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CONCEPTION OF LOWER ACHEULIAN TOOLS. A COMPARISON OF THREE SITES OF THE EARLY HANDAXE CULTURE AND ITS ASPECT OF BEHAVIOUR

ABSTRACT: The Lower and Middle Acheulian is known from many sites between southern Africa, western Europe and south-eastern Asia. The handaxe usually is the tool type used to define this culture. But the Lower Acheulian has some more common traits:

1. An inventory of stone-tools consisting of handaxes, cleavers, picks, discoids, polyhedrons, side scrapers, denticulates, borers and small scrapers.
2. A concept of tool-making including the discoid core technique, the Kombewa technique and the biface flaking technique.
3. A concept of tool-making based more along the lines (step by step) of creating an end-product than on strong formal ideas of special types or standardisation.
4. The possibility to use special assemblages selected from the Acheulian tool-kit for special activities.

These common traits should be demonstrated by the three sites: Amguid in western Sahara, 'Ubeidiya in the Near East (Stekelis, Stekelis 1966/1969, Bar-Yosef, Goren-Inbar 1993) and Chirki-on-Pravara in India (Corvinus 1983). The distance from Amguid to Chirki is of about 8,000 km.

What could the demonstrated similarity of types, inventories and concepts mean?

1. The Acheulian culture was a system or a network with transmission and feed-back of information.
2. The system had a strong tradition to be upheld by members of the social groups.
3. The tool-kit itself is a system corresponding with the social and behavioural system.
4. Types in a tool-kit are classified and designated for special duties.
5. Lower Acheulian tools were finished step-by-step on functional lines. Personal identity could be upheld by fulfilling traditional activities.
6. A classified cultural system can be held in the mind only by universal usage of common word symbols.

KEY WORDS: Techno-cultural network – Communication – Gene flow – Language – Socio-cultural identity – Human identity

We would like to compare stone-tool assemblages to demonstrate differences or common traits. These traits should have a cultural background. Most modern

archaeologists use statistical data to compare objects. This is, however, not the only way to enquire into common characteristics of Lower Palaeolithic tools. Their

conception and planning include a crudity of design. Pure measurements are not suitable for insights into style and design. In my opinion it is useful to look at the complexity of shapes and of manufacturing, which can be illustrated in drawings (Figures 1–12). The artefact assemblages of the following three sites shall be compared as a demonstration: Chirki-on-Pravara/India (Corvinus 1983), 'Ubeidiya/Israel (Stekelis, Stekelis 1966/1969, Bar-Yosef, Goren-Inbar 1993) and Amguid West/Algeria (Fiedler 1994).

Chirki is a site in the Maharashtra area in the western-most part of India. It was excavated in the early sixties by Corvinus and published in 1983. Chirki is a river terrace site. Due to the embedding geological layers the Early Acheulian assemblage could be dated to the Early Middle Pleistocene. Artefacts and some bone fragments were discovered in a living-floor stratum. Basalt, chalcedony and jasper which are here a part of the river gravel are the main raw materials of the tools.

'Ubeidiya is situated on the western bank of the Jordan River. The archaeological site was discovered in 1959 and excavated by Stekelis, Haas, Gilead, Picard, Tchernov and others between 1960 and 1974. The archaeological layers are dated by the Villafranchian fauna and volcanic sediments; they are estimated to be about 1.4 million years old. The artefacts are mainly made on basalt, flint and limestone. Due to striking similarities to the inventories of Middle and Upper Bed II from Olduvai Stekelis called the assemblage of 'Ubeidiya "Israel Variant of Olduvai II Culture" (Stekelis, Stekelis 1966). Today it can be considered as an Early Acheulian (Bar-Yosef, Goren-Inbar 1993).

Amguid West is a site in north-western Central Sahara. Slightly or non patinated artefacts of the Early Acheulian are embedded in the Lower Pleistocene 'reg'-gravel in front of the western slope of the Erg Amguid. In contrast to this assemblage Upper Acheulian and Atérien artefacts from the gravel surface are generally heavily patinated. The Early Acheulian artefacts are made on local raw materials like quartzite, quartz, volcanic rock and tabular flint. Apart from some brief communications the rich assemblage has not been published yet (Fiedler 1994b).

The distance from Amguid to Chirki is nearly 7,000 km, from Amguid to 'Ubeidiya 3,000 km, and from Chirki to 'Ubeidiya 4,000 km.

Simple flakes (Figure 1, 1–3) will not be compared here. But there are some prepared cores and – regarding this – the respective flakes in our Lower Palaeolithic sites. In Africa as well as in India heavy asymmetrical cores appear. Occasionally they have been described as "protolevallois cores". Flakes from such cores are also asymmetrical and have faceted striking platforms. As results of core-preparation their talons are often bifacially faceted. These flakes are called cleaver-flakes. They were used for cleaver- and handaxe production (Figure 5, 1–3). The same applies to the so called Kombewa-flakes which were struck (separated) from the ventral parts of heavy

flakes and show two bulbar sides (Figure 3, 5X). At Chirki and Amguid more handaxes and cleavers were made on special flakes than at 'Ubeidiya (Figure 5, 2). This difference could be connected with different raw material sources or different stages of development.

The cores from Amguid, 'Ubeidiya and Chirki are very similar in shape. Most of them are cuboids or polyhedrons and are flaked multidirectionally (Figure 1, 10–13). Their diameters vary between 3 and 25 cm. A few more spherical specimens are trimmed by a lot of small flakes. Probably they were not used for flake production. Only a few cores are clear discoids, trimmed by circular and centripetal flaking (Figure 1, 4–9). At Chirki as well as at 'Ubeidiya and Amguid it is difficult to distinguish between cores and choppers (Corvinus 1983: 58–59, Bar-Yosef, Goren-Inbar 1993: 125). At Amguid I have recognized only a few cores of the (proto-levallois) Tabelbala-Tachenghit technique and none of the Kombewa technique. They seem to be rare because of reworking. Classical Levallois-cores are totally absent at all three sites.

Choppers (Figure 1, 14–16) appear at these sites as unifacial (choppers s.s.) and bifacial trimmed specimens (chopping-tools). Due to the crude and minimal working it seems unnecessary to divide them in subtypes. More at 'Ubeidiya and Amguid, less at Chirki some pointed choppers are found with a clear affinity to protohandaxes or picks (Figure 11, 1). Such pointed choppers are definitely tools and not only cores.

Light-duty tools are unprepossessing but important (Figure 2). Beside the chopper-group they are usually the basic artefacts of the Handaxe Culture and are very characteristic at camp-sites, where the presence of bifaces is not a "must" – as at the FLK-site from Olduvai, at Mauer, Bilzingsleben, Soleihac or Isernia (Gowlett 1988). Light-duty tools were made on flakes, simple fragments and sometimes on small split pebbles. They include pointed tools, notched and denticulated pieces as well as scrapers. Most of the pointed tools were finished by two powerful blows on the edge of a flake or fragment. They resemble borers or awls (Figure 2, 5–13) and are abundant from the Oldowan to the end of the Lower Palaeolithic as well as an element of the Denticulated Mousterian until the Early Upper Palaeolithic.

Handaxes can arbitrarily be divided in three groups: cleavers, bifaces and picks. None of these groups can be clearly separated from the others. The tool-kit of the Early Acheulian includes cleaver-like bifaces, biface like picks and pick like cleavers. But the simple division is useful.

