The Archaeological Sites of the Rohri Hills (Sindh, Pakistan): the Way they are Being Destroyed

Paolo Biagi*

Abstract

Il presente lavoro riguarda le colline di Rohri (Rohri Hills) nel Sindh Settentrionale (Pakistan) ed i siti archeologici che sono stati scoperti sulla sommità dei tavolati calcarei, e lungo i margini di questi ultimi. Si tratta di una delle aree archeologiche più ricche del paese, nella quale sono stati riconosciuti migliaia di siti attribuibili a diversi periodi della preistoria dal Paleolitico più antico all'età del Bronzo oltre che all'epoca Buddista, quali ad esempio Seeraj.

Per quanto riguarda le stazioni preistoriche si tratta per lo più di officine litiche, dato che le colline di Rohri rappresentano una delle fonti di approvvigionamento della selce più importanti del Subcontinente Indiano. Durante gli ultimi sessant'anni, lo sfruttamento del calcare dei tavolati, in un primo momento limitato alla regione più settentrionale delle colline e condotto in modo artigianale, si è moltiplicato di intensità diventando un'attività industriale vera e propria diffusa in quasi tutta l'area delle colline. Questo fatto ha portato e sta tuttora portando alla distruzione di centinaia di siti di epoca preistorica ed anche storica, quali ad esempio la città Buddista di Seeraj ed il grave danneggiamento dell'antica capitale del Sindh, Aror.

1. Introduction

The Rohri Hills were first described by Bladford[1] in his "Geology of Western Sind". In chapter V of his volume he provides the reader with a geological description of "The Hills near Sukkur and Rohri". These limestone formations, some 40 km long and 16 wide (Fig. 1), extend in a north-south direction between the course of the Indus (Fig. 2) and the cities of Sukkur and Rohri (Fig. 3), in the north, and the westernmost fringes of the Thar Desert, in the south, which, in this part of the country is very rich in salt-lake basins (Fig. 4). The hills consist of fossiliferous limestone rocks of the Brahui formation, attributed to the Middle Eocene/Early Oligocene period. They are very rich in seams of good quality flint of light brownish-grey colour (Fig. 5), which attracted the prehistoric populations from the Early Palaeolithic onwards.[2]

1. A Rohri Hills landscape in the central region of the hills.

The hills separate two environmentally very different regions:

* Dipartimento di Scienze dell'Antichità e del Vicino Oriente. Università Ca' Foscari, Venezia.

[1] Bladford 1880.

[2] Biagi, Cremaschi 1988.

2. The Indus River south of Sukkur from the air.

3. Fishermen's (Mohanna) boats in the Indus at Sukkur.

4. A salt-lake basin near Thari south of the Rohri Hills.

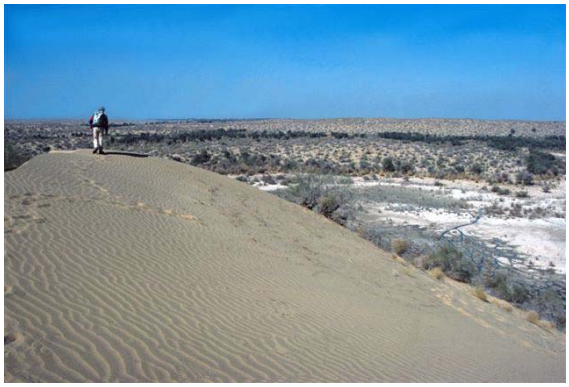
5. Large flint nodules in the limestone deposits of the hills.

