CHAPTER VII

THE MIDDLE PALAEOLITHIC
CHAPTER VII

THE MIDDLE PALEOLITHIC

This culture is very well known from Western Rajputana. In this area seventeen sites were discovered in the valleys of the Luni and six of its tributaries and sub-tributaries, namely the Jojri, the Sukri, the Lilri, the Bandi, the Guhiya and the Reria. All these sites are located in the relatively higher rainfall zone of the Aravalli foothills known as Godwar. However, Mr. N.M. Ganam of the Department of Archaeology, Government of India has discovered two sites in district Barmer in a dried up river bed. No details are available about the sites and the material, but the artifacts are claimed to be Middle Paleolithic. From this evidence it would seem that the Middle Paleolithic culture of Rajputana extended right into the present day desert zone. Further field work may bring more sites to light even to the farther west.

In Eastern Rajputana the evidence so far is negligible though more search may yield further evidence. S.R. Rao has reported the discovery of this culture at several sites in the valleys of the Chambal, Bamani and Chamli in district Chitorgarh. In two small excavations on the Chambal at Sonita and Bhainsrorgarh he found that the Middle Paleolithic industry occurred in a deposit later than the one yielding the Madrasian industry. However, the specimens of implements illustrated by Rao do not look very convincing. Among his collection which was available to me for study at Baroda there was only one side-scraper of jasper which could be ascribed to Middle

2. Ibid., p. 33., 1956-57., pp. 5, 8.
3. Ibid., Pl. II., B.
Palaeolithic with certainty. Three or four small quartzite flakes and one bifacial point may or may not belong to this culture since smallness of size is not the only criterion of Middle Palaeolithic tools. It is, however, possible that Rao's full collection was not available to me for study.

In the Berach one chert core was found by me near Chitorgarh in February, 1960 and this year in March one small almond-shaped point and one broken blade were picked up near the same place by Dr. H.D. Sankalia and Dr. B. Subbarao respectively. Though in itself it is very meagre evidence, it brings out the possibility of further evidence being found in future. In the following pages, therefore it is the Middle Palaeolithic Culture of Western Rajputana which is described in detail; the few implements from Eastern Rajputana are described in the end.

Typologically it is predominantly a flake culture. The principal finished tool types are a variety of scrapers, points and borers. Among the scrapers there is a group which is technologically similar to, though more advanced than the pebble choppers and scrapers of the Lower Palaeolithic. Among the flakes there is a pronounced Levalloisian element which is more refined than in other Middle Palaeolithic industries of India. Technologically the various features of this culture seem to be directly evolved out of the earlier Handaxe-cleaver culture which had such a rich development in Eastern Rajputana.

The type site of this culture is Luni, a small town and railway junction on the homonymous river. This site yielded the largest number and most representative variety of tools. The total number of tools collected from all the sites is six hundred and seventy five of which two hundred and thirty two or more than one third came from this site. The artifacts generally
occur strewn in the river bed. Only at two places they were found in situ in a gravel layer. Near Shrikrishnapura on the Luni fifteen artifacts mainly flakes and one good side scraper were found from the loosely cemented gravel along the sides of an erosion gully on the right bank of the river. In the Reria near Danasani one very fine Levalloisian flake was found from a highly cemented gravel. This flake was removed along with a large chunk of its gravel matrix and is illustrated in Pl. XXXVI Fig. 1. Besides a large number of artifacts bear gravel and sand matrix on them which suggests that they have been derived from a gravel deposit after it was eroded. The paucity of in situ tools is due to the rarity of long gravel exposures.

The second mode of occurrence of the tools is on the factory sites in the limestone outcrops near Sojat and Pichak. At Dhaneri near Sojat and at Sojat itself the tools of the Middle Palaeolithic and the Microlithic cultures occur in an undifferentiated form because the limestone outcrops served as factory sites for various stone age communities. Such mixed material had to be sorted out on the basis of typological and technological characteristics. One valuable help in this direction was the state of preservation of the tools; microliths on the whole have a fresher appearance than the Middle Palaeolithic tools.

Unlike in the Lower Palaeolithic there do not appear to be any significant differences in the Middle Palaeolithic tools from several river valleys. In fact the bulk of the material has come from the Luni only. The other rivers play only a minor role as far as present study is concerned. It was thought that the method of discussing the material from individual river valleys as done in the case of the Lower Palaeolithic will not be of much use in the case of the Middle Palaeolithic. In the following pages, therefore, all the material from different rivers has been treated together.
RAW MATERIAL AND STATE OF PRESERVATION OF
THE TOOLS

Two distinct groups may be discerned in the raw material employed by the Palaeolithic man in western Rajputana. These are (i) quartzite, sandstone, and siliceous minerals like chert, flint, chalcedony, and jasper; and (ii) lava rocks such as rhyolite, felspar porphyry, and basic lavas. Such a dichotomy becomes fully intelligible when we look at the geological map of the region. There are two principal geological formations in the area, (i) the Vindhyan sandstones and limestones, and (ii) Malani volcanics and basic dykes. Two chains of limestones run from Sojat in the south to Barunda in the north, a distance of nearly forty miles. These limestones contain an inexhaustible supply of chert, flint, jasper, and chalcedony. The river Luni passes through these outcrops north of Bilara and affluent of the Jojri rises in them. To the south river Gahiya also takes its rise in them and river Sukri passes just near them. The raw material occurs in the form of nodules of various sizes. They generally have a rough surface which is due to the contact with the wall of the cavity in which they were formed. The nodules were carried by the rivers in their stream in the past when they had a greater carrying capacity due to heavy rainfall. It is these nodules which were picked up from the river bed and utilized for making tools. Whenever a suitable block was available, it was shaped into a tool but in far the majority of cases a flake was first detached which was later fashioned into the desired implement. The outcrops themselves are factory sites since raw material was available there in plenty. Sandstone, hardened shale, and silicified wood also occur in specimens these formations and were sparingly used. Pure flint are very few in
number. Flint occurs in two shades. One is dark black and the other of a whitish-grey colour. Chert which is the commonest material occurs in various hues - white, greyish-white, grey, black, and dark brown. Less common materials are yellowish jasper, chalcedony, and agate.

Quartzite of both coarse-grained and fine-grained variety has been used. The former is of greyish shade and the latter of dark-brown lustrous colour. Stray outcrops of Aravalli quartzite occur in the eastern part of the area and several rivers either pass through or near them.

The second group of raw materials are derived from the Malani volcanics the outcrops of which abound on either side of the Luni. The principal rock of this group used for tool making is rhyolite. It occurs in various shades the chief of which is brown tinged with red or purple. Other colours are dark grey or black. Other rocks are felspar porphyry and basic lavas. All these are highly siliceous and so hard that the unweathered surface can not be scratched by a knife. The lavas are intensely glossy and on black coloured specimens it is extremely difficult to read out the markings in black ink. It may be pointed out that there is a close relation between these raw materials and the Palaeolithic culture of western Rajputana for to the south in the river Jawai which is away from the area of these rocks no tools were found even after very persistent search although the river abounds in gravel in its upper reaches.

Generally speaking the tools are quite fresh except a negligible number in which some rolling has occurred. This means that the tools have not travelled much from the place of their manufacture. This would further imply that the raw material has mainly been derived from the river borne pebbles for the nearest outcrops of siliceous minerals, say from Luni are about eighty miles upstream. Those tools which have come from
the river beds have lost their luster and fresh outlook and instead acquired a dull appearance owing to contact with muddy water of the rivers. Some pieces from the Luni river have undergone weathering due probably to heavy salt impregnation of the river water. Many implements bear gravel and sand encrustation on them which shows that they have been derived from a gravel matrix. Many more have encrustation of clay and carbonate of lime which they have acquired by their long stay in the bed of the rivers. The encrustation varies in extent and thickness from one specimen to another and proportionately conceals the flaking on the tool. Many implements have undergone patination though to gauge the full extent and nature of it would require a detailed study. Greyish chert has been patinated white and white chert has acquired an yellowish patina. Coarse-grained greyish quartzite specimens have become dull brown due to the concentration of iron oxide in the upper part of the crust. The pieces made from Malani volcanic rocks have undergone little or no change.

