
A New Neolithic Industry: The Yarmukian of Palestine

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A New Neolithic Industry: The Yarmukian of Palestine*

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A PICTURE of prehistoric life in Palestine is presented by a newly discovered village near Sha'ar ha-Golan in the Jordan Valley. This village was situated in the Ghor, on the banks of the Yarmuk River. It was well watered and its fertile surroundings appealed to the prehistoric cultivators, shepherds, fishermen and hunters. The River Yarmuk, too, was an important factor in the social progress of this community.

The finds include artifacts of flint, stone and bone, as well as stone carvings and pottery. The hillsides sloping down to the Yarmuk are strewn with cairns, stone circles and cup-marks which may yield additional valuable material but these have not yet been explored on account of the war.

In the year 1943 a short archaeological survey, which covered a part of the triangle formed by the Rivers Yarmuk and Jordan and the Sea of Galilee, was undertaken by Messrs. B. Maisler, S. Yeivin and myself on behalf of the Ancient East Research Association.¹ It was during this tour that the prehistoric remains in the Yarmuk River region first came to my knowledge.

I visited the site and picked up some potsherds, animal bones and flint implements from an exposed layer of grey earth on the bank of the river near the settlement of Sha'ar ha-Golan. The finds were in their stratigraphic position.

* This article is the translation of a paper published in Hebrew in *Eretz-Israel*, the Annual of the Jewish Palestine Exploration Society, Vol. 1.

¹ Maisler, B. & Yeivin, S.: Provisional report on an Exploration of the Northern Jordan Valley. Stekelis, M.: On the Prehistoric Stations in the Jordan Valley. *Bull. Jew. Palest. Explor. Soc.*, 10, 1943, pp. 98-104.

The whole area was further explored by the geologist Dr. P. Solomonica and myself, and a report on the many interesting archaeological discoveries and geological observations will soon be published.

Additional finds and stratigraphical observations were subsequently made in an anti-tank trench dug by the British Army in the fields nearby. This trench was approximately one km. long, and in some sections of it gravel and the remains of stone walls could be seen.

Investigation revealed that a level of grey earth, covering the gravel in the trench section yielded flint implements of the same type as those discovered in the exposed section on the bank of the River Yarmuk.

THE SITE

The prehistoric village lies SSE of the kibbutz (co-operative settlement) of Sha'ar ha-Golan, covering some thousands of square metres of the kibbutz land which slopes down to the line of an old river bank 12 m. above the River Yarmuk (see map, Fig. 1). The alluvial soil is black, and stone foundations and scattered fragments of pottery belonging to the Early Bronze IV Period are to be seen on the surface.

The remains of the prehistoric settlement were discovered under the Early Bronze IV layer in a layer of grey earth; a sterile layer of black earth approximately 0.25 m. thick separated it from the Early Bronze layer. In the course of digging a fishpond, approximately 600 square metres of beach earth was removed and a layer of grey earth which yielded prehistoric finds was exposed. This layer had not been disturbed by deep ploughing, and the finds from it are sufficiently varied to give an idea of the prehistoric settlement and its material culture.

STRATIGRAPHY

The stratigraphy of the site as revealed by soundings and exploration is as follows:

A. 0—0.70 m. Black earth. Stone foundations of rectangular houses built of unhewn stones. Pottery of Early Bronze Age IV was discovered near the foundations.

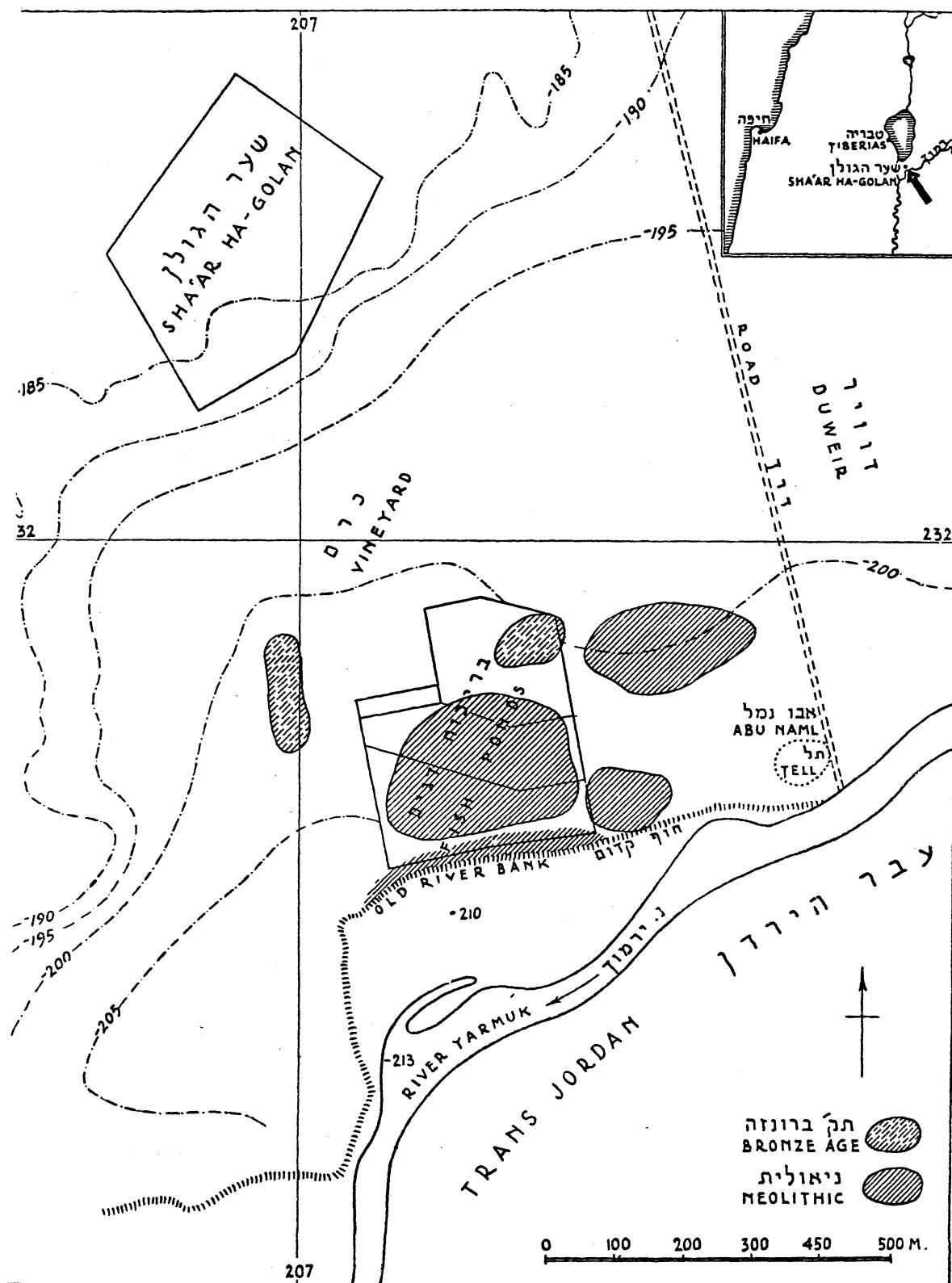


Fig. 1. Map of Sha'ar ha-Golan and Surroundings.

B. 0.70—1.10 m. Black earth. This layer was found below the stone foundations; it was further found in the anti-tank trench and in the exposed section of the river bank. It produced no antiquities.

C. 1.10—2.20 m. Grey earth with angular stones and some rolled pebbles. This layer is rich in flint implements and animal bones; *Sus scrofa*, *Gazella* sp., *Equus* sp., *Bos* sp., *Camelus* sp. In many places fragments of crude hand-made pottery was picked up together with flint tools. It is this layer which yielded the remarkable finds described in this paper.

D. 2.20— . . . A gravel-bed composed of basalt and flint pebbles was found directly under the layer of grey earth (C). Its depth is not yet known as only 0.70 m. have been dug. Cores and flakes of Palaeolithic technique were picked up from the top of this gravel-bed.

MATERIAL CULTURE

RAW MATERIAL. The people on this site depended for their raw material on rock found nearby. They used grey chert, black and chocolate-brown flint, chalcedony, quartzite, limestone, basalt, sandstone and clay—partly found in the Yarmuk gravels and partly in the chalk deposits on the hills. Chert, chalcedony and flint were used for making all kinds of implements. Basalt was used for making pestles, mortars, mace-heads, spindle-whorls, querns and cups. Limestone and sandstone were used for pendants, spindle-whorls, cups and whetstones. Clay, combined with local material for tempering, was used for pottery. Some artifacts were made from bones of animals which the inhabitants had killed. Thousands of flint, basalt and limestone chips prove that tools were locally made.

FLINT IMPLEMENTS.—*Technique*: All flint implements have been flaked with wooden mallets. The debris of their manufacture is quite fresh, except for a number of smooth pieces showing traces of patina which were picked up on the surface. A number of implements show the influence of fire. Agricultural implements, as for example celts, hoes, axes and chisels were made in addition to arrow-heads and axes for hunting. The core implements which range from small to heavy and crude forms, were chipped on both surfaces. The well-finished tools, more or less sym-

metrical in form and in sections, are sharpened all round with a straight, concave, or ellipsoid cutting edge and with a pointed butt end.

