

I.

NOTICES OF (1) THE DISCOVERY OF A FOURTH CINERARY URN CONTAINING BURNT HUMAN BONES AND OTHER RELICS AT SEGGLIECROOK, KENNETHMONT, ABERDEENSHIRE, AND (2) TWO SMALL POLISHED STONE AXES AND A FLANGED SPEAR-HEAD OF BRONZE FROM ASIA MINOR. BY J. GRAHAM CALLANDER, F.S.A. Scot.

I. CINERARY URN FROM SEGGLIECROOK.

Three years ago I reported to the Society the discovery of three cinerary urns in a gravel-pit on the farm of Segglicrook, in the parish of Kennethmont, Aberdeenshire.¹ All had contained burnt human bones, but only the first discovered was rescued complete; of the other two only a few fragments were seen—enough, however, to identify the type of vessel. The complete urn was found standing upright on its base, full of burnt bones, in a cavity excavated in the disintegrated rock of the gravel-pit. It was covered by about 15 inches of soil. In the cavity containing the urn there was found a small oblong pendant of slate, perforated at two of the corners adjoining one of the longer sides, and ornamented on one face by lines drawn roughly parallel to the edges. As the urns were discovered at different dates during the removal of gravel, it was impossible to plan or measure the distance between the various deposits.

No further discoveries were made at this site until the early part of last year, when a fourth urn was unearthed. On the day following its discovery the urn was removed to Leith Hall by Mr Charles E. N. Leith-Hay, the proprietor of the land, who apprised me of the find and gave me the opportunity of recording it. Mr Leith-Hay has kindly allowed me to exhibit to-night the urn and the relics found in it.

On the 13th March 1907 Mr Milne, farmer at Halls of Duncanstone, was superintending the excavation and carting of gravel from this pit, when he heard the pick which one of the workmen was using, strike

¹ *Proceedings*, vol. xxxix. p. 184.

against a stone. He immediately stopped the man, and had the gravel carefully removed from the stone, when a burial cist was exposed. It proved to be of small size, and was formed by four slabs set upright on edge, with a flat stone for the bottom and another for the cover. A cinerary urn was discovered in the cist, standing inverted on the bottom stone. On lifting the vessel a small heap of burnt bones and charred



Fig. 1.—Cinerary Urn found in the cist. ($\frac{1}{3}$.)

earth and wood was exposed, which, when replaced in the urn, barely half filled it.

The urn (fig. 1) is a carefully finished example of the cinerary type, without the heavy overhanging rim, but encircled with small, hoop-like mouldings, in which it resembles at least two of the three urns previously found in the same gravel-pit. The clay of which the urn is made is rough in texture, and contains fairly large pieces of broken stone, which are seen at various places peeping through the otherwise fine skin of

the exterior of the vessel. It is a yellow drab in colour. The vessel measures $9\frac{1}{2}$ inches in height on the one side and $9\frac{3}{4}$ inches on the other; the outside diameter of the mouth is $7\frac{3}{4}$ inches, the inside diameter $6\frac{3}{8}$ to $6\frac{1}{2}$ inches, and the diameter of the base is $3\frac{1}{2}$ inches. Two slightly raised mouldings from $1\frac{7}{16}$ to $1\frac{5}{8}$ inches apart encircle the vessel, the one $2\frac{1}{2}$ to $2\frac{9}{16}$ inches, and the other 4 to $4\frac{1}{8}$ inches from the rim. The exterior diameter of the vessel at the upper moulding is $7\frac{7}{8}$ inches, and at the lower moulding $7\frac{1}{2}$ inches. The wall of the urn is $\frac{1}{2}$ inch thick, and the rim, which is bevelled inwards and downwards at rather a sharp angle, is $\frac{3}{4}$ inch broad.

The bevelled lip and the space between the rim and the upper moulding have been ornamented by the impression of a very rough cord of two strands applied when the clay was damp and soft. The impressions distinctly show the fibrous nature of the material of which the cord was made. The band of ornament encircling the upper part of the urn is from 2 to $2\frac{1}{4}$ inches in breadth, and it is composed of oblique lines, usually $\frac{1}{2}$ inch apart, slanting to the right and the left, each beginning and ending at the extremity of another line and crossing other three. This band of ornamentation has on each of its top and bottom margins two transverse lines $\frac{3}{16}$ to $\frac{1}{4}$ inch apart, the upper marginal line being about that distance from the rim, and the lower marginal line the same distance from the centre of the upper moulding. The bevelled rim is decorated by roughly crossed lines forming a series of transverse lozenges, about $\frac{5}{8}$ to $\frac{3}{4}$ inch in length, contained between marginal lines $\frac{3}{8}$ to $\frac{7}{16}$ inch apart.

The burnt bones contained in the urn unfortunately were broken very small, but some of the smaller were complete. Dr Thomas H. Bryce, F.S.A. Scot., who has kindly examined them, reports: "I have been able to find fragments which enable me to state that they represent the burnt remains of a young child, after the period of infancy, but probably within that of the first dentition."

