

## NOTES ON THE GROUND AND POLISHED STONE AXES OF EAST AFRICA.

BY MARY D. LEAKEY.

During the last thirty years, a number of polished stone axes have been discovered in East Africa. The majority of these have been chance finds made by farmers in the course of ploughing or other agricultural activities, with the result that little reliable evidence has been recorded concerning associated material or stratigraphy. In spite of this regrettable lack of data, the five types of axe represented among the 22 complete specimens known to exist appear to be sufficiently interesting and their occurrence in Kenya and Tanganyika, of sufficient importance to merit a short description.

Since the term "neolithic" is frequently applied to ground and polished stone implements and since it is permissible to assume for the present that the East African axes belong to this cultural phase, it may not be out of place to summarise the bases on which the term is applied in the area under review.

It seems that for the greater part of Africa, excluding the Egyptian field, the characteristics of the neolithic stage in cultural development are generally recognised as being somewhat different to those understood for Europe. There, the combination of agriculture, the domestication of stock, pottery and the grinding and polishing of stone implements are usually considered essential criteria and are frequently found together in the same context. In East Africa, on the other hand, where our knowledge is still extremely scanty, although two or more of the above features may be present, all four have not hitherto been discovered in association. Such negative evidence cannot, however, be regarded as particularly significant owing to the fact that the known characteristics of many cultures are still confined to the one-sided and incomplete evidence supplied by either a habitation or a burial site.

Pottery may be accepted as an early development in the area, but we have no reliable indications as to the date or phase at which agriculture, the domestication of animals and the grinding and polishing of stone implements were introduced. Moreover, it is unreasonable to assume that such radical changes were adopted contemporaneously by the whole population, which, as in modern times, presumably consisted of a number of different tribes living in varying stages of development who would necessarily borrow cultural elements from one another gradually and as opportunity arose: some continuing to live as hunters whilst others became fully-established agriculturalists and pastoralists.

From the available evidence, it appears that the makers of the East African cultures in the Rift Valley area, known as the Aurignacian phase C, the Wilton A and B, and the Elmenteitan<sup>(1)</sup> subsisted mainly as hunters and may be correctly described as Mesolithic on chronological grounds and because there appear to be no marked cultural changes to differentiate them from the Upper Palaeolithic other than the development of pottery, and, always excepting the anomalous Elmenteitan, an increasingly microlithic tendency in the industries. At some point in this phase we have the widespread appearance of the stone bowl, of querns and of pestle-rubbing stones at many sites of otherwise very different cultural facies, all of which, however, appear to be directly evolved from one or other of the Mesolithic industries. These new features are further accompanied by the adoption of systematic burials in cemeteries or mounds, many of which involved massive structures and may be taken to indicate a more settled mode of life. Using the term for the present in a somewhat localised sense, it is suggested that contexts in which stone bowls, querns and rubbing stones occur, together with systematic burials, may justifiably be described as Neolithic. On this basis, the Hyrax Hill, the Njoro and the Gumban A and B<sup>(2)</sup> variants of the Stone Bowl Culture would be included, although it is only in the last-mentioned that the existence of domestic sheep and cattle has been proved.

It is obviously outside the scope of this paper to discuss the complicated question of chronology in any detail, and future research must undoubtedly alter our present conception of the cultural factors involved. It may be stated, however, that the former non-hunting tribes of the Rift Valley area appear to have continued more or less in a Neolithic stage of culture from Mesolithic times until the advent of iron. The period at which this took place remains uncertain, but there is little reason to postulate an early date, since, whether it was introduced by an overland route from the north or by means of coastal trade, it is unlikely to have reached the area under review until well within the Christian era. Such meagre evidence as exists in the form of beads and other trade goods from the coast, which have been found associated with iron objects, would seem to indicate that the coastal route is the more probable.

It must be emphasised that the definition of the East African Neolithic suggested above is purely tentative, subject to amendment and revision as further evidence becomes available.

Among the polished stone axes found in East Africa, it is possible to distinguish five distinct types in which, however, some minor variations occur. The majority of the specimens appear to have been pecked and not ground into shape before the final polishing of the surface took place. With the exception of two centrally-grooved axes from Mombasa, no one type is confined to any particular geographical region, although, as will

be seen from the map, Plate 29, a marked concentration of finds occurs in the region of Molo, Njoro and Naivasha. The distribution does in fact coincide very closely with the areas of European settlement in which farming activities have been responsible for the discoveries. There is every reason to suppose, however, that the axes were more widely diffused and that other specimens will one day be found in districts which are at present undeveloped and little known from an archaeological point of view.

The five types of axe and the specimens in each category may be described as follows:—

1. TYPE A, CELTS (Plate 30. Fig. 2. Nos. 1—8).

Celts in which the butts are relatively narrow although the width and form of the cutting edges is variable. Two specimens show expanded and markedly curved cutting edges and are typologically identical although differing in size; four are sub-triangular in form with nearly straight sides diverging to the cutting edge; one is more or less parallel-sided, with only a slight expansion at the cutting edge, and the eighth specimen narrows at both extremities and is of the biseau type.

(1) *Njoro, Forest Farm.*—Material: dolerite. Length 133 mm. Maximum width 77 mm. Entire surface polished although slight pitting can still be seen, especially towards the butt. Cutting edge curved and widely expanded. Butt end relatively narrow and slightly battered. Found in 1927, during the digging of trenches for the foundations of a house built for the late W. Sewall, Esq. The site was visited by Dr. Leakey shortly after the discovery had been reported and from a hurried examination he records that: "The foundation trenches exposed a number of shallow graves, in one of which a polished axe was found . . . Unlike any of the burial sites of other cultures so far found in Kenya, this site consisted of full-length graves for extended burials and all the graves exposed were parallel to each other. Unfortunately most of the human bones had disintegrated completely and only a few small fragments were found, but several small pieces of pottery and a number of obsidian flakes were found."<sup>(3)</sup> This site has since been almost entirely built over. (Coryndon Museum collection V7.16.)

(2) *Molo, Marindas Estate.*—Material: dolerite. Length 83 mm. Maximum width 55.5 mm. The cutting edge is rounded and relatively broad, as in the specimen from Forest Farm, Njoro. Butt end pecked but undamaged, remainder of surface smoothly polished. Discovered five or six years ago by the late Mr. C. T. Soames in the course of cultivation on his farm. A number of obsidian flakes and some unidenti-

fiable potsherds were also found in the same area. (On loan to the Coryndon Museum, V7.11.)

(3) *Naivasha, Karati River*.—Material: dolerite. Length 88 mm. Maximum width 64 mm. Sub-triangular in form with a relatively broad straight cutting edge, damaged by use. The upper and lower faces are somewhat flatter than is usual. Surface polished with the exception of the area near the butt, which shows pitting. Found by Mr. J. Wilson at a depth of 15 feet during the digging of a well near the lower reaches of the Karati River. (Coryndon Museum collection V7.3.)

(4) *Mau Summit, Kamara Estate*.—Material: dolerite. Length 117.5 mm. Maximum width 66 mm. Sub-triangular specimen with tapered butt and straight sides diverging to the cutting edge which is oblique and markedly sinuous. This feature may be due to resharpening after use since the edge is thick in section and somewhat blunt, although no chipping is visible. Cutting edge and lower part of implement polished, remainder evenly pecked. Found by Mr. Hemphill; no further data available. (Cast in Coryndon Museum, V7.17; original retained by discoverer.)

