

II.

NOTICE OF A JET NECKLACE FOUND IN A CIST IN A BRONZE AGE CEMETERY, DISCOVERED ON BURGIE LODGE FARM, MORAYSHIRE, WITH NOTES ON SCOTTISH PREHISTORIC JET ORNAMENTS. BY J. GRAHAM CALLANDER, SECRETARY.

In the latter half of 1913 several Bronze Age burials were discovered on Burgie Lodge farm, in the parish of Rafford, Morayshire, by Mr C. M. Bruce, the tenant, whose attention was attracted to them by slight surface indications.

Very good accounts of the discoveries appeared in the local newspapers from the pen of Mr Bruce, whom I have to thank for furnishing further details. I am also indebted to Mr H. B. Mackintosh, Honorary Secretary of the Elgin and Morayshire Literary and Scientific Society, for a description of the relics recovered and for a photograph of the necklace found in one of the graves, and to Mr A. Henderson Bishop, F.S.A.Scot., for his photograph of the four Scottish jet necklaces reproduced in fig. 3.

The graves lie in cultivated land at the 100 feet contour line, on sandy hillocks and ridges on gently rising rolling ground that tends to sweep up more rapidly, to the south, towards the heather-covered muirlands that stretch away into the main mass of the Grampians. To the north is the fertile plain of Moray falling away to the Moray Firth, with the mountains of Ross and Sutherland in the distance. The district is rich in historical and archæological associations: the ruins of Kinloss Abbey, the sites or ruins of Kilbuaick Castle, Asliesk Castle, Burgie Castle, and Blervie Castle are not far distant; the Culbin Sands, one of the richest archæological fields in Scotland, lie only 5 miles to the west-north-west; while a stone circle and several other Bronze Age burial sites are noted on the Ordnance Survey map of the neighbourhood. The latter are probably only a fraction of the original number of prehistoric burials that originally existed in the countryside, but

which for the greater part have been obliterated during many centuries of high cultivation, the Laich of Moray being one of the finest agricultural portions of Scotland.

The first discovery took place about the beginning of August 1913, when the end of a slab-lined grave was exposed in the face of a sand-pit situated rather more than half a mile north-north-east of Burgie Lodge farm-steading, on the Thornhill part of the farm. The grave lay a few feet north-west of the summit of a small round knoll some 39 yards west-south-west of a big boulder of Stratherrick conglomerate believed to have been deposited there by glacial action. This boulder, which measures 15 feet in length, 11 feet in breadth, and 6 feet in height above the surface of the ground, has from time immemorial been known as a "fairy stone," and the "knoll had always been associated with eerie tales. It was a test of courage in past generations to go at the dead of night and kindle a fire or other light beside this stone." According to local tradition, a number of graves had been exposed in this sand-pit many years ago, and it would not be surprising if further similar discoveries were to be made as the removal of the knoll progresses.

On excavation the grave, which lay almost east and west, was found to be made of four slabs of Old Red Sandstone set on edge, with a large slab about 1 foot thick for a cover, and a smaller slab of about the same thickness superimposed on it. The cist measured 3 feet in length, 1 foot 10 inches in breadth, and 1 foot 11 inches in depth, and the floor lay about 6 feet 3 inches below the present surface level. The remains of a human skeleton lying in a crouching position on its right side, with the head in the west end, were found in the tomb. When exposed the skull was in a good state of preservation, but it was destroyed afterwards by some unknown persons. Professor Reid of Aberdeen, to whom the remains were submitted, was of opinion that they belonged to a man of about 5 feet 4 inches in height, with a brachycephalic skull, the usual class of skeleton found in the short cists of the north-east of Scotland. Although the sand which filled the grave was carefully riddled no other relics were found, but the floor of the cist, "on which the remains lay, was studded under the head with pebbles common to the district in close formation, and more open in other parts, about one-fifth of them being of white quartz, all the latter situated under the head."

Near the foot of the working face of the sand-pit, about 11 yards north-north-east of the first grave, were the displaced slabs of another cist, which had collapsed by being undermined. A small deposit of much-decayed bones was noted lying on one of the slabs.

The next cist was found about two months later, on the south-western

shoulder of a gravelly hillock in the same field, about 110 yards east-south-east of the first grave, some 3 feet below the surface. The grave was a pointed oval in shape, the narrow end lying towards the east. Formed of rough water-worn stones set on end and packed round with pebbles, it measured 2 feet in length, 1 foot 5 inches at its greatest breadth, and 12 inches in depth. The floor was formed of small pebbles with a flat stone measuring 8 inches by 6 inches in the centre, and the cover which lay across the grave consisted of a large irregular slab estimated to weigh about a ton and a half, and measuring 6 feet at its greatest length, 4 feet at its greatest breadth, and from 12 to 17 inches in thickness. At the east end of the grave, hard up against the cover, stood a kind of headstone packed round with big pebbles which were continued along the east side of the cover and about half-way across the ends. On the flat stone in the floor of the grave some incinerated bones and a thin layer of ash containing small particles of charcoal were noted.

Another group of graves was afterwards discovered, within a length of about 30 yards, in a sandy ridge which runs in a north-westerly direction and is situated about 150 yards south-west of the first-mentioned cist.

The most southerly discovery in this group consisted of a number of slabs which from their position and size were believed to have formed a short cist.

At a distance of 5 feet to the north-west lay another slab-lined grave which fortunately had not been interfered with, and which was found not only to exhibit some interesting structural features but to contain important relics. The grave was constructed of four thin slabs of sandstone set on edge. It measured 3 feet 6 inches in length, 2 feet in breadth, and 2 feet in depth, the bottom of the grave being about 6 feet under the present level of the surface. A rough stone and two narrow, thin slabs formed the cover, which was further roofed over with thin slabs embedded in clay so as to make the grave waterproof. Superimposed on this roofing were three large stones, the stone at the head of the grave appearing above ground. There seem to have been indications that the irregular jointing of the corners of the cist had been packed with clay, but this had been disturbed by the burrowing of rodents. The use of clay in this fashion has been noted before. The grave lay slightly north of north-east and south of south-west, and was found to be full of sand which had probably percolated into it since the interment, and which seemed to have been traversed by the rodents, as one of the beads of a necklace was found amongst the first sand to be removed. Near the bottom of the chamber an urn lay on its side, which

though found complete was in such a fragile condition that it subsequently broke. The remains of a human skeleton were recovered, almost entirely decayed, with the exception of part of the skull and the teeth; two of the molar teeth showed decay. The head was near the south end, and the urn seemed to have been placed behind the right shoulder. On removing the skull, over forty jet beads were found in the position apparently occupied by the breast and neck, and seemingly some of these closely retained their original position, as two groups of four beads each formed a star-shaped design. The bulk of these forty odd beads were believed by the discoverers, and not unreasonably, to have formed the lower and pendent portion of the necklace, which in the reconstruction of the ornament requires thirty-three long beads. In all, seven plates, the complete number, and one hundred and seven beads were recovered.

The urn is of the food-vessel type. While it may be possible to restore the top part, the lower portion is fairly complete, and the middle part is imperfect. It has been about $5\frac{1}{2}$ inches in diameter at the mouth and $3\frac{1}{2}$ inches at the base, while its height has probably been from $6\frac{1}{2}$ inches to 7 inches; the wall is $\frac{5}{8}$ inch thick. The decoration consists of three bands of impressed marks encircling the vessel, the two upper bands being formed by two transverse lines of impressions made by a chisel-ended tool pressed on the soft clay cornerwise and not flat, as the markings are generally triangular; the lower band had two if not three lines of similar character, and on the broad lip, which is bevelled towards the inside, there is a single row of similar markings. There is a slight moulding between the shoulder and the rim.

The necklace is made of jet or lignite, and is one of the finest and most complete yet found in Scotland. It is a very beautiful ornament, and its reconstruction as shown in the illustration (fig. 1) probably closely resembles the original arrangement of the beads and plates. It consists of one hundred and seven fusiform or barrel-shaped beads, four trapezoidal plates, two triangular terminal plates, and a triangular pendant. The beads vary from $\frac{7}{16}$ inch to slightly over 1 inch in length. The trapezoidal plates are each decorated with four triangles formed by double rows of punctulations; the triangles which have their bases on the sides meet at their apices in the centre of the plate, the two resting on the ends being of small size. The terminal plates are each ornamented with a similar punctulated triangle, which is placed within a larger triangle without a base line, and a small lozenge filled in with punctulations lies between the apices of the inner and outer triangles. The triangular pendant is not ornamented.

This is the third necklace from the locality. One (No. 17)¹ was found

¹ The numbers in brackets refer to the tables of necklaces which follow.

in the field to the west, about one-quarter of a mile distant. Its site is marked on the Ordnance Survey map, which states that it was found in 1848, but the account of it in our *Proceedings* says 1841. This site is presently known as "The General's Grave." The second necklace (No. 32) was discovered a few hundred yards to the east of the spot where the Burgie Lodge necklace was disinterred, on the adjoining farm of Newmill, Alves.

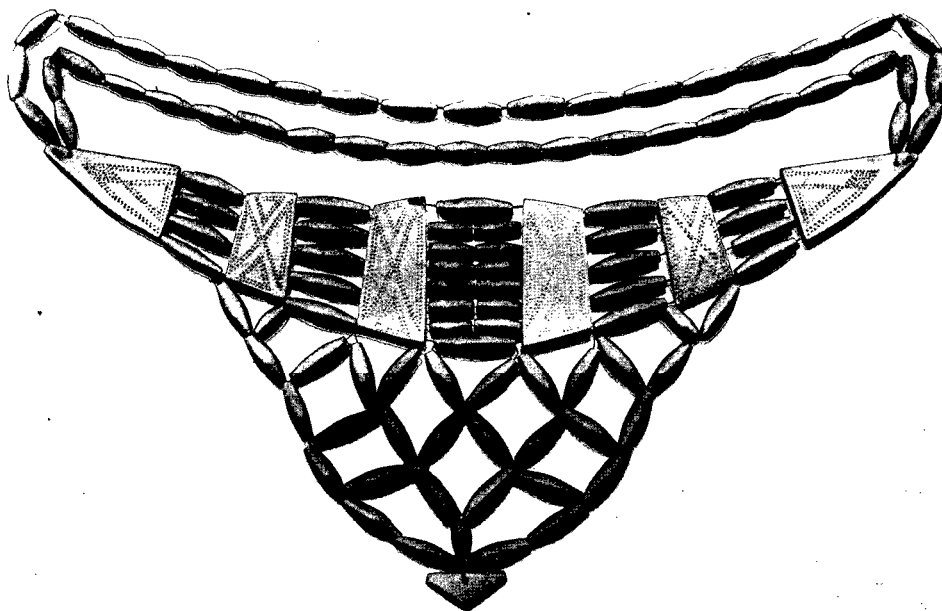


Fig. 1. Necklace of Jet found at Burgie Lodge Farm.

The last grave to be discovered was exposed in April 1914, about 25 yards north-west of the cist containing the necklace. It was formed of four slabs of sandstone about 6 inches in thickness, with a fifth for a cover. Lying north-east by east and south-west by west, the cist measured 3 feet 6 inches in length, 2 feet in width, and 2 feet 3 inches in depth, the top of the cover stone being 9 inches below the surface. The interstices between the slabs were built up by neatly fitting stones with clay used as mortar. The floor was covered with a layer of wrought clay. The grave contained the much-decayed remains of a human skeleton, the skull lying at the western end, and fragments of

an urn which had been placed close to the head were found near the right shoulder. It was described as of the "small, wide-mouthed variety, probably not over 6 inches in height. The upper part showed three lines of ridge mouldings with zigzag reversed markings on the sloping sides of the mouldings. The rim was thick and everted, showing vertical markings on the brim and on the inside of the lip. The lower band had an ornamented design of intercrossed zigzags." From this description there seems little doubt that the urn was of the food-vessel type.



Fig. 2. Slab in Cist showing hollows formed by grinding stone axes.

The most important feature in the grave, however, was the occurrence of "cup-shaped and other markings on the south-side and west-end slabs. . . . One resembled a cup-shaped quern or mortar for pounding corn. Others were hollowed out lengthways, apparently by the action of a large pebble, while one suggested the action of a square-edged instrument. Some others of the markings showed doubtless evidences of their use as whetstones."