Among the burnt bones and charred material contained in the urn eight interesting little objects were found, seven of burnt clay (fig. 2)

and one of bone (fig. 3). Like the small pendant of slate found with the urn discovered first at this place, such clay objects as these do not seem to have been met with before. Six of them are cylindrical in shape, and the seventh is conical, with a rounded top. They all measure $\frac{5}{8}$ inch in length, and about $\frac{1}{2}$ to $\frac{9}{16}$ inch in diameter, the base of the conical specimen being about the same diameter. A small hole is sunk about $\frac{3}{16}$ inch in the middle of the side of the cylindrical examples and in the centre of the top of the cone. The colour of these objects is red on the outside and blackish grey under the surface. When discovered the bone

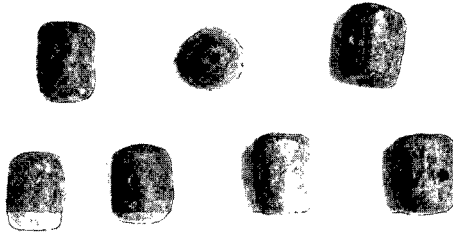


Fig. 2.—Small bead-like Objects of burnt clay found with fig. 3 in the Urn. ($\frac{3}{4}$.)

object was split longitudinally but was easily fixed together again. It is in the form of a tube or short hollow cylinder with a groove hollowed out round the outside about $\frac{1}{16}$ inch from each end, giving the object a barrel-shaped appearance, with a small moulding round each end. A hole $\frac{3}{16}$ inch in diameter is drilled straight through the centre of one side. This object, like the clay specimens, has been subjected to the action of fire, and it is slightly shrunk and warped. It measures about $\frac{3}{4}$ inch in length, and it is about $\frac{7}{16}$ inch in diameter.

What the clay objects were intended for, is difficult to say, but the holes suggest that they may have been sockets for some kind of fixing. Supplied with a metal attachment like certain styles of buttons of the

present day, they would have made quite a serviceable set of buttons or dress-fasteners ; but the conical example looks more like a pendant than a button, and it is perhaps more probable that they had formed a string of pendant ornaments or amulets. Again, fitted to the end of bronze pins they would have looked quite ornamental. The fact of no trace of bronze being detected among the contents of the urn does not disprove the theory of there having been bronze mountings on the objects, because if the clay objects were placed in the fire attached to the body during the process of cremation, their small metal mountings could not be expected to survive. It is evident from the cracked and calcined condition of the bone object that it had been attached to the body during cremation, and it follows that so were the clay ornaments.

I have not been able to discover any record of similar clay objects having been found with Bronze Age interments ; but beads and other objects of this material are not unknown, though of rare occurrence. In a barrow in the parish of Ravenstonedale, Westmoreland, amongst the cremated remains of a woman enclosed in an inverted cinerary urn of the type with the heavy overhanging rim, Canon Greenwell discovered an ornamented bead of burnt clay, of the same texture as that of the urn, which he considered had been on the body when the process of cremation was taking place.¹ In barrow No. 40 of the Ganton Slack group in East Yorkshire, a small ornamented disc of baked clay, as well as a skeleton and an urn of the food-vessel type, were discovered by Mr J. R. Mortimer.² The clay object was of the same texture as the urn, and it was pierced near the centre by two holes close to each other, probably to enable it to be fixed to the dress as a button. Dr Thurnam mentions "minute flattened beads, at Stourhead, of a brown red colour, apparently those found in a barrow at Winterbourne Stoke, described as about four dozen in number, and neatly made of clay, but not well burned, except two of the larger size, which were ornamented with faint striæ."³ He also refers to a "rude fictile object of peculiar form,

¹ *British Barrows*, p. 55, fig. 52, p. 394.

³ *Archæologia*, vol. xliii. p. 400.

² *Forty Years' Researches*, p. 229, fig. 587.

2½ inches high by 2¼ inches broad, and perforated vertically by a smooth hole the size of a large cedar pencil." It was of coarse clay mixed with large pebbles, burnt red on the outside, and was found in a barrow at Great Shefford, Berkshire, near an incense-cup urn, which was of the variety with large openings in the wall of the vessel. There is a bead of red earthenware from a barrow, in the Stourhead collection in the museum at Devizes.¹

Returning to the bone object (fig. 3), it might have been used as a button, a bead, or an ornament. With a thong passed through the hole in the side and knotted inside the tube, it could have been used as a button, or it might have been strung like a bead, in which case, however,

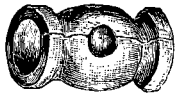


Fig. 3. Bone Object from the Urn at Seggiecrook. (†.)

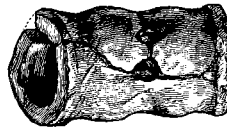


Fig. 4. Bone Object from an Urn at Dalmore (†.)

the object of the perforation in the side is not quite evident. Again, fitted to a stem of bone, wood, or metal it would have made an ornamental head for a pin; but if it were a pin there is no need for the transverse perforation. But some more information on the probable use of such articles may be gathered from other bone objects, somewhat resembling this example, which have been found in Scotland.

In 1878 ten burial deposits were unearthed at Dalmore, Alness, Ross-shire.² One of these burials was after cremation, and the remains were deposited under an inverted cinerary urn. Among the burnt bones, a small object of bone (fig. 4) almost identical to the specimen from Seggiecrook was found, only it had two holes in the side, close to each other, instead of one. In referring to this object Dr Anderson says that "objects of this description have been occasionally found with cremated

¹ *Museum Catalogue*, p. 60, No. 225.

