A handaxe assemblage from western Nepal

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First findings of a few handaxes in association with other early palaeolithic artefacts have been made in Nepal recently. This dates the occupation of the Himalayan foothills in Nepal back into the palaeolithic period, to a much earlier age than expected.

Previous findings by the author (Corvinus 1985, 1987, 1989) included cultural material from the neolithic and mesolithic periods of the Holocene and various flake assemblages of presumably late palaeolithic periods (of the late Pleistocene) from the Dang and Deokhuri District in western Nepal and from the Siwaliks of Mahottari District in eastern Nepal. These previously recorded findings were the first evidences of prehistoric man in Nepal.

The recently discovered early palaeolithic material comes from the southern part of Dang valley (Fig. 1) from stratified context of alluvial deposits of the Babai River, which drains the Dang valley. The site is located on the left, southern bank of the Babai River (at latitude 27° 59′ and longitude 82° 27′) near a village called Jhaijri on the opposite bank of the river. The area is also called Gadari, though no village of that name exists in the neighbourhood. A recent temple however, built by an Indian priest at the foot of the Siwalik hills, is referred to as that of Gadari.

The Dang valley is a wide, tectonically initiated intermontane valley (called „Dun" in the Indian subcontinent) which came into existence during the folding of the Siwalik range of mountains in the early Pleistocene. The broad Dang Dun basin was subsequently filled with alluvial sediments, deposited by the Babai River, and with colluvial deposits from the hills. Siwalik hill ranges border the valley in the south and partly in the north, and the weathering debris of the Siwalik sediments contribute heavily to the alluvial fill.

The history of the Pleistocene aggradation and degradation and of erosion and reworking of the sediments is a complex one and will not be discussed at this place, but is treated elsewhere (Corvinus, in press). Much of the older deposits from the beginning of the valley's history must have been destroyed by earlier erosion cycles, so that from Middle Pleistocene times very little seems to have been left in the valley.

Cultural remains from older periods than the late Pleistocene were not really expected in Dang and Deokhuri. Moreover, it was believed that handaxe populations did not penetrate into the Himalayas. No *in situ* handaxe sites have been found in the neighbouring Indian Himalayas. But Mohapatra (1981) has recorded a number of surface occurrences of handaxes and cleavers along Siwalik hills near the plains in the Punjab, though they lack any stratified context. Joshi et al. (1978) recorded Acheulian cleavers in association with choppers, but no handaxes, at the confluence of the Beas and Banganga, almost in the plains. At Pahalgam in Kashmir a handaxe and a few other early palaeolithic artefacts had been found by Sankalia (1971) and Joshi et al. (1974) in a conglomerate, supposed to be of middle Pleistocene age, in the Liddar valley.

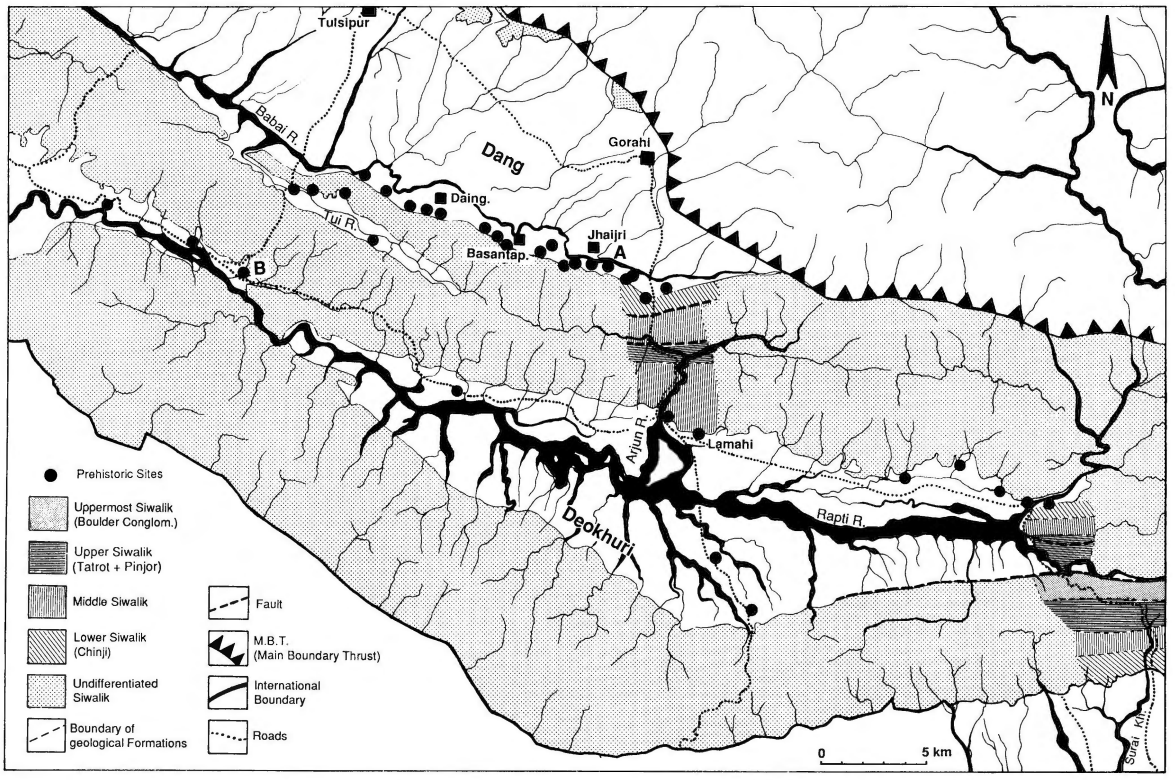


Fig. 1. Map of the Dang and Deokhuri area with sites indicated. The site of the handaxes is the black dot opposite Jhaijri (A). The Jalkundi locality is the first black dot west of the Deokhuri valley where the track from Tulsipur meets the main road (B).

These scanty occurrences lie however, more than 800 km to the west of Dang and moreover, apart from the Kashmir handaxe, were not found *in situ* and were found much nearer to the plains, i. e. within easy approach from the plains.

Therefore the discovery of handaxes in Nepal came as something of a surprise, though not wholly unexpected, as the Indian sub-continent has abundant evidences of handaxe-cleaver assemblages, although almost all are from the south of the Gangetic Plains. The Gangetic Plain, therefore, constitutes an large barrier between the handaxe population in central and southern India and the makers of the first few handaxes found now in Nepal.

For this reason these first few handaxes from Nepal have a special importance, as they lie beyond the northern boundary of the handaxe-cleaver complex of the African and Indian tradition.

Oddly enough the author found in 1984 in the very beginning of her survey a single specimen, about 1 km east of the recent locality, at Ranigora, on the surface of the heavily dissected alluvium near the river. It was a single find of a broken, handaxe-like tool (Fig. 2) which at that time was doubted by her as being an early palaeolithic implement. It was found in a gully in the dissected silts, which was overlain at this place by fluvial cobble gravel, from where the specimen may have been derived.

The specimen is a broken distal part (135 mm in length) of a handaxe-like implement, made of quartzite, the fracture being as patinated as the facets of the tool and as rounded. It is made of a flake; no cortex is seen. The flake face is flat and a few flake scars have been removed at the right side and near the point. Some secondary flaking was executed near the apex to shape the point. On the upper face only three large flakes have been removed on the left, forming a bifacial edge in conjunction with the flake scars of the lower face. The point is slightly shouldered and seems to have been used.