Since reading this paper I visited the site, and Mr Bruce very kindly had part of the cist laid bare for my inspection. The slab on the south side (fig. 2), which measured about 3 feet 4 inches long, 2 feet 3 inches high, and 8 inches in thickness, bore six (possibly seven) oval hollows measuring about 9 inches in length, 6 inches in breadth, and at most

2 inches in depth in the centre, on the outer side of the stone. There were also two roughly circular cup-like hollows, apparently natural. The oval hollows were smaller than the cavity of a saddle quern, and with the exception of one the edges were less abrupt, and it is not unlikely that they had been formed by the slab having been used for grinding or rubbing stone axes into shape. The stone at the western end of the grave showed three similar hollows, but these were more weathered than those on the side slab. Several examples of stones for grinding stone axes have been found in Scotland. One in the National collection from Glenluce Sands is said to have been found with a small stone axe lying in the hollow; another from the same district, in the collection of Mr Ludovic M'L. Mann, is of the shape of a truncated pyramid with steep sides, hollows being worn on each side; a third was found by Mr A. O. Curle in a Bronze Age kitchen midden near Gullane;¹ and what may be a fourth, as it seems too small for a saddle quern, was found at Traprain.

While this cist was being laid bare at the time of its discovery the presence of a number of slabs was detected some 6 feet to the south-east, and these on further examination proved to be the remains of yet another grave which had been dismantled at some previous time.

Altogether seven graves were brought to light: three consisted of complete slab-lined short cists, three were dismantled cists, and one of oval shape was formed of water-rolled boulders. The latter was the only one containing evidence of cremation.

These do not exhaust the list of recorded Bronze Age burials found in the immediate neighbourhood, as the two cists which have already been mentioned as containing a jet necklace each have to be included.

A locality in which so many Bronze Age interments have been discovered might be expected to produce numbers of bronze implements. So far as I can learn, the only example of this class of relic found is a socketed bronze axe from Burgie, which is preserved in the Falconer Museum, Forres. But in land which has been so long under cultivation as this these relics have little chance of being overlooked and surviving to modern times. An important hoard of bronze weapons and implements, however, was found in the village of Findhorn, and was secured by a Morayshire collector of antiquities, in whose collection I saw them about twelve years ago. The hoard consisted of two socketed and looped spear-heads, a socketed axe with loop, a socketed implement with curved blade of the type found in Skye and at Wester Ord, Invergordon, and a razor.

It is fortunate that these important discoveries on Burgie Lodge farm

¹ *Proceedings S.A. Scot.*, vol. xlii. p. 309.

should have been made by such a careful observer as Mr Bruce, who was assisted in his excavations by his brother, Mr W. D. Bruce; and it is gratifying to know that the necklace and urn fragments have been presented to a public institution, the Elgin Museum, by Mr Alexander Thomson of Burgie, on whose land they were found.

NOTES ON SCOTTISH PREHISTORIC JET ORNAMENTS.

Bronze Age Jet Ornaments.—Before dealing with the question of necklaces and other prehistoric ornaments of jet found in Scotland, it should be stated that the word “jet” is used only as a generic term. Very few of the objects have been made of pure jet, and more frequently use has been made of varieties of lignite, shale, cannel coal, or parrot coal. Lignite in its various forms is widely distributed throughout Scotland; a brownish variety is found at Brora in Sutherland, and shale or cannel coal is found in Skye and Bute as well as in the coal-producing counties.

Jet was esteemed by the Romans on account of its reputed medicinal qualities. Like amber, it becomes electrical when rubbed, an attribute that might easily have been noticed by the ancient jet-worker, as polishing was one of the final processes in the manufacture of ornaments. While there is no evidence to show that the prehistoric inhabitants of these islands valued it on account of these qualities, in the beginning of the eighth century, in Northumbria, it was believed that when heated it drove away serpents,¹ a peculiarity mentioned at an earlier date by Pliny amongst others. There is at least one record of an ancient Scottish jet ornament being credited with medicinal virtues in comparatively recent times. This was a ring of jet found in 1753, in a cairn at Inchinnan, Renfrewshire, which was preserved in the parish of East Kilbride because of its reputed curative powers.² But in this case it is not unlikely that it was valued because it was a holed stone, and not from any inherent quality of the material.

In Britain the use of different kinds of lignite and shale in the manufacture of personal ornaments began in very early times, and though it has continued down to the present day, we have to go back to the Bronze Age to find the finest examples of the jet-workers' handicraft; at least I have never seen a jet ornament fashioned in modern times to equal, far less excel, in beauty or design, the necklace which has just been described—and it is only one, not the best, of a considerable number found in Scotland.

Necklaces are the finest and most elaborate of the prehistoric ornaments of jet found in Britain; and though Bronze Age ornaments

¹ Bede, *Eccles. Hist.*, book i., ch. i.

² *Proceedings*, vol. xxvii. p. 454.

of this material are found from the south of England to the north of Scotland, and in Ireland, it would seem that necklaces more frequently occur in Scotland than in any other part of the British Isles. It is surprising to note that in over twelve hundred Bronze Age graves excavated by Canon Greenwell and Mr J. R. Mortimer in Yorkshire, a county producing the finest jet, only eight necklaces were found;¹ while in Scotland, where there has been wholesale destruction but no extensive scientific exploration of burial cairns, at least forty examples have been recovered, nearly all from Bronze Age interments. As for the Continent, Sir John Evans remarks that he is "not aware of any of the jet necklaces having occurred"² there.

Scottish jet necklaces fall into two broad groups, one composed of a single string of beads, and the other of a more elaborate arrangement of plates and beads, forming a crescentic pattern worked out on regular lines. Though both groups are obviously capable of further sub-division, only these two main ideas are expressed.

In the first group, comprising ten examples,³ the simplest variety consists of small, thin, circular discs, centrally perforated, with a single triangular pendant in the centre of the string of beads, which are very finely graded in respect of their diameter. Only one perfect example (No. 1) (fig. 3, No. 3), found inside a small cinerary urn, near which was a broken stone axe, has been recorded from Scotland, while three have been found in Yorkshire.⁴ The English necklaces were found in women's graves, of which two contained a food-vessel urn. One of them had a large circular disc instead of the usual triangular pendant in the centre of the string. The small discoid bead seen in these necklaces continued to be worn into the Early Iron Age in Scotland, as a very beautiful necklace formed of fifty-nine amber beads of this type was recovered from a broch, Dunan Iardhard, in Skye,⁵ recently excavated by the Countess Vincent Baillet de Latour, who presented the necklace to the National Museum along with the other relics found in the building. What seems to have been a partially made necklace was found in Dunrobin Park, Sutherland, in a cist containing a skeleton of a young woman and a drinking-cup urn. It consisted of one hundred and eighteen discs of shale, about the size and thickness of a threepenny-piece, of which six were perforated.⁶

¹ *British Barrows*, pp. 52, 53; *Forty Years' Researches*, li.

² *Ancient Stone Weapons*, 2nd ed., p. 460.

³ I am informed by Mr Mann that a necklace of this type was found when making the railway from Stranraer to Portpatrick, Wigtownshire, and another on the Stevenston Sands, Ayrshire. The particulars of the discovery of the first of these are mentioned in the *Transactions of the Dumfriesshire Natural History and Antiquarian Society*, Third Series, vol. iii. p. 119. As there are no descriptions of these necklaces, I have not included them in the tabulated lists printed in this paper.

⁴ *Proceedings*, vol. xxxvi. p. 589.

⁵ *Ibid.*, vol. xlix. p. 64.

⁶ *Ibid.*, vol. xxxviii. p. 338.

The four examples (Nos. 3, 4, 5, and 6) are probably incomplete, and it is impossible to say whether they belonged to the variety just described or to the next class. The first of these four, from Caithness, having been found in the chamber of a long-horned cairn, might be assigned to the end of the Stone Age; but as it was discovered in a short cist, containing

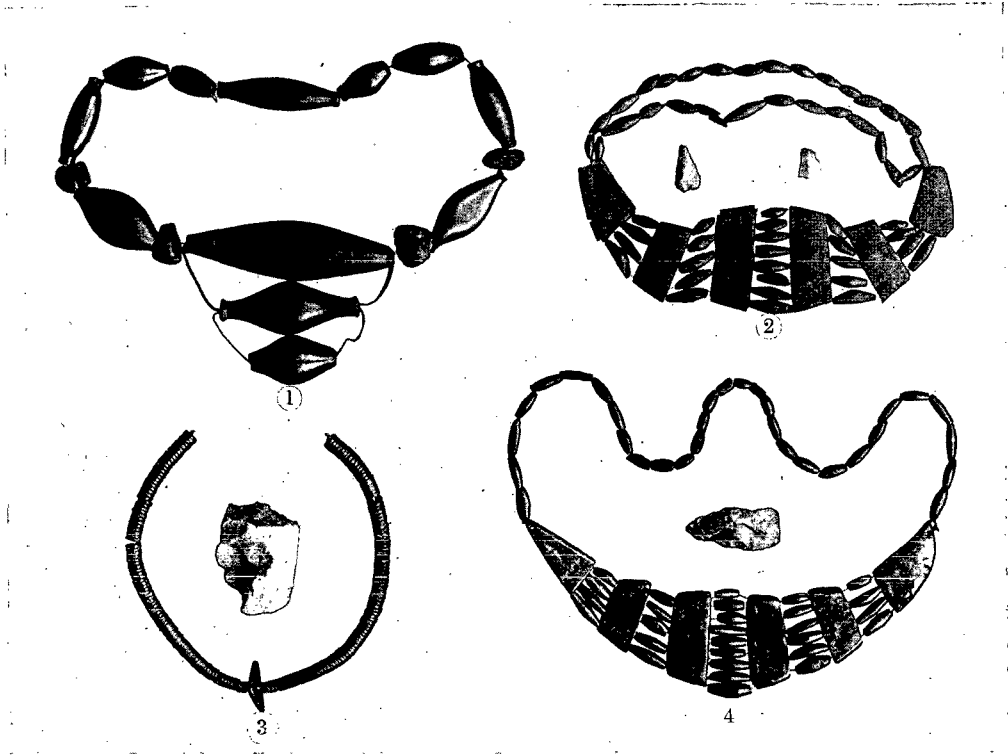


Fig. 3. Scottish Jet Necklaces:—No. 1, Cruden, Aberdeenshire; No. 2, Torrish, Ross-shire; No. 3, Glenluce Sands, Wigtownshire; No. 4, Edderton, Ross-shire.

human remains and fragments of a string-marked urn, erected within the chamber, it without doubt belongs to the subsequent Bronze Age. The next specimen (No. 7), composed of discoid and fusiform beads of jet as well as one of bone, was found in a cairn containing burnt and unburnt human remains, seven food-vessel urns, of which two had rounded bases, and a miniature urn, the smallest found in Scotland. Although the following entry in the group consists of only one bead, and that of fusiform shape, it is included among the necklaces, because it was found in

an apparently undisturbed cist, along with a food-vessel urn, and thus may have been the sole ornament possessed by the wearer. In the Lanarkshire necklace (No. 10) six of the beads are of jet and three of amber, and they are shaped like diminutive stone axe-hammers. The example from Cruden (No. 9) is a magnificent relic, and contains twelve large, oval, jet beads and three rough, perforated blocks of amber (fig. 3, No. 1); the beads expand widely at the centre, have a slight moulding at the ends, and vary from $1\frac{1}{8}$ to $4\frac{7}{8}$ inches in length. It was found in a small cairn which contained portions of the skeletons of two persons said to have been those of a man and a child. There were also found two drinking-cup urns, a fine flint axe, a stone-bracer, and seven arrow-heads, one of which, of the barbed and stemmed variety, has survived. As this cairn was explored nearly a century ago, it is doubtful if much reliance can be placed on the statement regarding the sex of the human remains, necklaces being generally found in women's graves. Still, on the other hand, the bracer, arrow-heads, and axe are more appropriate to a man than to a woman, and the presence of drinking-cup urns might be considered to point to the same conclusion. Elsewhere I have drawn attention to the fact that of the thirteen human skeletons found in short cists with drinking-cup urns in Scotland, which have been examined by anatomists, twelve were found to be men's skeletons and only one that of a woman.¹ This rule, however, is not so constant in England.

Two of the ten examples in this group come from Buteshire, and one from each of the counties of Caithness, Sutherland, Inverness, Aberdeen, Kincardine, Fife, Lanark, and Wigtown, their distribution being fairly well spread throughout the country. Besides these there are a number of beads in the National Museum that probably formed portions of necklaces. Six beads of jet came from Mouswald Place, Dumfriesshire,² but the record of their discovery is very indefinite. There are also single fusiform beads from Bizzieberry Hill, Biggar, Lanarkshire; Watch Hill, Loch Skene, Dumfriesshire; and Pencaitland, East Lothian; the second of these is $4\frac{1}{2}$ inches long, and the last, which is of flattened oval shape, is as much as 6 inches in length and 3 inches in breadth at the widest part. Many unassociated beads have been found on the Glenluce, Culbin, Shewalton, and Stevenston Sands. Half of an oval jet bead and portions of two of shale, with no localities but probably from the south of Scotland, are in the museum at Maxwellton, Dumfries.

Fusiform beads, some of very large size, have been found in English Bronze Age graves. Canon Greenwell has recorded a long bead of square section and regular thickness which was found associated with

¹ *Proceedings*, vol. xli. p. 121.

