/2, pale yellow	(28)x28.5x(12.5)	8.14		-
KDJ-6	Core rejuvenation	Trapezoidal cross-section	-	Bladelet	Missing	Fragment	0	7.5YR6/3, light brown; striped	(40.5)x17.5x6.5	3.74		-
KDJ-6	Simple burin	Distal, right, lateral detachment	-	Flakelet	Missing	Fragment	0	10YR6/4, light yellowish brown	(41)x27x12	10.58		-
Mol River												
MOL-1	Core rejuvenation	Microflakelet detachments	Splintered, direct, left	Flakelet	Flat	Fragment	0	2.5Y8/2, pale yellow	41x(20)x10.5	8.70	7.5YR6/3, light brown	-
MOL-2	Core	Prismatic, microflakelet detachments	-	Flakelet	Missing	Fragment	10	2.5Y8/2, pale yellow	(26)x36x21	13.66	7.5YR6/3, light brown	-
MOL-3	Core rejuvenation	Microflakelet detachments	Splintered, direct, right	Flakelet	Missing	Fragment	0	2.5Y8/2, pale yellow	(37)x20x7	5.07		-
MOL-4	Bladelet Core	Discoidal, 1 prepared platform	-	Nodule	-	Complete	50	2.5Y8/2, pale yellow	35x35.5x14.5	17.56		6.2
MOL-4	Punging bladelet	-	-	Bladelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(21)x18x9.5	2.36		-

Site name	Artifact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
MOL-4	Simple burin	Distal, right, lateral detachment	-	Flakelet	Thinned	Complete	50	2.5Y8/2, pale yellow	36x32x16	14.60		6.1
MOL-5	Decortication flakelet	-	-	Nodule	Flat	Complete	100	5YR4/6, yellowish red	29.5x27x9	8.07		7.11
MOL-6	Bladelet Core	Prismatic, 2 opposed detachments	-	Nodule	-	Complete	0	2.5Y8/2, pale yellow	31x24x22	10.60		-
MOL-6	Backed point	Curved point	Abrupt, marginal, inverse, right; abrupt, marginal, direct, left	Flakelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(42)x19x6	4.93		6.5
MOL-7	Backed point	Curved point	Abrupt, deep, direct, right	Flakelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(10.5)x(4.5)x(2)	0.13		6.3
MOL-8	Side scraper	-	Simple, marginal, inverse, right	Flakelet	Flat	Fragment	0	-	(27)x(24)x7	4.20	10YR6/4, light yellowish brown	-
MOL-9	Rejuvenation creste	Curved	Splintered, direct, left	Flakelet	Missing	Complete	5	2.5Y8/2, pale yellow	41x21x10	7.86	7.5YR6/3, light brown	7.5
MOL-9	Rejuvenation creste	Curved	Splintered, direct, right	Flakelet	Missing	Complete	0	2.5Y8/2, pale yellow	27.5x7x5	1.13	7.5YR6/3, light brown	7.6
MOL-9	Lumate	Geometric	Abrupt, deep, direct, left	Bladelet	Removed	Complete	0	2.5Y8/2, pale yellow	25x8.5x2.5	0.54		7.1
MOL-9	Lumate	Geometric	Abrupt, deep, direct, right	Bladelet	Punctiform	Complete	0	2.5Y8/2, pale yellow	21x7x2	0.38		7.2
MOL-9	Lumate	Double <i>piquant trièdre</i> truncation	Abrupt, deep, direct, right,	Bladelet	Removed	Complete	0	2.5Y8/2, pale yellow	22x6.5x1.5	0.19		7.3
MOL-9	Double truncation	-	Abrupt, deep, direct, both edges	Bladelet	Missing	Complete	0	10YR5/3, brown	16.5x13.5x3	1.06		7.9
MOL-9	Notched bladelet	-	Abrupt, deep, direct, proximal, dext	Bladelet	Flat	Prox f	0	2.5Y8/2, pale yellow	(12)x7x2	0.19		7.7
MOL-9	Retouched bladelet	-	Simple, deep, direct, left	Bladelet	Thinned	Prox f	0	10YR5/3, brown	(12)x10.5x3	0.55		7.8
MOL-9	Bladelet core	Subconical, elongated, 1 prepared platform	-	Nodule	-	Complete	0	2.5YR5/4, reddish brown	42x23x15	17.98		7.10
MOL-10	Bladelet Core	Prismatic, parallel bladelet detachments	-	Nodule	-	Fragment	0	10YR4/1, dark grey; lighter stripes	(22.5)x24x10.5	8.25		8.9
MOL-11	Core rejuvenation	Microbladelet detachments	-	Flakelet	Facetted	Complete	0	10YR5/3, brown	31x28x7	6.09	Microfossils?	-
MOL-11	Straight perforator	-	Abrupt, deep, direct, bilateral, proximal edge	Bladelet	Missing	Prox f	0	10YR5/3, brown; lighter stripes	(25.5)x9.5x3.5	1.00		-