**TECHNIQUE**

A great majority of implements have been made from flakes. These flakes generally have an unfaceted narrow platform and a striking angle varying between 90 and 110°. They have soft diffused bulbs of percussion, sometimes accompanied by a tiny flat bulbar scar. From these characteristics it can be said that these flakes were removed by blows given by a soft stone hammer. A small number of flakes show broad striking platforms and flake angles ranging from 110° to 125°. These were probably struck off by the application of a heavy stone hammer. The size of the flakes is generally small and though there are a few relatively large specimens, none is so crude as to suggest the use of the anvil technique. Next there are flakes that show careful preparation of the core before the removal of the flake. They also have their corresponding tortoise cores. These have
been detached by the Levalloisian or Prepared core technique. A still more advanced method of flaking has been employed in the preparation of blades. They are characterised by narrow platforms and thin bulbs of percussion. Such pieces probably required the use of an intermediary or punch for detaching them. Finally there are handaxes and a group of scrapers which have been worked in the Acheulian manner by the soft cylinder hammer technique as their small flattish scars would suggest. Thus we have four main primary flaking techniques. These are:

(1) Stone hammer
(2) Tortoise core
(3) Cylinder hammer; and
(4) Punch

In majority of the implements primary work has been followed by secondary flaking. This is of following types:

(I) In a number of handaxes and other tools lateral margins are marked by step flaking.

(II) Many of the handaxes are as sharp along their butt as along the rest of the periphery. This reduction in thickness is deliberate and has been brought about both by simple and step flaking. It is possible that such handaxes were hafted before being used.

(III) Perhaps the most advanced and significant secondary work is the one that has been done on flakes and occasionally on nodules to shape them into scrapers, benders, and points. It is of two kinds:

(i) by the removal of relatively large and shallow scars on flakes or nodules with a thick margin; and

(ii) by removal of minute scars or nibbled retouch along the flakes with thin margins. The latter was probably executed with the application of pressure by a pointed wood or bone object.
ARTIFACT TYPES

(a) HANDAXES (Plates. XXXII; Figures. XXXVIII; XXXIX.)

There are fifteen handaxes in the collection. These constitute seven percent of the finished tool forms and nearly two and a half percent of the entire collection. Their distribution is also limited in that they have been found at only four out of the seventeen sites. Technologically these may be divided into two groups.

(A) There are only three specimens in this group. They are comparatively thick and crude. One specimen from Pali is made on a gneiss pebble—a rock rarely used for tool making and its crudeness is probably due to the unfavourable nature of the material. It retains a large cortical patch on the lower face. Another specimen from Luni is a heavy piece and though worked on both faces it is marked by deep and large flake scars. It is probably an unfinished example of the handaxes in group B. The third specimen from Dhaneri is made on a flake. It has a borer-like tip and one margin is blunted by the removal of a large flake scar.

(B) This group comprises twelve specimens. They display a technical perfection which could only have been achieved by a community that had a long tradition of tool making behind it. All the specimens are true bifaces in the sense that they have been fully worked over both surfaces rarely leaving a patch of cortex. The overall size is small when compared to that of handaxes from a typical Lower Palaeolithic site. The largest specimen measures about twelve centimeters in length but the average length is in the neighbourhood of ten centimeters. They are remarkably uniform in shape, technique, and state of preservation. They exhibit small and shallow flake scars which are reminiscent of the finest Acheulian technique. In some specimens secondary work has been carried to such perfe-
ction that it is difficult to locate all the flake scars, since the ridges left by initial flaking have been completely removed. A perfect bilateral symmetry of outline is their another feature. The edges when seen in profile are either straight or wavy and in the latter case the waviness imparts a beauty to the tool. The cross section is lenticular, plano-convex, or asymmetrically biconvex. Many of them are made on flakes though no trace of their flake origin has been left because of the extensive secondary on the entire lower face. The edges are sharp and generally continuous along the total periphery of the tool. In many pieces the sharpness of the edge is further accentuated by the removal of shallow flakes from the margin inwards that leave characteristic step-like formations. Butt portions are generally as sharp and thin as the rest of the margin of the implement. This reduction in thickness appears to have been purposely carried out. It was probably intended to facilitate the hafting of the tool for these implements are ill-adapted for use in an unprotected hand. In European parlance the assemblage will be said to belong to an evolved Acheulian stage. Though the collection is small, several conventional types are present. These are:

(i) Pear shaped

SN 14 (11.2 x 5.8 x 2.8) Pl.XXVIII Fig. 6

A thin pear-shaped handaxe made probably on an end flake of dark bluish pitchstone; slightly rolled and thinly encrusted with clay and lime all over. The upper face has three or four large scars along the rear end but the rest of it is marked by numerous shallow and tiny scars. The lower face is also similarly worked. Butt portion worked by step flaking. One main mid-rib runs from the tip-end to the middle of the tool where it is joined by a prominent
ridge left by a large flake scar from the right side. The tool has a beautiful appearance because of its overall thinness, symmetry of outline and evenness of flake scars; section biconvex.

LNI 123 (10.7 x 5.6 x 2.8) Pl. Fig. 3; 2.

A medium-sized pointed handaxe of grey chert; exceedingly fresh though sparsely covered with lime encrustations. On the upper surface two large flakes removed from the left lateral margin reach the centre; right side worked extensively by step flaking. On the lower surface also butt-portion is marked by step scars; rest worked by soft flaking. Edge continuous around the periphery and very sharp; section biconvex.

(ii) Ovate

LNI 54 (11.5 x 7.0 x 3.5) Pl. Fig. 1.

An elongated ovate made probably on a thick flake of brownish chert; slightly rolled and extensively encrusted specially on the upper face with dull white clay. Fully worked on both faces. Lateral margins are worked alternately from the two faces producing a wavy edge; section lenticular. It is similar to an Acheulian Limande illustrated by Van Riet Lowe from Uganda.

LNI 55 (8.9 x 7.2 x 4.0) Pl. Fig. 2; 3.

A small tortoise shaped handaxe made on a yellowish chert flake; unrolled but slightly patinated. Fully flaked; upper face is dome-shaped and has a distinct ridge running straight from the tip to the centre of the butt-end. Near the tip on either side of the ridge is a deep flake scar. Both faces have extensive step flaking.

Flake scars are small and shallow; section plano-convex. Symmetrical shape, shallow scars and soft yellow colour lend it an artistic appearance.

(iii) Cordate

DINR 118 (10.0 x 9.0 x 3.3) Pl.XXXVIII, Fig. 4

A medium-size, thin handaxe on black chert; quite fresh. Front half of the upper face extensively worked by step flaking; anterior half comparatively thick and marked by three large though shallow scars. Ventral face is flat and on the right side retains the roughness of the original chunk in spite of much flaking. Tiny patches of lime encrustation also remain on both faces. Section plano-convex; edges almost straight.

(iv) Almond shaped

PLI 3 (11.3 x 7.3 x 4.0) Pl. XXXVIII, Fig. 3

A medium-sized handaxe made probably on a thick flake of gneiss; heavily rolled. Lower face has three small scars along the right side and one near the tip. Upper face shows two big and one small scar on the left side; right side scars blurred due to rolling. A median rib runs from the tip to the centre of the butt; to the right of it on the butt side is seen an area of pebble cortex. Section roughly bi convex. Edges are blunted and the workmanship comparatively crude.

The distribution of these types is given in Table VIII on page 170.

(b) CLEAVERS (Plate XXXIX, Fig. 4)

Cleavers also like handaxes constitute a small component of the present industry. There are in all seven specimens and these come from two sites only. Their limited distribution and small number would seem to indicate that they
do not form a common type in the present Palaeolithic industry. Technologically they are inferior to handaxes. Six specimens are made on flakes and one on a flat-based pebble. Of the former one is on a side flake and the rest on end flakes. In two of the specimens on end flakes the bulb of percussion is as centrally based—in a corner of the flake instead of in the center and in one of these it is on the side of the cleaver edge. Flake angles are generally wide and the flakes seem to have been detached by a heavy stone hammer. The cleaver edge is formed by the intersection of the main flake surface with one or two flake scars on the upper surface. Shapes are symmetrical and the implements are parallelogrammatic, trapezoidal or plano-convex in cross section. The over all size of the tools is small—the average being about 10 centimeters in the longer dimension. The small collection may be divided into three types.

(i) Square butt and straight edge—rectangular shape

DNR 113 (9.3 x 7.5 x 2.3) Pl.XXXIX Fig. 4

A cleaver on a thin end flake of white chert with a pronounced bulb in one corner; fresh. Upper face left unworked except the two scars near the working edge. Section plano-convex toward the edge.

