A BRONZE AGE CIST BURIAL AT MASTERTON, PITREAVIE, FIFE

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INTRODUCTION

AT the beginning of April 1961 a short cist was discovered during work preparing the approach road to the N. side of the Forth Road Bridge. The site was on the N. edge of the new road about 200 ft. E. of the junction of the new road with the old lane from Rosyth to the farm of Masterton (map ref. NT 121845). The cist was a little S. of the summit of a slight knoll in a field which falls gently from the ridge to the N.

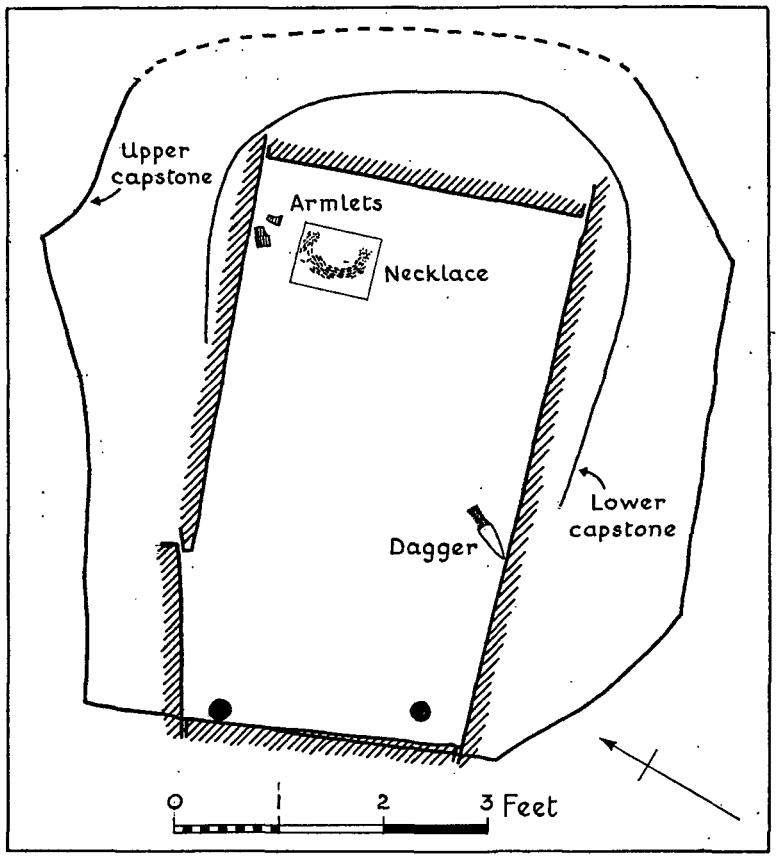

FIG. 1. Masterton: plan of the cist

Excavation

The cist of sandstone blocks was unusually large and unusually well made. It was covered by two capstones with an earth layer between them. The upper capstone was about 1 ft. below the surface. It measured about 7 ft. by 6 ft. 9 in. and was mainly 8 in. thick. The earthy layer below it was 6 in. deep. The lower capstone was smaller, measuring about 3 ft. 10 in. by over 6 ft. 4 in. and was 3 to 5 in. thick. The heavy machinery which had passed over the cist had broken both capstones, large pieces of which had fallen into the grave.

The cist was made of five rectangular slabs, two stones being needed for the N. side. The cist measured 5 ft. 3 in. long by 3 ft. 2 in. at the E. end and 2 ft. 8 in. at the W. end. All the joints had been very carefully luted with sticky grey clay which still remained in position except for the upper part of the NW. corner, and the joint in the N. wall. Clay had also been used generously round the edge of the lower capstone. This had made the cist water tight and free from silting. The floor of the cist was laid earthy gravel, which appeared to be the same material as that between the capstones and round the outside of the cist, on (presumably natural) sand. The side-stones rested at floor level, but the end-stones were set lower, the depth of the cist being 2 ft. 5 in. at the W. end to 2 ft. 9 in. at the E. end, but the depth of the end stones being 2 ft. 8 in. and 3 ft.