Site name	Artifact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
MOL-11	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, right	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(18)x11x2	0.53		-
MOL-11	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, inverse, right	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(16.5)x11x2	0.36		-
MOL-11	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, direct, left	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(15)x9.5x2.5	0.60		-
MOL-11	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, direct, right	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(14.5)x10x2	0.56		-
MOL-11	Concave Truncation	Trapezoidal cross-section	Abrupt, deep, direct, distal edge	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(10.5)x11x3	0.44		-
MOL-11	Oblique Truncation	-	Abrupt, deep, direct, left	Bladelet	Missing	Distal f	0	10YR3/3, dark brown	(13)x10x3	0.57		-
MOL-12	Retouched bladelet	-	Simple, deep, direct, proximal, right	Bladelet	Missing	Mesial f	25	10YR5/3, brown; lighter stripes	(27)x13x5	2.26		-
MOL-12	Retouched bladelet	-	Semi-abrupt, marginal, direct, bilateral	Bladelet	Missing	Mesial f	0	Burnt	(18)x9x2.5	0.57		8.4
MOL-12	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(13.5)x7.5x2	0.32		-
MOL-12	Oblique truncation	Trapezoidal cross-section	Abrupt, deep, direct, semi-abrupt, direct, left	Bladelet	Missing	Distal f	0	10YR5/3, brown	(13.5)x9x2.5	0.39		-
MOL-13	Retouched bladelet	-	Abrupt, deep, direct, left	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(19.5)x7.5x3	0.61		-
MOL-13	Long end scraper	-	Abrupt, deep, direct, distal	Bladelet	Missing	Distal f	0	10YR5/3, brown	(29)x10.5x4.5	1.06		8.5
MOL-13	Retouched bladelet	Trapezoidal cross-section	Abrupt, deep, direct, left	Bladelet	Missing	Mesial f	0	Burnt	(28.5)x10x3	1.19	3 f same bladelet	8.3
MOL-13	Straight perforator	Trapezoidal cross-section	Abrupt, deep, direct, bilateral, distal edge	Bladelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(32)x10x3.5	1.47	Worn	8.12
MOL-14	Retouched bladelet	Trapezoidal cross-section	Simple, marginal, direct, dext	Bladelet	Missing	Mesial f	0	10YR3/3, dark brown	(16.5)x9x3	0.63		-
MOL-14	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(14.5)x9x2.5	0.76		-
MOL-14	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, right	Bladelet	Missing	Mesial f	0	10YR3/3, dark brown	(18)x10.5x3.5	0.99		-
MOL-14	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, bilateral, proximal	Bladelet	Missing	Mesial f	0	Burnt	(12)x10.5x2.5	0.52		-
MOL-14	Retouched bladelet	Trapezoidal cross-section	Simple, marginal, direct, left	Bladelet	Missing	Mesial f	0	10YR6/3, pale brown	(14)x12x2.5	0.52		-

Site name	Artefact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
MOL-14	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, left; semi-abrupt, marginal	Bladelet	Missing	Mesial f	0	Burnt	(9)x8.5x3	0.37		-
MOL-14	Retouched bladelet	-	Simple, deep, direct, left	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(18)x11x4.5	1.06		-
MOL-14	Retouched bladelet	-	Semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(14.5)x9x3	0.60		-
MOL-14	Retouched bladelet	-	Semi-abrupt, deep, direct, bilateral	Flakelet	Missing	Mesial f	0	Burnt	(10)x7.5x2.5	0.28		-
MOL-14	Retouched flakelet	-	Simple, marginal, inverse, left	Flakelet	Flat	Prox f	0	10YR5/3, brown	(16)x(21)x6	2.40		-
MOL-14	Retouched flakelet	-	Simple, marginal, inverse, right	Flakelet	Missing	Mesial f	0	10YR5/3, brown	(16)x16x3	1.17		-
MOL-14	Retouched flake	-	Semi-abrupt, deep, direct, left	Flakelet	Missing	Distal f	50	10YR5/3, brown	(31)x15.5x8.5	3.98		-
MOL-15	Tablet	Core-tip	-	-	Missing	Complete	0	2.5Y8/2, pale yellow	28x24x13	12.52	Weathered	-
MOL-17	Bladelet core	Prismatic, 1 prepared platform	-	Nodule	-	Complete	25	10YR5/3, brown	38.5x34x20	29.29		-
MOL-17	Bladelet core	Prismatic, flat, 1 prepared platform	-	Nodule	-	Complete	10	2.5Y3/1, very dark grey	25x25x10	8.46		-
MOL-18	Side-transversal scraper	-	Simple, deep, direct	Flakelet	Flat	Complete	Subcortex 100	10YR6/2, light brownish grey	26.5x36.5x8	5.03		-
MOL-18	Side-transversal scraper	-	Simple, deep, direct, partial	Flakelet	Dihedral	Complete	0	10YR5/3, brown; whitish spots	29x29x6	6.81		-
MOL-19	Bladelet core	Prismatic, 1 flat, oblique platform, 1 transversal	-	Nodule	-	Complete	40	2.5Y8/2, pale yellow	37.5x32.5x18	18.35		-
MOL-19	Bladelet core	Subconical, 1 prepared platform	on anvil?	-	-	Complete	0	2.5Y8/2, pale yellow	34.5x27x21	18.13		-
MOL-19	Bladelet core	Prismatic, 1 prepared platform	-	-	-	Complete	0	2.5Y8/2, pale yellow	25x25x13.5	11.62		-
MOL-20	Retouched bladelet	Simple, marginal, inverse, bilateral	-	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(16.5)x12x3	0.84		-
MOL-21	Retouched bladelet	Trapezoidal cross-section	-	Bladelet	Flat	Prox f	0	2.5Y8/2, pale yellow	(18.5)x12.5x3.5	1.08		-
MOL-21	Burin on retouch	Distal, right, lateral	-	Flakelet	Dihedral	Complete	10	10YR5/4, yellowish brown	27x20x6	3.88		-

Archaeological Survey along the Khadeji and Mol Rivers

Site name	Artifact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
MOL-21	Tablet	Core-tip	-	Flakelet	Dihedral	Complete	0	2.5Y8/2, pale yellow	22x21x8	3.80		-
MOL-22	Burin on retouch	Double truncation, abrupt, lateral detachment	-	Bladelet	Removed	Complete	0	10YR6/2, light brownish grey	28x15x6.5	3.50		-
MOL-23	Retouched blade	Trapezoidal cross-section	Semi-abrupt, deep, inverse, bilateral	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(35.5)x9.5x3	1.42		-
MOL-23	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, left	Bladelet	Missing	Mesial f	20	10YR5/3, brown	(21.5)x11.5x3.5	1.70		-
MOL-23	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, inverse, left	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(17.5)x13x4.5	1.79		-
MOL-23	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, marginal, inverse, right	Bladelet	Missing	Mesial f	0	10YR5/3, brown	(16.5)x10x2	0.54		-
MOL-24	Bladelet core	-	-	-	-	Distal f	0	2.5Y8/2, pale yellow	(20.5)x17.5x12.5	5.64		8.11
MOL-24	Truncated blade	-	Abrupt, deep, direct, oblique, straight, dist	Bladelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(23)x11x3.5	1.13		8.2
MOL-24	Truncated blade	Trapezoidal cross-section	Abrupt, deep, direct, proximal; semi-abrupt, direct, bilateral	Bladelet	Removed	Prox f	0	10YR5/3, brown	(27)x8.5x3.5	1.22		-
MOL-24	Truncated bladelet	Trapezoidal cross-section	Abrupt, deep, direct, straight, proximal	Bladelet	Removed	Prox f	0	10YR5/3, brown	(17.5)x8.5x2.5	0.58		-
MOL-24	Truncated bladelet	Trapezoidal cross-section	Abrupt, deep, direct; abrupt, deep, direct, left	Bladelet	Missing	Distal f	0	10YR6/1, light grey	(16)x5.5x2	0.24		-
MOL-24	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, inverse, bilateral	Bladelet	Missing	Mesial f	0	2.5Y7/4, pale yellow	(20)x12x4.5	1.90		-
MOL-24	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR6/3, pale brown	(15.5)x8x2	0.44		-
MOL-24	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR6/3, pale brown	(7.5)x6.5x2	0.16		-
MOL-24	Retouched bladelet	-	Semi-abrupt, marginal, direct, right	Bladelet	Flat	Prox f	0	10YR5/3, brown	(29)x11x2.5	1.24		-
MOL-26	Bladelet core	Prismatic, 1 prepared, oblique platform	-	-	-	Complete	25	2.5Y7/4, pale yellow	36x26.5x23.5	22.74		-
MOL-26	Core rejuvenation	Microflakelet detachments, distal edge	-	Bladelet	Flat	Complete	0	2.5Y7/4, pale yellow	32x11.5x5.5	2.71		-
MOL-26	Retouched bladelet	-	Semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Mesial f	0	10YR6/3, pale brown	(27)x12.5x4.5	2.04		8.8
MOL-27	Truncation	-	Straight, direct, sommaire, distal	Flakelet	Punctiform	Complete	0	10YR5/3, brown	17.5x15.5x3.5	1.51		-

