ANTIQUITY

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Notes

The Harappan flint quarries of the Rohri Hills (Sind-Pakistan)

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Flint quarries in the Rohri hills supplied stone to the city of Mohenjo-Daro, out on the silty river-plain and lacking local supply. A new survey has identified workshop sites and an extraordinary scale of production.

Introduction

In his geology of Western Sind, Blandford (1880) reports the presence of flint cores and flakes on the hills near Sukkur and Rohri. Even though no further description is given, these artefacts 'scattered about in abundance in some places' (Blandford 1880: 103) are to be interpreted as prehistoric sites later re-discovered by Cousens (1929). A more accurate description of both Palaeolithic and Harappan assemblages is presented by De Terra & Paterson (1939), who also suggested that some of the flint tools they saw on the Rohri Hills, which resembled those from Mohenjo-Daro, were to be attributed to the Harappan civilization (Allchin *et al.* 1978).

More recently, investigations were carried out by B. Allchin (1976) in 1975–6. She discovered several Palaeolithic and Harappan sites mainly located at the northern and south-western ends of the hills (Allchin 1979; Allchin & Allchin 1982). Recent and old excavations conducted at Mohenjo-Daro have revealed that the flint employed by the Harappan communities was not available from the silty-clayey alluvial plain of the River Indus, but had been imported from outside. The more probable source for raw material is that of the Rohri Hills that lie close to Kot Diji and some 50 km to the northeast of Mohenjo-Daro. The Rohri Hills are a dissected limestone plateau, composed of flat mesas, in all some 40 km long by 16 wide which are cut by the River Indus, to the west, and the Nara Canal, an old bed of the Indus itself, to the east (FIGURE 1) (Holmes 1968). Their name derives from the near-by town of Rohri, in front of Sukkur, at the northern edge of the hills, on the left side of the Indus. They are composed of stratified cherty limestones. Their surface is actually covered with an extraordinary amount of flint nodules whose presence is to be related with Late Tertiary weathering. Limestone blocks and fragments, which originated from thermoclastic activities, are visible between the flint nodules (Biagi & Cremaschi 1988).

The 1986 survey

Many Palaeolithic and Harappan sites, mainly concentrated in the northern and central parts of the hills, were found during the survey of February 1986 (Biagi & Cremaschi in press). Most of the Harappan sites consisted of workshops and chipping-floors connected with the exploitation of the raw material and the manufacture of the flint artefacts. Two characteristic types of structures were recognized: simple chipping-floors surrounded by wide discharges of waste flakes (FIGURE 2), and complex features delimited by walls of limestone blocks (FIGURE 3). The more impressive structures were distributed along the edges of a limestone plateau in the neighbourhood of Shadi Shaheed (FIGURE 4). Here, at Hilly Site, the structures were often

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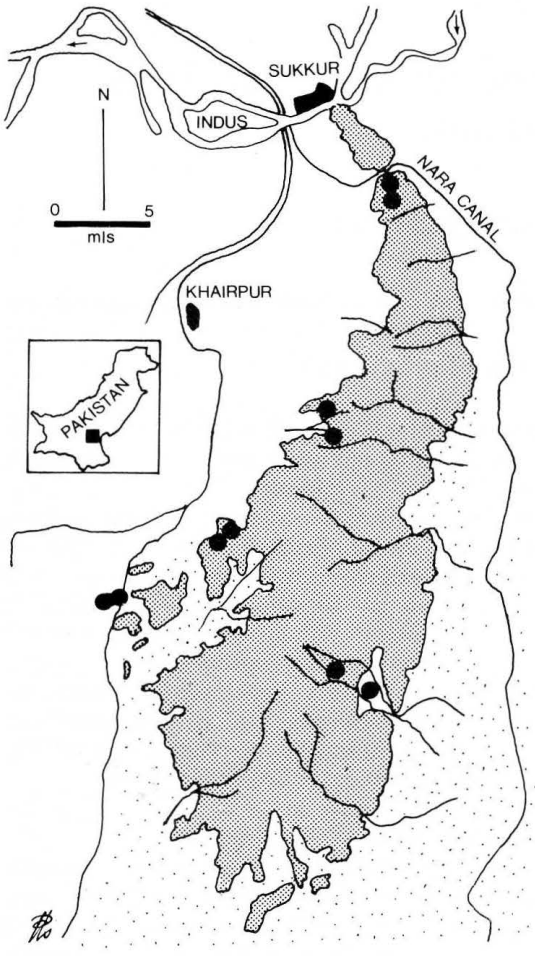

