

The Palaeolithic settlement of Sindh (Pakistan): A review

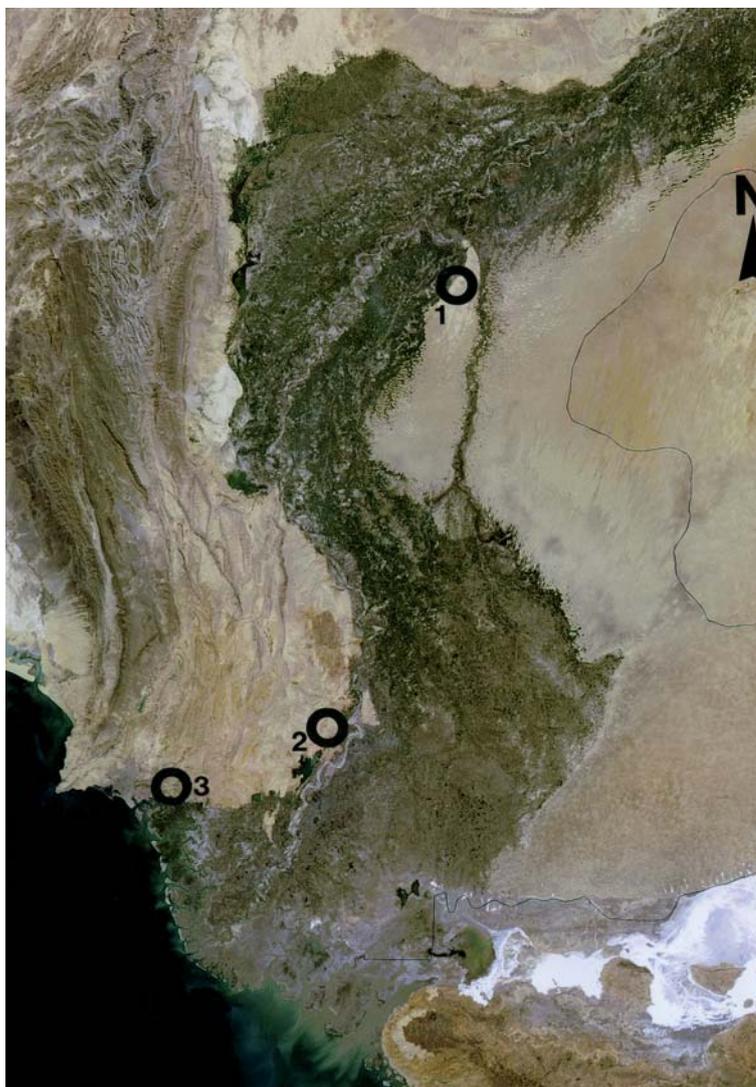
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Introduction

Sindh is a territory of fundamental importance for the understanding of the cultural processes that took place in South Asia during the Pleistocene. Located midway between the uplands of Balochistan, in the west, and India, in the east, it separates two environmentally and historically distinct regions.¹ It is not by chance that Sindh takes its name from the river that, flowing from north to south, neatly divides it into two halves and denominates the entire Subcontinent. Apart from representing historical India of the ancient Greeks, and the easternmost limit reached by Alexander the Great and his Macedonian army,² from an archaeological point of view Sindh is famous mainly for its Bronze Age and later antiquities,³ and displays the most remarkable traces of the first processes of urbanisation of the old world,⁴ which are exemplified by the outstanding ruins of the metropolis of Mohen-jo-Daro.⁵

At present the Palaeolithic of Sindh is poorly known, mainly because of the limited systematic research conducted to date, and the geographic, logistic and political difficulties that archaeologists may encounter entering some (tribal) areas of present-day Pakistan. Nevertheless, this is a key region for the understanding of the various topics of Pleistocene archaeology of the Indian Subcontinent, the study of which has progressively improved, especially during the last twenty years.⁶ Among these are 1) the route followed by the early hominids who, after moving along the southern periphery of the Arabian Peninsula, crossed the Strait of Hormuz, after their first “out of Africa”,⁷ 2) the definition of the south-easternmost limit reached by the Neanderthals and the borderline of the Mousterian Levalloisian Culture,⁸ and 3) the spread of the first modern humans towards India and south-east Asia.⁹



The scope of this paper is to update the information available for the Palaeolithic of the country, which at present is known almost exclusively from two well-defined areas: Ongar, in Lower Sindh, and the Rohri Hills, in Upper Sindh, while only a few other assemblages come from the neighbourhoods

Fig. 1
Location of the Palaeolithic sites mentioned in the text. 1 Rohri Hills; 2 Ongar; 3 Mulri Hills and other sites east of Karachi

¹ Pithawala 1978, 8; Flam 1987, 70.

² M'Crindle 1896.

³ Cousens 1929; Majumdar 1934.

⁴ Childe 1934.

⁵ Marshall 1931.

⁶ Petraglia 1995.

⁷ Petraglia 2003; Амирханов 2006.

⁸ Biagi 2007.

⁹ Raju/Venkatasubbaiah 2002; Forster 2004; Field et al. 2007.

of the Arabian Sea around Karachi¹⁰ (**Fig. 1**). According to their typological characteristics these assemblages can be attributed to a period of time between the middle and the end of the Pleistocene.

The Palaeolithic assemblages of Lower Sindh

Only two regions of Lower Sindh have so far yielded Palaeolithic assemblages: Ongar, south of Hyderabad, and the surroundings of Karachi.

Ongar

The Palaeolithic sites of Ongar, otherwise called Milestone 101,¹¹ were discovered by “an officer of the Pakistan Archaeological Department”¹² in the mid 1960s. A few years later Professor A. R. Khan published a preliminary report on the flint assemblages he collected in 1972, in a paper on the Palaeolithic of Lower Sindh.¹³

The hill called Ongar, west of the eponymous village, is located “about 8 miles north of Jhirak, and a mile or 2 south-west of Jhuga Pir”,¹⁴ along the western side of the Karachi-Hyderabad motorway, some 17 miles south-west of Hyderabad. It consists of a series of flat, Eocene, limestone terraces rich in seams of very good quality, large flint nodules of a light brownish grey colour (10YR6/2).¹⁵

Describing the area in detail, W. T. Blandford reports “under Aongar Hill...the Ranikot beds, near the road from Kotri to Jhirak, consist of flaggy brown limestones, resting on variously coloured soft silty shales, red, yellow, brown, &c., and capped by buff marl”. He also noticed that “along the scarp of Aongar Hill, above the rocks just described, appears to be thinly bedded with weathers into flags. Much flint derived from the limestone is scattered about”.¹⁶ Ongar, and its surrounding hills, are one of the richest flint sources in Sindh. They were exploited from Acheulian, Palaeolithic times up to the Bronze Age Indus (or Harappan) period.¹⁷

The assemblages collected by Prof. A. R. Khan¹⁸ can be attributed to at least three distinct complexes. They come from twelve areas located along the eastern, southern and south-western slopes of the Ongar hill.¹⁹ They are represented by 1) Acheulian handaxes (**Fig. 2**), 2) a Levallois assemblage with discoid cores, flakes and a few blades, with faceted “chapeau de gendarme” platform, straight points and side scrapers with a very pale brown (10YR7/3) to light grey (2.5Y7/2) patina (**Fig. 3**), and 3) a blade-like flake industry with a pale brown patina (10YR6/3) obtained from subconical and subpyramidal cores (**Fig. 4**). The only implement attributable to this latter industry is a short end-scrapers with a complementary simple, marginal, direct retouch along its left side.

B. Allchin, who visited the area in December 1975, observed that only one “horseshoe-shaped limestone hill with a flat top between one and two square kilometres in extent is capped by a layer of chert nodules. In this respect it seems to be unique among the surrounding hills”.²⁰

The surveys carried out in January and April 2005, and January 2006, 2007 and 2008, showed that the archaeological area is not exclusively restricted to the hill described by Allchin. Also those of Daphro, to the west, and Bekhain, to the south-west, are partly covered with structures and flint artefacts attributable to different prehistoric periods.²¹

Apart from Ongar, an assemblage of 45 flint tools was collected along the banks of a dry riv-

¹⁰ Khan 1979a.

¹¹ Allchin et al. 1978.

¹² Allchin 1976, 486.

¹³ Khan 1979b.

¹⁴ Blandford 1880, 148.

¹⁵ Colours of the Munsell Soil Color Charts, 2000 – Year 2000 Revised Washable Edition.

¹⁶ Blandford 1880, 148–149.

¹⁷ Biagi 2006c.

¹⁸ In his paper, A. R. Khan (1979b, 80) reports: “the oldest industries are associated with three gravel terraces or remnants of old piedmont slopes of varying elevations. The two later industries, particularly the fourth one, are found as surface material scattered all over the area”. According to this author, the Ongar Palaeolithic is to be subdivided into five main chrono-typological assemblages, which he described as follows: the first, which he called Khaskheli, from the “Sindhi tribe a family of which owns a farm near the oldest site”, is characterised mainly by choppers and chopping-tools; the second, which he called Ongar industry, “is a handaxe industry with typical mid-Acheulian handaxes, cleavers and a host of other tools”; the third is a Levalloisian industry “associated with the lowest gravel terrace”, which he called “Miharo industry after the village, close to which has been found in situ in the gravel terrace”; the fourth assemblage, which is distributed all over the terraces and valleys, is represented by “discoidal cores, crude corticated flakes, denticulated tools, scrapers, borers and beaked tools...which...shows affinities with the Denticulated Mousterian”; the fifth is “a blade-burin and steep scraper industry resembling the earliest Upper Palaeolithic industry of the Levant coast” (Khan 1979b, 81). Furthermore the same author (Khan 1979c, 64) wrote that, north-west of Ongar “...one tool picked by Mr. Ishaq Ghaznavi, an officer of Geological Survey, from the slope of Laki range is identical with a tool of Lower Acheulo-Levalloisian culture...”. The tool is a transversal scraper on a flakelet with a faceted platform obtained with a simple, deep, direct, distal retouch (**Fig. 9,6**).

¹⁹ A. R. Khan pers. comm. 2002.

²⁰ Allchin 1976, 486–487.

²¹ Biagi 2006b.

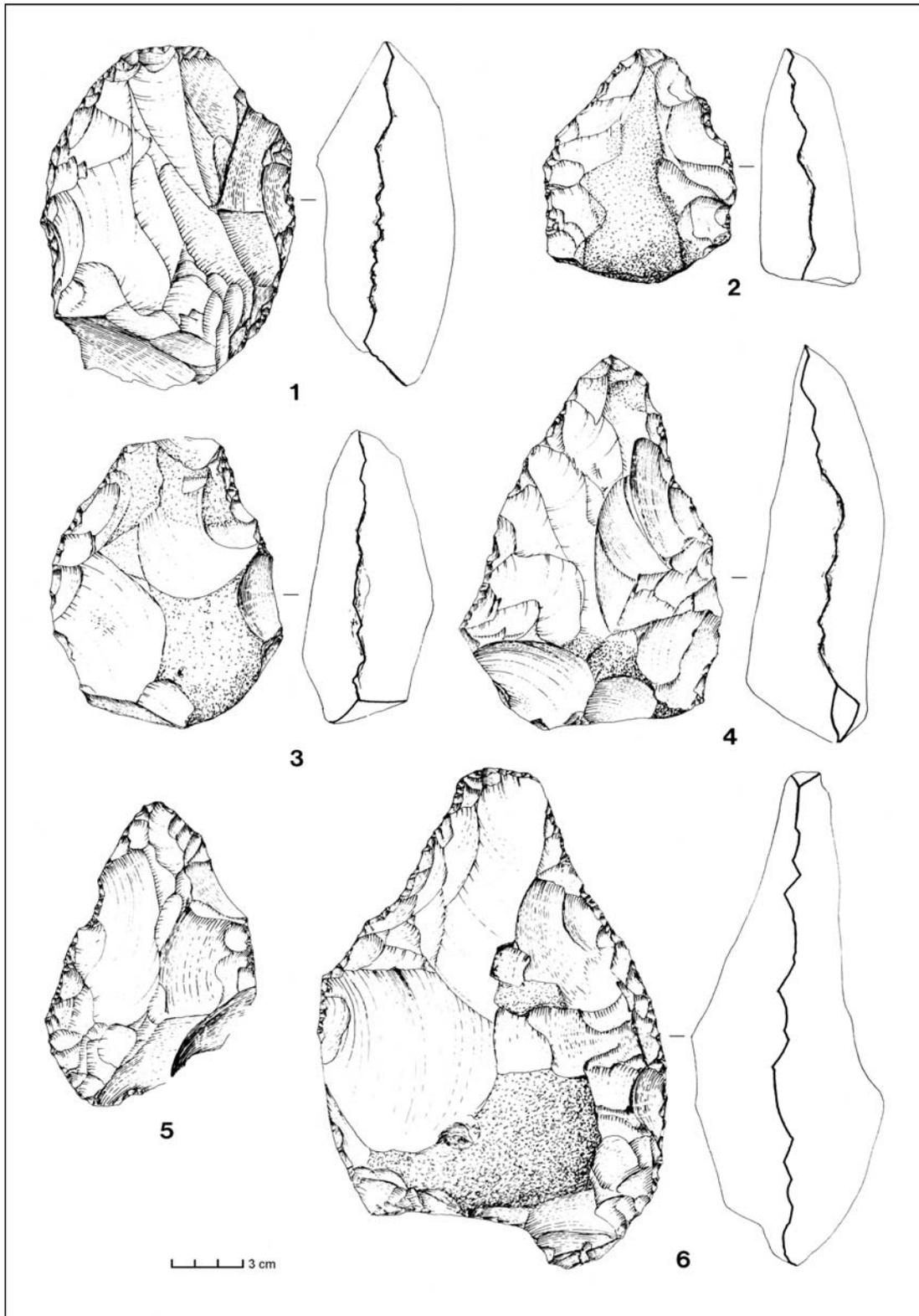


Fig. 2
Ongar. 1–6 Acheulian
handaxes of A. R. Khan
collection (drawings by
P. Biagi, inking by
G. Almerigogna)