At each bottom corner of the cist there was a considerable lump of clay spreading over the floor. In the NW. and SW. corners this covered a pair of post-holes. The NW. hole was against the end-stone, 3 in. from the side-stone, $2\frac{1}{2}$ in. in diameter, and 9 in. deep. The other was 2 in. in diameter, $2\frac{1}{2}$ in. from the end-stone, $4\frac{1}{2}$ in. from the side-stone, and 7 in. deep. The post-holes were empty of earth when found. The clay covering them had not fallen from above, but had been placed deliberately over the empty holes after the posts had been withdrawn. The posts were round-sectioned and had been driven into the gravel. The most reasonable explanation of their presence is that they supported the end-stone during the construction of the cist.

In the NE. part of the cist were found the remains of two bronze armlets, badly corroded, and broken by the fall of a piece of capstone. Beside the armlets was a necklace of jet beads. This lay on the gravel floor, and most of the beads seemed to lie in almost the relative positions in which they had been strung, though the triangular toggle was in the SE. corner. These beads were planned in detail (fig. 2[1]), so that the necklace could be reconstructed. Beside and below the armlets were the remains of a handle of wood or horn with a small knob terminal, but too decayed to preserve. Part of a small bronze blade came from near the armlets, but was disturbed in removing the broken capstone pieces. At the S. side there was a bronze dagger, with its extremely decayed horn handle. Some fragments of the handle were recovered.[2]

[1] Those beads drawn lighter and with numbers in brackets were at a slightly higher level and were lifted the day before the main part of the necklace. Unfortunately an error in planning has necessitated an adjustment; these beads are in their correct relationship to each other, but only approximately correct in relation to the rest of the beads.

[2] We are most grateful to Dr A. S. Clarke of the Royal Scottish Museum for examining the material. He reported that 'entire pieces, under moderate magnification, showed characteristics both of horn and of

The only vestiges of the body were fragments of bone inside the armlets and above the dagger, where they had been in contact with the metal oxide, and the enamel crowns of a few teeth just S. of the beads. These belonged to an individual aged between 20 and 25 years (see report in appendix).

Over the gravel floor there was a dark brown stain, which in places, especially round the armlets, had a fibrous structure.

Finds and Discussion

The jet necklace consisted of 67 barrel-shaped (or fusiform) beads, 91 disc beads and a triangular toggle (one barrel bead and several disc beads disintegrated). The beads vary greatly in condition, some being very black with a highly polished surface,

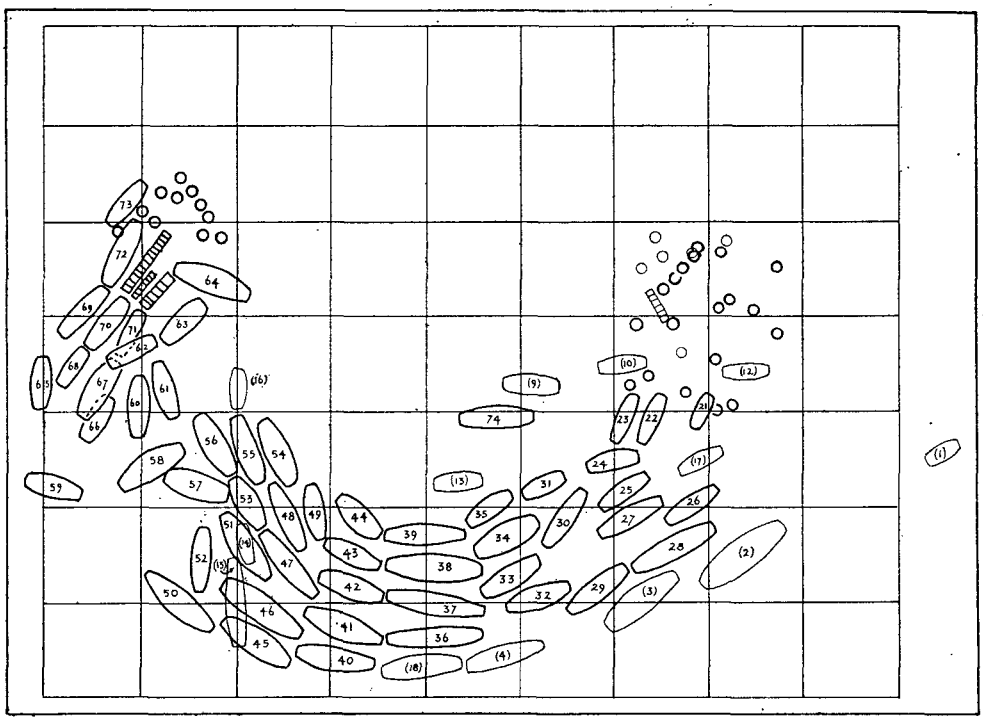

Fig. 2. Masterton: plan of the jet necklace (½)