(5) *Kikuyu, Alliance High School*.—Material: dolerite. Length 67 mm. Maximum width 54 mm. Small, sub-triangular celt with flattened butt which is wider than is usual. The sides are nearly straight and diverge to the cutting edge which is curved and slightly chipped by use. With the exception of a polished area on either face near the cutting edge, the surface is pecked. Found by Mr. Cooper in a road cutting near the Alliance High School, during 1942. (Coryndon Museum collection V7.18.)

(6) *Sotik*.—Material: dolerite. Length 81 mm. Maximum width 60 mm. The cutting edge is sharp and curved with a slight twist; a feature which is also present on the celt V7.17. Butt rounded. Sides almost straight, but showing a slight constriction in the central portion. Surface smoothly polished near cutting edge, remainder pecked. Found by Major Dowson Currey on his farm at Sotik, and reported to have been associated with round stone balls in a deposit of murram. (Coryndon Museum collection V7.19.)

(7) *Kamasia Reserve, Kararuswa Location*.—Material: a fine-grained basic igneous rock. Length 82.5 mm. Maximum width 44 mm. A somewhat elongate, narrow specimen in which the lower-third only is polished, the remainder of the surface being pecked. Found by Mr. D. Storrs-Fox, District Commissioner, during 1924. (On loan to the Coryndon Museum, V7.2.)

(8) *Uasin Gishu Plateau*.—Material: olive green granitic rock. Length 66 mm. Maximum width 34 mm. The relatively narrow cutting edge of this implement is formed by

the intersection of two polished surfaces which are flat and not convex as in the remainder of the series, causing the edge to be chisel-shaped. Excepting these two planes, the surface is pecked all over. Original presented to the South African Museum by the Rev. J. du Plessis. (Cast in Coryndon Museum, V7.4.)

TYPE B, HORNED OR LUGGED AXE (Plate 30. Fig. 2. (No. 9).

(9) *Molo, Leigh Farm.*—Material not identified. Length 166 mm. Maximum width 103.5 mm. Only one axe of this type is known. The butt is convex and greatly expanded laterally to form a massive lug or horn on either side. The lugs project well beyond the sides of the implement which is elliptical in cross section. The cutting edge is curved and sharp, and the sides nearly parallel although there is a slight constriction below the projecting lugs. Entire surface smoothly polished. Found by Mr. J. Henley during the digging of a well. Original retained by discoverer. (Cast in Coryndon Museum, V7.12.)

TYPE C, BOSSED OR KNOBBED AXES  
(Plate 31. Fig. 3. Nos. 10—14).

Seven complete and one fragmentary axe of this type are known. They vary from elongate to relatively short, squat specimens exhibiting in every case a boss or knob on either side of the butt which is concave in the centre. The sides are generally almost parallel but in one specimen converge towards the cutting edge. (Two of the complete specimens, obtained by Dr. Kohl-Larsen from Tanganyika Territory, cannot be described in these notes since they are now housed in a Berlin museum. Details of a third specimen have likewise had to be omitted since it is in the Cambridge Museum of Archaeology and Ethnology.)

(10) *Kinangop Plateau, altitude of 9,000 feet.*—Material: lava with augite crystals. Length 195 mm. Maximum width 103 mm. A massive, roughly-made implement, sub-rectangular in form with nearly straight, parallel sides. The butt is slightly concave and shows two incipient bosses which are not so pronounced as in the other axes of this type. The surface is pecked all over, including the area near the cutting edge which has also been heavily chipped and damaged by use. Found on the surface by Mr. Allen Turner during March, 1932. (Coryndon Museum collection V7.7.)

(11) *Kinangop Plateau, Hindmarsh Farm.*—Material: ? lava. Length 131 mm. Maximum width 64 mm. Elongate specimen with rounded cutting edge. The butt is markedly concave and both sides are slightly constricted below the

bosses. Entire surface pecked and not polished. Discovered during 1938 by Mr. Hindmarsh while ploughing land for pyrethrum. The site also yielded three complete and two fragmentary stone bowls, six pestles, a lower grindstone, potsherds and some obsidian implements. Although these objects were all obtained from the surface, they appear to have been derived from the same level within a limited area and may be presumed to be associated. (Coryndon Museum collection V7.10.)

(12) *Machakos District*.—Material: dolerite. Length 85.5 mm. Maximum width 72.5 mm. Entire surface polished. Cutting edge sharp and narrow in relation to the width of the butt; this is concave and shows two well-defined bosses. Discovered some years ago by Mr. Wilson during ploughing. A number of small stone burial mounds occur near the site of the discovery and it is possible that the axe was derived from one of these, since a number have been disturbed by cultivation. (Coryndon Museum collection V7.13.)

(13) *Eldama Ravine*.—Material: dolerite. Length 84.5 mm. Maximum width 80.5 mm. A short, squat implement in which the surface is carefully polished with the exception of the butt. This is concave and shows two particularly massive bosses which are pitted and also appear to have been damaged by use. The cutting edge is much chipped and has been worn obliquely. This was the first polished stone axe to be found in Kenya, and has been previously described.<sup>(4)</sup> It was discovered in 1913, by Major Ross, D.S.O., at a depth of three feet among the roots of a tree which was being felled. (Coryndon Museum collection V7.14.)

(14) *Gilgil River Railway Bridge*.—Material: dolerite. A fragment consisting of one boss and part of the butt end of an axe of Type C. Found by Professor van Riet Lowe during 1937, in an erosion gully on the left bank of the Gilgil River near the railway bridge. In the same exposures and apparently derived from the same level, were found a number of obsidian implements, a grooved stone, a pestle and half a small bored stone made from quartzite. (Coryndon Museum collection V7.15.)

TYPE D, "HACHES A GORGES" WITH GROOVES AT THE BUTT END (Plate 31. Fig. 3. Nos. 15 and 16).

The two specimens in this class show nearly flat butts. In one specimen, this is completely encircled by a single broad groove, whilst the groove in the second is oblique and not continued on one lateral edge. The width of the cutting edges is very different in the two specimens, one of which, from Kisumu, is wide and curved, whilst the other, from Njoro, is narrow and chisel-shaped.

(15) *Kisumu Township*.—Material: dolerite. Length 119 mm. Maximum width 72 mm. Entire surface smoothly polished. Broad, rounded cutting edge and relatively narrow butt which is markedly flattened and shows a single, oblique, transverse groove approximately 22 mm. wide on the upper and lower faces and on one lateral edge. Found on the surface by Mrs. B. V. Shaw. (Coryndon Museum collection V7.5).

(16) *Njoro (ten miles south of)*.—Material: ? lava. Length 98 mm. Maximum width 53.5 mm. Entire surface polished. Broad rounded cutting edge and relatively narrow and also at the butt. Narrow cutting edge and a flat, relatively broad butt encircled by a groove approximately 25 mm. in width. Both the cutting edge and the butt have been slightly damaged by native farm hands before the implement was taken over by Mr. Cowling, on whose farm it was found. (Coryndon Museum collection V7.9.)