the fertile, cultivated plain of the Indus, to the west, and the poorly vegetated fossil sand dunes of Thar Desert, to the east (Fig. 6). Their eastern fringes are lapped by the Nara Canal, which flows inside the old bed of the Hakra-Gagghar River. The hills look like white limestone mesas abounding in nummulites, dissected by severe erosion and deeply incised by old river courses (Fig. 7).
A break in the hills can be observed a few km east of Rohri, most probably due to the course of an old river channel. In effect the city of Aror (or Alor) itself lies close to another old river channel, which is said to have passed by the ancient capital of Sindh. The same is supposed to have been destroyed by an earthquake around the middle of the tenth century AD (Fig. 8). A few more isolated small limestone hills, detached from the major group of terraces, can be observed some 3 km north of the Indus river at Sukkur, where de Terra and Paterson[3] were the first to discover scatters of man-made flint assemblages on their tops. Here the Indus turns west across a gorge between Sukkur and Rohri, where the island of Bukkur, on which Alexander the Great built up a fortress in the middle of the river, is located, as well as the smaller islet of Sad Bela, which is famous for the Hindu shrine (Fig. 9).
Along the south-western fringes of the hills rises the multi-stratified site of Kot Diji (Fig. 10), west of the main road Karachi-Lahore, just in front of the Talpur mud-brick fort (Fig. 11). Its stratigraphic sequence covers the Early and Mature Harappan Civilisation. This is the site from which the eponymous Kot Diji Culture takes its name.[4]
It is important to point out that the Rohri Hills are located some 90 km as the crow flies north-east of the Harappan metropolis of Mohen-jo daro (Fig. 12). Although the city is built exclusively of bricks and mud-bricks, a few engineering works were made of squared limestone blocks quarried from the hills. Among the others this is the case for the cover of the narrow, deep canal (Fig. 13) that flows from the "Great bath", one of the most important public constructions of the citadel (Fig. 14).

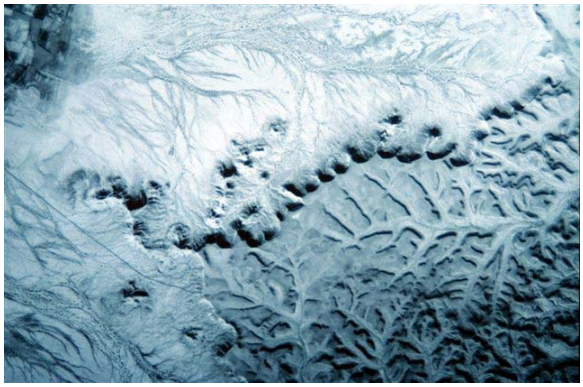
2. The research project

Although the Rohri Hills have been known since the end of the 1880s as a raw material source for the prehistoric populations that inhabited the Indus Valley, a project of systematic surveys and excavations in the region, called "Joint Rohri Hills Project", was promoted only in the 1990s by Ca' Foscari University, Venice (Italy) and Shah Abdul Latif University, Khairpur (Sindh, Pakistan).[5] Nevertheless the impor-

[3] De Terra, Paterson 1939.
[4] Khan 2002.
[5] Biagi, Shaikh 1994.



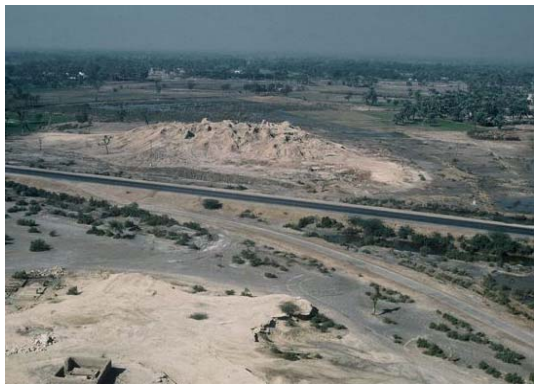
6. High sand dune surrounding the basin of Lunwāro Sim.