² *Ibid.*, vol. xxiii. pp. 26 and 121.

long fusiform beads, as also one of square section but swelling towards the centre.¹

The second group totals no less than thirty necklaces or portions of necklaces, and thirteen of these, including the finest specimen, are preserved in our National Collection. These necklaces consist of plates of trapezoidal and triangular shape and fusiform beads arranged so as to form a meniscus or crescent, with a double string of fusiform beads, attached to each terminal plate, for encircling the neck. There are two distinct varieties in this group, premising that the first two examples (Nos. 11 and 12) are complete. The first variety is in the form of a simple crescent, and the second, which is the more numerous, differs only from the first in having a triangular network of beads ending in a triangular pendant at the lower apex, depending from the crescentic part of the necklace. The crescent in both varieties has two triangular plates for terminals, with trapezoidal plates set vertically or rather radially at regular intervals between them; and the intervening spaces are occupied by fusiform beads, carefully graded in length, lying in the same plane as, and at right angles to, the longer axis of the trapezoids.

The first variety calls for little comment except that the first two examples (Nos. 11 and 12) show a wonderful resemblance to each other, and the fifth (No. 15), from Pitreuchie, is so small that it resembles rather the ornament of a child than that of an adult. It was found in a cist containing unburnt human bones, fragments of a food-vessel urn, and another necklace (No. 24) of the variety with the hanging network of beads. The bones do not seem to have been examined, but it is a reasonable inference that they were those of a mother and child. The Edderton necklace (No. 11) was found in a short cist, 3 feet 6 inches long, 2 feet wide at the east end, 2 feet 9 inches at the west end, and 2 feet in depth, which was exposed by the plough. A knife of black flint was found with it. As restored (fig. 3, No. 4), the triangular terminal plate on the right and the adjoining oval bead are counterfeits made to complete the design. All the beads in this necklace are of large size.² The necklace found at Fordoun House (No. 13) possibly belongs to this class. There is no triangular pendant as in the more elaborate variety; but though its absence is not conclusive, as many beads are missing and the pendant may have been lost, still the general resemblance of the necklace to the two Ross-shire specimens may justify the attribution. No details of its discovery are known, except that it was found in a cist. The crescent has consisted of six plates, of which the central and terminal plates on the right-hand side and the medial plate on the left side are wanting, as well

¹ *British Barrows*, pp. 334 and 366.

² The illustration presents a back view of the necklace and shows how the plates are bored.

as many of the beads. Of the latter there are twenty-one of fusiform shape, and fragments of other two. There is also a long narrow triangular plate pierced with two perforations at the base, which converge to form one orifice at the narrow end. As this plate is ornamented in the same style as the others, it seems to have belonged to the same necklace, and not unlikely is one of the two terminals of a double string of beads for the neck, a feature seen in the Balgay example (No. 26). The perforations on the plate show that there had been eight rows of beads in the central space, and four rows in the other spaces between the plates, of which the ornamentation consists of a punctulated design of lozenges and straight lines. These pieces have not been strung, but are preserved loose in a box which also contains a broken trapezoidal plate pierced with three holes on one edge and six on the other, another with four perforations, a small incomplete triangular plate pierced at the narrow end, and two small quadrate pieces of shale. The perforations and other indications on the two trapezoidal plates show that they could not have formed part of the necklace just described, and thus seem to be the surviving parts of other two necklaces (Nos. 38 and 39). Of the Assynt specimen (No. 14) only one trapezoidal plate has survived, but there are six triangular plates of the terminal variety. Two of them are large, and evidently formed the ends of the crescent; two are of smaller size, and may have been placed so as to form a continuation of the crescent; and the remaining pair, which are still smaller, were doubtless the terminals of the strings for attachment. Some confusion has arisen regarding the illustrations of this necklace. That in *Archæologia Scotica*, vol. iii., is correct, as it agrees with the necklace in the National Museum; but the figure appearing in *Ancient Stone Implements* under the title of Assynt, Ross-shire, bears no resemblance to the original, and is borrowed from the *Prehistoric Annals of Scotland*, where it is entitled Roxburghshire. The accompanying text in the latter work is not clear; but if the title is correct, the necklace, which is a fine one, ought to be added to the list of Scottish necklaces. It is impossible to say whether the Assynt example should be placed in the first or second variety of Group II., as it is incomplete.

In the second variety there is wonderfully little variation in design, if we are to judge by the examples, which seem to be complete or nearly so. The favourite number of trapezoidal plates, as in the first variety, is four, but six occur in the Melfort (No. 25) and Rothie-Norman (No. 30) necklaces. In the one from Balgay (No. 26) four triangular terminals were found in addition to the other plates and beads, but two of them are of small size and doubtless formed the ends of the string for the neck, as in the Assynt (No. 14) and Fordoun (No. 13) necklaces. As

these terminals are provided with two holes in the broad end, it is evident that the neck strings consisted of a double row of beads. The triangular pendant at the lowest part of the underhanging network is never ornamented like the other plates. It lies in the same plane as the rest of the ornament, the holes for suspension being very frequently drilled in the base, so that it hangs inverted. Occasionally, however, the perforation passes straight through the plate as in the Burgie Lodge necklace and in the plate from the Newmill find. In this it resembles the triangular pendant in the single-string necklaces like the Glenluce example, which being perforated in this fashion lies parallel to the other discoid beads which go to make up the necklace.

A triangular terminal plate, two trapezoidal plates, a triangular pendant plate pierced from front to back, a small square plate with two transverse holes, six fusiform beads, and a few fragments of others are preserved in Elgin Museum. Some of them are labelled Branstone, Urquhart, and some Newmill, Alves, but apparently they have got mixed. The only thing that is certain about their provenance is that the triangular terminal and the small square plate were found at the latter place, as they answer the description in our *Proceedings*.

To design and fashion these ornaments required much skill and artistic feeling on the part of the Bronze Age craftsman, and we know that he did not confine the exercise of these faculties to the manufacture of jet, but applied them to the working of such metals as bronze and gold. He had few mechanical contrivances, and, though in Scotland he did not know of the potter's wheel or turning lathe, he probably used a drill, perhaps a bow-drill. His pottery was hand-made, as also the fusiform beads, which were not turned but shaped by hand, because many of them show angular facets not quite ground away, especially towards the ends. Great skill and dexterity were required to drill correctly the long holes in the beads and plates, as the least deviation from the true line in drilling would spoil the object. The plates exhibit two kinds of perforations for stringing: sometimes the channel for the thread is drilled through the whole width of the plate, and sometimes there is only a short perforation drilled from the edge of the plate at an acute angle, so that it comes out at the back. Occasionally both styles are seen on the one plate, as in the Lunan Head necklace (No. 22), in which the plate next to the terminal of the crescent required four beads on one side and five on the other to form the design, and so, while four holes entirely traverse the plate, the extra one on the longer side is of the short, angled kind. The predominating number of beads between the two central plates is eight, though seven and nine are occasionally seen; five is the favourite, though not invariable

number in the next space; and adjoining the terminal four are usual. The plates as a rule are decorated on the upper surface with a punctuated design formed after the object had been polished. The designs take the form of chevrons, triangles, lozenges, and rectangles, with plain alternate spaces. To ensure a correct alignment of the pattern a faint draught line was sometimes scratched on the plate. The decorative motives are rectilinear and geometrical, and simply follow those seen on other relics of the period, axes and small oval knives of bronze, lunulae of gold, and drinking-cup urns. In some of the necklaces the plates are not ornamented, as in the Bogheadly (No. 27) and Rothie-Norman (No. 30) examples.

The discoid beads generally vary from about $\frac{1}{4}$ inch to about $\frac{3}{8}$ inch in diameter, and are usually about $\frac{1}{16}$ inch to $\frac{3}{32}$ inch thick. The fusiform beads differ greatly in size, but most of them are less than an inch in length. In the Burgie Lodge necklace they have been assorted into fourteen different sizes varying from $\frac{7}{16}$ inch to slightly over 1 inch in length, while in the Cruden example (No. 9) they range from $1\frac{1}{8}$ inch to $4\frac{1}{8}$ inches in length.

The association of amber and jet has been noted in two necklaces of the first group, from Cruden and from Lanarkshire, and in the necklace from Rothie-Norman in the second group. The same thing is seen in a late Bronze Age hoard of ornaments and other objects found in an urn at Balmashanner, Forfar.¹ The hoard consisted of a necklace of twenty-eight spheroidal beads of amber, more or less compressed, and five of jet, a socketed axe, thirteen penannular armlets, three large and six small rings of bronze, four penannular hollow rings of triangular section of thin gold, three penannular rings of bronze covered with thin gold, and an imperfect bowl of cast bronze. In England jet and amber beads have been found in association, and in addition there is more than one record from the south of that country of segmented beads of vitreous paste of bluish-green colour having been found with beads of jet and amber. Necklaces entirely made of amber have also been found both in Scotland and England. Twenty-seven beads of this material and two thin discs of gold were discovered at Huntisgarth, Harray, Orkney, in a grave in a mound which contained burnt human bones.² Many of the beads are of triangular shape, are small in size and perforated on the base, and two of the pieces are hook-shaped. A very fine amber necklace was found in a woman's grave in a barrow at Lake, near Stonehenge. Other ornaments of this material have not infrequently been recovered from Bronze Age graves in Wiltshire.

A glance at the lists of Scottish necklaces and their associated

¹ *Proceedings*, vol. xxvi. pp. 174, 182.

² *Ibid.*, vol. iii. p. 183, pl. xxii.

remains shows that the great majority of them were found in stone cists containing human remains, and these invariably unburnt. It is only to be expected that they would be found in the graves of women, but the sex of the occupants of the Scottish graves has very seldom been ascertained. Where this has been done the skeleton has been found to be that of a female, a possible exception being the Cruden burial already discussed, the record of which, however, is not conclusive. The evidence from Yorkshire and Wiltshire barrows shows that graves containing necklaces are those of women. The pottery found with these ornaments includes food-vessel, beaker or drinking-cup, and cinerary urns. In many of the Scottish discoveries pottery has been noted without the class of urn being recorded. However, eleven necklaces were found with food vessels, four with drinking-cups, and two with cinerary urns.

The distribution of the necklaces of Group II., like those in Group I., is fairly general throughout Scotland; but of the former group twenty-one of the thirty specimens were found in the north-eastern counties—taking the Tay as the southern boundary,—eight in Morayshire, six in Forfarshire, three in Ross-shire, and two each in Kincardineshire and Aberdeenshire. As two were found in Fife, only seven come from the south and west, three from Buteshire, two from Argyll, and one each from Renfrewshire and Roxburghshire. The outstanding feature in the necklaces in Group II. is their remarkable adherence to one standard pattern, as if many of them had been turned out of the same workshop or made by a jet-worker who had perambulated the country plying his trade. But there is no need to labour the case; the data are too scanty to build up any such hypothesis, and no trace of any Bronze Age jet factory has been recorded in Scotland.

It has been seen that the second variety of Group II.—that is, with the hanging network—is just a development or elaboration of the first variety of simple crescentic form, and consequently may be considered of a slightly later date. The chronological position of the Scottish jet necklaces according to the evidence of their associated relics seems quite clear. They are usually found with food-vessels and drinking-cup urns, which are now believed to belong to the early part of the Bronze Age, or at least are earlier than the cinerary urn. The Greenhill necklace (No. 7) in Group I., consisting of discoid and fusiform beads, was found in the same cairn as round-based food-vessels, an early variety of that class of pottery; and the Cruden necklace (No. 9) in the same group was associated, *inter alia*, with two drinking-cups and a flint axe. The Melfort necklace (No. 25) in Group II. was found in a grave containing two bronze armlets, whose ornamentation resembled that on the fragment of an

armlet found at Migdale, along with other relics, including the early flat bronze axe and jet buttons, the latter of which have been found with necklaces in England. The different lines of evidence furnished by the grave goods found with the necklaces clearly converge on one period, the first part of the Bronze Age.

The absence of globular beads in the list of Scottish jet necklaces is remarkable, and I have not been able to trace a single example from a Scottish Bronze Age dwelling site or burial, though they have occasionally been found in England.

The use of jet was not confined to the fabrication of necklaces during the Bronze Age in these islands, as a variety of objects of other kinds made of this material has been discovered in deposits dating to that period.

