

THE PALAEOLITHIC DEPOSITS OF JISR BANĀT YAQŪB

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ABSTRACT

Excavations were carried out in 1936, 1937 and 1951 at Jisr Banāt Yaqūb in the Jordan Valley, south of Lake Hula. The material collected consists of 97 artifacts made of lava (47 hand-axes, 28 cleavers, 2 scraper-like tools and 20 flakes), and of bone tools. Stratigraphic sections of the excavation, as well as description and figures of 12 hand-axes and 11 cleavers are given. The material proves to be of early Acheulean technique. However, its exact stratigraphic relation to the Acheulean cultures of Europe is yet uncertain.

INTRODUCTION

During the construction of a bridge over the Jordan River in 1933 the river was made to flow through an artificial channel half a kilometer long and the river bed was drained down to a level of two meters.

Rumours spread through the country that a "fossil giant fish" had been discovered in Galilee.

In April 1933 a heavy box labelled "fossil fish from Lake Huleh" was sent to the President of the Hebrew University, Dr. J. L. Magnes. It contained fragments of an elephant tusk, molars and a few flint flakes. Prof. G. Haas of the Zoology Department was informed that somewhere in Upper Galilee elephant bones had been discovered. Only after inquiries we found out that the fossil bones had been collected near Jisr Banāt Yaqūb on the Syro-Palestine frontier.

A year later Miss D. A. E. Garrod informed the Department of Geology that during a trip to Upper Galilee she and Miss E. W. Gardner had discovered hand-axes of the heaps of debris left on the river bank after completion of the drainage work in 1933 near Jisr Banāt Yaqūb.

During subsequent visits to the site with D. M. A. Bate and L. Picard the heaps of gravels and boulders on both banks of the Jordan were explored and fragments of fossilized bones of mammals and flint artifacts were collected.

Miss D. M. A. Bate who examined the elephant remains believed that they belonged to *Elephas trogontherii* Pohlíg, regarded as a distinct Pleistocene fossil.

On one of these trips we picked up from the heaps of gravels a hand-axe made of a lava pebble recorded for the first time in Palestine.

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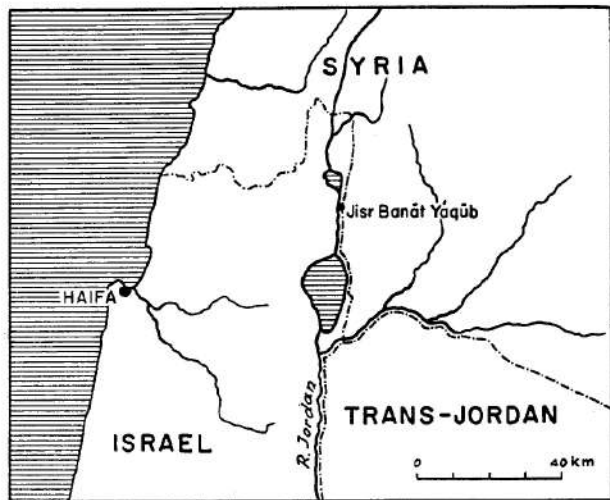


Figure 1
Reference map showing the location of Jisr Banāt Yaqūb

Percolating pit on the left bank of the river

In 1935 when digging a percolating pit for the stables of the Army Mounted Police post on the Syro-Palestine border at Jisr Banāt Yaqūb a layer of fossilized bones was discovered. The author visited the site and found an open square pit 3 m to 3 m and about 4.5 m deep. The author revealed in descending order the following section (fig. 2).

Broken animal bones protruded from the level of green clay. In the debris from the pit fragments of animal bones and teeth with fresh fractures were found. The author was told that some animal bones had been taken by the contractors to Damascus and he was unable to find out what had become of them. It is a great pity that such valuable remains of Pleistocene fauna were entirely lost to science as they never reached a scientific institution either in Palestine nor abroad.

Arrangements for a geological and archaeological survey were made by the Hebrew University through a grant from its President, Dr. J. L. Magnes. A permit

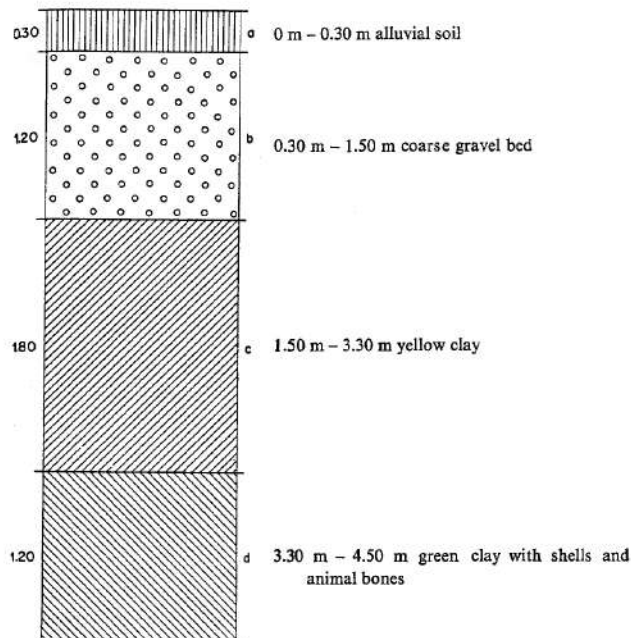


Figure 2

for archaeological soundings was granted to the author by the Director of Antiquities Department. The site where artifacts and fossil animal bones were discovered is situated about four kilometers south of Lake Huleh, and one and a half kilometers east of the settlement of Mishmar Ha'Yarden on the Syro-Palestine border.

The main problems were to discover the exact provenance of the stone implements and faunal remains, to determine the assemblage of artifacts associated with the layers and to ascertain the relationship of the assemblages to one another.

A difficult problem arose because of the specific conditions of the site when deciding where to dig. For many kilometers the banks were mostly covered by heaps of gravel and mud left there after completion of the drainage work, and it was out of the question to remove this debris. There was thus little space available for archaeological work.

In these circumstances the problems of archaeological investigations were manifold,

PRELIMINARY EXPLORATION OF THE RIVER BED (1936)

The author began with the investigation of the river bed itself disturbed during the drainage work. In order to do this it was necessary to dam the river by a sluice and taking into account the difference in altitude between Lake Huleh (+70 m) and the Sea of Galilee (-213 m) this method was promising before undertaking any archaeological digging on its banks. Special facilities were afforded by the Palestine Land Development Company and its sluice was kindly put at our disposal.