7. The central-western terraces of the Rohri Hills from the air.

8. Aror: an unknown mosque, whose vault collapsed in the 1990s.

9. The island of Sad Bela from Sukkur.



10. The Bronze Age site of Kot Diji from the Kot Diji fort.

11. The walls and bastions of the Talpur's Kot Diji fort.

12. A general view of Mohenjo-daro.

13. The Rohri Hills limestone blocks that cover the canal flowing from the "Great Bath".

14. The "Great Bath" of Mohenjo-daro.

tance of the Rohri Hills for the exploitation of the lithic raw material supply for the artisan workshops of Mohen-jo daro had already been suggested by Mackay[6] following the observations he made during the excavations carried out at the Indus Valley main site.

The first to report the presence of flint artefacts from this region was Blandford,[7] who, in his volume, describing the flat tops of the Rohri Hills south of Rohri wrote that "the surface of the limestone consists in general of a series of low slopes, corresponding in direction to the dip of the rock. The flints weather out and cover the surface throughout a large area; cores and flakes split from them being scattered about in abundance in some places" (Fig. 15). The same author mentions the recovery of "some flint cores, from which flakes have been chipped, obtained from Lieutenant Twemlow, R.E., in the bed of the Indus. The cores were remarkable for their regularity".[8] These cores were first illustrated by J. Evans[9] who was "superintendering excavations connected with a canal, near Shikarpoor, in Upper Scinde". Furthermore Blandford[10] reports that "large quantities of flint cores have been found near Sukkur and Rohri, and there is a good collection in the Geological Museum Calcutta".

Apart from the re-discoveries made by Cousens[11] and De Terra and Paterson,[12] it was B. Allchin[13] of the University of Cambridge, who visited the northernmost edges of the hills, near Rohri in December 1975. Here she observed "extensive Harappan working floors on the top of several of them", which were illustrated by the same author in another paper,[14] where she describes each of them as "an area large enough for a man to sit

15. A large flint workshop on the top of a terrace.

[6] Mackay 1938.
[7] Blandford 1880, 103.
[8] Blandford 1880, 20.
[9] Evans 1886, 28.
[10] Blandford 1880, 20.
[11] Cousens 1929.
[12] De Terra, Paterson 1939.
[13] Allchin 1976, 477.
[14] Allchin 1979.

cross-legged", which "had been completely cleared of stones".[15]

Before the complete, systematic destruction of this important archaeological area at the end of the 1980s, due to the intensive industrial quarrying, the present author visited the limestone mesas south of Rohri in April 1985 (Fig. 16). A further survey, carried out in the Shadee Shaheed region together with M. Cremaschi of Milan University in February 1986 (Fig. 17), under the patronage of the IsMEO, led to the discovery of the first concentrations of Harappan flint quarries and workshops.

16. The surface of a Harappan flint workshop near Rohri, an area destroyed in the late 1980s.

17. A central view of the hills near Mutton Jugoth.

Here the most impressive structures were distributed along the edges of the limestone plateau (Fig. 18). From the surface the quarries consisted of almost circular empty areas, representing the quarry-pits, filled with aeolian sand blown from the Thar Desert dunes, and heaps of limestone block, deriving from the Bronze Age mining activity (Fig. 19).

All around the structures flint workshops were observed (Fig. 20). They consisted of scatters of flint débitage flakes and blades among which were typical Harappan, elongated blade cores and characteristic bullet cores with very narrow bladelet detachments (Fig. 21). During the same survey it was possible to record that large areas of this part of the hills had already been heavily damaged by illegal limestone quarrying activities (Figs. 22-23), and that even wider devastations were in progress by modern industrial quarrying (Fig. 24). During the same season it was possible to observe that the area covered by groups of prehistoric quarries was very wide. It extended all over the central-western part of the hills, were Harappan quarries were discovered even in the valleys of the interior (Fig. 25).

It is to be to point out that one of the most important raw materials exploited by the third millennium Cal BC Bronze Age Harappans of the Indus Valley and its related territories was flint.

