

A DAGGER-GRAVE AND OTHER CIST BURIALS AT ASHGROVE, METHILHILL, FIFE

by AUDREY S. HENSHALL, F.S.A.SCOT.

THREE or four short cists were found during construction work on a housing scheme at Ashgrove Farm in July 1963.¹ The discovery of the first cist was reported to the Department of Mediaeval History at the University of St Andrews through the Headmaster of Buckhaven High School, Mr H. Waterson, and was excavated by Professor L. H. Butler and Mr and Mrs R. J. Adam. Two days later Mr J. C. Wallace and I visited the site, and examined a second cist. The finds were treated

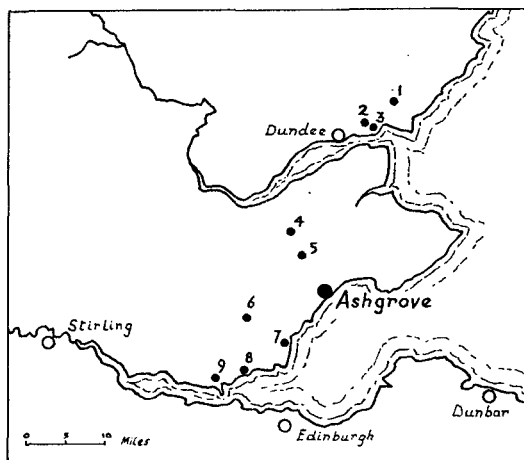


FIG. 1. Map showing location of Ashgrove, and short cists containing metal objects in Fife and S. Angus (based on list in *P.S.A.S.*, xcvi, 153); 1 Monikie, 2 Cairn Greg, 3 Barnhill, 4 Collessie, 5 Knock of Clathe, 6 Harelaw, 7 Kirkcaldy, 8 Aberdour, 9 Masterton

in the laboratory of the National Museum of Antiquities, and were presented to Kirkcaldy Museum by Fife County Council. The following report owes much to the help of Mr R. L. Morris, Architect with Fife County Council, Mr J. Stewart, the general foreman, and many other persons who were interested in the discovery.

Ashgrove Farm lies a little over a mile inland from the N. shore of the Firth of Forth, in the gently undulating agricultural land of S. Fife which is being invaded by the new housing schemes for the busy coastal towns. The cists were in a field on the N. side of the old farmhouse (N.G.R. NT 352999, figs. 1 and 2).

Cist 1 (fig. 3) was found in the front garden of a house in block 14. The cist had been most carefully made from four split sandstone blocks with the joints fitting neatly except at the upper part of the NW. corner where a thin upright wedge-stone had been used to fill the gap. All the joints were thoroughly luted with clay. In-

¹ A brief note of the find was published in *D. and E.* 1963, 30.

ternally the cist measured 4 ft. long by 2 ft. 7½ in. to 2 ft. 3 in. wide. The upper edges of the stones were level, though the W. stone had been under-pinned in one place by a waterworn stone, and along its upper edge there were a number of small eke-stones. The cist was 2 ft. 7 in. deep, but the N. stone was deeper than the others, its base being set at least 9 in. lower.

The sandstone cover-stone was roughly circular, measuring 6 ft. 7 in. by 5 ft. 3 in. by 10½ in. deep. A great deal of clay had been used between the side slabs and cover, so that when the cover was removed it slid gently off the cist. The top of the cover-stone was 2 ft. to 2 ft. 6 in. below ground level. The sealing of the cist had

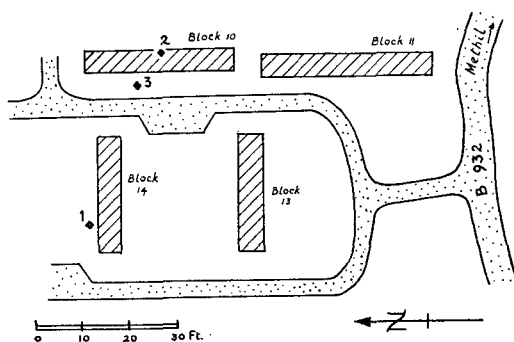


FIG. 2. Plan of part of the Ashgrove housing scheme and cists 1, 2 and 3

been so effective that the interior was dry and free of soil. The floor was gravel on which was a layer of small pebbles, which may, however, have been a natural feature.¹

In the cist was a crouched skeleton laid on its left side, the bones in a very fragile condition. The cist had been too narrow so that the knees had evidently rested against the side above floor level, with the result that the head of one of the tibiae had broken off, and it is likely that this pressure had also contributed to the disintegration of the shafts of the femora. Over the skeleton and cist floor there was a thin deposit of black crumbly matter which formed a deep deposit nearly 1 ft. across in the area between the forearms and upper arms, i.e. in the area of the chest. A dagger was partly embedded in this thick deposit. A black 'stick' about 1 ft. long lay across the body, overlying the forearms and tip of the dagger. The dagger lay in a position which suggested that the hilt had been grasped in the hand, the tip pointing to the chest. A Beaker lay on its side against the E. slab (Pl. IX).