² *Proceedings*, vol. xiii. p. 256.

interments in England, and it has been suggested that they have been used as dress-fasteners or buttons."¹

In one of the urns discovered in a cairn in the parish of New Kilpatrick, Dumbartonshire, which has not been recorded before, four hollow cylindrical objects of bone and five arrow-heads of flint (fig. 5) were

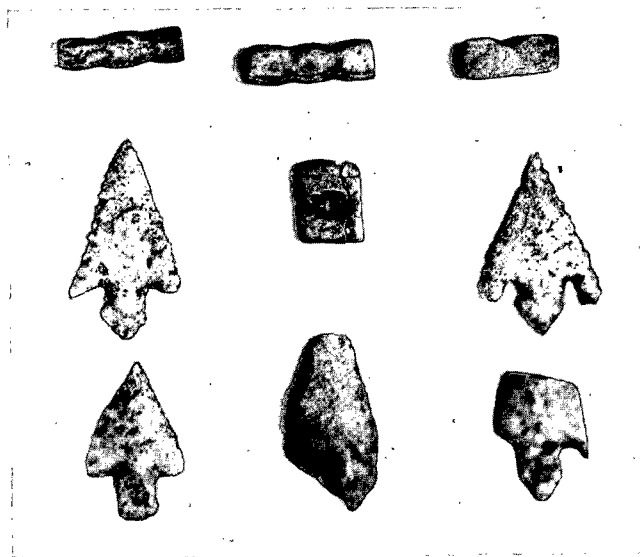


Fig. 5. Flint Arrow-heads and Bone Objects found in an Urn in the Parish of New Kilpatrick. (3.)

found among the burnt human bones contained in the vessel. The urn containing these relics was a large, handsome example of the cinerary type. It had a heavy overhanging rim with a deep contracted neck between the rim and the body of the vessel, and the latter part contracted to a narrow base in a fine, regular, convex curve. When discovered, the urn was inverted over a large quantity of burnt bones, which nearly filled the vessel when replaced in it. The flint and bone relics were quite calcined,

¹ *Scotland in Pagan Times, Stone and Bronze Ages*, p. 50, fig. 57.

the arrow-heads having turned white in colour, and like the bone objects being covered with small surface cracks. Four of the arrow-heads are of the barbed and stemmed variety, and one is leaf-shaped. Three of the bone ornaments are complete, while only half of the fourth remains, it having split longitudinally. Two of the bone objects are distinctly beads, and are almost identical in shape and size. They have a length of about $\frac{1}{16}$ inch, and an outside diameter at the ends of from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch, and they are perforated lengthwise. Two grooves encircle the exterior of each specimen, dividing it into three equal segments, giving it the appearance of three oval beads placed end to end and joined together. The other two bone ornaments bear a greater resemblance to the Seggiecrook and Dalmore specimens than the two beads just described. The complete specimen, which measures about $\frac{3}{4}$ inch in length and about $\frac{3}{8}$ inch in diameter, is in the form of a hollow tube with straight sides, in the middle of which two V-shaped holes, $\frac{3}{16}$ inch across, are bored nearly opposite to each other. The other specimen, of which only one half has been recovered, is shorter and broader than the last described one. It is $\frac{5}{8}$ inch long and about $\frac{1}{2}$ inch in diameter; the ends have been carefully bevelled on the exterior, and there is a V-shaped perforation in the middle of the side. From its companion having two holes opposite each other, I think it is likely that it would also have two holes. In the Seggiecrook example the one hole in the side had been drilled perpendicularly, while in these two specimens the holes are V-shaped. Whether these two specimens had been strung as beads cannot be said with certainty, though, being found with other objects which were certainly beads, it seems more than likely that objects of this class were used more as ornaments than as dress-fasteners or buttons. In the same way the bone object from Seggiecrook having been found associated with what seem to have been ornaments rather than buttons, it should be classed as an ornament. This example would have formed a suitable centrepiece, with three of the cylindrical clay ornaments strung on either side, and the conical pendant suspended below. The bone objects from the Dumbartonshire urn, which have

the transverse as well as the lateral perforation, may have had cords passing through them at right angles, and so formed the central pieces of an elaborate ornament like some of our jet necklaces.