TYPE E, "HACHES A GORGES" WITH CENTRAL GROOVES  
(Plate 31. Fig. 3. Nos. 17 and 18).

Both these implements were found at Mombasa and appear to be quite distinct from the up-country grooved axes on a geographical as well as on a typological basis. They have, therefore, been classed separately although both types fall under the heading of "*haches à gorges*." In one example, there is a single transverse central groove and in the other, three parallel grooves, also placed centrally. Both are flat-sectioned and considerably more crude and irregularly shaped than the axes from the interior and suggest that the form may be largely dependent on the use of natural pebbles. Although the grooves have been pecked out, there is no trace of the pitting commonly found on the surface of the up-country specimens and the presence of some striae indicate that these two axes were ground into shape before being polished.

(17) *Mombasa, Meritini*.—Material: fine-grained brown sandstone or siltstone. Length 158 mm. Maximum width 101 mm. An oval, flat-sectioned implement. The cutting edge is greatly damaged by use, but a small portion remains intact and it appears to have been originally oblique or only slightly curved. The butt end is also battered. A somewhat irregular transverse groove has been pecked out round the centre of the implement, which, although the greater part of the surface has been ground, is noticeably asymmetrical in form and was perhaps manufactured from a pebble which received only a minimum amount of artificial shaping. Found by the late Mr. J. Rickman. (Coryndon Museum collection V7.8b.)

(18) *Mombasa, Flora Point*.—Material: fine-grained brown sandstone or siltstone. Length 209 mm. Maximum width 86 mm. This axe is very similar to V7.8b in material and general appearance and is clearly closely related although it is more elongate and there are three central grooves instead of one. The butt end is relatively narrow and has been damaged. With the exception of the area near the cutting edge and of a small portion near the butt which have been ground, the surface is rough and not polished. Some asymmetry in form again suggests the employment of a suitably-shaped pebble. Found by the late Mr. J. Rickman. (Coryndon Museum collection V7.8a.)

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In addition to the eighteen specimens described above, one complete and two fragmentary axes are included in the Coryndon Museum collection which cannot be assigned to any particular type; these are as follows:—

(19) *Naivasha, Longonot Sisal Estate* (Plate 30. Fig. 2. No. 19). — Material: probably serpentine or metabasalt. Length 107 mm. Maximum width 60 mm. Only the cutting edge and the lower-half of this implement have been artificially shaped and polished. The butt end is massive and very irregular, with a rough surface which appears to be entirely natural. The unusual sharpness and even curve of the cutting edge, suggesting that it was never used, perhaps imply that this is an unfinished specimen representing a stage in the manufacture of an axe belonging to one of the types described above. It is, however, equally possible that the form is intentional. Found by Mr. D. Macrae. (Coryndon Museum collection V7.6.)

*Naivasha, Eastern Shore*. (Not figured.) Material: ? lava, weathered. Maximum width 40 mm. Both extremities of this small implement have been so severely chipped and damaged that it is not possible to determine the original length or form. The cutting edge, however, appears to have been relatively narrow. Found during May, 1937, by Mr. H. J. Allen Turner on his plot by the shore of Lake Naivasha. (Coryndon Museum collection V7a.)

*Naivasha, Eastern Shore*. (Not figured.) Material: dolerite. A fragment of cutting edge which appears to belong to an implement of average size. Well-polished and evenly-curved. Also found by Mr. H. J. Allen Turner, near the site where the first fragment was discovered. (Coryndon Museum collection V7b.)



#### MATERIALS.

The following notes on the probable sources of the materials have been contributed by the staff of the Kenya Geological Survey, who have been good enough to examine the specimens:—

*The Dolerites* (V7b, V7.3, 5, 11, 13, 14, 15, 16, 17, 18).—

These resemble the newer dolerites supposedly of Karoo age of the goldfields and surrounding areas of the Kavirondo District.

*The Lavas* (V.7, 9, 10).—These are presumably from the Rift Valley Province, from periods of Tertiary and Pleistocene vulcanicity, but cannot be more precisely identified.

*The Siltstones* (V7.8a and 8b).—These are probably derived from the zone of sediments which extend from the coast to about 100 miles inland. They correspond with the description of the Maji ya Chumvi beds of the Duruma sandstone.

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Although the specimens are not available for description in the present paper, mention must be made of three additional bossed axes found in East Africa. Two of these were collected by Dr. Kohl-Larsen in 1933, during an expedition to the Northern Province of Tanganyika Territory. The actual specimens were seen by Dr. Leakey, in 1936, who reports that they are similar in every respect to the Kenya axe V7.13 from Machakos. The Tanganyika axes are alleged to have been discovered in small, stone-covered burial mounds at the Mumba Hills, near the north-east shore of Lake Eyasi, and are said to have been associated with pottery scored on the interior surface, of the type found at Gumban A sites in Kenya. Although the existence of these axes is unquestionable, their exact provenance and alleged association with Gumban A type pottery must be treated with reserve until more precise information is available. It is interesting to note, however, that small burial mounds, similar to those at Lake Eyasi, from which the two axes are said to have been obtained, are also known at the site where the Machakos axe was discovered. The third specimen, which also resembles V7.13, was found on Sir John Ramsden's estate at Kipipiri and is reported to have been associated with stone bowls and some obsidian flakes. This is now in the Cambridge Museum of Archaeology and Ethnology.

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#### SUMMARY.

It will be seen that the only evidence of any value relating to the circumstances of the discoveries concerns the celt V7.16 from Njoro, which may be accepted as being derived from one of

the graves in the cemetery of full-length burials. There are, unfortunately, no indications as to the nature of the associated material and until a fresh site of the period is discovered, there can be no hope of obtaining further information since the Njoro cemetery is now almost entirely built over.\* However, the provenance of a number of the axes found during recent years is known with some exactitude and the sites which have also yielded potsherds and obsidian flakes, etc., indicating the presence of associated remains, would undoubtedly repay investigation. Among these are Mr. Allen Turner's plot at Lake Naivasha; Marindas Estate, Molo; Mr. Wilson's farm, near Machakos; the Gilgil River site; and Mr. Hindmarsh's farm on the Kinangop Plateau. At each of these five sites some apparently contemporary objects have been found in addition to the axes themselves, and it is to be hoped that excavations will be undertaken before the information regarding their exact location has been lost or forgotten.

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A detailed correlation and comparison of the East African axes with those from other parts of Africa would clearly be premature in the current state of our knowledge, but certain points of similarity are so immediately obvious that it may not be out of place to comment on them briefly in this paper, if only for the sake of stimulating research on the further distribution of these axe forms in Africa. It must be stressed, however, that these notes are necessarily incomplete owing to war-time conditions which preclude access to relevant publications and the examination of comparative material. In fact, were it not for the co-operation of Mr. A. J. Arkell, Commissioner for Archaeology in the Sudan, to whom I am greatly indebted, not only for a great deal of information, but also for numerous photographs of specimens, even a short, preliminary note would be out of the question.

The East African celts appear to be of widely diffused and generalised forms, all of which occur in the Congo Basin<sup>(3)</sup> although certain other Congo types, which are also recorded from the Rhodesias, do not appear to have reached East Africa. The type of celt with curved, expanded cutting edge such as the Kenya axes V7.11 and V7.16 is also known in the Sudan and in Eritrea, where several specimens have been found on the surface of an occupation site at Kokan, near Agordat. This site has, moreover, yielded two concave butted axes which may possibly be distantly related to the Kenya knobbed axes with concave butts.

