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Author(s): K. PADDAYYA and MICHAEL D. PETRAGLIA

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ACHEULIAN WORKSHOP AT ISAMPUR, HUNSGI VALLEY, KARNATAKA: A PRELIMINARY REPORT

K. PADDAYYA AND MICHAEL D. PETRAGLIA

This paper presents a brief account of the results of field research conducted by the authors in March 1997 at one of the Acheulian sites near the village of Isampur in the Hunsgi valley of Gulbarga district, Karnataka. This site forms part of a large complex of Acheulian sites discovered by the first author in the Hunsgi and Baichbal valleys over the last two decades. The site at Isampur is not merely an addition to the list of known Lower Palaeolithic sites but presents some new insights into the behaviour of the Acheulian community of the area by exposing a workshop for stone tool manufacture, including evidence pertaining to quarrying of limestone blocks from bedrock. Before presenting results of this work it will be useful to have a short review of both the geographical setting of the area and the Acheulian culture record from it.

The Hunsgi and Baichbal valleys are located in the southwestern part of Shorapur Taluka of Gulbarga District, Karnataka (Fig. 1). They lie about 15 km. away from the left bank of the river Krishna and consist of amphitheatre-like basins of erosional origin dating back to the Tertiary period. They are separated from each other by a narrow east-west running plateau strip. The total area covered by the two basins measures 30 km. north-south and 17 km. east-west. The floor of the basin is occupied by the Archaean granite-gneiss formation with a mantle of black soil measuring up to a metre in thickness. The eastern margin of the basin is defined by low, dissected hills of granite-gneisss or Dharwar schist with heights above the ground ranging from 20 to 40m. The other three sides are defined by shale-limestone plateaux (some places with a capping of the Deccan Trap) forming part of the Bhima series; these tablelands rise up to heights of 20 to 60 m. above the valley floor.

The two basins together form the

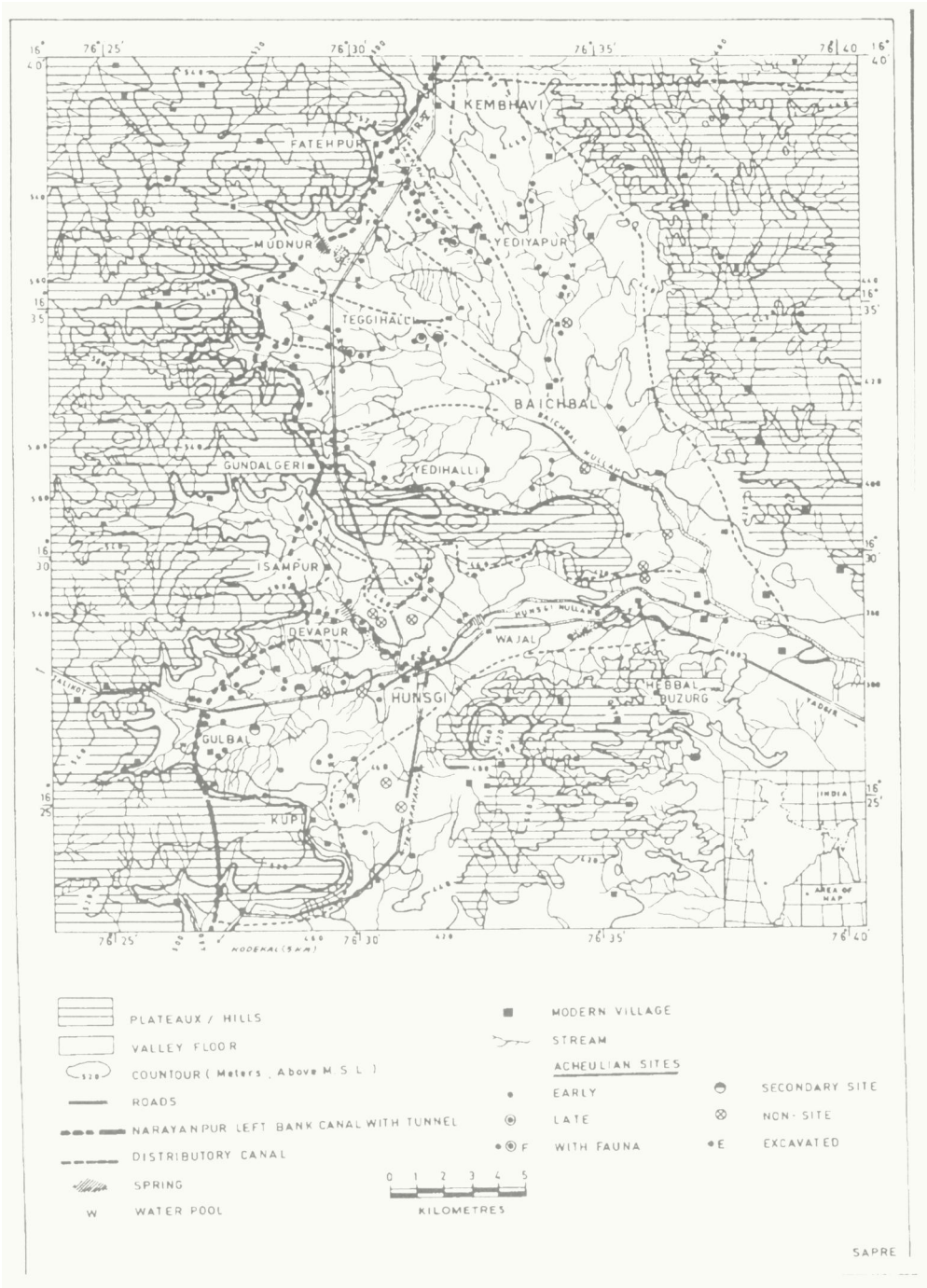

Fig. 1: Map of the Hunsgi-Baichbal Valleys, North Karnataka, showing the distribution of Acheulian sites

headwater zone of the Hunsgi nullah, which is a minor left-bank tributary of the river Krishna. The Hunsgi valley is drained by a number of small, seasonal streams which originate on the plateau surface and flow across the valley floor. These get integrated into a single stream called the Hunsgi stream near the village of Hunsgi. Likewise, the Baichbal valley is drained by a network of small streams which join together near the village of Baichbal. The Baichbal nullah joins the Hunsgi stream after flowing for a distance of 10 km. Notwithstanding the seasonal character of the streams draining them, the two basins have perennial waterpools at several spots; these are fed by seep springs originating at the junction of sedimentary rocks with the underlying Archaean formations. The occurrence of thick and extensive travertine deposits proves that these springs were active in the geological past too.

The basin floor slopes gently from west to east and has several linear-shaped, shallow depressions separated from each other by tongue-shaped sweeps of elevated land. These constitute respectively the fluves and interfluves, resulting from the long drawn-out process of erosion that led to the formation of the two valleys.

The area is characterized by semi-arid climate and receives an average annual rainfall of about 50 cm. Dry farming (with *jowar, bajra* and linseed as the main crops) and animal-keeping (cattle and sheep/goats) are the important components of village economy. Since 1985 this area has been brought under light irrigation as part of a major scheme called the Upper Krishna project. In fact, the main canal starting from the huge reservoir at Narayanpur on the Krishna passes along the western edge of the Hunsgi and Baichbal basins. On account of irrigation facilities even commercial crops like sunflower, cotton and chillies have now become quite common in the area.

The senior author's prolonged field investigations in the region from 1974 to 1989, comprising intensive foot-surveys as well as excavations at the sites of Hunsgi and Yediyapur, brought to light over 120 Acheulian sites. Based upon dates obtained by the uranium-thorium series technique on enamel samples of animal teeth found along with other fossil fauna and cultural material, these sites are securely dated to the time range of one to three and a half lakh years (Paddayya 1991: 135-136). The area has also made known a vast number of sites belonging to the Middle and Upper Palaeolithic, Mesolithic, Neolithic and Iron Age cultures (Paddayya 1973; 1987a). From the Middle Palaeolithic cultural phase onwards sites also begin to occur on the plateau surface surrounding the valleys, but the Acheulian sites are confined to the valley floor. The vast majority of these sites are found on the downslope surfaces of the ancient interfluves marking the valley floor and close to or at short distances away from the beds of ephemeral streams draining these surfaces.