Several small articles of ivory, called "joint pieces," have been found at Ephesus, bearing some resemblance to the Seggiecrook and Dalmore bone objects. All except one, which is larger, seem to be about the same size as the Seggiecrook example, but they all differ from it in having straight sides without a groove near the ends. One of the Ephesus specimens seems to have two holes in the side like the Dalmore object.¹

It may be of interest to mention some other examples of small bone ornaments which have been found in Bronze Age interments in Britain. Pins of bone are not uncommon. Among the burnt bones in a cinerary urn discovered in 1870, at Murthly, Perthshire, a tiny lozenge-shaped object of bone, $\frac{5}{8}$ of an inch in length and $\frac{1}{8}$ of an inch in thickness, having two circular holes drilled through it in the centre, was found.² In one of the cinerary urns from Gourlaw, Midlothian, which much resembles the Dumbartonshire urn before mentioned, and which was also inverted over a heap of burnt human bones, a small perforated object of bone was found.³ This article had four holes clearly drilled through it, with three smaller circular depressions slightly sunk along the margin. A small, thin, elongated plate of bone with two holes in it near the centre, was found amongst burnt bones in an urn, at Woodhead of Garvock, Dunning.⁴ A number of beads of bone from Wiltshire Bronze Age burials are preserved in the museum at Devizes. One, from Upton Level barrow, is cylindrical in shape and $\frac{3}{4}$ inch long; another, from Winterbourne Stoke barrow, No. 25, is fusiform in shape and measures $\frac{5}{8}$ inch in length; while still another, from Avebury, had a groove or furrow round each end, and was $\frac{3}{4}$ inch long. Six bone or ivory beads were found with burnt bones in a cist on the north side of a barrow at Cop Head Hill, Warminster. Five of them were of the same type as

¹ Hogarth, *Excavations at Ephesus—The Archaic Artemesia*, p. 197, pl. xli.

² *Proceedings*, vol. ix. p. 269.

³ *Ibid.*, vol. xxxix. p. 416, fig. 4.

⁴ *Ibid.*, vol. xli. p. 10.

the two segmented beads from Segglicrook, three having two segments and two having three segments. Canon Greenwell found four beads of bone, in contact with the skeleton of a young woman, in a barrow in the parish of Folkton, East Riding.¹ They are cylindrical in shape, three being ornamented and one plain; and they are all but identical to four objects found in a barrow in Wiltshire, by Sir R. Colt Hoare, "which can only be regarded as beads, though they are not perforated."² From the barrow in which Canon Greenwell found the four beads, a small conical button of bone, $\frac{1}{2}$ inch in diameter, similar in shape to the jet buttons of the Bronze Age, was recovered. A fragment of a curious ornamented tubular object of bone was found with human remains in a barrow, in the parish of Crosby Garratt, Westmoreland.³ This article had three holes, not pierced through the bone from front to back, but made in the thickness of it and connected with each other.

The recovery of the five arrow-heads of flint from the Dumbartonshire urn is also quite interesting. I do not know another case in Scotland in which flint arrow-heads have been found among the burnt bones in a cinerary urn. There are very few arrow-heads in our National Museum which have been found in association with burials. In Scotland no arrow-heads of bronze having been hitherto found, it has long been recognised that those of flint must have been made and used during Bronze Age times. Not only does the occurrence of these arrow-heads in this Bronze Age urn confirm this, but it shows that the barbed and stemmed arrow-head was contemporary with the leaf-shaped variety. Some archæologists claim that the barbed and stemmed arrow-head is a later development than the leaf-shaped, while others claim the reverse. It may be quite reasonable to believe that the leaf-shaped arrow-head was evolved before the more elaborate barbed and stemmed specimen, and that the latter should be attributed to later times. But a triangular barbed and stemmed arrow-head was found with four of the leaf-shaped

¹ *British Barrows*, p. 275, fig. 50.

² *Ibid.*, p. 278, quotes from *Ancient Wilts*, vol. i. p. 212, fig. 31.

³ *Ibid.*, p. 392.

variety in the chambered cairn of Unstan, Orkney,¹ and thus it is evident that the two varieties were in use and were being made at the same time in Scotland. I think it is not unlikely that the shape of the arrow-head, whether it was to be leaf-shaped or barbed and stemmed, often depended on the shape and size of the flake of flint out of which it was to be fashioned. Also, a certain type of arrow-head may have been more fashionable in certain parts; otherwise, How can we explain the abundance of hollow-based arrow-heads in Ireland compared with Scotland? About sixteen per cent. of the collection of over five thousand Irish flint arrow-heads belonging to Mr W. J. Knowles of Ballymena are hollow-based,² while not one per cent. of our Scottish examples in our Museum is of that shape. I have only two hollow-based arrow-heads out of more than two hundred specimens found in Aberdeenshire.

During the last few years quite a large proportion of the cinerary urns containing burnt human bones which have been recorded before our Society, have yielded small ornaments or other relics. It is impossible to say whether or not this is the result of a more careful examination of the contents of the urns. Many of the objects are very small, and when mixed with the charred contents of the urns are not readily noticed. It is therefore incumbent on everyone who has the good fortune to discover any sepulchral deposit, to see that a minute examination of it is made.

2. TWO STONE AXES AND A SPEAR-HEAD OF BRONZE FROM ASIA MINOR.

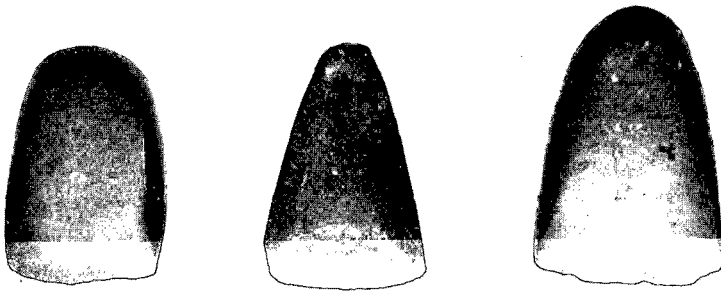
Having spent last summer (1907) travelling in Central Anatolia, in company with my brother, Professor T. Callander, who was making his third journey to Asia Minor in search of ancient inscriptions, I was able to secure the two small stone axes and the spear-head of bronze exhibited this evening.