On March 27, 1936 at midnight the sluice was let down and by 8.30 next morning no more than 0.30 m of water remained in the river and we were able to walk along and explore the river bed and its sections and look for fossilized bones and human artifacts. (Plate I, fig. 2).

The area between the new bridge and the sluice which extends about 3.5 kilometers to the north of the bridge and about 200 m to the south of it was explored. The author considered at that time the river bed to be the lowest layer (α) which was filled with lava boulders, about 0.50 m \times 0.50 m and lava and flint pebbles of different sizes. In this area we picked up isolated implements and fragments of fossilized animal bones dispersed all over the river bed. Concentrations of these remains were found in seven localities, four of them to the north of the bridge and three to the south. Three localities situated to the north of the bridge between it and the eucalyptus grove were most interesting. Whether the lava boulders and lava and flint pebbles as well as the concentration of stone implements and fossilized bones were *in situ* or not, was at the time of the exploration impossible to ascertain. At locality I a fragment of a lower jaw, four molars, fragments of tusks and many splinters of bones all belonging to *Elephas* sp., 5 hand-axes and 8 flakes of lava rolled and abraded, were found. Locality II was situated about 7 meters north-west where fragments of elephant molars, 12 hand-axes and 8 flakes of lava, all rolled and abraded, were picked up. Locality III was situated 14 meters further north where a fractured and burnt tibia, 100 splinters of bones, mostly burnt, 18 hand-axes and 20 flakes, all made of lava, were found. All these finds were rolled and abraded. All three localities were near the left bank of the river; locality IV was on the right bank. There were found a broken femur, fourteen fragments of ribs, a fragment of an atlas, vertebrae mostly broken and rolled, as well as 15 hand-axes, 40 flakes, all of lava and all of them rolled and abraded.

The lava artifacts from these localities were made by "block-on-block" technique and appeared to be of Lower Acheulean type. The author did not consider this assemblage as being discovered *in situ* because of its bad state of preservation and the many fresh fractures on all the artifacts. A flint assemblage, too, was not *in situ* but found in the above mentioned localities, as well as spread all over the river-bed. This assemblage made of grey chert and covered by black or dark brown patina was in a much better

state of preservation, less rolled and abraded, some of the finds had smoothed flake scars and edges, others sharp edges.

The entire flint industry is varied in type, form and technique. It consisted of different cultural assemblages with hand-axes, flakes, flake-blades, blades, points and cores. Lower, Middle and Upper Palaeolithic technique can easily be recognized. It was obvious that the stone assemblages were derived from other beds disturbed during the drainage of the river.

Three further localities were discovered to the south of the bridge, two of them situated on the right bank and one on the left. Two fragments of fossilized animal bones were picked up (*Equus* and *Cervidae*). The stone artifacts, mostly of chert, were rolled and abraded and covered with a dark brown patina, they belonged to different cultural assemblages and were definitely not *in situ*.

Although the lava and flint industries were not found *in situ*, finding them in their stratigraphical position in the exposed section of the Jordan was of great interest. On the right bank of the river the following section was revealed (fig. 3):

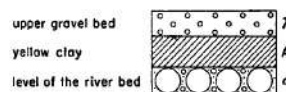


Figure 3

A layer of clay (β) was observed, dark grey (when dry yellowish) bordering on the lowest level of the river bed, (α), its thickness exposed to about half a meter. It included a fauna of fresh-waters shells which according to Picard (1936), "in addition to characteristic forms known from the Sea of Galilee and Lake Huleh, yielded the most interesting genus *Vivipara*, not previously recorded in Pleistocene beds nor in the recent lakes or rivers of Palestine". Fragments of elephant tusks and molars were again noted, as well as bones and teeth of *Cervidae* and *Equidae*. From this layer we picked up eight hand-axes and ten flakes made of grey chert, covered with black patina, and which appeared to be made in Acheulean technique. The flint assemblage was not rolled, and the tools had sharp cutting edges. This layer was covered with water.

Above was a layer of gravel (γ) only partly covered by the Jordan. In this level were twenty flakes made of grey chert, five points, eight flakes with secondary trimming on their edges, and seven flakes without retouch of Levallois technique covered by black patina (figs. 29-31). A bone tool *compresseur* made from a splinter of an animal bone with a pointed tip was found there (fig. 31). Further, three blades and two graters made of grey chert, highly abraded and covered by brown patina, of Upper Palaeolithic technique were also found. The whole gravel bed was covered by alluvial

debris and soil. It is certain that the above mentioned Upper Palaeolithic blades derived from the alluvial soil. The thickness of the alluvial stratum could not be measured.

EXCAVATIONS IN 1937

After examination of the river bed and its exposed sections field work was resumed in 1937 in a trial pit on the right bank of the Jordan river. The spot selected for excavations was situated about 20 meters to the south of the old bridge. Work was started in March 1937. The author was assisted by P. Solomonica, geologist, and E. Rosenau, topographer. A pit seven meters to North-South and four meters to East-West was dug and the stratigraphy in descending order was as follows (fig. 4):

A. 0 m - 0.42 m. Upper gravel of the old Jordan bed with flint nodules and basalt pebbles of 0.15 m x 0.07 m, a few freshwater shells (*Melanopsis* sp.); twenty flakes and two cores of grey chert of Levallois technique covered with black patina.

B. 0.42 m - 0.60 m. Yellow clay of a transitional zone with small pebbles of 0.05 m x 0.07 m. Among fauna remains were elephant molars, molars of *Equus*, many fractured bones, teeth and antlers of *Cervidae*; some of the fractured bones had been used by man as tools. Ten small pear-shaped and lanceolate hand-axes made of grey chert of Acheulean technique with sharp cutting edges and covered by black patina were found.

C. 0.60 m - 0.92 m. Green clay with a few basalt pebbles and boulders of 0.50 m x 0.50 m. Remains of molars and fractured bones of *Elephas* sp., a fractured molar of *Rhinoceros* sp. Six hand-axes of grey chert of Acheulean technique with sharp cutting edges covered by black patina.

D. 0.92 m - 1.10 m. Lower black soil with limestone and basalt boulders from 0.50 m to 0.60 m diameter. Abundant remains of fresh-water shells (*Melanopsis*, *Vivipara*). Further remains of elephant molars and a complete tusk of an *Elephas trogontherii* (according to D. M. A. Bate) 1.75 m long (Plate I, fig. 1), fractured elephant bones, vertebrae, ribs. Some of the bone splinters had been used as tools. Six hand-axes made of lava, heavily rolled and abraded, and seven hand-axes of grey chert of Acheulean technique with sharp cutting edges covered by black patina were recorded.