Axes and Celts: Figures 2 and 3 show varieties of these types. There are two kinds of tools, one with a polished cutting edge, the other without. Both of them are flaked on both sides with large flakes; the edges are sharp all around. The polished cutting edge was made by rubbing on both sides; sometimes the arêtes were also rubbed down.

Figure 2 shows axes and celts with polished cutting edges. (The polished surfaces are shown in black.) A large flint axe 18 cm. long (Fig. 2, No. 1), ellipsoid in cross-section, is flaked on both surfaces with large flakes. The edges are sharpened by secondary trimming. The cutting edge is ellipsoid and very well polished on both surfaces. The outline of tool No. 11 is triangular with a convex polished cutting edge. Nos. 6 and 10 are diminutive flint axes, of similar shape; they are 5 cm. and 4.5 cm. long respectively, and well-polished with more or less straight cutting edges. No. 7 is a small axe, with fairly parallel sides and polished convex cutting edge. Usually only one cutting edge of the axes was polished at one end, but No. 4 had its two cutting edges polished. It may be asked whether this specimen can be considered as a prototype of a votive 'double-axe'. The celts are of different sizes and some of them are flatter on one side. The polished cutting edges are either ellipsoid (Nos. 2, 13) or convex (Nos. 3, 5, 8, 12, 14-16).

Figure 3 comprises some types with unpolished cutting edges. Nos. 1, 5, 8 and 11 are axes flaked on both surfaces with large flakes and very sharp edges. Nos. 2 and 7 are axes with double-pointed arch-ends. These peculiar types of implements can be compared with the double-ended polished axe (cf. Fig. 2, No. 4).

Tranchets: There are five specimens which can be considered as tranchets, as their cutting edge was formed by a transversally struck blow (Fig. 3, Nos. 9-11).

Pick-Axes: This special type of pointed implements made of flint pebbles with crusted butt seems to be characteristic of this culture. Both faces have been flaked, the edges sharp and straight. The pick-axes resemble the

well-known Asturian picks from Northern Spain (Fig. 3, Nos. 4 and 6). No. 3 shows a variety of the same type without crusted butt. Another variety of the same type is a thick pointed flake with an oblique striking platform with the upper face struck with large flakes.

Probably, the celts, axes and hatchets were mounted on shafts, but there are no indications of the method of shafting adopted.

Cores: Most of the cores were flint pebbles of different sizes from the river. Many of them had one or two striking platforms and a secondary trimming of the flaking edge, and could thus be used as scrapers.

Fig. 4, No. 1 is a long core with a double striking platform of light grey impure flint, a large flake having been struck off. No. 2 is a core with double striking platform with secondary trimming on the flaking edges, probably used as a scraper. No. 3 is a tortoise-like core with crusted back left untrimmed: a large pointed flake has been struck off. No. 4 is a core with a single striking-platform: small, long flakes have been struck off. There is in addition a small group of neatly made cores, such as one usually associated with Mesolithic industry. These small cores have either single or double striking platforms and many of them have been used as core scrapers. Typical specimens are shown in Fig. 4, Nos. 9-13. Nearly all the cores were used as scrapers as well and were trimmed for this purpose.

Blades, Flakes and Knives: The numerous blades and flakes have unsymmetrical outlines and are of different sizes, some of them retaining the natural crust of the flint. A considerable number of them were certainly used for cutting, serrating, sawing or scraping. Blades and flakes with 'inverse retouche' along one or both lateral edges as well as a large number of narrow blades without lateral retouche are common. Many blades and flakes show traces of wear along the sharp edges.

Elongated symmetrical blades, probably used as knives (Fig. 5, Nos. 1, 4, 11). Blades with 'inverse retouche' (Fig. 5, Nos. 2 and 7). Pointed blade with retouche on both lateral edges and with 'inverse retouche' along both of its edges (No. 3). Large blade with retouche on one lateral edge and with 'inverse retouche' (No. 5). Rough curved flake with a part of the cortex on the base retouched with large flakes on one lateral edge and with

'inverse retouche' near the top (No. 8). Elongated thick rough flake with one 'serrated' lateral edge inversely retouched; on top some 'burning-like' chips (No. 9); two pointed blades with very little retouche on both lateral edges were probably used as knife blades (Fig. 5, Nos. 10, 11).

Beautifully curved pointed blade; one face well trimmed by pressure flaking near the top; inversely retouched on one lateral edge (No. 12). No. 13 is a '*Chatelperron*' point; Nos. 14-16 are knife blades, No. 14 is a broken specimen of a long blade and was retouched on the bulbar surface by pressure flaking; No. 15 is made of tabular flint, both faces covered with cortex, one working edge was retouched by regular pressure flaking on both faces; No. 16 is a knife retouched on the bulbar surface by irregular pressure flaking. Concave-convex blade retouched on both edges by pressure flaking (No. 6) was probably used as a scraper.

Arrow-Heads and Spearheads: Fig. 6, Nos. 1-4, 6-8; Fig. 7, Nos. 13-18, 22, 25, 26, 30.

The following types were found: Leaf-shaped pressure flaked on both faces (Fig. 6, No. 2; Fig. 7, No. 15); leaf-shaped and retouched all over (Fig. 6, Nos. 6, 8; Fig. 7, No. 17); tanged—the tang was retouched on one or both faces (Fig. 6, Nos. 1, 3, 4, 7; Fig. 7, Nos. 16, 17, 18, 28, 31, 32), or pressure flaked on both faces (Fig. 7, Nos. 13, 14).

Sickle-Blades: The square type with rows of unilateral or bilateral teeth is most frequent; some of the sickle-blades are bifacially flaked by pressure flaking technique. Some sickle-blades show friction gloss on one of their lateral edges; they have probably been used in cutting grass containing silica (Fig. 7, No. 29).

Hammer-Stones: Spherical flint pebbles were used as hammer-stones.

Awls: Awls on coarse flakes with thick, strong working point, are represented. These implements were used for perforating stone pendants, stone whorls and mace-heads (Fig. 8, Nos. 1, 3, 4, 6, 14, 19, 21, 22). Pseudo-awls at the ends of small blades are very frequent (Fig. 9, Nos. 1-26). There exist four varieties of pseudo-awls:

- (1) with the point in the middle of the blade (Nos. 1-7, 9, 10-13, 15, 16).

- (2) with right-hand point (Nos. 8, 17, 21, 22, 25, 26).
- (3) with left-hand point (Nos. 10, 14, 23, 24).
- (4) double-ended point (Nos. 18-20).

The points are either short or long, straight or curved.

Tanged Points: (Fig. 7, Nos. 19, 21, 24, 25). The tanged points are of various forms and techniques.

- (1) The whole of one face of the tanged point or the point itself on its lower face was produced by pressure technique.
- (2) The tang on one face was trimmed by secondary flaking and the rest of the tanged point was left either untouched or slightly trimmed.
- (3) The tang was produced by secondary oblique flaking on both faces; the bulbar face was sometimes trimmed on one or both edges.

Scrapers: These were usually made of thick flakes, seldom of blades; they have mostly convex ends. The scraper with concave end is rare (Fig. 4, Nos. 5, 8; Fig. 5, Nos. 6).

Gravers: Gravers are made on flakes. Most of them are of the angle-type; ordinary gravers of *bec de flute* type are rare; three of oblique form are represented. Single blows are common on flakes or on core-trimmings (Fig. 10, Nos. 7, 8, 9, 10; Fig. 5, No. 9).

Saws and Serrated Flakes: Saws are mostly made of thin rectangular blades. There occur specimens where the two transversal ends are squared or retouched. The teeth are deep and have been flaked from one face or both; the other lateral edge is straight, curved or concave and is either backed steeply, retouched on one or both faces, retouched inversely, or left almost intact. The saws have unilateral as well as bilateral teeth. A variety of saws is shown on Figure 7, Nos. 1-12.

No. 1 has an intact curved back, blunted across the top and the base; the teeth are deep cut and unilateral. No. 2 has a curved back, convex, blunted top; the teeth are deep cut and flaked from both faces. No. 3 has a curved base, the lower concave edge is blunted, the upper concave edge is blunted on both faces; a small notch is on the bulbar face. Teeth are flaked from both faces. No. 4 has a concave back, straight blunted top; the teeth are flaked from both faces. No. 5 has a concave back with large deep

teeth. No. 6 has a straight intact back with large deep teeth. Nos. 7, 8 and 9 have a blunted back and No. 10 has a somewhat rounded back with inverse retouche. Nos. 11 and 12 have bilateral teeth. A number of serrated flakes are shown with large, deep teeth in Figure 10, Nos. 11, 13-16; some notched flakes in Figure 10, Nos. 12, 18, 21.