(ii) Narrow butt and straight edge

LNI 204 (10.7 x 7.8 x 2.2) Pl.XXXIX Fig. 5

A thin medium-sized cleaver on an end flake of banded agate; slightly rolled. From its upper surface one large flake has been removed; on the lower face the bulb has been subsequently chipped off. It has a narrow butt and a very slightly flaring edge. Section trapezoidal.

(iii) Narrow butt and oblique edge

LNI 83 (9.9 x 8.0 x 2.7) Pl.XXXIX Fig. 1.
A small cleaver on a side flake of pinkish rhyolite; almost fresh. Upper face has two large scars covering the whole surface. Sides worked and thick. Section parallelogrammatic.

The following table gives the type and site wise distribution of handaxes and cleavers.

Table VII.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YA</td>
<td>BA</td>
<td>SU</td>
<td>RI</td>
<td>ND1</td>
<td>R1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H</th>
<th>1</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(c) SCRAPERS (Plates. XXXIII; XXXIX-FIGURES XLVII)

Scrapers occur in the Lower Palaeolithic both on pebbles and flakes.
but their full development takes place only in the Middle Palaeolithic when their various forms become fully differentiated. In fact it might be said that scraper is the type tool of the Middle Palaeolithic just as handaxe is the type tool of the Lower Palaeolithic. In the present study they constitute 59% of the finished tools and 20% of the total collection.

On the basis of technique of manufacture the total collection of one hundred and thirty three scrapers is divided into two broad groups the first of which is again sub-divided into two, A and B.

Group I

(A) The implements in this group have two main characteristics. These are: (i) a sharp and sturdy cutting or scraping edge along one side or end of a flake or pebble; and (ii) a thick blunt side opposite the working edge. The scraping edge is made by the removal of a small number of relatively large scars. Flaking is mainly of the primary type; rarely any secondary work is done to improve the edge. Working edge may be unifacial or bifacial. In the former the implement has a flat base and the edge is made by removing flakes from the margin inwards. It is always steep, sometimes perpendicular to the base of the tool. In the bifacial specimens the arrangement of flake scars is alternate producing a zigzag edge. The thick back may be natural or artificial but appears always to be intentional since it provides an excellent hand-hold for using the tool. Technologically these scrapers are an evolved version of the pebble tools of the Lower Palaeolithic and underline the continuation of the earlier technological tradition.

There are two shapes in the implements. Those having the working edge along the side are narrow and elongated and those having the working edge along the end are oval. The average length of the specimens
is about eight centimeters. There is, however, one specimen from Pali which is conspicuous because of its large size. It measures fourteen centimeters in its longer dimension and is sufficiently heavy to be used as a chopping tool. It is an unifacial tool made on a pebble of sandstone. It was found sticking in a loose gravel and clay matrix and is heavily encrusted with the same on its lower face. The flake scars are so fresh that one will doubt its antiquity specially in the context in which it was found. It is illustrated in Plate. \[ \text{Plate XL, Fig. 5} \]

There are twenty three specimens in this group of which ten are unifacial and thirteen bifacial. On the basis of the location of the working edge three categories can be recognised in these scrapers.

(1) Side scraper

\[ \text{LNI 172 (8.1 x 4.1 x 3.8 ) Pl.X} \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \time{
steeper edge. Made on a flake of white chert; quite fresh. Upper face retains original cortex.

(ii) End Scraper

PPD 1 (7.6 x 6.0 x 3.3) Pl.XL Fig. 1

An oval end-scraper of brownish chert, slightly rolled. Fully flaked over both the faces in the manner of an Acheulean hand-axe; working edge made by alternate flaking. Flake scars along the edge have a fresher outlook than those on the rest of the tool; probably this implement is made out of an old discarded tool. The end opposite the working edge is thick and rounded and excellent for hand-hold.

INI 9 (9.2 x 8.9 x 4.9) Pl.XL Fig. 4

An oval end-scraper or chopper on a quartzite pebble; fresh. Working edge made by the alternation of two flake scars from either face; rest of the pebble left unflaked. Both sides taper toward the butt and there is a large protuberance on the left side.

PLI 6 (13.9 x 11.7 x 5.5) Pl.XL Fig. 5

A large unifacial chopper on a pebble of sandstone; the unworked lower surface and the back thickly encrusted with lime, fine gravel and sand; upper face only thinly encrusted. Working edge made by the detachment of five large flakes the scars of which are remarkably fresh. Out of context it would be indistinguishable from similar tools in a Lower Palaeolithic complex.

(iii) Side and end scraper.

HDG 2 (8.2 x 7.1 x 4.3) Pl.XL Fig. 2

An oval scraper of dull grey chert made probably on a flake; very slightly rolled. Lower face originally probably a flake
surface is worked all over from the margins inward. Upper face retains a large patch of original cortex. Working edge which is made by alternate flaking also extends along part of both margins.

(B) This group comprises only five specimens. It is broadly similar to group A in shape and technique. The implements have an elongated narrow shape; the working edge is along the longer axis and the side opposite the edge is thick. However compared to the implements of group A they are crudely flaked. They are made on pebbles or fresh chunks and retain considerable portions of the original cortex. On three of them flaking has been done on both faces and on the rest only on one. It is, however, haphazard and shapeless and the result is a crude working edge.

LNK 119 (9.3 x 6.0 x 4.6) Pl.XLV Fig. 5

Side-scraper on a fresh chunk of black chert. The lower surface has two large flake scars. The upper has a steep edge made by step flaking. Back is thick and very suitable for holding.

GROUP II

This is the larger of the two groups comprising one hundred and five specimens in all. Their main features are the following.

(i) Working edge is prepared mainly by secondary retouch along a side or an end of the tool. Trimming scars are extremely small and shallow and they must have been produced by the use of a hard pointed wood or bone billet. In some specimens the flaking is so delicate that it could have been executed only by the application of pressure since the edges are too thin to sustain even the light percussion strokes.

(ii) Tools are generally smaller and lighter than in the previous group. Majority of them are made on flakes. Excepting a small number the flakes show no prior preparation of the flake on the core in the Levalloisian fashion; they generally have an unfaceted striking
platform and a wide flake angle. In several specimens the whole of the dorsal surface retains the cortex except the retouched edge. A few specimens have been made out of fresh chunks of rock or pebbles. In such cases it is only the working edge that is prepared; the rest of the tool may be left completely unworked or only partially worked. The overall impression created by these implements is that the main objective of the artificer was to obtain a suitable scraping edge; rarely did he care much about the form of his tool.

(iii) There is a greater variety of types than in the earlier group. It is this class of scrapers that are really characteristic of the Middle Palaeolithic industries of India.

The total collection is divided into following four types.

(1) **Side scrapers**

The working edge in these specimens may be straight or almost so or it may be convex. The bulb and striking platform may be opposite the working edge (end-bulb type), perpendicular to it (side-bulb type) or obliquely placed to it (oblique-bulb type). Normally the flaking edge is on one side only but a few specimens have it on two sides. In the latter type the two edges may be roughly parallel or they may end in a point. These latter are what Mitchell calls bimarginal points.

ner of the flake; striking angle of about 100°. Both lateral margins are worked up to the end, the left one more steeply. Upper surface is largely cortexed and the specimen is thickest near the butt.

**SKP 14 (4.9 x 3.1 x 1.5)**  
Pl.XLIV Fig. 3

A small side-scraper on a single-ribbed thick flake of banded agate; slightly rolled and encrusted with lime; found in situ. Very finely retouched along the straight side; thick back and triangular section.

**HDG 4 (6.3 x 5.7 x 1.2)**  
Pl.XLIV Fig. 2

A side-scraper on a thin end flake of grey-black chert; fresh. It has a plain striking platform, a striking angle of 90° and an almost flat bulb. Convex edge retouched from both faces; a slight patch of cortex on the back.

**SNG 17 (7.1 x 5.6 x 2.3)**  
Pl.XLIV Fig. 11

A side-scraper on end flake with a plain striking platform, a striking angle of about 90° and a well-formed semi-cone of percussion. A constricted butt and a flaring edge retouched from the upper face; rest of the upper face retains the cortex.

**SNG 26 (3.8 x 4.4 x 1.5)**  
Pl.XLIV Fig. 10

A side-scraper on a trapezoidal-shaped prepared flake of grey-black chert; fresh. Finely retouched along the three sides.