At this depth, excavation of the pit was suspended for the following reasons: 1) the bottom of the pit was about two meters below the water level of the river and suffered severely from an influx of water and it became necessary to pump it out during the day; 2) a bank 0.80 m thick only separated the pit from the river, a danger for the team of labourers in case of collapse; 3) the outbreak of riots in Palestine and later the outbreak of the Second World War. Work was thus suspended for many years. But this field work had clearly shown the stratigraphical position of the bone-bearing and implementiferous levels of the Jordan River, and its importance for the study of Old Stone Age man and its culture in Palestine and the entire Near East.

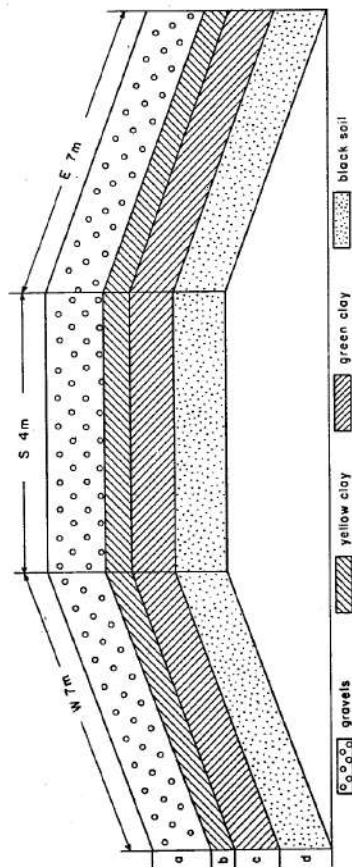


Figure 4

In connection with the Jordan Water Project undertaken by the Israeli Government draining of the Jordan River was begun in 1951. The river bed was excavated more than six meters deep and field work was resumed during subsequent visits to the site. Two more bone-bearing and implementiferous layers were discovered. The author had the opportunity of studying the section, and of extracting fossilized animal bones and stone implements on the spot of the 1937 trial pit. The author could thus complete the study of the sections of the Jordan beds which are in descending order as follows (fig. 5):

Bed I. 0 m - 0.42 m. Upper gravel of the Old Jordan bed containing flint nodules and basalt pebbles of 0.15 x 0.27 m. Twenty flint implements and three cores of grey chert in Levallois technique were recorded. The implements had a sharp working edge and were covered with black patina. (Figs. 29, 30 and 32).

Bed II. 0.42 m - 0.60 m. Yellow clay of transitional zone with basalt pebbles 0.05 m x 0.07 m. Molars and broken bones of *Equus* sp. Five small pear-shaped and lanceolate hand-axes made of grey chert and covered with black patina. The implements have sharp working edges and appear to be of Micoquian technique.

Bed III. 0.60 m - 0.90 m. Green clay with a few basalt pebbles and boulders of 0.40 m x 0.42 m. Fragments of elephant and rhinoceros molars were recorded, as well as two hand-axes of grey chert with sharp cutting edges and two primary flakes of Acheulean technique.

Bed IV. 0.90 m - 1.70 m. A thick bed of black soil with limestone, flint, and basalt pebbles and boulders. Abundant fauna of mollusca *Melanopsis* and *Vivipara* (in the same level a tusk of a young *Elephas trongontherii* 1.75 m in length had been found in 1937). Three hand-axes of lava, rolled and abraded, were found. In addition five hand-axes of grey chert, not rolled, with sharp cutting edges, covered with black patina, were recorded.

Bed V. 1.70 m - 3.40 m. Hardened black soil with abundant mollusca *Melanopsis* and *Vivipara* and fragments of fossilized bones of *Elephas* and other animals, and a very rich lava industry, neither rolled nor abraded, with sharp cutting edges was recorded. The stone industry appeared to be of an early Acheulean technique and included flaked hand-axes and cleavers.

Bed VI. 3.40 m - 5.50 m. Thick gravel bed with flint, limestone, lava pebbles and boulders with heavily rolled and abraded artifacts (hand-axes and cleavers). The flake scars were abraded in such a way that it was difficult to recognize them; only their shape and the S-twist reminded of hand-axes.

THE STONE INDUSTRY

Raw material: The surrounding area of the Jordan Valley is rich in raw material of good quality as flint, chert and lava. In the upper layers (beds I-IV) flint or chert was used for artifacts. Some lava artifacts found in these levels were rolled and abraded and the author considered them as being in a secondary deposit and not *in situ*. The specimens from the lower layer (bed V) are made of lava pebbles or humps of lava.

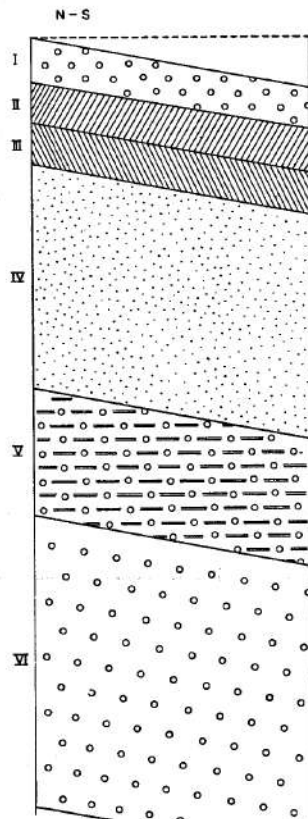


Figure 5

The raw material was derived from the Jordan Valley and was exposed on the banks of the river in the days when early palaeolithic man lived there. The implements are very sharp and were not exposed to atmospheric conditions for a prolonged period before being covered by bed IV.

The artifacts of lava: Artifacts were represented by bifaces (hand-axes), cleavers and rough flakes. They were obtained either from pebbles or from lumps of lava, by "block-on-block" technique.

Hand-axes: The entire surface of the hand-axes made of pebbles was trimmed on both faces and care was taken to produce a cutting edge along both sides and a rough tip. On some of the specimens the base retained the natural face of the pebble, on others extended around it; in their sections they are biconvex and the edges have a S-line twist. Hand-axes on flakes were made of lumps of lava. One face was flat, the other trimmed all over by large flaking. Sometimes the flaking extends around the base or on the edges of the flat surface. The sections were planoconvex; the striking platforms thick and broad were thinned by chipping. The edges were straight and sharp. The following shapes were among the hand-axes: almond, pointed almond, piriform, limande, various (Plate II, figs. 1, 2).