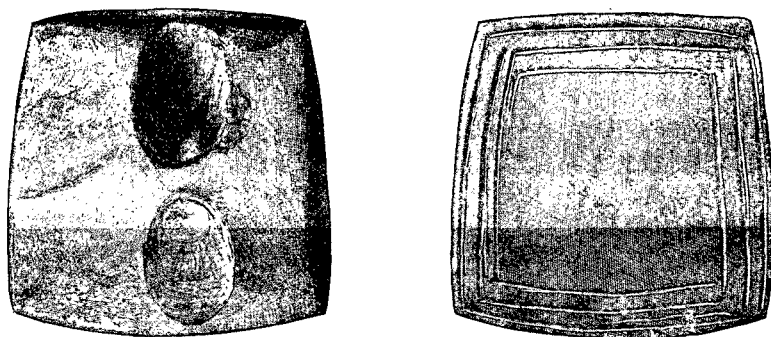


Fig. 4. Square Button, Law Hill, Dundee.

The jet button is the most numerous of these relics, but it cannot be considered common in Scotland. It is usually circular in shape, flattened on the under side, with rounded conical top. Occasionally it is oval instead of round, and one specimen from a cist on Law Hill, Dundee, Forfarshire (fig. 4), is rectangular and flat.¹ The holes by which they were attached to the garment do not pierce the button from front to back as they do at the present day, but are drilled from the under side so as to converge till they meet in the body of the object, and form an inverted V-shaped passage for the thread. By making the hole in this way the polished, exposed, upper surface of the button was unbroken, although in a very few cases the upper skin has been pierced. As a rule there was no attempt at ornamentation of the top, which presented an unbroken glossy surface, the only ornamented Scottish example being the rectangular button from Dundee Law, which bears three

¹ *Proceedings*, vol. xxiv. p. 10.

parallel lines incised round the border. Decorated specimens are also rare in England, but three at least have been recorded from Yorkshire barrows;¹ the first, from Rudstone, is ornamented with the pattern of a Maltese cross within a narrow, circular, marginal band, all hatched with straight lines; the second, from Thwing, is very similar; and the third, from Butterwick, which is of sandstone, not jet, has four straight lines incised crosswise on the top and a circular marginal line on the under side. An interesting example, which was found with a small axe-hammer, portions of three bronze armlets, and some flint chips, in or near a stone circle at Cairn Riv, Inverkeithney, Banffshire, has been bored twice, as the first fixing had got broken; the second boring was at right angles to, and deeper than, the first, with the result that the top skin of the button has been pierced.²

Sets of fancy buttons are no modern invention, as we can show that they were in vogue in Scotland centuries before the Christian era. The largest set of jet buttons found in Scotland numbers six, and these, varying from $1\frac{1}{8}$ inch to $1\frac{3}{4}$ inch in diameter, were found in an early Bronze Age hoard of relics at Migdale, Skibo, Sutherland.³ The hoard consisted of the buttons and two flat axes, three pairs of plain armlets, one pair of ornamented armlets and a portion of another, one (or probably two) ear-rings, four (or possibly five) conical, hollow bosses, and forty (or thereby) tubular beads, all of bronze. It may be mentioned that the tubular beads, as now strung, form a necklace very similar in design to some of those in Group II. An interesting feature of these beads is their wooden core, a peculiarity referred to later in dealing with the conical buttons of the same period from Wiltshire; only, the buttons were covered with a thin plate of gold instead of bronze as in the case of the beads. Five buttons of jet from 1 inch to $2\frac{1}{4}$ inches in diameter were found in a mossy tussock on the Burnt Hill, Lochee, Forfarshire, with no associated relics.⁴ A set of three (fig. 5), from $\frac{3}{4}$ inch to $1\frac{3}{8}$ inch in diameter, was found beside a large cinerary urn surrounded by rough blocks of stone, on a knoll at Old Windymains, Keith Marischal, East Lothian.⁵ Close to this deposit was a cist containing a human skeleton in a contracted position, and a broken urn, apparently about 6 inches in height, the class of which was not ascertained. The last two sets are in the National Museum. In the same collection are preserved the following specimens: three from the Glenluce Sands, two from Letham, Forfarshire, and one from Crawford Muir, Carstairs, Lanarkshire. A small oval button in the collection of Mr Mann was also found on the Glenluce Sands in apparent association with a sandstone bead and a

¹ *British Barrows*, pp. 32, 33, 187, 188, and 264.

³ *Ibid.*, vol. xxxv. p. 274.

⁴ *Ibid.*, vol. xxxvi. p. 464.

² *Proceedings*, vol. xxxvii. p. 124.

⁵ *Ibid.*, vol. xxxiii. p. 68.

string-marked beaker urn. One of the Glenluce buttons is only $\frac{1}{2}$ inch in diameter, and it will be noticed that in the three sets referred to no two buttons are of the same size.

In the Old and New Statistical Accounts of Scotland records of discoveries of jet objects are occasionally met with, and among those referred to by Sir Daniel Wilson in his *Prehistoric Annals of Scotland*, there is one stating that five studs or buttons of different sizes made of polished jet and two urns were found in 1832 in a short cist, at Dubbs, in the parish of Stevenston, Ayrshire.¹ The buttons were

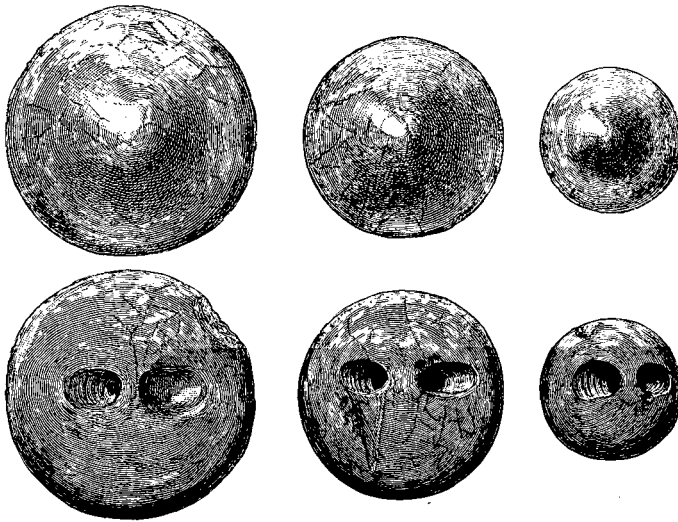


Fig. 5. Three Buttons, Keith Marischal.

“convex on the one side and concave on the other, with knobs left in the latter, seemingly for attaching them to the dress.”

The subject of jet buttons with V-shaped perforations has been dealt with in an exhaustive paper by Dr Robert Munro.² In it he shows that they are more frequently found in England than in Scotland, and that a few have been found in Ireland; also that on the Continent, while buttons of the same type are seen, the material of which they are fashioned is not jet but such substances as amber, stone, ivory, bone, and shell. It may be recalled that necklaces of jet are not found there either.

It would appear that these buttons were not always used as dress fasteners in England. Canon Greenwell discovered twenty of jet and

¹ *New Statistical Account*, vol. v. p. 454.

² *Proceedings*, vol. xxxvi. p. 464.

a penannular ring of bronze in a barrow at Hunmanby, Yorkshire.¹ Twenty-six of amber, preserved in the Ashmolean Museum, Oxford, were found with other Bronze Age relics in a barrow 7 miles from Sarum.² From the large numbers found at these places it is believed that they may have been used as necklaces and not as dress fasteners. They have also been found in graves containing jet necklaces in such numbers as to suggest that they formed part of these ornaments. In one of the Calais Wold group of barrows in East Yorkshire, ten of these buttons were found in association with beads and plates of a fine jet necklace.³ The small oval button has also been found in England.

A very beautiful variety of the jet button with V-shape perforation has been repeatedly found in Wiltshire. It is conical, but the cone is high, terminating in a sharp point, instead of a rounded apex like many of the other buttons. This conical core of jet, sometimes of wood, was covered with a thin, ornamented plate of gold lapped over the lower edge to keep it in position.

Like the necklaces, the buttons belong to the early part of the Bronze Age, as demonstrated by the Migdale hoard and confirmed by discoveries in England, where it is in men's graves that they are generally found.

A peculiar jet object of unknown use is a ring, concave on the periphery, measuring $1\frac{1}{8}$ inch in diameter on one edge and $1\frac{1}{2}$ inch on the other, and pierced with four small holes at irregular intervals on the sides (fig. 6), which was found in a cist near Yarrow Kirk, Selkirkshire.⁴ The cist, one of a group of eight, lay within 10 or 12 yards south of the most easterly of three standing stones set in a line running east and west, close to which was a stone cairn containing a considerable quantity of human bones. One of the cists yielded the fragments of an urn. A ring of

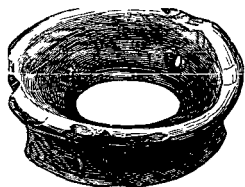


Fig. 6. Ring, Yarrow Kirk.

almost exactly similar form, $1\frac{1}{2}$ inch in diameter, was found at West Mains, Mid-Calder, Midlothian,⁵ and another near Lesmahagow, Lanarkshire.⁶ Mr Mann has part of one found on the Glenluce Sands, and I picked up a fragment of another on the same area. Since this paper was read, the Rev. R. S. G. Anderson, New Luce, has presented to the National Museum a complete ring of this class which was found in the neighbourhood of New Luce. This specimen differs slightly from the others, in that it is more rudely fashioned, has no perforations, and is

¹ *Archaeologia*, vol. lii. p. 19.

² *Forty Years' Researches*, p. 166, fig. 418a.

³ *Ibid.*, vol. ix. p. 538.

⁴ *Proceedings*, vol. xxxvi. p. 473.

⁵ *Proceedings*, vol. ii. p. 484.

⁶ *Ancient Stone Implements*, p. 456.

ovoid in shape, not round. It has much the appearance of the short neck of some of the earthenware bottles in which ink is sold to-day.

A type of ornament very rare in Scotland, and occasionally found in England, is a cylindrical piece of jet thickening slightly towards the middle and pierced with a lenticular slot extending the greater part of its length, which, it has been suggested, may have been used as a belt mounting, or fastener. The only Scottish examples recorded were found in the island of Skye and in a segmented cairn at Beacharra, Kintyre, Argyllshire.¹ The first, preserved in the National Museum, measures 3 inches in length, and the second (fig. 7), now in Campbeltown Museum, $3\frac{5}{16}$ inches. As the Beacharra example was found in a segmented cairn, it might be considered to belong to the late Stone Age, but it was found not at the bottom of the chamber, where the round-based urns were placed, but near the surface of the debris in the grave, showing that it must have come there at a time subsequent to the deposition of the pottery. Clearer evidence regarding the period of this class of object has been forthcoming in England, as several have been found in Bronze Age graves in Yorkshire. Canon Greenwell has figured an example almost identical with those found in Scotland,² and Mr J. R. Mortimer records three,³ all from Yorkshire. Two of the last-mentioned examples are slightly thicker than the Scottish specimens, and the ends of the slot are not so sharp; the third is shorter, and the hole is wider in proportion to the length. An object of somewhat similar type, which was found on Hambleton Moor, also in Yorkshire,⁴ is shorter than any of these objects, and has a large circular hole. In the collection of Mr A. Henderson Bishop, F.S.A. Scot., is a hammer-shaped object much resembling the last article, and measuring $2\frac{1}{16}$ inches in length, $1\frac{1}{8}$ inch in thickness, and $\frac{1}{16}$ inch in height, with a circular perforation $\frac{5}{8}$ inch in diameter, which was found at Hallmyre, Newmains, Peeblesshire.



Fig. 7. Belt Fastener (?), Beacharra.

Attention may be directed to several objects that have been found in Bronze Age deposits in England but not in Scotland. The first of these is the so-called pulley ring, which occurs both in the south and north of England. In section the ring, which has an internal diameter of about $\frac{5}{8}$ inch, is square, and there is a varying number of V-shaped perforations bored round the edge. In some cases it is devoid of orna-

¹ *Proceedings*, vol. xxxvi. p. 104.

² *British Barrows*, p. 34, fig. 6.

³ *Forty Years' Researches*, pp. 73 and 127, figs. 154, 320, and 445.

⁴ *British Museum Bronze Age Guide*, p. 94, fig. 91.

ment, but often it has the sides and periphery decorated. These rings have been found in graves containing jet buttons and other relics, and Sir John Evans has stated that "there can be little doubt that the ring and stud (button) together formed some sort of clasp or fastening, but in what manner the string which passed through the perforation was managed, it is difficult to say."¹ Large jet studs very similar to, but more clumsy than, the collar stud of to-day have been found in Bronze Age deposits in England,² as also a few pendants of various shapes, the most interesting of which is shaped like three flat rings conjoined in a straight line, with a laterally perforated protuberance on the top edge of the central ring for suspension, which was found in Derbyshire, in an urn containing burnt bones, a globular and a fusiform bead.³ A cylindrical piece of jet encircled with broad grooves, found in a Yorkshire barrow, may also be mentioned.⁴

The whole of these objects seem indubitably to belong to the Bronze Age, and considering that many of them display much skill in their manufacture, it is rather strange to note the almost invariable absence of the simple globular bead and the plain ring. An occasional specimen of the former has been discovered, as in the Derbyshire find referred to, but they are very rarely found in the Yorkshire barrows, and I do not know of a single Scottish example which can be said to belong to this period: of the latter the same might also be said, as the few English examples discovered have possibly formed parts of necklaces and were not worn as finger-rings or armlets.

