

Paolo Biagi¹

The Levalloisian assemblages of Sindh (Pakistan) and their importance in the Middle Palaeolithic of the Indian subcontinent

1. Preface

The scope of this paper is to illustrate a series of Levallois assemblages and isolated finds discovered in Sindh (Pakistan), and to discuss their provenance and their relationships with other Middle Palaeolithic assemblages of the Indian Subcontinent. There is no doubt that the Middle Palaeolithic of the study region is no longer represented by “an enigmatic group of stone industries’ which fall, typologically and stratigrafically, between the hand-axe industries on one side and the microlithic industries on the other” (Allchin 1959: 1). Nevertheless, there are still many problems to solve concerning the interpretation of the assemblages of this period, at least in Sindh. This is mainly due to 1) the scarcity of systematic research, and consequent finds, 2) the absence of multi-period stratified Palaeolithic complexes, 3) the limited number of published collections, and 4) the paucity of Middle/Late Pleistocene environmental data. These are the main reasons why we have to revert to other territories in order to understand the chronology and the cultural significance of the Levallois industries of Sindh.

Middle Palaeolithic assemblages are known only from a few well-defined regions: the Rohri Hills, in Upper Sindh, Ongar (and the Laki Range), south of Hyderabad, and the Mulri Hills, Deh Konkar and Landhi, near Karachi, close to the Arabian Sea coastline (Fig. 1). The first of these three territories was discovered during the second half of the 1800s (Biagi 2006a). Systematic investigations began in 1975-1976, when the Cambridge Archaeological Mission in Sindh

¹ Dipartimento di Scienze dell’Antichità e del Vicino Oriente. Ca’ Foscari University, Palazzo Bernardo, San Polo 1977, I-30125 Venice (Italy). E-mail: pavelius@unive.it

reported the preliminary results of the study of a few Palaeolithic assemblages recovered on the top of the Rohri Hills (Allchin 1976; Allchin et al. 1978). The second was repeatedly visited by A.R. Khan (1979a) who, in 1972, and mainly in 1973, made systematic collections in this area, which led to the recovery of an incredible amount of flint artefacts. The third, to which a few characteristic, isolated tools are related, is a region investigated by A.R. Khan (1979b) during the 1970s, from which the same author reports a few Levallois tools from three distinct sites.

2. The Middle Palaeolithic in the Indian Subcontinent

If we revert to one of the basic works dealing with the study subject, and take into examination the environmental picture that is commonly provided for the Middle Palaeolithic of the Lower Indus Valley, and more generically the Great Indian Desert, this period is supposed to have “seen a more humid climate with dune stability and with through-flowing rivers in the Thar Desert” (Allchin et al. 1978: 309), although “the long Middle-Palaeolithic humid phase was preceded and followed by arid phases of some severity. The variation in environmental conditions that these changes imply must have been such that during an arid phase the central parts of the Thar and the Indus Plain, excepting possibly the area within daily reach of the river, were virtually uninhabitable” (Allchin et al. 1978: 310).

Regarding the general typological characteristics of Middle Palaeolithic assemblages of South Asia, the above-mentioned authors state that they “have many of the basic technological characteristics of the Mousterian industries of Europe and Western and central Asia, particularly the extensive use of flakes struck from prepared cores, and the methods of preparing the cores; but they each have a distinct overall South Asian character which distinguishes them as a group in addition to their regional characteristics which differentiates them from one another within the group. Therefore it does not seem desirable to call them Mousterian” (Allchin et al. 1978: 314). It is important to point out that, throughout the entire above-mentioned volume, the term Levallois is utilised in a very generic and rather improper way, only for the description of “a carefully prepared discoidal or ovoid core from which a single flake is struck leaving a shallow flake scar and horse-shoe shaped border. This is not really distinct from the many groups of discoidal and ovoidal cores in the South Asian context. The terms are largely synonymous, but the term Levallois is sometimes used, particularly for finely worked cores of this kind, as it has become an established and widely used term among archaeologists, and serves to avoid tedious repetitions” (Allchin et al. 1978: 107-108).

Even the most recent papers on the subject are rather generic in describing the characteristics of this period. According to Pal (2002: 79) it “may be divided in at least three developmental phases (i) the early Middle Palaeolithic with artefacts of the Acheulian tradition (ii) middle Middle Palaeolithic with artefacts made on flakes detached from prepared cores and discoidal cores and (iii) late Middle Palaeolithic with a blade element in the artefact assemblages”. Also this latter author never mentions the presence of Levallois industries from any of the Indian sites reported in his text. In this respect, Petraglia et al. (2003: 20) are more detailed when they report “although certain researchers have adopted the term “Levallois” to describe Indian assemblages, tools often do not conform to multiple flake reduction sequences characteristic of core and flake debris found towards the West”. More recently James and Petraglia (2005: S9) stated “flake-based artifact assemblages consisting of prepared cores, retouched flakes, and diminutive bifaces generally characterize the Middle Palaeolithic of the subcontinent”.