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\*The culture associated with this type of celt was tentatively described by Leakey in "Stone Age Cultures of Kenya Colony," as the Njoroan. On the very limited data at present available, the application of a specific term does not appear to be justified and has not been employed in this paper.

Neither of the Kōkan specimens, however, resembles the Kenya axes very closely, since the cutting edges are splayed and one example also shows a marked constriction below the butt.

Unlike the celts, the lugged or horned axe V7.12 from Molo must be regarded as a highly-specialised form. It has marked resemblances to axes found by Major Last at Ntani Haiek, near Agordat in Eritrea, and although more elongate, it also stands very close to five unpublished stone axes discovered by the Egyptian Exploration Society at a New Kingdom site at Sesibi in the Wadi Halfa District.\*

Mr. Arkell regards both the Agordat and Sesibi axes as stone copies of the Egyptian two-lugged metal axe and there can be little doubt that his view is correct. It would seem likely that the Molo axe must also be ultimately connected with the same metal prototype; local evolution and consequent deviation from the original form being responsible for an increase in length and added convexity of the butt; features which are also present in the Agordat specimens.

Whether the bossed or knobbed axes were a fresh importation to the area, or whether the form was evolved independently as a more practical local development of the lugged prototype must remain an open question for the present. It would seem, however, that the latter is a more likely interpretation, and, if it is, in fact, correct, a transitional stage may possibly be represented by the massive axe V7.7 from the Kinangop Plateau in which neither the bosses nor the hollowing of the butt is as yet very pronounced.

Mr. Arkell informs me that bossed axes are unknown in the Sudan, and I have been unable to learn of any entirely similar specimens from other parts of Africa, the nearest analogy being in the two concave butted axes from Eritrea, mentioned above, which may conceivably represent yet another derivative from the common metal prototype. It should be mentioned that among the series of *haches à gorges* from L'Oued Beth, in Morocco, there is one specimen in which the butt shows a slight concavity.

The two Kenya specimens of *haches à gorges* with butt-end grooves appear to constitute the south-eastern limit of a type distributed over wide areas of North and Central Africa, where they are recorded from Algeria,<sup>(6)</sup> Morocco,<sup>(7)</sup> the South and Central Sahara,<sup>(8)</sup> the French Sudan, the Libyan Desert,<sup>(9)</sup> and the Anglo-Egyptian Sudan. Of these areas, Morocco alone had yielded some ninety specimens in 1938, about fifty of which were obtained from the *débris* of the prehistoric salt mines at L'Oued Beth. Amongst this series, one of the published specimens provides an almost exact parallel to the Kenya axe V7.9, from

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\*I wish to express my thanks to Major Last and to the Field Director of the Egyptian Exploration Society for permission to mention these unpublished specimens.

Njoro. The district of the Southern Sahara bordering on the French Sudan, known as Tenéré, has likewise yielded numerous examples and the Neolithic culture of this area which is characterised by the *haches à gorges*, pottery and querns has been considered sufficiently distinctive to be described specifically as the *Tenéréen*. Considerable numbers of these axes have also been collected from the surface in the Libyan Desert, notably at Wadi Howar and Jebel Tageru; certain specimens from the first area being closely allied to the Kenya axe V7.5, from Kisumu.

It is clear that as in the case of the lugged and bossed axes, in the *haches à gorges* we are dealing with a type either directly imported from elsewhere or developed locally in the areas concerned by parallel evolution from a common prototype. Until further evidence becomes available, particularly as to dating, it is impossible to hazard an opinion as to which interpretation represents the truth, although it should be mentioned that Breuil, Kelley and Reygasse have all suggested an eastern origin for the African *haches à gorges*.

Although axes with central grooves do occur in other parts of Africa, I am not aware of any exact parallels for the two Mombasa specimens. Moreover, since these are from the coast itself, they are likely to have had their origin in sea-borne influence, while the up-country series, whether they are regarded as direct importations or local derivatives from prototypes foreign to the area, are more likely to have reached East Africa by an overland route; possibly through the open country of the Great Rift Valley.

The route by which the polished axe forms reached East Africa must obviously remain problematical until a comprehensive archaeological survey has been made of the neighbouring territories, particularly of the Northern Frontier District of Kenya itself and of Ethiopia; where, on a geographical basis, the same forms might be expected to occur, if they are in fact derived from the north.

The polished axes already recorded from Ethiopia appear to have been collected from only two sites, viz., a series of fifty-seven specimens from the Tuli Kapi Plateau, now in the possession of Professor van Riet Lowe of the University of Witwatersrand,\* and some twenty axes from Iubdo in the Uollega District, West of Addis Ababa.<sup>(19)</sup> The Tuli Kapi series includes blunted triangles, pointed ovates and a sub-rectangular form, none of which seem to have anything in common with the East African axes since the cutting edges alone are polished; the remainder of the surfaces being flaked all over and never pecked.

With the exception of one syenite specimen in which the whole surface has been polished, the axes from Iubdo are also

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\*I am greatly indebted to Professor van Riet Lowe for the information concerning the Tuli Kapi axes.

reported to be flaked and chipped into shape. This series is alleged to have been obtained from a gold working area and from the *débris* of platinum mines, but the association cannot be accepted unconditionally until more reliable information becomes available. No associated material is known for the Tuli Kapi axes.

Turning to the south; a considerable number of polished stone axes have been discovered in Northern Rhodesia, many of which have been prepared by the pecking technique.<sup>(11)</sup> They appear to consist largely of Congo types and include pear-shaped and sub-triangular celts; single and double ended rectangular specimens; a hexagonal form, and also a number made of natural pebbles or rock fragments in which the cutting edges alone have been polished. The sub-triangular and double-ended rectangular types have both been found at Wilton sites; an association which also holds good for a number of axes from Southern Rhodesia.<sup>(12)</sup> In this area, elongate celts with tapered, pointed butts have been found, together with sub-triangular and sub-rectangular forms. A number of specimens made of natural pebbles also occur.

Within the Union of South Africa, polished stone axes become increasingly rare and only a few are described as being shaped entirely by human agency. These, however, include one remarkable perforated specimen from the Transvaal which is reported to have been found with a bored stone or *kwé*.<sup>(13)</sup> A somewhat roughly made axe with a groove partly encircling the butt was found in a rockshelter in Cape Province with a Wilton kitchen midden industry.<sup>(14)</sup> A similar association is also claimed for an elongate chisel-like specimen from East London<sup>(15)</sup>, and these discoveries would seem to indicate that in South Africa, as in Northern and Southern Rhodesia, a proportion of the polished stone axes should be assigned to the Wilton and probably belong to the later phases of that culture represented by the shell mounds of the coastal zone and of the great lakes of Central Africa.

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PLATE 30.