FIGURE 1. *Rohri Hills. Distribution map of the Harappan sites discovered in 1986. (Drawn by P. Biagi.)*

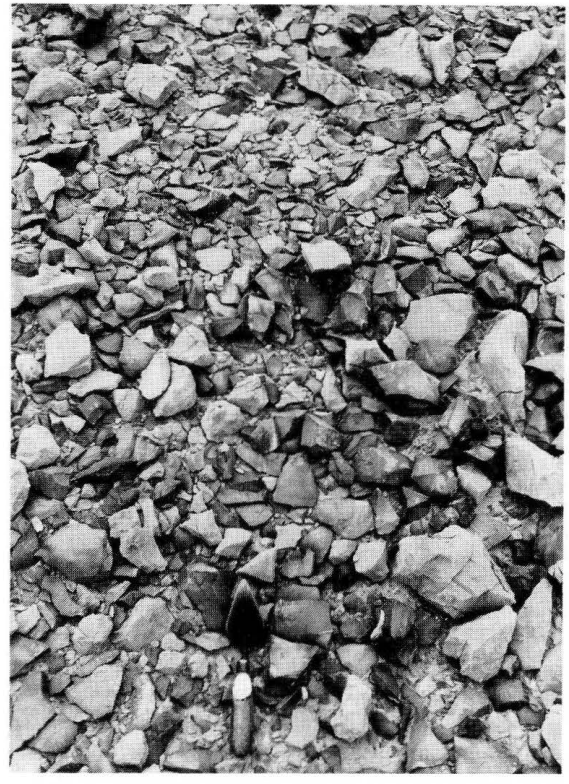

FIGURE 2. *Flint workshop floor at Shadi Shaheed. (Photo P. Biagi.)*

composed of four to six workshops grouped together (FIGURE 5). Each workshop consisted of a circular empty area, where the craftsman probably sat, and eolian sand was later trapped. A wall of limestone blocks, often collapsed, lies at its back and a debitage of flints at its front. The flint artefacts from these features were mainly composed of flakes and blades while cores were much rarer. Exhausted, pyramidal, narrow blade and bladelet cores were often found heaped together some 10–20 m from the chipping-floors. The finds from various sites demonstrate that the core reduction was processed as shown in FIGURE 6. The cortex was first removed from the nodules by centripetal strokes in order to obtain an oval-shaped pre-core. The pre-core was then broken into two pieces which were later pressured-flaked to produce narrow blades and bladelets (Tixier 1984). The cores were intensively utilized until bladelets some 2 mm wide were obtained. The exhausted cores were then thrown away and heaped together a few metres apart.

A very small trench (10 × 10 cm) was excavated inside one of the workshops of Shadi Shaheed. It yielded 147 unretouched artefacts; 118 complete pieces were measured to develop the dispersion diagram of FIGURE 7, obtained following Bagolini's method (Bagolini 1968). It clearly demonstrates that the debitage is almost exclusively composed of flakes of normolithic and macrolithic dimensions.