Site name	Artifact	Description	Type of retouch	Blank	Butt type	Condition	Cortex (%)	Patina Colour (Munsell)	Measures (mm)	Weight (gr)	Others (real colour: Munsell)	Figure
MOL-29	Retouched blade	-	Semi-abrupt, deep, inverse, right	Bladelet	Missing	Distal f	0	10YR6/3, pale brown	(25)x15x4	1.83		-
MOL-31	Fabricator?	Astiform	Bifacial, sommaire	Nodule	Removed	Complete	0	2.5Y8/2, pale yellow	90x37x28.5	107.12	Hammering	8.13
MOL-31	Truncated bladelet	-	Semi-abrupt, deep, oblique, direct, distal	Bladelet	Missing	Distal f	0	2.5Y8/2, pale yellow	(22.5)x11.5x3.5	0.87		8.1
MOL-31	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Mesial f	0	Burnt	(11.5)x9x2.5	0.37		-
MOL-32	Retouched bladelet	Trapezoidal cross-section	Semi-abrupt, deep, direct, left	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(10)x10x2.5	0.39		-
MOL-32	Retouched bladelet	-	Semi-abrupt, deep, direct, left	Bladelet	Punctiform	Prox f	0	2.5Y8/2, pale yellow	(18)x10.5x2.5	0.67		-
MOL-32	Scalene long triangle	-	Oblique, straight, abrupt truncation; abrupt, deep, direct, right	Bladelet	Removed	Tip missing	0	2.5Y8/2, pale yellow	(27)x7.5x2.5	0.65		8.10
MOL-33	Retouched bladelet	-	Semi-abrupt, marginal, direct, left	Bladelet	Missing	Mesial f	0	2.5Y8/2, pale yellow	(18)x11x3	0.80		-
MOL-33	Truncated bladelet	-	Abrupt, deep, direct, distal; semi-abrupt, deep, direct, bilateral	Bladelet	Missing	Distal f	0	10YR5/3, brown	(17)x8x2.5	0.45		-
MOL-34	Bladelet core	Prismatic, 2 opposed, prepared platforms	-	-	-	Complete	0	2.5Y8/2, pale yellow	36x27x13.5	14.16		-