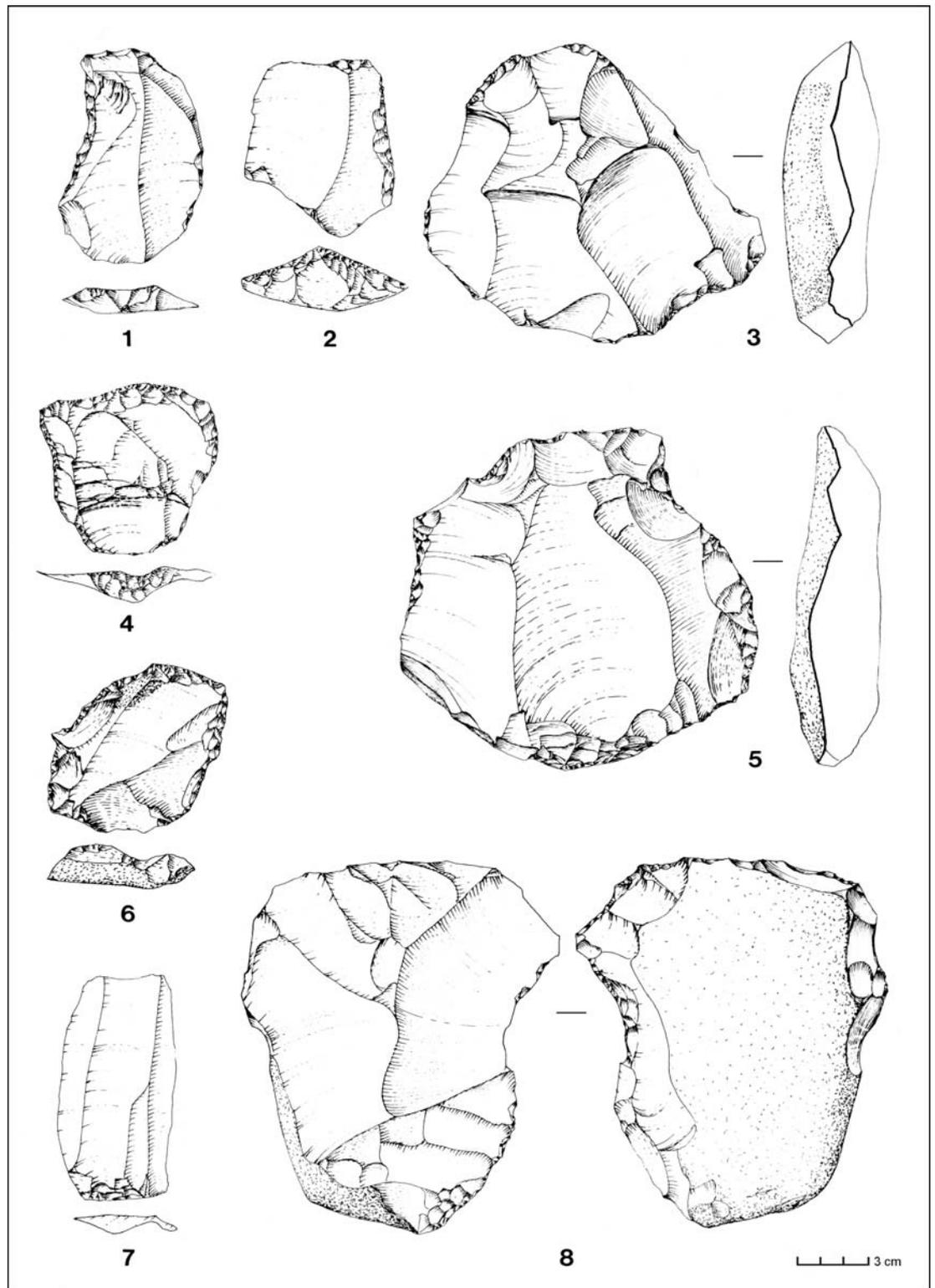


Fig. 3
 Ongar. Middle Palaeolithic, Levalloisian Mousterian assemblage of A. R. Khan collection.
 1–2 side scrapers;
 3. 5. 8 Levallois cores;
 4. 6 transverse scrapers; 7 Levallois wide blade (drawings by P. Biagi, inking by G. Almerigogna)

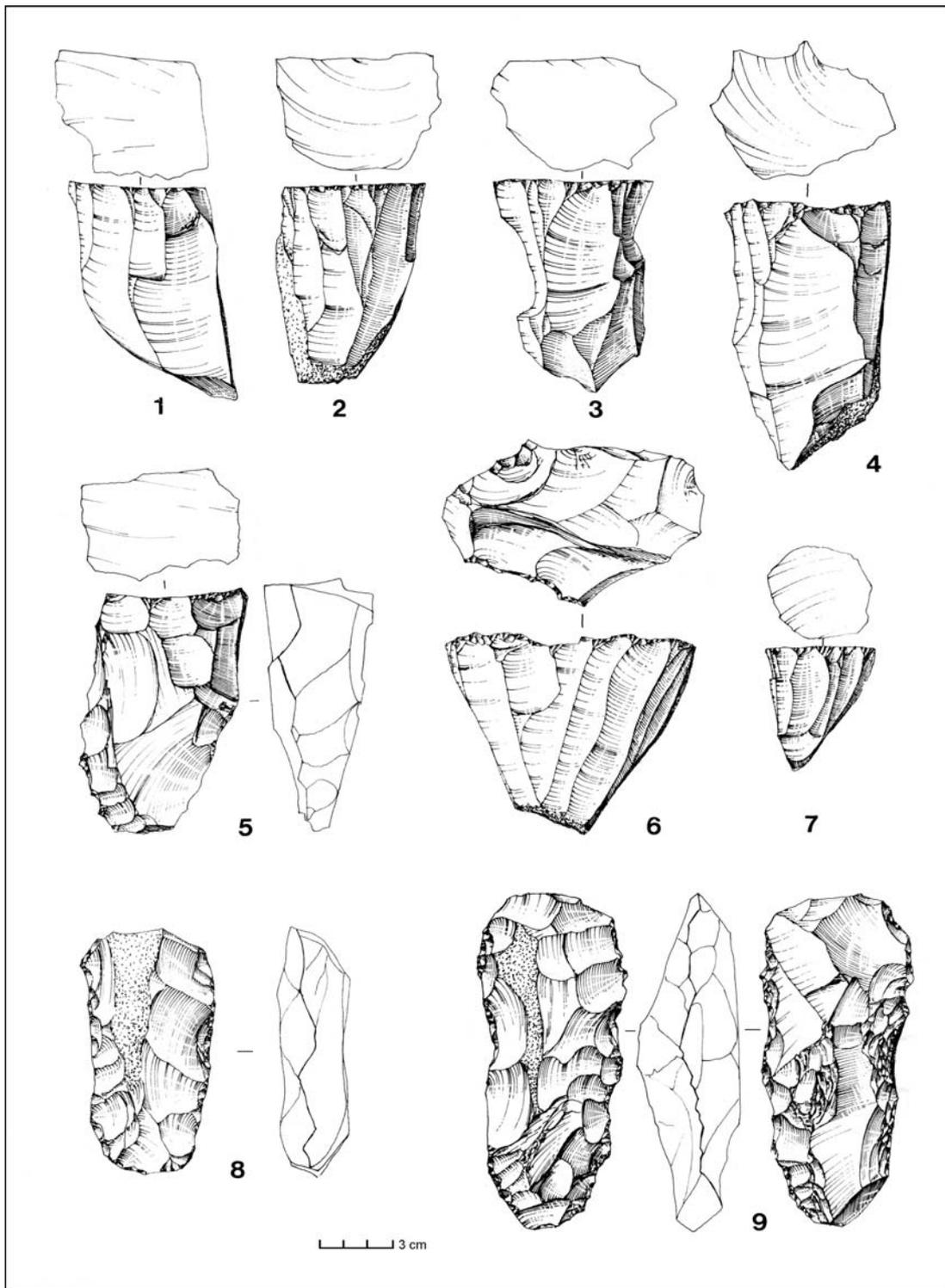


Fig. 4
 Ongar. Late Palaeolithic. 1–5 subpyramidal cores; 6–7 subconical cores; 8–9 bifacial picks (drawings by P. Biagi, inking by G. Almerigogna)

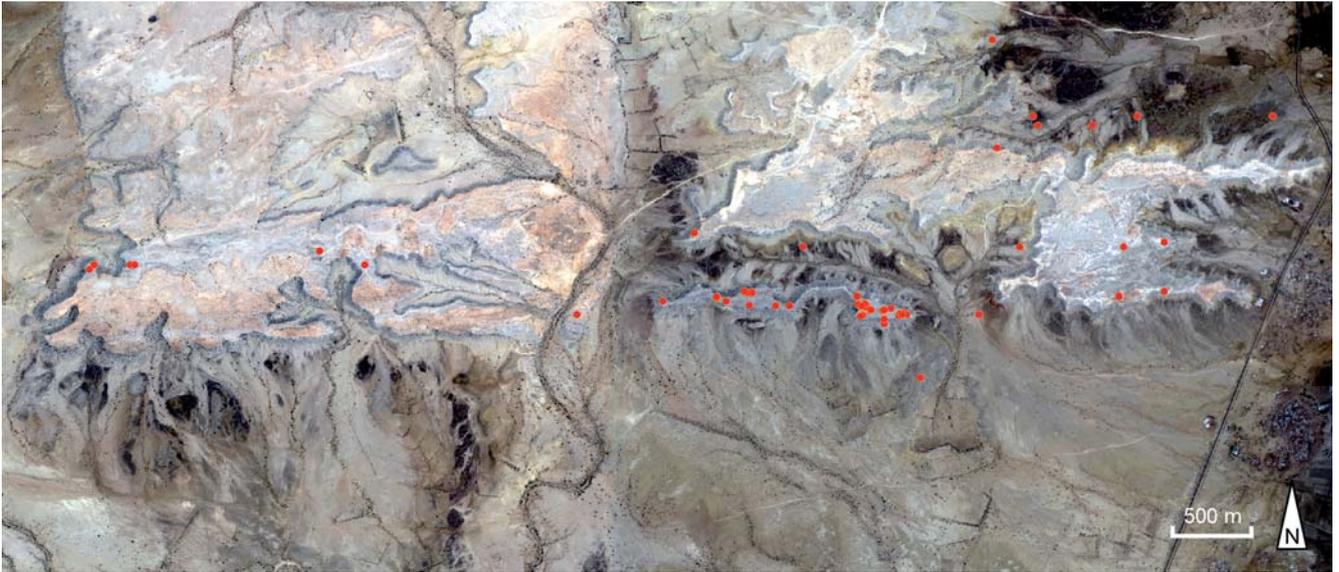


Fig. 5 Distribution map of the Palaeolithic sites and isolated tools (dots) at Ongar, to the east, and Daphro, to the west. The pinkish areas have already been destroyed by limestone quarrying (map by C. Franco)

erbed, some 2 km west of Sindh University Campus, and attributed to the Middle Palaeolithic,²² although they do not show any specific typological trait to justify this attribution.

Discussion

The limestone terraces of Ongar and Daphro are one of the most important Palaeolithic areas in Sindh, although some of the discoveries made at the beginning of the 1970s are controversial. According to A. R. Khan²³ the Palaeolithic assemblages of Ongar can be attributed to five distinct complexes, whose time-span covers a long period between the beginning of the Early Palaeolithic and the beginning of the Late (Upper) Palaeolithic.²⁴ The oldest tools he collected are covered with a white, thick patina. According to the above author they were recovered, almost exclusively, along the eastern and southern slope debris that surround the Ongar hill.

Allchin et al.²⁵ describe quite a different situation. They pointed out the uniqueness of the horseshoe hill, on the top of which they noticed “clusters of Lower-, Middle- and Upper- Palaeolithic artefacts” and that “certain areas appeared to be working floors of specific periods, but these tended to overlap, making it difficult to define them clearly”.