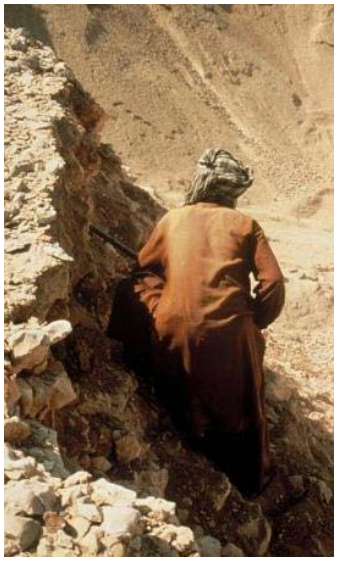
[15] Allchin *et alii*, 1978, 276.

18. The Harappan flint workshops discovered in 1986 on the Shadee Shaheed terraces.

20. A Harappan flint workshop.

19. The sandy top of a Harappan quarry-pit at Shadee Shaheed the day of its discovery.

21. Harappan bullet cores now in the Birmingham University collection.



22. Bugti Baloch quarrier on the Shadee Shaheed Hills.

23. Heavily scraped sides of the central-western part of the hills.

24. Modern industrial limestone quarry in 2001.

25. Harappan quarries in the internal regions of the Rohri Hills.

26. Surface of a workshop at Mohan-jo-daro.

Although the relevance of this siliceous stone has never been pointed out by the archaeologists even in the most recent publications on the subject,[16] the researches carried out in the Rohri Hills mainly during the last twenty years[17] and also the analytical study of artisan workshops of Mohen-jo daro (Fig. 26)[18] have shown the fundamental role played by flint in the wider context of this highly developed urban civilisation of the Indian Subcontinent.

2.1. The excavation of the Harappan quarry-pit 862

The excavation of quarry-pit 862 was carried out in four seasons of some two months each between 1995 and 1998.[19] This structure is located along the western edge of the Shadee Shaheed Hills, some 3.5 km south of the shrine that bears the same name (Fig. 27). It is part of an impressive, wide ring-shaped group of features, some 120 m in diameter, attributed to a Harappan flint quarrying area (Figs. 28-29). The excavation was opened in order to understand to the quarrying techniques employed by the Harappans and to define the absolute chronology of the site. Thanks to the recovery of two small charcoal pieces of *Zyzyphus* cf. *nummularia*, it was radiocarbon-dated to 3870±70 uncal BP (GrA-3235), which attributes the quarry-pit to

[16] See for instance Lahiri 1992.
[17] Biagi in press.
[18] Vidale 2000.
[19] Negrino *et alii* 1986.

27. The excavations at Quarry-pit 862.

28. The heavily corrugate landscape of the Shadee Shaheed Hills.

29. A group of quarry-pits and workshops from the air.

30. Quarry-pit 862 at the end of the last excavation season.

31. Flint nodule still in situ in the limestone at the bottom of Quarry-pit 862.

the Mature Harappan Civilisation.[20] The excavation covered an area of some 60 square metres down to a depth of 1.5 m, where the flint seam reached by the Harappan quarriers was found (Fig. 30), inside which dozens of extractive holes with flint nodules still *in situ* (Fig. 31) were recorded.[21] The excavation did not reveal any metal extractive tool. In contrast it yielded a huge amount of flint débitage flakes (Fig. 32) and several flint hammerstones and cores.

32. A Harappan débitage flint scatter discovered during the excavations at Quarry-pit 862.

2.2. The Palaeolithic sites

The first Palaeolithic sites on the hills were described by De Terra and Paterson[22] who collected flint artefacts of this period on the top of the terraces west of the city of Sukkur. B. Allchin,[23] in the winter of 1975-76, discovered many Palaeolithic workshops close to the Bronze Age mound of Kot Diji, more precisely at Chancha Baloch and Nawab Panjabi. While nobody knows exactly where the first site is located, the real name of the second one is Unnar (or Unar). This site is of extreme importance because of its stratigraphic sequence and the discovery of heavily patinated Acheulian bifacial handaxes.[24] Unfortunately this site was totally devastated by quarrying in the 1980s and all the lithic assemblages on its top removed and dispersed (Fig. 33).