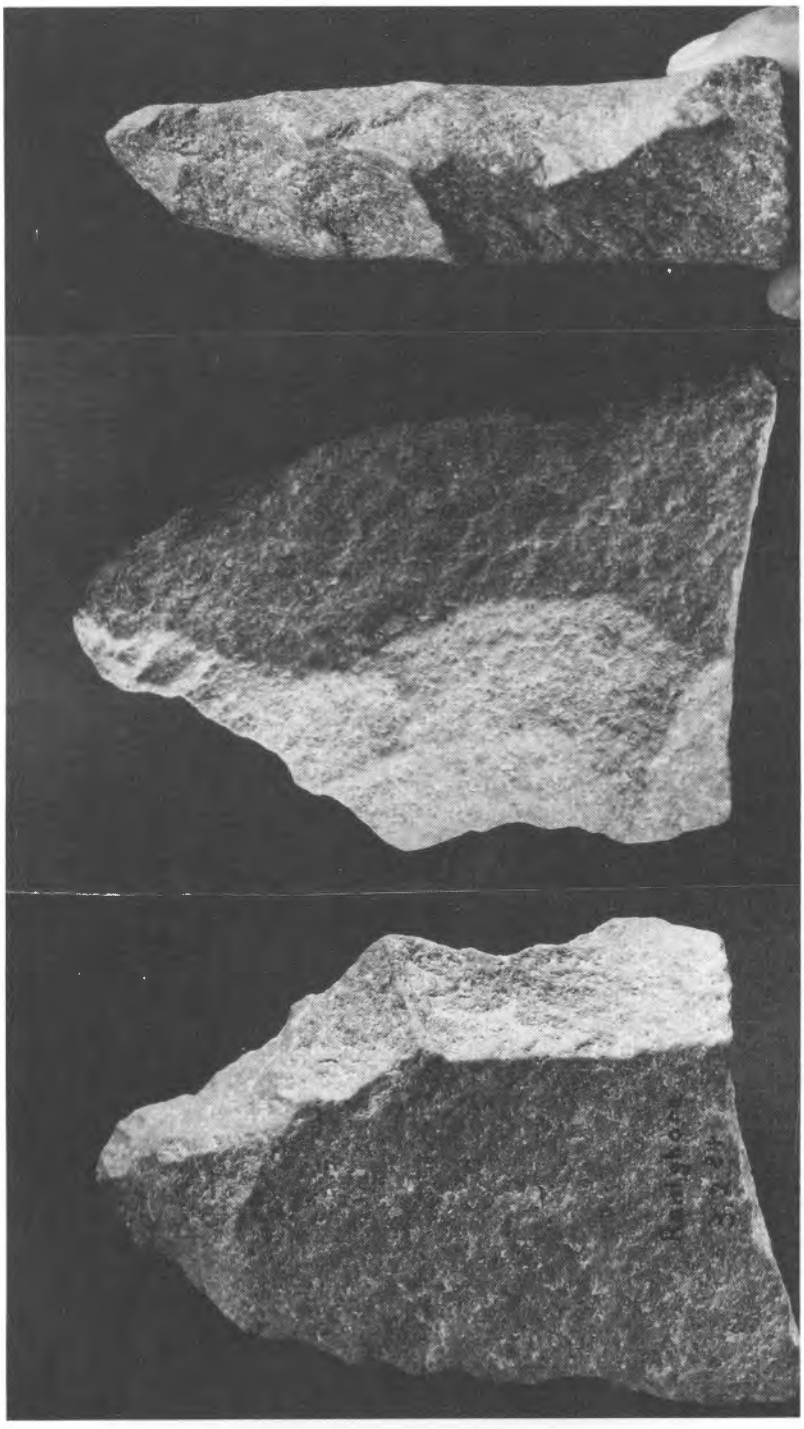


Fig. 2. The handaxe-like implement from Ranigora 2:3.

Fig. 3. The tool-bearing basal gravel below the alluvial silt with a core *in situ*.

Fig. 4. The *in situ* core in the gravel.

Fig. 5. Water-cut rills in the bedrock below the silt.

The small assemblage of early palaeolithic artefacts found this year has its stratigraphical position in and on a fluvial pebble-cobble gravel above Siwalik bedrock. Only a remnant of this gravel is seen at this place, and one large core was still found *in situ* in it (Fig. 3,4).

The bedrock below the gravel, consisting of Lower Siwalik sandstones and mudstones, has a rather undulating surface, having been dissected by erosion prior to the deposition of the fluvial gravel near the ancient river bank.

Interesting is here the observation of water-cut rills in the bedrock (Fig. 5) below the silt and covered until recently by the silt. It indicates that the ancient river channel, cut by the water current, was here at this place. Palaeolithic man must have lived here at the bank of the ancient river channel, using the quartzite cobbles of the fluviatile gravel for his tools.

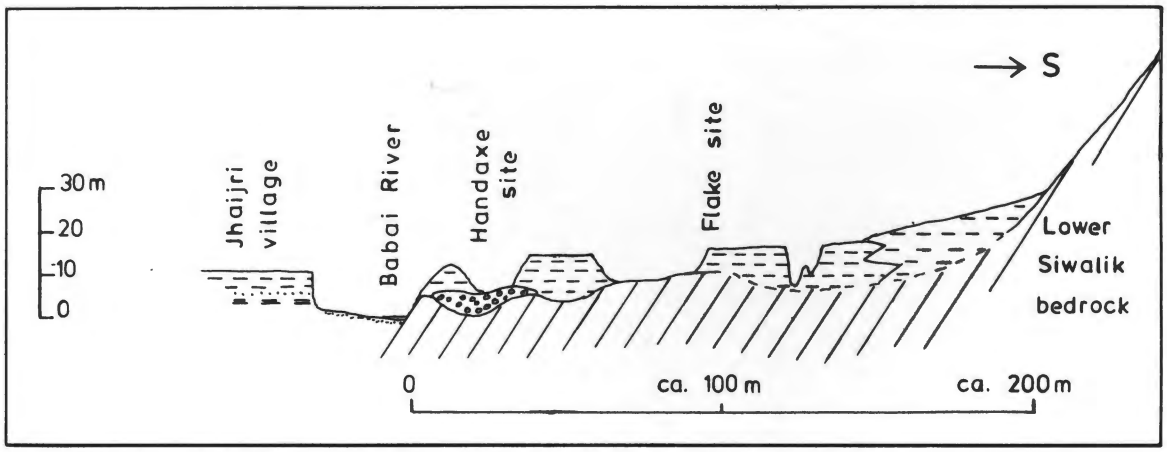


Fig. 6. Schematic crossection through the Gadari locality opposite Jhaijri.

Overlying the basal gravel is a succession of ca. 15 m of banded yellow silts and clays (Fig. 6) of the Babai Formation (Corvinus, in press) which at places is intercalated with large lenses of fluviatile cobble gravels. Towards the slopes of the bordering Siwalik hills the banded silts and clays interfinger with yellow-reddish silt fans of colluvial and maybe partly aeolian origin. They were originally covered by a red soil which, for the most part, has already been eroded away.

The material of the banded silts of the Babai Formation and the homogeneous yellow-red silts at the very foot of the hills has been derived from the weathering of the Lower Siwalik yellow and ochre mudstones and siltstones, which make up most of the deposits of the southern hill range of Dang valley.

The surface of the banded silts was once, not long ago, (perhaps some 50 to 60 years ago) a continuous, flat terrace surface. But recent strong erosion, due to deforestation and overgrazing by the numerous cattle, dissects the alluvium into an extreme badland topography which soon will have destroyed all archaeological remains contained in the alluvium, if research is not continued (Fig. 7).

The upper level of the banded, yellow silt, cut away by the heavy erosion, contains a horizon of a younger flake-core industry which litters the gullies and slopes below the horizon with washed-out artefacts.