²² Salim 2002, fig. 8–10.

²³ Khan 1979b, 80.

²⁴ In this paper the terms Late and Upper Palaeolithic are used as synonymous. This is why both terms are always reported following the European (Late) and Indian (Upper) terminology.

²⁵ Allchin et al. 1978, 296.

The surveys carried out in 2005–2008 showed that the archaeological area extended westwards well beyond the horseshoe-shaped hill,²⁶ which has been almost totally destroyed by industrial limestone quarrying during the last fifty years (**Fig. 5**). Very small portions of the flint surface that originally covered the mesas were noticed on the hills of Ongar and Daphro. Nevertheless only one narrow hill, which stretches between the above-mentioned two, in an east-west direction (**Fig. 6,top**), is still intact. On its surface a few Palaeolithic chipping floors (**Fig. 6,bottom**), isolated artefacts of different Palaeolithic periods, as well as traces of Indus flint mining were recorded (**Fig. 7**).

Only one of the twelve areas mapped by Professor A. R. Khan²⁷ yielded Middle Palaeolithic artefacts. It was rediscovered in January 2006, when a few typical Levalloisian tools were collected from the top of a sequence exactly in the same stratigraphic position described by the above author.²⁸

Most of the Palaeolithic tools recovered during the 2005–2008 surveys are weathered and show a strong brown patina (7.5YR4/6). They can be attributed to three main periods: 1) the Acheulian, with assemblages represented by bifacial tools (handaxes) and large flakes with a flat platform, 2) the Middle Palaeolithic, characterised by a few typical Levallois cores, flakes and a few blades with “chapeau de gendarme”, faceted platform and 3) the beginning of the Late (Upper) Palaeolithic, represented by subpyramidal and subconical cores

²⁶ Biagi 2006a; 2006b.

²⁷ Khan 1979b.

²⁸ Khan 1979b, 81.

with blade-like flake detachments and a few bifacial and unifacial picks.²⁹

The Karachi Gulf

The territory that surrounds Karachi yielded a few assemblages and isolated tools, which can be attributed to the Middle and Late (Upper) Palaeolithic periods. They were recovered mainly during the geological investigations conducted by A. R. Khan³⁰ in the early 1970s. Unfortunately this author published only very few of these finds. The most important discoveries were made on the Mulri Hills, at Deh Konkar and Rehri.

The Mulri Hills

The Mulri Hills rise just south of Karachi University Campus (Fig. 8). They consist of variegated beds, partly developed on sedimentary bedrocks of the Miocene Upper Gaj formation.³¹ Their weathered, flat surface, some 220–230 feet high, was originally covered with a red clayey soil. It was later eroded and at present it is preserved only in a few pockets still visible along the fringes of the hills. The hills yielded many Mesolithic sites and flint scatters,³² distributed along the faults that cross them, often close to freshwater springs.³³ One site, along the northern fringes, Mulri Hills 3 (MH3), yielded three typical Levallois flakes covered with a thick white patina, one of which has a faceted platform (Fig. 9,1–3).

Another important assemblage comes from site MH16, in the central part of the hills, facing southwards.³⁴ It is composed of subconical and cylindrical bladelet cores, lateral and transverse, simple and on retouch burins, narrow backed bladelets and thick, arched points obtained with an abrupt, deep, bipolar, right or left retouch (Fig. 10). This assemblage, or at least most of it, seems to be attributable to the end of the Late (Upper) Palaeolithic, on the basis of the typological characteristics of the tools.³⁵

Deh Konkar

A “chert point was found on the edge of a gravel terrace near field No. 194 at Deh Konkar, near Goth



Janab. It is a very fine specimen of later phase of Levalloisian technique. It is triangular in shape and has a faceted butt . . . It is white with patination”. It is a typical Levallois point with a faceted platform, obtained with a simple, deep, direct, bilateral retouch (Fig. 9,5). The same author mentions “some end-scrapers . . . which . . . were found in Konkar area on higher terraces at the foot of hills”.³⁶

Fig. 6
Ongar. The hill that stretches between Ongar and Daphro (top); Early Palaeolithic flint artefacts *in situ* on the surface of the same hill, in February 2005 (bottom) (photographs by P. Biagi)

Rehri

The village of Rehri is located some 15 miles east of Karachi. Towards the south it faces Kadiro Creek, the banks of which are covered with a thick mangrove vegetation of *Avicennia marina* bushes. A few prehistoric sites were discovered at Rehri. Rehri 4a, which is to be attributed to the Late (Upper) Pa-

²⁹ Biagi 2006b; Biagi/Franco 2008.

³⁰ Khan 1979a.

³¹ Zaidi et al. 1999.

³² Biagi 2003–2004.

³³ A. R. Khan pers. comm. 2001.

³⁴ Biagi 2003–2004, fig. 7.

³⁵ All the archaeological sites discovered by Professor A. R. Khan on the top of the Mulri Hills were destroyed in the 1980s during the urban development of the city of Karachi.

³⁶ Khan 1979a, 13.

Fig. 7
Distribution map of the Indus mines and isolated finds (dots) at Ongar, to the east, Daphro, to the west and Bekhain, to the south-west. The pinkish areas have already been destroyed by limestone quarrying (map by C. Franco)

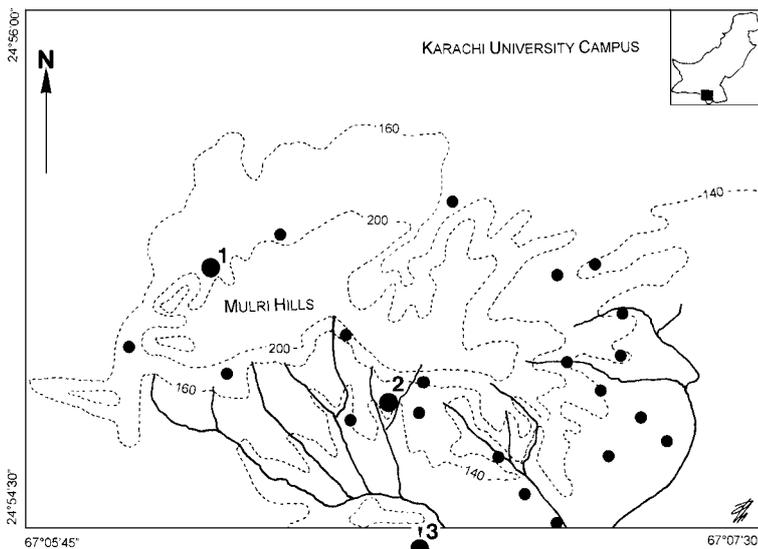
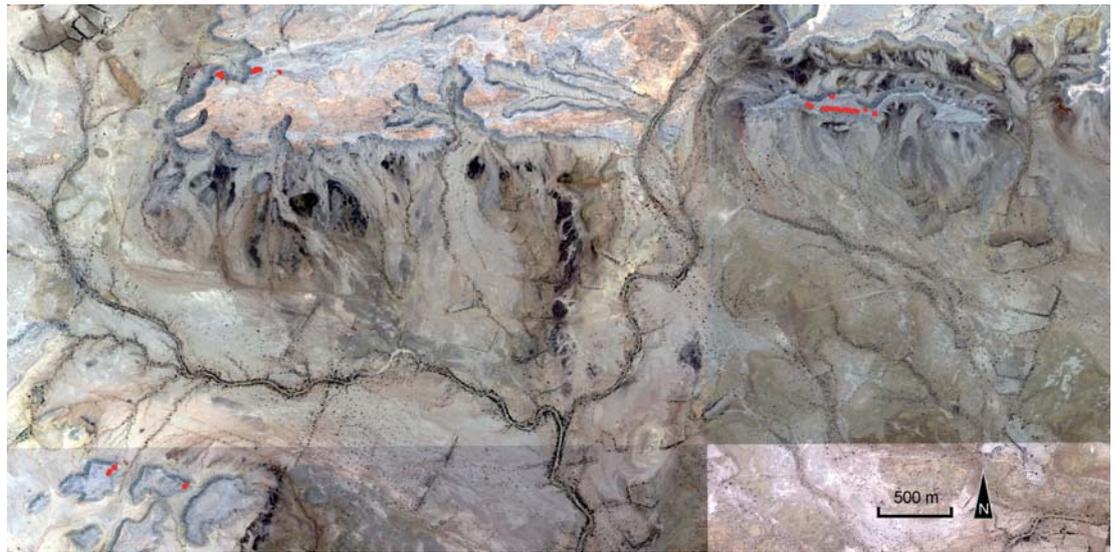


Fig. 8
Mulri Hills (Karachi): location of sites MH3 (1), MH16 (2), MH22 (3), and other Mesolithic sites (unnumbered small dots) (contour lines in feet) (drawing by P. Biagi)

laeolithic, is located inside a depression at the eastern edge of the present-day village. Here Professor A. R. Khan³⁷ recovered a small assemblage of white-patinated flint tools. The artefacts were collected partly from the surface, partly from the clayey deposit that covers the area. The site also yielded very few, small, unidentifiable fragments of mammal bones and wild ox teeth.³⁸ The Rehri 4a assemblage is represented by 1 simple side burin

³⁷ A. R. Khan pers. comm. 2002.

³⁸ One of the teeth was sent to Groningen radiocarbon laboratory for ¹⁴C dating. Unfortunately it was too poor in collagen to be processed (van der Plicht pers. comm. 2003)

and 8 arched backed points on blade-like flakes,³⁹ obtained with an abrupt, steep, direct, unilateral re-touch and a few unretouched flakelets (Fig. 11). A similar industry comes from MH22 in the Mulri Hills (Fig. 12,1-13) and Mendiari (Fig. 12,14-19).

A. R. Khan⁴⁰ mentions another Palaeolithic find, some 2 miles northwest of Rehri, more precisely “one isolated panshaped point ... that ... was found in the gravel near the old cliff south of Landhi”. It is a typical, unretouched Levallois point on a flake with a faceted platform (Fig. 9,4).

Discussion

The region that surrounds Karachi Gulf shows that “evidence about the Upper Palaeolithic age except for its latest phase, is however, very scanty. Several higher terraces belonging to Pleistocene period are present in the area. But they have been eroded so deeply that the entire loose material and soil from their top has been removed”.⁴¹

The Mulri Hills 3 (MH3) assemblage consists of a few typical Levallois artefacts. Other Levallois finds come from Deh Konkar, Landhi and Laki Range. These tools are very important, because their presence, and the debated, reported discovery of a “Neanderthal skull” (?) in a cave in the Kirthar

³⁹ In his description, A. R. Khan (1979a: 13) wrote: “The most characteristic tool of the late Upper Palaeolithic period is a knife like tool, with strongly curved and steeply blunted back and very sharp and more or less straight cutting edge. It is a beautiful tool derived from the Chatelperronian tradition. It is a little less than two inches long”.

⁴⁰ Khan 1979a, 13.

⁴¹ Khan 1979a, 14.

Range in Dadu District,⁴² might help us define the south-easternmost limit reached by the Neanderthals dispersal.⁴³

Of particular importance are the assemblages from Rehri 4a, MH16, MH22 and Mendiari. The typological characteristics of some unique tools from the first of these sites, more precisely a class of backed-retouched arched points on blade-like-flake, might attribute it to an early moment (?) in the development of the Late (Upper) Palaeolithic, a period that is unknown in the area.