The discoveries made in the 1990s highly improved our knowledge of the Palaeolithic in the region thanks to the excavation of the Late Acheulian site Ziarāt Pir Shabān 1 (ZPS1) (Fig. 34), north of Shadee Shaheed,[25] the Late Palaeolithic sites Ziarāt Pir Shabān 2 and 4 (ZPS2, ZPS4)[26] and the Middle Palaeolithic site 797 bis.[27] It was possible to remark the great abundance of Upper Palaeolithic sites (Fig. 35),

[20] Biagi 1995.
[21] Starnini, Biagi 2005 (fig. 4).
[22] De Terra, Paterson 1939, 331.
[23] Allchin 1976.
[24] Biagi, Cremaschi 1988.
[25] Biagi *et alii* 1996.
[26] Biagi *et alii* 1998.
[27] Negrino, Kazi 1996.

33. The totally erased Palaeolithic site of Unnar in 1999.

34. Acheulian bifacial tool on the surface of site ZPS1.

35. Small subconical core from the surface of a Late Palaeolithic site.

36. The surface of a Late Palaeolithic flint workshop.

37. Hill B at Seeraj with visible, on its top, archaeological features.

38. The activity of the limestone quarrying at Sheeraj in 2001.

which are mainly distributed all over the western fringes of the central terraces of the hills (Fig. 36).
During the same years Negrino and Kazi,[28] thanks to the data provided by the excavation of the above-mentioned sites and the typological analysis of all the Palaeolithic assemblages discovered in the hills, were able to establish a first chrono-typological sequence of the Palaeolithic of Upper Sindh, although many sites continued to vanish due to the impending industrial activities. It is important to point out that a huge Acheulian site, very rich in bifacial tools, discovered in the same year very close to the eastern periphery of Rohri, along the northern fringes of the hills, was destroyed in January-February 2001 without conducting any rescue excavation. A few artefacts were collected by Prof. G.M. Veesar of Shah Abdul Latif University, Khairpur and are now in the stores of the Archaeology Museum of the same.

2.3. The Historical sites

Apart from the prehistoric sites, also a few historic settlements were destroyed or damaged during the last twenty years. Among these are Seeraj[29] and a Buddhist stupa at Shah Shagar Ganj[30] an area important also for the sequences recorded in the area[31] not far from Aror, destroyed at the end of the 1980s.
The Buddhist town of Seeraj[32] (or Seeraj-ji Takri or Sheraz) was located along the central-western fringes of the Rohri Hills in the Khairpur District. More precisely it lay on two flat hilltops (A and B) (Fig. 37) some 120 m high, separated by a saddle, some 1.75 km northeast of the Tomb of Uban Shah. To the east and to the west of the town, two small seasonal streams flow in southeast-northwest direction. The coordinates of Hill A are 27°21'55" N and 68°47'00" E.
A. Jafri[33] was the first to mention "*a perfectly planned small township with the clear distinction of living quarters and other amenities*". He also described some buildings and "*traces of construction on three corners of the rock, which resemble to security posts*" and that of "*a smaller complex of rooms with thick walls of burned bricks*" along the western end of the terrace, while the "*central area of the hill accommodates a flat construction identical to a speakers stage or salute platform*".

[28] Negrino, Kazi 1996.
[29] Biagi *et alii* 2002.
[30] Verardi 1987, 48.
[31] Biagi, Cremaschi 1988, 423.
[32] Seeraj means oil lamp both in Sindhi and in Hindi. A similar name is also reported by Blanford (1880, 108), when he describes the presence of "*two limestone hills called Maleki Khánwári and Sherawári Tekri*" near the village of Mithunjo along the central western margin of the Rohri Hills.
[33] Jafri 1980, 3-4.