**DNR 362 (4.1 x 2.8 x 0.9)**  
Pl.XLIV Fig. 5

A side-scraper on a thin, flat flake of grey-black chert; patinated but otherwise fresh. It has a straight back and a very finely retouched crescentic edge. The retouch is steep and executed from the two faces.
DNR 53 (4.8 x 4.5 x 1.1) Pl. XLIII Fig. 4

A triangular scraper made of silicified wood; slightly patinated but otherwise remarkably fresh. It has a prepared platform, a prominent bulb and a flake angle of about 90°. Both margins are retouched for their total length from the upper face.

End-scrapers

Flakes or nodules that are steeply retouched along one end are included in this category. There are fourteen specimens in all. The scraping edge may occupy full transverse side of a flake or nodule, be rounded or smoothly rounded. In the last case it assumes the shape of a nosed scraper.

LNI 31 (9.5 x 6.8 x 2.9) Pl. XL Fig. 5

An end-scaper on a pebble of grey-chert; slightly rolled.
Upper surface shows one large and two small primary scars; edge secondarily worked from the flat base upwards. Lower face is a rough pebble surface. It is the largest specimen in the group.

LNI 90 (8.8 x 7.6 x 1.4) Pl. XL Fig. 6

An end-scaper on a thin nodule of yellowish chalcedony; patinated. A transverse convex edge made by soft retouch; rest of the tool bears original cortex.

LNI 158 (7.6 x 4.8 x 2.8) Pl. XLIV Fig. 12

An oblique-edged scraper on a thick flake of dark-brown quartzite; fresh. An obtuse striking angle and a plain platform; bulb subsequently removed. Steep scraping edge prepared by step flaking; section trapezoidal at the centre.

LNI 209 (8.1 x 5.2 x 3.2) Pl. XLIV Fig. 7

A roughly triangular scraper on a thick chunk of dark-brown quartzite; fresh except the encrustation of clay in several places. It has a very steeply retouched transverse edge which makes an ideal tool for end-scraping. Lower face retains much
cortex; upper face is marked by large scars except in the centre.
Section trapezoidal in the centre.

DNR 22 ( 6.3 x 5.3 x 1.2 )  Pl. XLI Fig. 6

An end-scraper made from a nodule of silicified wood; fresh.
Lower face has a large plunging scar which adds sharpness to the
dge which has been retouched from the base to the upwards.
Several patches of original cortex have been left on both faces.
Butt constricted; a natural concavity along the right side on
the upper face makes it excellent for prehension.

DNR 36o ( 7.0 x 3.5 x 1.7 )  Pl. XLI Fig. 5

An end-scraper on a narrow elongated flake of white chalcedony;
fresh. It has an unfaceted platform, a wide angle and a soft
bulb. Upper face has a large blade-like scar along the left side;
right side is worked by step flaking. Narrow scraping edge is
steeply retouched.

(iii) Hollow scrapers

The concavely retouched edge in these specimens may be
located parallel to the longer axis of the tool or transversely to it.
In one specimen the concavity is confined to a part of one side and the
specimen may be called a notched scraper. Two specimens are also retou-
ched along the convex side opposite the concave one and they may be
called concavo-convex scrapers.

LIN 12 ( 4.5 x 3.8 x 1.0 )  Pl. XLI Fig. 1

A hollow scraper on a thin prepared flake of variegated chert;
fresh. The striking platform has been subsequently removed; the
bulb is not very pronounced. It is retouched on the upper face
along both lateral margins, one of which is concave and the other
convex. The deep concavity at the back would serve as an excellent thumb-rest.

LNI 17 (4.5 x 4.4 x 1.2) Pl.XLVII Fig. 2
A hollow scraper on a thin end-flake of grey chert. It has a plain striking platform, a striking angle of about 90° and a diffused bulb. The edge is worked by very soft retouch and the back is thick.

LNI 101 (6.0 x 4.5 x 1.6) Pl.XLII Fig. 7
A hollow scraper on a pointed side-flake of yellow chert; slightly rolled. Bulb missing but a shell-shaped narrow scar can be seen; platform very narrow. Besides the concave side the opposite margin is also retouched to the tip and so the tool could also be classified along with points.

DNR 352 (9.8 x 10.8 x 3.1) Pl.XLI Fig. 7
A hollow scraper on a prepared core of whitish-grey chert; quite fresh. Lower face has two large flake scars and the upper has two large and three or four smaller ones. It is retouched along two sides perpendicular to each other.

(iv) Round scrapers

LNI 148 (7.6 x 3.9 x 2.0) Pl.XL Fig. 3
A round scraper made from a hard lava rock of black colour; fresh. It has an oval shape and is worked all along the periphery on both faces. The working edge is extremely sharp. The central part of the tool on both faces retains scars that suggest they are remnants of an earlier tool which has been subsequently reshaped. Because of its round shape and fine workmanship it is a text-book specimen. A somewhat similar tool is illustrated by Dr. G.C. Mohapatra from the Middle Palaeolithic
A round scraper made on a flake of hard lava rock of black colour; fresh. It has a rectangular shape with rounded corners and a sharp edge worked by secondary trimming along the total periphery. It is worked on both faces. The lower face has three blade-like scars removed from the margin inwards. Upper face bears marks of considerable step flaking. Similar to a Mousterian flake from the 10 to 15 foot gravels of the Nile in Upper Egypt.

A horse-shoe type round scraper of white chert; quite fresh. It is perfectly round and is very steeply worked round the entire periphery. Upper face is flat due to the removal of very shallow flakes. Lower face which is also flat is worked along the margin by extensive step flaking. Because of its flat faces, round shape and steep margin it looks similar to a round cap.

There are six borers in the present collection. All are made on flakes. Their distinctive feature is an elongated point which does not result by the tapering off of the two sides but by the preparation of a deep notch on one or both sides just below the tip.

1. Mohapatra, G.C. (1960) The Stone Age Cultures of Orissa. Pl. XXXIV. Fig. 5
2. Sandford, K.S. (1934) Palaeolithic Man and the Nile Valley in Upper and Middle Egypt. Pl. XXXIV. Fig. 34
A borer on a thin irregular flake of black chert; slightly rolled. Part of the upper face retains cortex.

A small borer on a flake of brownish chert; fresh. Upper face fully cortexed. It is naturally pointed at one end; other end has a carefully prepared borer tip.

E) Borer-scrappers Plates..XXXIV; FIGURES. XXXV; XLVII; XL

This is a type of artifact which is fairly common in the Middle Palaeolithic industries of the Orissa and the Deccan. It is, as the name suggests, a composite tool serving the purpose both of borer and scraper, though primary it is borer only. Unlike in the borer the secondary work in this tool is not confined to the tip only but extends also along one or more sides of the tool. This type like several others is already anticipated in the Lower Palaeolithic in such specimens as the one from illustrated in Plate.XXIV figure 1. There are two better specimens in the collection of S.R. Rao from the Gambhiri at Chitorgarh. In the present collection there are six specimens in all.

A closer examination of the specimens and the observations made on them have led to the following conclusions:

A borer-scraper made on a flake of grey chert; fresh except sparse clay encrustations. The flake has a cortexed platform, a prominent bulb and a flake angle of 105°. It has a well-retouched borer-tip which is accentuated by the presence of a deep notch on the lower face just near the tip. Secondary work is further carried along both sides of the tool. The retouched
notch makes it an ideal hollow scraper as well.

**DNR 111 (9.2 x 9.5 x 1.6)**

A borer-scaper on a large, thin Levallois flake of white chert, patinated yellowish. It has a faceted platform, and a striking angle of 97°; the large bulb has been subsequently removed.

Upper face has a large scar covering the whole surface. The flake is beautifully retouched along the tip as well as sides.

**SNG (8.4 x 4.3 x 1.6)**

A long thin borer-scaper on a flake of basic lava; fresh. It has two deep notches near the tip, one on either face and on opposite sides. The retouch is carried along both the margins.

(f) **POINTS**

Unlike many other terms used in the Palaeolithic literature for the classification of artifacts the term point indicates only form and not function and so the definition and classification of points does not present quite the same problem as that of, say, scrapers. Regarding their function all that can be said with certainty is that all points were not used for the same purpose, for there are significant variations of size and shape among them. The only common feature among them is that they all end in a point. This point, however, is the chief functional part of the implement. The thin and long points were probably used as spears, and lance-heads; the smaller ones could have been used as miniature handaxes for skinning game and similar purposes.