MH16 yielded an assemblage with a few side and transversal burins (**Fig. 10,1–8**), narrow backed bladelets and points (**Fig. 10,10–20**), thick arched points obtained with a backed, bipolar retouch (**Fig. 10,21–28**), and very few geometrics and microburins, which strongly recalls the Blade and Burin Industries of peninsular India,⁴⁴ Renigunta in particular,⁴⁵ especially as regards the above-mentioned types of tools. This industry is absolutely different from all the other Mulri Hills assemblages, which have been attributed to the Mesolithic on the basis of the presence of characteristic geometric armatures (lunates, triangles and trapezes) of different typological classes and dimensions, obtained with the microburin technique.⁴⁶

The Palaeolithic assemblages of Upper Sindh

The Rohri Hills

The Rohri Hills are a limestone plateau, deeply dissected by erosion, some 40 km long and 16 wide that gently dips towards the southeast. They stretch between Sukkur and Rohri, in the north, and the westernmost dunes of the Thar Desert, in the south and consist of stratified limestone deposits of Middle Eocene/Early Oligocene period, which belong to the Brahui formation.⁴⁷ W. R. Dickinson, in 1867, and J. Burgess, in 1886, were the first to collect Palaeolithic tools near Sukkur.⁴⁸ Further discoveries

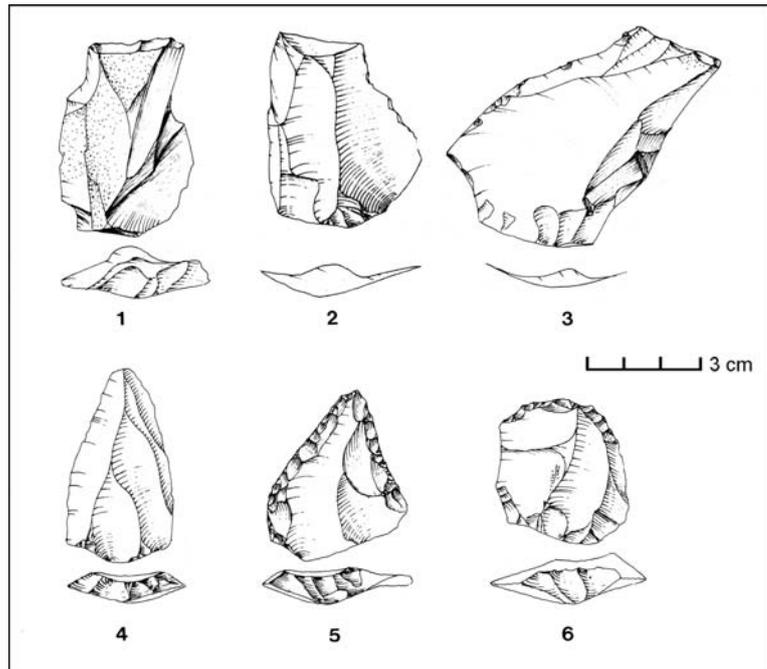


Fig. 9
Karachi area. 1–3
Levallois flakes from
Mulri Hills 3 (MH3);
4 Levallois point from
Landhi; 5 Levallois
point from Deh Konkar;
6 transverse scraper
from Laki (6) (drawings
by P. Biagi, inking by
G. Almerigogna)

were later made by De Terra and Paterson,⁴⁹ B. Allchin,⁵⁰ and Biagi and Cremaschi.⁵¹

De Terra and Paterson⁵² described “two groups of sites, one on the limestone hill west-northwest of Sukkur and the other on the opposite Indus bank 1½ miles southeast of Rohri. In both localities the workshops lie on the surface of the flint-bearing Eocene limestone, which rises 130 to 160 feet above the stream bed”. The drawings they published in their seminal volume show that the hills west-northwest of Sukkur yielded Acheulian handaxes⁵³ and Late (Upper) Palaeolithic assemblages,⁵⁴ while the two Rohri sites they mention are most probably Indus Civilisation flint workshops. All the sites discovered on the top of these hills were destroyed before the beginning of the 1970s by industrial limestone quarrying.⁵⁵

The discoveries made in the 1970s

In 1975–1976, the Cambridge University Archaeological Expedition carried out a brief survey, mainly centred along the northern edge of the hills, around

⁴² Ashfaque 2004, 153, reports “the person who possesses this anthropological trophy has kept it in a bank vault at Karachi... His claim of having the Neanderthal skull was confirmed independently from another gentleman, who is a retired school teacher, who actually first found it in a cave in the hills of his home district of Dadu, along with many other curios and bits of animal fossils”.

⁴³ Biagi 2007.

⁴⁴ Murty 1979.

⁴⁵ Murty 1968.

⁴⁶ Biagi 2003–2004.

⁴⁷ Blandford 1880.

⁴⁸ Cook/Martingell 1994; Biagi 1997.

⁴⁹ De Terra/Paterson 1939.

⁵⁰ Allchin 1976; Allchin et al. 1978.

⁵¹ Biagi/Cremaschi 1988; 1990.

⁵² De Terra/Paterson 1939, 331.

⁵³ De Terra/Paterson 1939, pl. 48.

⁵⁴ De Terra/Paterson 1939, pl. 55.

⁵⁵ Biagi 2006d.

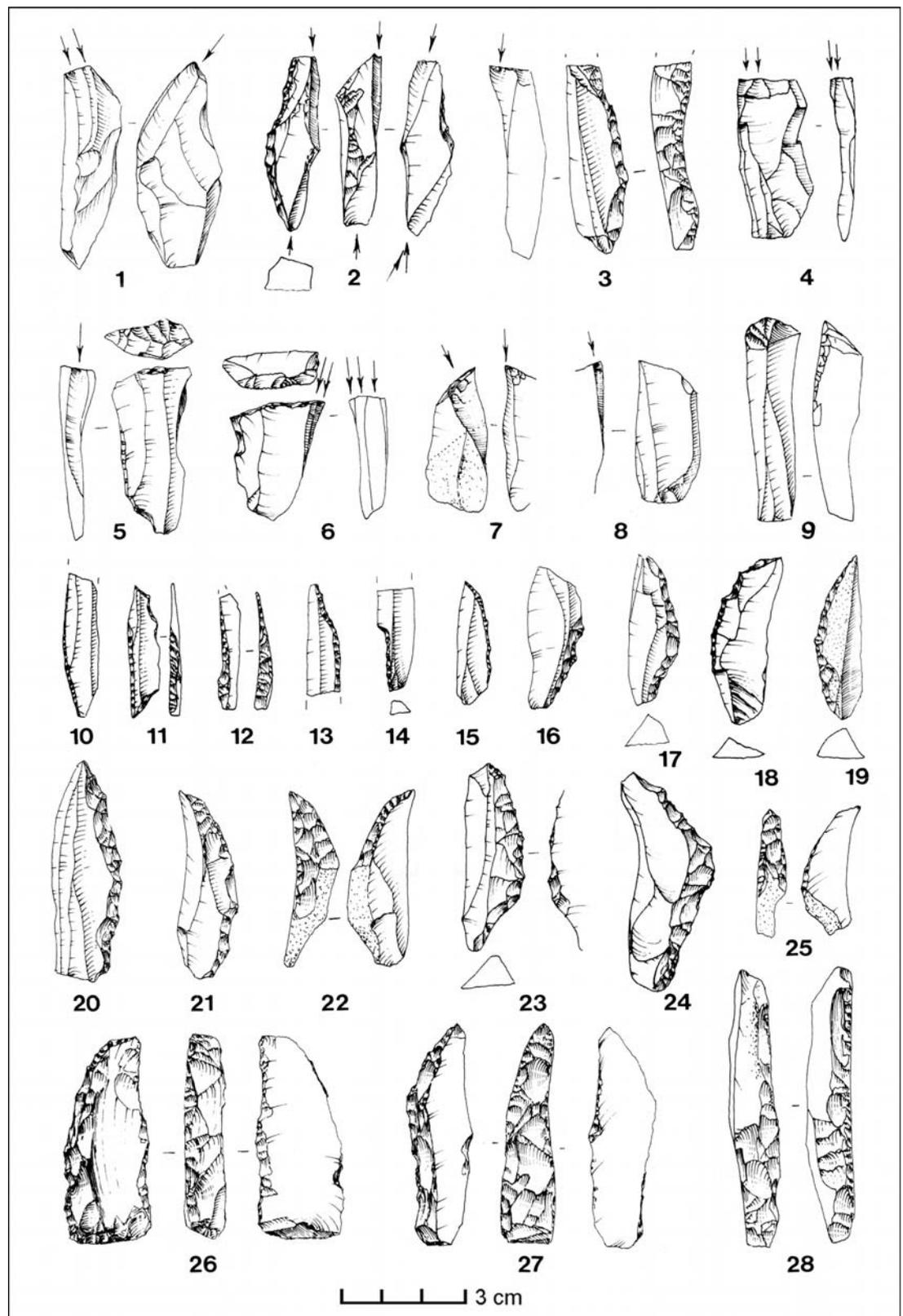


Fig. 10
 Mulri Hills 16 (MH16).
 1–8 burins; 9 long end
 scraper; 10–14 backed
 bladelets; 15–20
 backed points; 21–28
 bipolar backed points
 and blades (drawings
 by P. Biagi, inking by
 G. Almerigogna)

the town of Rohri. According to B. Allchin,⁵⁶ Middle and Late Palaeolithic flint working floors were discovered in this region alongside many others, which were attributed to the Indus Civilisation. Further discoveries were made by the same expedition at Chancha Baluch, 4 km southwest of Kot Diji, on “an old silt terrace, at a slightly higher level than the plain itself, near a small outlying limestone hill with some exposed chert on its summit, a few hundred metres south of the Mir Wah Canal”.⁵⁷ The precise location of the site is nevertheless unknown and the surveys carried out in the 1990s failed identifying the locality of Chancha Baluch, which is not mentioned in the Survey of Pakistan regional sheet. From this area, the above authors report the presence of Middle and Late (Upper) Palaeolithic working floors.

Another important site is Nawab Punjabi,⁵⁸ locally called Unnar or Unar (Fig. 13). It is on an isolated hill, southwest of Kot Diji. On its top the above authors discovered Middle and Late Palaeolithic workshops as well as Indus Civilisation flint working floors. This site, which was totally destroyed by industrial quarrying during the last thirty years, is very important because of 1) the presence of *in situ* pockets of a Pleistocene red soil, 2) the recovery of bifacial tools/handaxes among which are a few specimens attributable to Series 1 of the sequence proposed by Negrino and Kazi⁵⁹ (Fig. 14), and 3) Indus Civilisation chipping floors with assemblages significantly different from those from the workshops of Shadee Shaheed and Rohri.⁶⁰

The discoveries made in the 1980s

The brief survey carried out in February 1986 was aimed at the recovery of Palaeolithic and Indus Civilisation flint sites, and the definition of their chrono-stratigraphy.⁶¹ During that season two geological sequences were discovered at Unnar, in the south-western part of the hills, and Shah Sakar Ganj, along their north-western edge. Pockets of Pleistocene red soil still *in situ*, which unfortunately did not yield any Palaeolithic tool, were described from both sites.⁶² Thanks to the discoveries made during this survey, and the SEM analysis of the surface and section of a few flint artefacts of different ages, it was possible to propose a first preliminary sequence of the environmental changes that took

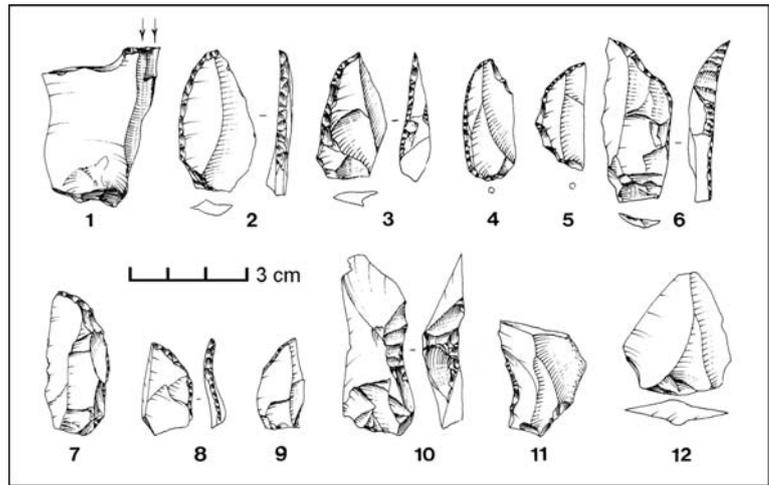


Fig. 11
Rehri 4a. 1 burin; 2–9 arched backed points; 10–11 retouched flakelets; 12 unretouched flakelet (drawings by P. Biagi, inking by G. Almerigogna)

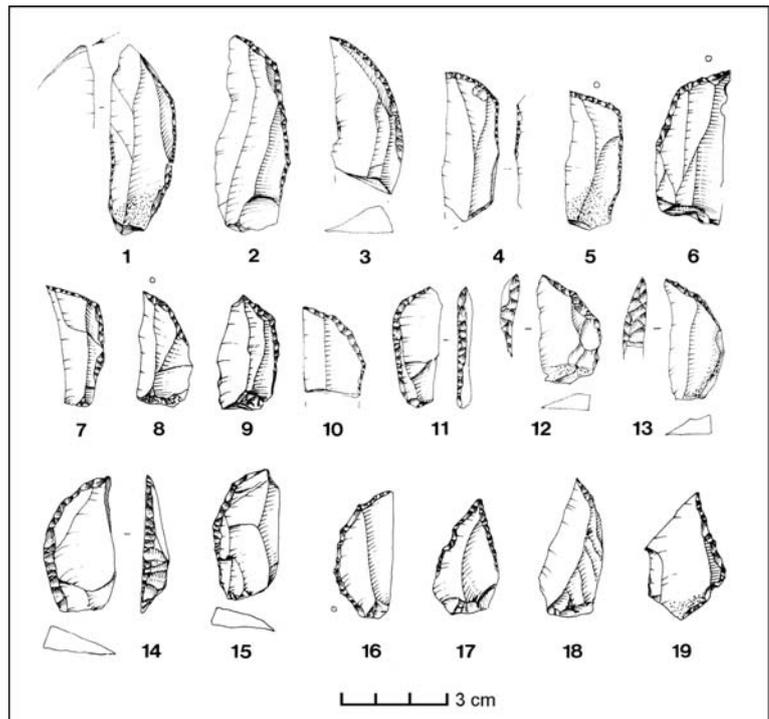


Fig. 12
1–13 Mulri Hills 22 (MH22), arched backed points; 14–16; 18 Mendiari, arched backed points; 17,19 Mendiari, straight backed points (drawings by P. Biagi, inking by G. Almerigogna)

⁵⁶ Allchin 1976, 479.

