

## Quarries in Harappa

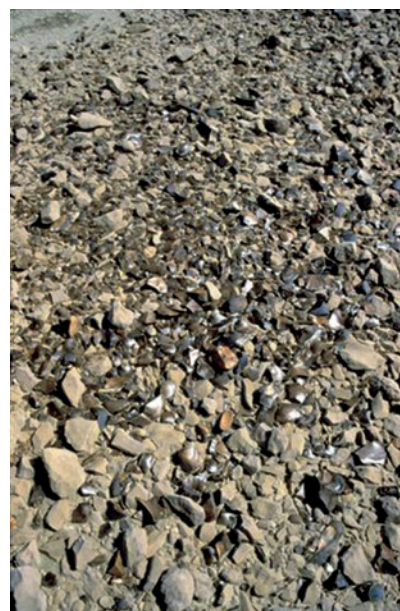
PAOLO BIAGI

It is surprising to note that one of the most important raw materials exploited by the third millennium Cal BCE Bronze Age Harappans of the Indus Valley and its related territories was flint. Although the importance of this siliceous stone has never been pointed out even in the most recent publications on the subject (see for instance Lahiri 1992), nevertheless the research carried out mainly during the last 20 years in the Rohri Hills (Biagi in press) and also in the artisan workshops of the metropolis of Mohenjo-daro (Vidale 2000) have shown the fundamental role played by flint in the wider context of this highly developed urban civilisation of the Indian subcontinent.

Although the Rohri Hills have been known since the end of the 1980s as a raw material source, systematic surveys and excavations in the region were undertaken only in the 1990s by the Ca' Foscari University of Venice (Italy) and the Shah Abdul Latif University, Khairpur (Sindh, Pakistan; Biagi and Shaikh 1994). The first to report the presence of flint artefacts from this region was Blandford (1880: 103), who, in his *Geology of Western Sind*, 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. 1). 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" (Blandford 1880: 20). These latter cores were first illustrated by Evans (1886: 28) who was "superintending excavations connected with a canal, near Shikarpoor, in Upper Scinde". Furthermore Blandford (1880: 20) 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" (Figs. 2 and 3).

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Apart from the re-discoveries made by Cousens (1929) and De Terra and Paterson (1939), Allchin (1976: 477) of the University of Cambridge visited the northernmost edge of the hills, near Sukkur and Rohri, in December 1975. Here she noticed "extensive Harappan working floors on the top of several of



Quarries in Harappa. Fig. 1



Quarries in Harappa. Fig. 2



Quarries in Harappa. Fig. 3



Quarries in Harappa. Fig. 4

them”, which were illustrated by the same author in another of her papers (Allchin 1979), where she describes each of them as “an area large enough for a man to sit cross-legged”, which “had been completely cleared of stones” (Allchin et al. 1978: 276).

Before the complete destruction of this important archaeological area, due to industrial quarrying, the limestone mesas south of Sukkur were visited by the present author in April 1985 and again in 1986, when groups of large flint quarries were discovered by the present writer and Cremaschi of Milan University in the Shadee Shaheed region (Figs. 4–6).

### The Rohri Hills

The Rohri Hills, which are some 40 km long and 16 wide, extend in a north–south direction between the course of the Indus and the cities of Sukkur and Rohri, in the north, and the westernmost fringes of the Thar Desert, in the south (Fig. 7), which, in this part of the country is very rich in salt-lake basins (Figs. 8 and 9). The hills consist of fossiliferous limestone rocks of the Brahui attributed to the Middle Eocene/Early Oligocene period, very rich in seams of good quality flint, which attracted the prehistoric populations from



Quarries in Harappa. Fig. 5



Quarries in Harappa. Fig. 6

the Early Palaeolithic onwards (Biagi and Cremaschi 1988) (Fig. 10). They separate two very different environmental regions, the Indus Valley to the west and the Thar Desert to the east. Their eastern fringes are lapped by the Nara Canal, which flows inside the old bed of the Hakra–Ghaggar River. The hills are limestone mesas (Fig. 11), dissected by erosion and deeply incised by old river courses (Fig. 12).

As mentioned above, the surveys carried out in 1986 led to the discovery of groups of Harappan flint quarries and workshops in the Shadee Shaheed area of the hills (Biagi and Cremaschi 1991). Here the most impressive structures were located along the edges of the limestone plateau (Fig. 13). From the surface the quarries consisted of almost circular empty areas, representing the quarry–pits, filled with aeolian sand,





Quarries in Harappa. Fig. 7



Quarries in Harappa. Fig. 10



Quarries in Harappa. Fig. 8



Quarries in Harappa. Fig. 11

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Quarries in Harappa. Fig. 9



Quarries in Harappa. Fig. 12

blown from the Thar Desert dunes, and heaps of limestone block, deriving from the prehistoric mining activity (Fig. 14). All around these structures flint workshops were noticed (Fig. 15), represented by scatters of flint flakes and blades among which were typical Harappan-elongated blade cores and characteristic bullet cores with very narrow bladelet detachments

(Fig. 16). During the same survey, it was possible to observe that large areas of this part of the hills had already been highly damaged by illegal activities carried out by limestone quarriers (Figs. 17 and 18), and that even wider devastations were in progress by modern industrial quarrying (Fig. 19). Nevertheless it was possible to observe that the area covered by the presence of groups of prehistoric quarries was very

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Quarries in Harappa. Fig. 13