The Stone Axes.—The two stone axes much resemble each other in size and in the material of which they are made. A third, of the

¹ *Proceedings*, vol. xix. p. 350.

² *Journal of the Anthropological Institute*, vol. xxxiii. p. 56.

same type, which Dr Anderson got in Constantinople and presented to the Museum in 1875, is also exhibited. The three axes are very small, and are all of green stone finely polished. The stone of which the first axe is made is a dark green schist, and it is the finest finished specimen of the three (No. 1, fig. 6). It is more triangular in shape, and sharper at the butt end than the other two, and it is also thinner and flatter. It is $1\frac{1}{6}$ inches in length, $1\frac{5}{16}$ inches in breadth, and $\frac{5}{16}$ inch in thickness.



No. 2.

No. 1.

No. 3.

Fig. 6. Small Stone Axes ; Nos. 1 and 2 from Asia Minor, No. 3 from Constantinople.

It was purchased, with the bronze spear-head, in the bazaar in Ak Serai (White Palace), a considerable town near the borders of Lycaonia and Cappadocia. The seller of these articles was a man who also offered us a miscellaneous lot of small antiquities collected in the neighbourhood. Whenever a European appears in the bazaar of an Anatolian town and mentions the word "anteeka," he is quickly surrounded by men and boys desirous of selling ancient coins, small bronzes, rings, intaglios, and such-like things, which they have either found themselves, or bought from the neighbouring farming people. No doubt the axe was found in

the neighbourhood of Ak Serai. Later on, when showing the specimen to some small dealers of antiquities in Konia (Iconium), we were informed that similar stones were to be found near Sultan Khan and Ak Serai, which showed that ours was not the first they had seen from that district. They also told us that such stones were found in the Ala Dagħ (Spotted Mountain), a district in the Taurus Mountains about 90 miles south-south-east of Konia. We traversed this district a few weeks later, and at Kazilère, a village south of and overlooking the Gok Su (Blue Water, the ancient Calycadnus river), we bought the second axe (No. 2, fig. 6) from its finder, a villager who had picked it up while tilling his land (the native farming population lives in villages). This axe is thicker and rounder at the butt end than the Ak Serai specimen, and it is not so well finished. The stone is olivine basalt, and is of a dark green colour. The axe measures $1\frac{7}{8}$ inches long, $1\frac{1}{4}$ inches broad, and $\frac{5}{8}$ inch thick. The third specimen (No. 3, fig. 6), from the Museum, somewhat resembles the last-described axe; it is $2\frac{3}{16}$ inches in length, $1\frac{1}{2}$ inches in breadth, and $\frac{1}{2}$ inch thick. The stone is a rather lighter green than the other two, and looks like jade. It was found in European Turkey, near Constantinople, by a boy who gave it to Dr Anderson. One side near the cutting edge bears a specially high polish, which Dr Anderson informs me was no doubt imparted to it by its having been used in recent times to smooth the rough surface of the native writing-paper, as he had seen a similar axe used for this purpose by a native Turkish scribe. The specimen from Ak Serai bears a specially high polish on its flat sides, which might have been caused by its having been used recently for smoothing paper, but this is not quite certain, as the man from whom it was bought did not look a likely person to have used it in this way, and probably it had reached his hands direct from the finder, some farmer. In Konia similar stone axes have been used recently as touchstones for testing the fineness of gold by the streak; and we were shown dark green pebbles, apparently of the same kind of stone, which were still used for this purpose by the money-changers and dealers in the old Turkish and foreign gold coins which the native

women wear as ornaments for the head. We were also informed that axes larger than those exhibited, are used by tailors in Konia for smoothing the seams of the garments they are sewing.

So far as we were able to discover, the natives had no idea of what these stone axes had been used for, and they held no superstitious ideas regarding them, such as are to be found in so many different parts of the world.

Stone axes have been found, both as surface finds and in excavations, in different parts of Asia Minor widely separated from each other. One of the American missionaries at Tallas, Cæsarea, in Cappadocia, had made quite a nice collection of stone axes from that neighbourhood, but unfortunately it was destroyed by fire. M. Ernest Chantre records the acquisition of eighteen axes of jadeite, chloromelanite, and jasper, while travelling from Cappadocia into Cilicia, which apparently were surface finds; and he secured twenty-seven examples from two prehistoric inhabited sites in Cappadocia.¹ Schliemann found great numbers of stone axes in his excavations in the Troad. In the first four prehistoric cities of Hissarlik he collected more than five hundred stone axes.² Many of these resembled the three specimens before us in size and in the material of which they were made. Probably stone axes are to be found throughout Asia Minor. Hitherto the archæologists who have explored the country have been more interested in classical than in prehistoric antiquities, and so the discoveries of prehistoric remains have not been very numerous. In the magnificent collection of antiquities in the Imperial Museum in Constantinople I saw only one small stone axe.