⁵⁷ Allchin et al. 1978, 287.

⁵⁸ Allchin 1976, 483; Allchin et al. 1978, 288.

⁵⁹ Negrino/Kazi 1996.

⁶⁰ Negrino/Starnini 1995; Biagi et al. 1997.

⁶¹ Biagi/Cremschi 1988; Biagi/Cremschi 1990; Biagi/Cremschi 1991.

⁶² Biagi/Cremschi 1988, 423.

Period	Landscape development	Climate	Archaeological culture
Early/Middle Pleistocene	Weathering of the top of the plateau	Humid and warm	Acheulian
	Dissection of the plateau	Humid	(?)
Upper Pleistocene	Sand dunes	Arid	Acheulian (?), Middle/Late Palaeolithic
Holocene	Fluvial sedimentation	More humid	
	Wind erosion at the top of the plateau	Arid	Harappan

Tab. 1
Rohri Hills. Simplified scheme of the environmental history and cultural sequence (after Biagi/Cremschi 1988, 431).



Fig. 13
Unnar (otherwise called Nawab Panjabi). The Palaeolithic and Indus Civilisation site already almost totally destroyed by limestone quarrying, in 1997 (photographs by P. Biagi)

place in the area between the Early/Middle Pleistocene and the Holocene, and to relate the Early Palaeolithic assemblages to the development of the above-mentioned red palaeosol (Table 1).⁶³

The discoveries made by the “Joint Rohri Hills Project”

The hills were systematically surveyed between 1993 and 2000, during a research programme (“Joint Rohri Hills Project”) carried out by Ca’ Foscari (Venice, Italy) and Shah Abdul Latif Universities (Khairpur, Pakistan). Hundreds of Palaeolithic and Indus flint scatters, workshops and mines were discovered, a few of which were partly excavated.⁶⁴ Concentrations of Acheulian handaxe workshops were recorded in the Shadee Shaheed Hills, south of the tomb of Ziarāt Pir Shabān, and along the northern terraces, between Rohri and Aror. This latter area was visited in February 2001,⁶⁵ when lime-

⁶³ Biagi/Cremschi 1988, 431.

⁶⁴ Biagi et al. 1997.

⁶⁵ With Professors M. M. Kazi and G. M. Veesar of the Department of Archaeology, Shah Abdul Latif University, Khairpur.

stone quarrying had already almost completely destroyed most of the Acheulian sites of the so-called “Bypass area”.⁶⁶

Hundreds of Late (Upper) Palaeolithic flint scatters and workshops were recorded along the western terraces of the central region of the hills, east of the Shrine of Shadee Shaheed.⁶⁷ The surveys also yielded a few isolated Early Palaeolithic tools, on the surface of the mesas (Fig. 15). Late (Upper) Palaeolithic workshops have been reported also from the Thar Desert Veesar Valley, although none of the tools illustrated from this region can be attributed to this period with certainty, on the basis of their typological characteristics.⁶⁸

Three Palaeolithic workshops were excavated between 1995 and 2000 south of Ziarāt Pir Shabān. One of these (ZPS1), was attributed to a final stage in the development of the Acheulian Culture,⁶⁹ and the other two, ZPS2⁷⁰ and ZPS4,⁷¹ to the beginning of the Late (Upper) Palaeolithic. During those years also the Early Palaeolithic site 797bis was systematically recorded.⁷²

M. M. Kazi discovered the Acheulian workshop ZPS1 in August 1994, some 750 m south-east of the above-mentioned tomb, at 27°27'28" N – 68°52'52" E.⁷³ The site covered some 50 m², 12 of which were excavated (Fig. 16). It yielded 29,047 artefacts characterised by a brown (10YR 4/3) patina, amongst which are 18 handaxes (17 rough-outs and 1 finished, broken specimen), 2 side scrapers, 27 cores and 13 flint hammerstones. The tools were collected mainly from the surface, although a few were embedded, both horizontally and vertically, in a silty soil, some 10 cm thick, rich in limestone cobbles.

⁶⁶ Shaikh et al. 2002–2003, 30.

⁶⁷ Biagi et al. 1998–2000, fig. 1.

⁶⁸ Shaikh et al. 2002–2003, 35.

⁶⁹ Biagi et al. 1996.

⁷⁰ Biagi et al. 1998–2000.

⁷¹ Biagi/Shaiikh 1998–1999.

⁷² Negrino/Kazi 1996.

⁷³ Biagi et al. 1996, 49.

The Late (Upper) Palaeolithic workshops ZPS2 and ZPS4 were excavated in 1996 and 2000, respectively. The first lies some 2 kms south-east of the above tomb (27°27'03" N – 68°53'03" E),⁷⁴ while the second a few hundred metres to the south-west of ZPS1 (27°27'26" N – 68°52'49" E).

ZPS2 was located “at the northern edge of a sand spot 7.50 m long and 3.75 m wide, most probably caused by the removal of the flint nodules and the limestone pebbles which lay on the surface of the terrace at the time the site was settled”.⁷⁵ The excavation was carried out on a surface of 13 m². It yielded 4794 flint artefacts, with a brown (10YR 4/3), slightly translucent patina. The assemblage was mainly collected from the surface, partly contained in a thin, aeolian sand deposit, which filled also the oval-shaped patch. It is composed of 57 blade-like flake cores, mainly of short, subconical shape, 13 pre-cores, 3 crested blades and 5 hammerstones obtained from small flint nodules. The unretouched tools consist mainly of flakes (37.52%), and blade-like flakes and blades (23.84% and 13.04% respectively).

The Late (Upper) Palaeolithic workshop ZPS4⁷⁶ was selected for excavation because of the presence of bifacial picks on its surface. It was located at the south-western edge of an oval sand patch, measuring some 4 × 2.5 m (Fig. 17–18). The excavation was carried out over a strip 8 m long and 2 m wide. It yielded 7505 flint artefacts, among which are 132 cores with blade-like flake detachments, mainly of a short, subconical type, 10 pre-cores, 12 crested blades and flakes, 16 bifacial and unifacial picks and 16 flint hammerstones (Fig. 19). The sedimentary characteristics of the site, and the patina of the artefacts, are identical to those of ZPS2 (see also Table 2).

Site 797bis was excavated in 1997 “close to the western edge of a wide plateau where the Harappan mines and workshops are present, not far from Site 862 and 12 m northeast of Site 797”.⁷⁷ The site, which yielded 743 artefacts, covered a surface of 80 m². It is supposed to be the oldest site so far recovered almost *in situ* in the Rohri Hills.

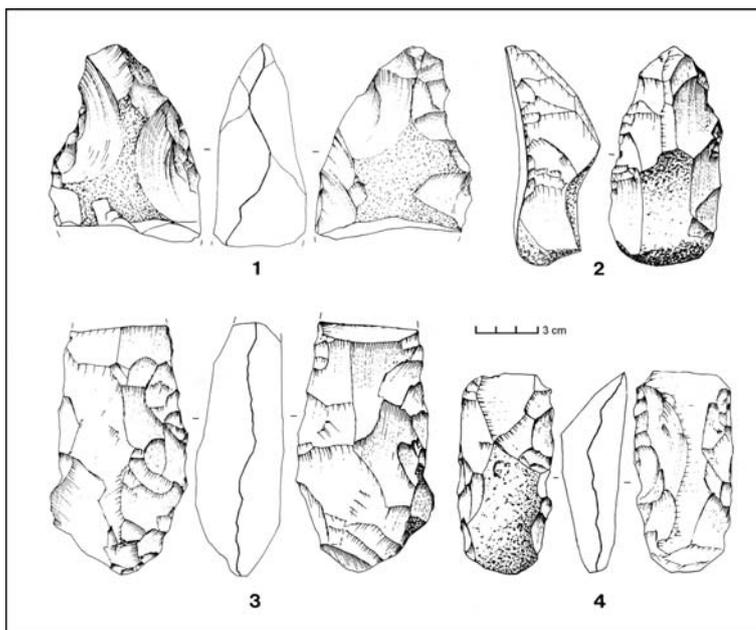


Fig. 14 Acheulian tools from Unnar (Nawab Panjabi) in the stores of Shah Abdul Latif University, Khairpur. 1, 3 hand-daxes; 2 unifacial pick; 4 cleaver (drawings by F. Negrino, inking by G. Almerigogna)

The tools, which show brown-orange and black, bright surfaces, caused by aeolisation, consist only of complete and broken flakes and flakelets, obtained with a Levallois-like debitage (Fig. 20). The above authors attributed this site to the Early Palaeolithic, most probably to a period between the Middle and the Late Pleistocene.

Discussion

Negrino and Kazi have recently proposed a first chrono-typological sequence of the Palaeolithic industries of the Rohri Hills⁷⁸ on the basis of the results obtained from the study of the assemblages recovered during the surveys and excavations carried out in the 1980s and 1990s. These authors subdivided them into six main series, the first three of which are attributed to the Early Palaeolithic, the following two to the Middle Palaeolithic, and the last to the Late (Upper) Palaeolithic.

Site name/artefacts	unretouched artefacts	cores	pre-cores	crested blades/flakes	flint hammerstones	bifacial picks	excavated area (mq)
ZPS2	4794	57	13	3	5	0	13
ZPS4	7505	132	10	12	16	16	16

Tab. 2 Rohri Hills. Main characteristics of the flint artefacts excavated from the Late (Upper) Palaeolithic sites ZPS2 and ZPS4.

⁷⁴ Biagi et al. 1998–2000, 111.

⁷⁵ Biagi et al. 1998–2000, 112.

⁷⁶ Biagi/Shaiikh 1998–1999, 74.

⁷⁷ Negrino/Kazi 1996, 18.

⁷⁸ Negrino/Kazi 1996.

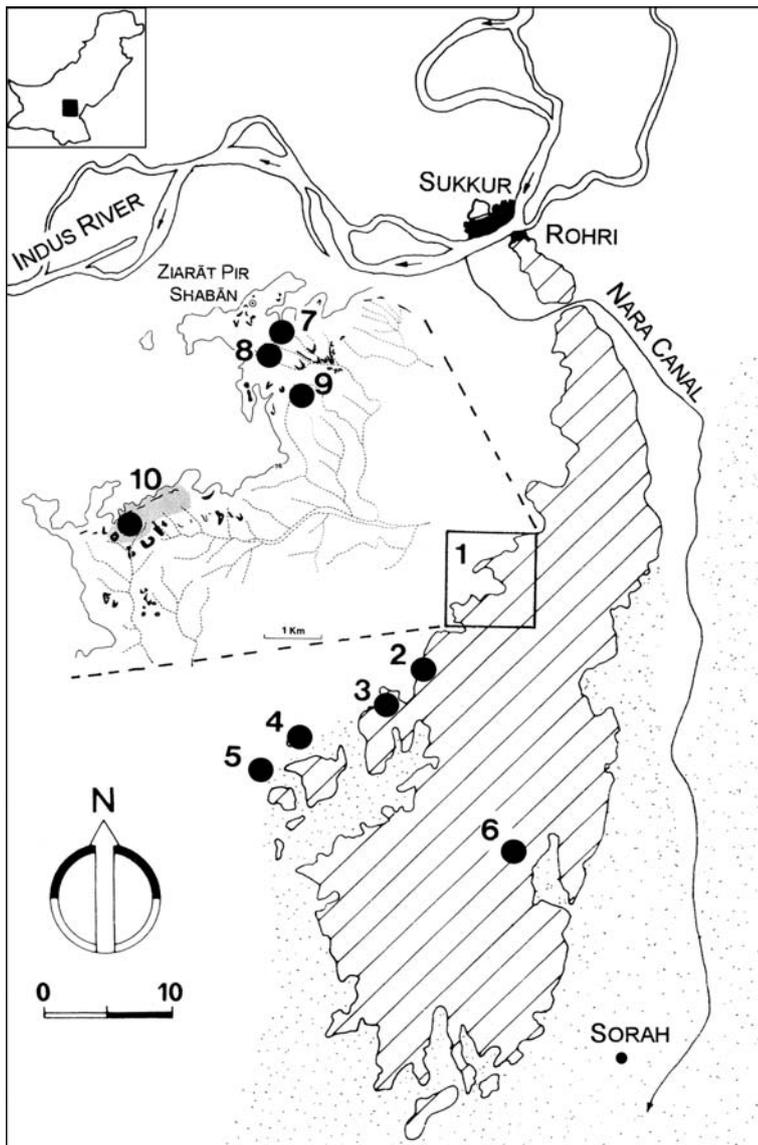


Fig. 15
Rohri Hills: distribution map of the main Palaeolithic sites. 1 Shadee Shaheed Hills; 2 Adam Sultan; 3 Shiraz; 4 Kot Diji; 5 Unnar; 6 Mutton Jugoth; 7 ZPS1; 8 ZPS2 and ZPS4; 9 Site 1288; 10 Site 797bis. Irregular black spots indicate Indus flint mines (scale in km) (after Negrino/Kazi 1996, fig. 1–2, with modifications)

1) The first two Series (1 and 2), which are represented only by isolated tools collected from the surface, should be referred to the Middle Pleistocene. They were originally contained in the red soil still present in some areas of the hill-tops.⁷⁹ The artefacts of Series 1 show a very thick patina of yellow-brown to red-black colour, those of Series 2, a thick patina and bright surfaces of brown-orange to red-black colour. Some of the tools from Unnar (Nawab Panjabi), and, perhaps, the so-called Bypass area, between Rohri and Aror, seem to be attributable to this second Series.