The people responsible for this flake industry had lived here at the foot of the hills, at the margin of the wide Dun valley much later than the handaxe people. This was during a time when the aggradation of the thick banded silt and clay deposits of the Babai Formation came to an end, some time during the end of the Pleistocene. The climate at that time must have been cooler and drier than today to account for the thick accumulation of the Babai silts.

It is a fascinating but sad countryside: the heavily eroded countryside resembles rather an arid African scenery than a scenery of a tropical country like Nepal. Only here the dissection is not due to an arid climate but is man-induced.

The time span between the handaxe horizon above bedrock and the level of the flake industry in the silt must have been a considerable one. No dates are available as yet as there is no fauna, nor any charcoal. We have only the geological strata to judge by.

The early palaeolithic assemblage is only a small one, but suffices to be sure that it is an early palaeolithic locality. There are so far 20 artefacts, all made from quartzite: 2 handaxes, an unfinished handaxe, a cleaver, a crude pick, 9 large and medium-sized flakes, 2 large and one small core, one discoid and 2 hammerstones.

The first handaxe was found on 1. 3. 1990 on the surface above bedrock and below the silt (Fig. 8, where the porter stands). There was no time to study the site. The other artefacts were found on 9. – 12. April 1990, when the site was revisited. Apart from the core, Nr. 6 (Fig. 3) and the flake Nr. 20, which came from *in situ,* all artefacts came from the surface above bedrock below the alluvial silt.

Handaxe Nr. 1 (Fig. 9) is a small biface of 115 mm length, made on a quartzite cobble, with a jagged, bifacial edge allround and with a small point which is flaked by only few flakes from both sides. Some cortex is left on the upper face. The butt is crude and seems unfinished. The tool is made by deep primary flakes only.

The other handaxe, Nr. 2, (Fig. 10) was found on the pebble-covered surface above bedrock below the alluvial silt (Fig. 11 and 12). It is larger (145 mm in length) and flatter than the first handaxe and is made by shallower primary flaking and smaller stepflakes, the facets being rather abradet and rounded. There is a straight edge allround the circumference, the left edge being a fine straight cutting edge, made by shallow scars from both sides. The right lateral edge is less pronounced. The butt has a steeply retouched edge at the right. The apex is very shallow and flat like a chisel edge, made by the intersection of several small scars from the upper face and a large, flat primary flake on the lower face. It is used and partly damaged.

Fig. 7. The heavily dissected alluvial silts above the handaxe level, seen from the handaxe locality, looking south. The younger flake industry is contained in the silt block in the central background.

The unfinished handaxe, Nr. 3 (Fig. 13) is a thick oval implement of 133 mm length, made on a cobble, flaked entirely by large stepflakes on the upper face, while the lower face carries still much cortex besides a few large primary flakes at left and at the distal end. The edges are quite abradet, and the apex of this heavy tool seems to have been used.

The cleaver, Nr. 5 (Fig. 14), is a very large and heavy, square tool of 165 mm length, made from a large, thick cortex flake. The upper face consists to 75 % of cortex, but on the left side 4 large flakes and 2 small ones have been removed and on the right side there are just 4 steep, shallow flake scars, while on the cleaver edge two crude flakes have been removed, maybe by use. The butt is entirely untouched. The

Fig. 8. The handaxe locality, looking to the southeast. The first handaxe was found at the place where the porter stands. In the gravel in the foreground the *in situ* core is seen at the hammer.

lower face is the flake surface which has been flaked rather extensively along the right side, including the butt, to remove the bulb of the flake and to form a slightly zigzag edge. The left edge is steep and blunt, while the cleaver edge is used and damaged by use. It is an extremely heavy tool, weighing almost 2 kg.

The pick, Nr. 4 (Fig. 15), is a heavy, crude, presumably unfinished artefact from a large cobble, with a flat lower surface from which 3 large shallow flakes have been removed. The upper face consists to 75 % of cortex and only the right side has 4 large flake scars to form a short lateral edge. The apex is a 'nose-like' point, so shaped by 3–4 small scars from the upper face.

Of the cores the two large ones are interesting. One, Nr. 6 (Fig. 4) which comes from *in situ,* is 135 mm large and is a heavy cobble with one surface entirely of cortex. Shallow flakes have been removed from one cortex platform (at bottom in photo), while a few smaller ones were taken off from the left.

The other core, Nr. 7, with a size of 120 by 127 mm, is a heavy discoidal core with flakes removed alternately along half of the circumference, while half of the artefact still consists of cortex.

The discoidal tool, Nr. 9 with a diameter of 85 mm, is a flat, discoidal artefact showing a bifacial edge along 3/4 of its circumference, made by bifacial and unifacial stepflaking. The unifacially worked part of the edge seems to be rather a chopper edge.

The two hammerstones are quartzite cobbles of 112 and 85 mm. The smaller one, Nr. 11 (Fig. 16) has small irregular scars over one face, while the rim around the whole circumference has an extremely blunted appearance due to heavy battering. The hammerstone is of a hard, very finegrained quartzite; it is a very suitable and handy hammerstone.

The larger hammerstone, Nr. 10, is an oblong all-cortex cobble of medium-grained quartzite showing battering marks at both ends.

Two of the 3 large flakes, (of sizes of 160, 142 and 128 mm) are cortex flakes. Nr. 12 (Fig. 17) has only one flake removed from its upper surface and Nr. 13 is very abradet, but seems to have 4–5 flakes removed along the right side.

Nr. 20 comes from a gravel above bedrock a little to the west from the other artefacts. It is a flat, large flake with a sharp cutting edge opposite the bulb of percussion, made by the intersection of the flake face and the largest of the 3 flake scars on the dorsal face. It is less abradet than the other artefacst and seems to have been less exposed to weathering.

Flake Nr. 15 (Fig. 18), of a lenght of 132 mm, is a concave scraper with steep unifacial retouch on the right side, forming a concave scraper edge, and some unifacial retouch on the left side.

Nr. 16 (Fig. 18), of a size of 92 mm, is a used but unretouched Kombewa-type flake (a flake with 2 bulbs of percussion, one on each face), i. e. it is an endflake, detached from a large, thick flake, of which the pronounced bulb of percussion is seen on the dorsal face. The angles of platform of the original flake as well as of the Kombewa flake itself are extremely wide with 125 degrees. Such Kombewa flakes are rather common in the African palaeolithic, and it is interesting to find an example of this type in Nepal.

Flake 19 (Fig. 18), of a size of 66 mm, is a point, detached with a wide platform angle of 115 degrees. It has no retouch, but has a sharp lateral edge.

The degree of rounding of the tool assemblage is rather heterogenous. Some of the tools, especially the cleaver, the two large flakes and the unfinished handaxe are very rounded, while handaxe Nr. 2, the discoid and the pick are slightly less rounded. The large core Nr. 7 and the flakes Nr. 15–19 are slightly rounded with a certain bluntness of the edges. Flake 20 and core 6 are the freshest of all artefacts, they were both *in situ.*

The assemblage, as small it is, shows quite a diversity of types (there is no doubt that they belong together), and they indicate that there must have been a small occupation site of early palaeolithic man at this locality.