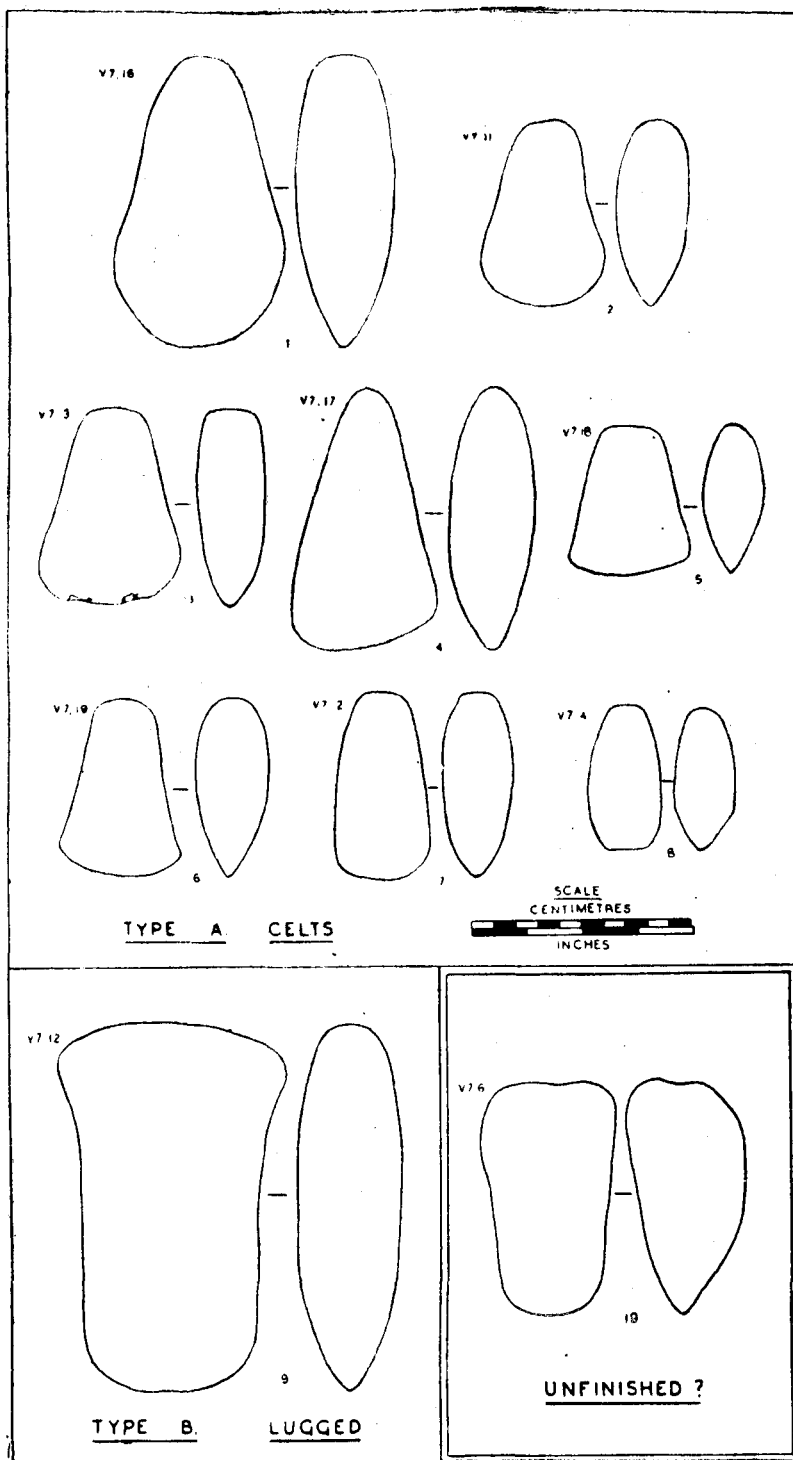


Fig. 2.