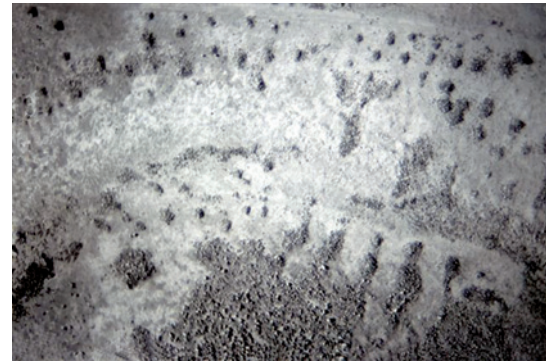
Quarries in Harappa. Fig. 14



Quarries in Harappa. Fig. 15



Quarries in Harappa. Fig. 16



Quarries in Harappa. Fig. 17



Quarries in Harappa. Fig. 18

wide and extended all over the central-western region of the hills. Harappan quarries were discovered also in the valleys of the internal mesas (Fig. 20).

**The Excavation of Quarry-Pit 862**

The excavation of Quarry-pit 862 was carried out between 1995 and 1998. This quarry lies along the western edge of the Shadee Shaheed Hills, some





Quarries in Harappa. Fig. 19



Quarries in Harappa. Fig. 20



Quarries in Harappa. Fig. 21

3.5-km south of the shrine that bears the same name (Fig. 21). “The site is part of an impressive, wide ring-shaped group of features, some 120 m in diameter, related to a Harappan flint quarrying activity area” (Starnini and Biagi 2005: 1). The quarry was surrounded by several flint scatters and workshops (Negrino et al. 1996), one of which was connected with the production of narrow bladelets from typical bullet

cores (see Fig. 16). As mentioned above, the excavation was carried out during four fieldwork seasons. It was aimed at the understanding of the quarrying techniques employed by the Harappan workers and the understanding of its chronological attribution. Thanks to the discovery of two small pieces of *Zyzyphus* cf. *nummularia* charcoal it was possible to obtain an AMS radiocarbon date of the main quarry-pit. It gave the result of 3,870±70 uncal BP (GrA-3235), which attributes the structure to the Mature Harappan Civilisation (Biagi 1995). The excavation covered an area of some 60 m<sup>2</sup> down to a depth of 1.5 m, where the floor reached by the Harappan workers was found (Fig. 22), inside which dozens of extractive holes containing flint nodules still in situ (Figs. 23 and 24) were discovered (Starnini and Biagi 2005, Fig. 4). The excavation did not yield any metal or other extractive tool which might have been employed for breaking the fissured limestone and reaching the flint seam. In contrast it produced a huge amount of flint debitage (Fig. 25) and several hammerstones and cores from the same material. On the basis of the field observations, “the preparation of the precore rough-outs was most probably performed inside the quarry trench, or along

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Quarries in Harappa. Fig. 22



Quarries in Harappa. Fig. 23





Quarries in Harappa. Fig. 24



Quarries in Harappa. Fig. 26



Quarries in Harappa. Fig. 25



Quarries in Harappa. Fig. 27

its edge, as many decorticating flakes, pre-forms and typical crested blade-like-flakes found inside the ditch fill should indicate” (Starnini and Biagi 2005: 5).

### The Daphro Hill

The surveys carried out on the Daphro Hills, south of Hyderabad, in Lower Sindh, led to the discovery of other flint extractive quarries also in this region (Biagi 2006). At least three different points of this hill revealed the presence of flint extractive systems similar to those observed along the western mesas of the Rohri Hills in Upper Sindh (Figs. 26 and 27). Apart from ditches excavated along the edges of these limestone mesas, the surveys revealed the presence of flint workshops (Fig. 28), undoubtedly attributable to the Harappan Civilisation, as indicated by the occurrence of characteristic elongate, subconical, flint cores with long blade detachments (Fig. 29). At Daphro, the presence of large-sized pre-cores (Fig. 30), already prepared for being transported, is of major interest. Single pre-core specimens have been found at Mohenjo-daro, the Rohri Hills and Kahiro Bhandari near Badin, close to the Runn of Kutch. This discovery



Quarries in Harappa. Fig. 28

is particularly important because it indicated that not only the final products, such as well-defined types of blades and bladelets were transported to the major



Quarries in Harappa. Fig. 29



Quarries in Harappa. Fig. 30

centres of the Harappan Civilisation for being transformed into instruments for craft production around the middle of the III millennium BCE, but also complete, large blocks of flint already prepared for their transport.

### Considerations

The discoveries made in the Rohri and Daphro Hills have demonstrated that flint was still extremely important during the flourishing of the III millennium BCE Harappan Civilisation. Flint was extracted not only from the Rohri Hills quarries, but also from Daphro and possibly other outcrops during this period and traded over long distances at least as far as Harappa, to the north, and the cities located along the north Arabian Sea coast, to the south. The complicated extractive system, which undoubtedly involved a great number of workers and knappers, and the extraordinary great number of quarries discovered on the Rohri Hills indicate that this raw material was of primary importance at least during the Mature Harappan Civilisation. Although the extraction systems have

not been fully understood and the trade routes are still badly known, there is no doubt that the role played by this raw material has so far been underestimated by archaeologists.

Furthermore the damage to a more comprehensive knowledge of the Harappan Civilisation caused by the systematic devastation, for illegal industrial activities, of both the aforementioned archaeological areas of Upper and Lower Sindh is remarkable.

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