Cleavers: The cleavers were made of flakes from lumps of lava by "block-on-block" technique. The striking platforms were broad and thick, and percussion was used for the thinning or removal of it. The cutting edge which is never trimmed is, however, sharp and straight, convex or oblique. Some of the cleavers are markedly U-shaped in form, others are rectangular. Their sections are rectangular, planoconvex or parallelograms. The predominant side-struck cleavers are the most characteristic type.

Flakes: Twenty flakes of lava from 114 mm to 157 mm in length mostly with markedly obtuse angles of the striking platforms were recorded. No special comments.

DESCRIPTION OF IMPLEMENTS MADE OF LAVA

A. Hand-Axes

No. 1. Made of a lava pebble. Greatest length 130 mm, greatest width 92 mm, greatest thickness 44 mm. Both faces have been regularly flaked. The butt end itself and one third of both faces of the implement consist of the original pebble surface. At the top end two sharp cutting edges are joined to each other by a transverse cutting edge. The cutting edges of the biface are sharp; the cross-section is biconvex (fig. 6).

No. 2. Made of a lava flake. Greatest length 180 mm, greatest width 100 mm, greatest thickness 57 mm. Both sides have been regularly trimmed all over and around the butt end, the cutting edges are sharp and show a tendency towards an "S-twist". The cross-section is biconvex. The specimen has a pear-shaped outline (fig. 7).

No. 3. Made of a lump of lava. Greatest length 298 mm, greatest width 110 mm, greatest thickness 51 mm. This is a truly magnificent specimen and has a pear-shaped

outline. It is trimmed all over both faces and has sharp cutting edges including the butt end. The cross-section is thin oval (fig. 8).

No. 4. Made of a lava pebble. Greatest length 185 mm, greatest width 145 mm, greatest thickness 55 mm. The specimen is trimmed all over both faces and around the butt end. On one face a patch of the original surface of the pebble is retained. The cutting edges are sharp. The general outline is pear-shaped and the cross-section is biconvex (fig. 9).

No. 5. Made of a lump of lava. Greatest length 257 mm, greatest width 113 mm, greatest thickness 58 mm. This is a fine specimen of limande outline and is trimmed all over including the butt end. The lower face is flat and the cross-section is planoconvex. The specimen is slightly abraded, but all the flake scars are clear and the cutting edges are sharp (fig. 10).

No. 6. Made of lava flake. Greatest length 185 mm, greatest width 145 mm, greatest thickness 35 mm. The upper face flaked all over is convex, the lower one is flat with secondary flaking round one edge. The cutting edges are sharp. The cross-section is planoconvex (fig. 11).

No. 7. Made of a lava flake. Greatest length 192 mm, greatest width 124 mm, greatest thickness 45 mm. This is a fine specimen of limande outline with a sharp cutting edges. Both faces are trimmed all over including the butt end. The cross-section is planoconvex (fig. 12).

No. 8. Made on a side-struck lava flake. Greatest length 152 mm, greatest width 92 mm, greatest thickness 47 mm. The upper surface is trimmed all over and is convex, the lower one is flat with secondary flaking round one edge; the striking platform removed by flaking in order to make a sharp cutting edge (fig. 13).

No. 9. Made of a lump of lava. Greatest length 161 mm, greatest width 112 mm, greatest thickness 67 mm. The specimen has been flaked all over both faces; the sharp cutting edges converge to a point (broken). The cross-section is trapezoid. It appears to have had a pear-shaped outline (fig. 14).

No. 10. Made of a lump of lava. Greatest length 160 mm, greatest width 92 mm, greatest thickness 44 mm. The specimen has been trimmed all over both faces and round the butt end. The cutting edges are sharp, as well as the butt end; the top end is transverse but such as to justify the description as "cleaver" (fig. 15).

No. 11. Made of a lump of lava. Greatest length 142 mm, greatest width 92 mm, greatest thickness 52 mm. This is a fine specimen of almond outline trimmed on both faces. The edges are sharp and show a tendency towards an "S-twist". The cross-section is biconvex (fig. 16).

No. 12. Made of a lump of lava. Greatest length 140 mm, greatest width 96 mm, greatest thickness 37 mm. The specimen is almond in outline and trimmed on

both faces, the cutting edges are sharp; they show a tendency towards an "S-twist". The cross-section is less biconvex (fig. 17).

HAND-AXES

Figures 6-17

(The magnifications were approximated to the nearest hundredth)

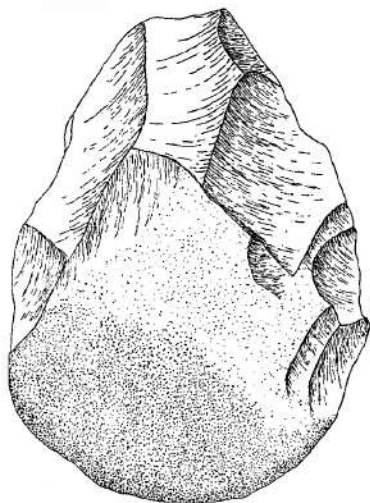


Figure 6

× 0.77

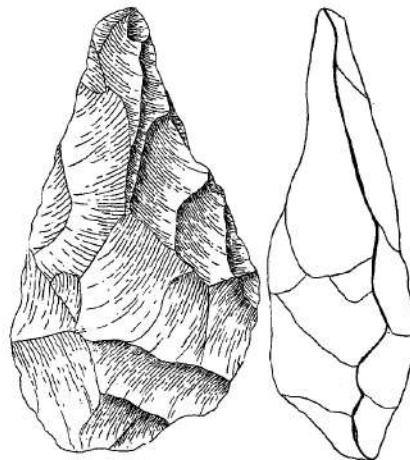
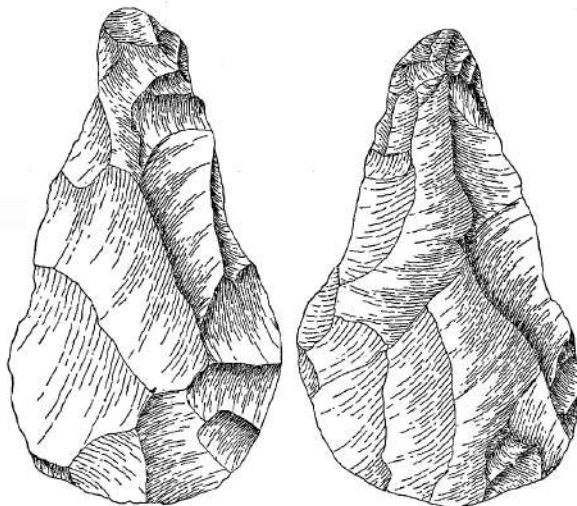