Early Iron Age Jet Ornaments.—The ornaments of jet made during the Early Iron Age exhibit neither the elaboration nor beauty of those made in the earlier period, the Bronze Age, in Scotland, where they continued to be made by hand probably into the Early Christian period. While we have usually to depend on the evidence contained in graves for fixing the chronology of the ornaments of the earlier time, we have to turn to sites of human habitation for similar information about those fashioned after the introduction of iron.

The commonest ornament in jet of this period is the ring, which varies very much both in size and character. It ranges from the size of a small finger-ring to that of a bracelet and even larger, with many intermediate grades quite unsuitable for wearing either on the finger or arm. Some of the rings are semicircular in cross-section or are flattened on the inside, others are circular in section, and a

¹ *Ancient Stone Implements*, p. 454.

² *Forty Years' Researches*, p. 47, figs. 74 and 75; *British Museum Bronze Age Guide*, p. 93, fig. 92.

³ *Ancient Bronze Implements*, p. 463, fig. 381.

⁴ *Forty Years' Researches*, p. 218, fig. 559.

few show a flattened oval or lenticular horizontal profile when cut through. There is no dubiety about the use of the first-mentioned class, they were evidently worn on the fingers or arms. Some of those in the second variety are large enough to be worn as armlets, and no doubt were so used, but others have orifices of a size unsuitable for either the finger or wrist, and must have been worn in some other manner; even those which slip on to the finger would be very uncomfortable to wear. The third variety was worn neither on the finger nor the arm, as it is unsuitable both in size and shape.

As a rule the rings are plain, but ornamented examples have to be noted from the fortified sites on Dunagoil, Traprain, and Castle Law, Abernethy. Mr Mann has the fragment of a massive jet armlet, found at Glenluce, the outside of which takes the form of a prominent ridge with concave sides.

Rings of varying size and type have been found in fair numbers on the Glenluce and Culbin Sands, and on the sandy districts in Ayrshire known as the Shewalton Sands and Stevenston Sands. Half of a finger-ring and fragments of three armlets, from Tents Muir, Fife, another sandy area, are preserved in the museum in the Albert Institute, Dundee. Occasionally they are found on cultivated ground, though they are more difficult to see among soil, which they resemble in colour, than among light-coloured sand which gets carried away with the wind. For this reason drifting sands have specially attracted collectors, and the number of relics recovered from them probably gives a fictitious idea as to the relative archaeological richness of some of these compared with many a cultivated district. In the National Collection there are preserved rings from different parts of the country widely separated from each other: one, $4\frac{1}{2}$ inches in diameter, from a moss at Dalry, Ayrshire; one, 4 inches in diameter, from Knockando, Morayshire; one, $3\frac{1}{2}$ inches in diameter, from Skye; one, 2 inches in diameter, from West Calder, Midlothian; one, 4 inches in diameter, from Hatloch, Peeblesshire; one, $\frac{3}{4}$ inch in diameter, from Huntly Castle, Aberdeenshire; one, $2\frac{1}{2}$ inches in diameter and coarsely made, from Corsock, Kirkcudbright; a fragment from Leuchars, Fife; and one from Harden's Hill, Duns, Berwickshire,¹ which measures externally as much as 7 inches in diameter and $1\frac{1}{2}$ inch in thickness, the perforation being $2\frac{1}{2}$ inches across. In the Grierson Museum, Thornhill, Dumfriesshire, there is a ring, $1\frac{1}{2}$ inch in diameter, from Lochar Moss, Dumfriesshire. Another, found at Blackburn, Liddesdale, Roxburghshire, is in the British Museum. A large ring, apparently finished on the inside but unfinished on the periphery, and measuring about 4 inches in external diameter, is said to

¹ *Proceedings*, vol. iii. p. 363.

have been found in a cairn at Mosside, Loudoun, Ayrshire;¹ and the fragment of what has been a very fine armlet, as it is flattened on the inside, and which has had an internal diameter of about $3\frac{1}{8}$ inches, was found at Kirkmaiden, Wigtownshire.² In my own collection there is a fragment of a large ring from the farm of St Sairs, Culsalmond, Aberdeenshire, and I have seen a perfect ring of small size which was found at Gress, Lewis. Mr James E. Cree, F.S.A. Scot., has a complete ring which came from Fyvie, Aberdeenshire, and part of an armlet from Birse, Aberdeenshire, which is said to have been found under a cairn. There is the record of a jet ring found in a cist at Craigiehall.³ With the exception of the last ring and of the two reputedly found in cairns, these were all casual finds with no accompanying relics to indicate their period.

A considerable number of rings of various types have been found on inhabited sites, in forts, brochs, crannogs, and other places occupied during the Early Iron Age.

The results of the excavations carried on by the Society during the last two summers on Traprain Law are invaluable to students of the prehistoric archaeology of Scotland. Not only has the harvest of finds been rich, but from the associated and dateable Roman relics, recovered from the same clearly defined strata, it has been possible to narrow down the approximate dates which had been previously assigned to various classes of native Scottish antiquities. Another excavation, carried on simultaneously with our own, in the vitrified fort of Dunagoil, in the island of Bute, by the Marquess of Bute, has also given gratifying results in this direction, although as at Traprain the site has not been exhausted. About thirty fragments of large rings, one complete ring, circular in section and measuring $\frac{19}{32}$ inch in diameter internally, a complete flat ring and half of another of oval section too large for a finger-ring and too small for an armlet, were found at Traprain. The perfect flat ring came from the highest level of occupation, dating, say, from the fourth to the fifth century; while the armlets came mostly from the lowest level, dating from the latter part of the first to the end of the second century or thereby. The rings are all plain except one, which is of semicircular section, and has slight parallel grooves on and following the circumference, crossed at right angles by incised lines. The great majority of the large rings are armlets, as they are flattened on the inside.

The small hoard of ornaments found at Cairnhill, Monquhitter, Aber-

¹ *Arch. Coll. of Ayr and Wigton*, vol. i. p. 63, fig. 7.

² *Arch. Coll. of Ayr and Galloway*, vol. v. p. 35, fig. 28.

³ *Proceedings*, vol. xxxvii. p. 348.

deenshire, and preserved in the National Museum, contained a jet ring as well as various objects of vitreous paste, and an intaglio. The period of these relics is clearly demonstrated: the intaglio points to Romano-British times; the two large beads in material resemble the fragment of the schmelze glass armlet from Traprain; and the two small imperforate glass balls are similar, except for a slight variation in colour, to one also found at Traprain.

At Dunagoil fort the relic bed is of considerable depth, but owing to the activities of rabbits it has got so mixed up that it has been found impossible to trace any stratification. The relics are believed to indicate a pre-Roman occupation probably going back a century before the beginning of the Christian era. More than eighty fragments of rings of lignite of various sizes have been recovered,¹ amongst them being two portions of an ornamented armlet showing three grooves running spiral fashion round the circumference, and one fragment of another with an incised line round the periphery crossed by short transverse lines like the Traprain example; both rings are of semicircular section.

The fort on Castle Law, Abernethy, Perth, which, like the forts at Castle Law, Forgan-denny, 6 miles distant, and at Burghead, Morayshire, has the stone wall strengthened by tie-beams of oak, produced a large plain ring of round section, $1\frac{3}{4}$ inch in diameter externally (fig. 8), and a portion of an armlet "ornamented on both sides with a cable pattern, worked from a division in the middle to the border on each margin, the interior surface of the ring being cut flat, and the exterior semi-rounded."² The only other object of jet from the excavations on this site was a wedge-shaped piece of cannel coal, 5 inches in length, and coming to a point about an inch in width, which had apparently been used in rubbing or polishing. Few other relics were found in this fort, but a bronze fibula of pre-Roman La Tène type was recovered, which may be taken to indicate a period of occupation earlier than that yet exposed on Traprain, and approximating more to that of Dunagoil. Besides, the use of wood in the construction of the walls also points this way, as Cæsar mentions that this method of construction was adopted in some of the Gaulish forts.

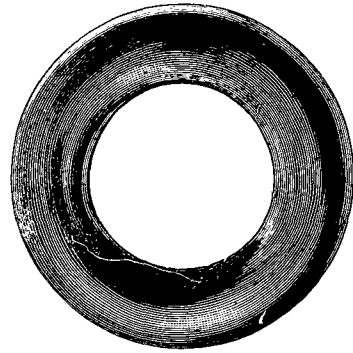


Fig. 8. Jet Ring, Castle Law, Abernethy.

¹ *Buteshire Nat. Hist. Trans.*, vol. viii. p. 70, and vol. ix., in press.

² *Proceedings*, vol. xxxiii. p. 30.

Five portions of large rings and a fragment of an unfinished ring were found in the fort at Dunadd, Argyllshire,¹ which furnished evidence of an occupation later than Traprain, and a fragment of jet in the vitrified fort at Duntroon, barely 3 miles to the north-west.²

Jet rings have been found in many Scottish crannogs. Portions of four large rings, from 2 to 3 inches internal diameter, and a small bit of a black substance like a jet button, were recovered from the Lochlee crannog, Ayrshire.³ From the Lochspouts crannog in the same county came a perfect ring, $1\frac{1}{4}$ inch external diameter, portions of two other rings considerably larger, half of a small ring, of circular section and $\frac{1}{2}$ -inch internal diameter, and several pieces of lignite showing tool-marks.⁴ A very fine ring, $1\frac{3}{4}$ inch internal diameter, and portions of two large rings were got in the crannog in Barhapple Loch;⁵ a ring, $1\frac{5}{16}$ inch external diameter, another, $\frac{13}{16}$ inch external diameter, and a fragment of a large ring with a small perforation through one end, in the Airieouland crannog;⁶ portions of two rings in a crannog in the Black Loch of Myreton;⁷ a ring, $1\frac{1}{4}$ inch external diameter, in the Barlockhart crannog;⁸ and an unfinished ring in Dowalton Loch crannog,—all in Wigtownshire.⁹ From the Ashgrove crannog, Ayrshire, a roughly shaped ring, $2\frac{1}{4}$ inches external diameter, was recovered;¹⁰ from the crannog at Buston, also in Ayrshire, fragments of three armlets;¹¹ and from the crannog in Lochan Dughail, Argyll, half of another measuring $3\frac{1}{2}$ inches in diameter externally.¹²

Crannogs are not nearly so numerous in England, but in the extensive lake village at Glastonbury, in Somersetshire, which was doubtless occupied during the first century B.C., only one object of jet, a ring not perfectly circular, and perforated eccentrically, measuring $1\frac{3}{8}$ inch in external diameter, was found, although many wheel-turned armlets of Kimmeridge shale were recovered.¹³

The list of jet ornaments found in brochs is a short one: three pieces of shale, which are discussed later (fig. 10, Nos. 2, 5, and 7), and a fragment of a large flat ring of the same material, partially made, and measuring about $5\frac{1}{4}$ inches in diameter externally, $2\frac{1}{4}$ inches internally, and $\frac{5}{16}$ inch in thickness (fig. 10, No. 10), were found in the broch of Carn Liath, Dunrobin, Sutherland; part of an armlet and a complete ring, $1\frac{1}{8}$ inch in diameter, in Keiss broch, Caithness; a portion of a ring in

¹ *Proceedings*, vol. xxxix. p. 315.

² Munro, *Ancient Scottish Lake-Dwellings*, p. 138.

³ *Arch. Coll. of Ayr and Galloway*, vol. v. pp. 116 and 120.

⁴ *Ibid.*, vol. v. p. 115.

⁵ *Arch. Coll. of Ayr and Galloway*, vol. vii. p. 33.

⁶ *Ibid.*, vol. vii. p. 58; and John Smith, *Prehistoric Man in Ayrshire*, p. 51, fig. 130.

⁷ *Proceedings*, vol. xxiii. p. 214.

⁸ *Ibid.*, vol. v. p. 103.

⁹ *Proceedings*, vol. xxxvii. p. 219.

¹⁰ *Ibid.*, vol. v. p. 103.

¹¹ *Proceedings*, vol. xxxvii. p. 219.

¹² *The Glastonbury Lake Village*, p. 261, fig. 55.

¹³ *Ibid.*, vol. xxxix. p. 280.

¹⁴ *Ibid.*, p. 174.

¹⁵ *Proceedings*, vol. xxiii. p. 214.

¹⁶ *Ibid.*, vol. v. p. 103.

¹⁷ *Proceedings*, vol. xxxvii. p. 219.

¹⁸ *The Glastonbury Lake Village*, p. 261, fig. 55.