Along the fringes of the Great Indian Desert in Rajasthan, a poor Middle Palaeolithic industry is known from a well-defined context within the stratigraphic sequence of dune 16R at Didwana, where it is stratified between Early and Late (Upper) Palaeolithic assemblages in Litho Unit III, whose central part has been TL-dated to $163,000 \pm 21,000$ yrs BP and Th/U-dated to $144,000 \pm 12,000$ and $150,000 \pm 10,000$ yrs BP respectively (Misra 1989). Although these dates are only indicative, Misra and Rajaguru (1989: 311) suggest that the Middle Palaeolithic of dune 16R is to be ascribed to a period between 150,000 and 50,000 yrs. According to Goudie et al. (1973: Table 8), the Middle Stone Age of this region took place during a “major wet phase” represented by a “major phase of deep weathering”. This fact is also evidenced by the Indian Thar Desert sequence of Pushkar, some 100 km south of Didwana, where the Middle Palaeolithic tools recovered from Hokra “may be said to fall within the range of the Mousterian tradition” (Allchin and Goudie 1973: 361).

It is important to point out that the typical Levallois technique is not represented at any of the Middle Palaeolithic assemblages so far discovered in the Great Indian Desert of Rajasthan.

3. The Levallois assemblages of Sindh

3.1. The Rohri Hills

They consist of limestone terraces that elongate just to the south of Rohri, in Upper Sindh, between the Thar Desert, in the east, and the Indus Valley, in the west (Fig. 1.1). They represent the most important raw material chert deposits of the Indus Valley so far discovered, which were exploited throughout a period between the Early Palaeolithic and the Bronze Age. Allchin (1976: 479) pointed

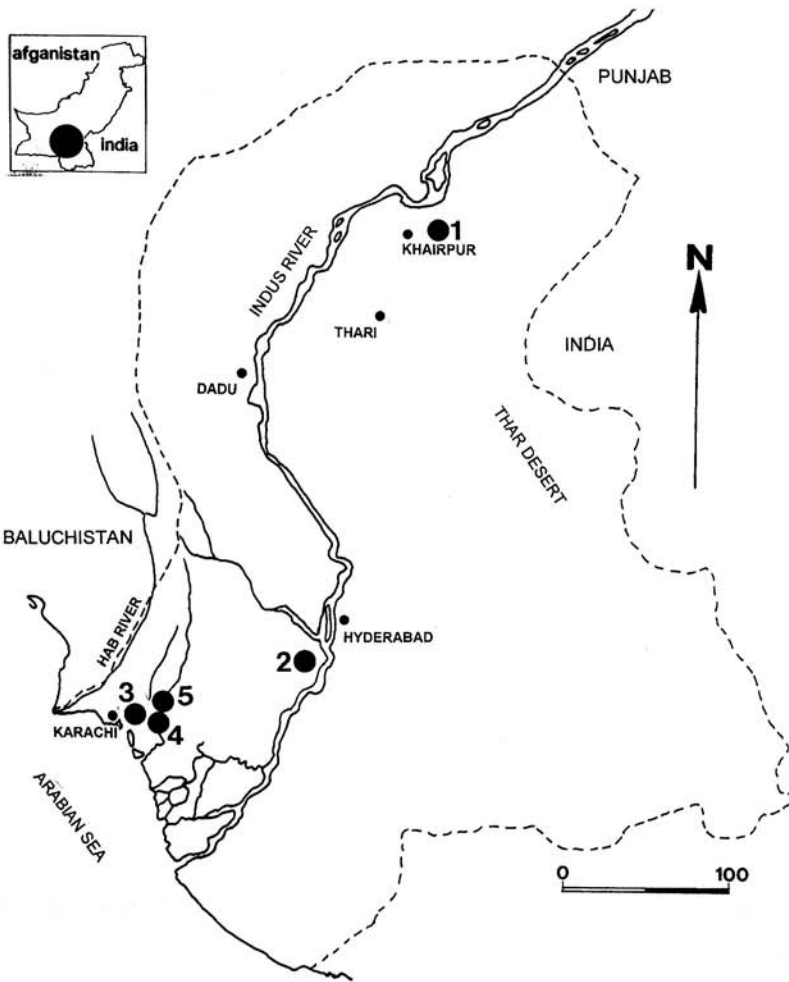


Fig. 1. Distribution map of the sites mentioned in the text: Rohri Hills (1), Ongar (2), Mulri Hills (3), Landhi (4) and Deh Konkar (5) (location approximate) (drawing by P. Biagi).