Atypic Flint Implements: A number of tools comprising core-tools, flakes and blades have been separately considered as being atypic. They include unfinished tools and those accidentally broken in the process of making, as well as implements which were discarded after having been used by the prehistoric inhabitants of this settlement. A group of primary flakes (with cortex) and the debris of flaking as well as small unretouched thin flakes are included. Tools which possessed one or two sharp edges have, however, been used for cutting or scraping as shown by traces of use. Although they are not museum specimens, they afford an opportunity for studying the technique of toolmaking.

Core Trimming Flakes: A number of core trimming flakes have been recorded, most of them have been used as knives or as scrapers. (Figure 4, Nos. 5, 6, 8).

INVENTORY OF FLINT IMPLEMENTS

Cores with one platform	45	Awls	40
Cores with double platform	66	Pseudo-awls	605
Core-scrapers	7	Gravers	12
Small cores with one platform	34	Saws	203
Small cores with double platform	40	Arrow-heads	30
Small long cores	24	Tanged points	14
Cores, various	68	Serrated flakes	24
Core-trimming flakes	26	Sickle-blades	44
Hammer-stones	12	Scrapers	41
Axes	30	Blades (retouched)	52
Celts and hoes	195	Blades (with 'inverse retouche')	27
Tranchets	16	Notched blades	31
Pick-axes	62	Flakes	914
Celts and hoes (polished end)	48	Blades, various	440
Axes (polished end)	16	Unfinished tools	414
Chisels	14	Total	3,594

STONE OBJECTS: Eccentrically perforated flat stones were used as pendants. The holes, drilled by big flint awls, are biconical and have been made from both ends. In a few cases perforation has not been completed. Some pendants were decorated with shallow carved lines on one or both faces, sometimes these lines radiated from the hole (Fig. 11, Nos. 1-3, 5, 7-9).

MACE-HEADS: A large number of round flat basalt stones, eccentrically perforated by flint awls from both ends; the holes are biconical.

SPINDLE-WHORLS made of basalt, flat stone pebbles or clay with large drilled hole; the spindle-whorls of clay are of biconical shape with smoothed surface and without decoration.

LIMESTONE-CUPS: The interior has been hollowed out and is covered by scorings made with a sharp flint, probably a graver. A fragment of a cup was decorated on the outside with a carved herring-bone ornament.

BONE OBJECTS: Two bone pins or awls were made from a gazelle's metatarsal. Another awl was broken, only the pointed part being found. The pointed ends of the awl are rubbed and smoothed (Fig. 12, Nos. 3, 6-8, 10). Short transversal and equidistant incisions on the rib of a gazelle represent the so-called '*marques de chasse*'. The incisions are transversal to the axis of the rib and are on one surface only (Fig. 12, No. 2). A phalange with perforated hole may have been used as a whistle (Fig. 12, No. 9). A fragment of bone with unsymmetrical incisions (Fig. 12, No. 5). Fig. 12, No. 1 shows a bone spatula; Fig. 12, No. 4 either a spatula or a haft.

BEADS: Sea shells and those of river snails were made into beads. They have small suspension holes.

ART OBJECTS: The many stone carvings found may have a ritual significance in that they represent religious symbols connected with a fertility cult. Something may be learned from them about the spiritual life of the inhabitants of this prehistoric village and about their magical and religious ceremonies. Most of the carvings have been made on flat oval pebbles representing schematic human forms.

Pl. iii, No. 1. Schematic female figure. The outline of the breast is roughly indicated by a carved line. The umbilicus is marked by a round deep hollow. The genitalia are indicated in the same way. Two deep hori-

zontal lines between the genitalia indicate in a conventional manner the folds between the abdomen and the thighs. Basalt. Total length 119 mm.

Pl. iii, No. 2. Schematic female figure, seated posture. Two inclined incisions indicate the abdominal folds, and on the back of the thorax the waist line. Two other incised lines indicate the folds between the abdomen and the thighs, thus indicating clearly the posterior. A deeply carved line between the thighs indicates the genitalia. The back is a slightly convex surface ending in a point. Limestone, total length 80 mm.

Pl. iii, No. 3. A schematic human face made on an elongated limestone pebble. Two short horizontal incisions indicate the eyebrows and a small round depression indicates the mouth. The nose is not marked. Total length 68 mm.

Pl. iii, No. 4. A phallic symbol made of polished pebble of conical shape, sharpened by grinding. Total length 75 mm.

Pl. iv, Nos. 1, 2 and Pl. v, Nos. 1, 2.² A standing female figure, with remarkable distinct indication of sex. The neckline too is indicated. Depression indicates the eyes (bad state of preservation). The mouth and the nose are not marked. The exaggerated breasts are indicated by incisions. This line continues on the back. The legs are pointed and divided by an incised line in front; below the incised line there are dots all round. Limestone. Total length 65 mm.

Pl. iv, No. 3. Pyramid with two deep parallel carved lines near the base; above them an oblique incision. Limestone. Total length 77 mm.

Pl. iv, No. 4. Flat ovoid pebble; one side shows a large incised groove representing a vulva. Basalt.

Pl. iv, No. 5; Pl. vi, No. 5. Two oval flat pebbles. On one side nine parallel incisions, on the other five incisions and a small groove in the middle. Basalt.

Pl. v, No. 3. Flat ovoid pebble. A deep groove on one side represents the vulva; six fine incised lines extending from the groove to the edge in one of the segments probably indicate the pubes. Basalt (broken).

² Pl. iv, Nos. 1, 2; Pl. v, Nos. 1, 2 are twice the natural size.

Pl. v, No. 4. Flat oval pebble. 36 squares have been incised on one side. Basalt.

Fig. 11, No. 1. Oval amulet on flat pebble. The biconical suspension hole is drilled right through. Short strokes. Limestone. Total length 65 mm.

Fig. 11, Nos. 3, 5. Spindle-whorl made from flat pebble with drilled suspension hole. Limestone.

Fig. 11, No. 4. Fragment of a pebble with incised squares. Basalt.

Fig. 11, No. 8. Pendant. Roughly oval in shape; biconical suspension hole near one end, drilled with a flint awl from both sides. Limestone. Roughly oval pebble with flattened sides; hole drilled from both faces. Unfinished. Limestone.

Pl. vi, Nos. 1, 2. Flat oval pebble. A deep carved groove in the middle indicates the vulva. Basalt. Total length 85 mm.

Pl. vi, No. 3. Schematic human face on a flat pebble. Two incisions indicate the eyebrows and a large depression the mouth. Basalt. Total length 105 mm.

Pl. vi, No. 4. Schematic human face on a flat oval pebble. Two horizontal incisions indicate the eyes. Basalt. Total length 95 mm.

Pl. vi, No. 6. Schematic human face carved on a cylindrical pebble. The eyebrows are given by two deep short horizontal incisions.

Pl. vii, Nos. 1-1A. Schematic representation of a human face on both sides of a flat pebble. Two deep incisions indicate the eyebrows. Limestone. Total length 95 mm.

Pl. vii, Nos. 2-2A. Schematic representation of female figure on both faces of a flat, oval pebble. Sexual triangle. Limestone. Total length 175 mm.

Two flat pebbles on which animals have been carved. Pl. ii, No. 10 represents a cow (?), Pl. ii, No. 11 probably an *equida* (?).

Another stock of stone carvings was found, mostly broken, the interpretation of which is impossible without additional detailed study; for this reason I reproduce only one of them (obverse and reverse) without any comments (Pl. iii, Nos. 5 and 5A).

POTTERY: Pottery was locally manufactured from clay evidently found on the site. The paste was tempered with coarse sand containing quartz and basalt grits, and with chopped straw. Large grits protrude through the surface of the fragments, the straw having left impressions in the clay after firing. The pots were hand-made and finger prints are visible on the inside of the potsherds. No evidence of the method of firing was found, but an open fire was probably used. The low temperature of the fire did no more than redden the surface. Among the many broken finds were fragments of small pots, platters and closed vessels.³ Not all pots appear to have been well proportioned and symmetrically built. Different forms and shapes were found. The bases were flat, sometimes with mat-impressions. The bodies were slightly globular; the rims show differences in shape as can be seen in the cross-sections shown in Fig. 12; the edges were finished in various ways; rounded or sloped on the outside or the inside. The thickness of the walls varied in different parts of the same pot. The pots were wet-smoothed, both inside and out. Sometimes a slip was used for the finished surface. The knobs and small loop handles seem to have been ornamental but the loop handles probably served for carrying the pot although the openings were not large enough for the fingers: a suspending string may have been used.

Decoration: The fragments of pottery were decorated on the outside by incisions: herring-bone ornaments arranged in triangular or zigzag lines, or short parallel strokes were drawn with a pointed tool in the clay before firing.

Pl. i, Nos. 1, 3, 4. Fragment of a small closed vessel decorated on the base of the neck with an irregular incised herring-bone pattern between incised lines. Light buff gritty ware, traces of brown slip.

Pl. i, No. 2 and Fig. 13, No. 13. Jar. Fragment of a jar showing a slightly concave neck with plain lip and part of the globular body. Handle plano-convex from shoulder to middle of neck. Incised herring-bone bands at the base of the neck and the body forming triangles or zigzag.