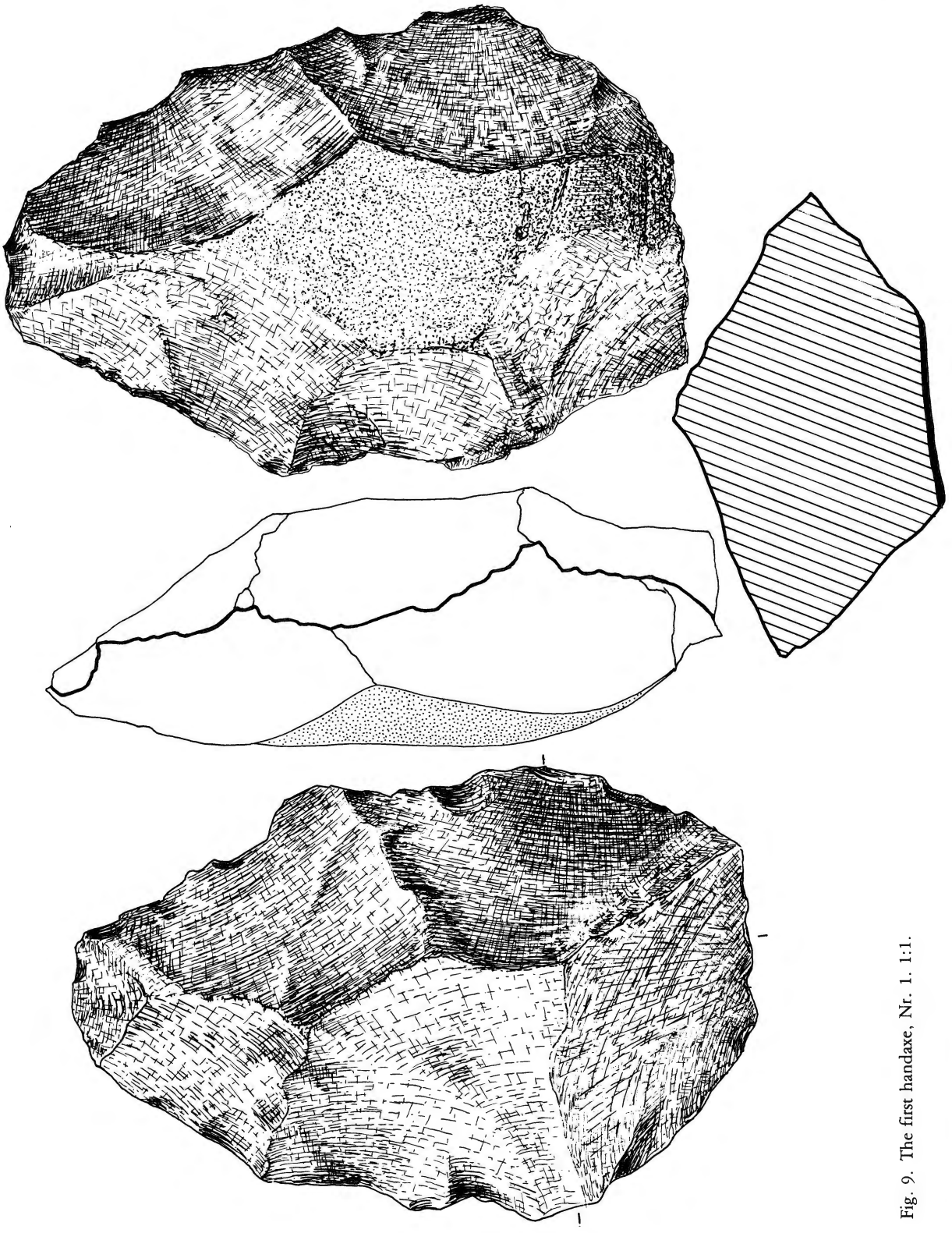
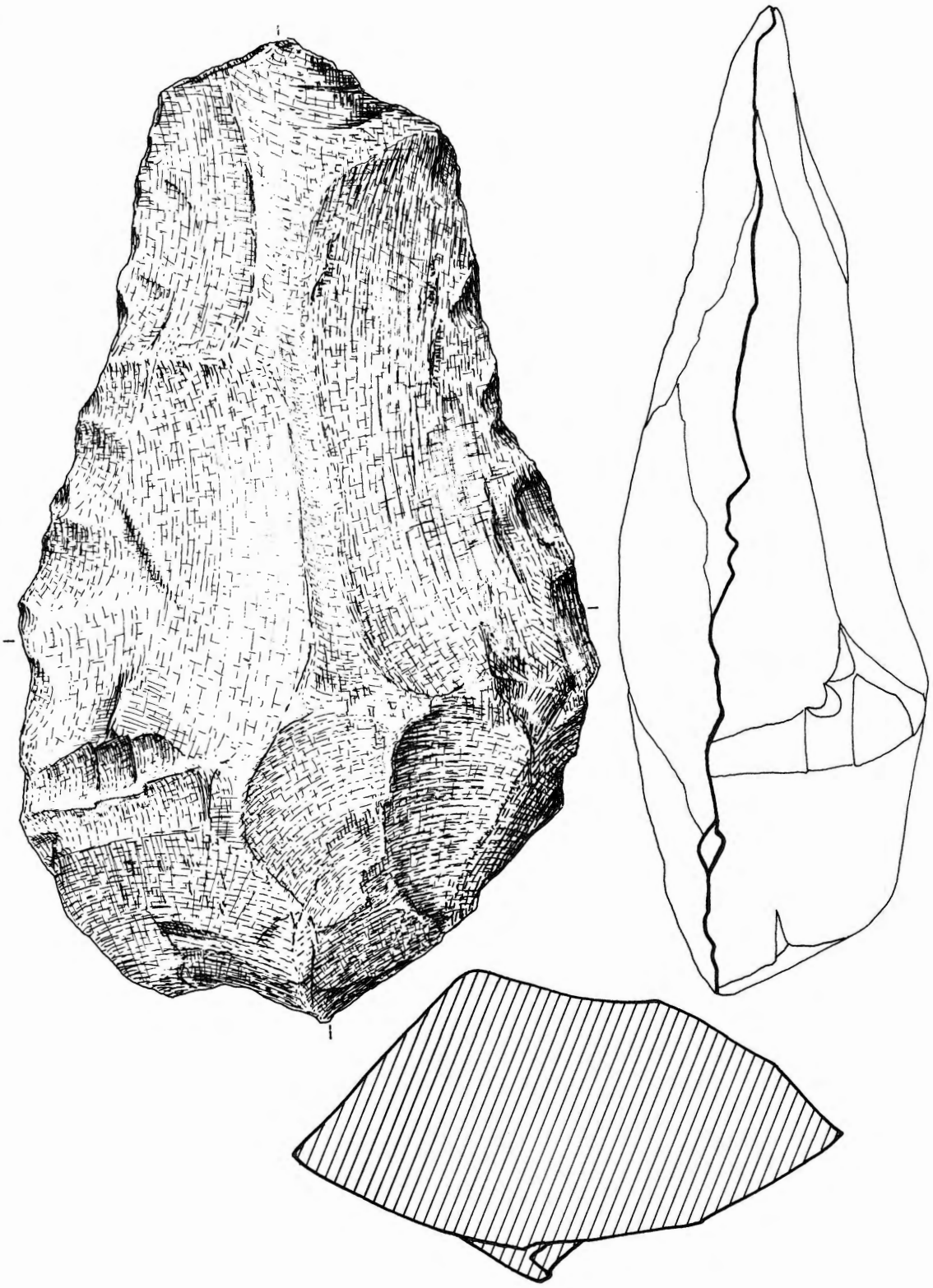


Fig. 9. The first handaxe, Nr. 1. 1:1.