out the importance of the Middle Palaeolithic workshops of the hills and described the main characteristics of the flake assemblages of this period, which are obtained from “chert nodules of appropriate size as cores, with a minimal amount of preparation, often without removing the cortex”. Nevertheless, the research carried out between 1993 and 2001 by the Joint Rohri Hills Project,

revealed very little evidence of Middle Palaeolithic tools. According to Negrino and Kazi (1996: 30-32), who subdivided the Rohri Hills Palaeolithic assemblages into five main series, on the basis of the limited stratigraphic evidence and the different patina observed on the tools, their Middle Palaeolithic Series 5, is represented by very few, isolated artefacts, among which are Levallois flakes and one bifacial tool. Furthermore they attribute their Series 4, which is represented by Late Acheulian handaxe workshops, well attested at Ziarāt Pir Shabān (Biagi et al. 1996), most probably to the beginning of the Middle Palaeolithic. Nevertheless, a few pseudo-Levallois flakes, with a flat platform, are known from the isolated hill of Unnar (Biagi & Cremaschi 1988: fig. 8), which belongs to the same limestone formation, just to the southwest of the Bronze Age site of Kot Diji.

3.2. Ongar

The hill of Ongar is located a few kilometres south of Jamshoro, more precisely “about 8 miles north of Jhirak, and a mile or 2 south-west of Jhuga Pir” (Blandford 1880: 148), along the western side of the Indus River (Fig. 1.2). It belongs to a group of flat-topped hills of Eocene formation (Raza & Bender 1995), very rich in seams of flint nodules that were exploited throughout different periods of the Palaeolithic, from the Acheulian up to the beginning of the Late (Upper) Palaeolithic. The research carried out by A.R. Khan in the summer of 1973, led to the collection of a rich Levallois assemblage that, according to the above-mentioned author (Khan 1979a: 81) “was found in situ from the gravel terrace” close to the Miharo village, along the eastern slope of the hill. Although the surveys conducted by the author in 2005 did not lead to the discovery of any rich assemblage in this part of the hill (Biagi 2006b), the industry collected by A.R. Khan, now in the stores of the Museum of Prehistory and Palaeogeography of Karachi University, includes several typical Levallois tools. Among these are: discoidal Levallois cores with centripetal flake detachments (Fig. 2:1-2; Fig. 3:1-4), different types of side and transverse scrapers on Levallois flake (Fig. 3:5; Fig. 4:4.6-8.10-11), unretouched Levallois flakes (Fig. 4:3.5) and blades (Fig. 4:1-2) and one ‘Mousterian’ straight point obtained with simple, deep, invasive retouch, covering the entire dorsal face (Fig. 4:9). Many of these latter tools have a faceted platform (Fig. 4:3.6-11), sometimes of “chapeau de gendarme” type (Fig. 4:6.8-11).

According to A.R. Khan (1979c: 64), one transverse scraper, on a flakelet with faceted platform (Fig. 5:6), was collected “by Mr. Ishaq Ghaznavi, an officer of Geological Survey, from the slope of Laki range”. Although the description is very generic, and the Laki Range elongates in a south-north direction, roughly from the Baran River to Sehwan (Blandford 1880: Plate II), this tool most probably comes from a place not too distant from Ongar.