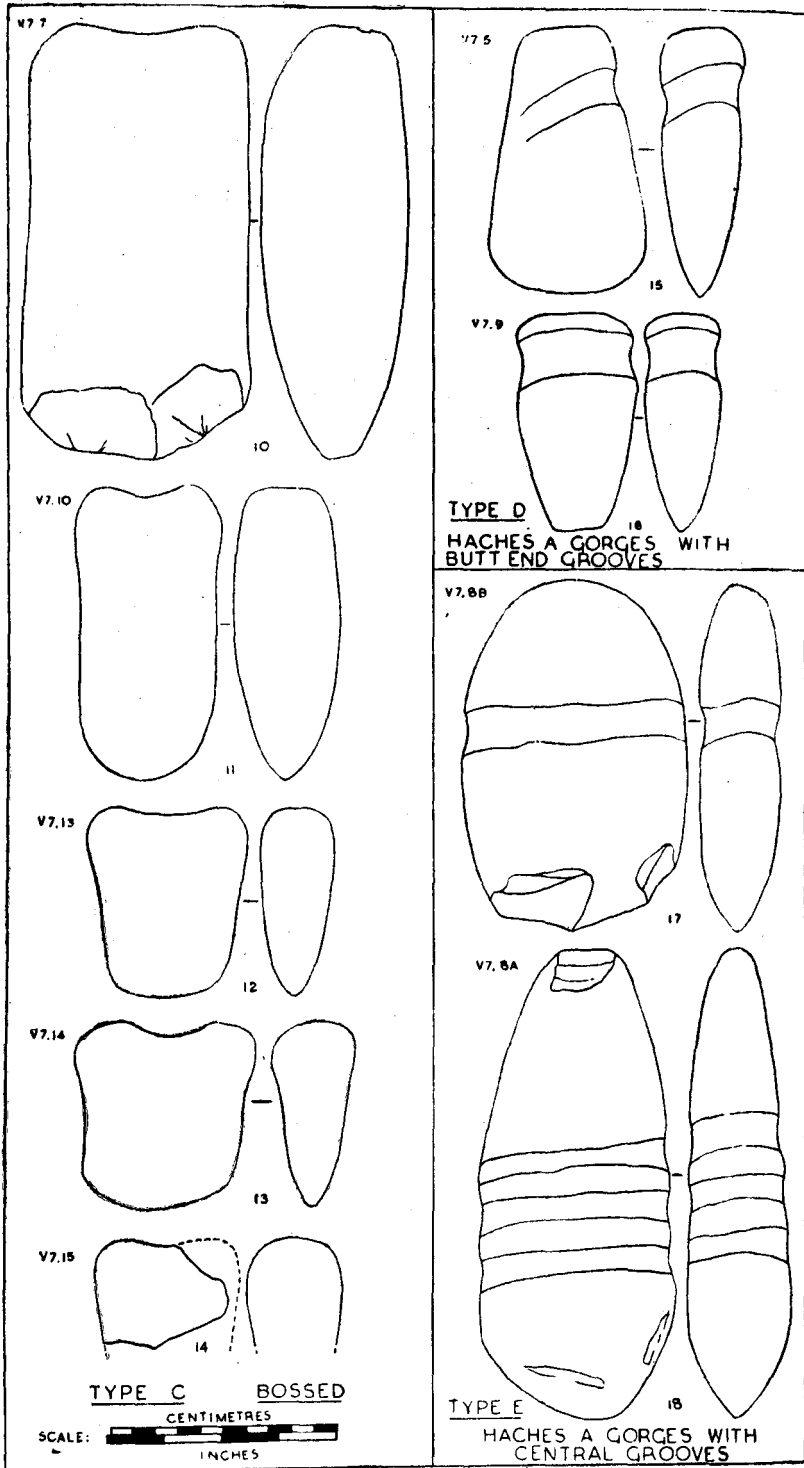
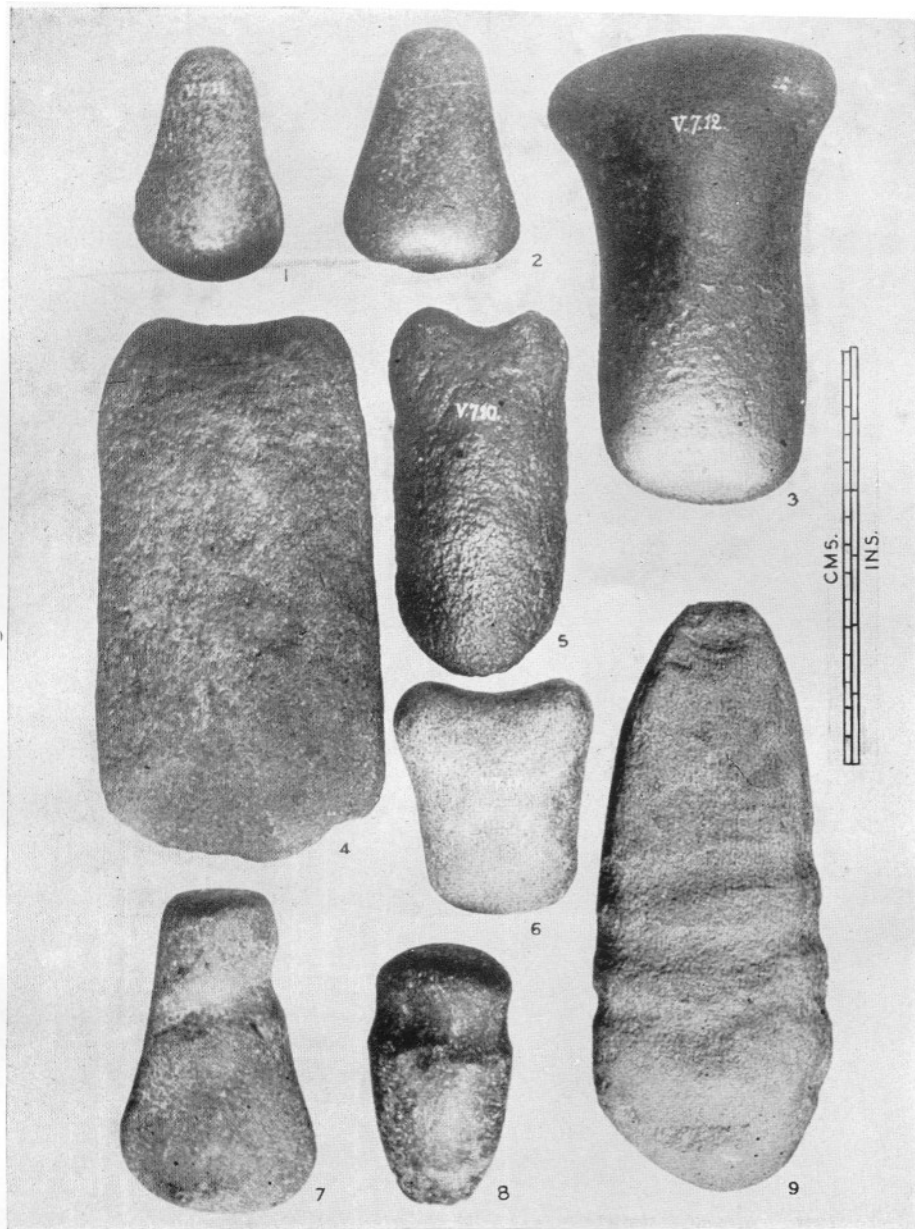