Figure 7

× 0.50



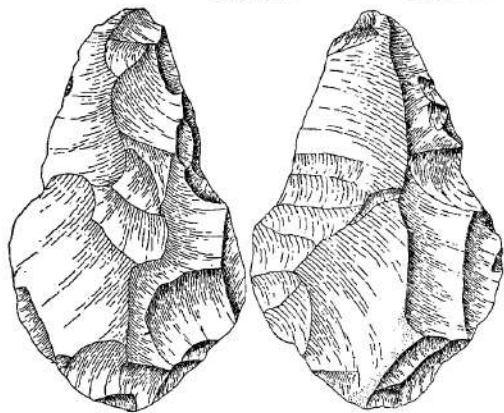


Figure 9

× 0.44

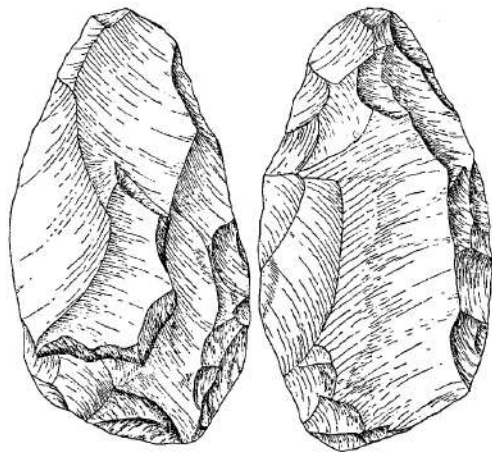


Figure 10

× 0.35

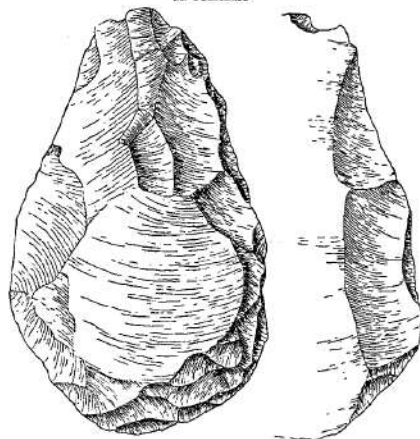


Figure 11

× 0.47

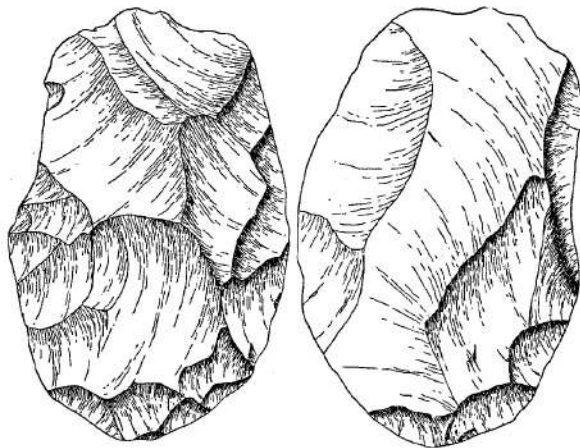


Figure 12

× 0.46

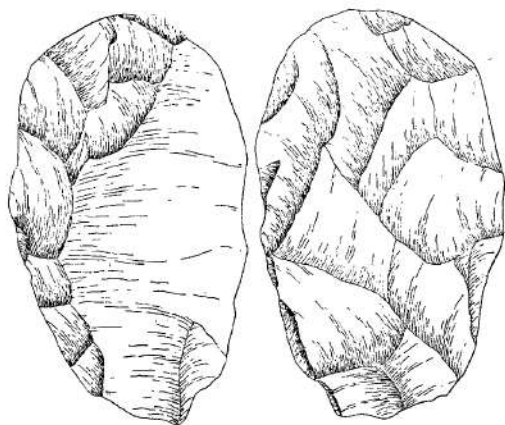


Figure 13

× 0.55

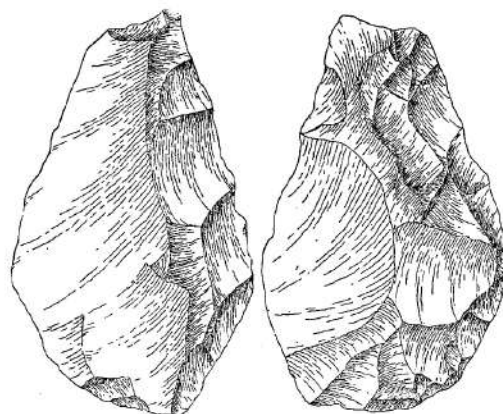


Figure 15

× 0.51

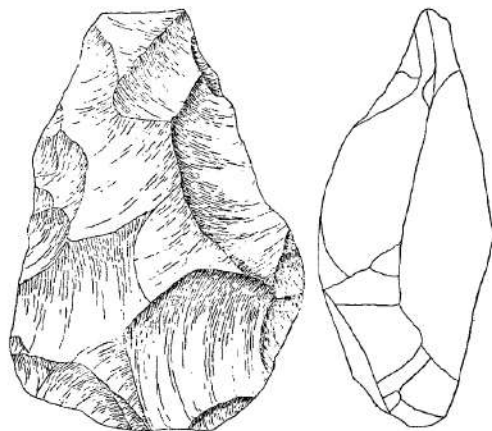


Figure 14

× 0.53

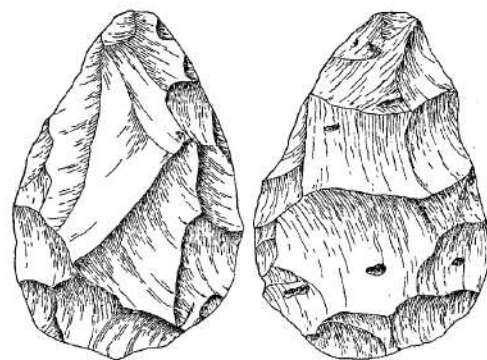


Figure 16

× 0.50

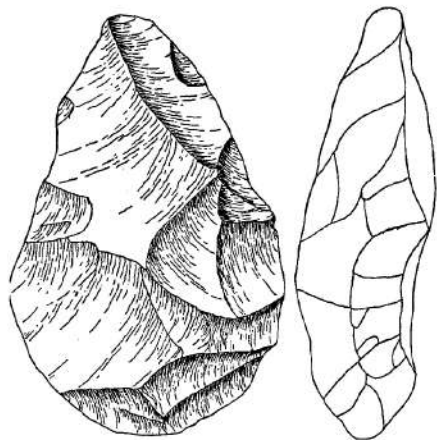


Figure 17

× 0.60

B. Cleavers

No. 13. Made of a large flake of lava. Greatest length 160 mm, greatest width 95 mm, greatest thickness 45 mm. This specimen has been trimmed on one face, the other remaining flat, while the side-striking platform was removed by secondary flaking to make a sharp cutting edge. The butt end is sharp and rounded in outline, the working edge on the top end is sharp and more or less straight. The cross-section near the butt end is planoconvex (fig. 18).