³ The term 'closed vessel' is used to mean one having an inverted rim, and the diameter at the rim less than that of the body.

Reddish brown slip on outside and on the lip, covering inside of the neck; greyish buff gritty ware, smoothed on outside and on the lip.

Pl. i, Nos. 5, 8. Bowl fragment. Straight sides, plain lip, incised horizontal herring-bone band; remains of a second oblique band.

Pl. i, No. 6. Vessel. Shoulder of closed vessel decorated with slightly raised incised herring-bone band.

Pl. i, No. 7. Fragment of wall of closed vessel. Incised decoration. A triangle filled with oblique strokes. Traces of brown slip. Buff gritty ware.

Pl. i, No. 9. Vessel. Fragment of wall; painted, decorated with two incised lines partly covered with reddish brown slip. Light buff gritty ware.

Pl. i, No. 10. Vessel. Fragment of wall; decorated on outside with horizontal and oblique bands consisting of incised parallel lines. Buff gritty ware.

Pl. i, No. 11. Vessel. Fragment of wall; decorated on outside with incised lines; traces of reddish brown slip; greyish buff ware.

Pl. i, No. 12. Bowl. Fragment of wall decorated on outside with an incised zigzag band filled with oblique strokes. Traces of reddish brown slip; light buff gritty ware.

Pl. i, Nos. 13, 14, 15. Vessels. Fragments of walls; decorated with incised bands resembling the herring-bone pattern. Buff gritty ware.

Pl. i, No. 16. Vessel. Small closed vessel decorated with horizontal and vertical herring-bone bands. Traces of applied handle at the junction of the bands. Traces of reddish brown slip. Light buff gritty ware.

Pl. i, No. 17. Bowl. Fragment of wall decorated on outside with incised herring-bone band forming a triangle and zigzag pattern. Traces of reddish brown slip. Buff gritty ware.

Pl. i, No. 18. Vessel. Fragment of wall of closed vessel, decorated with double triangle or zigzag; traces of brown slip. Buff gritty ware.

Pl. i, No. 19. Vessel. Fragment of wall of an open vessel, decorated with horizontal band, consisting of incised parallel lines. Traces of reddish brown slip. Light buff gritty ware.

Pl. i, No. 20. Vessel. Fragment of a closed vessel, decorated with a raised triangle consisting of an alternating herring-bone ornament. The

bands are separated by incised lines. Traces of reddish brown slip. Coarse gritty yellow buff ware.

Pl. ii, No. 1 and Fig. 13, No. 2. Jar. Fragment of rim, flat-topped lip above an applied knob handle. Very rough interior surface. Light buff gritty ware.

Pl. ii, No. 2 and Fig. 13, No. 14. Vessel. Fragment of small globular vessel with short grooved neck. Fragment of the handle shows that it reached from the shoulder to the neck of the vessel. The vessel was decorated with incised-double lines; one horizontal line on the neck and several oblique ones forming a triangle on the body. Buff gritty ware. Traces of reddish-brown slip on outside and inside.

Pl. ii, No. 3 and Fig. 13, No. 16. Bowl. Fragment of a flat base from a thick walled bowl with flat disc base. Greyish buff ware.

Pl. ii, No. 4 and Fig. 13, No. 1. Jar. Fragment of rim. Straight walls with everted rim. Small horizontal lug handles of which only one and a half remain. Light buff gritty ware.

Pl. ii, No. 6. Fragment of flat base and adjoining portion of walls. Buff gritty ware with chopped straw.

Pl. ii, No. 7. Spindle-whorl with biconical hole. Coarse gritty ware.

Pl. ii, Nos. 8 and 8A. Jar. Fragment of a handle curving from shoulder to neck. Incised raised band on the base of the neck. Buff gritty ware.

Pl. ii, No. 9 and Fig. 13, No. 11. Platter. A basal fragment of a platter, of which part of the base and the sides with handles have been preserved; everted straight sides and thickening flat-topped rim: flat base with mat-impression (shown, enlarged, in Pl. ii, No. 9A). Flat-topped horizontal handle, with small suspension-hole, applied below the rim. Coarse reddish-buff ware, straw-tempered.

THE MATERIAL CULTURE AND ITS INTERPRETATION

A close examination of the material culture confirms the presence of an important post-Mesolithic cultural phase which is represented in the pre-historic settlement of Sha'ar ha-Golan.

This settlement was occupied for a long period of time, and its pre-

historic settlers were the bearers of something new, although very little of their social and economic life is known to us. We should, therefore, try to find its exact place in the chronology of the prehistoric civilization of Palestine.

The presence of a number of mortars hollowed in large basalt-blocks, pestles, pounders and querns of basalt, picks, hoes, sickle-blades made of flint or chert—all these implements are a proof that the basic life of the Yarmuk population was horticulture in its very primitive stage.

But there is no clear evidence of cereal cultivation, though pounders and querns could be used for preparing wild grain; the sawing of animal bones or fresh boughs with toothed flint blades could produce glossy serrated edges. Bones of animals, such as calves, goats, sheep and dogs show that pastoralism was known.

It is, however, clear that neither horticulture nor pastoralism in their primitive stages alone could be the economic basis of the Yarmuk population. Flint arrow-heads and darts, broken bones of animals such as wild boar, gazelle, camel and birds, indicate that hunting was practised by them, and that the animals had been killed for food and the bones broken for the extraction of the marrow; many of the bones had been cut by flint blades. Animal bones were used for the manufacture of bone tools. All these prove that hunting was of some importance to the people's economy.

Positive evidence for fishing has been discovered: heavy stone sinkers for fishing-nets were found.

The existence of a primitive, local textile industry is proved by the discovery of spindle-whorls and loom-weights. Woodworking was practised as axes, celts, tranchets of flint or chert, adapted for such work, have been collected. Basketry was also developed.

The settlers possessed a well-developed flint industry. The flint implements have been carefully knapped, some of them made by pressure flaking retouche; some of the core tools have been polished on the working edge. The settlers made coarse hand-made ornamental pottery, baked in open fire.

No specific evidence of trade with people of other stocks occupying regions remote from the site was discovered. The trade in shells does

not seem to have been extensive as only a few fluvial shell beads and a fragment of a marine shell were found.

As far as we can judge from the material culture discovered, this prehistoric community appears to have been largely self-sufficient.

The arts of carving and engraving were practised and are very characteristic of the prehistoric settlement; they are proof of a highly developed spiritual life among the population. The material culture of the settlement is remarkable and no similar parallel is known either in Palestine or elsewhere in the Ancient East. This prehistoric culture must be considered as completely unknown until now. For that reason, I have named it 'Yarmukian', after the Yarmuk River, which played an important part in its development.

The Yarmukian is remarkable for the absence of the characteristic elements of Chalcolithic culture; it is a Neolithic culture.

Unfortunately, the existence of a Neolithic phase in Palestine has been denied by certain archaeologists. Even excavations at Jericho⁴ (IX—XII), and in the cave of Abu Usba',⁵ where there are definite Neolithic characteristics, have not convinced a number of the leading authorities, whose opinion has been that no 'true Neolithic culture flourished in Palestine', and that 'Neolithic' was not legitimate in the chronological sequence of prehistoric Palestine.

The Neolithic culture of Palestine and of the whole Ancient East belongs to the 'dark age' cultures and provokes much speculation. The problem is a complicated one and cannot be solved by theories, but only by facts brought to light by field work. For this reason, opinions against the existence of a Neolithic phase should not be considered final, even though these opinions have been accepted by a number of leading scientists.

The whole problem of post-Neolithic civilization is no longer a ques-

⁴ Crowfoot, J.: Notes on the Flint Implements of Jericho. *Ann. Archaeol. & Anthropol.*, Liverpool, 22, 1935, pp. 174-184; 24, 1937, pp. 35-51.

⁵ Stekelis, M.: Preliminary Report on Soundings in Prehistoric Caves in Palestine. *Bull. Amer. Schools Orient. Res.*, 86, 1942, pp. 2-10; id.: Further Observations on the Chronology of Mugharet Abu Usba', *ibid.* 89, 1943, pp. 22-24; id.: Excavations in Palestine and Trans-Jordan, 1940-1.—Prehistoric Caves. *Quart. Dept. Antiq. Palest.*, 11, 1944, pp. 115-118.

tion of mere terminology, but rather one of the correct interpretation of different cultural phenomena. The post-Mesolithic period began with a Neolithic phenomenon in which different cultural phases have been developed. Each phase has its own characteristics and can be easily recognized.

The flint industry and the pottery of the Yarmukian are different in types, forms and technique from the leading types of the Chalcolithic culture. The art objects of the Yarmukian have a character of their own and cannot be compared with those of the Chalcolithic period.

Excavations at Jericho (IX-XII) and in the caves of Abu Usba' and 'Iraq el-Barud on Mount Carmel have proved sufficiently the presence of Neolithic cultural phases in Palestine to which the Yarmukian should be added. The post-Mesolithic civilization with its complicated Neolithic phenomena was of long duration in Palestine.