Fig. 3.



TYPES OF EAST AFRICAN POLISHED STONE AXES.

*Type A. Celts.*

- No. 1, V7.11 from Marindas Estate, Molo.  
 No. 2, V7.3 from Karati River, Naivasha.

*Type B. Lugged or Horned Axe.*

- No. 3, V7.12 from Leigh Farm, Molo.

*Type C. Bossed or Knobbed Axes.*

- No. 4, V7.7 from the Kinangop Plateau.  
 No. 5, V7.10 from the Kinangop Plateau.  
 No. 6, V7.13 from Machakos.

*Type D. Haches a Gorges with Butt End Grooves.*

- No. 7, V7.5 from Kisumu.  
 No. 8, V7.9 from Njoro.

*Type E. Haches a Gorges with Central Grooves.*

- No. 9, V7.8a from Flora Point, Mombasa.



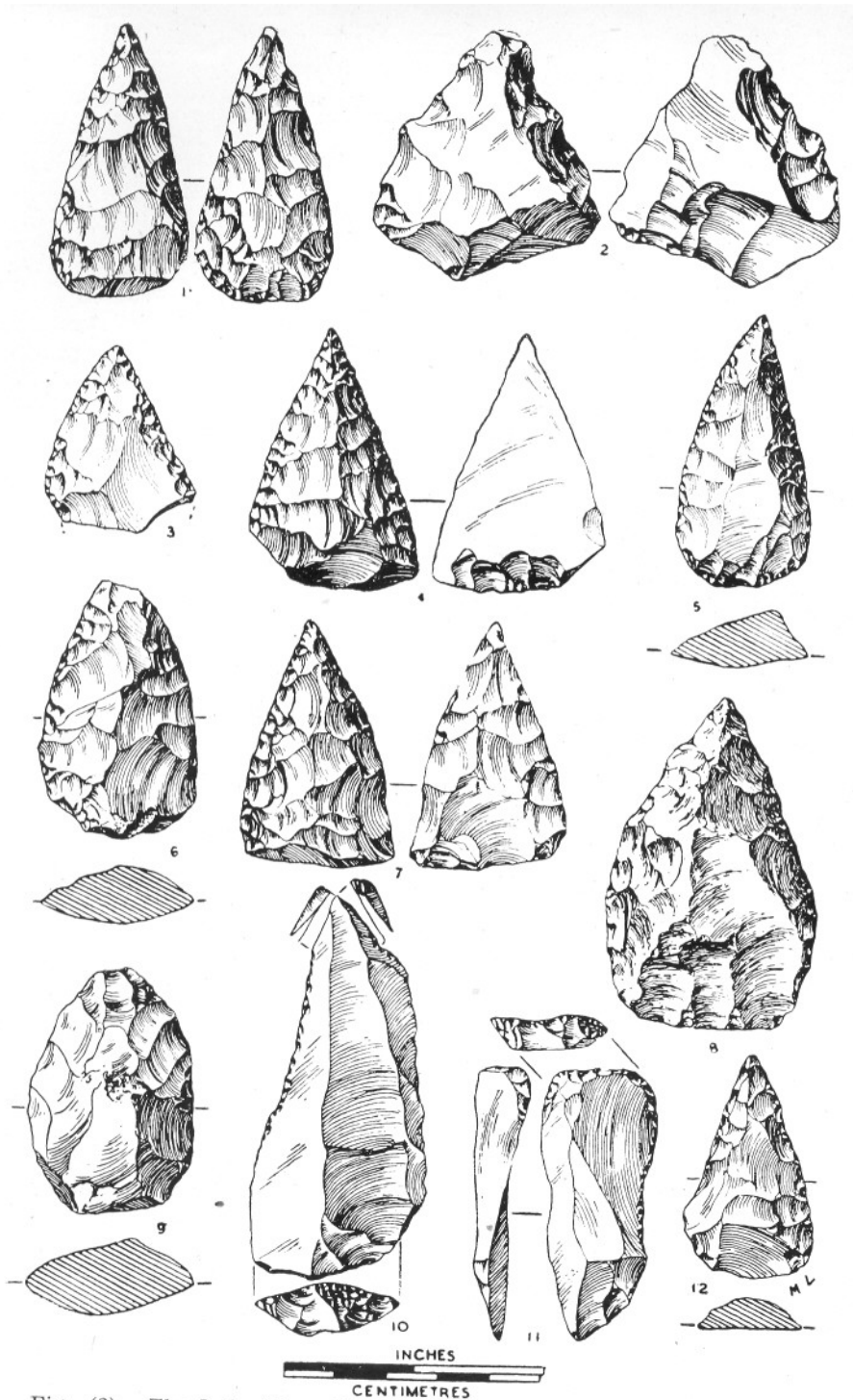


Fig. (2). *The Industries. Early Stillbay.*

Nos. 1, 3 and 4 Stillbay points from the 11-foot level. No. 2 tortoise core from the 12-foot level. Remainder from the 10-foot level. (Nos. 5—9 and 12 Stillbay points; No. 10 burin on flake with faceted striking platform; No. 11 end scraper.)

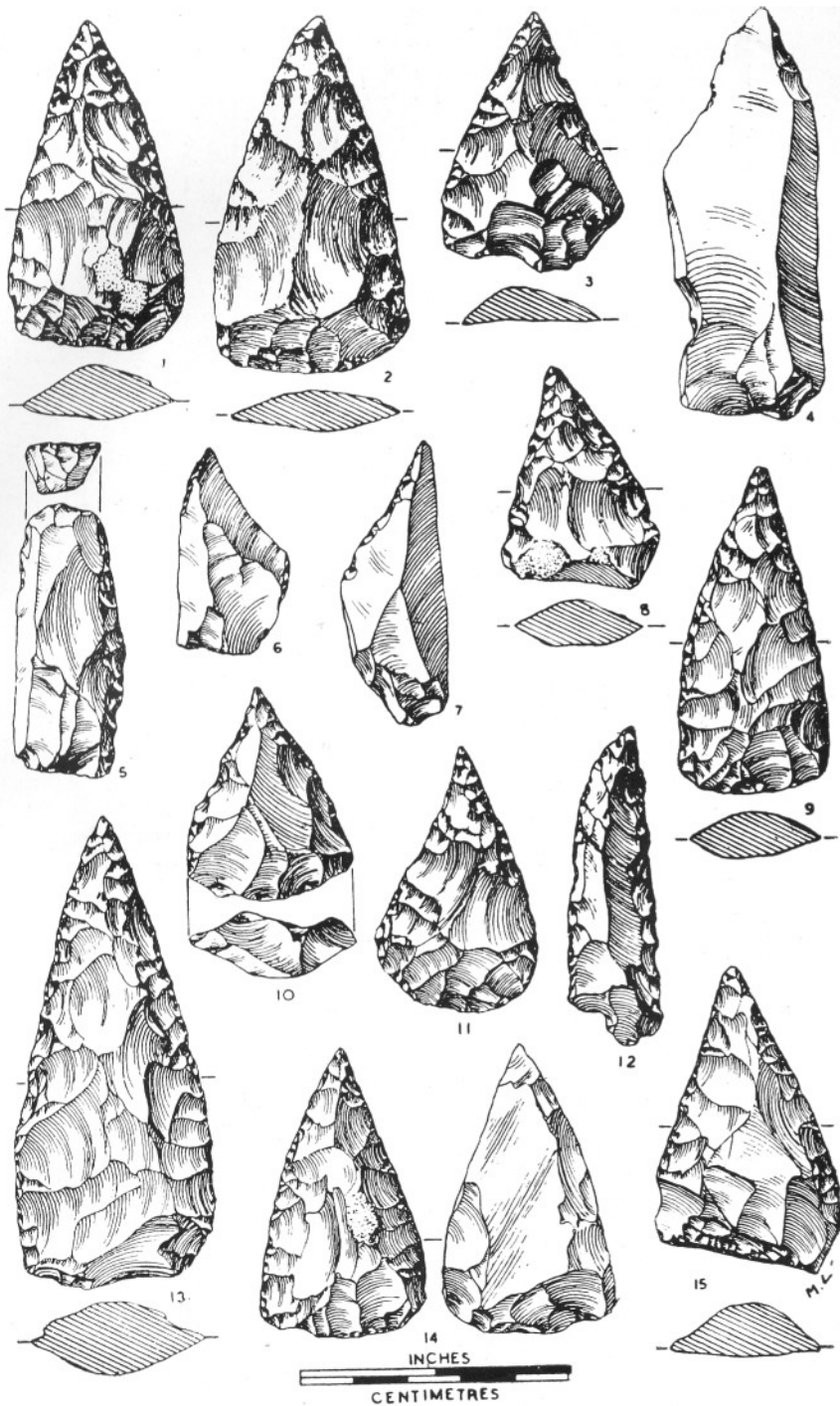


Fig. (3). *The Industries. Middle Stillbay.*  
 Nos. 1—6 from the 7-foot level. (Nos. 1, 2 and 3 Stillbay points; No. 4 backed blade; No. 5 end scraper; No. 6 obliquely-trimmed point.) Nos. 7—10 from the 8-foot level. (No. 7 obliquely-trimmed point; Nos. 8, 9 and 10 Stillbay points.) Nos. 11—15 from the 9-foot level. (No. 12 backed blade, remainder Stillbay points.)