Most of the sites so far discovered are scattered along the edges of the plateaux with the exception of Buddhist Cave and Shelter Site, near Aror, at the northern margin of the Hills, and of a small assemblage from the sand dunes

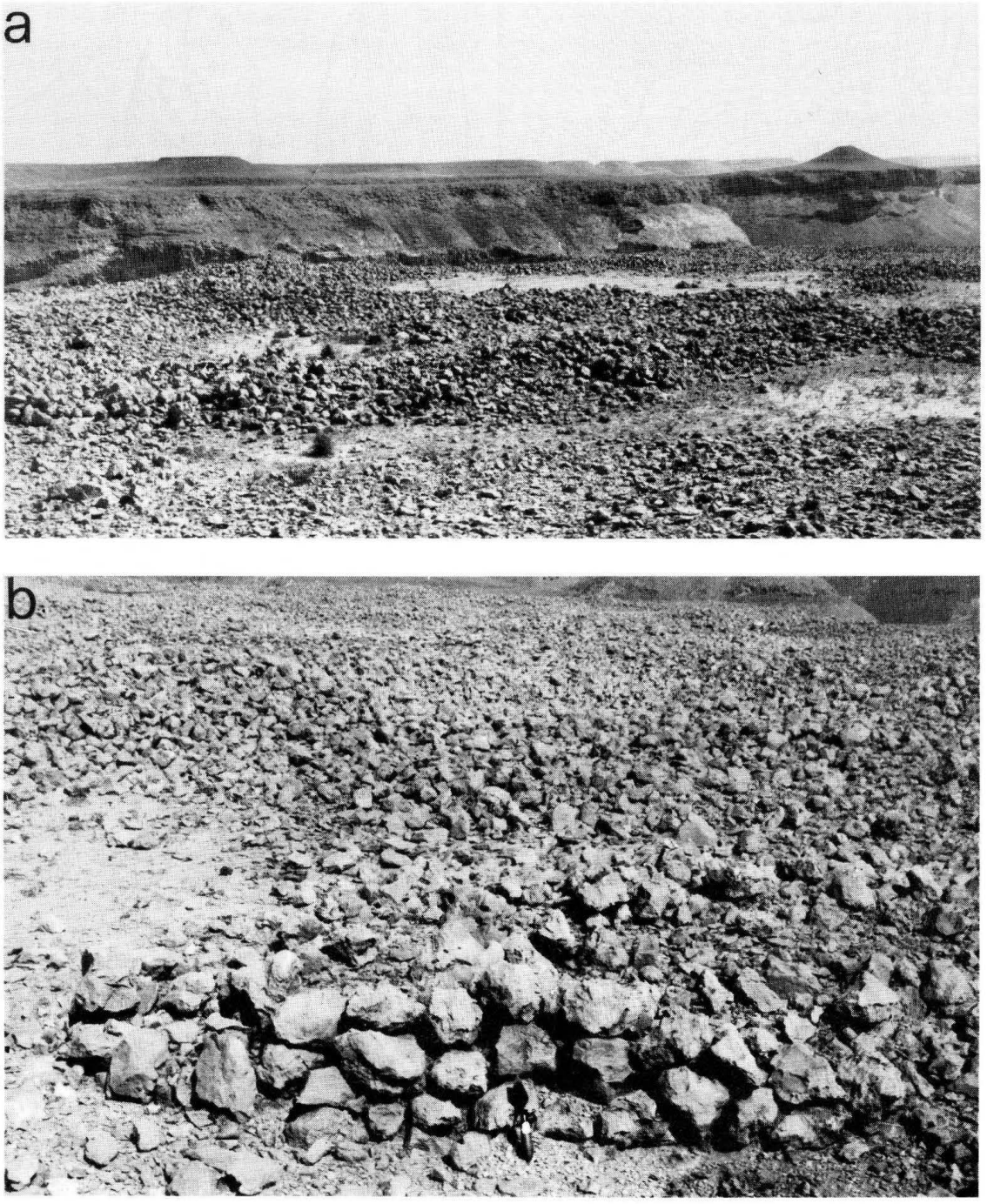

FIGURE 3. *Shadi Shaheed.*
a *Circular workshops.*
b *Wall of limestone blocks. (Photo P. Biagi.)*