If we compare the Yarmukian with the Neolithic of Jericho (IX-XII), we shall find that these two cultures differ in many ways. The typical flint tools of Jericho of the so-called Tahunian type, obsidian implements and art objects are not the same as those of the Yarmukian culture and it seems that the Neolithic of Jericho belongs to a more advanced phase. The Neolithic layers of the Abu Usba' and 'Iraq el-Barud caves belong to an older phase. This culture, which I have named 'Usbian', belongs to the very beginning of the post-Mesolithic civilization, for the technique and the form of some of its tools are plainly characteristic of the Mesolithic (Natufian): the micro-graver still exists. But in the Usbian phase there appear also new forms of tools made by a new technique, strange to the Mesolithic (Natufian) on the one hand, and to the Chalcolithic on the other. This industry is accompanied by crude hand-made pottery. The abundant fauna is Mesolithic, with modern types occurring as well. It is clear that the Usbian culture derived directly from the Natufian and represents the earliest phase of the Neolithic: the Usbian followed by the Yarmukian.

The Usbian, the Yarmukian, and the Jerichoan, in this order, though not necessarily consecutive, are phases of the immediately post-Mesolithic civilization which formed the Neolithic cultural complex and filled the

gap between the end of the Mesolithic (Natufian) and the beginning of the Chalcolithic—a gap of over three thousand years—as shown in the following table:⁶

Mesolithic	End of Natufian	c. 8,000 B.C.
Neolithic	Usbian	c. 7,500 B.C.
	Yarmukian	c. 7,000 B.C.
	Jerichoan	c. 5,500 B.C.
Chalcolithic	Beginning of Ghassulian	c. 4,500 B.C.

⁶ The dates in the Hebrew version of this paper were, in error, printed wrongly in *Eretz-Israel*, Vol. 1; that error has here been corrected.

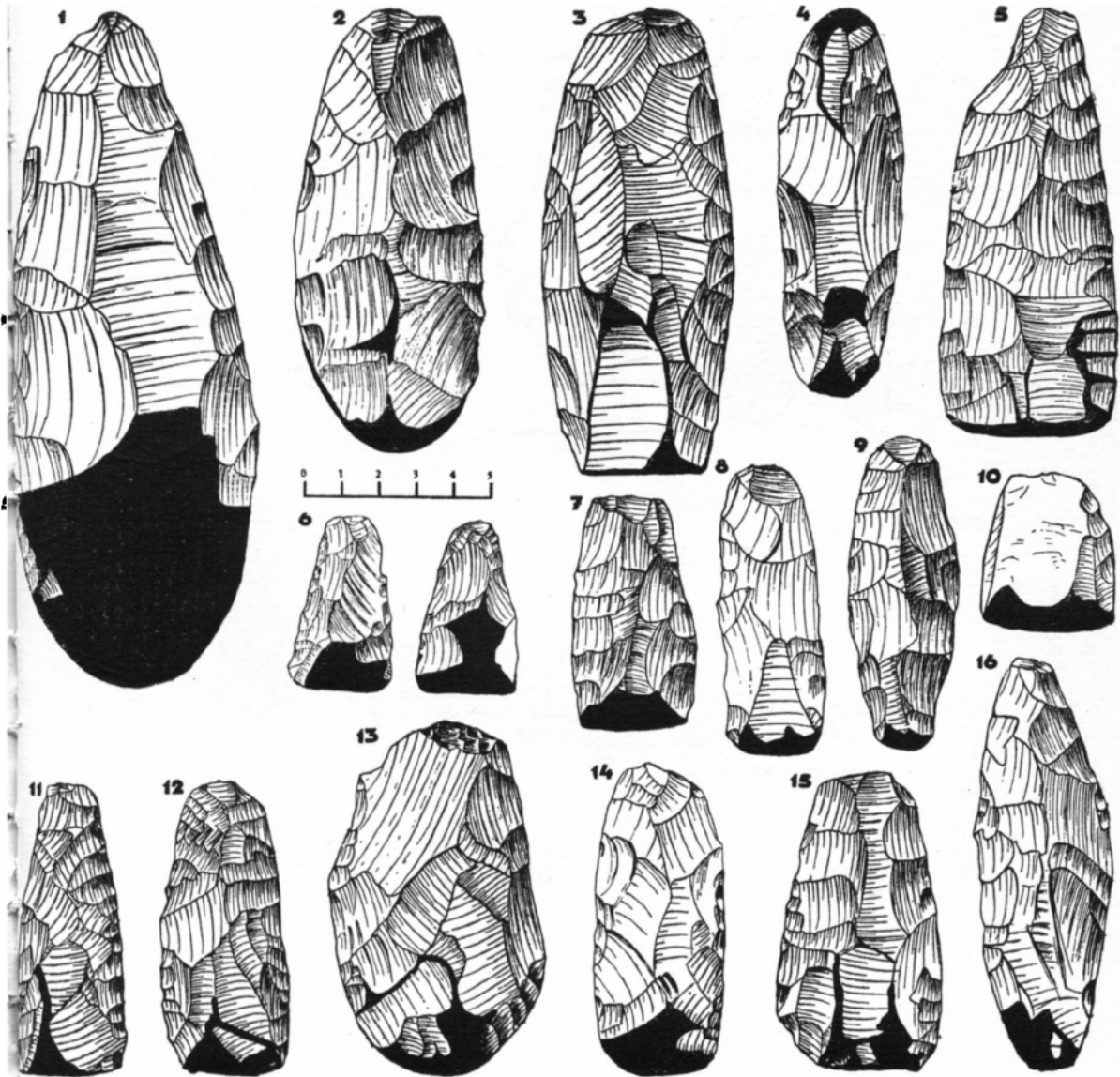


Figure 2. Axes, celts and hoes with polished cutting edge (in black)