A large proportion of the stone axes from Asia Minor are of very small size, and we are tempted to question if we are right in calling them axes, because, used as an axe, the smaller examples would have made very inefficient tools. In our Museum we have similar small axe-like objects of stone from other parts of the world; for instance, those from Japan, figured in our Catalogue. In the museum at the Marischal College, Aberdeen University, there is a fine collection of small stone axes from

¹ *Mission en Cappadoce*, p. 131.

² Schliemann, *Ilios*, p. 238.

New Guinea fitted into wooden handles as if they were meant to be used as chisels, but in other specimens these chisel-like tools are seen fitted into handles to form axes or adzes. Of the six hundred Scottish stone axes in our national collection very few indeed are under 3 inches in length, but there is one of flint which is $1\frac{11}{16}$ inch long. I have a small axe-like object of slate (fig. 7) which was found in the parish of Rayne, Aberdeenshire. It is triangular in shape, and measures $1\frac{5}{16}$ inch in length, $\frac{27}{32}$ inch in breadth, and $\frac{1}{4}$ inch in thickness. It might have been a chisel, but certainly it does not look as if it could have been of much use as an axe.

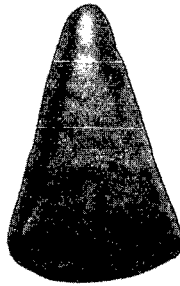


Fig. 7. Small Axe of Slate from Rayne. (†.)

During the whole of our journeys in Lycaonia, Galatia, and Isauria, from near Angora in the north to within 20 miles of the Mediterranean in the south, both in the great plain of the Axylon and in the Taurus Mountains, careful watch was kept for flint or implements of flint. Only one fragment of this material was found, and it, a small water-rolled piece resembling a leaf-shaped arrow-head, was picked up among the gravel on one of the walks in the garden of our Consulate at Konia. The gravel was brought from one of the mountain streams in the vicinity. Every native carried flint and steel and a small piece of dried fungus to light his cigarette. The piece of flint was generally so

small and so well worn that it was plain that flint was a very scarce commodity in the districts traversed by us. This apparently points to the absence of surface flints, both in their natural state and as implements, throughout a great part of Central Anatolia. The natives, however, require a large quantity of flint flakes to make teeth for the "duyen" or threshing sledge, which is still the only threshing implement throughout a great part of Asia Minor. Each "duyen" will require two or three hundred flint teeth about 2 inches long by $1\frac{1}{2}$ inch in depth. On the Turks being asked where their supply of flint came from, they said that it came from the mountains, but which special mountain they did not know. In the bazaar in Eski Shehir (Old Town, the ancient Dorylæum), about 250 miles north-west of Konia, we saw large quantities of grey flint flakes for making into "duyen" teeth exposed for sale. Quartz and other stones are used for this purpose in certain localities. Knives of flint have been found recently on an ancient inhabited site on the Kara Dagh (Black Mountain), a fine volcanic range near Karaman (Laranda). We were shown a flint knife which had been found two days before in an ancient grave near Eski Shehir. The grave also contained a skeleton, a quantity of broken pottery, a bronze arrow-head, and a blade of iron about 4 inches in length. Unfortunately the pottery was not preserved by the finder. Found with stone, bronze, and iron tools, it should have been of much interest. The flint knife was of poor workmanship. Flint implements and stone mauls or hammers have recently been found in ancient mines at Sizma, north of Konia. From the prehistoric cities of Hissarlik nearly one thousand flint tools were recovered.¹ The curious thing was that these included only knives and saws, no regular arrow-heads being found. Finely formed arrow-heads, but of obsidian, were found at Mycenæ, in Greece, and large numbers made of flint are recovered every year in Egypt. Examples made of obsidian have been found in the Caucasus, and leaf-shaped specimens of flint in Persia, and on Mount Lebanon in Syria.² Professor Sir William M. Ramsay of Aberdeen, who

¹ Schliemann, *Ilios*, p. 246.

² Evans, *Ancient Stone Weapons*, 2nd edition, p. 405.

has spent so many summers in the exploration of Asia Minor, told me that he had never seen flint arrow-heads while travelling there, and that about the only flint tools he had met with were some which he dug up at the Midas City. While Sir William Ramsay gave no special attention to this subject during his travels, I think that if flint tools had existed in any quantity in the country, it is certain that the natives would have brought some of them to him along with the ancient coins and other antiquities which they wanted to sell. Chantre discovered two neolithic settlements in Cappadocia.¹ One site was on the right bank of the Zamanti Su, near the bridge of Feraktin, some distance south of Cæsarea. Innumerable knives, saws, scrapers, arrow-heads, cones, and rejected flakes of obsidian were found, as a rule, in little heaps of black earth which were either fireplaces or hut floors. A few stone axes, burnt bones, and fragments of a thick pottery were also found. The second neolithic site was in the deeper excavations in the mound of Kara Euyuk.² The finds here were similar to those at Feraktin, but in addition, a few unworked flint flakes were unearthed. In summing up, Chantre says that he has not found a single trace of a worked flint of the Stone Age in Cappadocia.³ Our experiences in Lycaonia and Isauria were the same. No doubt there must have been a large prehistoric population in Asia Minor, as at the dawn of its history we find it inhabited by a great nation, the Hittites, who were able successfully to meet the full strength of Egypt in battle, and compel favourable treaties. The presence of a neolithic people in many parts is seen in the numerous occurrences of stone axes in different provinces. So far this seems to be the commonest tool of stone yet discovered. The general absence of flint weapons, and especially of arrow-heads, is strange, and apparently can only be explained by Anatolia not being a flint country. The rudeness of the workmanship on the few flint tools recovered betokens a want of skill which probably arose from a want of practice in the fabrication of them. The arrow-heads of obsidian, so far, seem to be confined to the north-east and eastern portions of the country. As we can hardly conceive a primitive

¹ *Mission en Cappadoce*, p. 129.