Pooling together the field data pertaining to distribution of sites on the valley floor and seasonal character of water sources as well animal and plant foods, as extrapolated from the present environments of the region, the senior author concluded that the annual resource

management of the Acheulian community consisted of two strategies geared to the seasonality of climate (Paddayya 1982; 1991). That is, in the wet season the Acheulian population aggregate split into small groups and spread over the valley floor, since water, plant foods and small fauna are available freely everywhere. As against this, in the dry season the population groups aggregated near permanent water sources and adopted large game hunting as the main mode of subsistence. The Hunsgi-Devapur stretch of the Hunsgi nullah and the Fatehpur-Yediyapur stretch of the Fatehpur nullah in Baichbal valley have the largest concentrations of Acheulian sites; these stretches also have perennial sources of water in the form of spring flows and pools. The occurrence of thick travertine deposits proves that such pools and flows existed in the distant past also.

Since 1989 the senior author has been carrying out further field research in the region to understand site variability in terms of their geomorphological and sedimentary contexts. These investigations were necessary in order to lay down criteria for distinguishing primary sites from those lying in secondary contexts and thereby obtain a closer understanding of the Acheulian settlement system. For this purpose the more recently developed research strategy of site formation processes was adopted (Paddayya 1987b). The junior author collaborated twice (once in 1989 and then in 1990) in the field studies conducted in the area for this purpose. The results of this joint research have been published in the form of two research papers (Paddayya and Petraglia 1993; 1995). These studies have made it possible to distinguish primary sites from those affected by various landscape processes such as fluvial and colluvial agencies. In terms of cultural processes, three or four types of sites could be distinguished: occupation sites where residential, tool-making and food-consumption activities took place; scavenging or food-processing locations; tool-caches; and sites with single episodes of resource procurement/processing/use or consumption.

In continuation of this work the authors conducted further field investigations in the region in the months of October and November 1994. This work was aimed to (a) understand the spatial extent of various sediment types occurring on the valley floor such as the kankar conglomerates, brown silt and black soil; (b) identify the geomorphic processes responsible for their formation; (c) obtain a more refined understanding of the stratigraphical contexts of the Stone Age sites with reference to these sediments; (d) and collect sediment samples which could be used for dating purposes. For this purpose various sectors of the Hunsgi and Baichbal basins as well as some of the plateau surfaces were surveyed (Paddayya and Petraglia, *in press*).

Acheulian Site at Isampur

As part of this work the area around the village of Isampur was explored in order to understand the nature and extent of sedimentary cover and also ascertain the stratigraphical context of the Acheulian cultural material found earlier at this place by the senior author. The village of Isampur (Lat. 30° 17' N and Long. 76° 29' E)

is located in the northwestern part of the Hunsgi valley (Fig. 2). This part of the valley consists of a narrow, gorge-like sub-valley drained by a seasonal nullah locally known as the Kamta Halla. Originating in the shale-limestone uplands (with a capping of the Deccan Trap at some places), this nullah flows in an easterly direction for a distance of 5 km. and then takes a southeasterly course to join the Hunsgi nullah after flowing for a distance of 8 km. The change in the course of Kamta Halla is governed by local topography. To the east of Isampur a

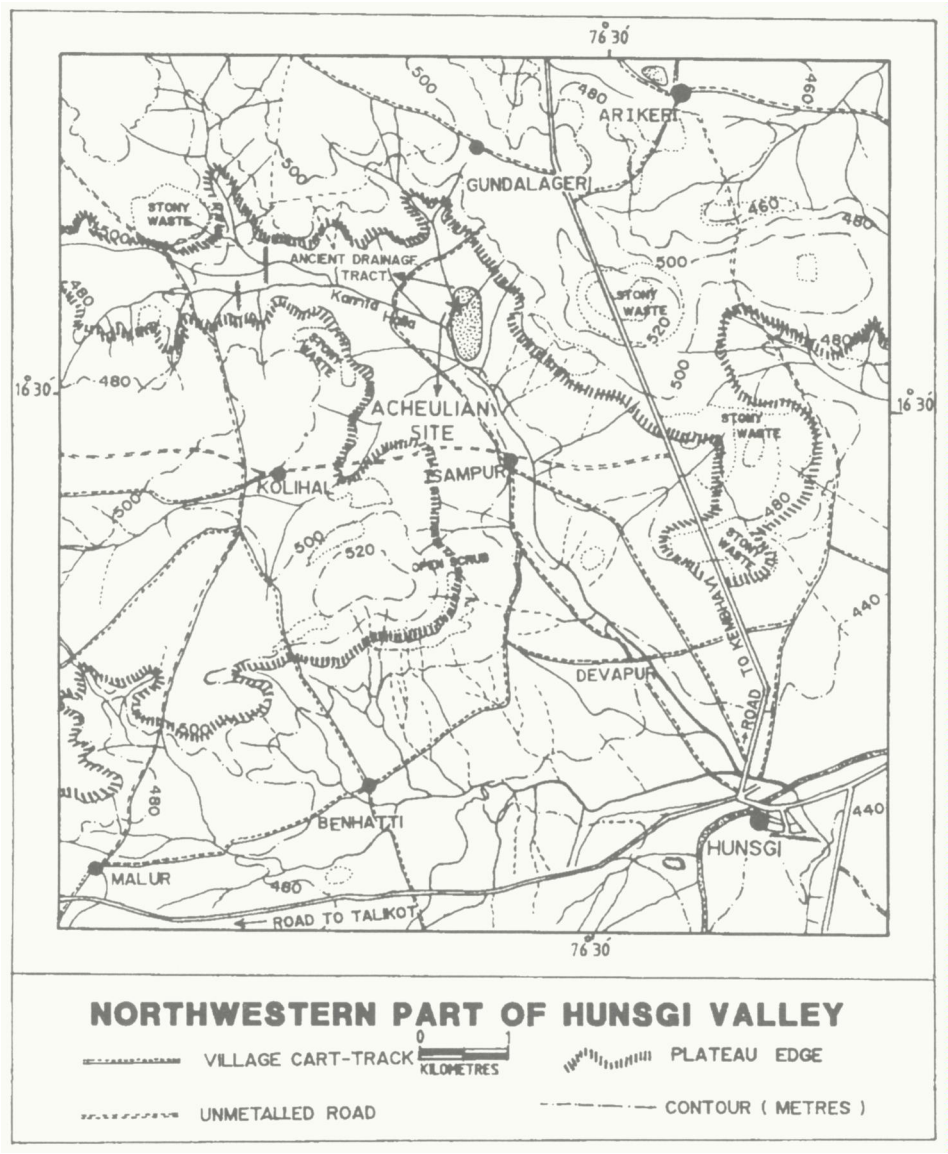

Fig. 2: Map of the northwestern part of Hunsgi valley showing the Acheulian site of Isampur

remnant stretch of the west-east running and tongue-shaped plateau between Gundalgeri and Hebbal Buzurg — this serves as a waterdivide between the Hunsgi and Baichbal basins — projects itself southwards and forms a barrier which forces the drainage represented by the Kamta Halla take a southeasterly course. This is also the reason for the presence of thick sedimentary cover in the vicinity of Isampur.

The village of Isampur is situated on the right bank of the Kamta Halla. The Acheulian site lies about two kilometres northwest of the village and about 200 m away from the left bank of the nullah. It is about a kilometre east of the Narayanpur Left bank Canal, the major irrigation canal of the Upper Krishna Project cutting across the Hunsgi and Baichbal valleys. The site forms part of the limestone pediment surface and lies on the 470 m contour level. The surrounding area consists of farmland supporting cotton and sunflower crops. The spot where the Stone Age site is located is marked by the confluence of two shallow, first-order streams draining the pediment surface. Both these streams originate on the Trap-covered shale-limestone plateau on the north. It must be noted that the channelization of waterflow of the pediment surface, which otherwise would take the form of sheetflows, owes its origin to the activity of farmers to raise bunds around their strips of farmland in order to arrest soil erosion.