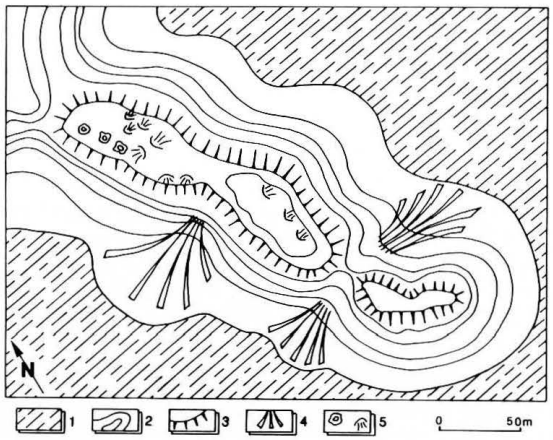

FIGURE 4. *Schematic plan of Shadi Shaheed site. 1. Alluvial plain. 2. Contour lines. 3. Ridge. 4. Fans. 5. Harappan structures. (Drawn by M. Cremaschi.)*

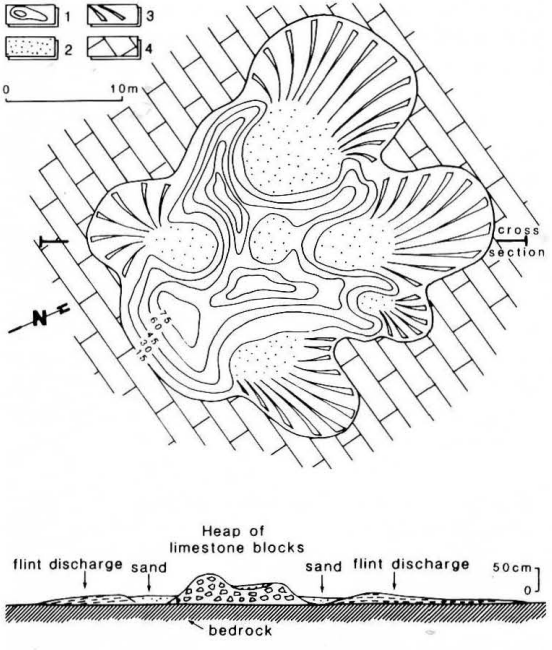

FIGURE 5. *Schematic plan of flint workshop. 1. Contour lines. 2. Eolian sand. 3. Flint discharge. 4. Bedrock. (Drawn by M. Cremaschi.)*

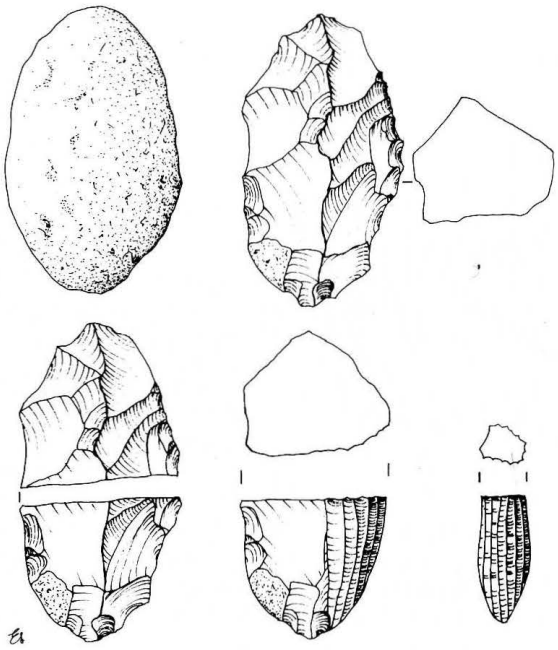

FIGURE 6. *Stages of manufacture of a Harappan core from the Rohri Hills workshops. (Drawn by E. Starnini.)*