f=fragment

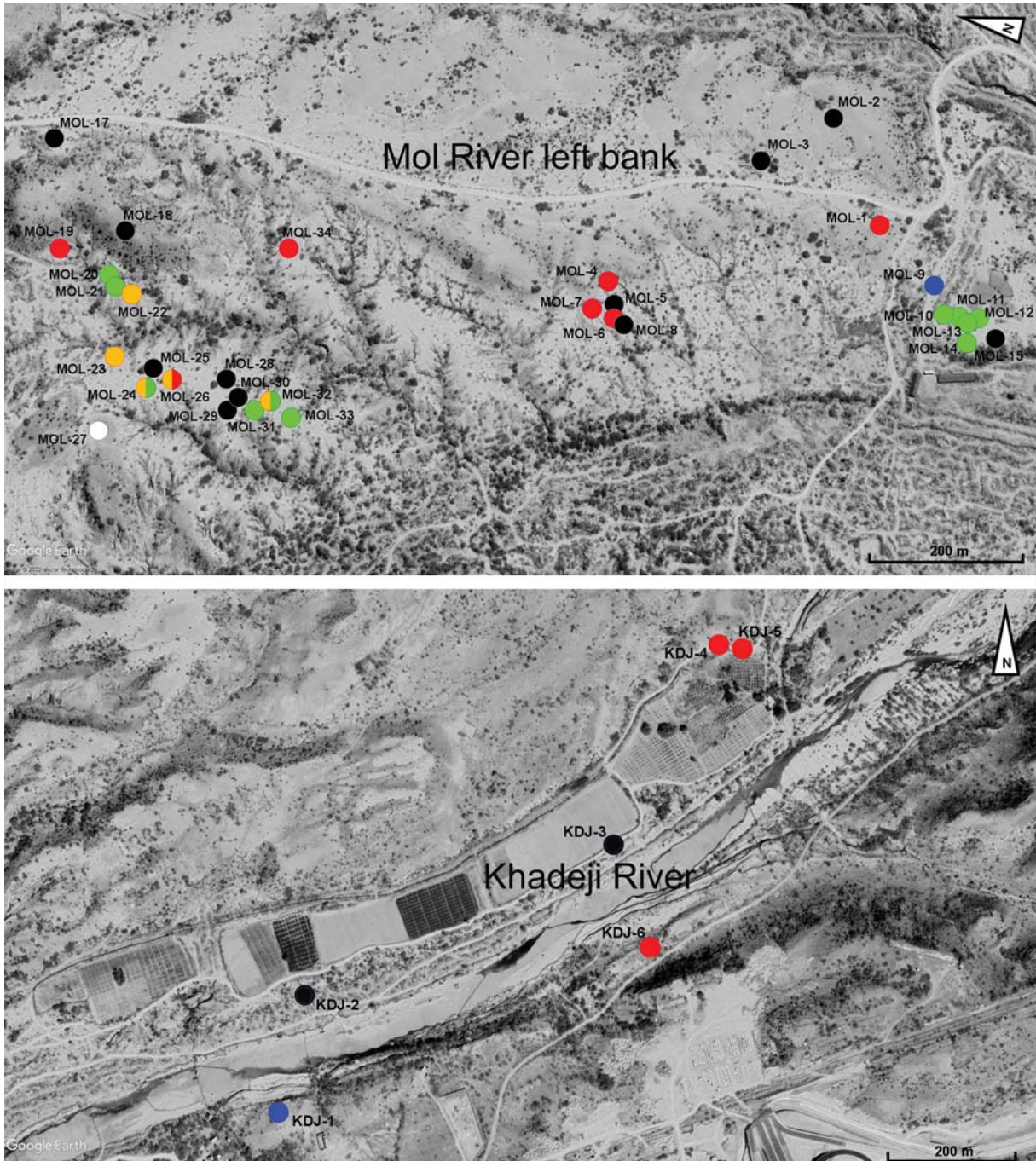


Fig. 3. Distribution maps of the lithic findspots discovered along the Mol (top) and Khadeji Rivers (bottom). Late Upper Palaeolithic (red dot), Mesolithic (blue dot), Neolithic (green dot), Chalcolithic (ochre dot), burial mound (white dot), undefined age (black dot) (map by C. Franco)

Table 2 shows the most important characteristics of the knapped stone artefacts. The description of the retouched tools, cores and technical pieces is provided in Table 3. Moreover, 2 Khadeji and 4 Mol River sites yielded small, weathered fragments of marine bivalves (Fig. 2, bottom).

### 3. The discoveries

The distribution maps show the location of the different clusters of chert artefacts discovered in 2021 according to their suggested chrono-cultural attribution (Figs 2 and 3). Three of the Khadeji findspots (KDJ-4, KDJ-5 [Fig. 4, bottom], and KDJ-6) (Fig. 3, bottom), have



*Fig. 4. The Mesolithic findspot MOL-9 (top), and the late Upper Palaeolithic KDJ-5 (bottom)  
(photographs by P. Biagi, 2021)*

been attributed to the late Upper Palaeolithic based on the techno-typological characteristics of the artefacts, their raw material, and the

degree of surface patination. The artefacts from these sites are represented by 1) exhausted bladelet cores made from small chert pebbles

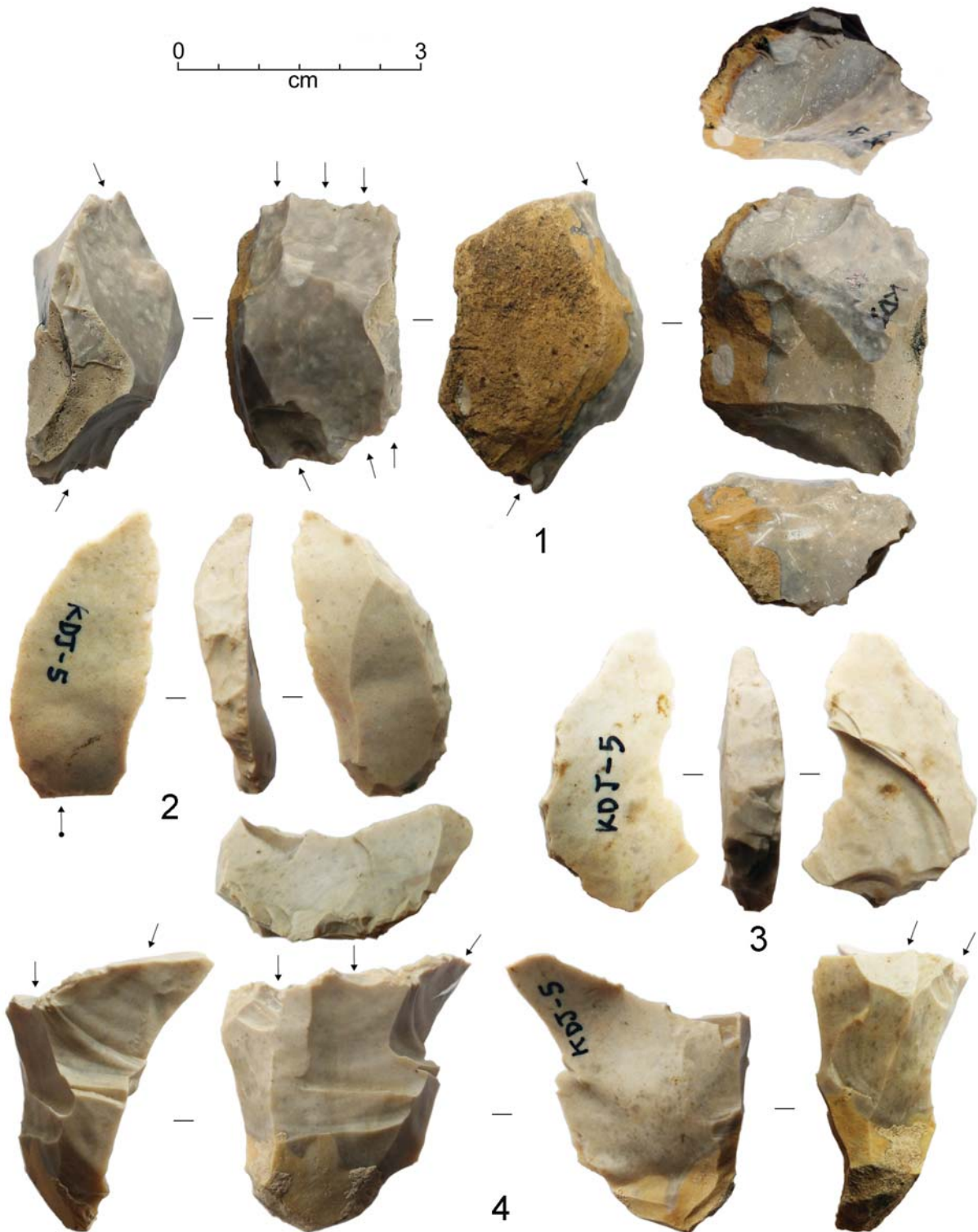


Fig. 5. Knapped stone artefacts from the late Upper Palaeolithic findspot KDJ-5: exhausted bladelet cores (1 and 4), and curved backed points (2 and 3) (photographs by E. Starnini).