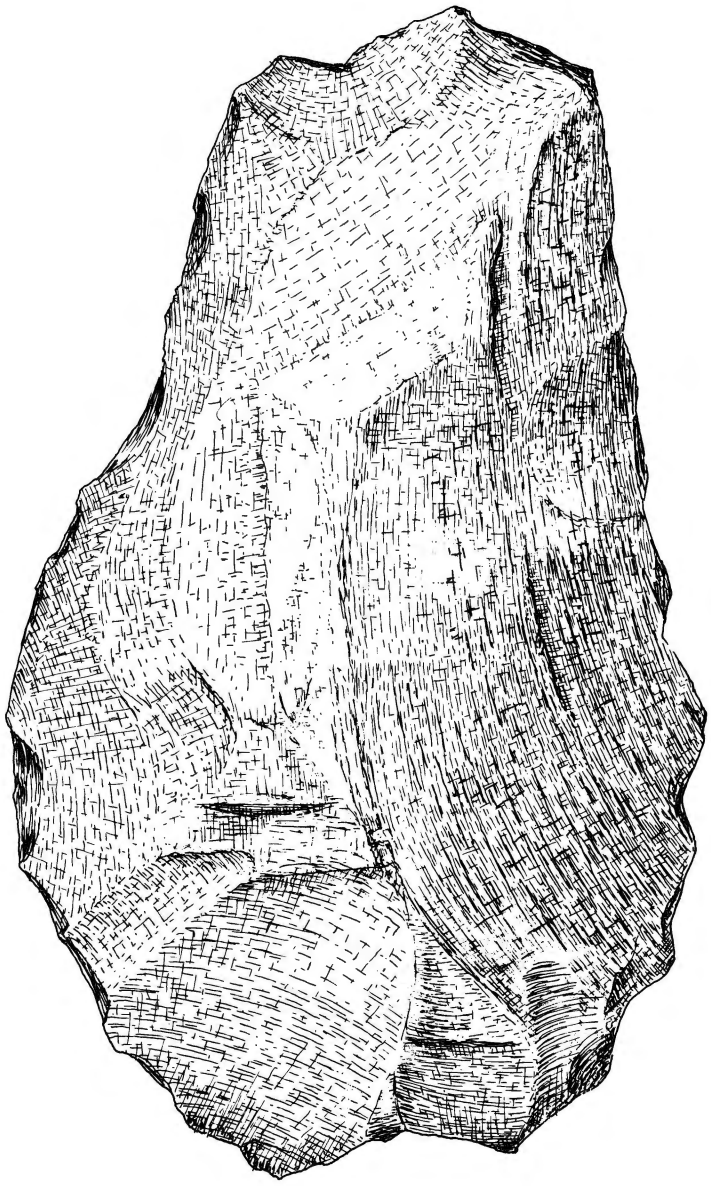


Fig. 10. The handaxe, Nr. 2. 1:1.

Fig. 11. The handaxe Nr. 2 lying on the pebble-covered surface below the alluvial silt surface. The Babai River is seen at the back. Bedrock is exposed at the left; the other artefacts were found just beyond the bedrock exposure.

Fig. 12. Handaxe Nr. 2, as it was found.

In spite of the systematic survey during the last 6 years which brought to light a surprising wealth of prehistoric sites in the Dang and Deokhuri valleys, this is the first and so far only site of the early palaeolithic in Nepal. The scarcety of such sites indicates that these people were either not frequent occupants in the hills or that most of the deposits of this time were either destroyed by erosion prior to the deposition of the overlying Babai silts or still lie buried underneath it. The latter case does not seem to be probable in the author's opinion, as recent erosion is so strong that the underlying strata is exposed at many places and always consists of bedrock only. It seems more probable that handaxe man was infrequent migrant to the hills.

He probably did not come over the larger southern hills directly. Handaxe people in Africa and India seem always to have kept near larger river courses and are rarely found in very hilly terrain. The Dang is seperated from the plains by two major Siwalik mountain ranges which are partly quite rugged and steep, especially the southern-most one, south of the Deokhuri valley.

The distance from the plains to the site is about 30 to 35 km, as the crow flies. The easiest approach to Dang from the plains for him must have been along the Rapti River into the Deokhuri valley and from there over the northern Siwalik hill range into Dang. Or he may have come along the Rapti River only up to Jalkundi and from there over low passes via the Tui valley into Dang and thence along the Babai River east (Fig. 1).

Interestingly enough, at Jalkundi on the Rapti River, just before going along a mud road over a pass into Tui valley, there is a small locality where two very rolled artefacts were found this year which resemble bifaces, as well as a few other artefacts. They are not *in situ,* but are in connection with a cobble gravel overlying bedrock and overlain by a 4 m yellow-red alluvial silt in which again flakes of the common and abundant flake industry of the latest Pleistocene are found.

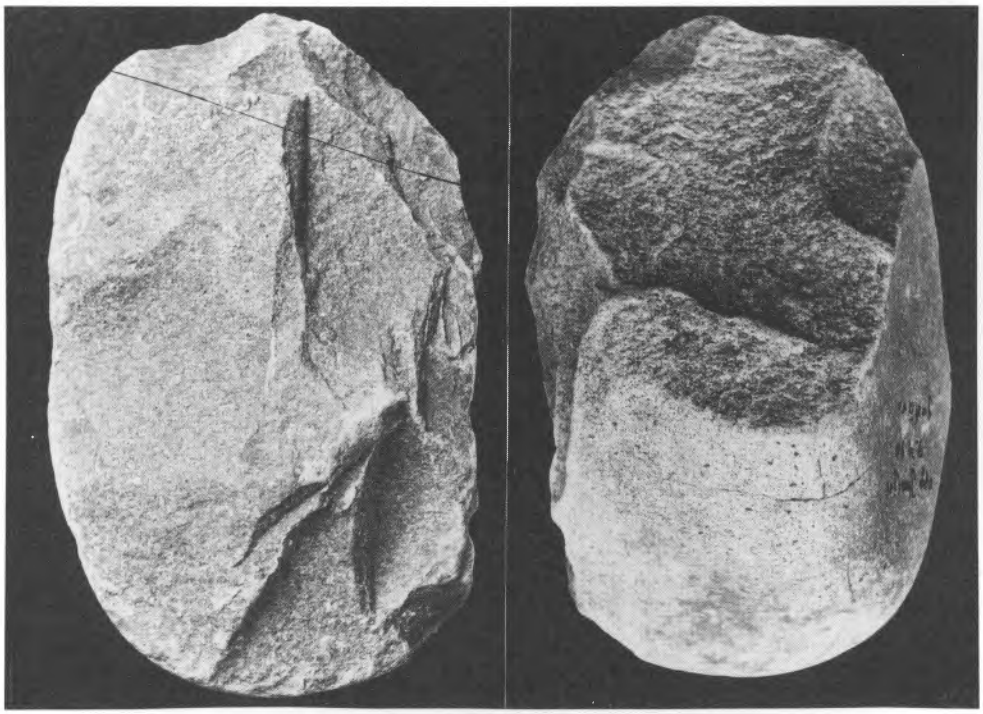


Fig. 13. The unfinished handaxe, Nr. 3. 2:3.