No. 14. Made of a large flake of lava. Greatest length 128 mm, greatest width 90 mm, greatest thickness 43 mm. This is a fine specimen more or less U-shaped in outline, partly trimmed on both faces near the butt end. The working edge on the top is sharp and more or less straight. The cross-section near the butt end is planoconvex (fig. 19).

No. 15. Made of a large flake of lava. Greatest length 161 mm, greatest width 116 mm, greatest thickness 39 mm. The specimen is trimmed on one face and both sides of the other. The cutting edge on the top end is oblique and sharp. The cross-section is planoconvex (fig. 20).

No. 16. Made of an end struck large flake. Greatest length 140 mm, greatest width 120 mm, greatest thickness 35 mm. The specimen is flaked on one face, on the other one only on the sides; they converge towards the butt end which is rounded in outline,

The cutting edge at the top is sharp and oblique. The cross-section near the butt end is planoconvex (fig. 21).

No. 17. Made of a large flake of lava. Greatest length 135 mm, greatest width 104 mm, greatest thickness 29 mm. The sides of this cleaver are more or less parallel instead of being convergent. The cutting edge at the top end is sharp and straight. This cleaver shows a parallelogram section and is quadrangular in outline (fig. 22).

No. 18. Made of a flake of lava. Greatest length 120 mm, greatest width 83 mm, greatest thickness 32 mm. The lower surface is flat with some secondary flaking round one edge. The sides converge slightly towards the butt end which is rounded. The cutting edge at the top of the tool is slightly convex and sharp. The specimen is more or less U-shaped in outline. (fig. 23).

No. 19. Made of a flake of lava. Greatest length 127 mm, greatest width 85 mm, greatest thickness 45 mm. The upper face is flaked, the lower surface is flat with secondary flaking round the edges. The sides converge slightly towards the butt end. The cutting edge at the end of the tool is sharp and slightly oblique. The cross-section is planoconvex (fig. 24).

No. 20. Made of a large flake of lava. Greatest length 145 mm, greatest width 102 mm, greatest thickness 40 mm. This is a nice cleaver trimmed on one face; the butt end is round, the cutting edge at the end of the tool is sharp and slightly concave. The striking platform was removed by secondary flaking. The cross-section is planoconvex (fig. 25).

No. 21. Made of a lump of lava. Greatest length 140 mm, greatest width 105 mm, greatest thickness 45 mm. The specimen is trimmed on both faces; the butt end is round and the cutting edge at the end of the tool is sharp, more or less straight. Part of it is broken off, probably as a result of use (on the right side). The cross-section through the middle of the implement is biconvex (fig. 26).

No. 22. Made of a flake of lava. Greatest length 175 mm, greatest width 110 mm, greatest thickness 45 mm. The upper surface trimmed all over, the lower face is flat with secondary flaking round one edge. The cross-section is planoconvex. The cutting edge at the end of the tool is oblique and sharp. Typologically this fine specimen is closer to a cleaver or large flake scraper than to a hand-axe (fig. 27).

No. 23. Made of a large flake of lava. Greatest length 168 mm, greatest width 114 mm, greatest thickness 45 mm. Oval in shape, the lower surface is flat, the upper one is flaked. The striking platform was thinned by secondary flaking. The cross-section is planoconvex. This specimen seems more to be a scraper than a "cleaver" (fig. 28).

We will discuss the lavā artifacts recovered and definitely marked for position in strata. Of the total of 97 specimens recorded forty-seven are hand-axes on lava pebbles or flakes, twenty eight cleavers, two scraper-like tools and twenty flakes.

The length in centimeters of forty-seven hand-axes and twenty-eight cleavers is as follows:

CLEAVERS

Length	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	over 18
Hand-axes	1	—	5	6	3	12	12	5	—	3
Cleavers	—	—	—	4	6	10	3	3	2	—

The lava artifacts are obviously of an early Acheulean technique and block-on-block technique was used.

Figures 18-28

(The magnifications were approximated to the nearest hundredth)