others being dull and badly cracked. The barrel-shaped beads vary from 0·48 to 1·1 in. long; some of the shorter ones are almost tubular in shape, others swelling only slightly towards the centre and yet others expanding to as much as 0·4 in. thick.

wood affected by dry rot. The fragments dissolved in dilute potassium hydroxide which had no material effect on old wood from a crannog. Horn from peat also dissolved in KOH but left a clear outline of the flattened cells of which it was composed. In the macerated cist material such cell remains were not seen with certainty but fungal hyphae were very apparent. Together with observations in polarised light this leads me to conclude that the fragments from the cist are definitely not wood and are almost certainly from horn, badly degraded by fungal and/or bacterial activity, probably occurring shortly after interment.'

Some of the beads have been made somewhat flattened in cross-section. Very few beads do not show areas of wear, in varying degrees, around their widest part. The wear is generally localised; on the flattened beads it occurs on the flatter faces, on round-section beads it may occur in several places not necessarily diametrically opposite. On some beads the wear has produced a slight hollow. This suggests that the beads have been held rigidly in relation to each other, such wear being impossible in the way they are now strung in separate rows. The disc beads are about 0·18 in. in diameter, varying very little, and 0·02 to 0·1 in. thick. The toggle has a transverse perforation just inside the centre of the long edge.

From the way the beads lay it is certain that the barrel-shaped beads formed five strings, and were roughly graduated with the smaller beads towards the ends. The disc beads continued the ends of the strings. Thus arranged the beads form only about two-thirds of the minimum needed to encircle the neck, and it is necessary for the strings to have continued at least another 2 in. before the toggle and its loop formed the fastening. The toggle was in fact found apart from the beads, towards the SE. corner.

The barrel-shaped beads are, of course, the type used for the crescentic necklaces with spacer-plates, and the toggle is the normal type of fastening for such necklaces. These necklaces have been fully discussed by Callander and Craw.[1] They have been found widespread in Scotland, and also in Northumberland, Yorkshire and Derbyshire, occasionally further S. and in Wales. Their association is firmly with food vessels; the few alleged beaker associations are doubtful, or equivocal in a chambered tomb. Necklaces composed entirely of disc beads have a similar distribution and associations. Necklaces of mixed barrel and disc beads have been recorded on at least nine occasions, in Scotland[2] and Yorkshire. Necklaces of all three types are frequently incomplete, and may be made up from parts of two or more different necklaces.

The knife-dagger is 5·3 in. long, but was probably 5·6 in. long originally as both the tip and the heel are damaged. Parts of two rivet holes survive, probably the total as only a little of the rounded heel seems to be missing. The straight long edges of the blade are bevelled. The surface is pitted with corrosion, but where uncorroded the surface of the metal is bright and yellow, almost appearing gilded in places. The position of the lower edge of the hilt with its V-shaped notch is clearly marked by a colour difference. The hilt was visible during excavation as a dark mass on the floor of the cist, but only fragments could be recovered. One of the rivets was found, measuring ·35 in. across the expanded head, and ·38 in. long.

Although three rivets is the usual number, daggers with two are not unknown.[3] In a note on the dagger from Bught Park, Inverness,[4] Professor Atkinson has distinguished two varieties of knife-daggers, those with a lunate or penannular notch at the base of the hilt, and those with a V-shaped notch and the lateral parts sometimes receding to give a splayed W outline, the latter belonging to northern and

[1] *P.S.A.S.*, L (1915–16), 208–17; LXIII (1928–9), 154–87.
[2] Associated objects listed, ibid., L, 238–40, LXIII, 186–7.
[3] Evans, J., *Ancient Bronze Implements* (1881), 227.
[4] *P.S.A.S.*, LXXXVIII (1954–6), 9–10.