The handaxe-group A: Usually cleavers are made on flakes, which could be cortex-flakes (Figures 3 and 4) or prepared flakes (Figures 3, 1–8; 4, 5–8). These prepared flakes have been struck off from semi-discoid cores which can sometimes resemble heavy rough-outs for handaxes. Cleavers on such flakes can be end-struck or side-struck (Figure 3, 1–8). Another form of preparation is the Kombewa-technique (Figure 3, 5) which used a heavy flake as a core. Kombewa-flakes show two bulbar faces. Cleavers

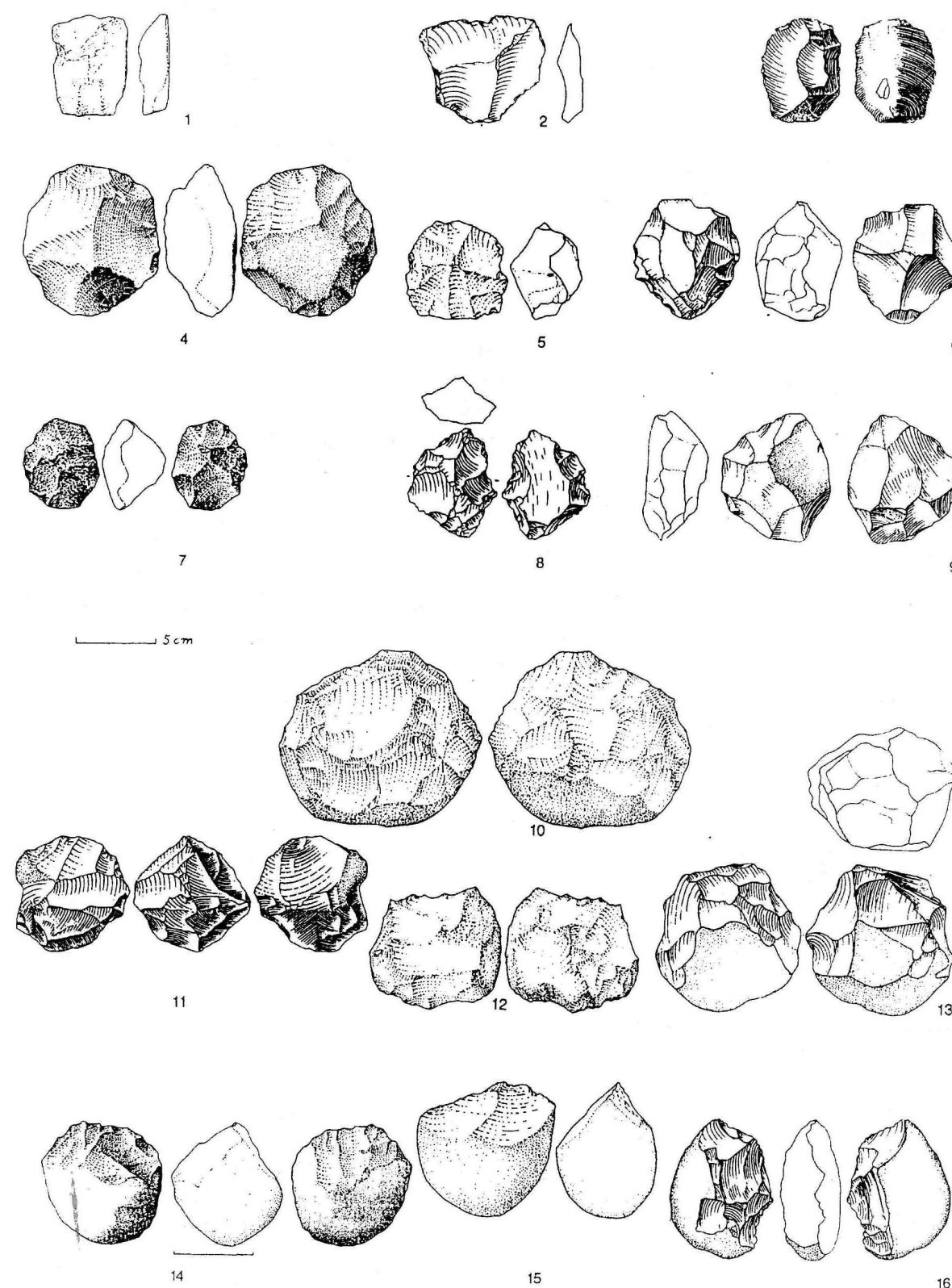


FIGURE 1. Lower Acheulian. 1–3 flakes, 4–9 discoid cores, 11–13 polyhedrons, 14–15 choppers. Amguid: 1, 4, 7, 11 and 14; 'Ubeidiya: 2, 5, 8, 10, 12 and 16 (redrawn from Stekelis, Stekelis 1960/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3, 6, 9, 13 and 16 (after Corvinus 1983).

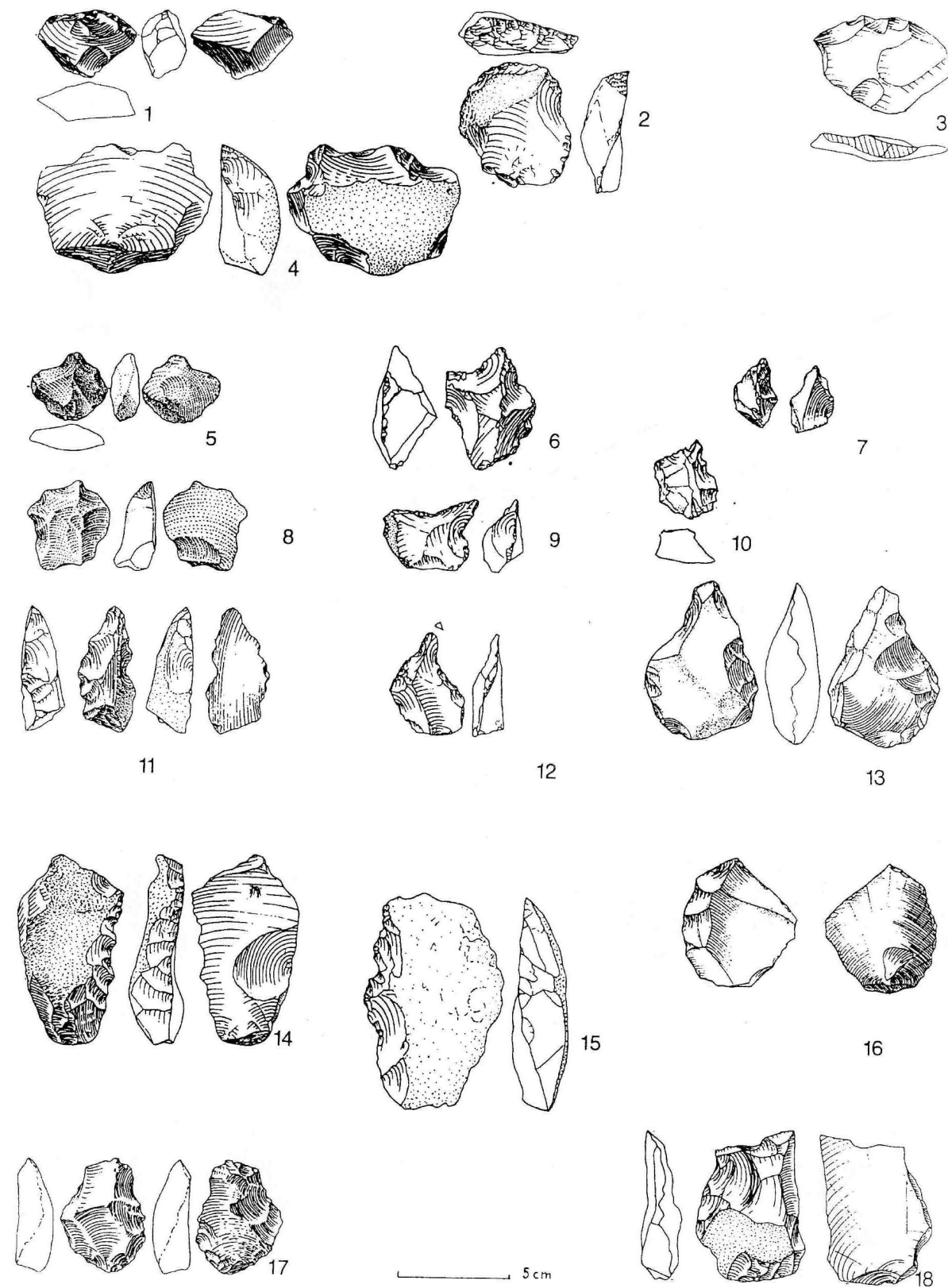


FIGURE 2. Lower Acheulian, light-duty tools. 1-4 scrapers, 5-13 pointed tools, 14-16 side-scrapers, 17-18 retouched flakes. Amguid: 1. 4. 5. 8. 11. 14 and 17; 'Ubeidiya: 2. 6. 9. 12 and 15 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 7. 10. 13. 16 and 18 (after Corvinus 1983).