Cist 2 lay under what is now the site of a house in block 10, 170 ft. ESE. of Cist 1. It was found two days later, in the afternoon, but was unfortunately ransacked early on the following morning. The sandstone capstone was broken up; its size is unknown but it was 6 in. deep. Internally the cist measured 4 ft. 3 in. long by 1 ft. 9½ in. to 1 ft. 8½ in. wide, and 1 ft. 11 in. deep, the main axis lying ENE. to WSW. There was no clay luting. The slabs only just overlapped at the corners and were

¹ Mr Stewart the foreman told us that bands of pebbles had been found at other parts of the site.

quite thin, being 2 to 6 in. thick. There were also some eke-stones. The cist was full of soil. Various small pieces of bone were subsequently recovered from the bottom of the cist and the ground nearby, indicating that there had been a well-preserved skeleton, and there were also some sherds of a Food Vessel.

Cist 3 was in the front garden of a house in block 10, 32 ft. NW. of *Cist 2*. It was found a few weeks later during bulldozing operations, and measured about

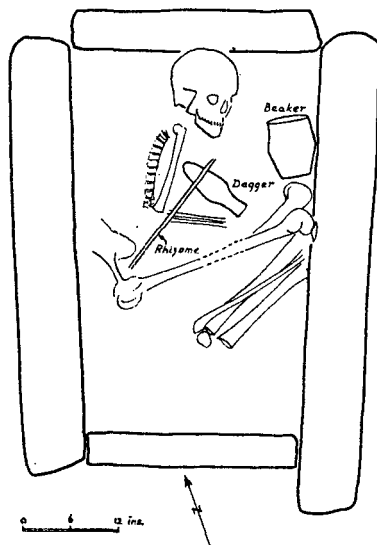


FIG. 3. Sketch plan of cist 1

3 ft. by 2 ft. The workmen riddled the soil but nothing was found. It may be noted that these three cists are roughly in line, and orientated on almost the same axis.

Cist 4 was found some days before *Cist 1* was recognised. A large slab had been observed about 430 ft. N. by E. of *Cist 1*. It seems that this is the capstone of yet another cist. It was not investigated, having been concreted over in the meantime.

The contents of Cist 1

The Beaker (fig. 4). The slightly biconical vessel is crudely made; the rim is uneven, it stands somewhat lop-sided, and the fabric is coarse. The pot measures 6 to 6.3 in. high and 4.7 in. across the rim. The ware is thick, fairly heavily gritted and includes some large grits which in places have fallen out of the surface. A thin slip outside and inside partly covers the grits, but inside it is tending to flake away. The vessel is buff coloured, except for an area on the lower part of one side where it becomes pink, and where the base is chipped on this side the core can be seen to be red and crumbly. This difference in colour is probably due to secondary burning. The decoration is deeply but roughly incised, mainly cut with a series of fairly short strokes, but the lower zone of lattice is made with a wider implement in long strokes often leaving a slight ridge on either side of the groove.

The dagger (fig. 5). The blade was found lying on the vegetable matter in the grave, with the horn hilt-plates held in place by the five rivets. Unfortunately some drying and warping took place before conservation work began. The pommel had fallen away, but was found near the dagger.

On the blade, mainly on the upper surface, were the last traces of the sheath, so degraded that it could only be identified as some kind of animal skin (see appendix I). Running down the sheath there were five lines of sewing forming tiny ribs. The