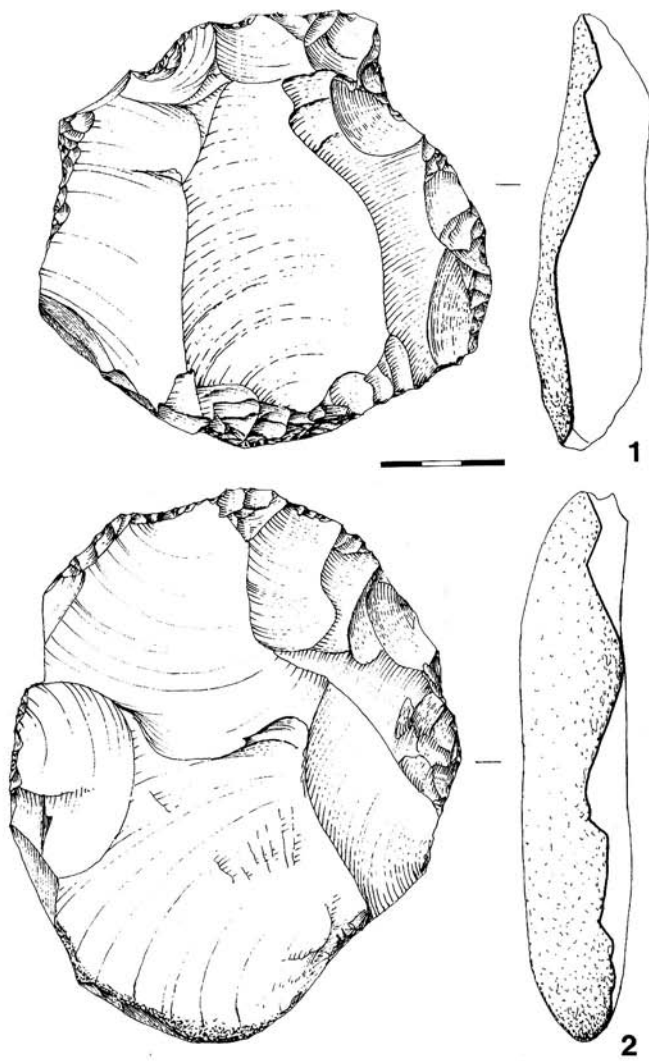


Fig. 2. Ongar: Levallois cores (1 and 2) (drawings by P. Biagi and G. Almerigogna).

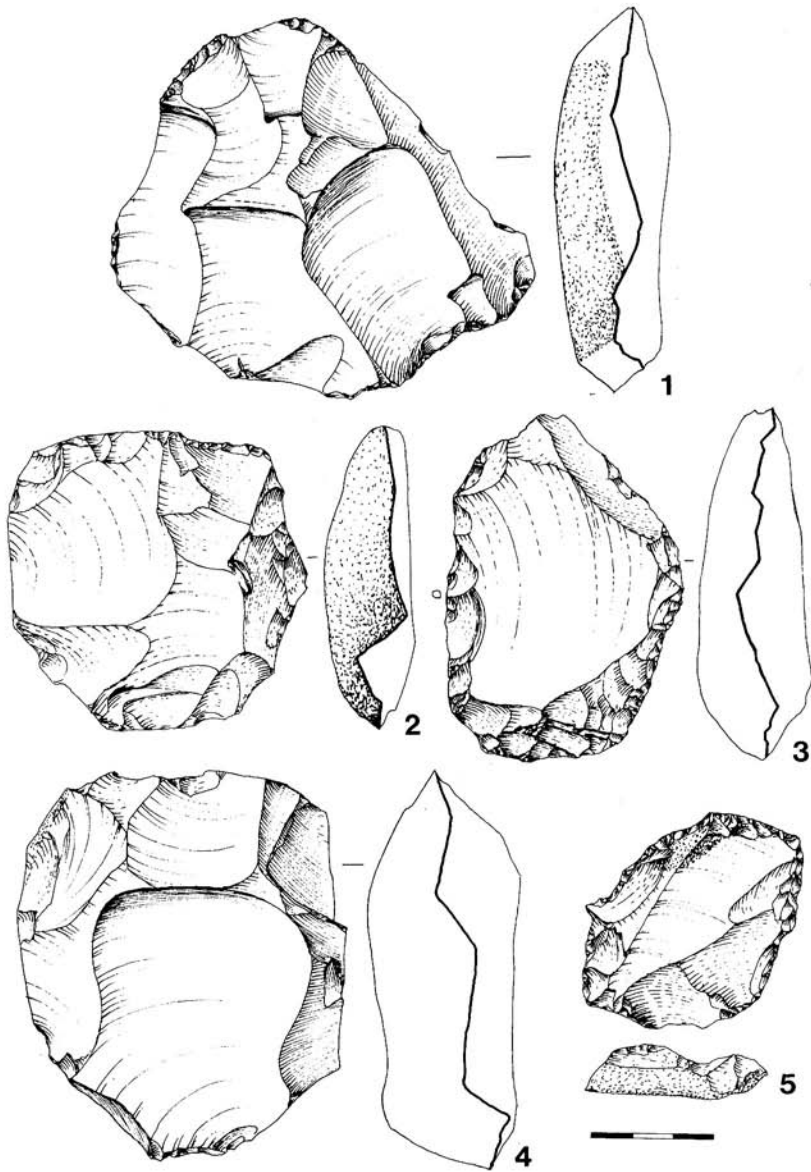


Fig. 3. Ongar: Levallois cores (1-4) and scraper (5) (drawings by P. Biagi and G. Almerigogna).