The present collection consists of thirty nine specimens and is divided into two broad groups. (i) Unifacial and (ii) Bifacial

(i) **Unifacial points**
(1) Unifacial Points

It is customary to treat only those artefacts as points in which the pointed end is brought about by a deliberate retouch along two sides. In the present collection, however, there are a number of specimens which are either very little retouched or not retouched at all. But a close look at them suggests that they are not fortuitous flakes but have been carefully prepared in such a way that little secondary work was thought necessary.

Grahmann in his study of the Leipzig sites has followed a broad definition of points "in which all those tools are designated as points which taper off to a point in the direction of their longitudinal axis, normally at the end opposite the striking platform." Even in Europe where raw material is almost always flint on which retouch can be both easily executed and studied, it is only during the Upper Palaeolithic that retouch becomes sufficiently common to take as the chief diagnostic criterion of the implements. In the Lower and Middle Palaeolithic retouched tools play only a minor role. The material from Leipzig sites is probably as late as Third Inter-glacial, yet the un-retouched tools constitute a very important part of the total collection. Therefore in the Lower and Middle Palaeolithic cultures to accept only the retouched pieces as points would mean the exclusion of many pieces that are otherwise very typical. This is specially true for India where flint is scarce and generally inferior materials

---


on which retouch is difficult to execute, were employed by the Palaeolithic man. I have, therefore, found Graham's procedure useful for studying the present collection.

Unifacial points are further divided into two groups.

(a) **Long triangular points**

There are six specimens in this group. Their length varies between 10.5 and 8.5 centimeters. They are all made on flakes the shape of which has been largely determined on the core itself prior to their being struck off. They have sharp straight edges which are only sparsely retouched.

**GLO 4** (9.0 x 4.7 x 2.0)  
A triangular leaf-shaped point on a flake of whitish chert; patinated yellowish-brown but otherwise fresh. It has a plain platform, a diffused bulb and a flake angle of 110°. Both the lateral margins are retouched up to the point from the lower face; upper face is marked by shallow scars except near the butt where it retains a patch of cortex.

**DDR 3** (9.1 x 4.7 x 1.6)  
A triangular leaf-shaped point on a single-ribbed thin flake of basic lava; fresh. It has a diffused bulb, a plain platform and a striking angle of 107°. Lateral margins are sparsely retouched. Upper face right side probably retains original cortex; left side has one large scar. Similar to a Mousterian flake from the 10 to 15 foot gravels of the Nile in Upper Egypt.¹

**SMD 2** (10.5 x 4.7 x 2.5)  
A triangular point on a thick flake of brownish lava; fresh. It has

¹Sandford, K.S. op. cit.  Pl. XXXIV. Fig. 33.
a soft bulb, a plain platform and a wide angle. Upper face worked to a point by the removal of large flakes from either side of the mid-rib.

DNR 148 (8.1 x 5.3 x 1.6) Pl.XL IV Fig. 1

A long triangular point on a single-ribbed flake of white chert; patinated light-brown. It has a large well-formed bulb which has been partly removed by the detachment of two small flakes; striking platform subsequently removed. Upper face fully worked by the Levalloisian technique; edges partly retouched. The tip was broken before the tool underwent patination; original length of the tool would have been about twelve centimeters.

(b) Small points

This is the larger sub-group comprising twenty-six specimens. Unlike sub-group (a) there is much diversity in size. The length of the tools varies from 2.6 centimeters to 3.5 centimeters. Some of the specimens in this group are so conspicuous because of their thickness that they may be taken to form a separate sub-group. Thus small points may be divided into (i) thick points and (ii) thin points.

(i) Thick points

There are six specimens in this group. The thickness varies from 2.5 centimeters to 1.8 centimeters but the average is 2.3 centimeters. In these pieces there is very scanty retouch along the edges but the upper face has been very carefully prepared by primary flaking to give the specimens the shape of a point.

GLO 3 (7.0 x 5.5 x 2.8) Pl.XL IV Fig. 1

A thick triangular point of grey chert; fresh. It has a narrow plain platform, a flake angle of 110° and a diffused bulb. Back is worked by primary flaking; section plano-convex.

DNR 149 (7.7 x 5.6 x 1.6) Pl.XL II Fig. 4

A thick sub-triangular point on a flake of greyish chert. Upper
face worked by primary flaking and retouched along the right margin; bulb partly removed.

(ii) Thin points

In these specimens the thickness varies from 1.5 centimeters to 0.5 centimeter. Almost all the pieces have retouch along both the margins. Some specimens are made on Levallois flakes.

DDR 1 (7.0 x 5.1 x 1.5) Pl.XLV Fig. 5

A triangular point on a flake of brownish yellow chert. It has a plain platform, a diffused bulb and a tiny bulbar scar and a flake angle of 110°. Both margins are retouched from the upper face.

LNI 111 (4.1 x 3.7 x 0.8) Pl.XLI Fig. 5

A thin sub-triangular point on a flake of grey chert; fresh. It has a narrow plain platform, a flake angle of 98° and a weak bulb. Upper face considerably thinned down by step flaking; left margin retouched from the upper face.

DNR 212 (A small pentagonal point of grey chert; fresh. Made on a Levallois flake; striking platform partly removed. Retouched along both margins. (3.8 x 3.1 x 0.5) Pl.XLIII Fig. 7

GLO 5 (3.4 x 3.0 x 1.4) Pl.XLIII Fig. 7

A small triangular point on a flake of pinkish chert; striking platform subsequently reworked. Retouched along both margins; upper face retains part of the cortex.

SJT 73 (6.9 x 4.5 x 0.9) Pl.XLV Fig. 3

A thin sub-triangular point on a flake of grey chert; fresh. Retouched along both lateral margins on two faces. Upper face retains a patch of original cortex.
SJT 80 (5.0 x 4.2 x 1.2) Pl. XX Fig. 7

A thin, long sub-triangular point of whitish chert; fresh. Upper face considerably thinned down probably before the flake was removed from the core. Bulb and platform trimmed away; slightly retouched.

(ii) Bifacial points

Bifacial points are extremely rare in Indian Middle Palaeolithic industries. Besides Rajputana they have so far been reported only from Kurnool. The present collection of eight specimens is divided into two groups. (a) Unfinished, and (b) Finished

(a) Unfinished

There are only three specimens. They are strikingly uniform in their shape and size. Their unfinished nature appears to be due to the defective raw material employed for making them rather than to any lack of mastery of technique on the part of the artificer which is perfectly borne out by the finished specimens in the collection.

GLO 1 (7.7 x 5.5 x 3.5) Pl. XXI Fig. 1

A thick unfinished point of yellowish chert; fresh. It is fully worked on the lower face by removing large primary scars; upper face also similarly worked but retains a portion of the original cortex. With a little secondary flaking it would have attained a very symmetrical shape. Section roughly plano-convex across the centre of the tool and butt pointed.

GLO 2 (7.2 x 5.4 x 3.3) Pl. XXII Fig. 3

A triangular point of grey chert; fresh. Worked by primary flaking

1. Issac, N. (1961) The Stone Age Cultures of Kurnool. Pl. LXX Fig. 6. 166-67.
on both faces but portions of the cortex still remain. Butt straight; section biconvex across the centre.

(b) Finished

There are five specimens in this category. They are generally thin and for that reason appear to be made out of flakes though all traces of the flake surface have been completely removed. They are fully worked on both faces by removing small, shallow flakes. They exhibit perfect bilateral symmetry and have no projecting ridges as in the unfinished group. From their form and workmanship their ancestry can be directly traced to the tiny handaxes of the Lower Palaeolithic (Plates X'V ; X'X'), Figures.3;5).

LNI 11o (6.2 x 4.4 x 1.9) Pl.XL\^ V Fig. 6

A Peepul leaf-shaped point of grey chert; slightly rolled. Fully flaked on the lower face by convergent flaking; flake scars are very small and shallow. Upper face worked all over except in the centre; section biconvex.

DDR 2 (6.8 x 4.2 x 1.9) Pl.XL\^ V Fig. 1

A leaf-shaped point of bluish porphyritic lava; slightly rolled and weathered. Made probably on a flake though no trace of it now remains. It has one main longitudinal mid-rib on the upper face and two secondary ones. Fully flaked by large though shallow flake scars on both faces; section symmetrically biconvex.