western Britain.[1] The only specimen of this type, other than that from Masterton, which has been found in association is that from Cairn Greg, Linlathen, Angus,[2] found with a degenerate-looking beaker. Another dagger of the type, from Skateraw, E. Lothian, has a gold pommel mount. A dagger with a similar gold mounting, but with the lunate hilt-notch (the only one with a cremation) was presumably contemporary with two other burials with short-necked beakers, under the cairn at Collessie,

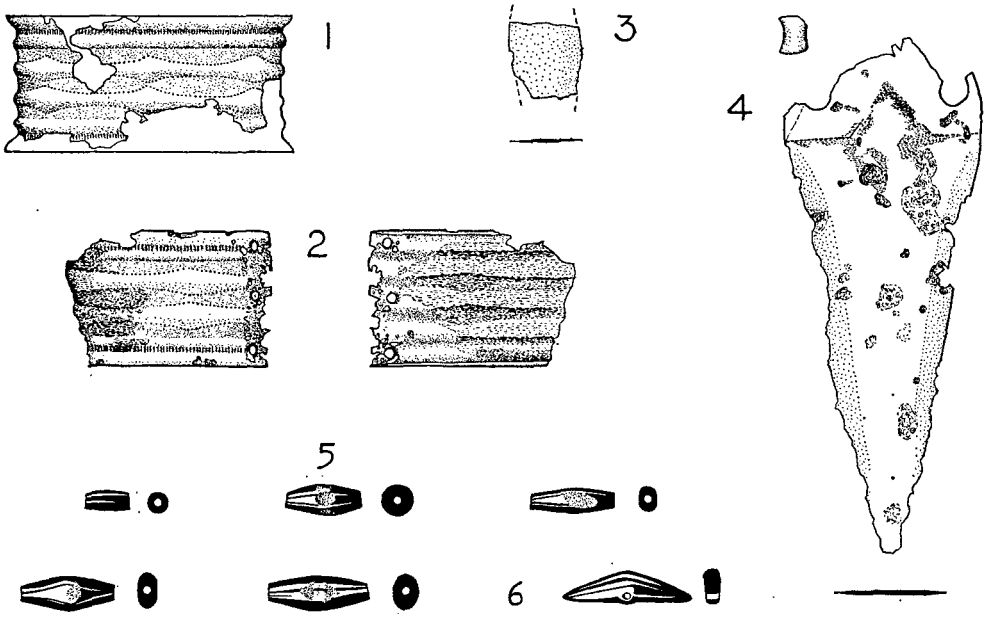

FIG. 3. Masterton: the finds: 1. Bronze armlet; 2. Outside and inside of the end portion of armlet; 3. Bronze blade; 4. Bronze knife-dagger and rivet; 5. Selection of jet beads; 6. Jet toggle (½)

Fife.[3] A damaged and unclassifiable knife-dagger was found with two gold discs at Barnhill, Broughty Ferry, Angus. A greatly decayed blade was found with a wrist guard and beaker at Callachy, Glen Forsa, Mull. Two related daggers, one with multiple rivets, were included in the hoard from Auchnacree, Angus.[4]

The small bronze blade was broken, and only the centre portion was recovered. It is 0·75 in. across, with sharp edges and swelling to only 1 mm. thick in the centre. The small wooden handle with a knob end which was found by the armlets presumably belonged to the blade. The handle could not be preserved. The only analogy from an early Bronze Age context, but not a close one, is the tanged blade from a beaker burial with an awl and jet buttons at Kirkcaldy, Fife.[5]

The armlets were greatly corroded, and also were damaged by the fallen pieces of the capstone. Five large pieces and some smaller fragments survive, being parts of

[1] Dagger graves listed in Childe, V. G., *Scotland Before the Scots* (1946), 121–2, to which may be added Bught Park, Inverness, Blochairn, Stirlingshire (*T.G.A.S.*, I (1868), 227), Ashgrove, Fife (*D. and E.* (1963), 30) and Masterton.

[2] *P.S.A.S.*, VI (1864–6), 100.

[3] ibid., XII (1876–8), 439–45.