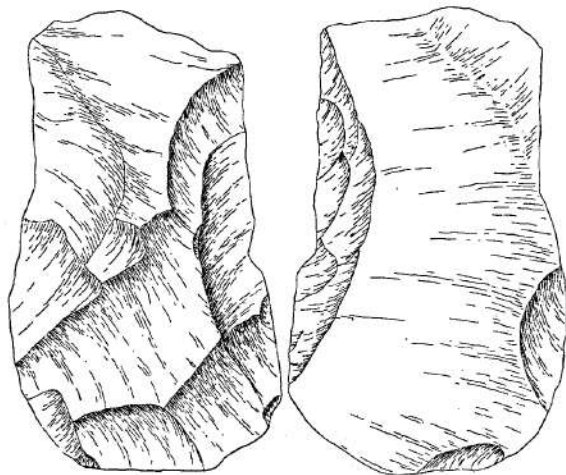


Figure 18

× 0.58

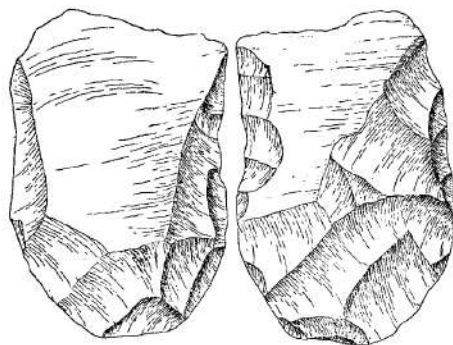


Figure 19

× 0.52

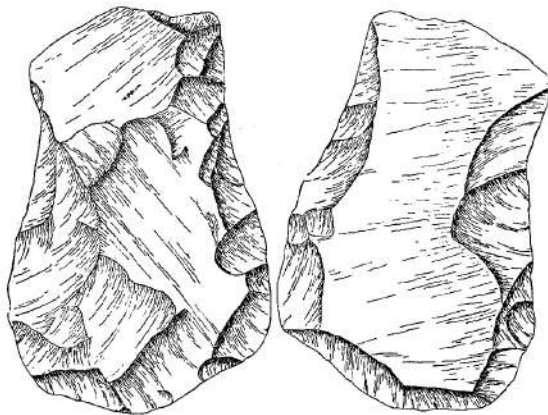


Figure 20

× 0.51

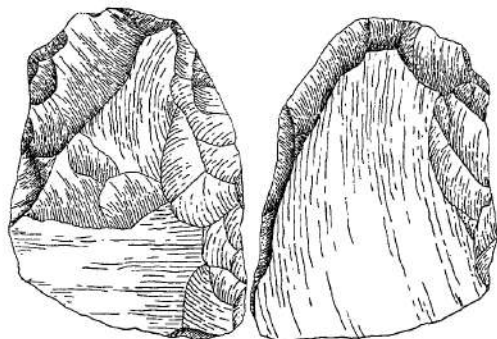


Figure 21

× 0.49

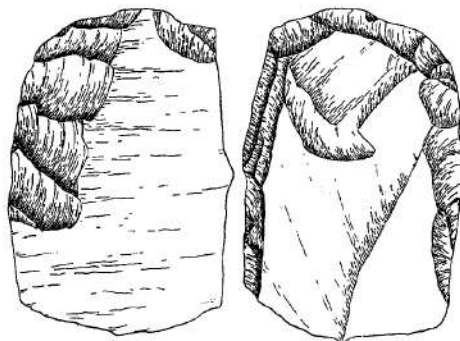


Figure 23

× 0.55

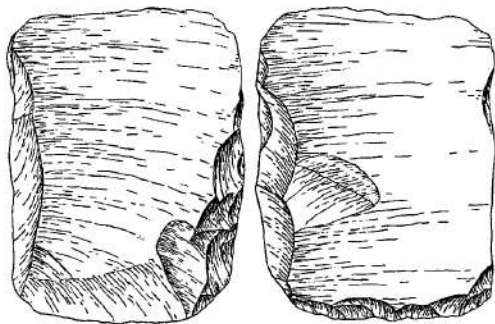


Figure 22

× 0.48

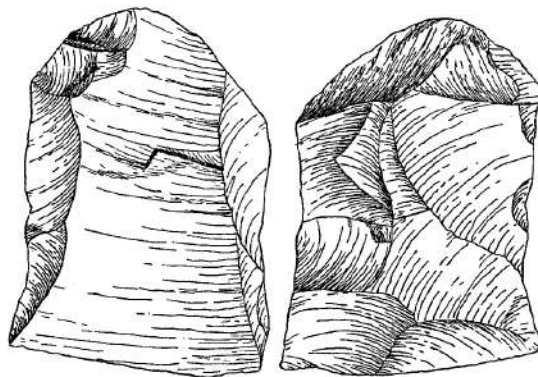


Figure 24

× 0.59

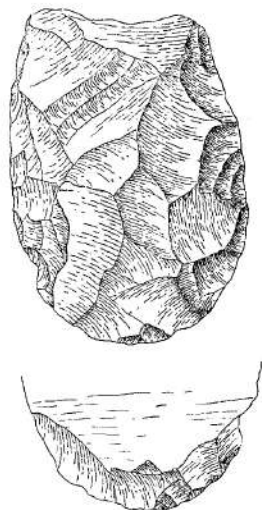


Figure 25 $\times 0.54$

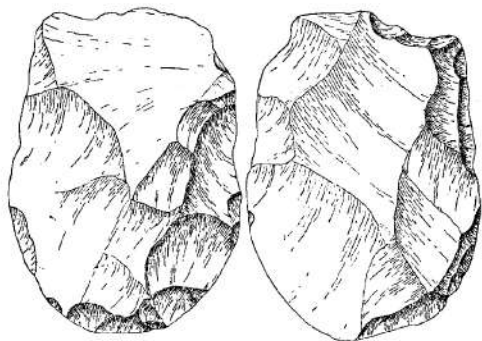


Figure 26 $\times 0.48$

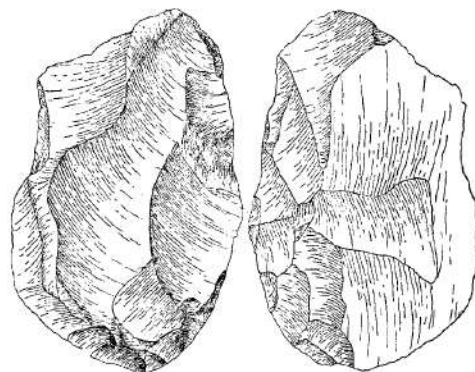


Figure 27 $\times 0.42$

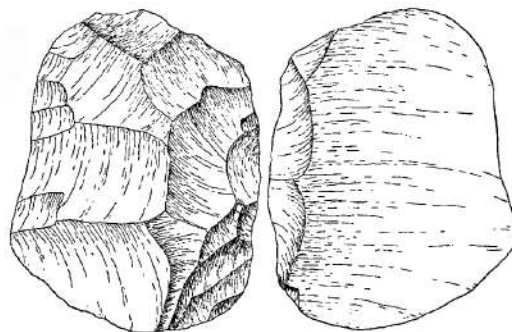


Figure 28 $\times 0.37$

C. Bone tools

What is particular to this site is that some of the fractured elephant limb bones have been used as tools. All the tools recorded bear marks of bruising and show traces of use.

One fractured limb bone, 0.35 m long, 0.07 m wide, 0.07 m thick, was found at the junction of Beds III and IV and was probably used as a hammer for manufacturing flint implements. It is very handsome for such a work and shows marks of bruising on one edge.

* * *

In this paper the author describes the field work carried out in 1936, 1937 and 1951.