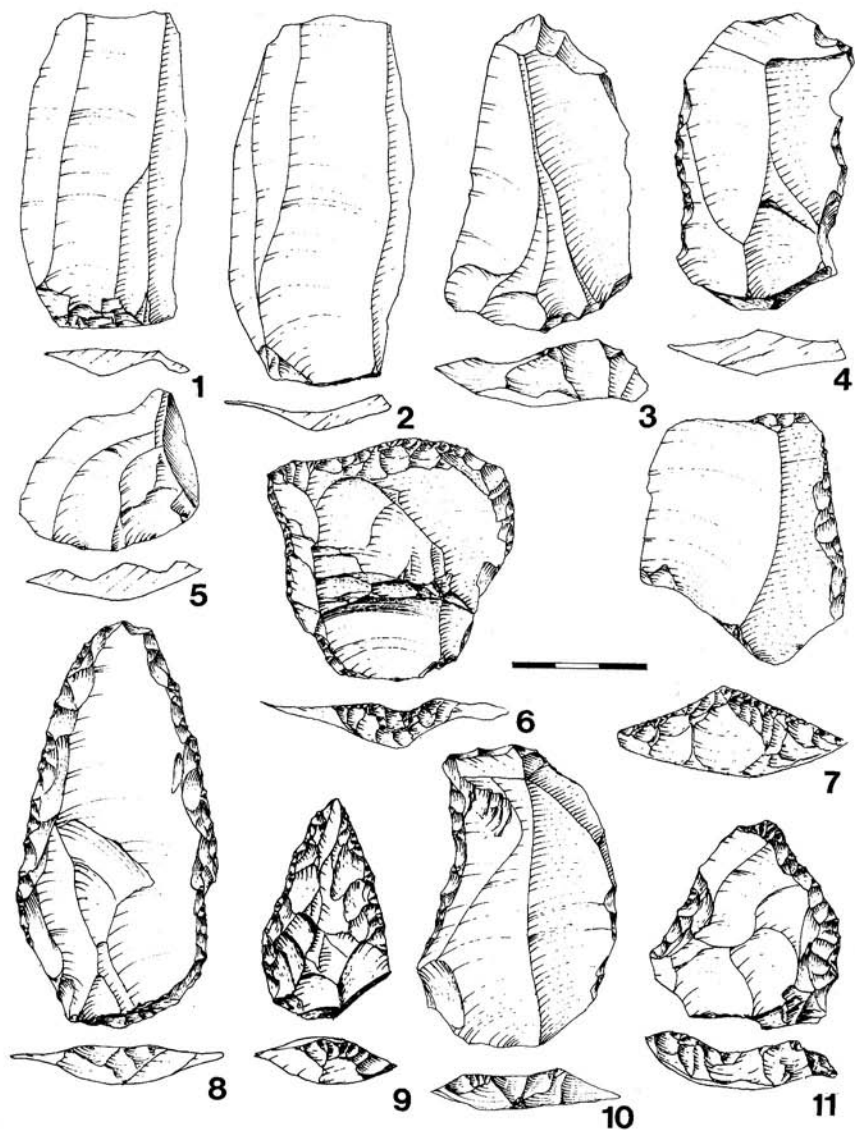


Fig. 4. Ongar: Levallois blades (1 and 2), flakes (3 and 5), scrapers (4, 6-8, 10 and 11) and 'Mousterian' point (10) (drawings by P. Biagi and G. Almerigogna).