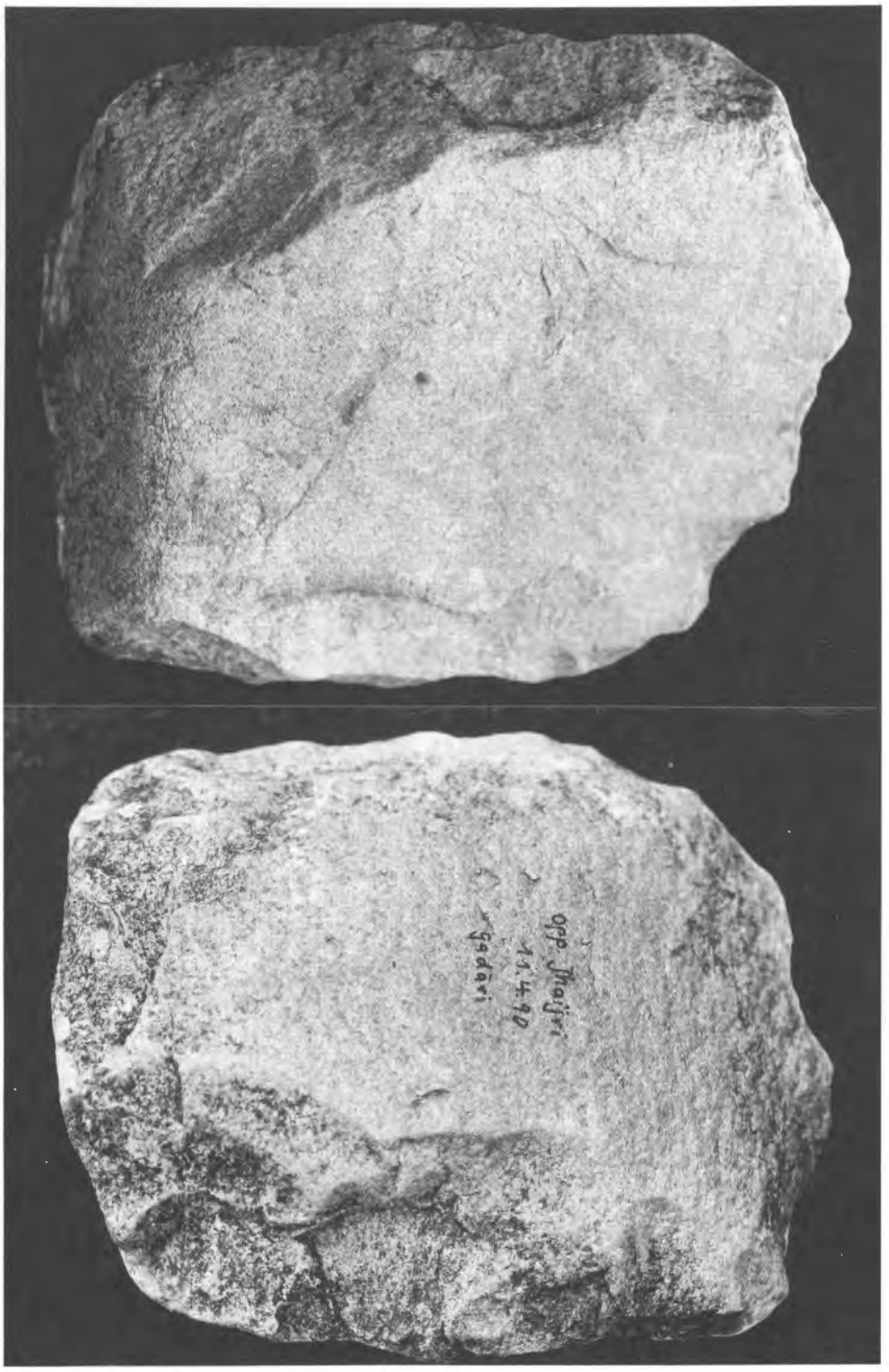


Fig. 14. The heavy cleaver, Nr. 5. 2:3.

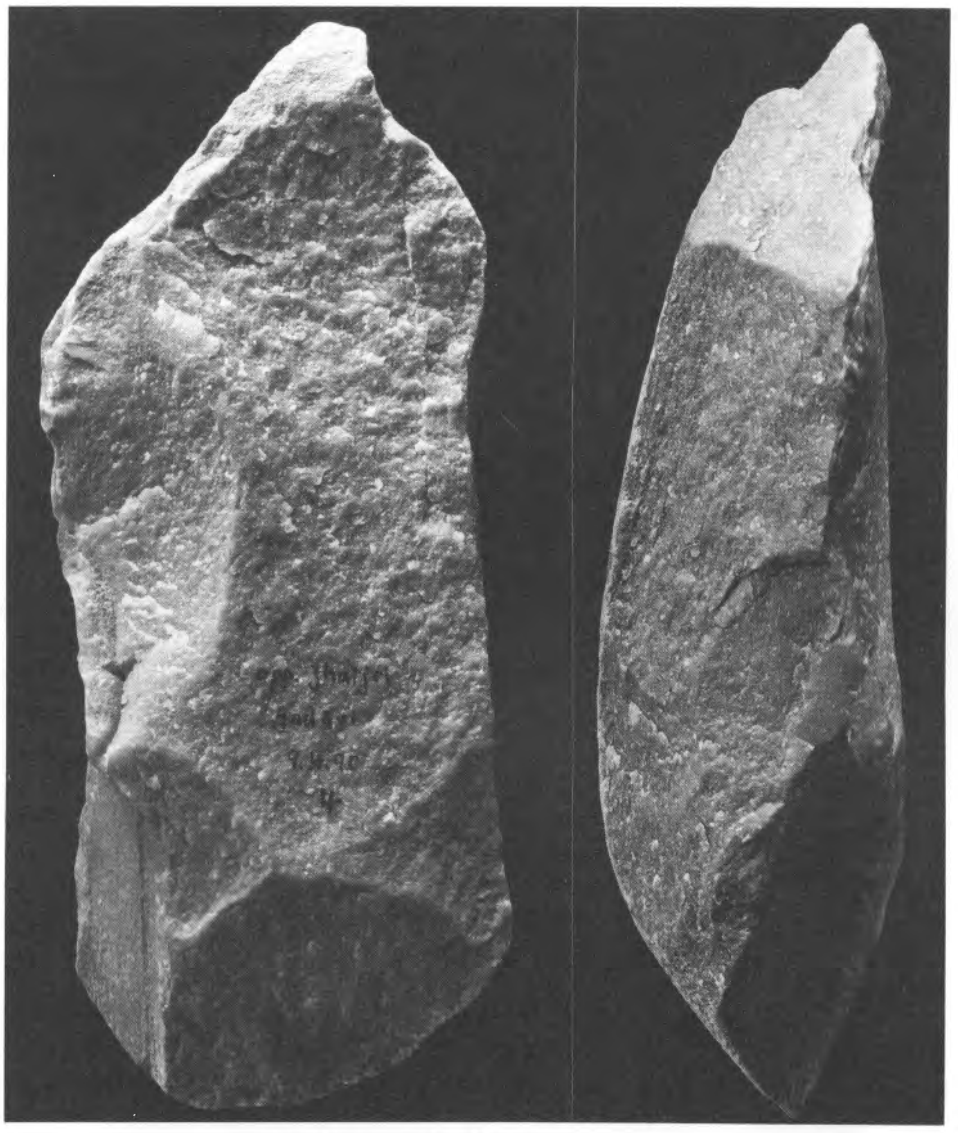


Fig. 15. The heavy pick, Nr. 4. 2:3.

The scarcety and the abradet preservation of the artefacts from the lower level makes it difficult to assert that it is a lower palaeolithic activity spot. The artefacts consist of 2 handaxe-like pieces, of which one is too rolled to be considered here. The other (Fig. 19) is a flat, very abradet piece, but is has a rather straight edge allround the circumference, especially near the apex and along the left side. There is some stepflaking, but it is too weathered to be described. There are also a small rounded chopper with a heavily battered bifacial and an equally battered unifacial edge, 2 cores and a thick flake with a used convex lateral edge opposite the platform.

In contrast to the scarcety of evidences of early palaeolithic man the younger prehistoric people of the later Pleistocene and Holocene have been very frequent and more permanent occupants of the Dang and Deokhuri valleys.