(Fig. 6.4), one of which has opposite detachment negatives (Fig. 5.1), 2) characteristic curved, backed points (Fig. 5.2 and 3), 3) simple burins on with lateral detachment on small flakes,

4) pale yellow (2.5Y8/2) patina with slightly translucent surfaces, which covers the whole artefact. The real colour of the chert employed for making artefacts is quite different from that

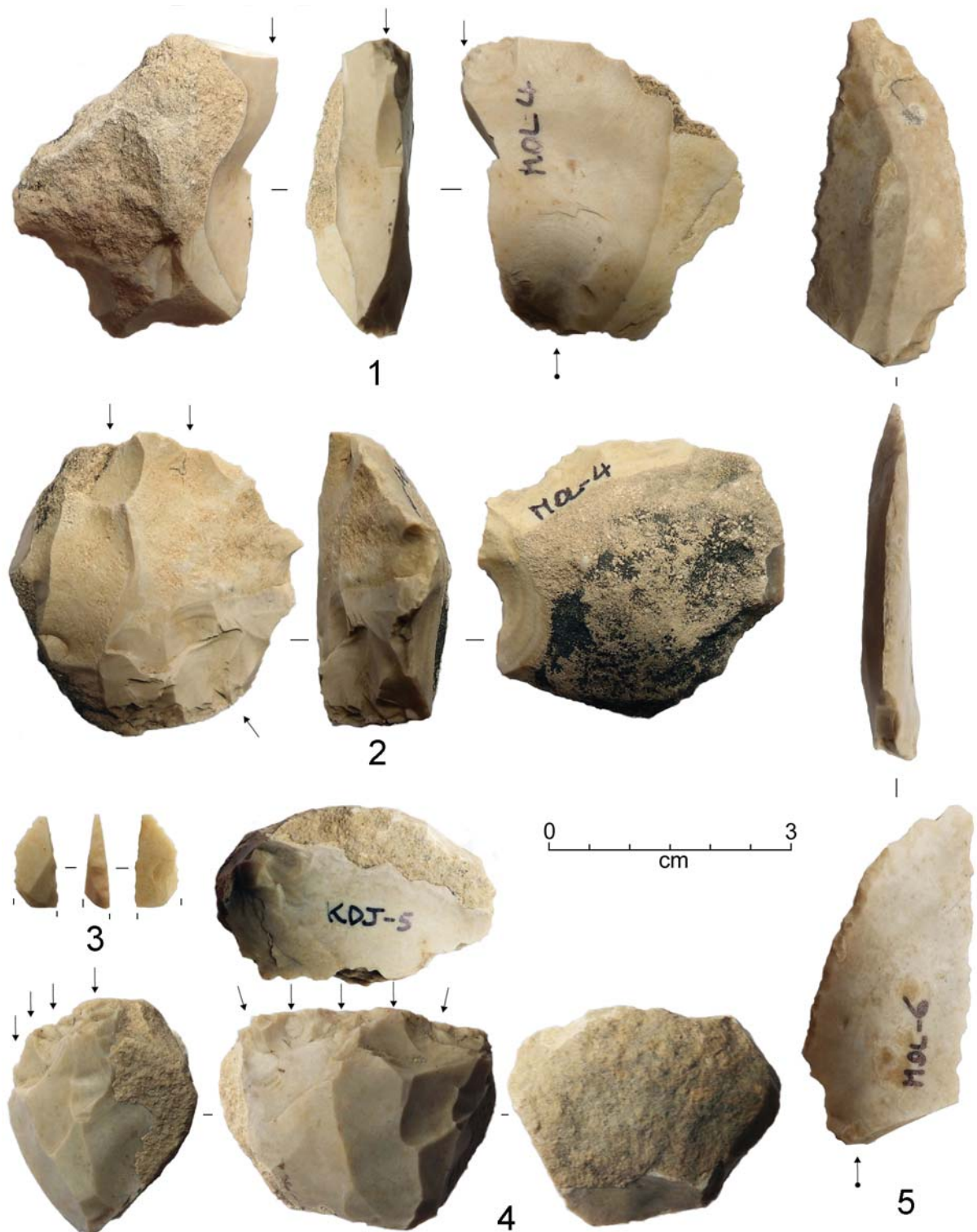


Fig. 6. Knapped stone artefacts from the late Upper Palaeolithic findspots KDJ-5 (4), MOL-4 (1 and 2), MOL-6 (5), and MOL-7 (3): simple, lateral burin (1), exhausted bladelet cores (2 and 4), curved backed points (3 and 5) (Photographs by E. Starnini)

of the thick patina that covers their surface (7.5YR6/3, light brown), which is revealed by fresh fractures visible on a few pieces. The smooth cortical surfaces show that Upper

Palaeolithic communities in the lower part of the Khadeji River Valley collected raw material for artefact manufacture in the form of small chert nodules (see Fig. 5.1, Fig. 6.1, 2 and