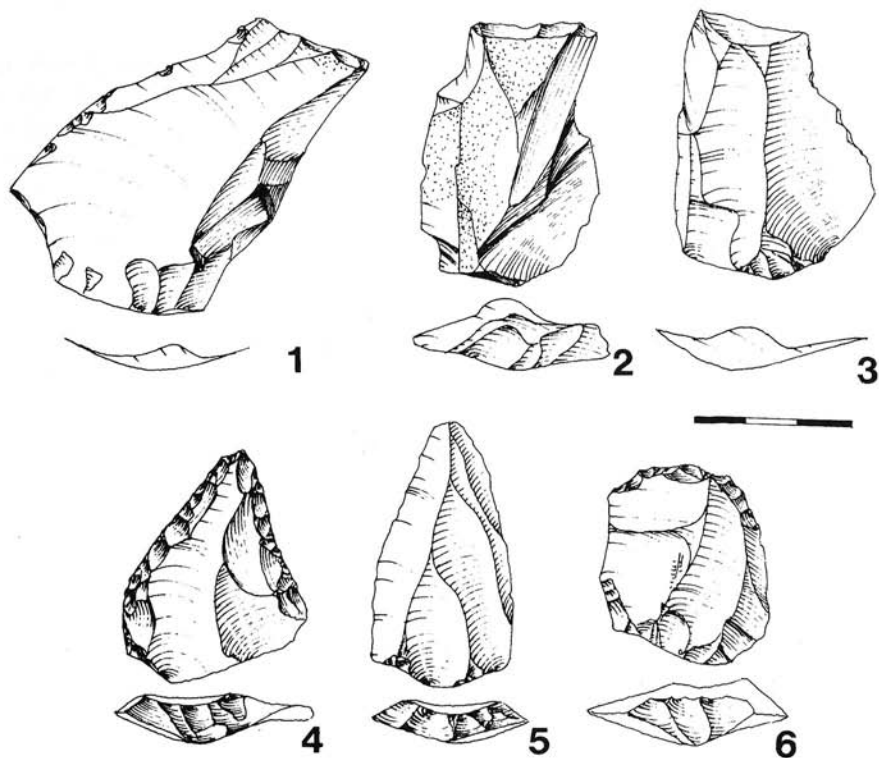


Fig. 5. Mulri Hills 3 (MH3): Levallois flakes (1-3); Deh Konkar: retouched Levallois point (4); Landhi: Levallois point (5) and Laki Range: transversal scraper on Levallois flakelet (6) (drawings by P. Biagi and G. Almerigogna).

3.3. The Karachi Gulf

The Levallois tools from this area are represented by a few specimens, three of which come from site MH3, in the Mulri Hills (Fig. 1:3). They elevate just to the south of the Karachi University Campus and consist of sedimentary bedrocks of the Miocene Gaj Formation (Zaidi et al. 1999), crossed by many faults. On their surface A.R. Khan (1979c: 64) discovered many sites, most of which have been attributed to the Mesolithic (Biagi 2005). The Levallois tools

from this area are represented by three unretouched flakes, with a white patina, one of which has a prepared platform (Fig. 5:1-3).

A straight point, obtained with a simple, deep, direct, bilateral retouch on a Levallois flake with a faceted platform (Fig. 5:4), is reported by A.R. Khan (1979b: 13) "on the edge of a gravel terrace near field n° 194 at Deh Konkar, near Got Jalab" (Fig. 1:5). Some 2 miles northwest of Rehri, not far from the present shoreline facing the Kadiro Creek, the same author found "one isolated panshaped point...in the gravel near the old cliff south of Landhi" (Fig. 1:4). This object is a typical, unretouched Levallois point with a faceted platform (Fig. 5:5).

4. Discussion

According to the few data to date available, the Middle Palaeolithic of Sindh is still of problematic definition from both chronological and typological points of view, mainly because of the reasons mentioned in the preface of this paper. Nevertheless there are a few points that are of major importance regarding the Levallois component of some of these complexes. They are: 1) Some of the assemblages from Lower Sindh are represented by a high number of Levallois tools. This fact has never been recorded from any of the Indian Subcontinent Middle Palaeolithic sites east of the Indus River. This phenomenon is clearly recognisable in the Ongar industry collected by A.R. Khan in the 1970s; 2) As far as we know, all the typical Levalloisian assemblages and isolated tools are from sites located in Lower Sindh; 3) Point 2 might be due to the fact that no systematic survey aimed at the discovery of Palaeolithic sites has ever been carried out north of Hyderabad; 4) Nothing is known of the Middle Palaeolithic of Balochistan (Smith 1986: Fig. 7). The only Palaeolithic sites of this country are those attributed to the Ladizian, in south-east Iran (Hume 1976); 5) If reliable, the supposed presence of a Neanderthal skull, reported by S.M. Ashfaque (2004: 153) from a cave in the Khirthar Range, although never examined by the above-mentioned author, would be of major importance for a better understanding of the Middle Palaeolithic of the region and the spread of the Neanderthal populations, whose south-eastern boundary is far from being well-defined (Petraglia & Alsharekh 2003: 680).

It is important to point out that the Middle Palaeolithic Levallois assemblages so far known from a territory geographically close to Sindh, come from south-east Arabia (Petraglia & Alsharekh 2003: 675). Here they are known as far as the coastal zones of Dhofar (Cremaschi & Negrino 2002: 328) and its neighbouring east Yemen (Amirkhanov 1991: 220); some of these latter come from well-defined contexts (Amirkhanov 1994). Other Middle Palaeolithic assemblages "dominated by small (30-80 mm), biconvex bifacial tools ranging in

shape from foliate to ovate” are known in the interior of the Oman Peninsula (Rose 2004: 552), although their chronology might not be necessarily contemporaneous to that of the Levallois complexes, a problem already pointed out by the above-mentioned author (Rose 2004: 553).