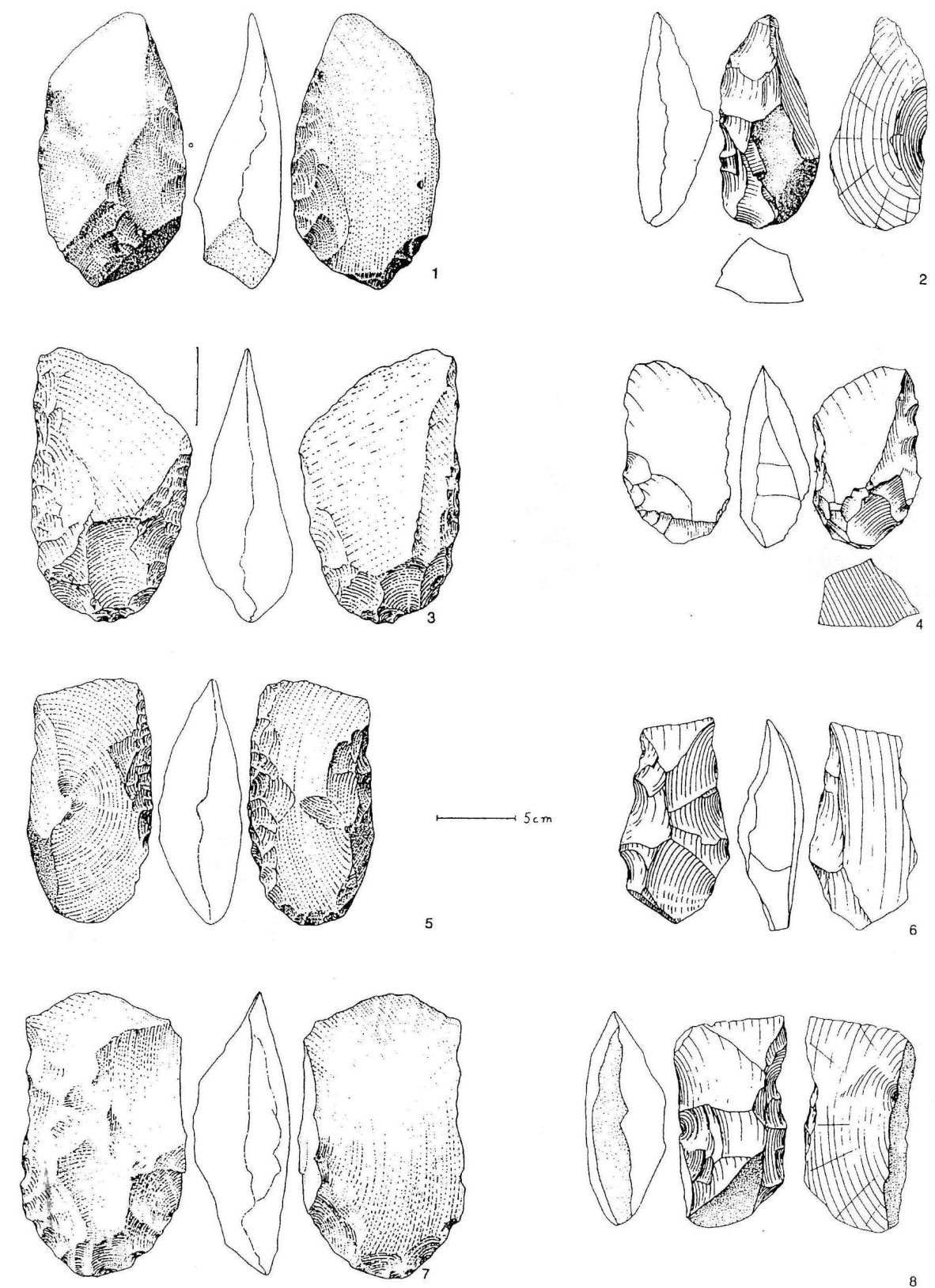


FIGURE 3. Lower Acheulian, cleavers. Amguid: 1. 3. 5 and 7; Chirki: 2. 4. 6 and 8 (after Corvinus 1983).

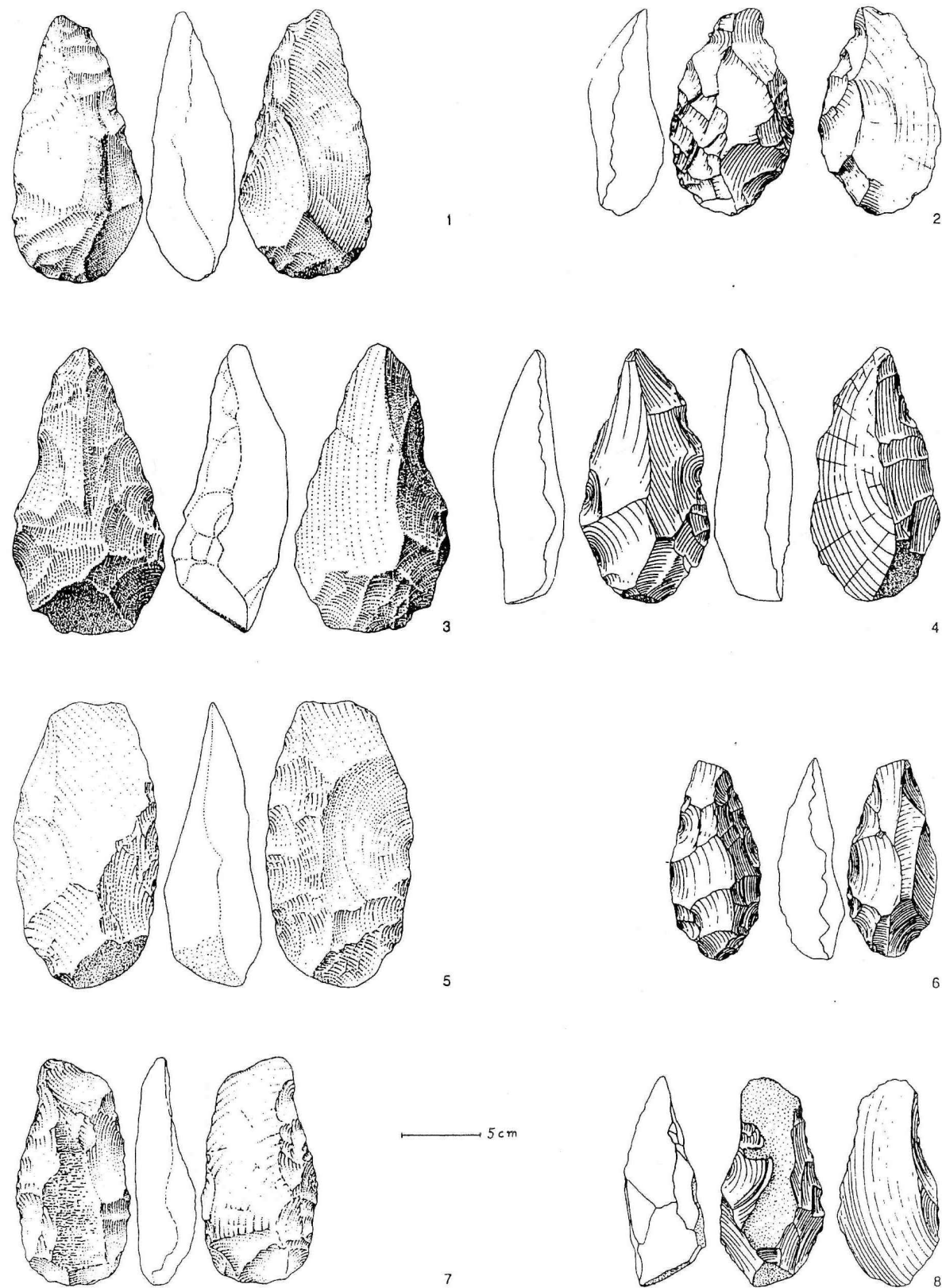


FIGURE 4. Lower Acheulian, cleavers. 1–4 biface-like cleavers, 5–8 cleavers with narrow cutting-edges. Amguid: 1. 3. 5 and 7; Chirki: 2. 4. 6 and 8 (after Corvinus, 1983).