² *Ibid.*, p. 78.

³ *Ibid.*, p. 132.

people without arrow-heads, it is possible that they had been made of hard wood or bone which has perished. It will be of interest to see if future excavations in this country yield implements of flint or obsidian in greater numbers.

The Bronze Spear-head.—This weapon or implement of bronze (fig. 8), like the first-mentioned stone axe, was secured in Ak Serai, and presumably was found near that place, that is, on the borders of Lycaonia and Cappadocia. Unfortunately the specimen is imperfect, as it wants the point and part of the tang or stem, and the blade is slightly twisted. It has a straight-edged blade, with a broad, flat tang pierced with a series of rivet-holes, and at the junction of the tang and blade it has the sides beaten in to form two small wings or flanges, which would clasp the tapered split end of the wooden shaft to which it was fixed. The specimen now measures 5 inches in length. The blade has no pronounced midrib like so many of our British bronze spear-heads, but from a thickness of $\frac{3}{16}$ inch in the centre near its base it attenuates regularly towards the point and the edges; what remains of it measures $3\frac{1}{2}$ inches in length, and it is $\frac{3}{4}$ inch broad at the base. The remaining part of the tang is $1\frac{1}{2}$ inch long, $\frac{9}{16}$ inch broad, and $\frac{1}{8}$ inch thick. In the centre of the tang are two rivet-holes $\frac{5}{32}$ inch in diameter and $\frac{1}{4}$ inch apart, the first hole being 1 inch from the base of the blade. As the stem is broken off through the second rivet-hole, it is impossible to say whether there were more than the two rivet-holes. The flanges measure $\frac{3}{4}$ inch in length, and project about $\frac{1}{8}$ inch from the flat of the stem.

Being of a very uncommon type, it is difficult to determine whether



Fig. 8. Bronze flanged Spear-head from Ak Serai. ($\frac{2}{3}$.)

the article had been a spear- or lance-head, a knife, or a dagger. It cannot be compared with the small, flat bronze blades with rivets or a tang for fixing, which are usually known as knife-daggers; and it is quite dissimilar to the tanged and socketed daggers of the variety known as the Arreton Down type,¹ of which two fine Scottish specimens have been recorded—one from Whitehaugh Moss, Ayrshire,² and the other from Crawford Priory, Fifeshire.³ So it is a question whether it was a knife or a spear-head. Two English examples of bronze knives have been figured by Sir John Evans,⁴ and a Scottish specimen from West Cairns, Mid-Calder, has been described and figured.⁵ These examples have flat blades with slightly rounded points, and they have a broad flat tang not quite so wide as the blade. The rounded point shows that they were meant as cutting, not stabbing, implements. The specimen exhibited to-night differs from these knives both in the shape of the blade and of the fixing. We cannot say what was the exact shape of the point when it was complete, but judging from the lines of what remains it seems more probable that it was drawn out to a sharper point than is seen in any of the knives. As for the fixing, at the first glance it may seem short, and more suitable for a short handle like that of a knife than for a long spear-shaft, but it is broken, and even in that incomplete condition it is longer than the short tang of the knives. That this object was a spear- or lance-head is further borne out by the size of the flanges. They are small, and show that the split end of the shaft must have been nicely dressed and tapered down, almost running into the line of the thickened centre of the blade before the flanges would overlap the wood. In a knife which is chiefly used for cutting it is not necessary to have the handle tapered down to the thickness of the blade, but in a spear or lance, which is meant for thrusting and penetrating deeply, its efficiency

¹ Evans, *Ancient Bronze Implements*, 2nd edition, pp. 258, 260, figs. 324, 328.

² Anderson, *Scotland in Pagan Times: The Stone and Bronze Ages*, p. 181. *Arch. and Hist. Collection of Ayr and Wigtown*, vol. iv. p. 53.

³ *Proceedings*, vol. xxviii. p. 219.

⁴ *Ancient Bronze Implements*, pp. 210, 212, figs. 251, 252.

⁵ *Proceedings*, vol. xxix. p. 209.

is much improved by having the shaft dressed to as near the thickness of the blade as possible, which seems to have been the case with this specimen. It also bears no resemblance to the knives of bronze found at Hissarlik, and so the probability is that it was a spear- or lance-head and not a knife.