Further details were later provided by G.M. Shar,[34] who described "*visible remains of a massive stone wall*" "*on a hill top, immediately to the East of Seeraj-ji Takri*", which might represent an ancient fortification, on Hill B. "*On Hill A, remains of domestic architecture consisting of lime-plastered walls built of burnt and plain mud bricks .....A heap of burnt bricks was also noticed, of which some were carved in the same fashion as those known from Sindhi Buddhist stupas*".[35]

In 1987 G. Verardi[36] paid a visit to Seeraj, where he distinguished between "*an inhabited area and a sacred area*", this latter including "*a stupa...almost completely deprived of its outer casing of carved baked bricks*".

The present writer repeatedly visited the site between 1986 and 2001 when the town began to be systematically destroyed by the limestone quarrying of the hill on which it had been built (Figs. 38). During this first visit (and not this), the remains of a squared construction, corresponding to Verardi's[37] stupa were observed (Fig. 39), as well as those of a few rectangular stonewalled rooms and mud-brick walls.

A preliminary interpretation of the aerial photographs of Seeraj area, made by C. Baroni in 1999,[38] revealed many habitation structures along the northern slope of Hill A, which had already been totally destroyed during the industrial works undertaken between the 1950s and the 1980s. The study of the aerial photographs demonstrate that originally the town extended well beyond Hilltops A and B and that another flat hilltop, northeast of Hill A was covered with archaeological remains most probably of the same Buddhist period.

39. Remains of the Buddhist stupa at Seeraj in 2001.

One charcoal sample collected in January 2001 from the foundations of a mud-brick wall northeast of the stupa was radiocarbon-dated to 1270±20 BP (GrN-

[34] Shar 1995, 37.
[35] Shar 1995, 112.
[36] Verardi 1987, 50.
[37] *Ibid.*
[38] Biagi *et alii*, 2002.

26801), which corresponds to 680-780 AD at 2σ.[39] This result indicates that the town was destroyed during the first half of the eighth Century AD, or slightly later, most probably during the sovereignty of the Umayyad Khalifas,[40] probably as a consequence of the Arab invasion.
The state of preservation of the historical capital of the country, Aror, is also critical because it is systematically robbed by the local inhabitants of the small village, which is continuously expanding, for the building of their new houses. The small mosque of fig. 8 partly collapsed at the end of the 1990s and the famous mosques of Mohammad bin Qasim and the Emperor Auranzgeb are also in a very bad state of preservation.[41]

3. The disappearance of an archaeological landscape

The "Joint Rohri Hills Project" that unfortunately ended in 2002 after so many important discoveries and the publication of so many data, was nevertheless totally unable to stop the progressive, systematic destruction of the archaeological sites of the hills because of the absence of any interest by the local authorities, mainly the officers of the Institute of Archaeology of Shah Abdul Latif University, Khairpur, the only Institute of Archaeology of Sindh. The project itself had been included in the "Protocol for Scientific and Technical Cooperation between the Italian Republic and the Islamic Republic of Pakistan for the Years 1998-2000".
Repetitive appeals for the safeguard of the region personally made by the author to the Governor of Sindh in the company of the General Consul of Italy in Karachi (2000), the Commissioners of Sukkur and Kot Diji (2001), the Vice-Chancellor of the Shah Abdul Latif University, Khairpur and the Directors of the same Institute (1996-2001) have systematically resulted in no action by all the above-mentioned authorities.
Furthermore the "Seminar and Exhibition on the Archaeological Discoveries of the Rohri Hills, Khairpur, Sindh" held at the Department of General History of Karachi University in February 2000, promoted and financed by the General Consulate of Italy and in particular strongly supported by the then Consul General Dr. Mario Cristofoli, did not produce any concrete result either. The same can be said for an appeal to the UNESCO-WHC director in 2001.

[39] Stuiver *et alii*, 1998.
[40] Panhwar 1983.
[41] Bukhari 1991; Mastoor 1997.

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Photographic references

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