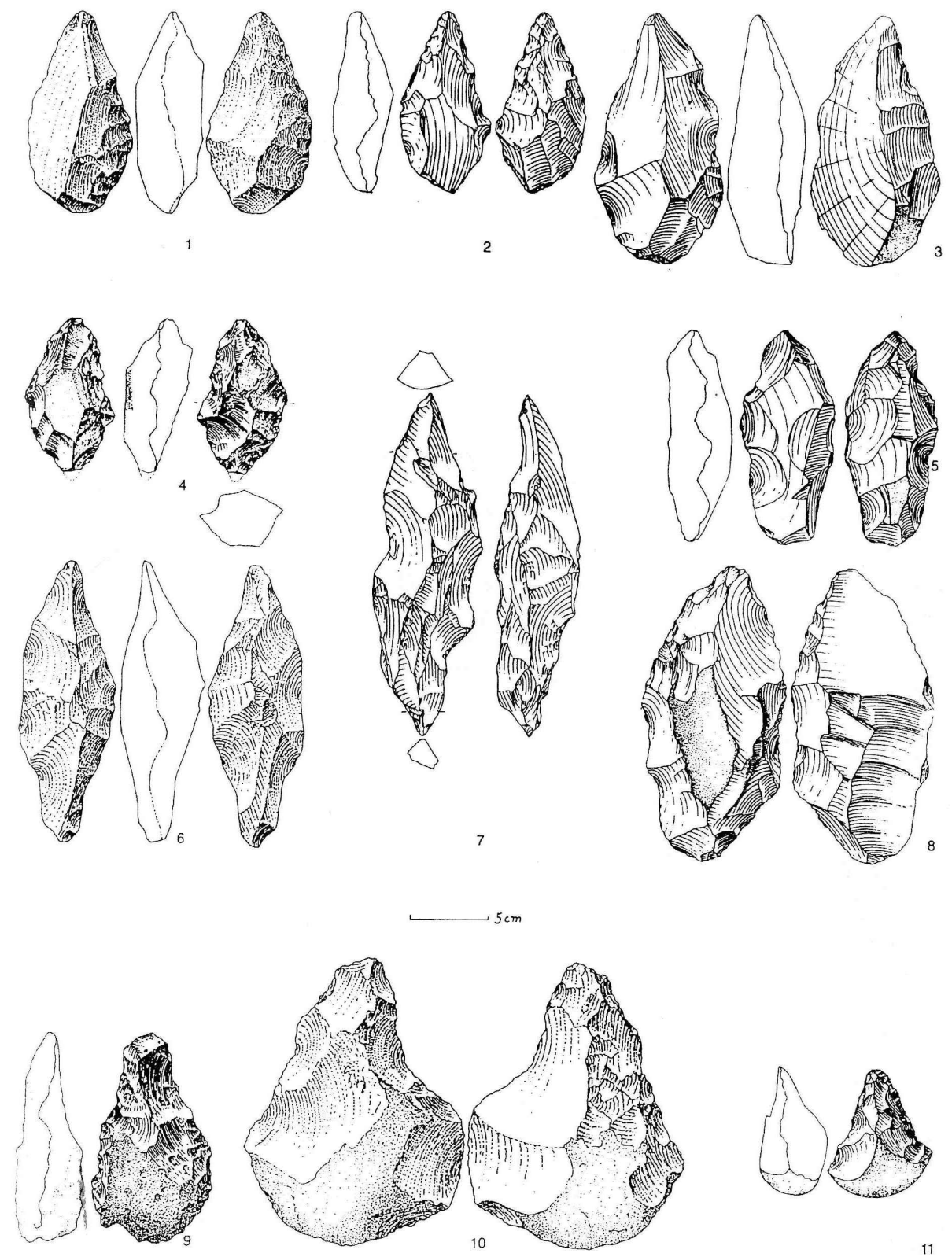


FIGURE 5. Lower Acheulian, handaxes. 1–3 cleaver-like bifaces or handaxes made on cleaver-flakes, 4–8 double-pointed handaxes, 9–11 handaxes with cortex-“talons”. Amguid: 1. 4. 6 and 9; 'Ubeidiya: 7 and 10 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 5. 8 and 11 (after Corvinus 1983).

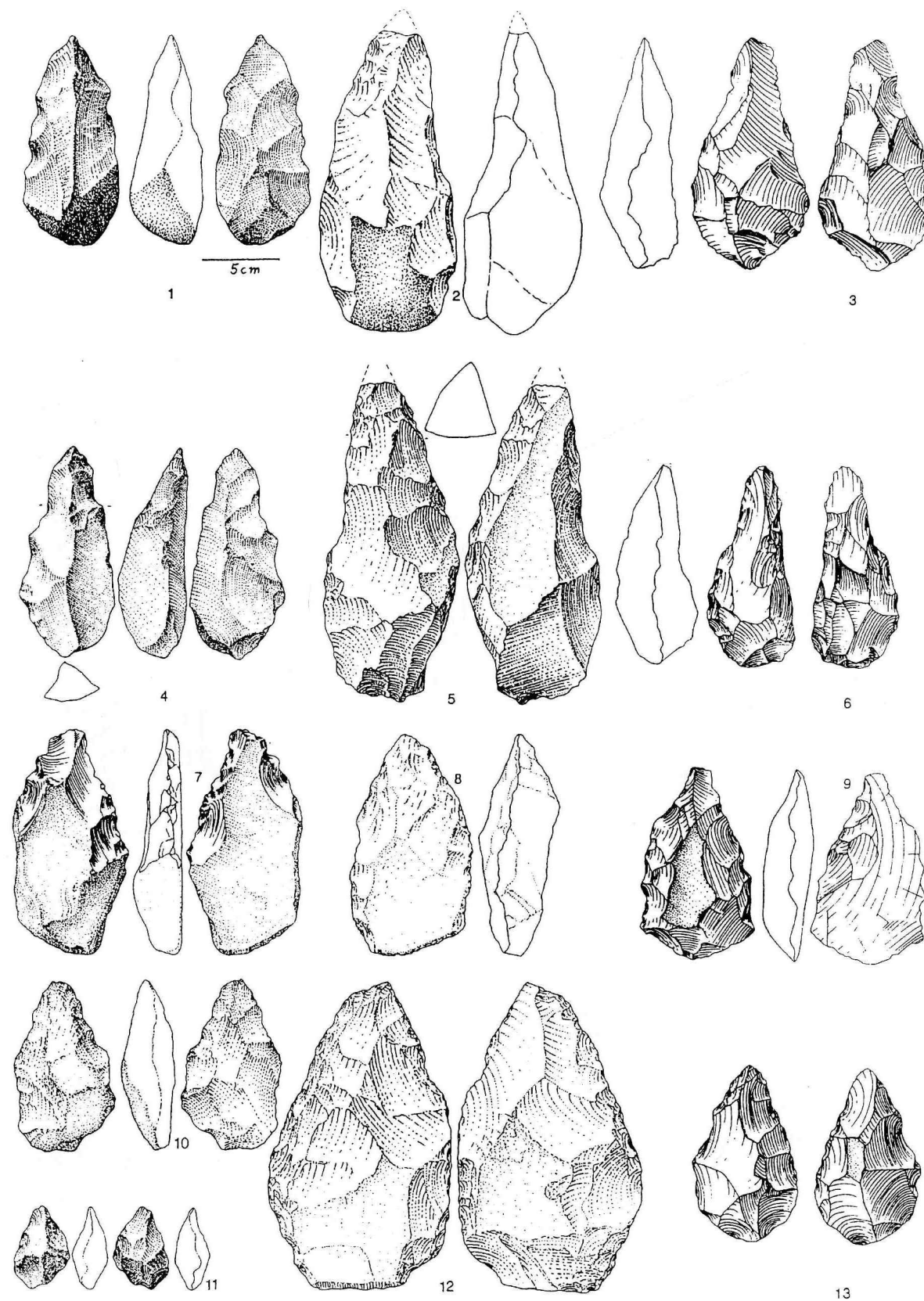


FIGURE 6. Lower Acheulian, handaxes. 1–9 pointed specimens, 10–13 approximate "ovates". Amguid: 1. 4. 7. 10–11; 'Ubeidiya: 2. 5. 8 and 12 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 6. 9 and 13 (after Corvinus 1983).