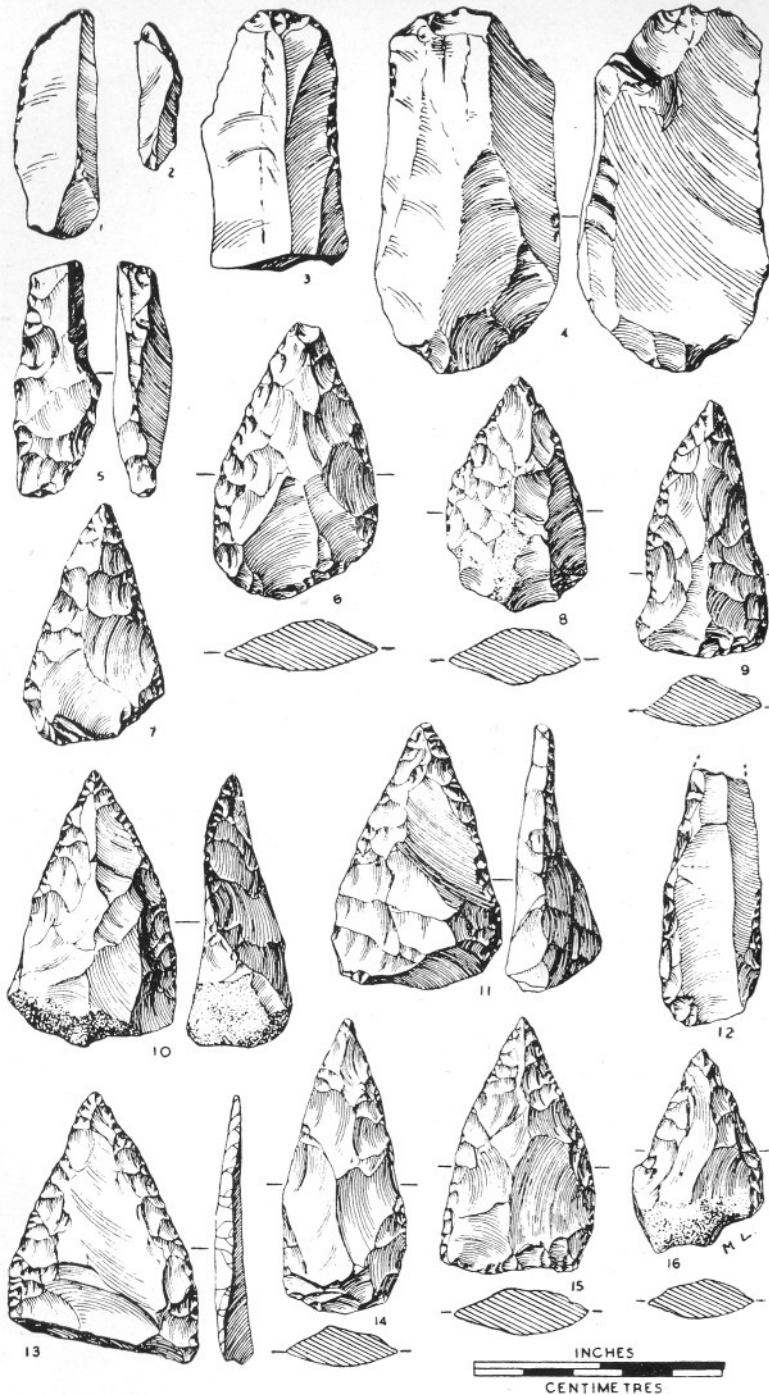


Fig. (4). *The Industries. Upper Stillbay.*  
 Nos. 1-6 and 10 from the 4-foot level. (Nos. 1 and 2 backed blades; No. 3 end scraper; Nos. 4 and 5 angle burins; Nos. 6 and 10 Stillbay points.) Nos. 7-11 Stillbay points from the 5-foot level. Nos. 12-16 from the 6-foot level. (No. 12 backed blade, remainder Stillbay points.)

PLATE 36.

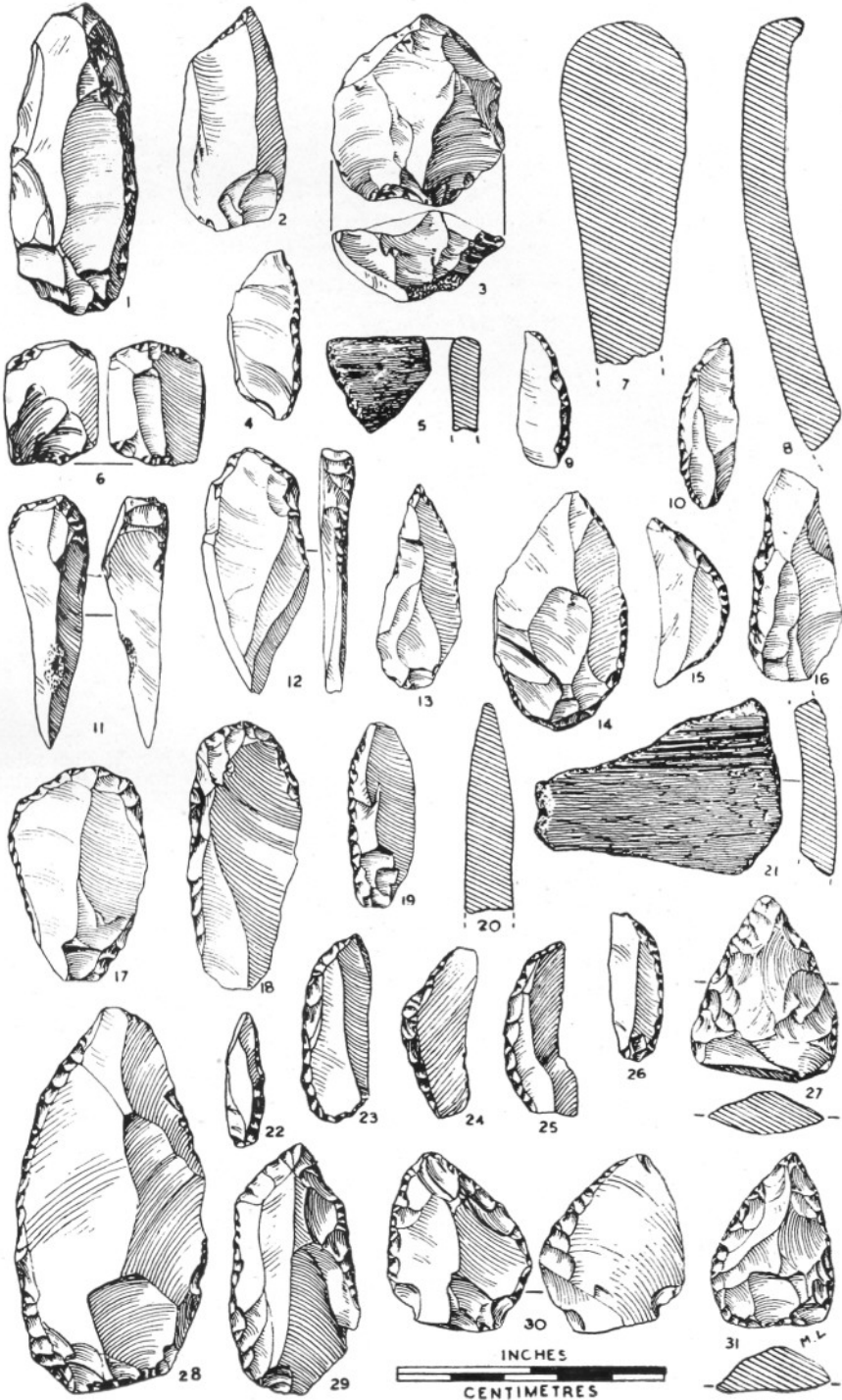


Fig. (5). *The Industries. Magosian and Mesolithic or Neolithic.*  
*Mesolithic or Neolithic.* Nos. 1—5 from the 1-foot level. (Nos. 1 and 2 backed blades; No. 3 tortoise core; No. 4 lunate; No. 5 pottery rim fragment.) Nos. 6—16 from the 2-foot level. (No. 6 lame écaillée; Nos. 7 and 8 fragments of pot rims; Nos. 9 and 10 lunates; Nos. 11 and 12 end scrapers; Nos. 13, 14 and 16 backed blades; No. 15 lunate.

*Magosian* from the 3-foot level. Nos. 17 and 18 end scrapers; No. 19 backed blade; No. 20 section of pot rim; No. 21 decorated potsherd; Nos. 22—26 lunates; Nos. 27, 29, 30 and 31 Magosian points; No. 28 large backed blade.

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