The site was discovered in March 1983 by the senior author as part of his intensive survey of the Hunsgi valley. It was part of a large, roughly oval-shaped dug-out area measuring

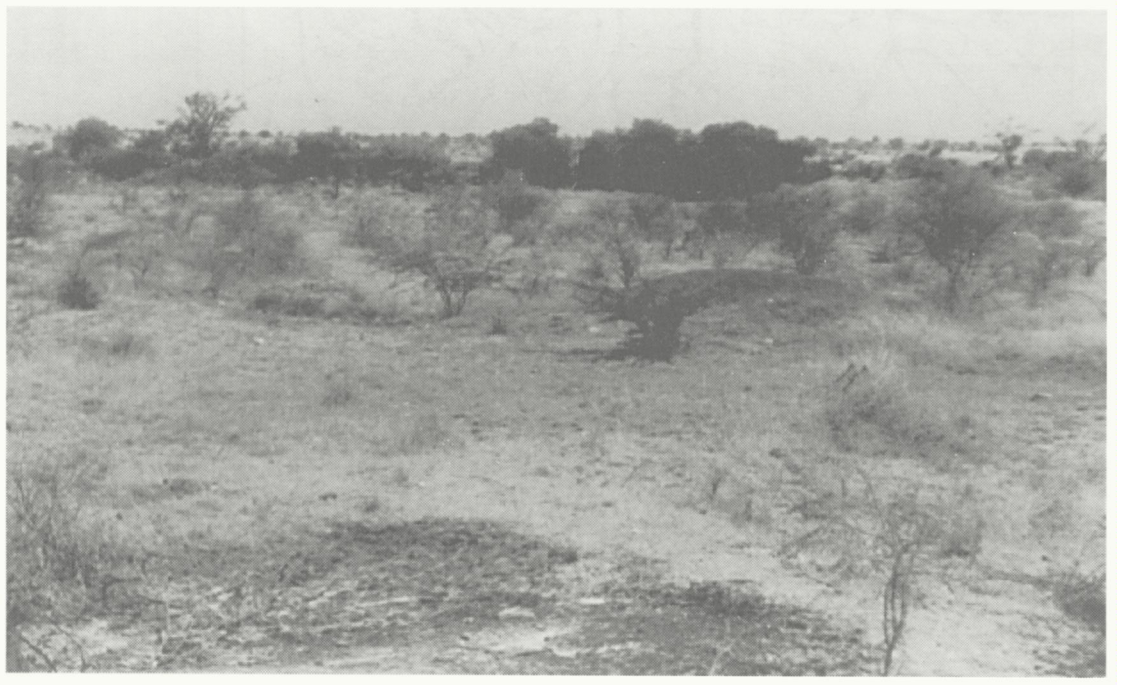

Fig. 3: General veiw of the dug-out area at Isampur

about 300 m across. From here a few years earlier silt deposits had been quarried away by the Irrigation Department for raising the embankments of the main irrigation canal mentioned above (Fig. 3). In the exposed sections of the quarry black silt (1 to 1.5 m thick) was found resting over brownish kankary silt of about the same thickness (Fig. 4).

The Acheulian cultural material was found on the surface of remnant patches of brownish silt in the dug-out area. It was inferred that human occupation took place during the terminal part of brown silt deposition or else when the sediment had already formed a stable land surface but before its covering by black silt. The lithic material was found in two clusters (Isampur localities II and III), separated from each other by a distance of about 50 m. Each locality covered a small patch of dug-out area measuring 10 to 15 m across and produced 10 to 20 artefacts. Almost all artifacts were of limestone and included handaxes, cleavers, chopping tools and flakes. Their surfaces and edges showed no traces of smoothening, thereby suggesting that the two localities are of the primary type.

The visit of the authors to the Isampur site in November 1994 was meant for ascertaining the relationship between the brown and black silts and the stratigraphical position of the Acheulian level. Section scraping was carried out at a few places in the dug-out area; the stratigraphy exposed in one of these scrapings is shown in Fig. 5 (B). One of the interpretations made during this visit was that the brown and black silts actually belong to one sedimentary unit, the brownish part representing a prolonged

Fig. 4: Section scraping in the dug-out area at Isampur, showing brown and black silt deposits

period of leaching of carbonates from the upper levels. But this observation needs to be supported by detailed sedimentological studies.

At a few places in the dug-out area a 25 cm thick conglomerate horizon was found beneath the silt deposits. The deposit lay directly on limestone bedrock and consisted of angular limestone blocks measuring up to 30 cm across and bearing kankar or calcrete-like encrustation. This encrustation represents a precipitate formed in a pool-like environment containing carbonate-rich waters. Such an explanation fits in quite well with the local topography. As was ascertained in the course of subsequent fieldwork conducted at the site in March 1997, the land patch from where the silts had been quarried forms part of a shallow, basin-like depression subsequently filled up with 2 to 3 m thick silt deposits.

A third and perhaps the most important observation made during this visit was that one of the two Acheulian localities (Locality II lying on the west) found earlier was a much larger one. It extended over the shallow, grass-covered bed (10 to 30 m broad) of the field stream descending from the Gundalgeri plateau. The silt deposits measured about a metre in thickness. Limestone surface was exposed

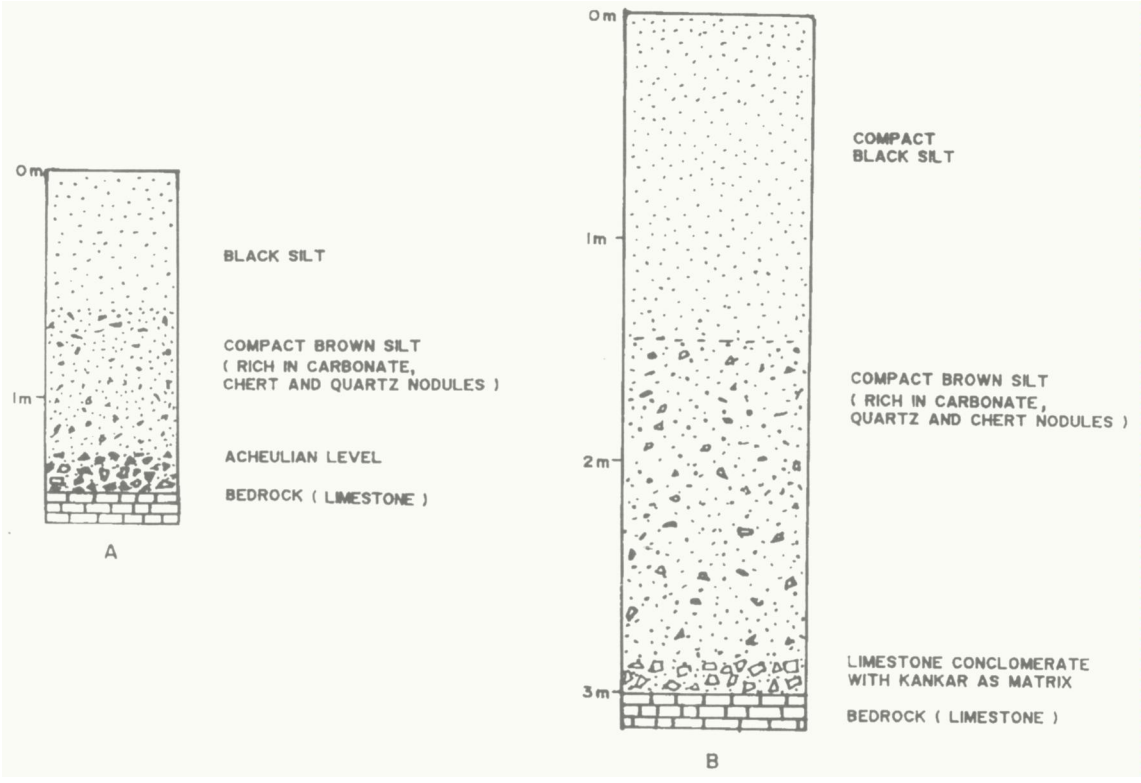

Fig. 5: Sections at Isampur: (A) Section exposed in the cutting on the western side of Acheulian workship site; (B) Section exposed in the dug-out area

wherever the sediments were stripped away due to erosion. Over 60 artefacts were found in an area measuring 30 to 40 m across. The assemblage included cores, large flakes, debitage and three hammerstones of chert and quartzite. Further there were also clues that limestone blocks of suitable sizes were dislodged from the bedrock for knapping purposes. It was felt that the locality was an Acheulian workshop preserving evidence of quarrying of raw material from the bedrock. Further fieldwork was called for to obtain a closer understanding of the geoarchaeological and cultural aspects of the site.