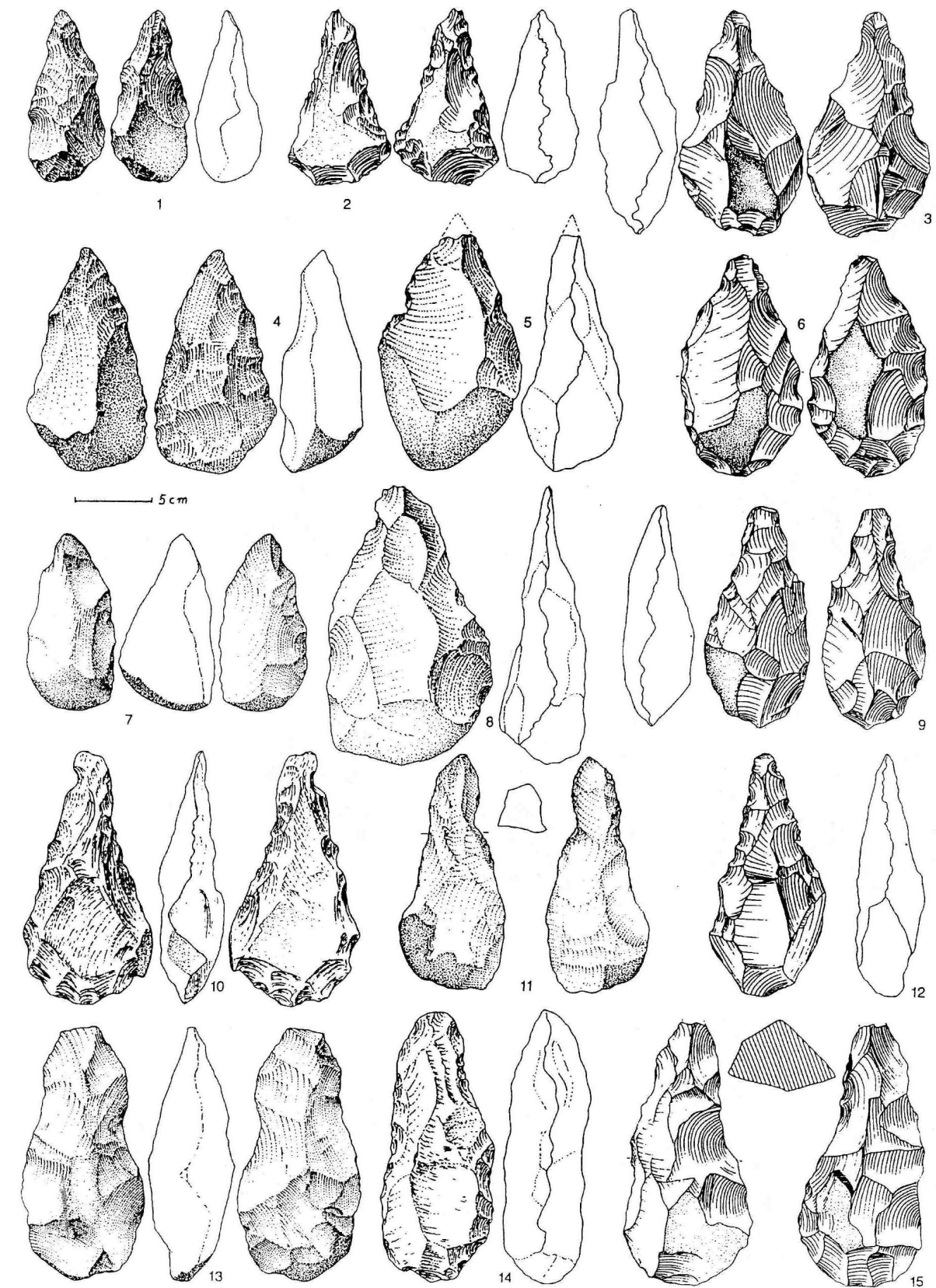


FIGURE 7. Lower Acheulian, handaxes. 1–3 and 9–12 "ficron"-like specimens, 4–8 bifaces shaped by broad and small flaking, 7–8 bifaces with few flake scars, 13–15 tongue-shaped handaxes. Amguid: 1. 4. 7. 10 and 13; 'Ubeidiya: 2. 5. 8. 11 and 14 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 6. 9. 12 and 15 (after Corvinus 1983).