Edin's Hall broch, Berwickshire; and a fragment of another in the broch of Ousdale, Caithness. Part of a ring was found in a mound near Burrian, North Ronaldshay, Orkney. In the Elgin Museum there is a piece of an armlet from a broch near Dunrobin.

The only pieces of jet that I know of from earth-houses are a fragment of a small ring which was found in one at Garry Iochdrach, Vallay Strand, North Uist, and part of an armlet found by Mr A. O. Curle in a hut-circle with conjoined earth-house, in the Strath of Kildonan, Sutherland. On the ancient inhabited site on the Ghegan Rock, near Seacliff, East Lothian, where a Late Celtic comb and some Roman pottery were found, half of a jet finger-ring was also recovered.¹

In the Scottish Roman forts so far examined very few relics of jet have been discovered. Not a single ring of this material was got at Newstead, which was so productive of personal ornaments. The Camelon station gave only one armlet of jet, although other decorative objects were found in considerable numbers.² Part of an armlet was found at Birrenswark,³ and half of one was recovered at Bar Hill.⁴ None is recorded from Rough Castle, Castlecary, Lyne, Ardoch, Birrens, or Cappuck.

When rings which were obviously worn on the finger or arm are eliminated, there remains a considerable residue which must have been displayed in some other manner. The rings of flat, oval section, as well as those of circular section and of a size unsuitable for wearing in these fashions, were not unlikely worn suspended from the neck. Some of them are of small size, like the two flat examples from Traprain, and the ring of circular section from Huntly Castle, but a few are much larger. A good example of this class, measuring $1\frac{1}{8}$ inch in diameter externally and $\frac{7}{8}$ inch across the perforation, was found among the cists unearthed at the Culdee Chapel, St Andrews,⁵ where other relics belonging to Christian times were recovered. Across the ring is a shallow groove evidently worn by a cord from which it had been suspended. A ring apparently of the same class is noted by Sir John Evans from one of the ancient circular habitations at Ty Mawr, Holyhead Island, Wales.⁶ It is not stated whether it is of jet or another kind of stone, but it measures $1\frac{5}{8}$ inch in diameter and has a notch cut across the ring. In my own collection is a fine massive jet ring of pointed oval section, the sharp point projecting outwards, which was found at Kintore, Aberdeenshire (fig. 10, No. 6). It measures $2\frac{7}{8}$ inches in diameter externally, $1\frac{1}{8}$ inch across the orifice, and $\frac{3}{4}$ inch in thickness.

¹ *Proceedings*, vol. viii. p. 358.

² *Ibid.*, vol. xxxv. p. 397.

³ *Ibid.*, vol. xxxiii. p. 247.

⁴ *Ibid.*, vol. xl. p. 493.

⁵ *Proceedings*, vol. xliii. pp. 411 and 412.

⁶ *Ancient Stone Implements*, p. 466, fig. 385.

Two shallow grooves encircle the ring transversely on opposite sides, not exactly diametrically, as if from these the ring had been suspended by two cords.

With the exception of these last three, none of the rings, outside those evidently worn on the finger or arm, give any indication as to how they were worn, or whether they were worn singly or in greater numbers. Perhaps they were also suspended from the neck like the large rings of glass found in France in graves of La Tène II. period (300 to 100 B.C.), which had been worn suspended from bronze neck torcs. Two sets of three of these rings, measuring from $1\frac{3}{4}$ to $2\frac{1}{2}$ inches external diameter, and fixed by a wire loop to torcs, were found in women's graves in that country.¹

A few jet rings are said to have been found in Scottish cairns, which might be taken to indicate a Bronze Age date for some of these objects, but as a rule the record of these discoveries is unsatisfactory, and simply states that they were found in a cairn. There is no evidence that they were contained in the sepulchral deposit. One from Mosside, Loudoun, Ayrshire, has been mentioned, as also one from Inchinnan, Renfrewshire, and another from Birse, Aberdeenshire. In the National Collection there is a fragment of one, $1\frac{1}{2}$ inch in diameter, which was found with four pebbles in a grave near the earth-house at Cairnconan, Forfarshire. This grave may have belonged to the Early Iron Age, as pebbles have been found in a burial deposit, believed to have belonged to that period, at Tarland, Aberdeenshire.² However, one complete armlet of lignite and fragments of three others were discovered in the large hoard of Late Bronze Age weapons and other objects found at Heathery Burn Cave, Durham.³

Three large bone rings of circular section, fashioned by hand, and closely resembling many of those made of jet, are worthy of notice; but if we are to judge by one of these examples, which measures $2\frac{1}{2}$ inches internal diameter and $\frac{1}{2}$ inch thick, they are later in date than the jet rings, as it was found in a Viking grave in Orkney.⁴ The two others were found under a flat stone, which was dislodged by the plough, on the farm of Braehead, Belhelvie, Aberdeenshire, in a field that once had been covered by a peat moss. One of the rings was broken by the finder to see what it was made of, and the other, which measures $2\frac{1}{8}$ inches internal diameter and $\frac{7}{16}$ inch thick, is in my possession. Small rings of bone were also made, as a complete example and part of another were found in the Lochlee crannog in Ayrshire;⁵ and part of

¹ Déchelette, *Manuel d'Archéologie Préhistorique*, vol. ii. part iii., p. 1333, fig. 578.

² *Proceedings*, vol. xlix. p. 203.

³ *Archæologia*, vol. liv. p. 106.

⁴ *Proceedings*, vol. xxxviii. p. 562.

⁵ *Arch. Coll. of Ayr and Wigton*, vol. ii. p. 77.

another, which fits the finger, in Mr Mann's collection, came from Wigtownshire.

While the principal use to which jet was put in Scotland during the Early Iron Age was the manufacture of rings, other objects were fashioned of this material, but they do not number very many in the aggregate, and do not exhibit a great variety of types.

In the lowest level at Traprain a rather thick discoid bead, as well as a small, rectangular, casket-shaped bead, the lower half with sides and ends converging slightly, the top forming a flattened rectangular pyramid, and perforated transversely by two holes to keep the bead in position, were recovered (fig. 9, No. 1). Mr Cree has a jet bead found at Slains, Aberdeenshire, and another, very roughly made, from Kintore in the same county. Quite an uncommon example, found on Tents Muir, Fife, is now in the Dundee Museum. It is barrel-shaped, but instead of being of round section, the surface is ground into seven longitudinal, flat surfaces running obliquely. From the condition of the exterior of the bead there is no doubt of its antiquity. Amongst the numerous objects of jet found at Traprain were the oval head of a jet pin, flattened on the lower side, and with a hole drilled partly

through it for the fixing (fig. 9, No. 2), and a globular object flattened on one side, with the lower half broken off obliquely, which may also have been a pin-head. Half of another was picked up on the site a few years ago. The complete pin-head came from the highest level. These objects may be compared with the four balls of shale flattened on the under side, showing the remains of an iron pin inserted in the centre of the flattened side, which were found at Broomend, near Inverurie, Aberdeenshire, with a Late Celtic terret-ring of the variety with two slots underneath for the insertion of the strap affixing it to the harness. This style of terret seems to be earlier than those from Traprain and Romano-British sites, which were probably inserted in a slit in the harness. Its ornamentation betrays an earlier date, as it evidently belongs to the best period of Late Celtic art, while the designs on those of Romano-British times show signs of degeneration. The associations of the Broomend and Traprain pin-heads seem to indicate that their use extended over a considerable part of the Early Iron Age.

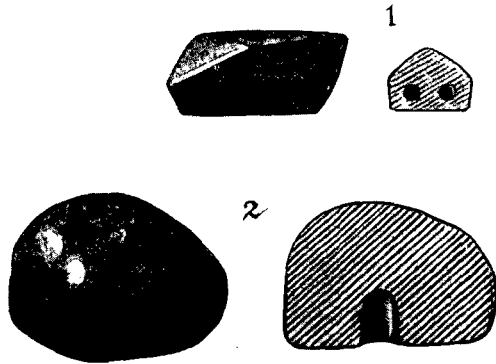


Fig. 9. Traprain Bead and Pin-head.

An irregular cube of shale, measuring about 2 inches in thickness, and roughly cut to its present shape, found at Traprain, would easily have been fashioned into a pin-head of the type described.

Several years ago a small rectangular block of shale, measuring $1\frac{1}{2}$ inch by $\frac{3}{4}$ inch by $\frac{3}{8}$ inch, bearing a drilled hollow on the top and bottom, was found on Traprain (fig. 10, No. 1). It has been suggested that its purpose might have been to steady the upper end of the spindle of a bow-drill. Two somewhat similar objects of quadrate shape, from Glenluce, are in Mr Mann's collection: the first, measuring $\frac{3}{8}$ inch by $\frac{5}{8}$ inch by $\frac{1}{4}$ inch, bears a hollow on one face only, and there is a slight groove encircling one-half of the depression, as if the sharp end of a rotating spindle had jumped out of the socket (fig. 10, No. 3); the second, measuring $\frac{3\frac{1}{2}}{3\frac{1}{2}}$ inch by $\frac{1\frac{3}{8}}{1\frac{3}{8}}$ inch by $\frac{5}{16}$ inch, has hollows on both sides, which have met, forming an aperture, about $\frac{1}{16}$ inch in diameter, in which the fragment of a small iron pin remains (fig. 10, No. 4). This piece of jet never formed the head of an ornamental pin, and the occurrence of the small piece of iron, which does not quite fill the perforation, is not incompatible with the idea suggested as to the use of these objects. Another of these objects, with a hollow on one side only, was found at Dunagoil. In the Esquimaux cord-drill the upper end of the spindle was steadied by a piece of wood, with a hollow on the under side, which, however, was held by the teeth so that both hands were free to manipulate the cord.¹

Whorls were occasionally made of jet, but it was not a favourite material, perhaps because of its want of weight. Some whorl-like objects have also been found, which may have been used as beads or for some other purpose, as the perforations differ from those on the usual Scottish whorl. A whorl found at Nethy Bridge, Inverness-shire, is in the collection of Mr Cree; two, $1\frac{5}{8}$ inch and $1\frac{1}{4}$ inch in diameter respectively, were found at Dunagoil,² and two of shale, as well as a disc of the same material, at the Roman station at Camelon,³ while seemingly other two, although the perforation in each is smaller than the average, were recovered from the Buston crannog.⁴ There is a jet whorl, $1\frac{9}{16}$ inch in diameter, from Tents Muir, in the Albert Institute, Dundee, and another of "shalestone," $1\frac{1}{2}$ inch in diameter, from the site of a lake-dwelling on Loch Rutton, Kirkcudbrightshire, in the museum at Maxwellton.⁵ One object found at Traprain, and another at Melgund, Forfarshire, may also have been whorls; but two said to have been found in a cist at Gartly, Aberdeenshire, and one in my own collection (fig. 10, No. 8), measuring

¹ *Proceedings*, vol. xiv. p. 239.

² *Buteshire Nat. Hist. Soc. Trans.*, vol. viii. p. 71.

³ *Proceedings*, vol. xxxv. p. 412.

⁴ *Ancient Scottish Lake-Dwellings*, p. 232.

⁵ *Proceedings*, vol. xxii. p. 413.