Fieldwork in 1997

In view of the special nature of the site the authors undertook another season of field research at the site in March 1997. This work involved both (a) intensive explorations in the area around the site to understand the general geomorphological setting of the site and (b) trial excavation in order to ascertain the spatial extent of the Acheulian horizon, and its stratigraphical context and cultural features.

An important observation arising from the explorations in the area was that the channelized course of the field stream on which the Acheulian site is located and, in fact, the courses of other first-order streams draining the pediment surface owe their origin entirely to the extensive bund-making activity of modern farmers around their strips of farmland to prevent loss of soil. Water descending from the plateau surface, which otherwise would take the form of broad sheetflows, is forced to assume a channelized form due to these artificial bunds. Depending upon the preparation of additional and more robust bunds, these watercourses sometimes shift their positions on the pediment surface.

Another significant observation made during this field study concerned the geomorphological context of the Stone Age site. Our examination of the sections preserved in rain gullies, field bunds and cuttings of the area from where the Irrigation Department had previously quarried soil deposits revealed that the dug-out area forms part of a large, shallow basin-like depression measuring about a kilometre north-south and 400 m east-west and about 2 m deeper than the general pediment surface, which was subsequently filled up with 2 to 3 m thick silt deposit. This depression probably resulted from the removal of rock debris from pediment surface on account of sub-surface drainage which is typical of limestone landscape. Another possibility is that the depression represents an ancient drainage feature forming part of the long drawn out process of valley formation.

The Achelulian site under consideration lies on the western edge of this basin-like topographical feature. It spreads over the bed of the shallow watercourse descending from the Gundalgeri plateau and flowing in a southerly direction to meet the Kamta Halla. The area is covered with scrub jungle vegetation consisting of grasses and plants belonging to *Acacia* and *Cassia* species (Fig. 6). The site partly also covers the agricultural land on both sides of the watercourse, owned by Basappa Navadgi and Aminappa Harnal of Isampur. The watercourse

Fig. 6: General view of the Acheulian workshop locality at Isampur

has two or three scour pools measuring about half a metre in depth.

Over 120 artefacts were noticed on surface at the locality and their spatial positions were plotted. These were mostly exposed in the area occupied by the shallow watercourse covered with scrub jungle vegetation (Fig. 7). Barring some half a dozen bifaces, the assemblage basically consisted of flakes of large dimensions and cores of limestone. It also included four hammerstones of Intertrappean chert, quartz and quartzite. The artefacts were in fresh condition, thereby revealing the primary character of the assemblage.

An area of 15 sq.m. (later called Trench 2), located in the middle portion of the nullah course, was subjected to surface clearance (Fig. 8). This exposed a heavy concentration of limestone blocks and artefacts. From their loose setting and lack of soil cover it was clear that this assemblage was a redeposited one, probably derived from the spots where scour pools now occur in the bed of the watercourse.

As part of our work we also dug a dozen test pits of 1 m^2 size spread all over the locality. These pits proved to be very helpful in more than one way (Fig. 9). First, these exposed silt deposits which are much shallower than the sediments occurring in the adjacent

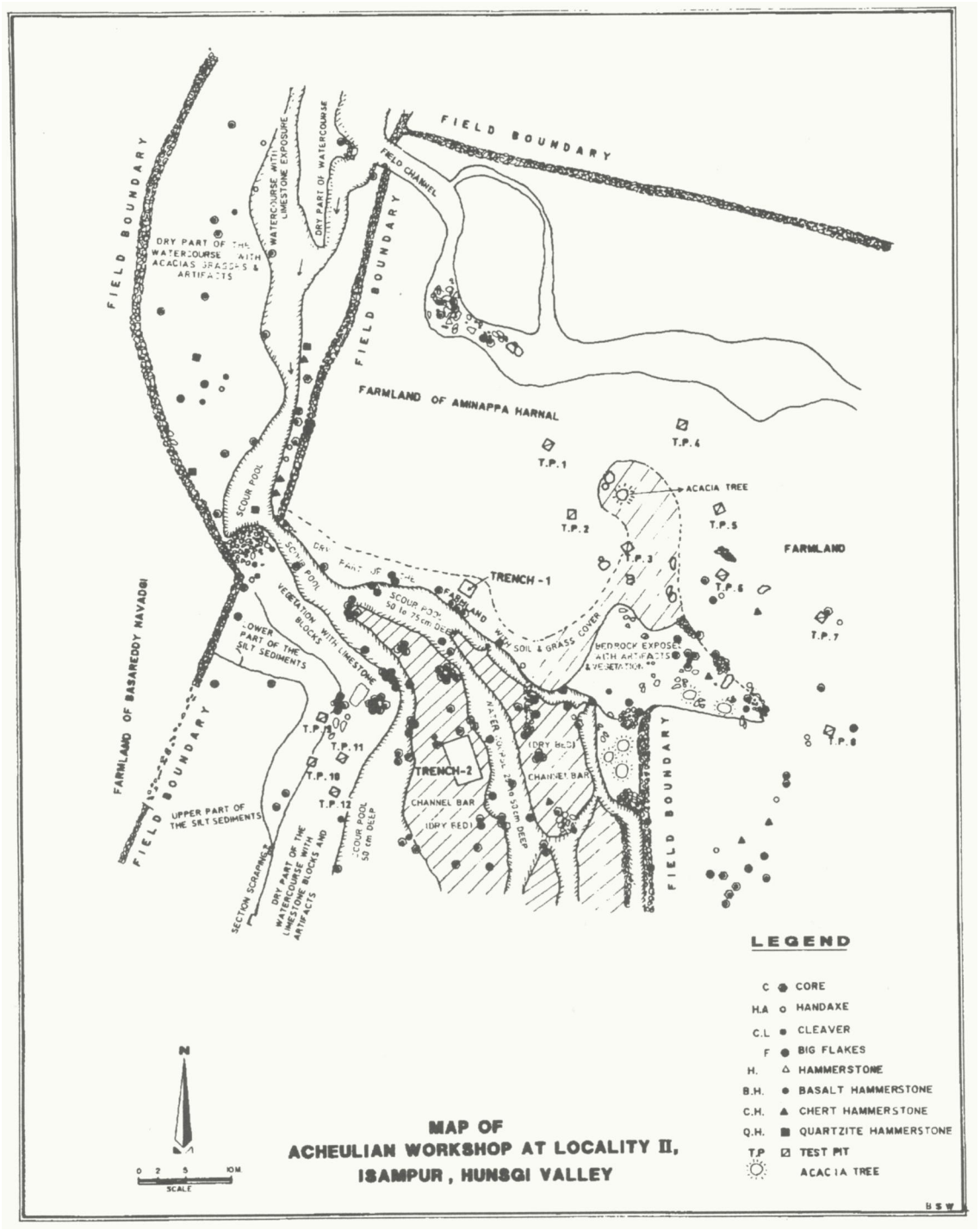

Fig. 7: Map showing various surface features at the Achulian workshop locality of Isampur

Fig. 8: Limestone blocks and artefacts found in a redeposited condition in Trench 2 at Isampur Acheuiian workshop site

Fig. 9: View of the one of the test pits at Isampur Acheulian site showing the cultural level beneath black silt

Fig. 10: Section scraping done at Isampur Acheulian workshop site, exposing the Acheulian level underneath 1.2 m thick brown/black silt deposit

Fig. 11: Top surface of the Acheulian level (10-15 cm below surface) exposed in Trench 1 at Isampur

Fig. 12: Acheulian level (25-35 cm below surface) exposed in Trench 1 at Isampur

Fig. 13: Close-up of the Acheulian level (15-30 cm below surface) exposed in Trench 1 at Isampur

topographical depression. These silts were blackish in colour and measured from 15 to 50 cm in thickness. In one of the pits, however, the sediment was exposed to a depth of 1.2 m, the bottom part consisting of kankary brownish silt and the upper part consisting of black silt (Fig. 5 (A); Fig. 7 and Fig. 10). The variability in the thickness of these deposits is essentially due to the the extent of sediment removal by the channelized watercourses in the area, which are in turn controlled by the network of field bunds that the farmers raise to control soil erosion.