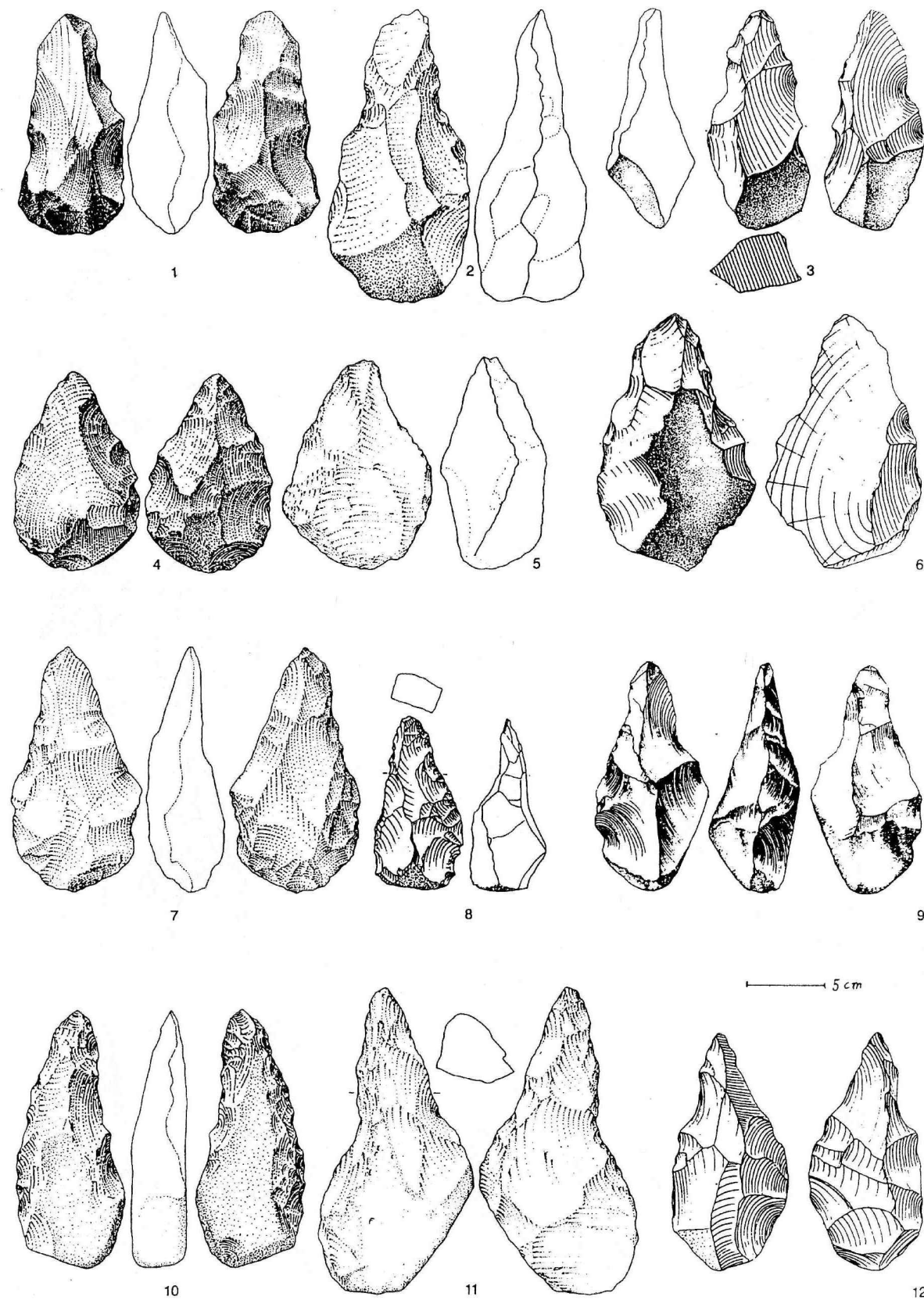


FIGURE 8. Lower Acheulian, handaxes. 1–3 tongue-shaped bifaces, 4–6 bifaces made on flakes, 7–9 "ficron"-like handaxes, 10–11 bifaces with asymmetrical points. Amguid: 1. 4. 7 and 10; 'Ubeidiya: 2. 5. 8 and 11 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 6. 9 and 12 (after Corvinus 1983).

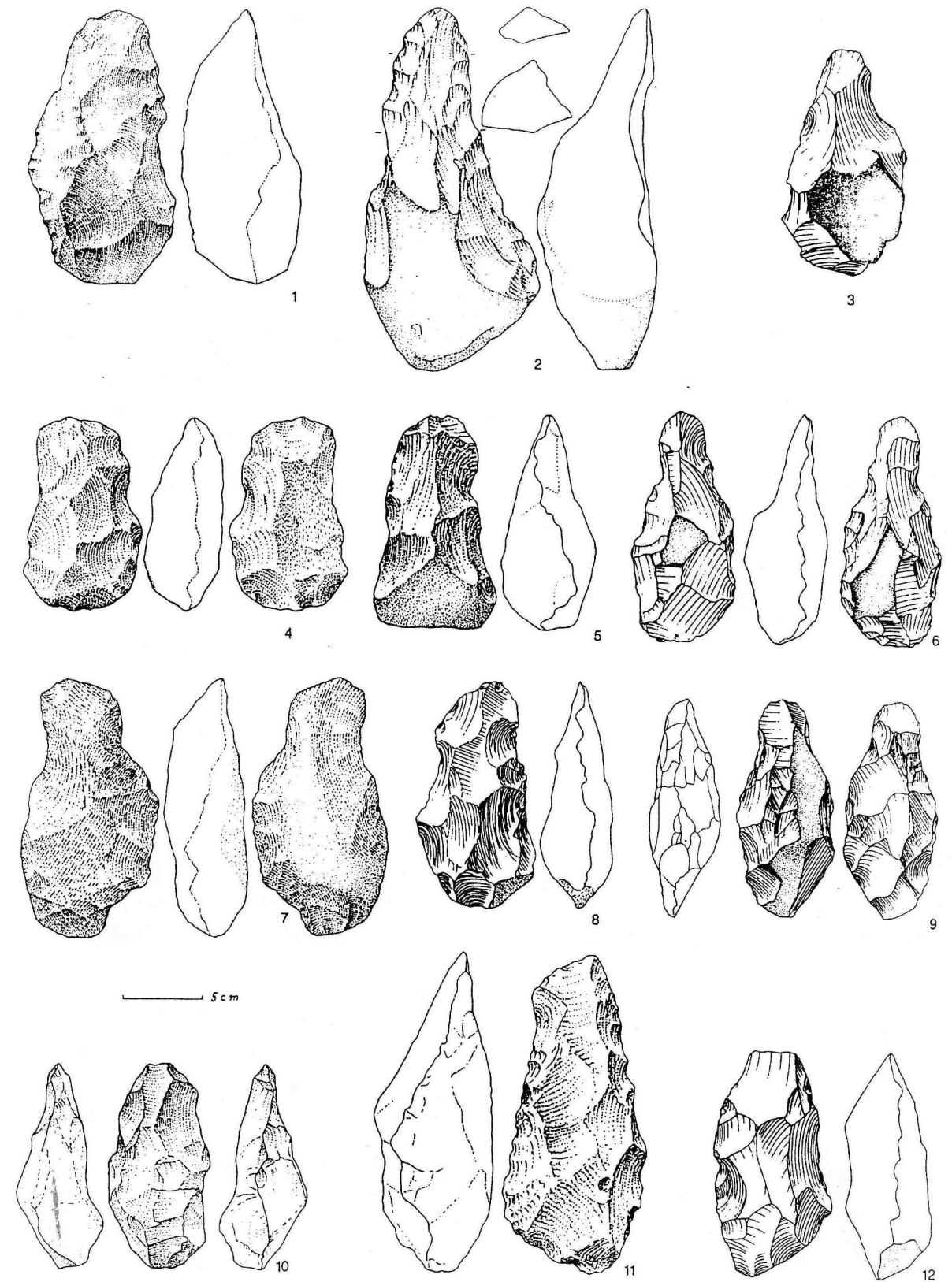


FIGURE 9. Lower Acheulian, handaxes. 1–9 tongue-shaped bifaces, 10–13 tongue-shaped and cleaver-like bifaces. Amguid: 1. 4. 7 and 10; 'Ubeidiya: 2. 5. 8 and 11 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 6. 9 and 12 (after Corvinus 1983).