LNI 7o (5.9 x 2.6 x 1.4) Pl.XL\^ V Fig. 9

A narrow triangular point simulating the shape of a Neem leaf made probably on a flake of quartzite; slightly rolled. It is fully flaked on both faces and could have made an ideal arrowhead.
### Table IX

Type wise distribution of scrapers and points

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>DDRM</td>
<td>SKP</td>
<td>GLO</td>
<td>HDG</td>
<td>BHW</td>
<td>PCK</td>
</tr>
<tr>
<td>Side-</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>End-</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Group I</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>III</td>
<td>5</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Side</td>
<td>1</td>
<td>5</td>
<td>14</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>End-</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holes</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unifacial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>Long</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Trglr.</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bifacial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfin-</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ished</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Finished</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- DDRM: Dental, Dorsal, R. Retr., M. L. H. D.
- SKP: Side, Keel, P. B. S. N. D.
- GLO: G. L. O.
- HDG: H. D. G.
- BHW: B. H. W.
- PCK: P. C. K.
- BSP: B. S. P.
- PPD: P. P. D.
- SNG: S. N. G.
- BND: B. N. D.
- DNS: D. N. S.
- BTD: B. T. D.
- PLI: P. L. I.
- STT: S. T. T.
- DVR: D. V. R.
This is a tool-type that may be considered very largely unique for Western Rajputana. I have not come across any comparable examples in the literature on Indian Palaeolithic. The characteristic features of this type are: (i) a sharp and straight cutting edge along one side of the tool, and (ii) a thick back for hand-hold on the opposite side. They are invariably made on flakes. The working edge is made by the intersection of the main flake surface and one or two large flake scars on the upper surface. Retouch along the edge is very scarce and often completely absent. The overall appearance of the tool is that of a neat-looking, simple and efficient instrument. The question of their function is answered in advance by their form. The one purpose for which they could have been best used is cutting light objects such as hide etc. and hence their name. A similar tool-type of the Chatelperronian is illustrated by Leakey. 1

On the basis of shape they may be divided into two groups.

(i) Long and Narrow

These have their working edge along the longer axis of the tool perpendicular to the bulbar end. The shape is usually rectangular and sometimes trapezoidal. In a way these may be regarded as naturally backed blades.

LNI 227 (10.1 x 4.8 x 3.1) Pl. XXIII; Fig. XLI. "A long, rectangular flake-knife of whitish chert; unrolled but patinated yellow. Working-edge made by the intersection of two end-flakes— one from either face; a thick back excellent for holding.

LNI 228 (7.3 x 4.4 x 2.2) Pl. XXIII; Fig. XLVI. A rectangular flake-knife of variegated greyish chert; fresh.

1. Leakey, L.S.B. (1953) Adam’s Ancestors. Fig. 23
Upper face has two large shallow scars; back is thick and partly
cortexed; edge slightly bruised due probably to use. Similar to INI 227
but slightly smaller.

SMG 12 (8.7 x 5.3 x 2.0) Pl. XLIII Fig. 2

A trapezoidal-shaped flake-knife of black lava; fresh. Upper face
has only one large scar; back is thick and retains cortex. Edge
slightly damaged due to use.

(ii) Small and broad

These have a transverse cutting-edge along the shorter axis of the tool opposite the bulbar end. The shape is squarish or
roughly rectangular. Some of these look like miniature cleavers.

INI 78 (7.8 x 6.8 x 2.3) Pl. XLIV Fig. 10

A rectangular flake-knife of brownish lava; unrolled. It has a
transverse cutting-edge which gives it the shape of a cleaver;
bulb subsequently removed. Upper face retains some cortex.

INI 80 (6.9 x 6.9 x 2.1) Pl. XLIV Fig. 11

A triangular flake-knife of greyish chert; fresh. Upper face has
a steep flake scar along the edge; part of the upper face cortexed.

(h) Blades and Flake-blades. (Plates XXXV; XXXVI; XXXVII; XXXVIII; XL; XLIV - XLV)

A blade is primarily a flake. To be regarded as a blade it must
possess three characteristics. It must
(i) be thin,
(ii) have edges which are very nearly parallel; and
(iii) have length which is at least twice of its breadth.

Now it is to be expected that in any large collection of flakes
there will be specimens which do not share all the three characteristics or share them only approximately. Such specimens are here designated as flake-blades.

Blades

There are twenty three pieces in this group. The largest one measures nearly 10 centimeters in length; eight pieces measure between 5 and 7 centimeters and the rest between 3 and 5 centimeters. The thinness of the blades varies within narrow limits. Out of twenty three pieces seventeen measure between .5 and 1 centimeter. Most of the specimens have one long narrow mid-rib on the upper face and one large flake on either side of it. The cross section of such specimens is triangular. A few specimens are very slender and fine and may even be compared with the Upper Palaeolithic blades of Europe. They were certainly struck off by the use of a punch technique. Striking platforms are narrow and with one exception unfaceted. Blades have tiny conchoidal bulbs of percussion and several possess beautiful shallow bulbar scars. The flake angle is generally in the neighbourhood of 90°.

Four pieces are retouched along one margin and five have indentation marks due probably to use. Almost in all the cases both the lateral margins have sharp edges and none of the specimens is a true backed blade.

LNI 167 ( 6.7 x 3.1 x 1.0 )  Pl.XLIV Fig.7

A long blade of grey chert; unrolled. It has a plain striking platform, a weak bulb and a flake angle of 90°. The upper face retains a large patch of thick brownish cortex. The sharp edge along the right margin of the lower face is finely retouched.

LNI 230 ( 9.8 x 4.5 x 1.8 )  Pl.XLV Fig. 4

Longest specimens of the group; made of greyish agate; slightly
rolled. It has a narrow, un facet ted striking platform, a very weak bulb of percussion and a striking angle of 95°. Upper face has a large scar toward the right half; there are several small scars near the tip, rear and the left. A small patch of cortex is left on the left side. The left margin is retouched and the right has use marks.

LNI 234 (5.4 x 2.9 x 1.4) Pl. XLVII Fig. 5

A small blade of blackish chert; almost fresh. It has an unfacet ted platform, a weak bulb and a flake angle of 96°. Upper face has a median ridge; there are five small scars on the right side and two on the left. Flakes have been detached from the lateral margins upwards. It has partly lost its freshness due to water action.

DNR 213 (4.0 x 1.8 x 0.6) Pl.XXXIV, Fig. XLIV Fig. 6

A thin blade of white chert; quite fresh. It has a plain platform, a weak bulb, a tiny bulbar scar and a flake angle of 97°. Upper face has a longitudinal ridge in the centre; five scars on the right of either side of the ridge. The specimen in its neatness and perfection can compare with the Upper Palaeolithic blades of Europe.

PCK 2o (4.7 x 2.0 x 0.7) Pl. XLIV Fig. 11

A small blade of white chert; fresh. Similar to DNR 213 except that it is slightly bigger and a tiny patch of cortex left on the upper face.

**Flake-blades**

This group consists of twelve specimens. The length and breadth of these specimens vary between 10 and 5 centimeters and 5 and 2 centimeters respectively. With two exceptions the striking platforms are unfacet ted; the flake angles are low, average being about 91°. All the
flakes are worked on the upper face though in some pieces small cortical patches have been left. Three pieces are retouched along the edges - two on two sides and one on one side; one has use marks along one margin.

**DNR 343** (10.2 x 5.3 x 2.5)  
One of the two largest pieces in this group; made on a piece of calcified conglomerate of variegated colour. It has a plain platform, a diffused bulb, a tiny bulbar scar and a flaking angle of 95°. It has sharp and parallel margins which are retouched from both faces. Upper face has two large flake scars - one on either side of the central ridge which is also the region of maximum thickness.

**SJT 90** (7.6 x 3.5 x 1.3)  
A thin, long flake of greyish flint; patinated white but otherwise fresh. It has a faceted platform, a beautiful conchoidal bulb of percussion and a striking angle of 95°. Upper face is worked by the removal of large and shallow flakes. Left lateral margin is delicately retouched from both faces.

(1) **FLAKES** (Plates. XXXVIII - XXXIX)  
It has already been said that the Middle Palaeolithic Culture is predominantly a flake culture. As much as seventy six percent of the finished tools have been made on flakes. Besides there are three hundred and sixteen more flakes which can not be considered under the category of tool-types. These constitute forty seven percent of the entire collection. Technologically these flakes may be divided into two broad groups.