[4] *Inv. Arch. G.B. 27.*

[5] *P.S.A.S.*, LXXVIII (1943–4), 110–12.

a pair of identical armlets. They are 1·4 in. deep; across the slightly everted edges they have a diameter of 3 in. Each was made as a strip, with the long edges neatly bent over onto the inside. Only one end remains, cut across in a slightly convex line, and retaining three small rivets. There is no sign that the ends of the armlets overlapped (the ends are not bevelled), but more probably the rivets attached the metal to another substance. The edges of the armlets are slightly everted, and there are also four ribs beaten up from the inside. The two central ribs swell into lozenges at intervals; there must have been six lozenges in the circuit. The shape of the central pairs of ribs is emphasised by an outline of punched dots, and a row of close, vertical strokes has been punched in the hollow between the outer ribs and the everted edges. Where the surface of the metal is not corroded it is very glossy. The armlets are very well made and the pattern is executed with precision.

The armlets are comparable to a pair from Melfort, Argyll.[1] The surviving armlet of this pair is similar in form and size (1·9 in. deep and 2·75 in. in diameter), of thin metal with the pattern beaten up. The pattern is of rows of lenticular bosses and groups of lines made with a tracer. The armlet differs in that it has been made as a continuous cylinder, and the edges are thickened, not turned in. The armlets were found with an extended inhumation in a cist, with part of a jet necklace of barrel-shaped beads and spacer-plates.[2]

The decoration of the Melfort armlet has been compared to that on a bronze strip in the Migdale hoard from Sutherland, which bears a row of lenticular bosses

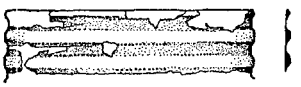

FIG. 4. Armlet from Williamston, Perth (½)

with a background of traced strokes.[3] It has been argued that this object, together with a number of small bronze tubes included in the hoard, formed, when mounted on wood, part of a crescentic necklace imitating one of the familiar jet spacer-plate necklaces.[4] Another item in this hoard is a pair of armlets. They are made of bent butt-jointed strips, having three ribs on the outside with a line of close vertical strokes in the hollow between, and oblique nicks along the edges (not noted in the *Inventaria*). The ribs, though straight, and the stroke decoration are like those on the Masterton armlets, but the ribs on these armlets are cast, and though narrower these armlets are considerably heavier. A similar armlet made from a bent strip cast with ribs was found with a burial at Williamston, near Perth.[5] The armlet is very slightly smaller in diameter, about 2·4 in., and of much thinner metal than the Migdale armlets. Only two fragments survive, one retaining part of an original edge. The original width is therefore unknown but probably there were four ribs originally, the

[1] *Inv. Arch. G.B. 25.*

[2] Another instance of an inhumation with a jet necklace and bronze armlets may be Pen Y Bonc, Holyhead, N. Wales, *Arch. J.*, XXIV (1867), 257–8.

[3] *Inv. Arch. G.B. 26.*

[4] *P.S.A.S.*, LXXXIX (1955–6), 456–7.

[5] ibid., LIII (1918–19), 15–24. The armlet is preserved in the City Museum, Perth.

two outer being narrower. The inner ribs are outlined by tiny dots similar to those used on the Masterton armlets. The dots are arranged in groups of thirteen or fourteen covering 0·6 in., separated by undecorated spaces of the same length, and in each row the dots are opposite the spaces of the neighbouring row. Where preserved, the surface has a high gloss. In publishing this armlet Callander drew attention to another armlet, with three ribs, found (in unknown circumstances) in the first excavations of the Roman fort of Cappuck, Roxburghshire.[1] It is of similar size and weight to the Migdale armlet. Previously regarded as of the Roman period, this armlet should probably be included with those of the early bronze age.

An object, described as nearly half a 'thin bracelet of gold' was found with a food vessel at Camus Cross, Monikie, Angus in 1620. It is now only known from a poor engraving. It appears to have five longitudinal ribs with some kind of punched decoration between them. The engraving is claimed to be full size, giving the object a width of $\frac{1}{2}$ in., and a diameter of only about $1\frac{1}{2}$ in.[2] Whether an armlet or not, it is closely related to the armlets mentioned above.