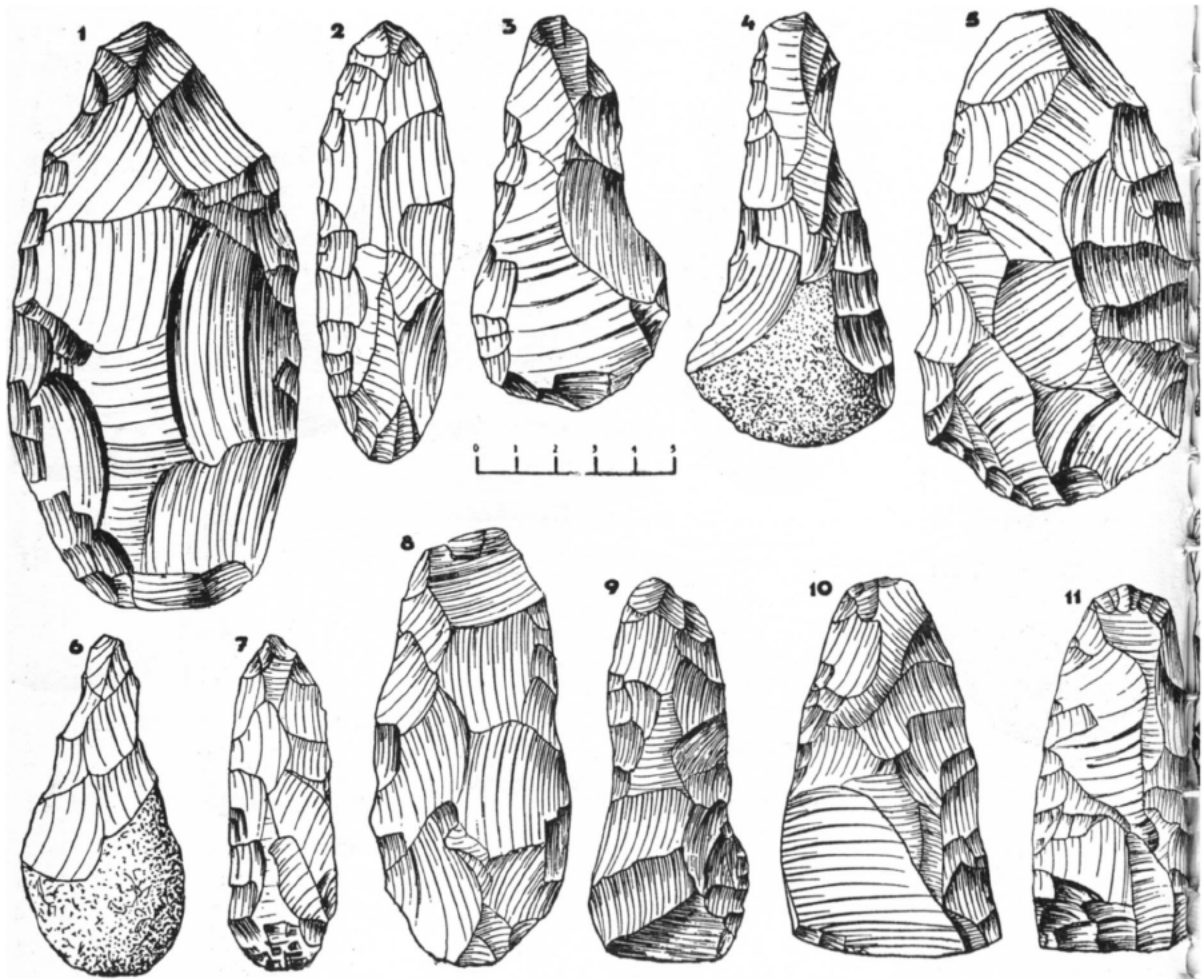


Figure 3. Axes, pick axes, hoes and tranchets

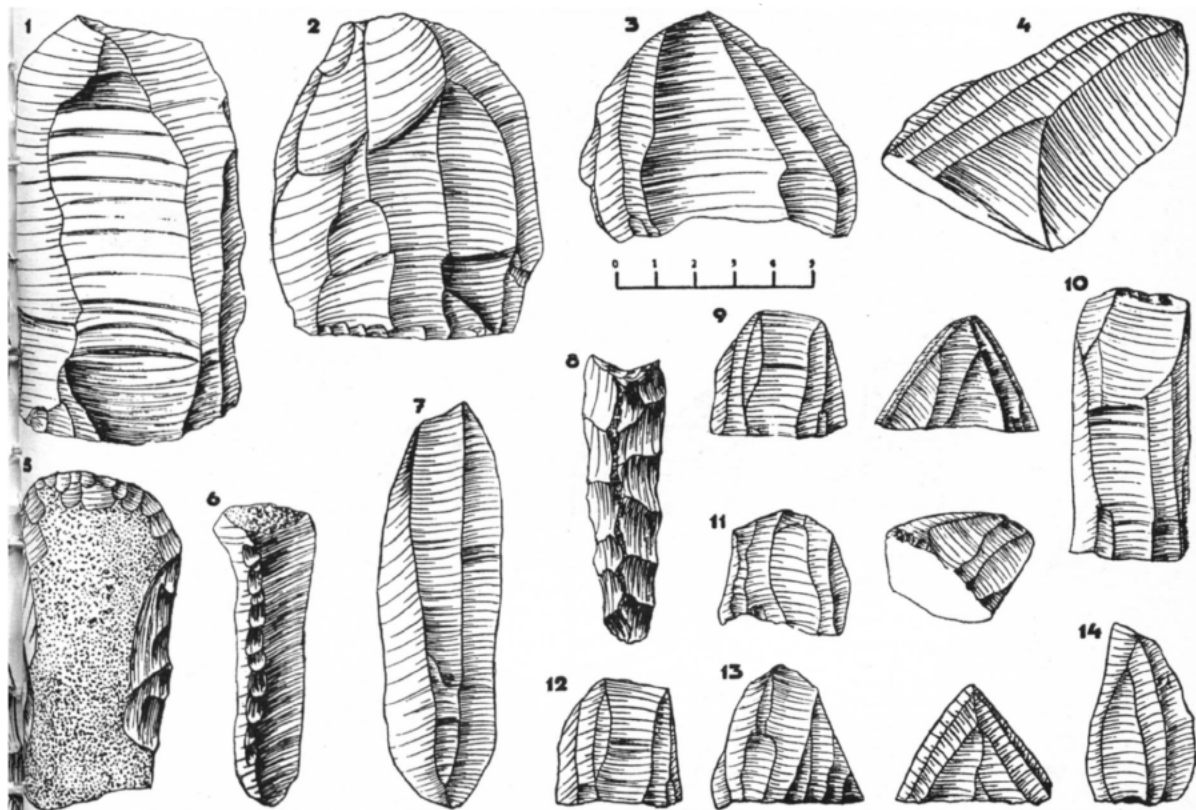


Figure 4. Flint cores, core trimming flakes and scrapers

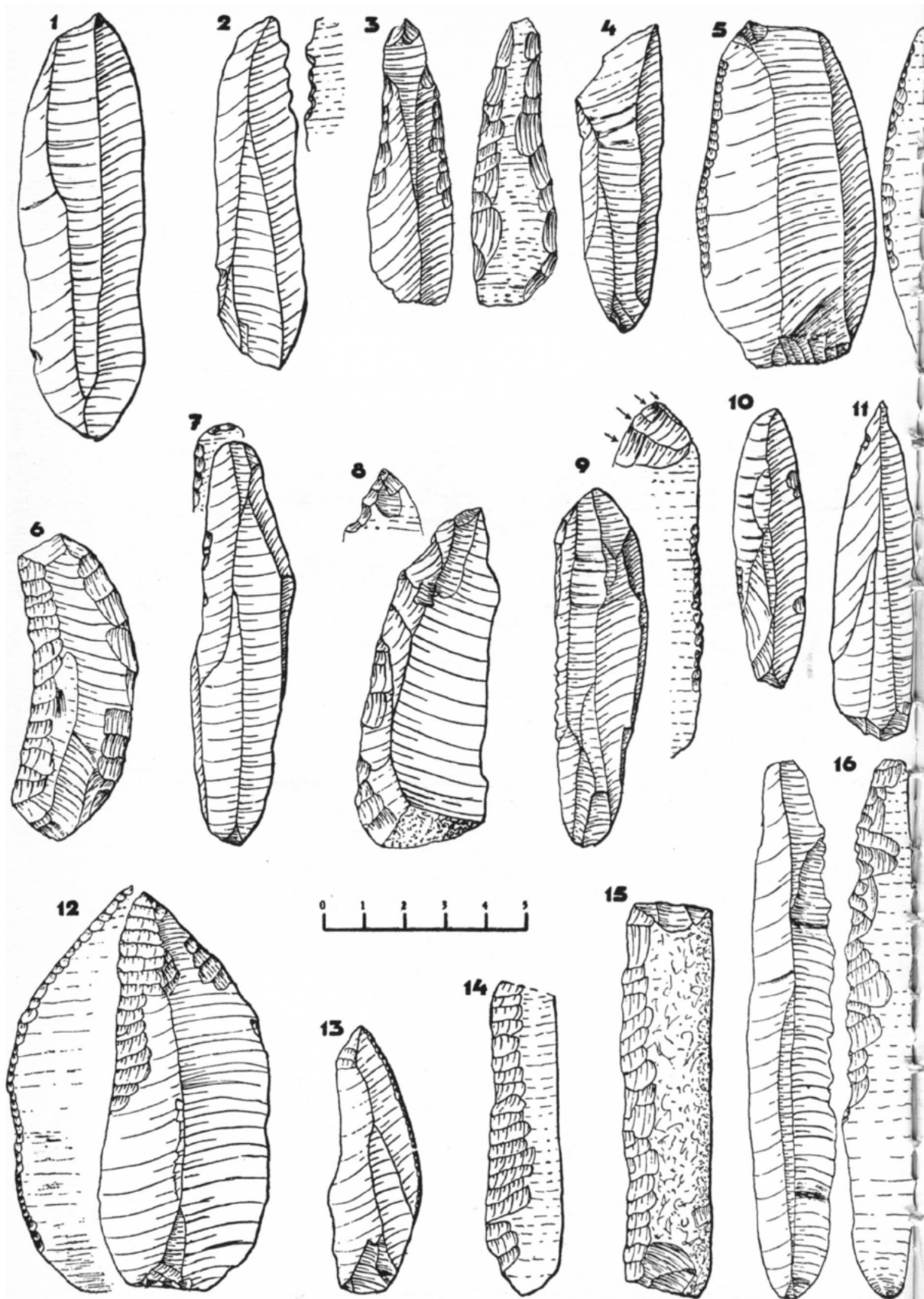


Figure 5. Blades, flakes, knives and scrapers