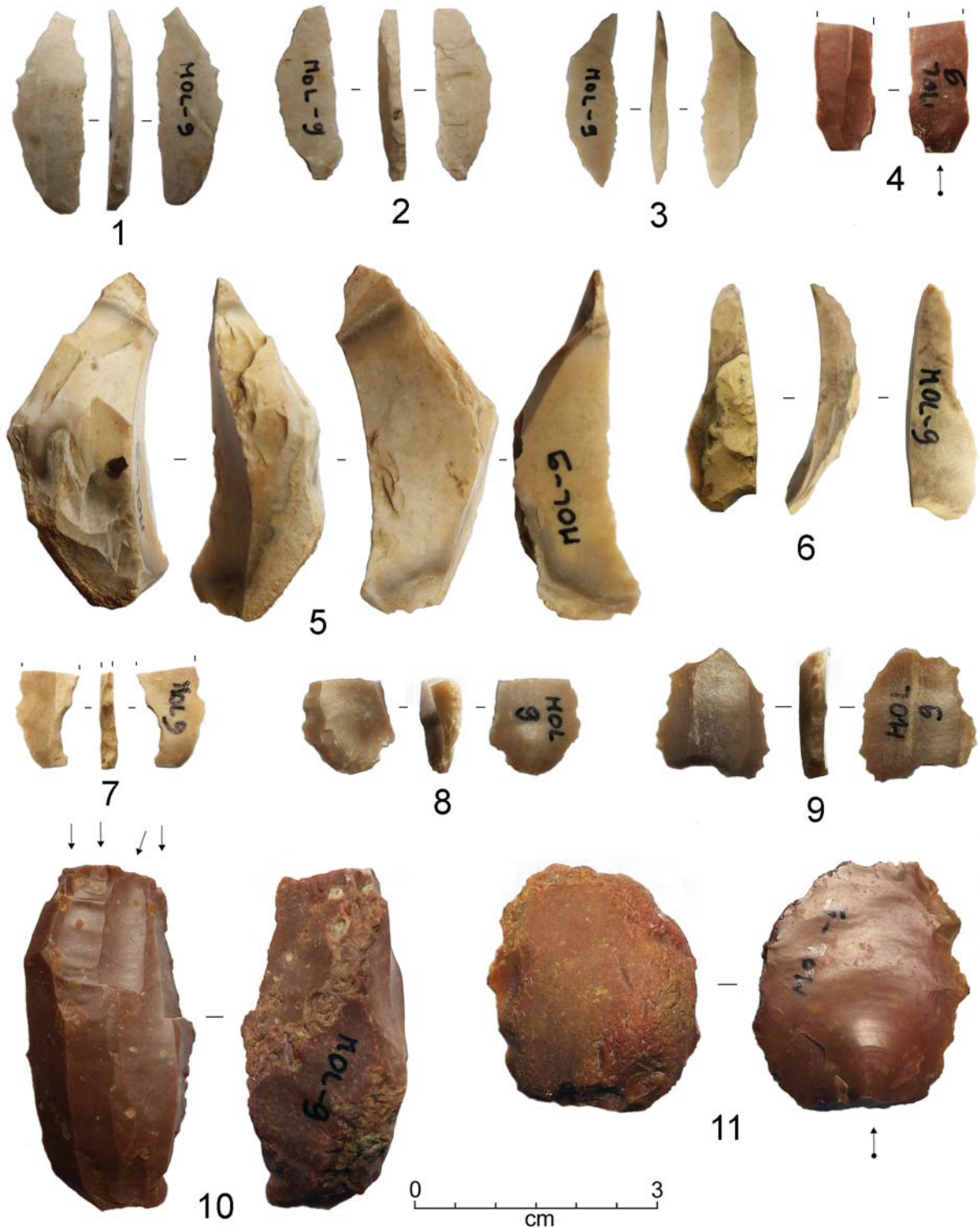


Fig. 7. Knapped stone artefacts from the Mesolithic findspot MOL-9: lunates (1–3), unretouched microbladelet fragment (4), rejuvenation crests (5 and 6), notched microbladelet fragment (7), retouched bladelet fragment (8), double truncation (9), subconical bladelet core (10), and decortication flakelet from MOL-5 (11) (Photographs by E. Starnini)

4). Unfortunately, we do not know where the chert sources are located. Professor A. R. Khan reports the presence of conglomerates in the

Oligocene upper Nari group, between the lower Khadeji and the Mol Rivers, an area that is still to be accurately surveyed (Khan 1979c: 49).

The findspots in the left Mol River terrace are represented by artefacts that have been attributed to different prehistoric periods, spanning from the late Upper Palaeolithic to the Chalcolithic (Fig. 3, top). Most of the Upper Palaeolithic findspots are located slightly more distant from the watercourse than the other sites. MOL-6 yielded 1 curved backed point (Fig. 6.5) and 1 exhausted prismatic core with opposite detachment negatives. The same can be said about the small point fragment with abrupt retouch from MOL-7 (Fig. 6.3). The attribution of MOL-4 to this period has been suggested based on the presence of 1 bladelet core (Fig. 6.2) and 1 simple, lateral burin (Fig. 6.1), obtained from small patinated pale yellow chert pebbles, identical to the material used in the Upper Palaeolithic Khadeji River Valley sites.

A small scatter of chert artefacts (MOL-9: Fig. 4, top) is composed of 3 microlithic lunates (Fig. 7.1–3) 1 subconical, elongated bladelet core on a reddish-brown (2.5YR5/4) chert pebble of fluvial origin (Fig. 7.10), 3 more microflakes of the same raw material type, and 2 curved rejuvenation crests (Fig. 7.5 and 6). This collection shows that the area was also settled during the Mesolithic, most probably somewhat before the beginning of the Atlantic, which is the period during which trapezoidal geometric armatures began to be made (see Biagi 2003–2004; Sosnowska 2010). Such a coherent assemblage of knapped stone artefacts attributable to this period is very important because it points out significant differences between the late Upper Palaeolithic and the Mesolithic assemblages. They have different techno-typological characteristics, artefact types, and raw material sources exploited for their production. The only other site of this region to yield a small decortication flake of the same reddish-brown chert is MOL-5 (Fig. 7.11), although we do not have enough data to attribute these finds to any well-defined prehistoric period.

Regarding the Neolithic and Chalcolithic assemblages, their precise attribution is

sometimes difficult, mainly because we have poor knowledge about the Neolithic – its knapped lithics and radiocarbon chronology – in the studied region. Moreover, all the surface findspots yielded merely lithics, while potsherds and other artefact types are not preserved due to weathering. According to Professor A. R. Khan, Neolithic knapped stone artefacts “include a large number of parallel edged blades similar in form and technique to those of Chalcolithic period but not exceeding 1-1/4 inches in length and majority of them falling between 1/2 and 1 inch range” (Khan 1979a: 9). This note proved to be correct. Fortunately, we are well-informed regarding the knapped stone assemblages of the Chalcolithic Amri culture, based on the study of the Tharro Hills lithic complex (Biagi 2005). Furthermore, more new data have been acquired from the Neolithic and Chalcolithic industries of the Lake Siranda shell middens in Las Bela (Biagi & Nisbet in press).