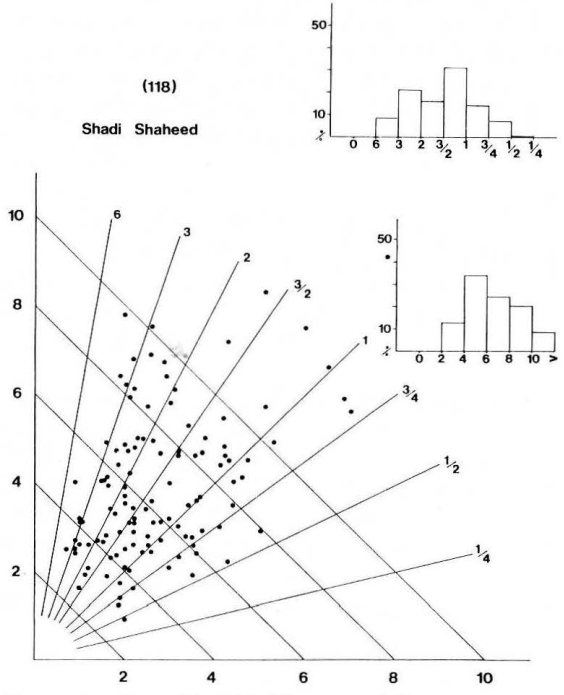

FIGURE 7. *Length/width diagram of the unretouched artefacts from Shadi Shaheed. (Drawn by P. Biagi.)*

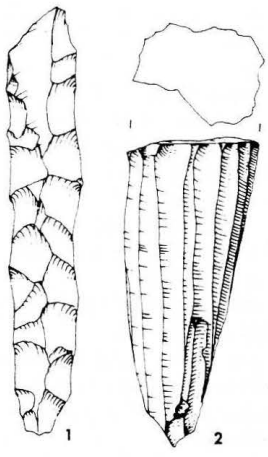

FIGURE 8.
1 *Rejuvenation blade from Buddhist Cave.*
2 *Pyramidal blade core from Shelter Site. (Drawn by G. Almerigogna.)*

from a valley just to the east of Bunglow Kot. The only stratified site is Buddhist Cave, where the Harappan layer, which gave one rejuvenation blade (FIGURE 8.1), is covered with an archaeological deposit belonging to the Buddhist period (Biagi & Cremaschi in press). The Shelter Site, just to the northwest, yielded many narrow blade pyramidal cores collected from the surface of the slope deposit (FIGURE 8.2). The flint assemblages from both these sites show no traces of eolization. A small group of fresh artefacts was also recovered from an archaeological layer buried by a sand dune, from a site discovered to the east of Bunglow Kot.

Discussion

Only a small region of the Rohri Hills was investigated during the 1986 survey. Nevertheless the distribution of the Harappan quarries and workshops seems to be widely extended all over the area. In fact some of the plateaux are almost completely covered with structures where the production of pyramidal flakes and blades took place in Harappan times. The extraordinary quantity of raw material available from the top of the terraces certainly attracted the prehistoric communities of the Harappan culture who intensively exploited the area throughout a period of time we cannot actually define between the 5th and the 4th millennia BP. They selected limestone blocks from flint nodules, and employed the first to build up stone structures with semi-circular walls and the second to produce unretouched artefacts. The quantity of stone features and chipping floors discovered in 1986 indicates that quarrying and flaking lasted for a rather long period during the flourishing of the Harappan culture and that a reasonable number of craftsmen were employed in this activity. These are reasons to think that they probably settled their temporary (?) camps on the plateaux or on the low-lying alluvial plain.

Pyramidal bladelet cores, flakes and blades, almost undoubtedly coming from the Rohri Hills outcrops, were uncovered from Mohenjo-Daro and Kot Diji. The bladelets from both these sites were later shaped into specialized instruments, such as truncations and hypermicrolithic awls (Bondioli *et al.* 1984) for the piercing of lapis lazuli beads (Tosi & Piperno 1973). Apart from the Buddhist Cave and the Shelter Site, which produced fresh assemblages, all the Rohri Hills sites located on top of the plateaux, gave artefacts whose surface show very evident traces of eolization. As confirmed by SEM analyses (Biagi & Cremaschi 1988), this should indicate that the eolian sand dunes which actually surround the southern and eastern slopes of the hills, formed more recently than the spread of the Harappan Culture, that is when the near-by cities of Mohenjo-Daro and Kot Diji were already uninhabited.

Unfortunately the archaeological sites of the Rohri Hills are nowadays intensively exploited as raw material quarries for road construction. Many of them are in danger or have already been damaged or destroyed for industrial purposes.

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