This work revealed for the first time bone bearing and implementiferous layers in the Jordan Valley. As these layers were recovered in their stratigraphical position, it must be pointed out that this site is of considerable importance as early palaeolithic stone assemblages were previously known in Palestine from surface finds only. The Jisr Banāt Yaqūb site yielded first-hand documentation of great value for the chronology of the Pleistocene of Palestine and of the Near East. From this point of view the site presents unique features where archaeological, geological and palaeontological correlation is possible. This site has of course not solved all problems concerning Pleistocene geology and archaeology and correlation between them but rather raised numerous new problems. Our knowledge of the Pleistocene of Palestine is at present so poor as to render an attempt at correlation of no great value. We have more geological observations than systematic research in the Pleistocene deposits made in close collaboration with archaeology, and Jisr Banāt Yaqūb is the first site where such an attempt was made. At the first glance at the assemblage of Jisr Banāt Yaqūb the lava bifaces typify those of the European Acheulean; it is, however, clear that they cannot be compared with the Acheulean industry of Europe. The term "Acheulean" is used here as a purely technical one and not as a cultural or stratigraphical term. One of the problems arising is the relation of the Jisr Banāt Yaqūb assemblage to others known from finds in Palestine. Our knowledge of early Palaeolithic industries from the Near East recovered *in situ* is limited to deposits from two caves (Umm-Qatafa in the Judean Desert, and Mugharet et-Tabun on Mount Carmel) in Palestine and from a terrace at Bahsah near Tripoli in Lebanon. From these site very poor flake industries were recovered labelled "Tayacian" and very little is known about them. The overlying flint assemblages (Umm-Qatafa, et-Tabun) labelled "Acheulean" are of the most advanced technique, even those of layer E (Umm-Qatafa) which was considered by R. Neuville (1951) to be "Middle Acheulean". The author believes, therefore, that a considerable gap exists between the early Palaeolithic assemblage of Jisr Banāt Yaqūb and the oldest known from the caves. The hope is that further research will be able to fill the existing gap.

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4. STEKELIS, M., 1954, The implementiferous beds of the Jordan Valley, *IV Cong. Internat. de Ciencias Prehist. y Protohist. Crónica.*, pp. 391-394, Madrid.
5. STEKELIS, M., AND PICARD, L., 1936, Jisr Banāt Yaqūb, *Palestine Dept. Antiquities Quart.*, 6, 214-215, and 7, 45.

PLATE I

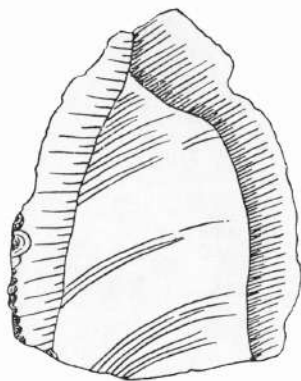


Figure 29

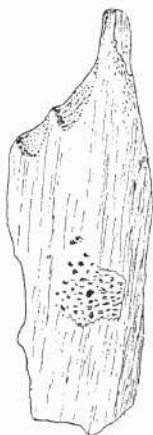


Figure 31

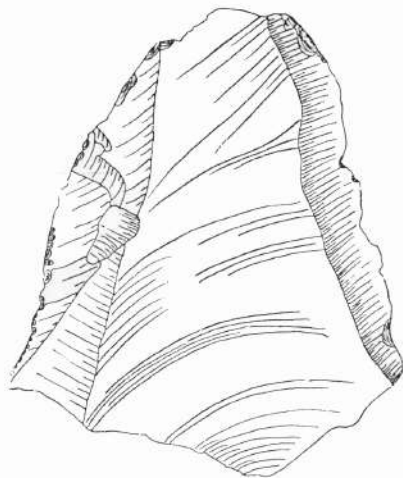


Figure 30

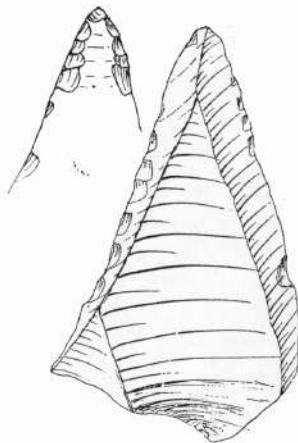


Figure 32

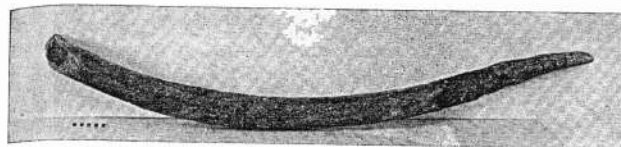


Figure 1

A tusk of *Elephas trogontherii* Pohlig. ca. $\times 0.06$.



Figure 2

The Jordan River bed. The site of exploration in 1936.

PLATE II

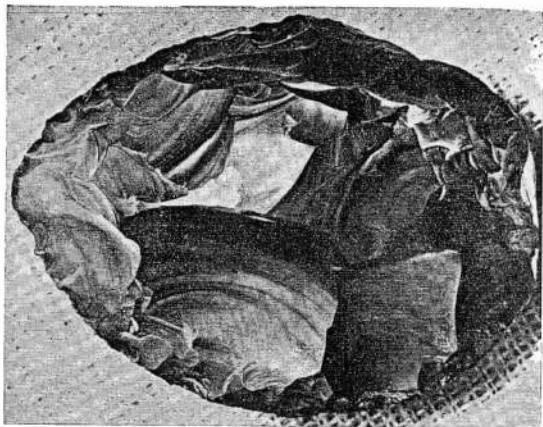


Figure 1

Ovate hand-axe made from grey chert. Patina black. The implement was flaked on both faces with a wooden striker. The edges are sharp. Biconvex in cross-section.

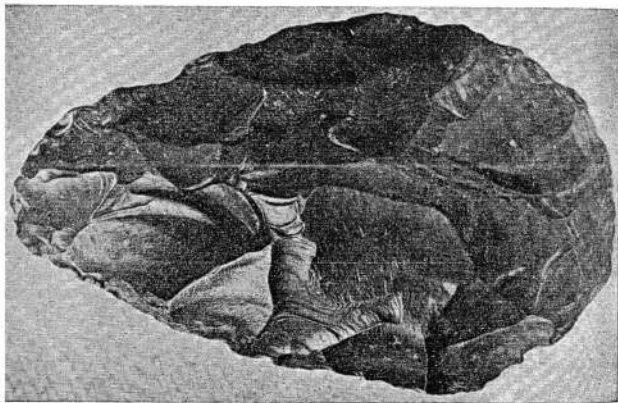


Figure 2

Hand-axe of *limande* type, from grey chert. Flaked on both faces with a wooden striker the edges are sharp. The butt end is sharp and trimmed all over. Biconvex in the cross-section. The implement is covered by black-patina.