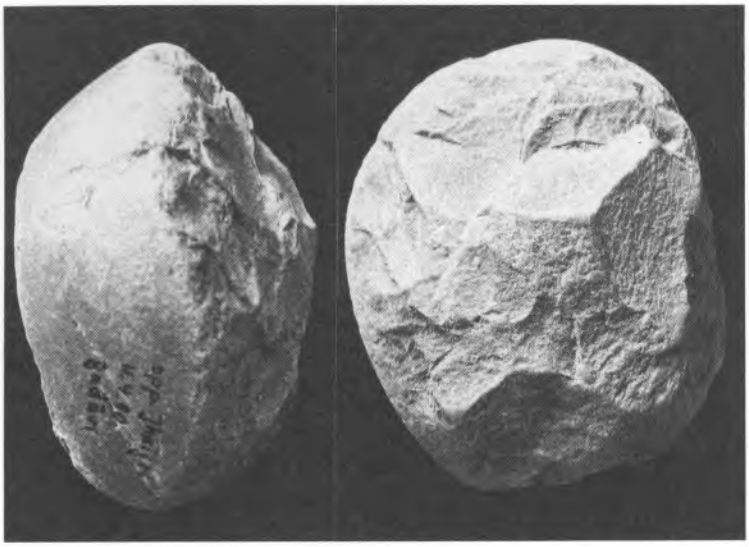


Fig. 16. The small hammerstone, Nr. 11. 2:3.

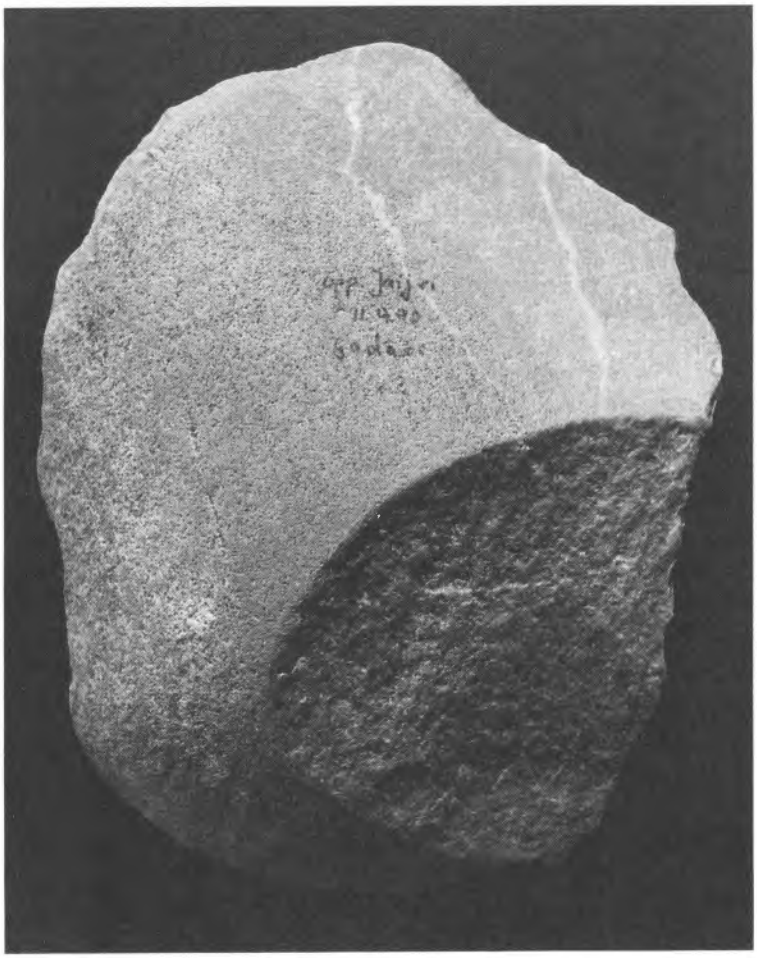


Fig. 17. The large cortex flake, Nr. 12. 2:3.

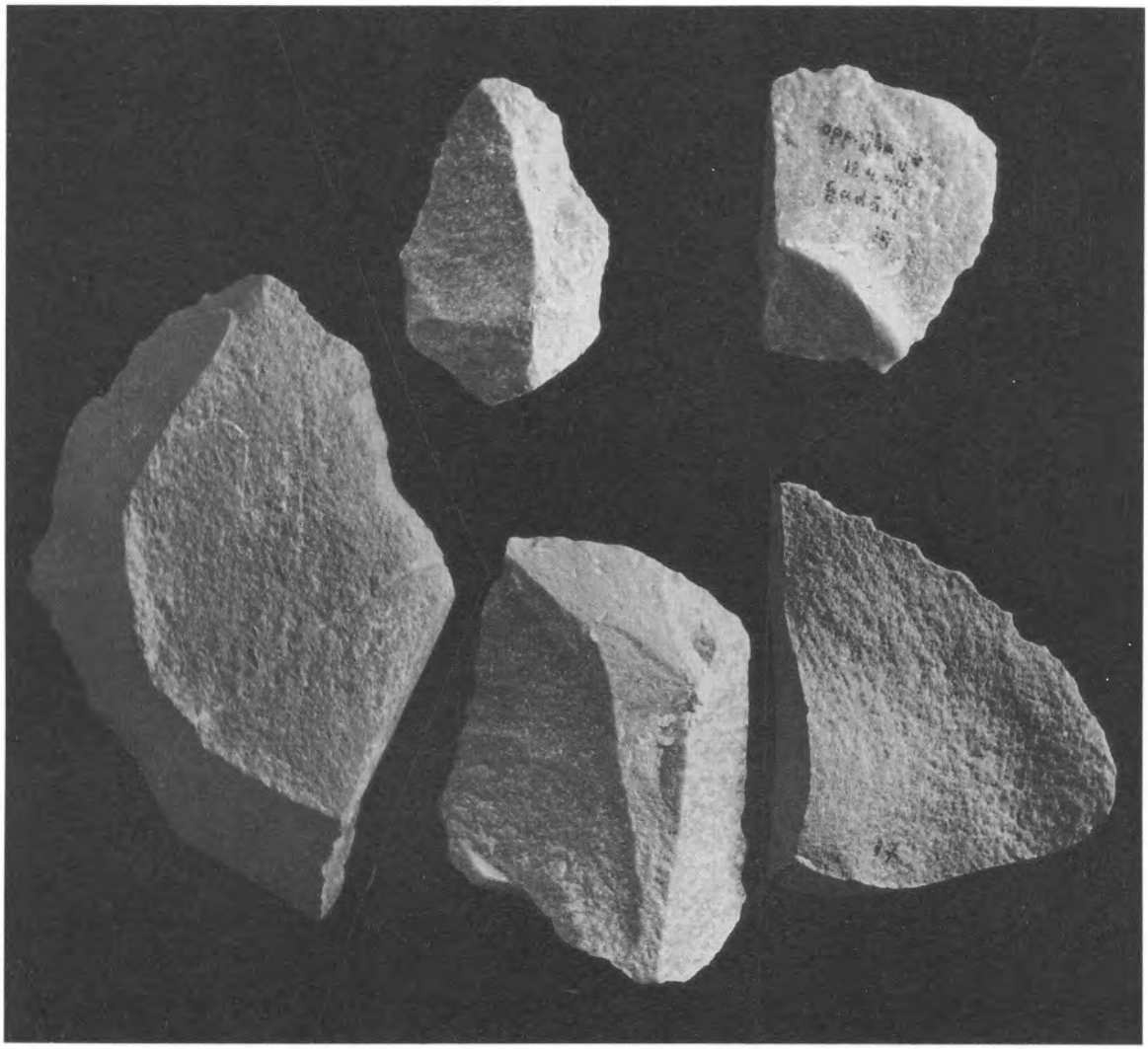


Fig. 18. Flakes, Nr. 15–19 (Nr. 15 at left, the Kombewa flake Nr. 16 at centre bottom, the point Nr. 19 at top). 2:3.