JET NECKLACE, BURGIE LODGE FARM, MORAYSHIRE. 231

$1\frac{2}{16}$ inch in diameter, from the Home Farm of Straloch, Aberdeenshire,

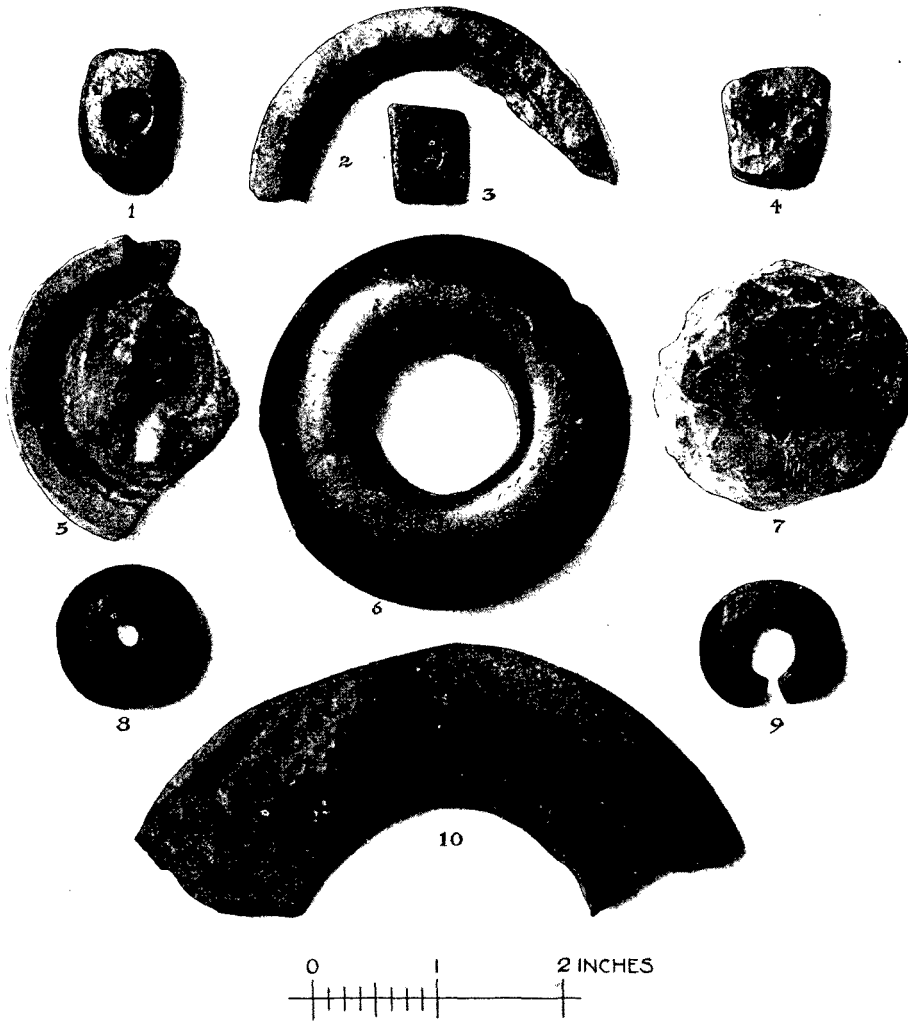


Fig. 10. Objects of Jet found in Scotland.

look more like beads. This idea is strengthened by a specimen belonging to Mr Cree, found at Fyvie, Aberdeenshire, which differs only from the

last in being of smaller size. A peculiar disc found with some fragments of partially made rings in a fort at Seamill, West Kilbride, Ayrshire, roughly fashioned and measuring about 1 inch in diameter, has a small rectangular perforation in the centre.¹



Fig. 11. Curved Pendant, Glenluce.

Thin circular discs with a minute hole in the centre have been found at Glenluce, and one measuring barely 1 inch in diameter and $\frac{1}{8}$ inch in thickness was discovered at Dunagoil.

In the National Museum there is a thin, curved pendant of circular section, tapering towards a rounded point, and perforated for suspension at the thick end (fig. 11), which was found on the Glenluce Sands, and another of the same type from the Roman fort at Newstead.² Mr Mann has a third specimen which, like the first, came from Glenluce. It has a sharper curve than the other two, and the upper end, instead of being circular like the lower part, is rectangular. Mr Mann has also an oval penannular ring of jet (fig. 10, No. 9), measuring $1\frac{1}{2}$ inch by 1 inch in diameter externally, from the same locality.

It is impossible to tell its period, as the penannular ring is a well-known Bronze Age type of ornament, and many a penannular brooch, which is simply a ring provided with a tongue or acus, was made in this country in Roman and much later times. Another relic in the Museum, which cannot be dated, is a flattened, horn-like object or pendant of jet, with a groove round the centre for suspension, and what looks like the figure of a minute boat with two persons in it incised on one side (fig. 12), from the farm of Broughton Knowe, Skirling, Peeblesshire.³ A carefully worked piece of jet found at Glenluce, and belonging to Mr Mann, is shaped like part of the lip of a circular, saucer-shaped object, with an external diameter of about $2\frac{1}{4}$ inches.

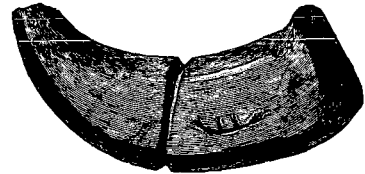


Fig. 12. Pendant with ? Boat.

Buttons with a V-shaped perforation on the under side have not been found on Scottish Early Iron Age sites, but occasionally objects of metal and bone shaped like two-beads stuck together or like a cylinder with rounded ends and constricted centre have been found, which are believed to have been used as buttons. Two of bronze were found at Newstead and one at Traprain. An object of this class made

¹ *Arch. Coll. Ayr and Wigton*, vol. iii. p. 62.

² James Curle, *A Roman Frontier Post*, pl. xciii. fig. 19.

³ *Proceedings*, vol. xxi. p. 193.

of bone was found on the Ghegan Rock inhabited site, another of the same material in one of the Archerfield caves near North Berwick, in the same district, and a third of horn at Newstead. The last one bears a strong resemblance to the double imperforate beads of glass which are not infrequently found in Ireland and occasionally on the Glenluce Sands. One at least of these objects, made of jet, has been found at Glenluce, but it seems rather small to have been used as a button.

There still remain to be noticed a number of jet objects found in Scotland which were found on early sites. One of the most interesting of these is a pendant found at the Lochspouts crannog.¹ It is shaped like a wheel, nearly $1\frac{1}{2}$ inch in diameter, with four flat spokes placed at right angles to each other and widening towards the extremities; a small projection on the outside of the ring opposite one of the spokes is pierced for suspension by a hole bored at right angles to the face of the object, but this is a secondary perforation, as originally the hole had been drilled transversely through the projection, and one side had scaled off. The ring and spokes are ornamented on one side by a row of small incised circles with a dot in the centre of each, bounded on either side by an incised marginal line; alternating with the circles on the ring are short incised transverse lines.

Occasionally irregularly shaped, perforated pieces of jet have been found. One rounded piece in the Montrose Museum, about $1\frac{1}{4}$ inch in diameter, is perforated towards one side; and another in my own collection from Leslie, Aberdeenshire, is flat, of polygonal shape, and perforated at one corner. Both examples have apparently been pendants, but there is no evidence regarding their probable period. A flat pear-shaped pendant, perforated at the narrow end and ornamented on both faces by zigzag and straight incised lines showing no special pattern, found in the Tappoch Broch, Stirlingshire, can be assigned to the Early Iron Age. A small D-shaped ring of jet with two small perforations for attachment on the flat side was found at Buston crannog.² At St Blane's, Bute, a thin splinter of shale, nearly $1\frac{1}{4}$ inch square, with an incised cross on one side and the letters DA on the other, was found during the excavation; and at a later time a small box, about $1\frac{1}{16}$ inch long, $\frac{3}{4}$ inch broad, and $\frac{1}{16}$ inch deep, with a groove for a sliding lid, cut out of a solid block of jet, was found at the same place.

I have not referred to the rings and other jet objects said to have been found at the Yirdies, near Carnwath, as their authenticity is doubtful, nor to the curious carved objects of shale found on the Dumbuck crannog, and the adjacent Dunbuie fort and Langbank crannog, about which so wild a controversy raged at the time of their

¹ Munro, *Ancient Scottish Lake-Dwellings*, p. 312, fig. 264.

² *Ibid.*, p. 232, fig. 248.

discovery. They still remain, as Dr Anderson said when they were described before the Society, "in the list of things that must wait further evidence, because they contradict present experience."¹

Two uncommon objects of jet belonging to Mr Mann are a disc from Portpatrick bearing an incised design on both faces, and about one-third of what has been a very fine, massive armlet which came from Glenluce. The disc resembles one of the waste pieces found in the locality, but the edge is trimmed, and it bears a figure on the one face which may be a representation of an eye or of a crudely drawn boat with a mast, and on the other a rectangular panel, divided into seven narrow, upright compartments, each containing a marking resembling a runic letter.² A photograph of this disc was submitted to the late Sir John Rhys, but he was unable to correlate the marks with runic script. The armlet (fig. 13)



Fig. 13. Fragment of Jet Armlet found on Glenluce Sands. (3.)

has been over $3\frac{1}{2}$ inches in diameter internally, and the surviving part bears two holes, $\frac{1}{8}$ inch in diameter, carefully drilled through the ring $3\frac{1}{4}$ inches apart, near each of the broken ends. About $\frac{3}{16}$ inch from each hole one side of a shallow groove has been cut on the outside of the ring, after it has been polished, as if to receive a plate of metal, possibly gold, which has been fixed to the jet by a rivet passing through the perforation. This armlet may be compared with the sections of glass armlets found at Traprain, which have been conjoined with metal bands or collars. Several other Scottish armlets bear small perforations: one, already mentioned, from the Airieouland crannog; another from Traprain, the perforation on which is formed by two converging holes, one bored from the side and the other from the interior of the ring; a third example preserved in Elgin Museum, provenance not known; a fourth, measuring $\frac{3}{4}$ inch in diameter, with two holes opposite each other, from a mound on Keiss Moor; and the last, one of the broken armlets from Tents Muir, which has a large perforation.

The latest dateable object of jet found in Scotland that I am able to trace is a circular piece 2 inches in diameter, with a roughly cut hole $\frac{3}{4}$ inch in diameter in the centre. It has the appearance of "the concave footstand of a vase," and was found at Talnotrie, Kirkcudbrightshire, in a hoard containing whorls, silver ornaments, and coins of Northumbria dating from 845 to 910 A.D.³

The methods of fashioning rings of jet during the Early Iron Age

¹ *Proceedings*, vol. xxxiv. p. 457.

² *Transactions Dumfriesshire Nat. Hist. Soc.*, 3rd series, vol. iii. p. 138.

³ *Proceedings*, vol. xlvii. p. 16.

in Scotland have been clearly demonstrated by numerous finds of specimens which are either partly made or have got broken in the course of manufacture. And these discoveries not only prove that they were fashioned in many parts of the country, but that there was at least one extensive manufacturing centre. The rings were hand-made, and so were other ornaments, such as the pin-head from Traprain (fig. 9), which is of irregular oval shape and thus could only have been fashioned by hand-cutting and polishing. In making small beads and rings only the simple processes of boring and rounding were necessary, but when the manufacture of larger rings was undertaken three distinct methods were employed to remove the central portion of the plate of raw material to form the perforation.

One process was to split a block of jet into a plate of requisite thickness, and cut or saw it into a rough quadrangular or polygonal shape. The outside corners were then cut off and the central portion was removed by digging or gouging, after which the ring was reduced to the desired thickness by filing or rubbing, and finally it was polished. This system of manufacture is very well shown in a set of ten blocks of jet found together on an old land surface on the Shewalton Sands in Ayrshire, of which three are in my possession. Each of the ten shows an advance over its neighbour in its stage of manufacture, from the rough quadrangular block, about $2\frac{1}{2}$ inches across and 1 inch thick, without any signs of attempted perforation, to the rounded disc in which the hollows dug out from either side have nearly met. These show that the trimming of the exterior and the gouging out of the hole went on concurrently. This system is also seen very clearly in a fragment of one of two unfinished rings found at Traprain. Other examples in the course of manufacture have already been mentioned in this paper, as at the fort of Dunadd and in the crannog in Dowalton Loch, and they have been found in other places. Perforated pieces of cannel coal with no attempt at shaping the exterior edge of the object have been found on the Stevenston Sands. One of these, with straight exterior edges and a large hole cut from either side so that there is a sharp ridge on the inside of the perforation, has been figured,¹ as also an irregular, pierced disc from the Ashgrove crannog.² It is impossible to say whether it was intended to make examples such as these into rings, or whether they may not have belonged to the same class of objects as the perforated stones found so plentifully in Aberdeenshire, whose purpose has probably not yet been discovered.³

¹ *Prehistoric Man in Ayrshire*, p. 41, fig. 108.

² *Ibid.*, p. 52, fig. 130; *Arch. Coll. of Ayr and Galloway*, vol. vii. p. 58.

³ *Proceedings*, vol. xxxvii. p. 166.

A rather different system of making rings was noted in specimens discovered in the excavations carried out by the late Marquess of Bute on the old ecclesiastical site at St Blane's, Bute.¹ Among the relics found there, which consisted largely of objects belonging to Early Christian times, were a portion of an armlet, a complete ring of small size, six fragments of roughly shaped rings of large size apparently in the process of manufacture, and a plate of rough shale, unshaped but with a *button-shaped piece*, $1\frac{1}{2}$ inch in diameter and about $\frac{1}{2}$ inch thick, removed by undercutting, and a circular hole bored in the centre of the cavity so formed. Two of the irregular button-like pieces, apparently removed from a disc like the one just described, were also found. There was another ring in the course of manufacture, showing a circular plate of shale, about $3\frac{1}{2}$ inches in diameter and $\frac{1}{2}$ inch thick, flattened on both faces and roughly rounded on the edge. In the centre was a hole, $1\frac{1}{2}$ inch in diameter, dug out from both sides, with an incised line drawn round it at a distance of $\frac{1}{2}$ inch, marking the distance to which the hole was to be cut. When completed the aperture would be about $2\frac{1}{2}$ inches in diameter.

The third method entailed much less labour in removing the central portion of the plate from which the ring was to be cut. The slab was first trimmed into a circular disc of requisite thickness and diameter, and then the core was removed by making a narrow cut at a distance from the edge suitable to the thickness of the ring. Rubbing and polishing then completed the process. Circular discs, the waste pieces from these rings, have been found in several parts of Scotland, and by many people, who apparently credited them with having been an early currency, were termed "coal money," a term which has also been applied in England to somewhat similar discs of Kimmeridge shale which were produced, not by hand, but by turning with a lathe, when making rings or armlets.