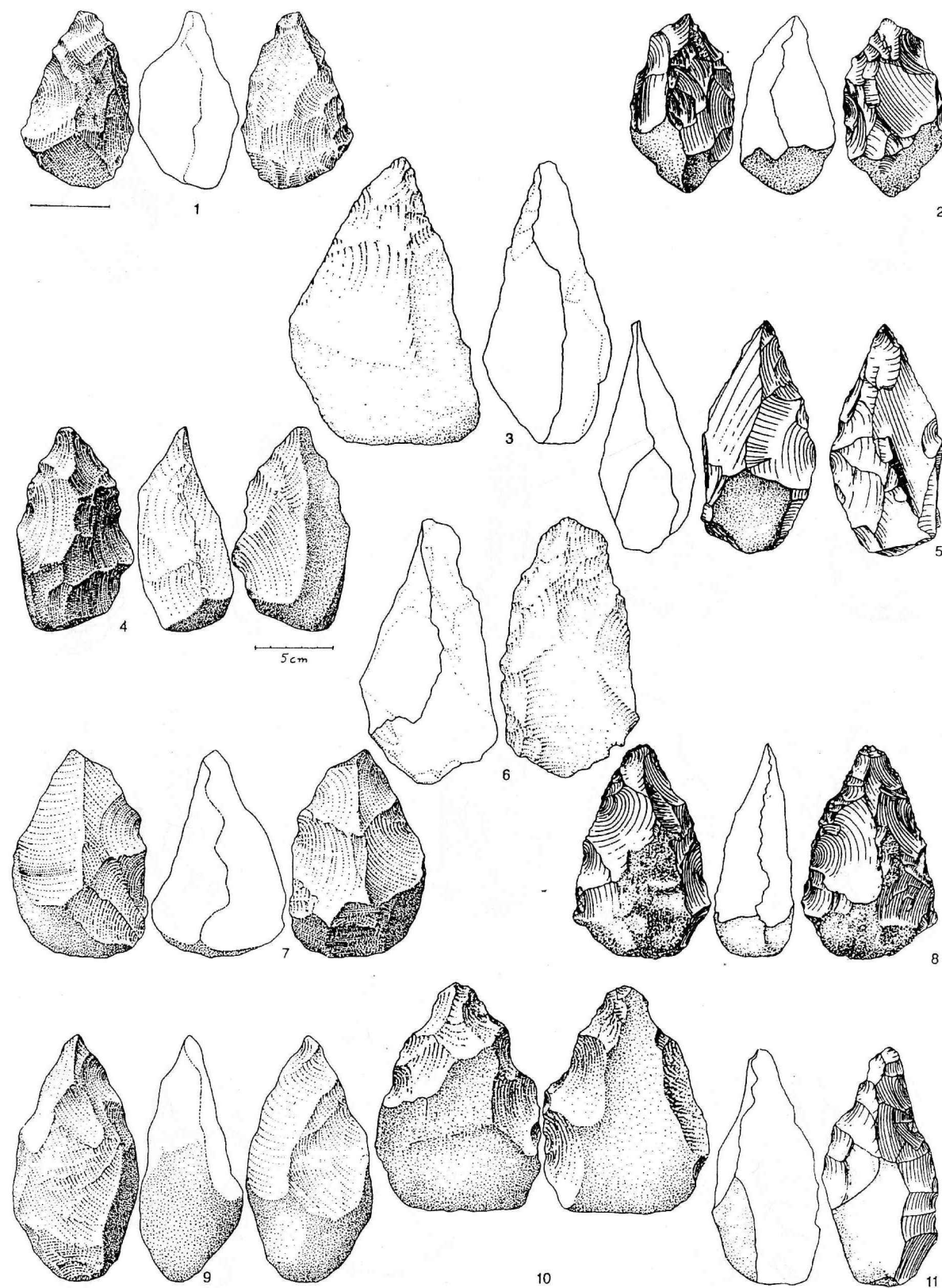


FIGURE 10. Lower Acheulian, sturdy handaxes. Amguid: 1. 4. 7 and 9; 'Ubeidiya: 3. 6 and 10 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 2. 5. 8 and 11 (after Corvinus 1983).

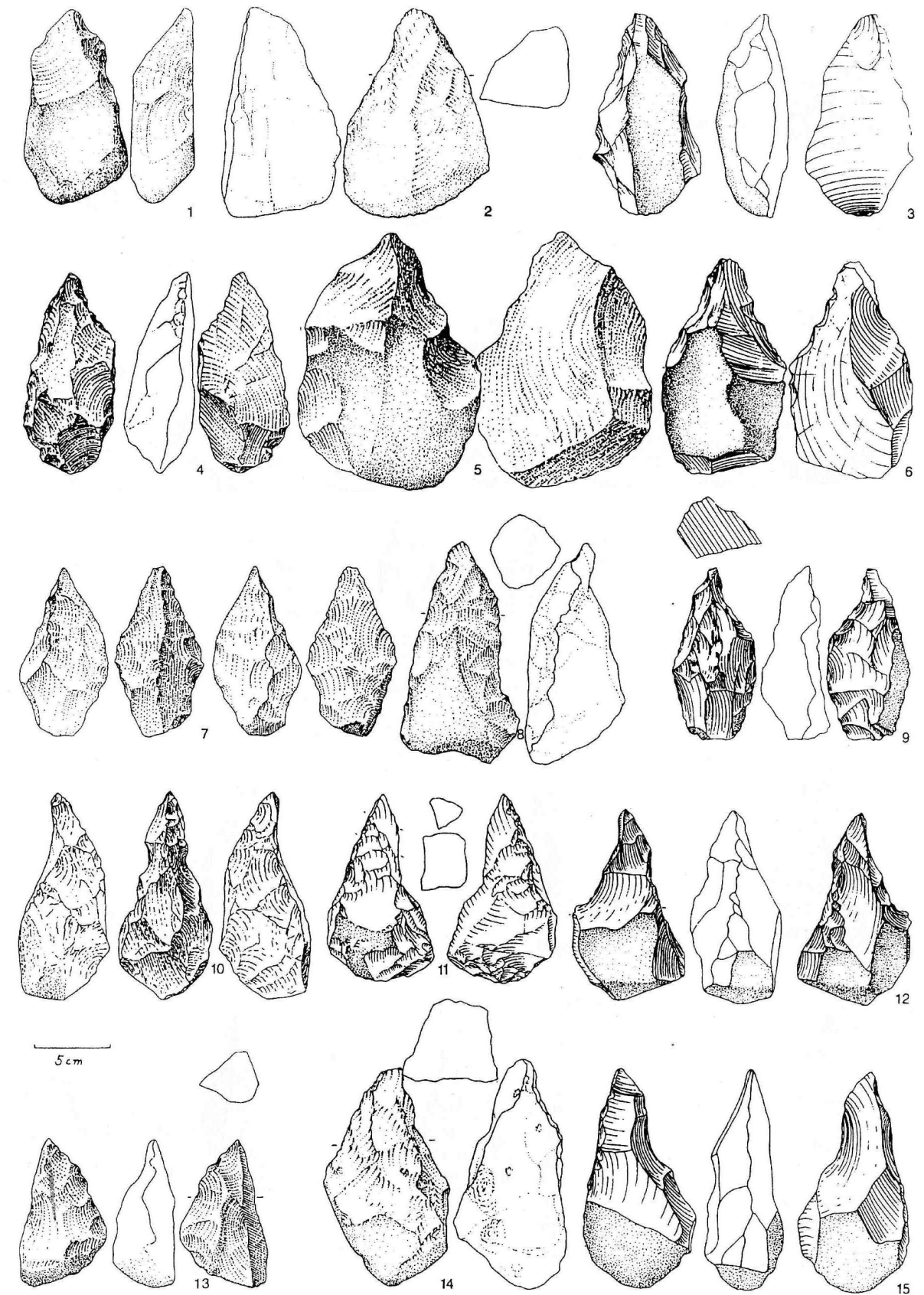


FIGURE 11. Lower Acheulian, picks. 1-6 picks made on flakes, 7-15 "trihedrals". Amguid: 1. 4. 7. 10 and 13; 'Ubeidiya: 2. 5. 8. 11 and 14 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993); Chirki: 3. 6. 9 and 15 (after Corvinus 1983).