⁷⁹ Biagi/Cremaschi 1990, 423.

- 2) Series 3: known only from site 797bis. As mentioned above, the flint assemblage from this site, which shows a Levallois-like debitage technique (**Fig. 20**), is most probably to be assigned to a period comprised between the Middle and the Late Pleistocene.
- 3) Series 4: represented by the Late Acheulian workshops of Ziarat Pir Shabān, Unnar,⁸⁰ the sites located at the northernmost edge of the hills, not far from Aror, and the hills of west north-west of Sukkur, west of the course of the Indus.⁸¹ These assemblages are most probably to be attributed to the beginning of the Middle Palaeolithic.
- 4) Series 5: known from very few, isolated artefacts, among which are Levallois-like flakes and one bifacial tool, “with slightly bright surfaces of light brown colour, which are more similar to those of the Late (Upper) Palaeolithic assemblages”.⁸²
- 5) Series 6: represented by hundreds of blade-like flake workshops obtained from subconical/subpyramidal cores, which are supposed to belong to the beginning of the Late (Upper) Palaeolithic. Among these are sites 1288, ZPS2 and ZPS4 and the hills west-northwest of Sukkur.⁸³

A Palaeolithic sequence for Sindh?

The discoveries made in the Rohri Hills and Ongar, and the analysis of the assemblages collected by Professor A. R. Khan around Karachi, have contributed to a preliminary assessment of the chrono-typological sequence of the Palaeolithic of Sindh that future research in the area might confirm, correct or reject. The main problems are due to the limited number of investigated areas, and the absence of multi-stratified deposits with radiometrically datable materials; in contrast, these characteristics are sometimes present in the Thar Desert sites of India⁸⁴ and other regions in the Subcontinent.⁸⁵

Only two areas, which are very rich in flint outcrops, yielded Early Palaeolithic industries: Ongar and the Rohri Hills. Nevertheless differences can be noticed between the assemblages from these two sites whose geomorphologic and sedimentary characteristics show close similarities.⁸⁶

⁸⁰ Materials at Shah Abdul Latif University Archaeological Museum, Khairpur.

⁸¹ De Terra/Paterson 1939, 331 pl. 48.

⁸² Negrino/Kazi 1996, 30–32.

⁸³ De Terra/Paterson 1939, 331 pl. 55.

⁸⁴ Misra/Rajaguru 1980; Petraglia 2001, 222.

⁸⁵ Pappu 2001.

⁸⁶ Raza/Bender 1995, 193.

Following the classification proposed by Negrino and Kazi,⁸⁷ the oldest finds belong to the Middle and Middle/Late Pleistocene. Isolated tools of this period were recovered from the surface of the Rohri Hills, mainly from the terraces east of the Shrine of Shadee Shaheed.

Acheulian bifaces and handaxes come from Ongar and the Rohri Hills, Unnar, Chancha Baluch and Bypass area included. While the implements from the Rohri Hills, which are obtained from very large flakes (i.e. those from ZPS1), are most probably to be attributed to the beginning of the Middle Palaeolithic,⁸⁸ some other finds are of a more problematic chronological attribution. For instance, the handaxes collected by A. R. Khan at Ongar⁸⁹ are mainly from cobbles (**Fig. 2**). Their surface shows a thick white or light grey (10YR7/1) patina, the same that covers the surface of the Levallois cores, flakes and blades (**Fig. 3**) recovered by the same author in the same region. In contrast cleavers, which are reported from Ongar,⁹⁰ are known with only one specimen⁹¹ from Unnar in the Rohri Hills (**Fig. 14,4**).

Many Middle Palaeolithic flake assemblages have been described from the Rohri Hills⁹² as belonging to a “long...humid phase”⁹³ that in other areas, among which is the Luni Valley, in western India, would suggest “through-flowing rivers and deposition of coarse gravels”.⁹⁴ Researches carried out by the “Joint Rohri Hills Project” in the area did not yield much evidence of this period, apart from a few isolated tools.⁹⁵

One typical Mousterian point on a Levallois flake with a faceted platform from Deh Konkar is of unique importance (**Fig. 9,5**). Tools with these characteristics have never been discovered in the Rohri Hills, from which typical Mousterian artefacts are so far unknown,⁹⁶ while they occur at Ongar. In addition, three typical, white-patinated Levallois flakes come from Mulri Hills 3 (MH3) south of Karachi University Campus. These finds might help define the south-eastern limit reached by the Levalloisian Mousterian⁹⁷ given that they are the south-easternmost artefacts of this type ever found.

Regarding the Late (Upper) Palaeolithic, both the Rohri Hills and Ongar yielded industries charac-



terised by subconical and subpyramidal cores with blade-like flake and blade detachments, which are supposed to represent the beginning of this period in the study region,⁹⁸ although the Late (Upper) Palaeolithic cores from the two above regions show strong differences (**Fig. 4; 19**). Blade-like flake flint workshops are very frequent in some parts of the Rohri Hills, even though characteristic Late (Upper) Palaeolithic implements are very rare.⁹⁹

The research carried out during the last twenty years in the area does not always seem to confirm the impression that “Middle-Palaeolithic industries persist into the Upper Palaeolithic, but the basic Middle-Palaeolithic technique of producing flakes from previously prepared cores of various kinds other than blade cores also persists, along-

Fig. 16
Rohri Hills. Late Acheulian site Ziarat Pir Shabān 1 (ZPS1) before excavation (top), and Acheulian handaxe rough-outs on the site's surface (bottom) (photographs by P. Biagi)

⁸⁷ Negrino/Kazi 1996.

⁸⁸ Negrino/Kazi 1996, 35.

⁸⁹ Khan 1979b.

⁹⁰ Allchin et al. 1978, 299.

⁹¹ Negrino/Kazi 1996, fig. 19, 1.

⁹² Allchin 1976, 485; Allchin et al. 1978, 312.

⁹³ Allchin et al. 1978, 310.

⁹⁴ Allchin/Goudie 1978, 309.

⁹⁵ Negrino/Kazi 1996, 30–32.

⁹⁶ Except for a few atypical specimens published as Protolevallois (?), mainly from Unnar; Biagi/Cremschi 1988, 429.

⁹⁷ Biagi 2007.

⁹⁸ Allchin/Allchin 1982.

⁹⁹ Negrino/Kazi 1996, fig. 24.

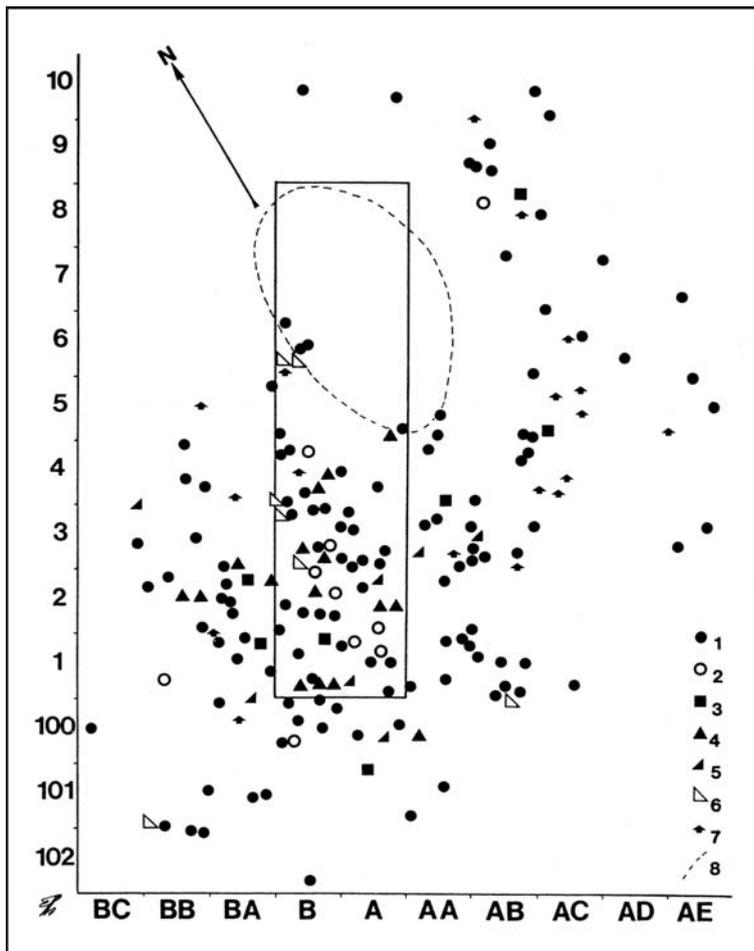


Fig. 17
Rohri Hills. Plan of the early Late (Upper) Palaeolithic workshop of Ziarāt Pir Shabān 4 (ZPS4). 1 cores; 2 pre-cores; 3 hammerstones; 4 crested blades; 5 side scrapers; 6 Early Palaeolithic tools; 7 bifacial picks; 8 limit of the sand spot (after Biagi/Shaikh 1998–1999, 70)

side that of producing parallel-sided blades”.¹⁰⁰ Although stratified sites with occupations of both these periods are so far unknown in Sindh, on the Rohri Hills noticeable technological differences can be observed between the assemblages from the poorly known Middle Palaeolithic sites, and those from the very numerous Late (Upper) Palaeolithic ones that, as mentioned above, are represented by hundreds of workshops for the production of blade-like flakes and blades.¹⁰¹ The situation at Ongar is very different. The Levalloisian Middle Palaeolithic collection made by A. R. Khan in this area includes also one wide blade core and a few unretouched wide blades (Fig. 3,7), which might suggest a technological continuity towards an early Late (Upper) Palaeolithic core reduction strategy. A similar situation is known at the late Mousterian settlement of Kuturbulak in Uzbekistan,¹⁰² and other sites in for-

¹⁰⁰ Allchin et al. 1978, 320.

¹⁰¹ Negrino/Kazi 1996, 35–36.

¹⁰² Szymczak 2000, 125.

mer Soviet Central Asia,¹⁰³ rich in Levalloisian blade products, as well as in the Altai mountains, where the changes that took place during the Middle/Late Palaeolithic transition can be followed throughout a few cave sequences.¹⁰⁴ Nevertheless, in these latter cases, the radiocarbon results show a long chronological hiatus between the human occupations of these two periods, whose “continuity” is far from being demonstrated.¹⁰⁵

Reverting to Sindh, of particular importance is the assemblage from Rehri 4a, east of Karachi, close to Kadiro Creek, from which backed-retouched, arched points on blade-like-flakelets¹⁰⁶ were collected from a deposit containing very few, and small, mammal bone fragments.¹⁰⁷ Its chronology is difficult to ascertain, although its typological characteristics suggest that it is undoubtedly older than Mulri Hills 16 (MH16), which is most probably to be attributed to the end of the Late (Upper) Palaeolithic given its high blade index, the noticeable number of burins, backed blades and bipolar arched points that neatly differentiates this assemblage from all the Mesolithic industries discovered in the area, which are rich in various types of geometric tools (lunates, triangles and trapezes with many different typological and dimensional variants site by site).¹⁰⁸

Relationships with neighbouring countries

Contrary to what is known from other regions of the Indian Subcontinent, which are very rich in Palaeolithic sites of different ages,¹⁰⁹ this period of prehistory is still poorly documented in the country under study. Nevertheless, moving towards territories adjacent to Sindh, like the dunes of the Indian Thar Desert, which are rich in Palaeolithic and Mesolithic finds, Budha Pushkar¹¹⁰ and Didwana,¹¹¹ yielded two of the most ‘complete’ Palaeolithic sequences in western Rajasthan. They both produced well-stratified Early, Middle and Late (Upper) Palaeolithic assemblages. The research carried out in this region shows that here the oldest Acheulian industries are dated to at least 400 kyr,¹¹² while older radiometric dates have been obtained from other territories of the Indian Subcontinent.¹¹³

¹⁰³ Ranov/Gupta 1979, 57–85; Борисковский 1984, fig. 66–71.

¹⁰⁴ Brantingham et al. 2001

¹⁰⁵ Derevianko et al. 2004, 222.

¹⁰⁶ Biagi 2003–2004, 210 fig. 13.

¹⁰⁷ Khan pers. comm. 2001.

¹⁰⁸ Biagi 2003–2004.

¹⁰⁹ Korisettar 2004; Williams et al. 2006.

¹¹⁰ Allchin/Goudie 1974.