Secondly, the Acheulian cultural level was exposed in most of these pits. The horizon roughly covered an area measuring 80 m north-south and 70 m east-west. Much of the area of the site is occupied by the bed of the watercourse covered with scrub jungle vegetation but the site also covers to some extent the farmland on both sides of the watercourse.

One of the test pits (later called Trench 1) forming part of the bed of the watercourse exposed a considerable amount of cultural material beneath black silt. Hence it was extended to cover a total area of 3 m^2 (2 m north-south and 1.5 m east-west). It was excavated up to a depth of 40-45 cm below surface; the following levels were exposed (from top downwards):

Layer 1: Black, sticky clayey silt (10 to 15 cm thick).

Layer 2: Colluvial gravel (5 to 8 cm thick) made up of angular to sub-angular pieces of chert and other rocks. This gravel deposit was laid down by surface runoff.

Layer 3: This was the Acheulian horizon and measured about 20 cm in thickness (Figs. 11 to 13). It consisted of limestone blocks and artefacts, all set in a hard matrix of kankary brown silt. The whole layer was quite hard to dig and rested on pediment surface (limestone).

The Acheulian horizon was divided into two grids, each measuring 1.5 m^2 in extent. It was excavated as two levels — the upper one lying 20 to 30 cm below surface and the bottom one 30 to 40/45 cm below surface (Figs. 14 and 15). The upper level yielded over 110 artefacts. These were mostly of limestone and included 10 cores, 3 hammerstones of chert and basalt, 31 large flakes and the rest consisting of debitage measuring up to a centimetre or even less in size (Fig. 16 to 24). The lower level was much harder to dig on account of the kankary nature of the brown soil matrix. This level yielded 35 artefacts comprising one biface, 14 large flakes and the rest by-product flakes. Associated with these artefacts there were half a dozen limestone blocks measuring up to 35 cm long and 12 cm in thickness. These blocks were obviously meant to be used as cores. The extremely low proportion of finished tools was a striking negative feature of the assemblage.

The field data recovered from explorations in the area and the trial excavation at the Acheulian locality permit the following observations to be made about the site.

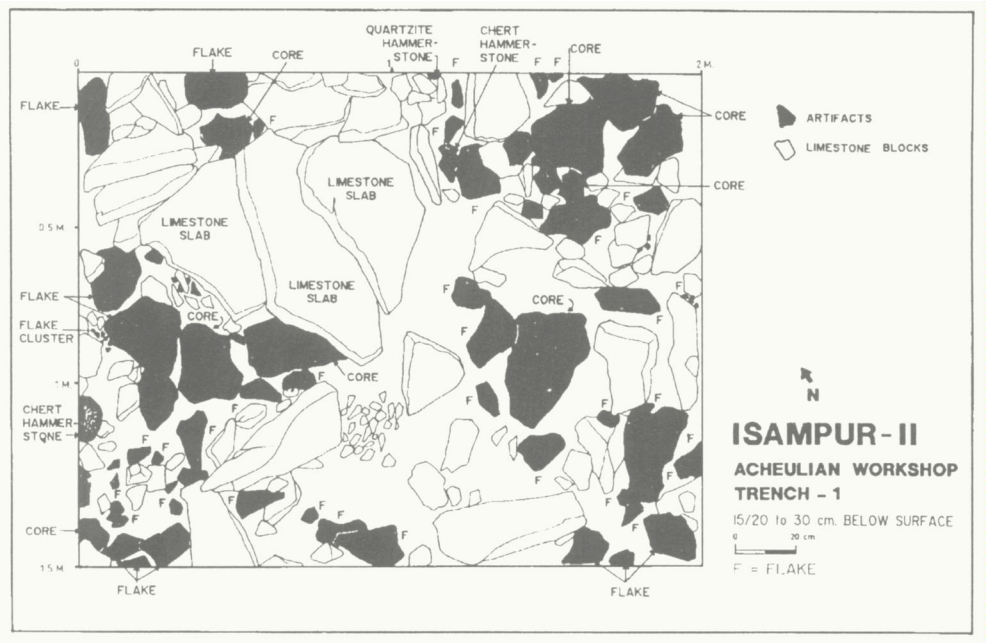

Fig. 14: Limestone blocks and Acheulian artefacts exposed 20 to 30 cm below surface in Trench 1 at Isampur

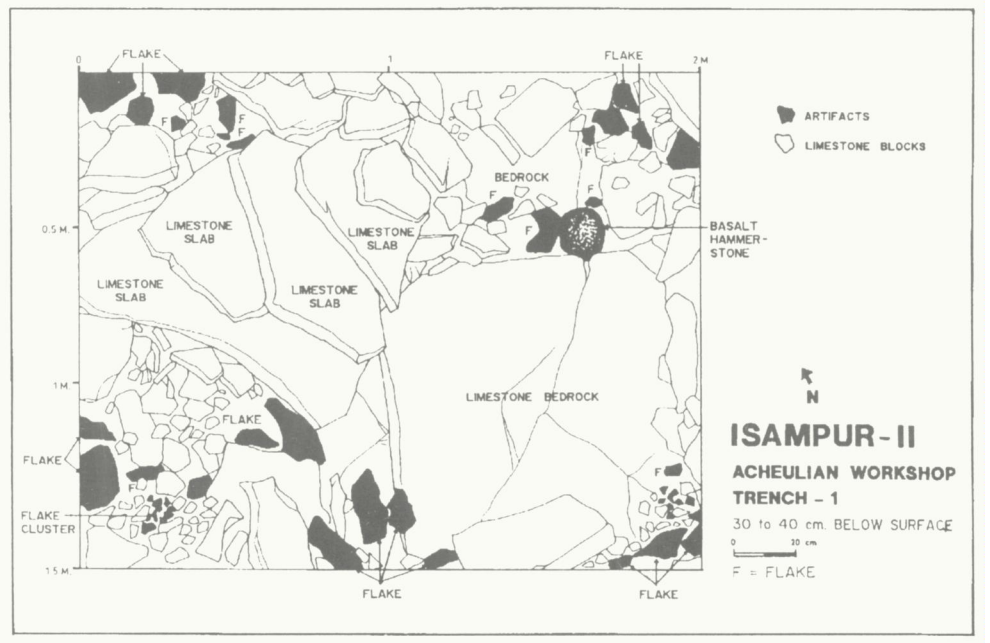

Fig. 15: Limestone blocks and Acheulian artefacts exposed 30 to 40 cm below surface in Trench 1 at Isampur

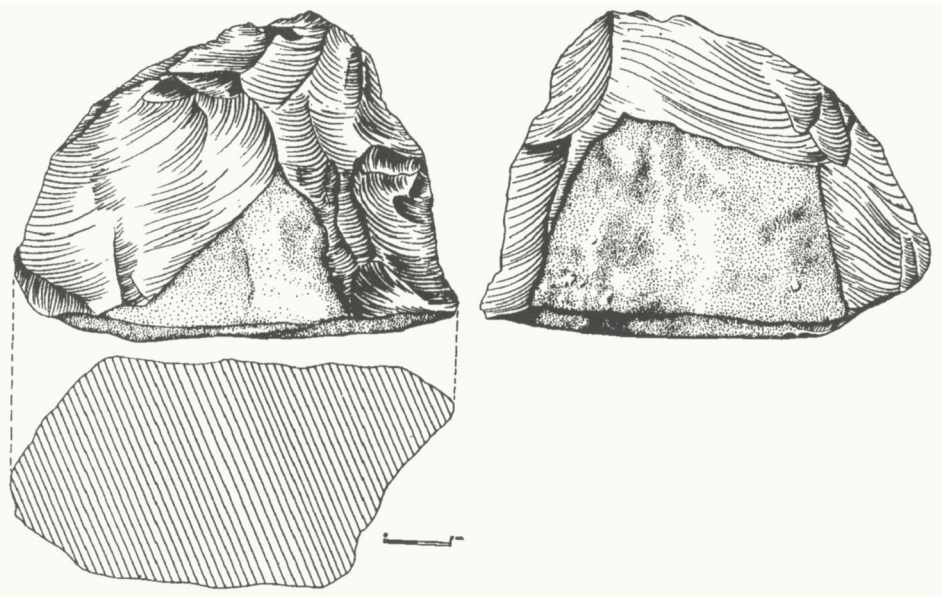

Fig. 16: Large limestone core from Acheulian level exposed in Trench 1 at Isampur