Finds from these two periods cluster in two well-defined areas in the surveyed part of the left Mol River terrace. Broadly speaking, the Neolithic assemblages look fresher and less patinated than the Palaeolithic ones. The laminar blanks are narrow and thin. Mesial fragments are very common (Fig. 8.3, 4 and 6) as are burnt pieces (Fig. 8.3 and 4), most probably due to sub-recent nomadic activities, camping and trampling. Many laminar products have a triangular cross-section, although trapezoidal specimens are also present. Many bladelets show a simple or semi-abrupt retouch along one or both sides (Fig. 8.4). Some bladelets are truncated at one edge (see MOL-24 and MOL-32) (Fig. 8.1 and 2) or have a rounded end-scraping edge (Fig. 8.5). The core fragments are represented by small, exhausted types with parallel bladelet and microblade detachment negatives (Fig. 8.9 and 11). They have little in common with characteristic Amri culture types, which are larger, flatter, with parallel negatives of longer and wider blade detachments (see Majumdar 1934: Plate XIX.12 and 22; Biagi 2005: Fig. 5). Also, the straight perforator from MOL-13 (Fig. 8.12), is probably to be attributed to this period, as are all the other artefacts from

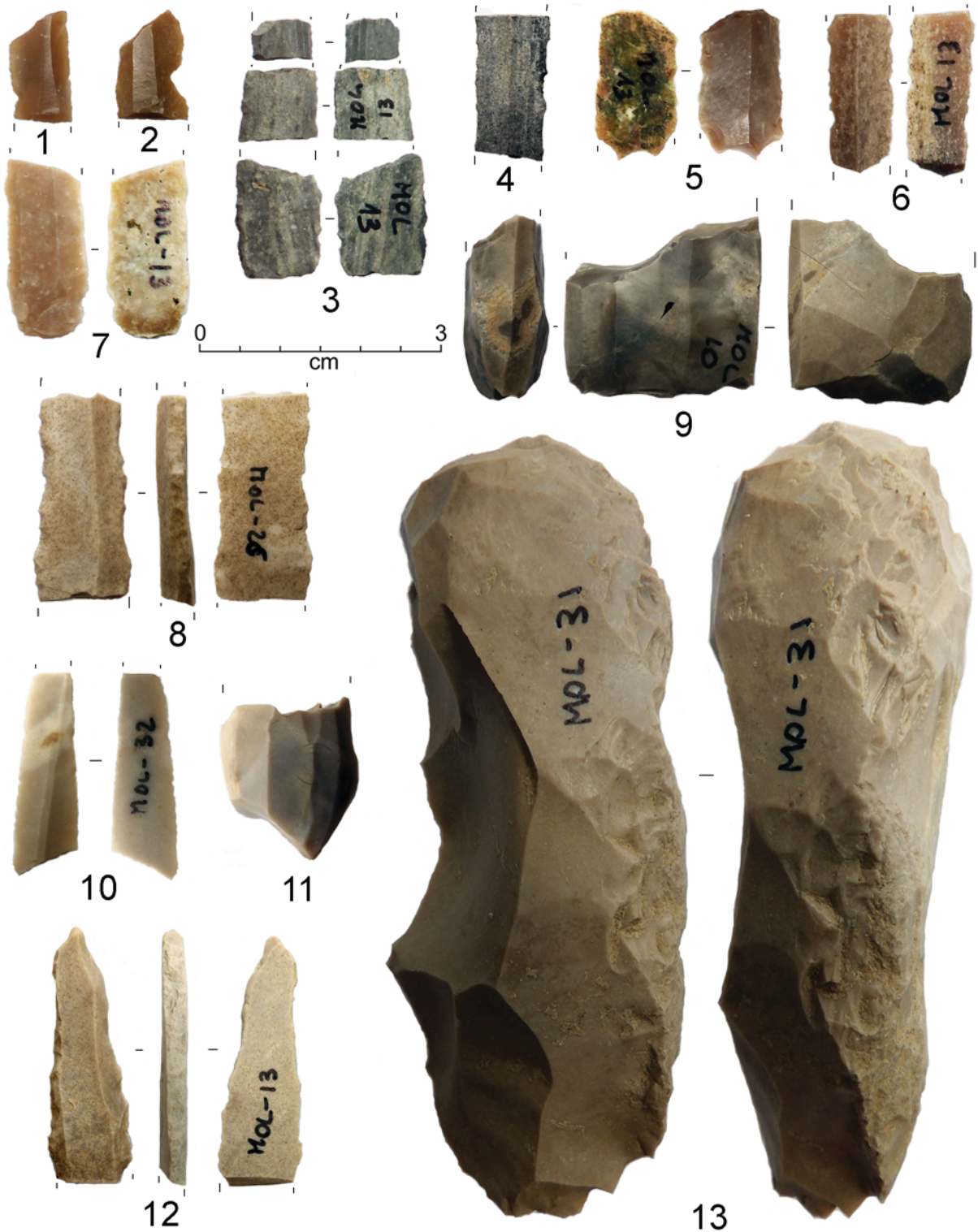


Fig. 8. Knapped stone artefacts from the Neolithic and Chalcolithic Mol River findspots: truncations (1 and 2), end scraper (5), fragments of unretouched bladelets (6 and 7), retouched bladelets (3, 4 and 8), long, scalene triangle (10), straight perforator (12) core fragments (9 and 11), long, bifacial tool with traces of hammering (13) (photographs by E. Starnini)

the same findspot. One unique tool is a large, bifacial, elongated artefact with evident traces

of heavy hammering along one side, which might have been used as a fabricator (Fig. 8.13).



*Fig. 9. MOL-27: Burial mound (bottom) and cist graves made of limestone slabs around it (top) (photographs by P. Biagi, 2021)*

According to our observations, only two assemblages from two sites can be attributed to the Chalcolithic period, namely MOL-22

and MOL- 23, due to the presence of laminar blanks with trapezoidal cross-section, and dimensions larger (Fig. 8.8) than the Neolithic

ones described above (see Biagi *et al.* 2018b: Fig. 7). Two more sites yielded a few artefacts probably to be attributed to this period (MOL-24 and MOL-32). In particular, the long scalene triangle (Fig. 8.10) shows similarities to the Amri types in the Tharro Hills, though the triangles from the Amri culture sites are always obtained from longer and wider blades (see Biagi 2005: Fig. 7). To sum up, the lithic findspots discovered in this part of the left Mol riverbank seem to cluster in a more or less defined area according to the different periods to which they have been attributed (see Fig. 2, top).