¹¹¹ Misra/Rajaguru 1980, 302; Misra et al. 1982.

¹¹² Mishra 1992.

¹¹³ Petraglia 2001, 220; Gaillard 2005, 2.

In the stratigraphy of 16R dune, Didwana, the Late (Upper) Palaeolithic, characterised by assemblages with a low percentage of bladelet artefacts, makes its appearance around 25,000 BP.¹¹⁴ The scarcity of complexes of this period is “attributed to increased aridity in this region during the late Upper Palaeolithic”,¹¹⁵ although aridity is reported to have increased not earlier than 22,000 BP.¹¹⁶ This statement does not seem to contradict the presence of a very high number of Late (Upper) Palaeolithic workshops discovered in the Rohri Hills during the 1990s surveys,¹¹⁷ which are supposed to be older than 22,000 BP, when the climate still oscillated between semiarid and arid.¹¹⁸

Other important sequences are Bhimbetka, shelter III F-23, in central India,¹¹⁹ the Son and Belan Valleys in north-central India,¹²⁰ and Patne in Maharashtra,¹²¹ from which a radiocarbon date of 25,000 ± 200 BP (GrN-7200) from ostrich eggshells, was obtained from the Late (Upper) Palaeolithic occupation layer, although, according to the opinion of the author of the excavations, “the beginning of the Upper Palaeolithic at Patne may well go back to around 35000 years BP”¹²² that is in accordance with the oldest radiocarbon dates obtained from other regions of India for the beginning of the Late (Upper) Palaeolithic,¹²³ which is generally supposed to begin around 40 kyr.¹²⁴ It is important to point out that the beginning of the Late (Upper) Palaeolithic is always represented by the appearance of blade-like flakes or blade(let)s detached from subconical/subpyramidal cores as it is also the case for the Rohri Hills, Ongar and the Thar Desert sites of Rajasthan.¹²⁵ According to Misra,¹²⁶ the assemblages of this period, which in India consist mainly of blade and burin instruments, show a noticeable regional diversity in the Subcontinent, although this author does not provide us with any further information about the tool classes that characterize the different horizons into which it might be further subdivided.

Similar radiocarbon results are known for the beginning of the Late (Upper) Palaeolithic also from Afghanistan, where the earliest blade industries of



Kara Kamar rock-shelter date back to some 32,000 BP,¹²⁷ while the first occurrence of a blade technology, in northern Pakistan, has been thermoluminescence-dated to some 45–42 kyr,¹²⁸ at Riwat, site 55.¹²⁹ This chronology is widely accepted for the beginning of blade manufacturing and major variability in tools production in South Asia,¹³⁰ although no such old dates are so far known from the northern regions of central India.¹³¹ It is important to point out that Riwat 55 assemblage contains a very low number of “real” blade artefacts¹³² and no typical Late (Upper) Palaeolithic implements and cores, which makes its cultural attribution problematic. Similar observations can be made for the

Fig. 18
Rohri Hills. Late (Upper) Palaeolithic site Ziarat Pir Shabān 4 (ZSP4) during excavation (top), and subconical core and debitage flakes *in situ* on the site's surface (bottom) (photographs by P. Biagi)

¹¹⁴ Misra 1989.

¹¹⁵ Misra 1989, 13; see also Allchin/Goudie 1978, 311.

¹¹⁶ Tandon/Jain 2001, 20.

¹¹⁷ Biagi et al. 1998–2000.

¹¹⁸ Misra/Rajaguru 1986, 435.

¹¹⁹ Misra 1985.

¹²⁰ Williams et al. 2006.

¹²¹ Sali 1989.

¹²² Sali 1985, 145.

¹²³ Misra 2001, 496.

¹²⁴ Misra 1995, 13.

¹²⁵ Allchin et al. 1978.

¹²⁶ Misra 2001, 496.

¹²⁷ Davis 1978, 48.

¹²⁸ Rendell/Dennell 1987.

¹²⁹ Rendell et al. 1989, 204.

¹³⁰ James/Petraglia 2005, S12.

¹³¹ Jayaswal 1990.

¹³² Artefacts whose length/width ratio is greater than 2 : 1.

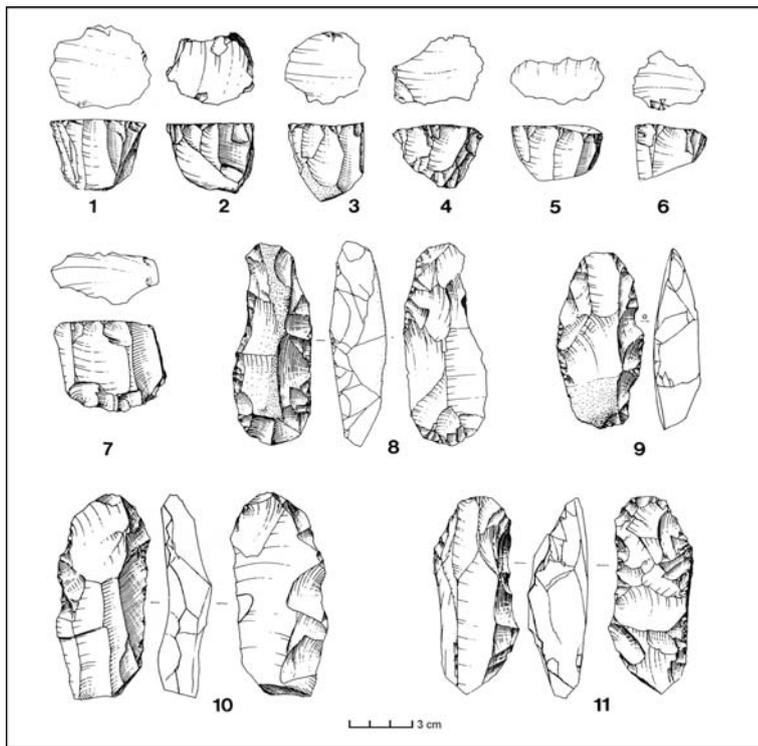


Fig. 19 Rohri Hills. Late (Upper) Palaeolithic artefacts from Ziarat Pir Shabān 4 (ZSP4). 1–7 subconical and subpyramidal cores; 8–11 picks (drawings by P. Biagi, inking by G. Almerigogna)

Late (Upper) Palaeolithic of other northern areas of Pakistan, which is known almost exclusively from Sanghao Cave.¹³³ The excavations carried out at this site yielded a unique assemblage on flakelet and bladelet, mainly from hyaline quartz,¹³⁴ which does not find any parallel with the Sindh industries discussed in this paper. Other Late (Upper) Palaeolithic sites in this area are the painted caves discovered by F. D. Kakar¹³⁵ in the Zhob and Musakhel districts of Balochistan. Painted caves and rock-shelters are also known from the Bugti Balochi mountainous tribal area, where the French Palaeontological Mission, directed by J-L. Welcomme, in 2002–2003 collected a few blades, which are still unpublished, most probably attributable to the Late (Upper) Palaeolithic.¹³⁶ Nevertheless most of Balochistan and the Makran coast are still to be accurately surveyed in search for Pleistocene sites, as they were fifty years ago.¹³⁷

Palaeolithic assemblages come from several sites in the northern provinces of the Indian Subcontinent,¹³⁸ among which are those attributed to

¹³³ Dani 1964; Ranere 1982.

¹³⁴ Ranere 1982; Salim 1986; Tusa 1987–1988.

¹³⁵ Kakar 2000.

¹³⁶ Welcomme pers. comm. 2003.

¹³⁷ Caton-Thompson 1954, 217; de Cardi 1983.

¹³⁸ De Terra/Paterson 1939; Rendell et al. 1989; Allchin 1995; Chauhan 2005; Micheli 2006.

the Soan Culture,¹³⁹ an aspect unknown in Sindh.¹⁴⁰ It is characterised by a great variety of tools on pebbles and large flakes, whose chronology is still largely debated,¹⁴¹ although an absolute dating between 400 and 200 kyr seems to be widely accepted.¹⁴² Apart from this aspect, bifacial, Acheulian tools are recorded also from the above regions.¹⁴³

West of Sindh, the Ladizian chert scatters of Balochistan¹⁴⁴ are amongst the few Palaeolithic open-air sites discovered in southeast Iran.¹⁴⁵ Their chronology is difficult to ascertain, and the technological characteristics of the few (pebble) tools undoubtedly attributable to the Palaeolithic, do not resemble those of the Early and Middle Palaeolithic industries of Sindh.

Conclusion

At present the Palaeolithic of Sindh is poorly known, most probably because of the scarcity of research so far conducted. Nevertheless sites attributable to the Early, Middle and Late (Upper) Palaeolithic are all known from a few, environmentally diversified zones of the country, in which surveys have been systematically conducted. The main problems that are still to be solved include: 1) the detailed chronology of most of the assemblages, 2) their distribution pattern, or intensity of occurrence, in some specific territories, 3) the presence/absence of the Levallois technique in the different areas, and 4) the reason of the typological variability of the industries.

- 1) The first point is currently difficult to solve because of the absence of multi-stratified deposits and radiometrically datable materials. The relative chronology of the industries is mainly based on their typology, manufacturing technique, patina, deposition within single-layered deposits, and the parallels extended to other sites with assemblages in a better-defined chrono-stratigraphic position.
- 2) Some specific areas, like the Rohri Hills and Ongar, are very rich in lithic prehistoric sites. In effect they constitute the most important, excel-

¹³⁹ Dennell/Rendell 1991; Dennell 1995; 1999.

¹⁴⁰ The presence of pebble tools at Mehrano, along the southwestern fringes of the Rohri Hills (Shar 1995), Ongar (Khan 1979b), and Daun, along the coast of Lasbela (Khan pers. comm. 2002) is uncertain. This is why it is not discussed in this paper.

¹⁴¹ Chauhan 2007.

¹⁴² Chauhan 2004, 320.

¹⁴³ Salim 1996; 1997.

¹⁴⁴ Hume 1976.

¹⁴⁵ Smith 1986, fig. 3.

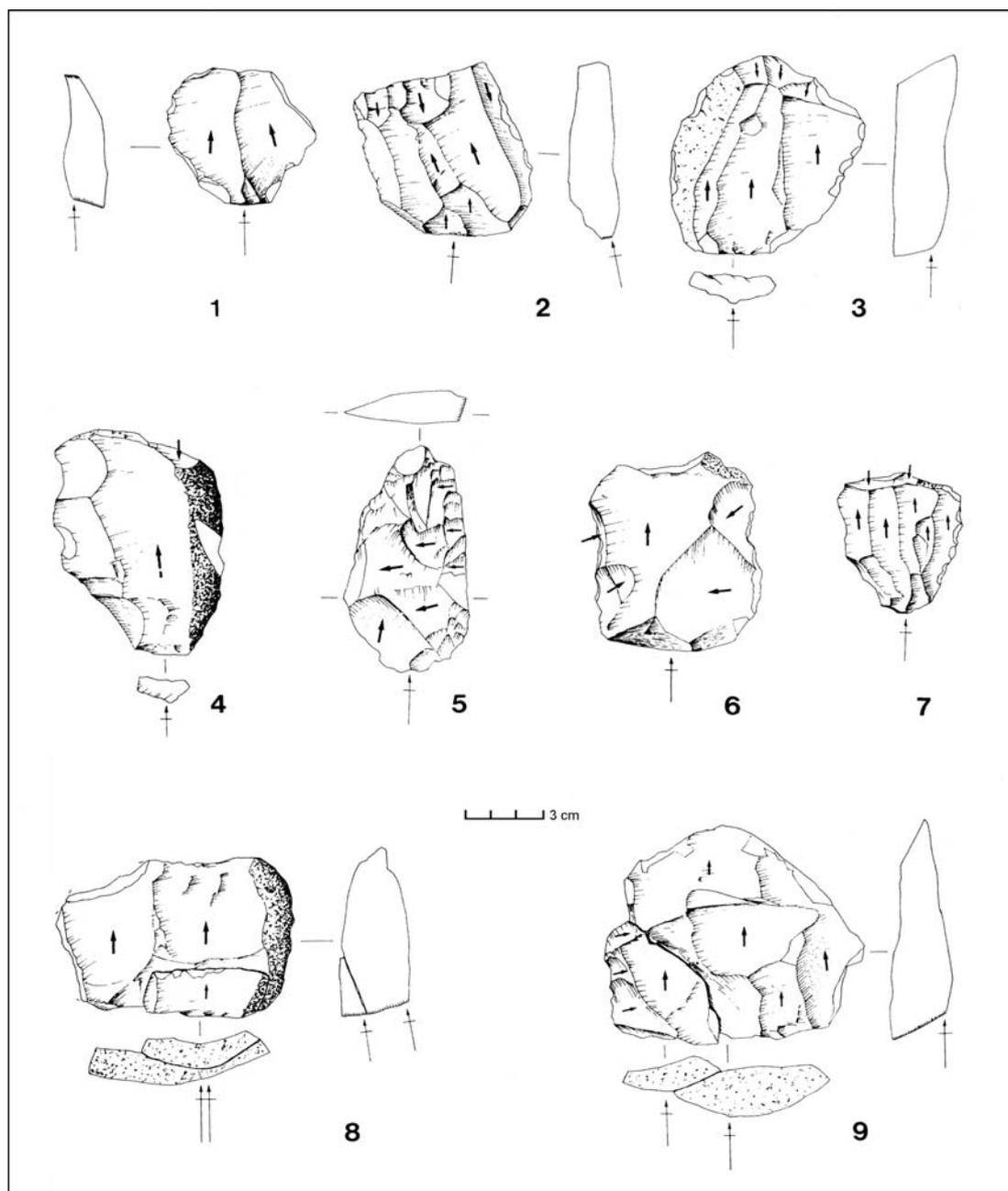


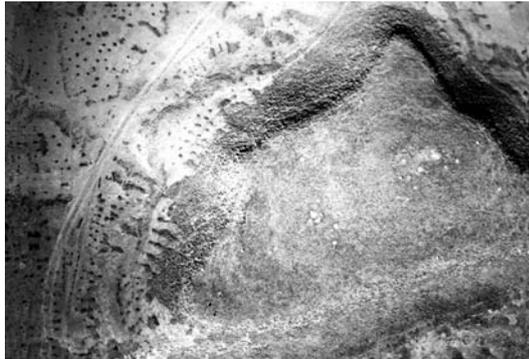
Fig. 20
 Rohri Hills. Early Palaeolithic artefacts of Series 3 from Site 797bis. 1 flake with parallel detachments; 2-5. 7 flakes with opposed bi-directional detachments; 6 flake with multi-directional detachments; 8-9 refitted flakes (after Negrino/Kazi 1996, 35)