We have found sites of these people everywhere and *in situ* in the upper levels of the thick accumulation of the banded yellows silt/clay beds of the Babai Formation. They were found as well in the fan deposits at the foot of the hills, where they are usually in association with the red weathered soil covering the fan deposits (Fig. 20).

A variety of culturally different industries can be distinguished from older to younger:

1. A flake industry with levallois preparation of cores, in association with a few blades and points and scrapers, was excavated at Arjun 3 from the basal part of the upper alluvial silts (of 8 m thickness) of the Arjun River deposits in the Deokhuri valley. A seperate report about this site is forthcoming. It suffices to say here, that this locality too, is quite a unique site in as much as it is of a distinct upper palaeolithic nature and is found in stratigraphically older deposits than the following sites.

2. A variety of flake industries, with and without corescraper and chopper elements, were located in the upper levels of the banded silt/clay succession of the older Dun valley alluvium and in the marginal fan deposits at the hill slopes at many localities in Dang and Deokhuri. Assemblages of this kind are

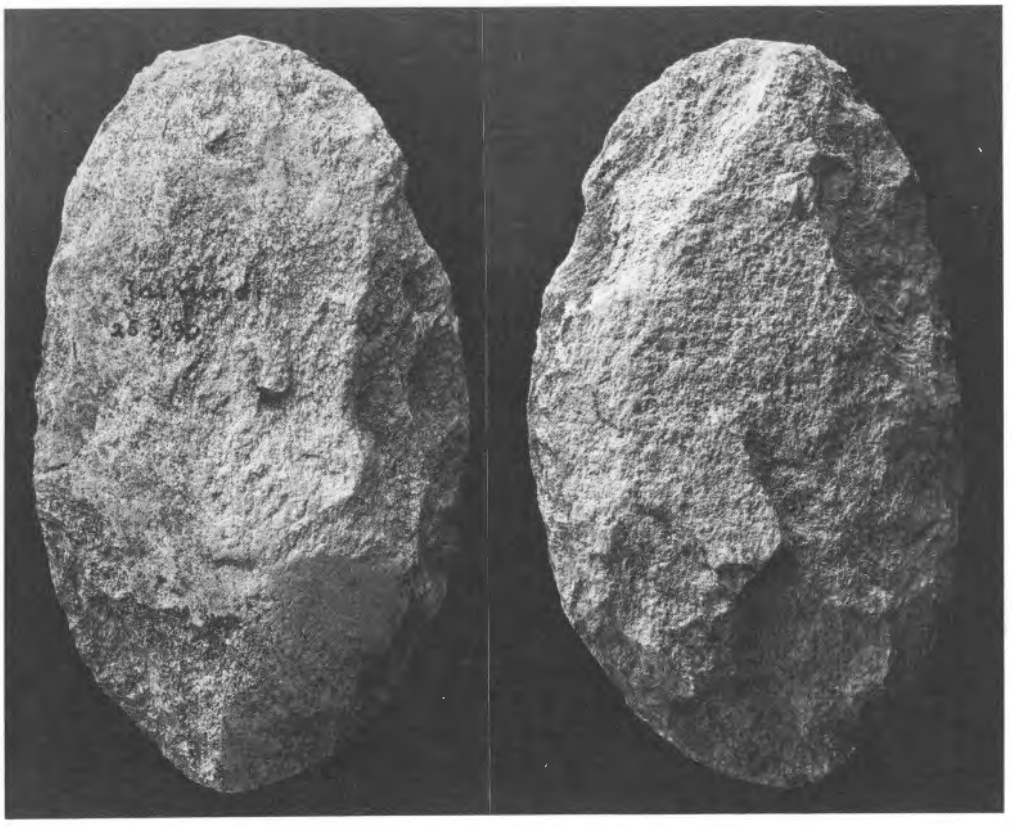


Fig. 19. An abradet handaxe-like tool from Jalkundi. 2:3.

particularly abundant, and it seems that the people producing this industry occupied the valleys to a wide degree, probably during a time of less vegetation and of a drier climate towards the end of the Pleistocene.

3. A heavy industry of an unusual assemblage of very large flakes and cores of a size upto 30 cm, made from large quartzite cobbles and boulders was found in a fluvial cobble-boulder gravel lense within the banded silt/clay succession in Tui valley. It seems of an older age than the above mentioned flake industries as it was found, though in the same silt, but at a lower level. This site near Brakuti in the Tui valley is of particular interest as it contains 3 cultural phases at the same place: the heavy flake industry in the gravel, a rich flake/corescraper industry of the type described under 2 in the upper level of the silt, and, as the youngest phase, in a grey soil on the silt, a small neolithic locality in the form of some cord-marked pottery and a fragment of a polished celt.

4. A few microlithic localities with small flakes and few microlithic tools made from chert and jaspis and other fine-grained silica and not from quartzite, were found in the Deokhuri valley on surfaces of the red alluvial silts.

5. Evidences of neolithic occupation are also existent at at least 3 localities in Dang and Tui valley in grey soils forming on alluvial terraces. Cultural material includes so far only a few polished small celts and some cord-marked pottery sherds.

Research on these sites is in progress.

With the recently found evidences of a handaxe culture in the Dang intermontane valley in the Himalaya in western Nepal the prehistoric occupation in Nepal has a greater antiquity than hithertoo expected. They point to connections with the Indian subcontinent where handaxe cultures are common

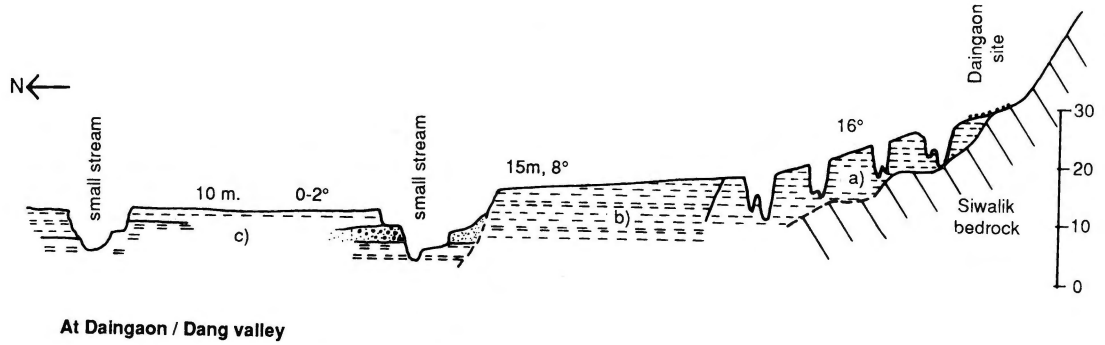


Fig. 20. Crossection through the deposits at Daingaon in Dang valley.
a. Marginal remnants of yellow-reddish silts, abutting against the flanks of the Siwalik hills, once covered by a red soil, recently dissected by heavy erosion into a badland topography. Slope gradient of 16 degrees.
b. Banded alluvial silt/clay succession, forming the 15 to 18 meter terrace, with a gentle gradient of 8 degrees.
c. Youngest alluvial 10 meter terrace, composed of basal black clays and lignites, overlain by grey silts and lenses of gravel.

and abundant. The closest handaxe findings in the Himalayan foothills, though much closer to the plains and not as far within the hillranges as at Dang, are found some 800 km to the west in northwest India. To the south the nearest handaxes are found only beyond the wide Gangetic plain in the Son valley south of Allahabad, some 400 km away.

It seems to become increasingly certain that the 'boundary' between the two great cultural complexes in the earlier palaeolithic period, that of the handaxe-cleaver dominated cultures in India and that of the chopper dominated cultures of south east and east Asia goes through Nepal in the lower Himalayas.

Acknowledgements

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