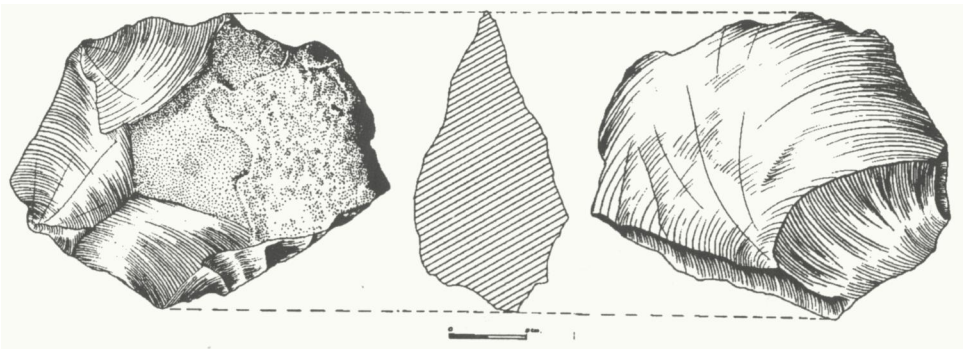

Fig. 17: Large limestone flake from Acheulian level exposed in Trench 1 at Isampur

The site forms part of the limestone pediment surface. The selection of this spot for tool-making by the Acheulian group was basically guided by the easy availability of limestone blocks of suitable shapes and sizes on the weathered limestone surface. The limestone at this spot is cream-coloured and cherty, and therefore served as an ideal medium for working. Moreover, the blocks range up to 10 to 12 cm in thickness, whereas at other localities the limestone beds are generally thinner and measure 5 or 6 cm thick. Mr. Philip Laporta of New York City University is carrying out a detailed study of the structural and petrographic characteristics of the limestone outcrop of at this locality. As mentioned above,

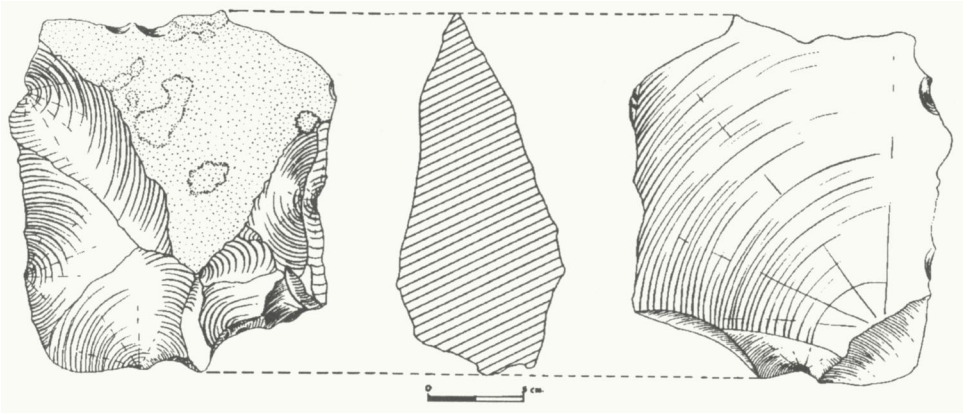

Fig. 18: Large limestone flake from Acheulian level exposed in Trench 1 at Isampur

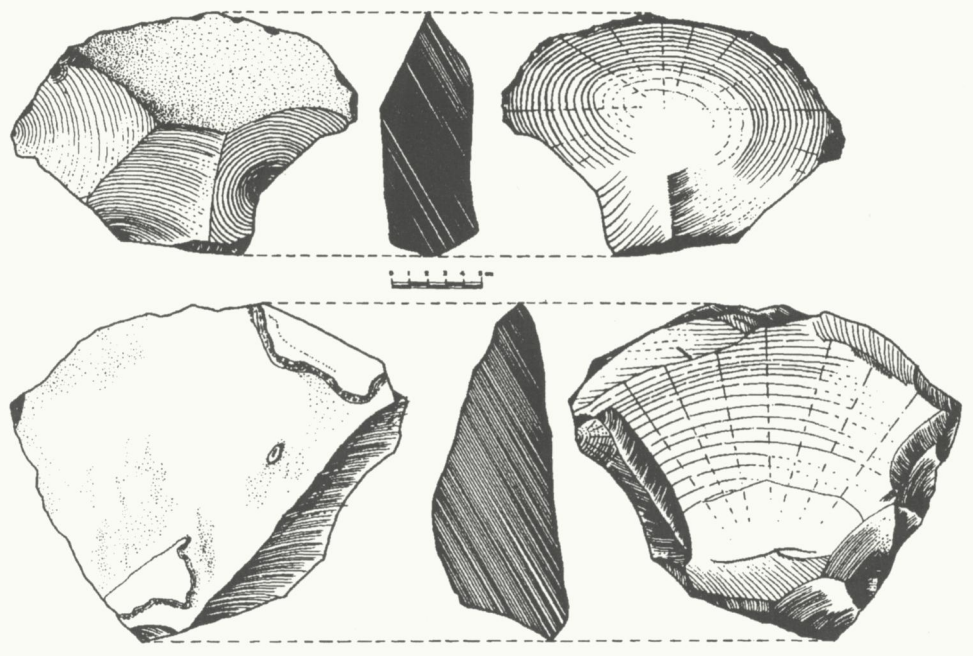

Fig. 19: Large limestone flakes from surface of Isampur workshop locality

the site lay on the outer rim or edge of a shallow basin-like depression. A more or less assured supply of water, as provided by this topographical setting, would have been an additional advantage presented by this particular spot on the landscape.

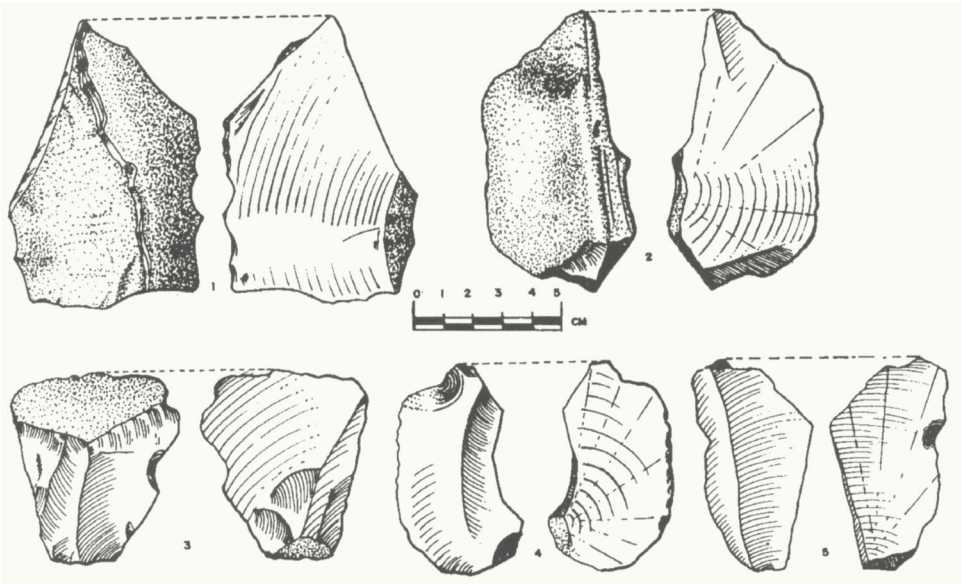

Fig. 20: By-product flakes of limestone from the Acheulian level exposed in Trench 1 at Isampur