lent quality, raw material outcrops of the Indus Valley, which, for this reason, attracted prehistoric populations since the beginning of the Palaeolithic. The abundance of Acheulian, and moreover Late (Upper) Palaeolithic manufacturing areas or workshops, on the top of these terraces is impressive.¹⁴⁶ Nevertheless it is very difficult

to reconstruct their internal, detailed chronology and the destination of the final products, given that no Palaeolithic site has ever been recorded from their adjacent areas of the Thar Desert and the Indus Valley. Regarding the Late (Upper) Palaeolithic workshops for the manufacture of blade-like flake and blade products, the presence of long bifacial picks, might indicate that during this period the flint nodules were in some cases extracted from the limestone formation, follo-

¹⁴⁶ Biagi et al. 1997, 29.

Fig. 21
Rohri Hills. Balloon view of the systematic destruction in progress (left of the photograph) at a series of Late (Upper) Palaeolithic workshops in 1994 (after Biagi et al. 1994)

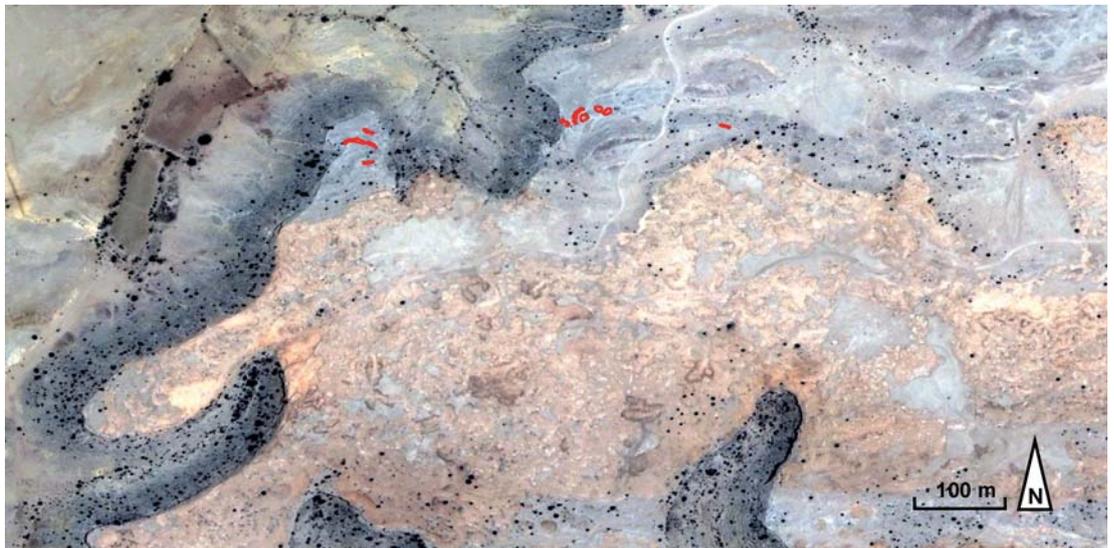


wing a technique different from those of the Acheulian (surface collection), and Bronze Age Indus Civilisation (open-air deep mining).¹⁴⁷ The currently available evidence from both the above territories seems to support the impression of the absence 1) of any rapid techno-typological change marking the arrival of modern humans, as it is clearly observable, for instance, in Europe,¹⁴⁸ 2) of any possible cultural/chronological subdivision based on the systematic occurrence of industries with typologically well-defined traits throughout the entire Late (Upper) Palaeolithic. This phenomenon seems to last until the very end of the Pleistocene/beginning of the Holocene, when the first assemblages with geometric (hyper)microliths are supposed to ma-

ke their appearance most probably in different areas of Sindh, from the Arabian Sea coast up to the Thar Desert lakes, east of the caravan city of Thari. Although their chronological attribution is still disputed,¹⁴⁹ in India, a few earliest of them are radiocarbon-dated to the ninth millennium uncal BP, on the basis of the results obtained from the skeletal remains from Damdama and Lekhahia.¹⁵⁰

- 3) The presence of typical Levallois assemblages and isolated tools, cores, points and blades, recovered from sites located to the west of the Indus River is, in my opinion, of extreme importance for the definition of the south-easternmost limit reached by this technique. Although the data so far available are scarce, nevertheless there is no doubt that a few complexes are technologically unequivocal, opposed to what is known from many Indian assemblages, which have been erroneously attributed to this technique.¹⁵¹ To my knowledge, in Pakistan, typical Levallois flakes and points are so far known only from Daud Khel in the North Western Frontier Province.¹⁵² Whether or not they represent a Neanderthal production will be confirmed or rejected by future research in the area. It is perhaps important to point out that, further to the north, across the mountain chain of the Hindu Kush, typical Mousterian Levalloisian assemblages are known from several open-air sites in the uplands of Tajikistan.¹⁵³

Fig. 22
Daphro. Satellite photograph of the western part of the hill, with the location of the Indus mines and workshops (red signs), almost completely devastated by limestone quarrying still under way in 2008 (map by C. Franco)



¹⁴⁷ Starnini/Biagi 2006.

¹⁴⁸ James/Petraglia 2005, S15.

¹⁴⁹ Kennedy 1996.

¹⁵⁰ Lukacs et al. 1996, 306.

¹⁵¹ Petraglia et al. 2003, 20.

¹⁵² Salim 1992, fig. 7–10.

¹⁵³ Ranov et al. 2005.

4) The typological variability is very high especially as regards the Late (Upper) Palaeolithic complexes. There is little doubt that the blade-like flake and blade assemblages obtained from sub-conical and subpyramidal cores from the Rohri Hills (**Fig. 19**) and Ongar (**Fig. 4**) are somewhat similar, although not at all identical, but it is also true that they cannot be compared with those from the Karachi coastal area. The complexes from these two regions are most probably not contemporaneous at all; most of the Karachi assemblages represent (much?) more advanced stages in the development of the Late (Upper) Palaeolithic. In this latter territory, a few assemblages are characterised by burins and backed instruments, among which are bipolar, arched points and lunates that seem to slowly evolve into the earliest assemblages of the Mesolithic, Holocene period, which are known in abundance from this part of Lower Sindh,¹⁵⁴ although their detailed chronology is still to be defined, because of the present-day absence of radiocarbon-datable sites.¹⁵⁵

Given the utmost archaeological importance of the Palaeolithic sites of Sindh, it is highly regrettable that many of them have already been totally destroyed (Unnar and the Mulri Hills for instance), or very heavily damaged (Rohri Hills and Ongar) by industrial activities still underway (**Fig. 21–22**), and that no measure has ever been taken by both the national and local authorities to preserve at least part of this unique archaeological patrimony of the Indian Subcontinent.¹⁵⁶

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¹⁵⁴ Biagi 2003–2004.

¹⁵⁵ The recent discovery (January 2008) of geometric microlithic tools, obtained with the microburin technique, on the surface of the shell-middens of Daun 1 and Daun 10, in the province of Las Bela, along the Arabian Sea coast of Balochistan, some 60 km west of Karachi, might help refine the radiocarbon chronology of the most recent aspects of the Atlantic assemblages with geometric armatures (Biagi/Franco 2008). The above two sites have been radiocarbon-dated, by samples of *Terebralia palustris* mangrove gastropods, respectively to 6380 ± 40 uncal BP (GrN-26368; Daun 1) (Biagi 2004, table 2) and 6305 ± 45 uncal BP (GrN-31489; Daun 10) (van der Plicht pers. comm. 2008).

¹⁵⁶ Dar 1991; Allchin 1999; Biagi 2006d; Biagi 2008.

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Summary

The Palaeolithic Settlement of Sindh (Pakistan): a review

The re-analysis of the Palaeolithic assemblages of Sindh has demonstrated that this region of the Indian Subcontinent has been inhabited at least since the Middle Pleistocene. The discoveries made on the Rohri Hills and Ongar show that Acheulian Culture assemblages occur from both these two territories, although their chronology cannot be precisely defined. The presence of typical Levalloisian cores and Mousterian tools, from both Ongar and a few other sites east of Karachi, is of particular interest, since they pose the question of the south-eastern limit reached by the Mousterian Neanderthals. Chipped stone industries with typical subconical/subpyramidal cores and blade-like-flake detachments occur at both the Rohri Hills and Ongar. They are supposed to represent the earliest Late (Upper) Palaeolithic assemblages of the region under study. The typological characteristics of the tools re-

covered from a few other sites close to the Arabian Sea coast, east of Karachi, attribute them to different periods in the development of the Late (Upper) Palaeolithic. They undoubtedly precede the Mesolithic, during which the assemblages are characterised by different types of geometric microliths.

Zusammenfassung

Die paläolithische Besiedlung von Sindh (Pakistan): Ein Überblick

Die erneute Analyse der paläolithischen Inventare aus Sindh haben gezeigt, dass dieser Teil des Indischen Subkontinentes mindestens seit dem Mittleren Pleistozän bewohnt wurde. Die Funde aus den Rohri Hills und von Ongar belegen in beiden Gebieten Acheuléen-Inventare, obwohl ihre Chronologie nicht exakt bestimmt werden kann. Das Vorkommen von typischen Levallois-Kernen und

Mousterien-Geräten, sowohl aus Ongar, wie auch aus einigen anderen Fundorten östlich von Karachi, ist von besonderem Interesse, da sie die Frage nach der südöstlichen Grenze aufwerfen, die von den Mousterien-Neandertalern erreicht wurde. Geschlagene Steinindustrien mit typischen subkonischen/subpyramidalen Kernen und klingenartigen Abschlügen kommen sowohl in den Rohri Hills als auch in Ongar vor. Sie sollten die frühesten spät- (ober-) paläolithischen Inventare des Arbeitsgebietes repräsentieren. Die typologischen Charakteristika der geborgenen Geräte von einigen anderen Fundstellen nahe am Arabischen Meer, östlich von Karachi, erlauben eine Zuordnung zu verschiedenen Entwicklungsperioden des Spät- (Ober-) Paläolithikums. Sie sind ohne Zweifel vor das Mesolithikum zu datieren, während dem die Inventare durch unterschiedliche Typen geometrischer Mikrolithen charakterisiert sind.

Резюме

Заселение Синда (Пакистан) в эпоху палеолита: обзор
Повторное изучение палеолитических комплексов Син-

да показало, что эта часть Индийского субконтинента была заселена уже, по меньшей мере, в среднем плейстоцене. Открытия, сделанные на Рори Хиллс и в Онгаре демонстрируют, что в этих местах присутствуют ашельские комплексы, хотя их точная хронология пока не известна. Наличие типичных ядрищ индустрии леваллуа и мустьерских орудий как в Онгаре, так и на стоянках к востоку от Карачи, привлекает особое внимание, поскольку они дают возможность поставить вопрос о юго-восточной границе распространения мустьерских неандертальцев. Индустрии, включающие типичные субконические или субпирамидальные нуклеусы и пластинчатые сколы, есть на Рори Хиллс и в Онгаре. Мы предполагаем, что они представляют собой самый ранний комплекс эпохи позднего палеолита в изучаемом регионе. Типологические характеристики орудий, найденных на памятниках вдоль побережья Аравийского моря, к востоку от Карачи, позволяют отнести их к различным стадиям позднего палеолита. Они, безусловно, предшествуют мезолиту, комплексы которого отличаются присутствием разнообразных типов геометрических микролитов.