A hide had covered the floor of the cist. Only a dark stain remained except for a few fragments of a fibrous nature with minute fragments of a thin black substance adhering to one side, mainly preserved in contact with the armlets. The fibres were examined by the Wool Industries Research Association, and were found to be most like the hair of a European bison.[3] The survival of hide is an exceptional circumstance and thus probably of little significance. Four other instances in Scotland seem fairly certain (Blackhills and Broomend in Aberdeenshire, Bishopmill near Elgin, Tillicoultry in Clackmannanshire,[4] and perhaps also Forteath, Aberdeenshire[5]). In two cases the hide was recorded as lying over the body.

The cist. In considering the structural features of the cist we are grateful to Miss D. M. Hunter for much discussion, and for most of the information below which she generously extracted from her corpus of Early Bronze Age inhumation burials. North Britain (i.e. Scotland and England N. of the R. Tees) can be distinguished as a province regarding this burial rite. Miss Hunter listed the cists within the province with clay luting, double covers and massive covers (the last an unreliable feature because of the difficulty of definition as it should be related to the size of its cist). There is no distinguishable group of cists having these three linked characteristics, nor is there any association of particular grave goods with any one of these particular features. There were thirty-five clay luted cists (interpreting luting strictly), of which seven or eight had double capstones and three had 'underground cairns' or conical

[1] *H.B.F.C.*, XIV (1892–3), 387; illus. *P.S.A.S.*, LIII (1918–19), 22. It is perhaps worth recalling another example of sheet bronze with repoussé decoration, now lost, found in a cinerary urn at Balnabraid, Kintyre, Argyll (ibid., LIV (1919–20), 179).

[2] ibid., II (1854–7), 447.

[3] We are most grateful to Dr H. M. Appleyard who examined the fibres and reported his findings in a number of letters. Cross sections were prepared, which showed that most of the fibres are fine, a few are comparatively coarse. The thickness of the fibres range approximately 10 μ–30 μ. Some of the coarse fibres had a fine lattice-type medulla. Some fibres were densely, others lightly, pigmented. The fibres had most in common with fibres from the European bison, 'i.e., similar pigment distribution and cross-sectional appearance. The fibres from Masterton are, however, much finer than any bison fibres we have examined. Only one very short length of scale pattern could be found and this was not enough for the purpose of identification.'

[4] *P.S.A.S.*, XLIII (1908–9), 89: VII (1866–8), 115, 118; XXIX (1894–5), 195.

[5] ibid., V (1862–4), 363.

piles of stones between the capstone and ground surface.[1] About eight luted cists might be regarded as having massive covers. However, there does seem to be a tendency, as would be expected, for the richer graves to be more carefully built. Of the few recorded Scottish burials with flat daggers it is probably significant that those at Barnhill, Bught Park, Letham and Cairn Greg were luted, the last also having a double massive cover. The Williamston cist, already noted as containing an armlet, had a double cover.

The stakes at Masterton, withdrawn before the cist was completed and almost certainly functional, are without parallels. Other records of stake-holes in England and Wales seem to imply some ritual purpose, or, in certain Yorkshire graves, seem to be connected with a structure of wood or hurdling round the body.[2]

Cists of the size of Masterton are uncommon. It might be considered that it held a double burial, for jet necklaces are generally considered to belong to female burials, and bronze daggers to males.[3] Double inhumations in cists are known in at least eight instances in Scotland, sometimes obviously successive, but in at least one

TABLE

CISTS WITH TWO OR MORE FEATURES IN COMMON WITH MASTERTON

	Reference in P.S.A.S.	*Luting*	*Double Cover*	*Massive Cover*	*Grave Goods*
Burgie Lodge, Moray	L, 201	*	Triple		Food vessel, jet necklace
Barnhill, Angus	XXI, 316	*		*	Dagger, gold discs
Bught Park, Inverness	LXXXVIII, 7	*			Dagger
Broomend, Aberdeenshire	VII, 115	*		*	2 beakers, horn spoon, hide
Cairn Creg, Linlathen, Angus	VI, 98	*	?	*	Dagger, beaker
Dog's Knowe, Lunanhead, Angus	XII, 288		*	*	Jet necklace
Letham, Tibbermuir, Perth	XXXI, 181	*		*	Dagger, 2 bone pins (? 2 bodies)
Moss Knowe Dumfriesshire	XLIII, 165	*	*	*	(3 bodies)
Stroanfreggan, Kirkcudbrightshire	XLV, 428	*	*	*	Flint knife
Summerhill, Northumberland	*Arch. Ael.*, XVI (1939), 262	*		*	Beaker
Williamston, Perthshire	LIII, 15		*		Armlet
Tillicoultry, Clackmannanshire	XXIX, 190	*		*	Food vessel, hide
Cavers, Roxburghshire	XXXI, 188		*	*	Bone pin, bone disc, scraper, barbed-and-tanged arrow-head (inhumation + a cremation)