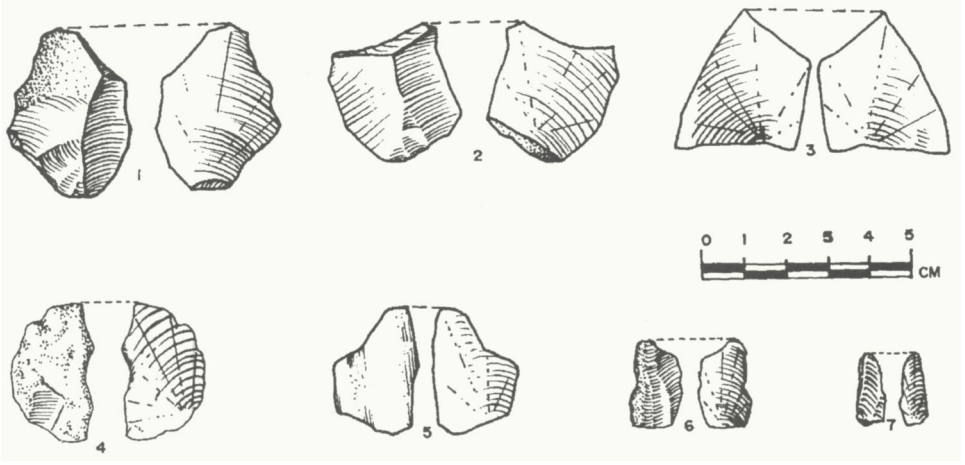

Fig. 21: By-product flakes and chips from the Acheulian level exposed in Trench 1 at Isampur

The second important inference arising from the present field studies is that the Isampur site is undoubtedly of the primary type. The gentle slope of the pediment surface and the absence of any regular drainage tract in the immediate vicinity are the two major factors that account for the good state of preservation of the site. The pediment surface on which the

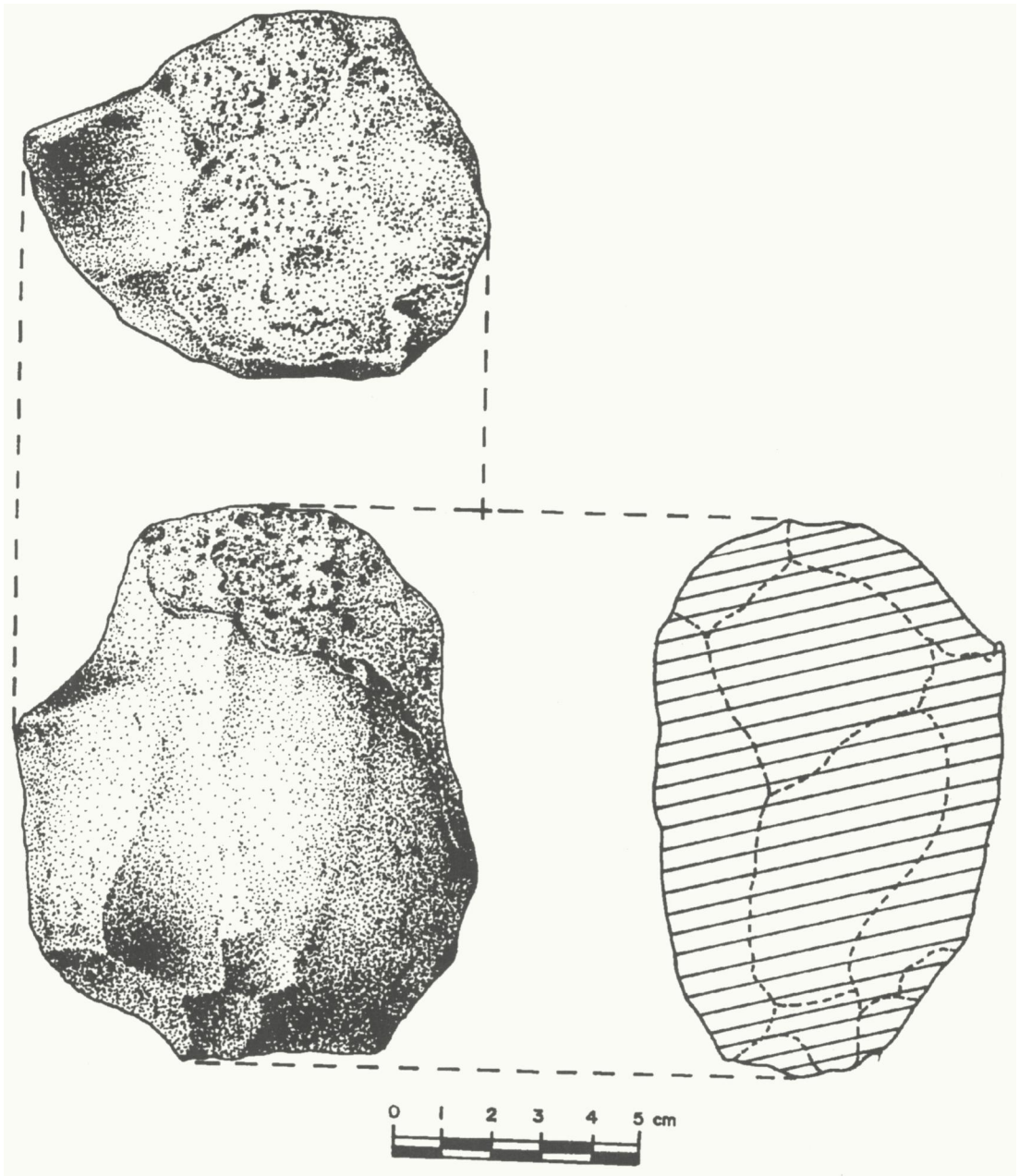

Fig. 22: Hammerstone of quartzite (from surface) from Isampur Acheulian workshop site