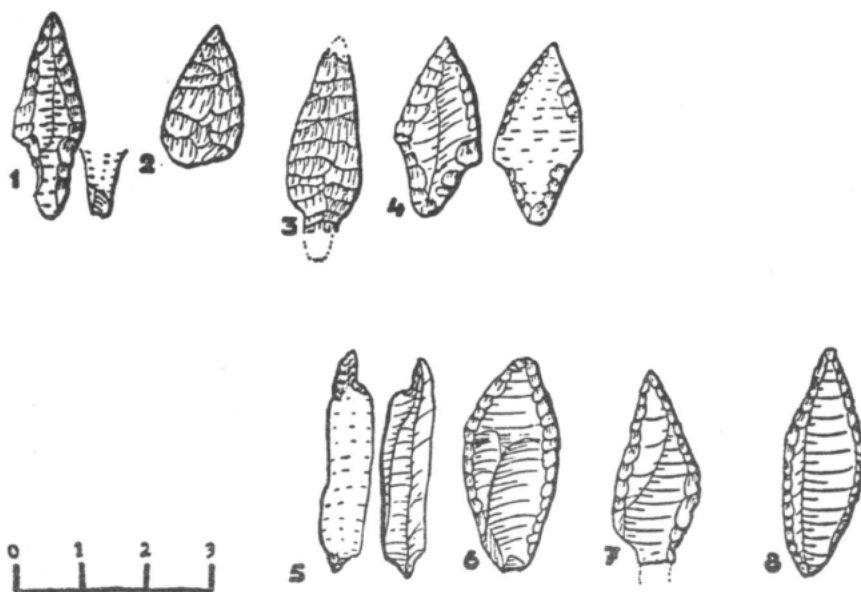


Figure 6. Arrow-heads and spear-heads

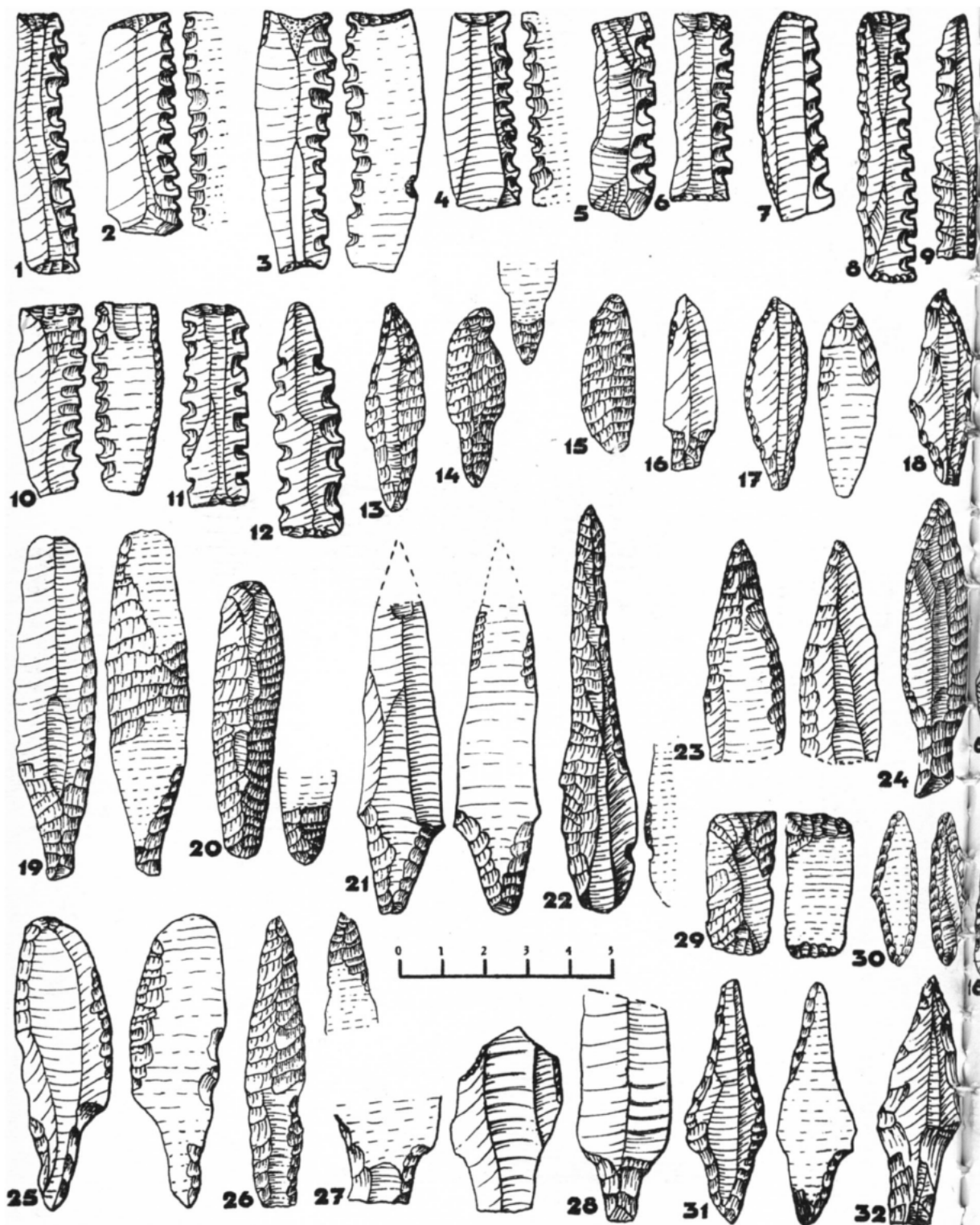


Figure 7. Arrow-heads, sickle-blades, tanged points, saws and serrated flakes

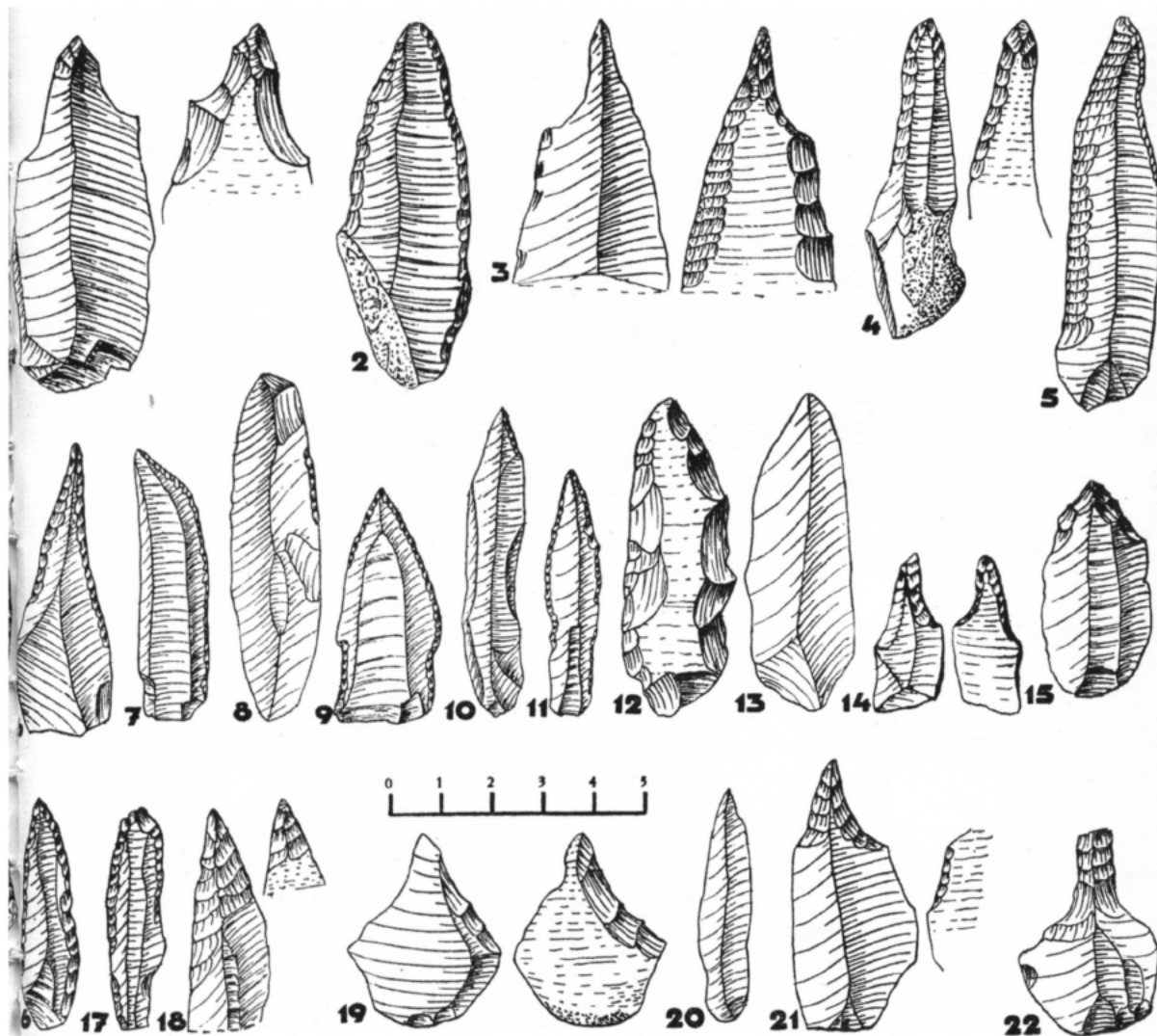


Figure 8. Awls

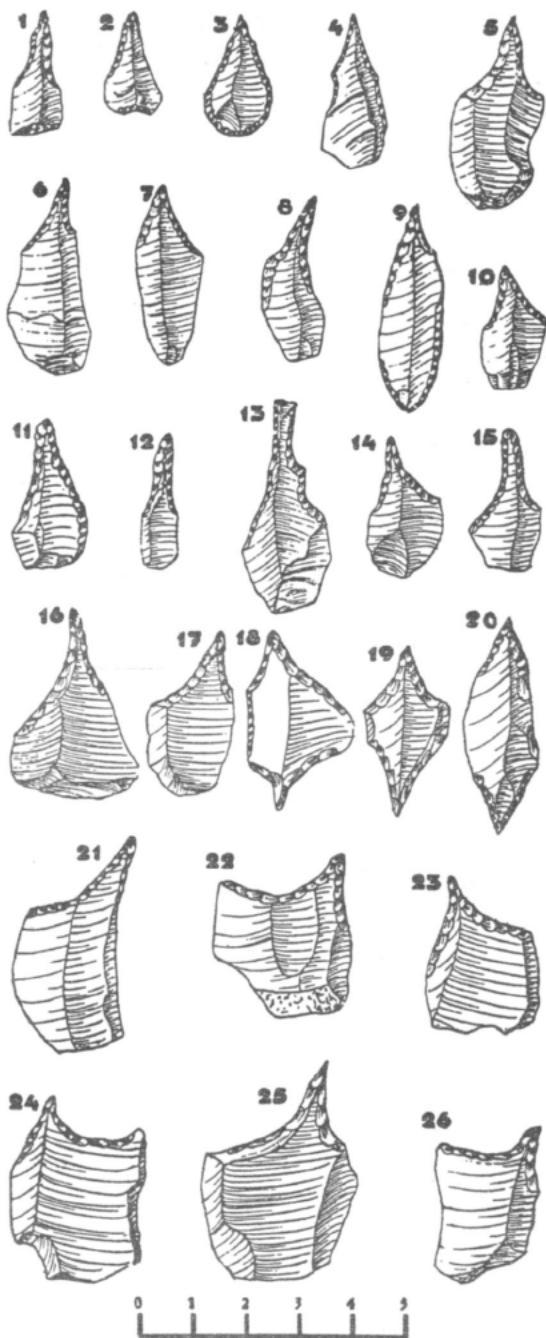