To conclude, the discovery of typical Levallois industries in Sindh is of major importance for the understanding of the Middle Palaeolithic of the western regions of the Indian Subcontinent and (hopefully) the definition of the easternmost boundaries reached by the Neanderthals. They are unique in this respect and do not find any close parallel with the Middle Palaeolithic assemblages of the Great Indian Desert. North of Sindh, Levallois flakes are reported by De Terra and Paterson (1939: 308) from the Late Soan Sequence. Further to the north they are common in the former Soviet Central Asia and Afghanistan Middle Palaeolithic assemblages (Dupree et al. 1970; Ranov & Gupta 1979: 63). Moving westwards, the most important complexes are those of the Zagros Mountains (Dibble & Holdaway 1993), while most of the Iranian Plateau is still very poor in sites of this age (Smith 1986: Fig. 7). One of the few exceptions is Jahrom, in Fars, the assemblage from which is characterised by the absence of the Levallois technique and the presence of numerous tools of Late (Upper) Palaeolithic character (Piperno 1972: 195). This latter industry seems to find some parallels in the late Middle Palaeolithic assemblage from Kuturbulak in Uzbekistan (Szymczak 2000).

Aknowledgements

The author is very grateful to Dr. Michael D. Petraglia (Cambridge University, UK) for his useful comments and Dr. Barbara A. Voytek (Berkeley, USA) for revising the original English text.

References

- ALLCHIN, B. 1959. The Indian Middle Stone Age: Some New Sites in Central and Southern India and their Implications. *Bulletin of the Institute of Archaeology* 2: 1-36. London.
- 1976. Palaeolithic Sites in the Plain of Sind and their Geographical Implication. *Geographical Journal* 142 (3): 471-489.
- ALLCHIN, B. and A. GOUDIE 1973. Pushkar: Prehistory and Climatic Change in Western India. *World Archaeology* 5 (3): 358-368.
- ALLCHIN, B., A. GOUDIE and K. HEDGE 1978. *The Prehistory and Palaeogeography of the Great Indian Desert*. Academic Press, London-New York-San Francisco.

- AMIRKHANOV, H. 1991. *Paleolit Juga Arabii*. NAUKA, Moscow (in Russian).
- 1994. Research on the Palaeolithic and Neolithic of Hadramaut and Mahra. *Arabian archaeology and epigraphy* 5: 217-228.
- ASHFAQUE, S.M. 2004. *Bedrock of Human Prehistory in Pakistan. The Early Palaeolithic in Northern Punjab*. Pakistan Study Centre, University of Karachi.
- BIAGI, P. 2005. The Mesolithic Settlement of Sindh: a Preliminary Assessment. *Praehistoria* 4-5. Miskolc (in press).
- 2006a. Ongar Revisited. *Sindhological Studies* 21. Jamshoro (in press).
- 2006b. The Palaeolithic Settlement of Sindh (Pakistan): Updating some Old Data. In: P.R. Chauhan and R. Potnauk (eds), *Environmental Changes and Hominid Evolution and Behaviour in South Asia During the Pleistocene*. Kluwer Science Series, New York (in press).
- BIAGI, P. and M. CREMASCHI 1988. The early Palaeolithic sites of the Rohri Hills (Sind, Pakistan) and their environmental significance. *World Archaeology* 19 (3): 421-433. London.
- BIAGI, P., M.M KAZI and F. NEGRINO 1996. An Acheulian Workshop at Ziarat Pir Shaban on the Rohri Hills, Sindh, Pakistan. *South Asian Studies* 12: 49-62. Cambridge.
- BLANDFORD, W.T. 1880. *The Geology of Western Sind*. Memoirs of the Geological Survey of India, XVII (1): 1-210. Calcutta.
- CREMASCHI, M. and F. NEGRINO 2002. The Frankincense Road of Sumhuram: Palaeoenvironmental and Prehistorical Background. In: A. Avanzini (ed.), *Khor Rohri Report I*. Arabia Antica, 1: 325-363. Edizioni Plus, Università di Pisa.
- DE TERRA, H. and T.T. PATERSON 1939. *The Ice Age in the Indian Subcontinent and Associated Human Cultures (With Special Reference to Jammu, Kashmir, Ladakh, Sind, Liddar & Central and peninsular India)*. Ryan Books International, New Delhi (2003 reprint).
- DIBBLE, H.L. and S.J. HOLDAWAY 1993. The Middle Palaeolithic Industries of Warwasi. In: D.I. Olszewski and H.L. DIBBLE (eds), *The Palaeolithic Prehistory of the Zagros-Taurus*. University Museum Monograph 83: 75-99. The University Museum, University of Pennsylvania, Philadelphia.
- DUPREE, L., L. LATTMAN and R. DAVIS. 1970. Ghar-I-Mordeh Gusfand ("Cave of the Dead Sheep"). A new Mousterian locality in north Afghanistan. *Science* 167 (3925): 1610-1612.
- GOUDIE, A.S., B. ALLCHIN and K.T.M. HEDGE 1973. The Former Extension of the Great Indian Sand Desert. *Geographical Journal* 139 (2): 243-257.
- HUME, G.W. 1976. *The Ladinian: An Industry of the Asian Chopper-Chopping Tool Complex in Iranian Baluchistan*. Dorrance and Co., Philadelphia.
- KHAN, A.R. 1979a. Palaeolithic Sites Discovered in the Lower Sind and their Significance in the Prehistory of the Country. In: A.R. Khan (ed.), *Studies in the Geomorphology and Prehistory of Sind*. Grassroots, III (2). Special Issue: 80-86. Pakistan Studies Centre. University of Sind, Jamshoro.
- 1979b. Ancient Settlements in Karachi Region. In: A.R. Khan (ed.), *Studies in the Geomorphology and Prehistory of Sind*. Grassroots, III (2). Special Issue: 1-24. Pakistan Studies Centre. University of Sind, Jamshoro.