(1) Simple flakes, and (ii) Prepared or Levallois type flakes.
(i) **Simple flakes**

This is the larger of the two groups comprising two hundred and eighty or eighty eight percent of the total number of flakes. In this group are included all those specimens which have been detached from the core without any special preparation beforehand. In a number of them one or more flakes have been detached from the upper surface and in some cases the entire upper surface may be worked. But such work is generally subsequent to the detachment of the flake from the core and in such specimens in which it has been executed on the core itself - as in tiny chips - it is not of the Levallois type.

Sixteen percent of the flakes in this group are fully, and sixty five percent partly worked on the upper face and only ninety-nine percent retain cortex on the entire surface. In forty percent of the pieces a pre-existing flake scar has been utilized as a striking platform; in twenty four percent of them striking blows have been delivered on the nineteen original cortex; in ninety percent in many percent platform has either been subsequently removed or is broken and its exact nature could not be studied. Only eight percent of the pieces have platforms with one or more scars and these may be called faceted. The flake angle varies from 90° to 115° and the average is about 100°.

A small number of specimens have indentation or retouch marks along one lateral margin but often it is so fragmentary that it is difficult to decide whether it is due to purposeful secondary work or just to use.

On the basis of their size and supposed function these flakes may be divided into three groups.

(1) **Large flakes**, (2) **Small flakes**, and (3) **Waste flakes or chips**.
(i) **Large flakes**

There are thirteen flakes in this category. They easily mark them off from the rest because of their large size. Their length varies from 8.5 centimeters to 13.2 centimeters. They generally have a sharp cutting-edge on one side and a thick back on the other so that they can be used as cutting or chopping tools. A few specimens have a natural slope along the thicker side which can be effectively used for giving support to the finger.

**INI 202** (11.7 x 8.3 x 3.6) [Pl. XLI] Fig. 3

A thick large flake of dull brownish lava; almost fresh. It has a weak bulb, a plain platform and a flake angle of 98°. Three large flakes removed from the upper face; sharp edge on one side and thick back on the other.

**SNG 47** (10.1 x 6.8 x 3.7) [Pl. XLVH] Fig. 5

A thick dark-brown coloured flake of quartzite; unrolled. It has an unfaceted platform, a prominent bulb and a flake angle of 110°. It has straight sharp edge opposite the striking platform and along the right margin; bulbar side and left margin thick. Edges are slightly battered probably due to use. Upper face has two large scars which intersect with the main flake surface to make the sharp edges; the thick left margin is steeply worked.

(ii) **Small flakes**

The size of the smaller flakes varies between 9.9 centimeters and 5.2 centimeters. Besides they are much thinner than the flakes in the previous group. They include all those flakes which have either been actually used or can be used for purposes like cutting or scraping. They account for 51.7% specimens of the flakes in group (i) or
Simple flakes. Their total number is one hundred and forty five.

LN 105 (8.9 x 6.6 x 1.8) Pl. XLI Fig. 8

A pointed flake of whitish chert; unrolled but patinated yellow.
It has a plain platform, a diffused bulb and a flake angle of 90°.
Upper face has one large and shallow scar; bulbar side is thick.
It is sparsely retouched along the two sides opposite the bulb.

DNR 344 (8.8 x 7.5 x 2.2) Pl. XLIX Fig. 5

A triangular flake of grey chert; unrolled. It has a faceted platform, a prominent bulb of percussion and a striking angle of 90°. The upper surface retains cortex almost all over.

DNR 10 (7.5 x 5.1 x 1.5) Pl. XLVII Fig. 8

A thin end-flake of grey chert; slightly rolled and much encrusted with clay and lime specially along the upper face and along the side opposite the working edge. It has a plain platform, and a prominent bulb and a flaking angle of 105°. Upper face has one large but shallow scar and two smaller scars. The triangular right side is slightly battered either due to use or slight retouch; left margin is thick.

SKP 17 (6.0 x 3.5 x 1.6) Pl. XLVII Fig. 2

A thick, roughly triangular flake of dull yellow chert; slightly rolled. It has a natural platform, a diffused bulb and a flake angle of 87°. It has a thick left margin from which one small flake has been detached; along the left margin there is one large, deep scar but the rest of it is cortexed. This margin is slightly battered due probably to use.

SKP 22 (3.3 x 3.7 x 1.0) Pl. XLIX Fig. 9

A small triangular flake of grey chert; slightly rolled. It has an unfaceted platform, a very weak bulb and a flake angle of 90°. It is
very thinly retouched along the two margins; the bulbar side and the left margin are thick. Upper face is worked by shallow flaking.

(ii) Prepared or Levallois flakes.

This group is smaller, comprising thirty-six specimens or nearly twelve percent of the total number of all the flakes. They are generally of small size, the average length being 4.6 centimeters. There is evidence, however, that larger flakes were also detached by the prepared core technique. One such flake which measures 9.5 x 9.2 centimeters was fashioned into a borer-scraper and is illustrated in Pl.XXXI Fig.1. It has a faceted platform and is extremely thin for its size. The existence of such flakes is also confirmed by the presence of large tortoise cores in the collection (Pl.XXXIV Fig.15,16). Nearly all are of an oval shape. They have characteristic centrally directed flake scars on their upper surface as evidence of their prior preparation on the core. They are generally thin and in some cases any work subsequent to their removal from the core would have been rendered impossible by the sheer thinness of the flake.

Striking platforms are generally unfaceted; only nine out of thirty-six specimens have faceted platforms. Flake angles are in the neighborhood of 90 and bulb of percussion is generally not of pronounced type. Some specimens have slight retouch along their margins.

LNI 113 (6.8 x 4.2 x 1.1) Pl.XXXV Fig.1. X L. Fig. 2, 3.

A thin leaf-shaped flake of whitish chert; unrolled but patinated yellow. It has a tiny soft bulb and a smooth scar on the lower face as in a plunging flake; the striking platform seems to have been subsequently removed. Upper face has a longitudinal mid-rib and one large shallow scar on either side of it besides four tiny
scars on the left half. The specimen is a very fine example of Levallois technique.

LNI 103 (4.4 x 4.2 x 1.3) Pl.XLVII Fig. 5

A thick oval flake of dull white chert; unrolled but patinated yellowish-brown. It has a plain platform, a well-developed and large bulb of percussion and a flake angle of 96°. Upper face has a central keel where flakes from all sides converge.

DNR 200 (4.3 x 3.2 x 0.9) Pl.XLVII Fig. 4

A very thin oval flake of white chert; quite fresh. It has a plain platform, a striking angle of 96°, a weak bulb and a tiny bulbar scar. Lateral margins are sharp and slightly retouched or indented due to use; the side opposite the bulbar-end is blunt.

HDG 13 (4.0 x 3.4 x 0.7) Pl.XLVII Fig. 5

An extremely thin flake of yellowish-brown chert; quite fresh. It has an unfaceted narrow platform, a weak bulb, a tiny bulbar scar and a flake angle of 90°. Upper face is beautifully prepared by soft flaking.

PPD 17 (3.3 x 3.1 x 0.7) Pl.XLVII Fig. 5

A very thin squarish flake of whitish chert; patinated yellowish-brown but otherwise fresh. It has a narrow unprepared platform, a weak bulb, a relatively large scar and a flake angle of 90°. Upper face is nicely prepared.

DDR 6 (5.1 x 4.1 x 1.8) Pl.XLVII Fig. 1

A thick semi-circular flake of white chert; patinated light brown. It has a faceted striking platform, a weak bulb and a flake angle of 100°. Upper face is fully worked by very shallow flaking. One margin is thick and suitable for holding; other has a sharp edge.
(j) Discs  (Plate V)

There are only three specimens in this group. Two of these have relatively large flake scars over them and were probably originally cores. One is made of quartzite and is stained dull-brown due to heavy oxidization. It is from Luni. Other specimen from Dhaneri is made of chert and quite fresh. The third piece is from Pali and is the best specimen in the group. It is described and illustrated.

PLI 4 (8.4 x 7.4 x 2.5)  Pl. XXIV; Fig. xxviii.  Figs. 3, 4.

A small, thin disc of quartz; fresh. It has a sharp edge all round the periphery and a remarkably symmetrical outline. It is fully worked all over both faces by very shallow flaking. Step flaking has been applied to make the edges further sharp.