[1] Best described at Broomend of Crichie, *P.S.A.S.*, XVIII (1883–4), 322.

[2] e.g. Bampton 253, *Arch. 52* (1890), 28.

[3] Actually, only five are known to be female, and one with a mixed barrel and disc bead necklace and food vessel at Knockenny, Angus, is reported as male (*P.S.A.S.*, LXV (1930–1), 421). A food vessel with a male inhumation is reported from Bruach, Perthshire (ibid., XIX (1884–5), 39). A blade with an alleged female inhumation was found at Lilburn, Northumberland (*Arch. Ael.*, 4 ser., XXIV (1946), 217–19).

instance, Broomend of Crichie, two males certainly seem to be contemporary. It is unfortunate that more details are not available of the cists each containing a food vessel and dagger at Killyree, Co. Antrim, and Amble, Northumberland.[1]

Other cist burials have been found in that part of Fife SE. of Dunfermline. A group of six cists, four containing food-vessels, were found in 1885 about half a mile W. of Masterton, and three at Ferniehill Sandpit one and a half miles SSW. of Masterton, while on Calais Muir, one and a half miles to the NNE., a cairn covered a primary food-vessel burial.[2] It is worth noting, also, the relatively large number of burials associated with early bronzes in Fife and S. Angus: Collessie (dagger with gold pommel mount), Harelaw, Ballingry (unidentified bronze object), Aberdour (dagger), Knock of Clathe (? dagger), Kirkcaldy (dagger, tanged blade, awl from two cists), Barnhill (two daggers and gold discs from two cists), Cairn Greg (dagger), Monikie (gold object), Ashgrove (dagger).[3]

Appendix

The Teeth

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The dentine, which forms the bulk of the teeth, has been destroyed, leaving only some extremely fragile shells of enamel.

Only one fragment represents the entire crown of a tooth, and this is recognisable as the mandibular first permanent molar of the left side. All the cusps show attrition involving dentine, but the exposed dentine areas have not yet coalesced. The degree of attrition of this tooth therefore falls into Broca's class 2 (1) or Murphy's class d. (2, 3). This stage of wear suggests an age of 20–25, on analogy with other Scottish Bronze Age specimens studied, and this fits well with the diagrammatic schemes for assessing age by means of tooth attrition, published by Miles (4, 5, 6) from work on the Breedon-on-the-Hill Anglo-Saxon skulls.

A second fragment of a molar tooth includes only the two lingual cusps, but from the size and degree of wear of these cusps, and from the small central area which survives and shows a little of the fissure pattern, it seems likely that this fragment represents a part of the mandibular first permanent molar of the right side.

Two fragments fit together accurately to form most of the crown of a mandibular first incisor. Attrition has exposed dentine along the incisal edge, but relatively little of the crown height has been lost. This supports the evidence of the mandibular molars, and also suggests an age in the early twenties.

Another four fragments are too small to permit of identification.

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[1] *J.R.H.A.A.I.*, IX (1889), 108; *Arch.*, 52 (1890), 67–68. The dagger listed as found with a food vessel at Dunblane (Childe, V. G., op. cit.) came from a separate cist in the same mound (*T. Stirling F.C.*, I (1878–9), 28).

[2] *P.S.A.S.*, XX (1885–6), 240–4; LVII (1922–3), 299; XX (1885–6), 244–6.

[3] ibid., XII (1876–8), 439; XXV (1890–1), 72; *O.S.A.*, IV (1792), 334; I (1791), 381; *P.S.A.S.*, LXXVIII (1943–4), 110; XXI (1886–7), 320; VI (1864–6), 99; II (1854–7), 447; *D. and E.*, 1963, 30.