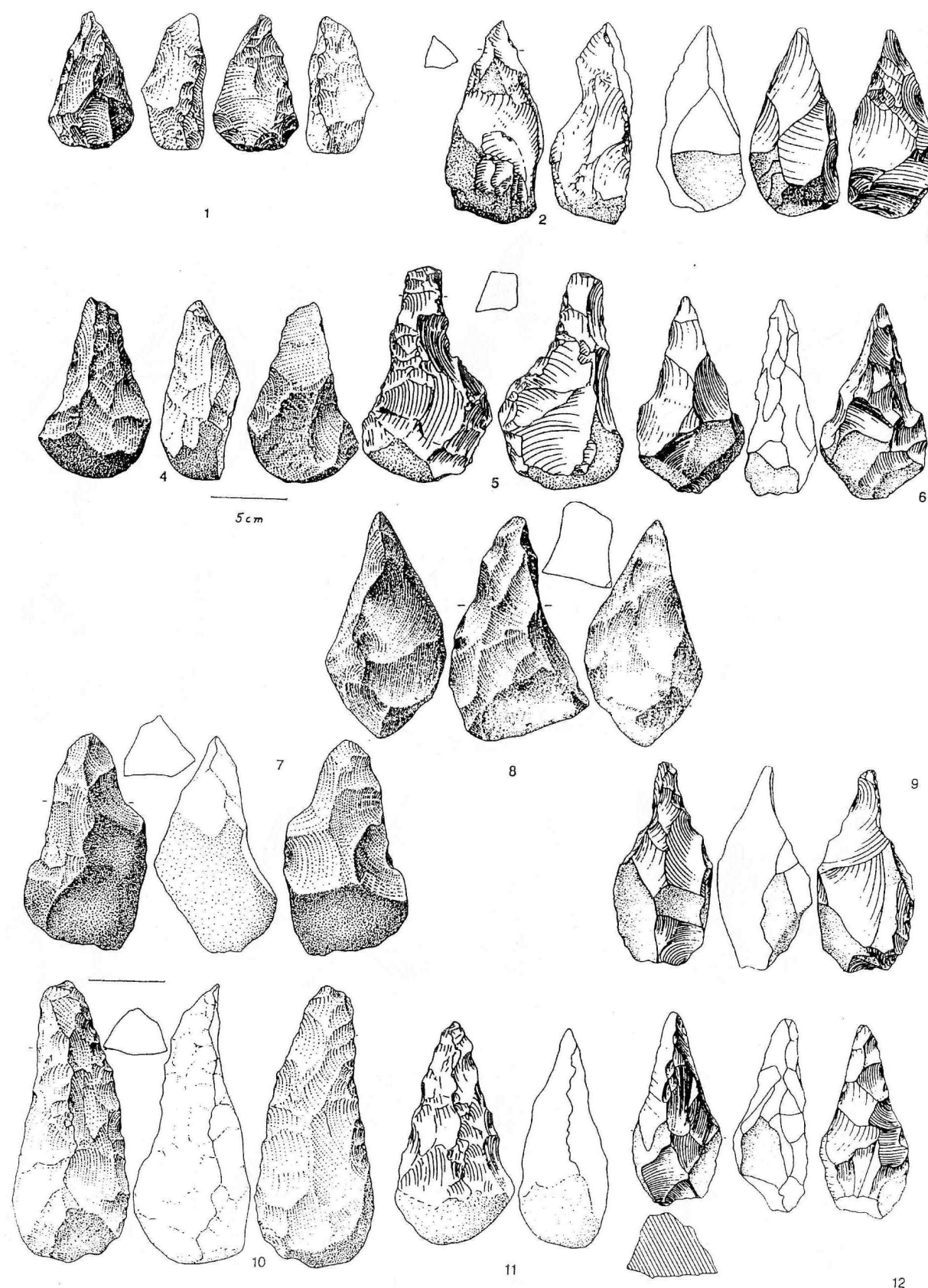


FIGURE 12. Lower Acheulian, picks: trihedrals. Amguid: 1, 4, 7 and 10; 'Ubeidiya: 2, 5, 8 and 11 (redrawn from Stekelis, Stekelis 1966/1969 and from Bar-Yosef, Goren-Inbar 1993, except for 8); Chirki: 3, 6, 9 and 12 (after Corvinus 1983).

on Kombewa-flakes have nearly symmetrical longitudinal sections. At Chirki and Amguid cleavers on prepared flakes are abundant, but they are lacking at 'Ubeidiya.

The shapes of the cutting edges are straight, convex or tongue-shaped, the latter resembling tongue-shaped bifaces (Figure 4, 5–8). The positions of the cutting edges are at right angles to the longitudinal axis and diagonal. Cleavers are difficult to distinguish from bifaces in the case of an extreme diagonal position of the cutting-edge (Figures 3, 1–2; 4, 2, 4). Biface like specimens are cleavers with narrow cutting edges (Figure 4, 5–8). They belong to the only well represented cleaver group at 'Ubeidiya.

The handaxe group B: Bifaces are handaxes *sensu stricto*. They range in size between 4 and 25 cm. Handaxes are made on pebbles, slabs, and flakes. Lower Acheulian bifaces have pointed or tongue-shaped tips and more or less wavy, serrated cutting-edges. Some sturdy ovates resemble discoid cores. Transitional forms between narrow cleavers and tongue-shaped bifaces are abundant at Chirki and Amguid (Figure 9, 4–12). A complete flaking on both sides of a Lower Acheulian biface is rare. When the tools were made on pebbles the butts are usually unworked (Figure 5, 9–11). This is more the case at 'Ubeidiya than at the other sites. Bifacial flaking covers the lengths of handaxes (from these three Lower Acheulian sites) only at an average of 30 to 50 %. Handaxes on flakes often seem to be worked over the whole lengths but the secondary retouch is confined generally to the essential parts (Figure 5, 3).

Particular bifaces show very clearly the realisation of the tool-makers conception: finishing – by steps – until a useable tool is ready. In contrast Upper Acheulian bifaces were finished when an analogous realisation of the complex shape – which was held in the mind – was completed.

The handaxe-group C: The group of picks includes heavy pointed tools more designed for crude perforating and less for cutting (Figures 11 and 12). Their cross-sections are angular and thick. Most of them are made on pebbles or pebble fragments and to a lesser degree on flakes. Archaeologists usually classify picks according to their techniques of production, especially the surfaces used for striking. No rule can be found there, except that the tool-makers used every suitable surface on the rough-outs for striking. It is not really possible to separate picks from narrow bifaces with thick points (Figure 12, 10–12) as well as from pointed choppers (Figure 11, 1–3). Trihedral picks are very characteristic tools of the Early Handaxe Culture. Similar specimens have been found at Amguid, 'Ubeidiya and Chirki. Picks of minor size, less than 5 cm in length have to be classified as pointed tools of the light-duty tool group (Figure 2, 11–13). They are very common at campsites of the Lower Palaeolithic. They are – for example – the most frequent tools at Mauer.

The comparison of the inventories from Chirki-on-Pravara (India), 'Ubeidiya (Israel) and Amguid West (Algeria) shows strong similarities between their respective techniques of production, their typological variabilities and

their tool-kits. One encounters almost exactly the same types at all three sites: simple, cubic, and globular cores, some discoids, simple flakes, light duty tools, choppers, picks, and handaxes. Chirki and Amguid have almost the same technique of special cleaver flakes which in 'Ubeidiya seems to be rare. This may be caused by the different ages. Possibly the Indian and the North African sites have half the age of 'Ubeidiya. The frequent use of the cleaver flake-technique can be seen as a progressive element in the slow cultural development of the Early Handaxe Culture. Naturally it is most frequent at sites where heavy cobbles or blocks are abundant, which were split or flaked, before it was possible to realise most of the wanted cleaver-types.

Stone tools of the Early Handaxe Culture are usually rough and crude. Their edges show no further refining. They seem to have been finished when they were just ready for use. In contrast to Upper Acheulian artefacts their shapes are inaccurate. Probably the maker of an Early Acheulian tool had more an idea of how to finish a traditional object for a special task than a complete picture of a type in his brain (Fiedler 1993b). His concept of tool-making focused not on strong formalisation and standardisation of the final product but on the effectiveness of the process. It is not the clumsiness of the tool-maker, but his simple structured logic that is the reason for the relative crudity of the tools. He must have had a simple functional (by steps-) thinking, which is still preserved in our modern thinking as a primary concept of tools. Ask someone what a knife is: Normally the first part of the answer is something like "cutting-tool". This is not a morphological but a functional description. If we could ask a *Homo erectus* what a handaxe is, he would probably explain its use and realisation. It would be hard for him to describe the abstract idea of the complex shape and design. But he would know what a handaxe is, therefore it must have been symbolised in his mind and in the minds of his contemporaries. Handaxes were classified in their minds, because they are different from scrapers, borers, or wooden spears. Classification needs ideas, words and hierarchy of symbols. Without these a clear conception of the one million years of the Early Handaxe Culture in the huge area from Eastern Asia to the Atlantic is not explicable. The similarity of inventories from India to Africa does support my theory of a steady and fundamental basis of ideas in the Lower Palaeolithic and a slow flow of information in a widespread web of communication.

The extremely slow development of the Early Handaxe Culture was based on the apparently functional thinking that is to be seen in stone-tool manufacturing. An Acheulian tool-maker could uphold his personal identity and his self-perception as a member of the (human) group only in fulfilling traditional activities and behaviour. Linear, additive and functional thinking did not allow any cultural innovations.

This brief review of the tools of Chirki, 'Ubeidiya and Amguid suggests that Lower Acheulian tools out of an area of more than 7,000 km in extension are comparable

and similar. The correspondence of technique and morphology of the inventories shows that the Early Handaxe Culture was the mode of life in the human world over a long period of one million years. In this world Europe played a late and marginal role, but was part of it. The finds of Atapuerca, Venta Micena, Sartalejo, Pinedo, Soleihac, Venosa, Isernia, Kärlich, Mauer, and so on, show that the web of information (cultural and genetic) covered Europe as well. This does not mean that all inventories – as special tool-kits – include handaxes, but they all show the same conception of tool-making.

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