Figure 9. Pseudo-awls

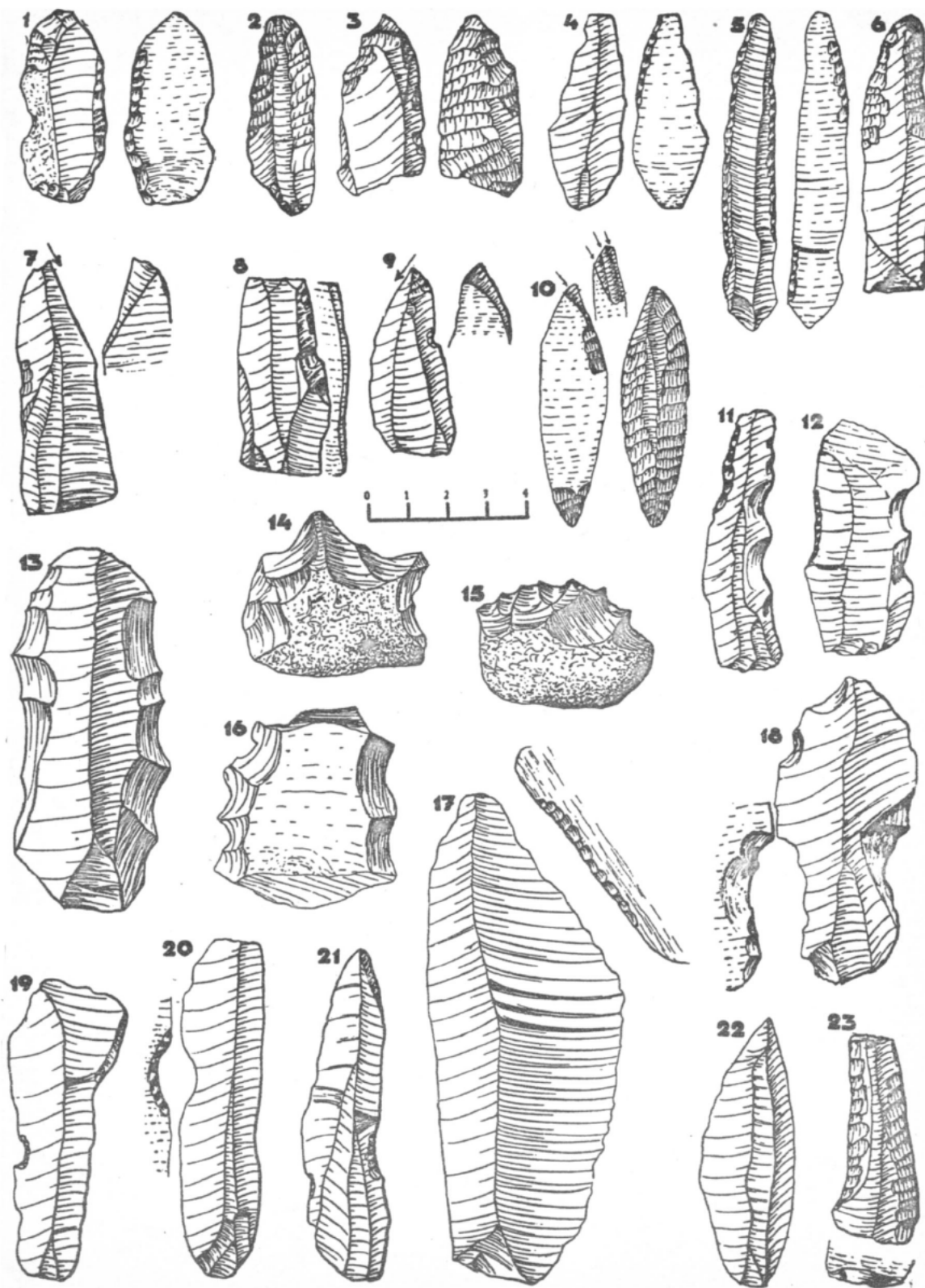


Figure 10. Gravers, serrated flakes and notched flakes

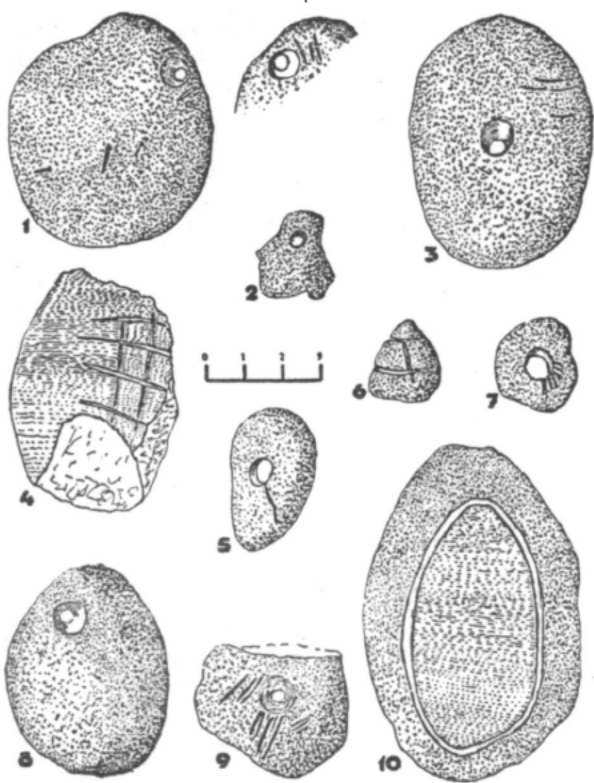


Figure 11. Stone pendants and cameos

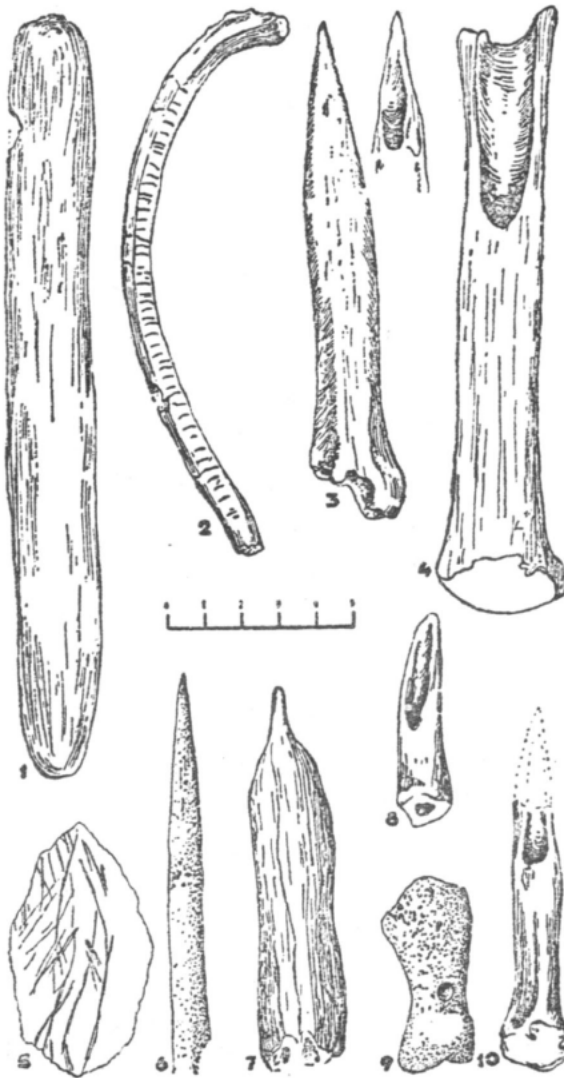


Figure 12. Bone objects



Figure 13. Pottery