The fixing of all British and other European bronze spear-heads, is a socket for the insertion of the end of the wooden shaft, the earlier examples, according to Mr George Coffey, having loops, and the later examples without loops but with rivet-holes in the socket.¹ It might have been expected that bronze spear-heads would have followed the same lines of development as seen in bronze axes: the flat dagger blade with a stem corresponding to the flat axe; a further development with the edges of the stem beaten over to form wings, as in this Ak Serai example, corresponding to the flanged axe or palstave; and finally the socketed and looped spear-head corresponding to the socketed and looped axe. But throughout Europe stemmed spear-heads with flanges or wings seem to be unknown. Mr Coffey has described the development of the Irish bronze spear-head from the broad dagger or halberd with rivets through the looped and socketed variety to the socketed spear-head with rivet-holes, showing that the earliest type of distinct spear-head is simply a halberd or dagger fixed to a socket, the junction of the blade and socket being abrupt and strongly defined, and unlike later examples, in which the socket is a continuation of the hollow midrib of the blade, or *vice versa*. That the early type is the immediate successor to the halberd blade seems borne out by the facts that the blades of the respective implements are much the same in shape, and that some of these spear-heads bear unnecessary protuberances near the junction of the blade and the socket, which resemble, and were suggested by, the rivets of the halberd blades. These protuberances, though perhaps ornamental, were not useful, as they lessened to a certain extent the penetrating efficiency of the weapon. Quite a number of this type of bronze spear-head have been found in Ireland, but we have no Scottish example in our Museum.

¹ *Proc. Royal Irish Academy*, 3rd series, vol. iii. p. 436.

Perhaps the reason that there was no type of flanged spear-head in Europe is that the tanged variety was never common, and where it did exist the tang was too narrow to permit of its being beaten into the flanged form. But this example from Asia Minor shows that in the East such a form was manufactured, though perhaps it may never have become a common or popular type. Returning again to Schliemann's excavations at Ilios, he discovered in the older deposits what he considered lance-heads of bronze, from 7 to over $12\frac{1}{2}$ inches in length, and from about $1\frac{1}{2}$ to $2\frac{1}{2}$ inches in breadth at the broadest part. And he has figured the fragment of a lance-head without tang or socket but provided with rivet-holes, which was found under the skeleton of a Trojan warrior.¹ This, however, may have been a dagger rather than a spear-head. No socketed spear-heads of bronze were discovered, and he says that "the Trojan lance-heads were therefore quite different from those of the Mycenæans, as well as from all those found in the Swiss lake dwellings, in the tombs from Frousletter, . . . and many other sepulchres in Germany, Austria, and Italy, at Halstatt, in Denmark, and in Hungary, all of which have a tube in which the wooden shaft was fixed."² M. Salomon Reinach informs me that, so far as he is aware, this flanged type of spear-head is "absolutely new."

The only bronze implement approximating in type to this spear-head that I know of is in the collection of Sir John Evans, but it is not a spear-head. It is a bronze knife "which appears to be intermediate between those with sockets and those with merely a flat tang."³ It has a single rivet-hole in the flat stem, and there are "loops extending across the blade on either side which would receive the ends of two pieces of wood or horn destined to form the handle, so that a single rivet sufficed to bind them and the blade between them firmly together." This specimen was found at Reach Fen, Cambridgeshire. The loops in this case are not circular in transverse section like those in palstaves and socketed bronze axes, but resemble flanges beaten over till they meet,

¹ Schliemann, *Ilios*, 1880, p. 507, fig. 968.

² *Ibid.*, p. 475.

³ *Ancient Bronze Implements*, p. 210, fig. 250.

contracting all the way, till at the junction they measure only about one-sixth of their length when they left the blade. The loops on this article show that the specimen belongs to a time when the Bronze Age founder had acquired a great amount of skill in his craft, and that it belongs to a time not long before the introduction of the socket as a fixing. The Ak Serai spear-head, however, belongs to an earlier period. Comparing it with the various types of bronze axes, it may be considered a contemporary of the flat axe just beginning to be supplied with flanges or wings, and belonging to the period before the palstave proper with its stop-ridge was developed. This is an early date in Western Europe, and much more so in Asia Minor. Besides belonging to an early period, this spear-head is of special interest, as it seems to show that, in Asia Minor at least, the fixing of the bronze spear-head followed to a certain extent the lines of development of the fixing of the bronze axe, in which it differs from the bronze spear-heads of Britain, where the socketed spear-head was the immediate successor of the flat halberd blade.

Since this paper was printed I have learnt that the flint implements found at Sizma, already mentioned, comprise two arrow-heads, $2\frac{3}{4}$ inches long, and a lance-head, $4\frac{1}{4}$ inches long and $\frac{11}{16}$ broad at the base. The arrow-heads are leaf-shaped, with a square base, and have a small square stem; the lance-head is widest at the base, has straight edges, and tapers to a fine point.

Attention has been directed to the similarity between certain Scottish perforated bone objects and the ivory *joint pieces* from Ephesus. The excavations there have produced other interesting parallels to Scottish antiquities. The triangular bead of white, blue, black, or green glass, with yellow spirals, is the most common of our Scottish prehistoric beads. Quite a large number of triangular beads of black, brown, or buff colour, with yellow spirals, were found at Ephesus. They differ from the Scottish examples only in having the sides concave instead of straight.