(k) Cores  (Plates. XIX, XXXIV; Figures XIX, XX.)

There are sixty three cores in the collection. They may be classified into following types.

(1) Tortoise cores

These are generally of round or oval shape. They have been carefully prepared to obtain the main flake though in some cases the flakes obtained during the process of the preparation of the core could also be utilized as for tool-making. Their size varies from twelve centimeters to five centimeters in diameter.

HDG 1 (12.4 x 11.9 x 4.4)  Pl. XXIV; Fig. XIX.  Figs. 1a, 1b, 1.

A large tortoise core of white-yellow chert; fresh. It has been carefully prepared on the two faces; three flakes have been removed from the upper and four from the lower face. The main flake removed was of a pentagonal shape and has left a deep negative bulb on the core.
An oval core of whitish chert; patinated yellowish-brown. It has five small scars and one major scar in the centre on the upper face; Lower face retains cortex. The main flake scar bears a deep negative bulb.

(ii) Discoidal cores

The flakes removed from these cores must have been small as the largest flake scar measures only 6.5 centimeters by 4.5 centimeters. The diameter of the cores varies from 11.2 centimeters to 4.6 centimeters.

SJT 1 (9.8 x 9.1 x 7.3) Pl. XLI Fig. 4

A spherical core of white chert; fresh. A number of small flakes have been removed from the upper face on one side; the rest of the portion retains original cortex.

(iii) Blade cores

There are nine specimens of this type. Their size can only account for the smaller blades in the collection. However cores from which large blades such as that illustrated in Pl. XLIV Fig. 6 were detached must also have existed and may in future be found. Generally only one or two blades have been removed from one core. Excepting one, none of the specimens in the present collection is a very good example of a blade core.

LNI 211 (4.8 x 4.2 x 2.4) Pl. XXXVII Fig. 2; 6

A flat-surfaced, squarish core of black flint; fresh. From one face at least five blades were removed from carefully prepared platforms probably with the aid of a punch. The flake scars as also the negative bulbs are extremely shallow. From a core of this type only fine slender blades such as those illustrated in Pl. XXXVII
TABLE X

Type-wise distribution of flakes and cores.

<table>
<thead>
<tr>
<th>Flake Type</th>
<th>RA LUNI</th>
<th>RIOJ</th>
<th>RGUH</th>
<th>RERA</th>
<th>RBRA</th>
<th>RJSU</th>
<th>RLLI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SMD</td>
<td>DDR</td>
<td>INI</td>
<td>SKP</td>
<td>GLO</td>
<td>HDG</td>
<td>BHW</td>
</tr>
<tr>
<td>Simple</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>4</td>
<td>38</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Small</td>
<td>4</td>
<td>56</td>
<td>37</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flake Type</th>
<th>RA LUNI</th>
<th>RIOJ</th>
<th>RGUH</th>
<th>RERA</th>
<th>RBRA</th>
<th>RJSU</th>
<th>RLLI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>9</td>
<td>98</td>
<td>42</td>
<td>10</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Levallois</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>11</td>
<td>108</td>
<td>44</td>
<td>6</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>C Tortoise</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Discoidal</td>
<td>3</td>
<td>2</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Blade</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>S Atyrical</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Fig. 3 could have been detached. Lower surface retains original cortex.

(iv) Atypical cores

This group includes all those specimens which do not have any definite shape. Some are plano-convex, some cylindrical and some have bizarre shapes. Flakes have been struck off from them from all suitable points. The largest specimen has a length of more than twelve centimeters but the smallest measures less than five centimeters.

LNI 199  (12.2 x 8.5 x 7.8)  Pl. XL- Fig. 7

A long and thick core of banded agate; slightly rolled. Three blade-like flakes have been detached from one steep side and one larger flake from another. Former have left very shallow scars and the latter a deep negative scar.

LNI 215  (7.3 x 6.1 x 2.5)  Pl. XLIV  Fig. 4

A round plano-convex core of dark-grey chert; unrolled but very heavily encrusted with lime and clay on both faces. From the upper dome shaped face only two flakes have been detached but from the lower flattish face shallow flakes have been taken off.

(1) Rejects.

The method of collection followed in my field-work was to collect every piece that showed convincing evidence of human work on it, irrespective of the extent of that work. This is shown in the larger number of waste flakes or chips in the collection. It has further resulted in the inclusion of a number of pieces which can be considered neither in the category of tools nor in that of flakes or cores. They are here grouped under the present heading. These pieces have haphazard shapes and from each one of them one or more flakes have been taken off randomly. The flakes were
### Table XI

**Site-wise distribution of artifacts**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hand-axes</td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>66/66</td>
<td>2.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleavers</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scrapers</td>
<td>133</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6/66</td>
<td>19.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Borers</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>0.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Borer- scrapers</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Points</td>
<td>39</td>
<td>1</td>
<td>3</td>
<td>11</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>66/66</td>
<td>5.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flake-knives</td>
<td>18</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discs</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>0.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flake-blades</td>
<td>12</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>1.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blades</td>
<td>23</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>3.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flakes</td>
<td>315</td>
<td>1</td>
<td>11</td>
<td>108</td>
<td>44</td>
<td>6</td>
<td>11</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>66/66</td>
<td>47.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cores</td>
<td>63</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>9.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rejects</td>
<td>34</td>
<td>1</td>
<td>13</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6/6</td>
<td>5.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>675</td>
<td>6</td>
<td>24</td>
<td>232</td>
<td>87</td>
<td>15</td>
<td>24</td>
<td>3</td>
<td>27</td>
</tr>
</tbody>
</table>

|          | 100% | 0.7% | 3.6% | 34.39.9 | 2.2 | 3.5 | 0.4 | 4.0 | 0.3 | 2.7 | 7.1 | 0.1 | 2.2 | 0.1 | 0.7 | 6.2 | 21.6 |

% % % % % % % % % % % % % %
not sufficiently big and symmetrical to be used as tools. The only possible explanation for them seems to be that these pieces were intended to be worked into tools but for some reason they were found unsuitable and rejected. They are generally of small size measuring four to eight centimeters in length though one is as much as thirteen centimeters long. The total number of these reject pieces is thirty four. None of them is illustrated.

**Eastern Rajputana**

It has been mentioned earlier that from Eastern Rajputana very little evidence was found for the Middle Palaeolithic culture. The three artifacts found loose from the bed of the river Berach at Chitorgarh are described below

**GTR 1** (2.8 x 2.4 x 0.4) Pl.XLVII Fig. 6

A tiny point on a very thin flake of chalcedony; patinated yellow. The flake has a faceted platform, a prominent conoidal bulb and a flake angle of 60°. Lateral margins are delicately retouched to a pointed tip. Upper face is marked by very shallow scars.

**GTR 2** (2.0 x 1.7 x 0.4) Pl.XLVII Fig. 6

A small, thin blade of white chert; unrolled but patinated yellowish brown. It has a narrow platform and a tiny conoidal bulb of percussion. Part of the blade is broken; section triangular.

**GTR 3** (8.8 x 5.2 x 4.2) Pl.XLVII Fig. 6

A small irregular core on a rough nodule of brown jasper; slightly rolled. It has an elongated shape; one side is thick and rough; other
is worked by detaching small flakes from both faces. It can also be used as a scraper.
1. Irregularly banded: (a) dorsal and (b) ventral views.
2. Bifacial side scraper: (a) dorsal and (b) ventral views.
3. Unifacial side scraper. 3. (a) and (b) Flake knives.
1. Borer-scraper on a Levallois flake. 2. Chert flake showing a conchoidal bulb of percussion. 3. Disc.
1. Long triangular point. 2. Levallois flake. 3. Faceted platform flake retouched on two faces; (a) dorsal and (b) ventral views.
1. Levallois flake embedded in a block of gravel. 2. (a) Thin blade; (b) and (c) Levallois flakes. 3. Borer scraper.
1. and 2. Tortoise cores. (a) and (b) dorsal and ventral views of (1).
1. Elongated ovate. 2. Flake blade. 3. Almond shape handaxe.
4-5. Cleavers on end flakes. 6. Round scraper.
1-2. Bifacial end scrapers. 3. Round scraper.
8. Triangular flake.
1. Flake knife. 6. Horse shoe scraper. 5. Blade. 7. Small, thin point.
2-4. Levvallois flakes.
1. Tortoise cores. 2. Flake knife. 3., 5. Large flakes.