The third process of manufacture of rings is very well illustrated in three broken and discarded jet objects found in the broch of Carn Liath, Sutherland. One of these shows more than half of the original plate, which had got broken while the article was being made (fig. 10, No. 5). The outside of the ring, which would have been under $2\frac{3}{8}$ inches external diameter, had been roughly brought into shape by cutting the plate on both edges of the periphery with a sharp knife so as to leave an obtuse-angled *arris* in the centre, then a circular groove had been cut out about $\frac{1}{2}$ inch from the outer edge; but before this could be carried through the plate and the core removed, it had broken. The second fragment shows about half of a ring of about 3 inches external

¹ *Proceedings*, vol. xxxiv, p. 311.

diameter from which the discoid core has been removed (fig. 10, No. 2), and the third object is a discoid core (fig. 10, No. 7) almost 2 inches in diameter. The recovery of these relics is conclusive evidence that the jet ring was manufactured in Sutherland, one of the two most northerly counties on the mainland of Scotland. A very important manufacturing centre of the ring, however, was at Portpatrick in Wigtonshire, the most southerly county. Large numbers of discs, chips of jet, and fragments of rings in the rough have been found in the old churchyard there, and also in other parts of the town. At least one perfect polished ring has been found.¹ The churchyard, for the very obvious reason that it has been dug into for a considerable depth over and over again, has proved the most fruitful field for the finding of these relics, but there is no doubt that the jet workshops covered a considerable area which extended beyond the confines of the burying-ground, as waste pieces have been recovered in excavating the foundations of houses in the town. Some extraordinary stories have appeared in print regarding the association of the Portpatrick discs with human skeletons, but they seem to be quite apocryphal. There is not the slightest doubt that the churchyard occupies the site of an ancient jet factory, and as it has been in use for many centuries, the debris from the workshops has got mixed up with human remains, and so their association is purely fortuitous.

Discoid cores have been found in other parts of the country: several have been found at Whiting Bay, Arran; one at Dunadd fort; one on Stevenston Sands; one in a shell mound at West Kilbride, Ayrshire; and one in the Greater Cumbrae. The Dunadd disc measures $3\frac{1}{2}$ inches in diameter and is much above the usual size, which is usually nearer 2 inches in diameter. Three large irregular discs and a perforated oblong plate of shale were found when making the Windmillcroft Dock in Glasgow.

The occurrence of waste pieces and unfinished rings of jet in so many places shows that their manufacture was carried on over a wide area in Scotland during the Early Iron Age.

If we are to judge by discoveries from excavations carried out on Roman stations in Scotland, it will be seen that the jet ring was not so much prized by their inhabitants as by the occupants of contemporary and earlier native forts. However, some examples of beautifully ornamented armlets have been found on Roman sites in England, of which two, found in 1912 on the site of the Roman town of Wroxeter, in Shropshire, may be cited.

Ornaments of jet have been found on Early Iron Age sites not only in the north and south of Scotland, but in the northern and western

¹ *Glasgow Exhibition, 1911, Catalogue*, p. 871, No. 25.

islands. So far the numbers discovered in the south far exceed those from the north, a result possibly due as well to the more abundant supply of the raw material in the Lowlands as to the more extensive exploration in that region. If inhabited sites in the north-east were as extensively examined, possibly it might be found that there was no scarcity of these relics in those parts, as there is clear evidence that they were manufactured in the broch of Carn Liath, Sutherland.

Although it has been stated that it is impossible to tell the period of jet ornaments except by their ornamentation, I think that in the light of present knowledge we can confidently claim to be able to date the most numerous Scottish classes by their form. The necklace, button with V-shaped perforation, and beads of fusiform and flat discoid or washer shape belong to the Bronze Age; rings, including the finger-ring and bracelet, massive pin-heads and certain styles of pendants, are to be assigned to the Early Iron Age; and while globular beads are occasionally met with, they have been so seldom found that they cannot be claimed as a common prehistoric type. No mechanical contrivances, except perhaps the bow-drill for making small holes, seem to have been used in either period. There is a marked distinction between the character of the jet ornaments of the Bronze Age and of the Early Iron Age, those of the former period being more elaborate. This change was not a question of evolution. Whether it was due simply to a change of fashion or to the influx of a different race of people are points on which I do not care to hazard an opinion.

GROUP I.—SINGLE-STRING NECKLACES.

No.	Locality.	Number and Type of Beads.	Class of Burial and Associated Relics.	Where Preserved.	References.
1	Glenluce Sands, Wigtownshire.	187 discs and 1 triangular pendant.	Inside small cinerary urn.	Mr Ludovic M'L. Mann's collection.	<i>Proceedings S.A. Scot.</i> , vol. xxxvi. p. 584.
2	Dunrobin, Sutherland.	118 discs, only 6 perforated.	Cist, female skeleton and beaker urn.	Dunrobin Mus.	<i>Ibid.</i> , vol. xxxviii. p. 338.
3	Yarhouse, Caithness.	70 discs.	Cist, human remains and fragments of urn within a chambered cairn.	6 beads in Scot. Nat. Mus.	<i>Ibid.</i> , vol. vii. p. 498.
4	Brownhill, Arran, Buteshire.	14 discs.	Cist, food-vessel urn.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xxxvi. p. 122.
5	Farrochie, Stonehaven, Kincardineshire.	9 discs.	Cist beside large cairn.	"	<i>Ibid.</i> , vol. v. p. 14; <i>Archæologia Scotica</i> , vol. ii. p. 462.
6	Moraytown, Dalcross, Invernessshire.	3 small flat (discs?).	Cist, skeleton.	"	<i>Proceedings</i> , vol. xxxiv, p. 215.
7	Greenhill, Balmerino, Fife.	64 discs, 10 fusiform and 1 bone.	Cairn, food-vessel urns and human remains.	At Mrs Scrymgeour-Wedderburn's.	<i>Ibid.</i> , vol. xxxvi. p. 646.

GROUP I.—SINGLE-STRING NECKLACES—*continued.*

No.	Locality.	Number and Type of Beads.	Class of Burial and Associated Relics.	Where Preserved.	References.
8	Scalpsie, Bute.	1 fusiform.	Cist in cairn, food-vessel urn and portion of bronze pin.	Scot. Nat. Mus.	<i>Proceedings</i> , vol. xxxviii. p. 56.
9	Ardiffney, Cruden, Aberdeenshire.	12 large oval beads of jet and 4 of amber.	Small tumulus, two skeletons, two beakers urns, flint axe, seven arrow-heads, flint knife, stone bracer.	Arbuthnott Mus., Peterhead.	<i>Ibid.</i> , vol. xxii. p. 366.
10	Lanarkshire.	6 of jet and 3 of amber, shaped like small axe-hammers.	Tumulus.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xvi. p. 149.

GROUP II.—CRESCENTIC NECKLACES.

No.	Locality.	Number of Beads.	Number of Plates.	Lower Pendant.	Class of Burial and Associated Relics.	Where Preserved.	References.
11	Torr Sgriobhaidh, Balblair, Edderton, Ross-shire.	58	5[6(4+2)]	...	Cist in cairn, flint knife.	Royal Scottish Academy.	<i>Infra</i> , p. 212.
12	Torrish, Kildonan, Ross-shire.	57	5[6(4+2)]	...	Cist in cairn, chert arrow-head and flint spear-head or knife.	Dunrobin Mus.	<i>Proceedings</i> , vol. viii. p. 408.
13	Fordoun House, Kincardineshire.	23	5[8(4+2+2)]	...	Cist.	Montrose Mus.	<i>Infra</i> , p. 212.
14	Old House of Assynt, Ross-shire.	22	7[?(4+2)]	...	Cist in cairn, human remains and urn.	Scot. Nat. Mus.	<i>Archæologia Scot.</i> , vol. iii. p. 49, pl. v.
15	Pitreuchie, Forfarshire.	24	4[5(3+2)]	...	Cist, along with necklace No. 24, etc.	..	<i>Proceedings</i> , vol. xli. p. 65.
16	Balcalk, Tealing, Forfarshire.	140	6(4+2)	Triangular.	Cist, skeleton, food-vessel urn, flint knife, and fragment of bronze pin.	..	<i>Ibid.</i> , vol. xiv. p. 260.
17	Dam of Burgie, Rafford, Morayshire.	128 (120)	6(4+2)	Ring with 3 perforations.	Cist, skeleton and urn.	A triangular terminal plate in Forres Mus.	<i>Ibid.</i> , vol. xii. p. 298.
18	Burgie Lodge, Rafford, Morayshire.	107	6(4+2)	Triangular.	Cist, skeleton and food-vessel urn.	Elgin Mus.	<i>Infra</i> , p. 203.
19	Pitkenedy, Aberlemno, Forfarshire.	104	6(4+2)	..	Cist, urn.	..	<i>Proceedings</i> , vol. iii. p. 78.
20	Mountstuart, Bute.	100	6(4+2)	..	Cist, female skeleton and food-vessel urn.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xxxviii. p. 64.
21	Law Park, St Andrews, Fife.	79	6(4+2)	..	Cist, skeleton and drinking-cup urn.	..	<i>Ibid.</i> , vol. xli. p. 404.
22	Lunan Head, near Forfar.	78	6(4+2)	Oval (lost).	Cist, skeleton.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xii. p. 290.
23	Hill of Roseisle, Morayshire.	64	?(?+2)	...	Cist, skeleton.	..	<i>Ibid.</i> , vol. iii. p. 46.

The number of beads in the third column is doubtful in one or two cases, as different records do not agree. In the next column the surviving number of plates is first indicated; the figures in the square brackets show the original number of the plates, and those in the curved brackets indicate first the original number of rhomboidal plates, then triangular terminals.

GROUP II.—CRESCENTIC NECKLACES—*continued.*

No.	Locality.	Number of Beads.	Number of Plates.	Lower Pendant.	Class of Burial and Associated Relics.	Where Preserved.	References.
24	Pitreuchie, Forfarshire.	57	6(4+2)	Triangular.	Cist, skeleton, food-vessel urn, and necklace No. 15.	Scot. Nat. Mus.	<i>Proceedings</i> , vol. xli. p. 65.
25	Melfort, Argyllshire.	45	8(6+2)	"	Cist, skeleton, two bronze armlets.	British Mus.	<i>Ibid.</i> , vol. xix. p. 134.
26	Tayfield, Balgay, Newport, Fife.	43	7[8(4+2+2)]	"	Cist, food-vessel urn.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. viii. p. 411.
27	Bogheadly, Fetteresso, Kincardineshire.	37	6(4+2)	"	Cinerary urn.	"	<i>Ibid.</i> , vol. vi. p. 88.
28	Glebe, Kilmartin, Argyllshire.	26	2	...	Cist in cairn, food-vessel urn.	...	<i>Ibid.</i> , vol. vi. p. 340.
29	Tormore, Arran.	21	1	...	Cist, fragment of urn.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xlv. p. 220.
30	Blinmill, Rothie-Norman, Aberdeenshire.	14 jet and 2 amber.	8(6+2)	Triangular.	Cist in cairn, skeleton, food-vessel urn, and fragment of bronze.	"	<i>Ibid.</i> , vol. vi. pp. 203 and 217.
31	Boghead, Kintore, Aberdeenshire.	8	4	...	...	"	<i>Ibid.</i> , vol. xii. p. 204.
32	Newmill, Alves, Morayshire.	8	4	Triangular.	...	Elgin Mus.	<i>Ibid.</i> , vol. xii. p. 299.
33	Houston, Renfrewshire.	...	...	...	Cist in cairn.	...	<i>Old Statistical Account</i> , vol. i. p. 330.
34	Branstone Urquhart, Morayshire.	...	...	...	Cist, skeleton.	Elgin Mus.	<i>Proceedings</i> , vol. ii. p. 531.
35	Kellas, Murroes, Forfarshire.	1	1	...	Cist, food-vessel urn.	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xxiv. p. 9.
36	Earlston, Roxburghshire.	...	2	...	Cairn.	Hawick Mus.	<i>Ibid.</i> , vol. xxii. p. 395.
37	Culbin Sands, Morayshire.	...	1	...	...	Scot. Nat. Mus.	<i>Ibid.</i> , vol. xxv. p. 510.
38	Forfarshire?	...	1	...	...	Montrose Mus.	<i>Supra</i> , p. 213.
39	"?	...	1	...	...	"	"
40	Dunan Beg, Lam-lash, Arran.	1	...	...	Cist in cairn, beaker urn.	Scot. Nat. Mus.	<i>Proceedings</i> , vol. xliii. p. 347.