- 1979c. New Archaeological Sites in Las Bela. A Neolithic Settlement Discovered. In: A.R. Khan (ed.), *Studies in the Geomorphology and Prehistory of Sind*. Grass-roots, III (2). Special Issue: 62-79. Pakistan Studies Centre. University of Sind, Jamshoro.
- JAMES, H.V.A. and M.D. PETRAGLIA 2005. Modern Human Origins and the Evolution and Behavior in the Later Pleistocene Record of South Asia. *Current Anthropology* 46, Supplement: S1-S27.
- MISRA, V.N. 1989. Stone Age India: An Ecological Perspective. *Man and Environment* 14 (1): 17-64. Pune.
- MISRA, V.N. and S.N. RAJAGURU 1989. Palaeoenvironments and Prehistory of the Thar Desert, Rajasthan, India. In: K. Frifelt and R. Sørensen (eds), *South Asian Archaeology 1985*. Scandinavian Institute of Asian Studies Occasional papers 4: 296-320. Århus.
- NEGRINO, F. and M.M. KAZI 1996. The Palaeolithic industries of the Rohri Hills (Sindh, Pakistan). *Ancient Sindh* 3: 7-38. Khairpur.
- PAL, J.N. 2002. The Middle Palaeolithic Culture of South Asia. In: S. Settar and R. Korisettar (eds.), *Indian Archaeology in Retrospect. Volume I Prehistory*. Archaeology of South Asia: 67-83. ICHR, Manohar, Delhi.
- PETRAGLIA, M.D. and A. ALSHAREKH 2003. The Middle Palaeolithic of Arabia: Implications for modern human origins, behaviour and dispersal. *Antiquity* 77 (298): 671- 684.
- PETRAGLIA, M.D., J. SCHULDENREIN and R. KORISSETAR 2003. Landscapes, Activity and the Acheulean to Middle Palaeolithic Transition in the Kaladgi Basin, India. *Eurasian Prehistory* 1 (2): 3-24.
- PIPERNO, M. 1972. Jahrom, a Middle Palaeolithic Site in Fars, Iran. *East and West* 22 (3-4): 183-198.
- RANOV, V.A. and S.P. GUPTA 1979. *Archaeology of Soviet Central Asia, and the Indian Borderland*. Vol. I. B.R. Publishing Corporation, Delhi.
- RAZA, H.A. and F.K. BENDER 1995. Hydrocarbons. In: F.K. Bender and H.A. Raza (eds.), *Geology of Pakistan. Beiträge zur Regionalen Geologie der Erde* 25: 182-202. Gebrüder Bornträger, Berlin-Stuttgart.
- ROSE, J.I. 2004. The Question of Upper Pleistocene Connections between East Africa and South Arabia. *Current Anthropology* 45 (4): 551-555.
- SALIM, M. 1986. *The Middle Stone Age Cultures of Northern Pakistan*. Centre for the Study of the Civilizations of Central Asia, Quaid-I-Azam University, Islamabad.
- SMITH, P.E.L. 1986. *Palaeolithic Archaeology in Iran*. The University Museum, University of Pennsylvania, Philadelphia.
- SZYMCZAK, K. 2000. *Kuturbulak Revisited. A Middle Palaeolithic Site in Zeravshan River Valley, Uzbekistan*. Światowit Supplement Series P: Prehistory and Middle Ages, II. Central Asia Prehistoric Studies, I. Institute of Archaeology, Warsaw University.
- ZAIDI, S.M.S., M. Quadri, G. Hamid and M. Bilal 1999. The Landform Inventory and Genesis in the Mulri Hills Area, Karachi East. *Journal Geographic* 2 (1): 39-48. Karachi.