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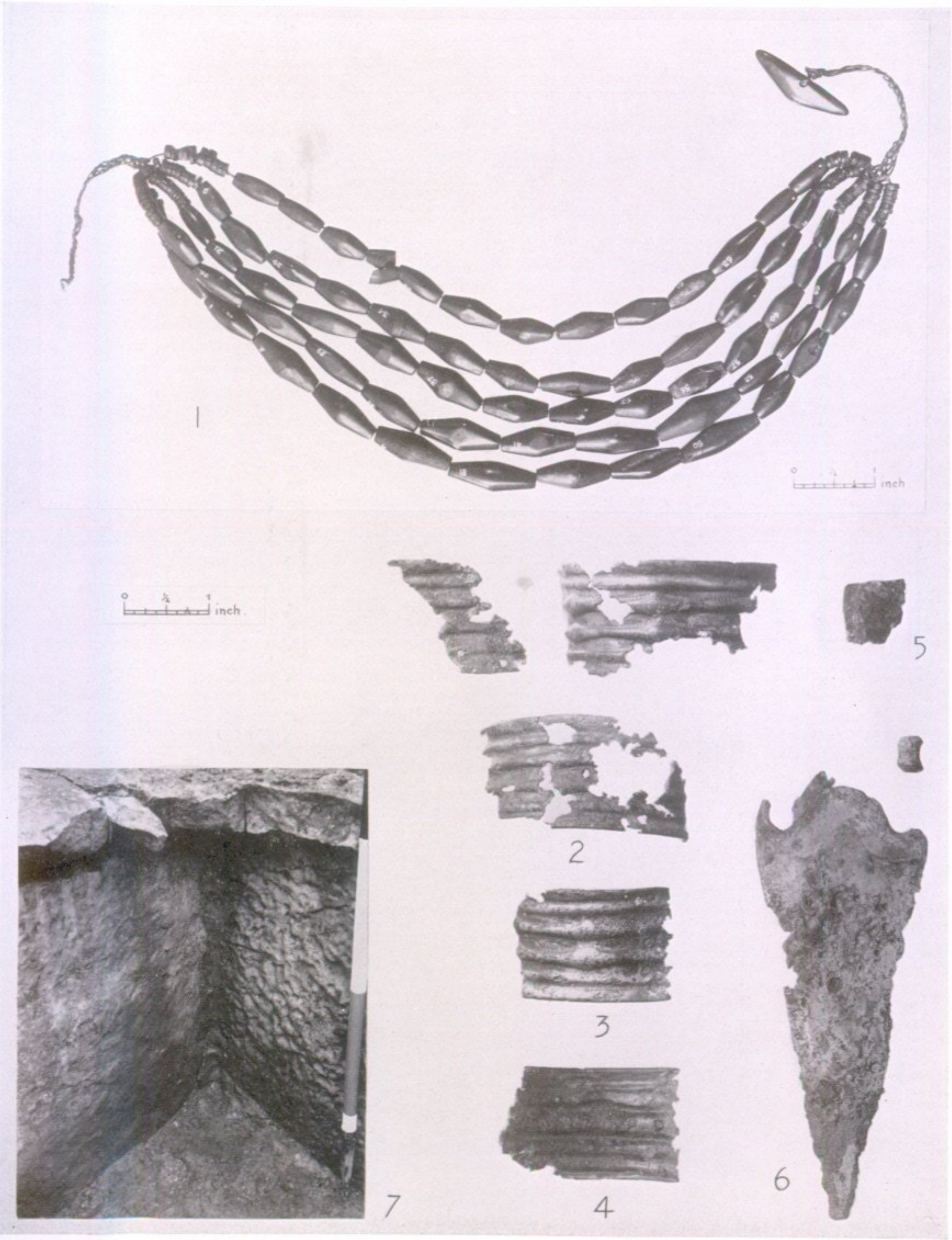

Masterton: 1, Jet necklace; 2, Pieces of two bronze armlets; 3, End portion of armlet with rivets; 4, Inner side of 3; 5, Bronze blade; 6, Bronze knife-dagger and rivet; 7, Corner of the cist showing clay luting. Scale (except 7) ½