One more observation is to be made on the small burial mound of site MOL-27 (Fig. 9), around which cist graves made of limestone slabs are located. This type of funeral monument, and also dolmens, are quite common in this part of Lower Sindh, although none of them has ever been published in detail. Professor A. R. Khan reports their presence in the Mulri Hills, and also along the courses of the Hub, Malir and Mol rivers (Khan 1979a: 10). As far as we know, none of these burial mounds and cist graves has ever been excavated, and their cultural and chronological attribution is still undefined.

### **3. Discussion**

The archaeological importance of the coastal zone of Sindh and its close interior is well known for decades. Thanks to the surveys carried out in the 1970s, the first Palaeolithic sites were discovered around Karachi. In the same period, preliminary distribution of the Amri culture, its settlement characteristics and structural remains were described briefly for the first time by A. R. Khan (Khan 1979a). The same author made other important observations during his geoarchaeological fieldwork, regarding the presence, sometimes the high concentration, of sites with microlithic industries, which he attributed to the late Upper Palaeolithic and Mesolithic periods, the latter of which he subdivided into two subsequent phases. He went further noting that the sites from the end of the Pleistocene and the beginning of the Holocene in

the study region are “*invariably.....associated with old wind-blown sand, adjacent to the hills or in the valleys within the hilly belts*”.

Professor A. R. Khan made even more interesting observations regarding the Upper Palaeolithic assemblages. According to this author “*the most characteristic tool of the late Upper Palaeolithic period is a knife tool, with strongly curved and steeply blunted back and very sharp or more or less straight cutting edge*”. He recovered implements with these characteristics from a few sites discovered in the Khadeji Gorge, although “*they are present at many other sites also*” (Khan 1979a: 11). Some more were found in the Mulri Hills, in front of the Karachi University Campus (Fig. 1). One of the sites discovered in this locality yielded an important assemblage with chert artefacts undoubtedly attributable to the late Upper Palaeolithic (MH-16) (see Biagi 2017: 5).

Another important note regards the presence of marine shells in many sites of the interior, which “*are present at all Mesolithic sites as far as the Khadeji and Mol gorges and in Thaddo Valley at heights up to 500 feet above the sea*” (Khan 1979a: 18). Apart from the radiocarbon-dated sample of KDJ-1, fragments of marine bivalves have been collected during the 2021 survey (see Fig. 3, bottom). They will be radiocarbon dated in the near future because they are the only organic finds available for dating from the investigated region.

The knapped stone assemblages collected during the 2021 survey along the Khadeji and Mol River terraces contribute to the interpretation of prehistoric Sindh. More precisely, they help us to build a preliminary chronological sequence of the cultural events in the area between the end of the Pleistocene and the beginning of the Subboreal. As reported above, these finds play an important role in the study of the late Upper Palaeolithic and the Mesolithic periods. However, the presence of Neolithic and Chalcolithic assemblages is also of major interest, albeit they are difficult to interpret due to our meagre knowledge of Neolithic

assemblages in Sindh, and their chrono-cultural attribution. This is why we have to revert to other regions to find parallels and frame our finds into the general context of Indus Valley prehistory.

Knapped stone assemblages from Mehrgarh display the Neolithic and Chalcolithic development in that part of Balochistan (Lechevallier 2003), the changes that took place in the lithic technology, the great variability of the blade blank sizes, core types, manufacture technology, and mode of retouch. Similar characteristics have been noticed in the small assemblages retrieved from the radiocarbon dated shell middens of the Las Bela coast (Biagi *et al.* 2018a; Biagi & Nisbet in press).

Despite the difficulties of interpretation, Chalcolithic knapped stone industries are always easy to distinguish because of their uniqueness. They are characterised by long, subconical flat cores with parallel blade detachments along only one face, most probably obtained by pressure, the systematic application of a specific semi-abrupt retouch, and the production of elongated scalene triangles, throughout the entire regions of Sindh and eastern Balochistan. Thanks to the definition of artefact characteristics from this period, an important advancement has been made in our knowledge regarding the knapped stone assemblages of the middle and late Holocene periods in Sindh. Numerous Holocene findspots collected in the Mol River terrace show quite different characteristics in comparison with those of the Chalcolithic. They are most probably attributed to the Neolithic, due to their dimensions, type of retouch and the production of smaller blanks.

To conclude, merely parts of the Khadeji and Mol River terraces have been surveyed in 2021. More fieldwork is necessary to cover the whole area, to interpret the different clusters, their eventual relationships, to define patterns of spatial distribution (Kroll & Price 1991), and to interpret the reasons, provenances, distances, and ways people moved from and to other zones of Sindh in different periods of

prehistory, and finally, to analyse the cultural aspects represented by the lithic assemblages in the area.

### Acknowledgements

The December 2021 survey was carried out thanks to the financial support of the Italian Ministry of Foreign Affairs (MAECI) and the Society of Antiquaries of London (UK). Particular thanks are due to Syed Sardar Ali Shah, Minister for Culture, Tourism, Antiquities & Archives, Government of Sindh, and Manzoor Ahmed Kansro, Director General of Antiquities, Government of Sindh, for promoting the December 2021 surveys in Lower Sindh and acting as a patron of our research.

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# Szeleta Cave



The systematic research of palaeolithic sites in Hungary started with excavating one of the key sites, the Szeleta Cave, in 1906. The cave's entrance is situated in the picturesque valley of the Szinva stream, above Felső-Hámor in Miskolc, North-eastern Hungary. Since the first field investigations, the town's immediate surroundings, the Bükk Mountain Range, and, finally, the whole Northern Mountain Range gradually became one of the best-researched areas in Europe. Furthermore, the cave became eponymous with the Szeleta Culture.

When in 1999, the town of Miskolc decided to establish the Foundation for the Szeleta Culture, the initial goals included the creation of a museum and archaeological park dedicated to the era of palaeolithic humans. The project was the revival of a plan of the 19th-century polyhistor Ottó Herman, founder of palaeolithic archaeology in Hungary.

After several unsuccessful attempts, the Szeleta Park and Visitor Centre will open its gate on 31 December 2022. It is created under the GINOP-7.1.5-16-2016-00005 project by the Bükk National Park Directorate. The establishment, near the Szeleta Cave, includes an adventure park and an interactive exhibition titled "Secrets of millennia in the caves of the Bükk Mountains – prehistoric men and their environment," designed for all age groups.