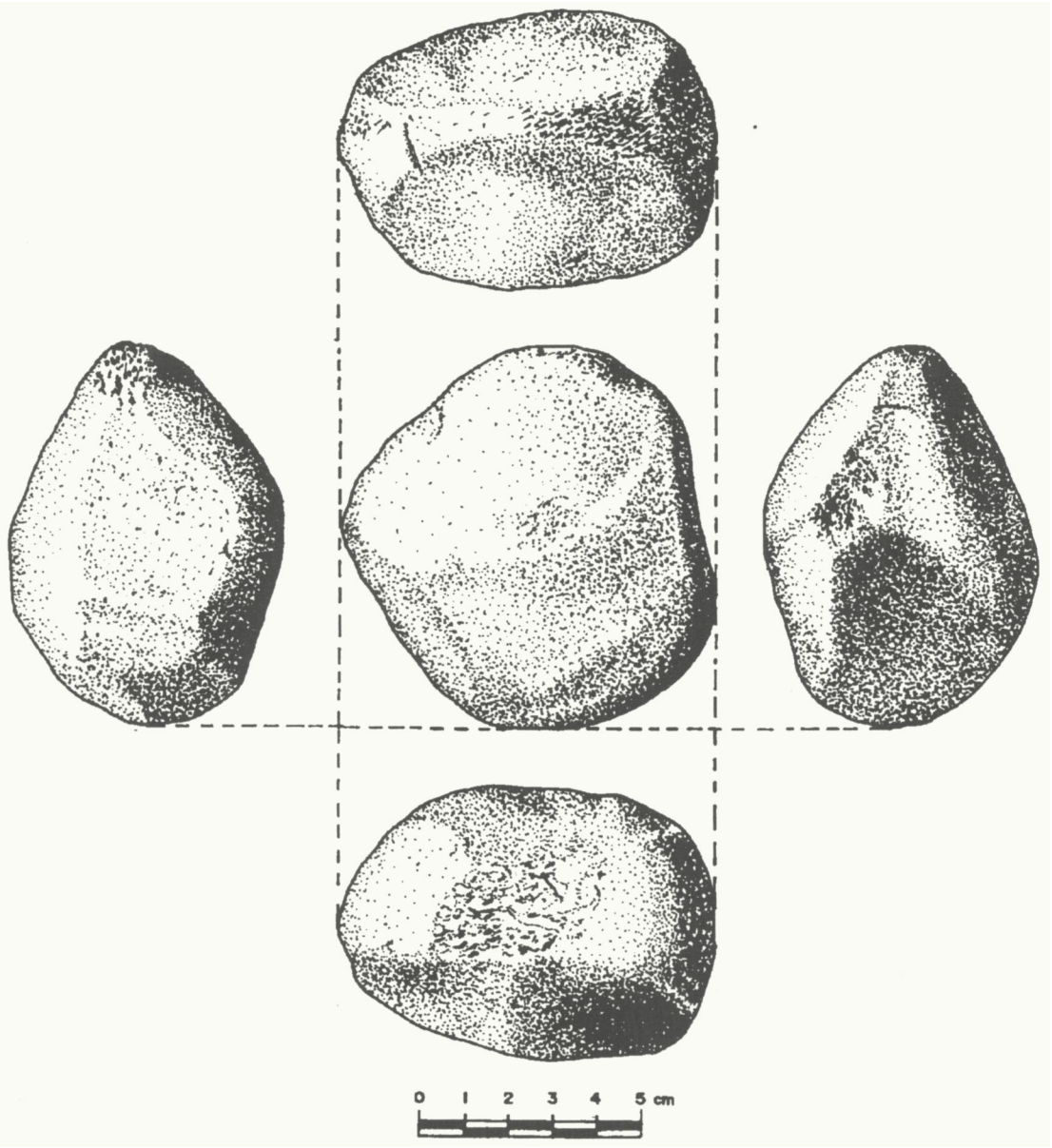

Fig. 23: Hammerstone of quartzite (from surface) from the workshop site at Isampur

chipping activity took place was subsequently covered by brown and black silt deposits measuring over a metre in thickness and probably derived from the adjacent plateau surfaces. This is the third factor which has helped in the preservation of the site. It is an altogether different matter that much of this deposit has now been eroded away by the

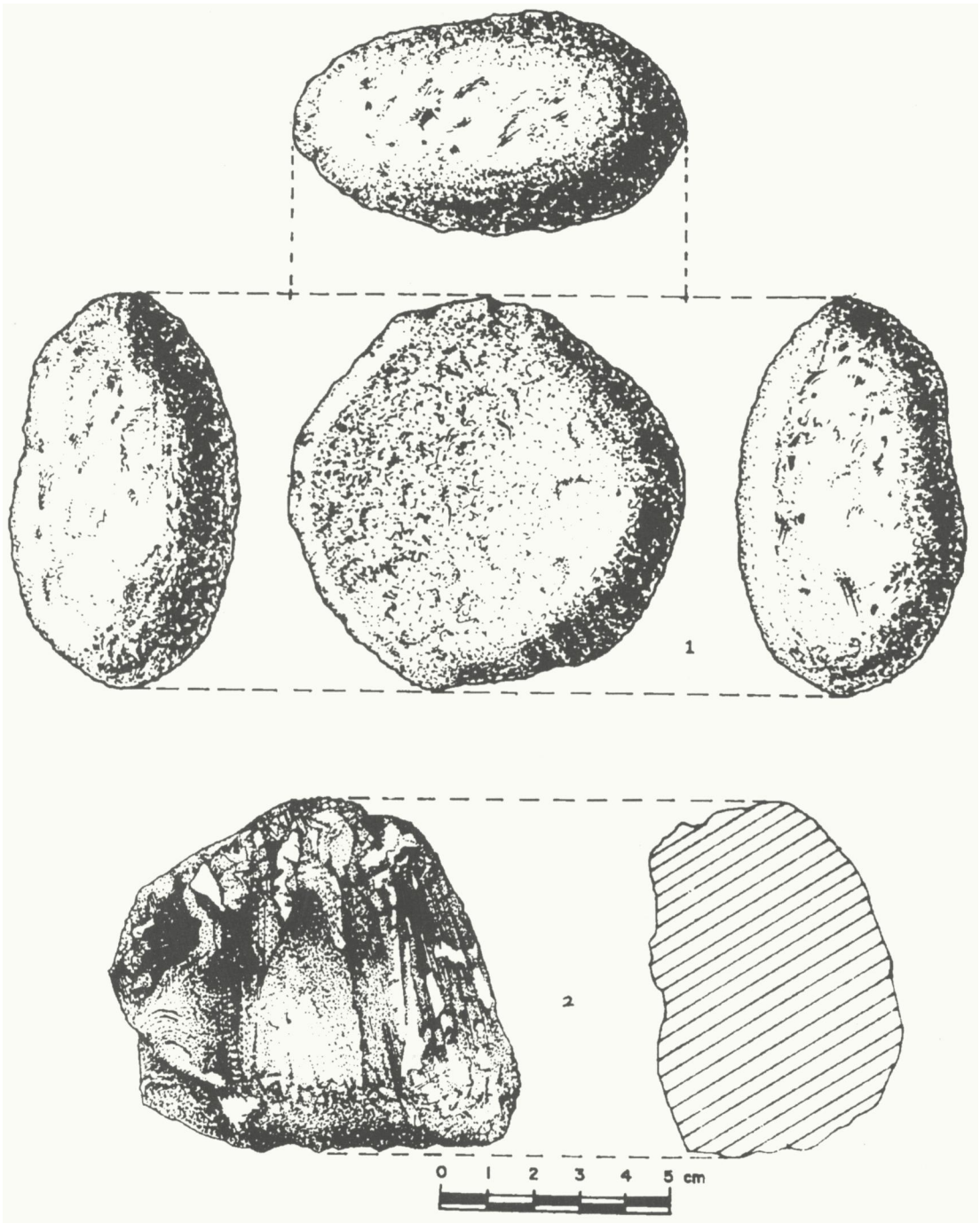

Fig. 24: Hammerstones of dolerite (No. 1) and quartz (No. 2) from surface of the Acheulian workshop site ate Isampur

channelized watercourses created in modern times by farmers as part of bund-making activity to prevent soil loss from their farmland.

Thirdly, the Isampur site has a special place among the Acheulian sites of the Hunsgi and Baichbal basins in particular and the Lower Palaeolithic sites of the subcontinent in general. This site does not fit into the functional categories of occupation sites, caches, food-processing/extraction locations and non-sites or single-episode sites already recognized among the Acheulian sites of the Hunsgi and Baichbal basins (Paddayya and Petraglia 1995). The location of the site on an exposure of suitable raw material, the extremely limited number of regular implements like bifaces and the preponderance of large flakes as well as cores from which these were removed reveal that the tool-making activity here was geared not to the production of finished types, as noticed at other major sites in the area such as Hunsgi-V and Yediyapur-VI. Rather it was meant for the creation of blanks in the form of large flakes which could be transported to regular occupation sites in the vicinity for being transformed into regular shapes like knives, handaxes and cleavers. The use of blakes for preparing tools is widely known from Africa (Clark 1994: 458). The presence of hammestones and a high percentage of debitage provides further clues and supports the argument that the site was basically a workshop strategically located right at the geological source of raw material. There are some limestone cores which still form part of the bedrock and these suggest that sometimes limestone blocks were being dislodged or actually quarried from the bedrock. In short, the site at Isampur is essentially a manufacturing centre for fashioning flake-blanks that could be transported to regular occupation sites for further reduction into regular implement types and possibly for use as well.

Finally, the large dimensions of both cores and the flakes detached from them merit notice. The cores measure up to 35 cm long and 30 cm broad; the flakes measure up to 25 cm long and 20 cm broad. The unusually large sizes of the flakes are obviously due to the easy availability of limestone blocks and also the fact that limestone, as compared to quartzite and other rocks, is a much softer rock to work on and also the blocks have angular features which greatly facilitate the initiation of the reduction process.

Sites like the one at Isampur are uncommon in the context of the Indian Stone Age and have the potentialities to inform us much about past lithic production systems — raw material procurement, techno-typological features, and even social organization and exchange (Ericson 1984). During his explorations in the area in November 1997 the senior author discovered an identical site at Kolihal, lying about two kilometres west of the site at Isampur. It is, therefore, proposed to conduct further field studies at these sites.

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