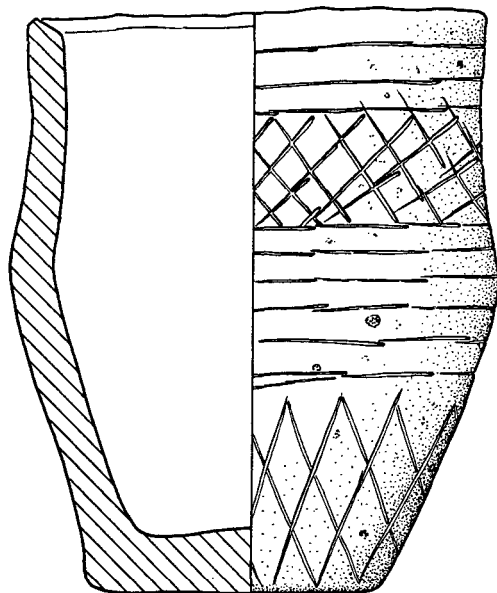


FIG. 4. The beaker from cist 1

thread had decayed completely, but under magnification lines of tiny holes and the impressions of the threads lying across the ribs could be seen. The sewing had been a very fine and regular whipping with 36 to 40 stitches per inch. Two ribs were near each edge and one down the centre: on the underside only the central rib could be seen. There did not appear to be any sewing down the edge of the sheath.

The main part of the hilt was made of two horn plates. On the outer surface of both were some animal fibres. These have been identified as bovine, and possibly came from the extinct aurochs (appendix I). Similar animal hairs were found in the dagger-grave at Masterton, Fife.¹

The dagger blade, originally 5.35 in. long by 2.25 in. wide, is in a good condition except for the very edge. When found the rounded outline was almost perfect (as drawn in fig. 5, F) but a little of the edge was lost during conservation work. In the heel of the blade are three rivets, the central one placed in a notch which encircles about three-quarters of its circumference. Around the rivets are remains of

¹ *P.S.A.S.*, xcvi (1962-3), 151; *P.P.S.*, xxx (1964), 195-7.

the horn hilt-plates. The lower edge of the hilt is slightly convex, with a semi-circular recess in the centre. This form is half-way between the normal form with an Ω -shaped end to the hilt, and the north British variant with a splayed W-shaped end.¹ However, at the top of the blade, on both faces, there are a number of scratch marks. Under magnification these show either as cuts or as a series of slanting nicks, and it seems probable that they were made when the horn hilt-plates were trimmed after being riveted in place. This suggests that the hilt was originally 0.12 in. (3 mm.) longer, and that it had the omega form. It is likely that the plates have been trimmed back, presumably because the lower edges were damaged, probably on two occasions; alternatively the dagger may have been re-hafted (Pl. IX).

The two hilt-plates are of horn (see appendix II), now slightly warped. The under plate is in poor condition, and both have broken around the lower rivets, so these parts of the plates have been preserved *in situ* on the blade. The length-wise and lateral shrinkage has been negligible. The original length of the plates was 3.1 in. (8 cm.). Around the lower rivets the plates remain 4.0-4.5 mm. thick, and the upper rivets indicate that the plates were 6 mm. thick near the top of the hilt. However, the plates themselves have shrunk to half their original thickness. The plates were attached to the dagger blade by three rivets, and were held by two more rivets near the top. Around each rivet-hole (except two on the lower plate which have not been cleaned completely) parts of a ring of tiny radial nicks are visible. The nicks are a little less than 1 mm. long, placed slightly back from the edge of the hole. They are fairly regularly spaced; there would be about fifty-four in a complete circle. It is possible that they have been formed by the overlapping edge of a punch used in hammering the rivet heads.

The pommel is of polished ivory, probably from the tooth of a sperm whale (appendix II), but it is partly decayed so that the high gloss only survives in places. There is a rectangular hollow or socket opening from the lower edge. The bottom of the hollow shows traces of circular depressions especially at each end, probably due to the cavity having been cut out by a series of drill holes.² This method of making the socket is clear in a pommel from Wilmslow, Cheshire, where three overlapping drill-holes have not been cut back to make a rectangular socket.³ The sides of the pommel are perforated by three holes bored straight through, parallel to each other but not quite at right angles to the main axis, and not quite evenly spaced. There is also a fine perforation through each end of the pommel, of natural origin.

This is the first ivory pommel from a bronze flat dagger to have been recovered in Scotland, although there are three gold mounts from pommels in the National Museum of Antiquities. However, there are a number of bone pommels in England, and one from Wales, all of similar form, though two pins for securing them is rather commoner than three.

Hilt-plates have also been recovered, and are reported as being horn or wood, but it is seldom that the hilt-plates and pommel from the same dagger survive, and

¹ *P.S.A.S.*, LXXXVIII (1954-6), 9-10.

² For this observation, and discussing the construction of the hilt, I am indebted to Dr A. S. Clarke.

³ Evans, J., *Ancient Bronze Implements* (1881), 228; *J.B.A.A.*, xvi (1860), 288, Pl. 25, fig. 5.

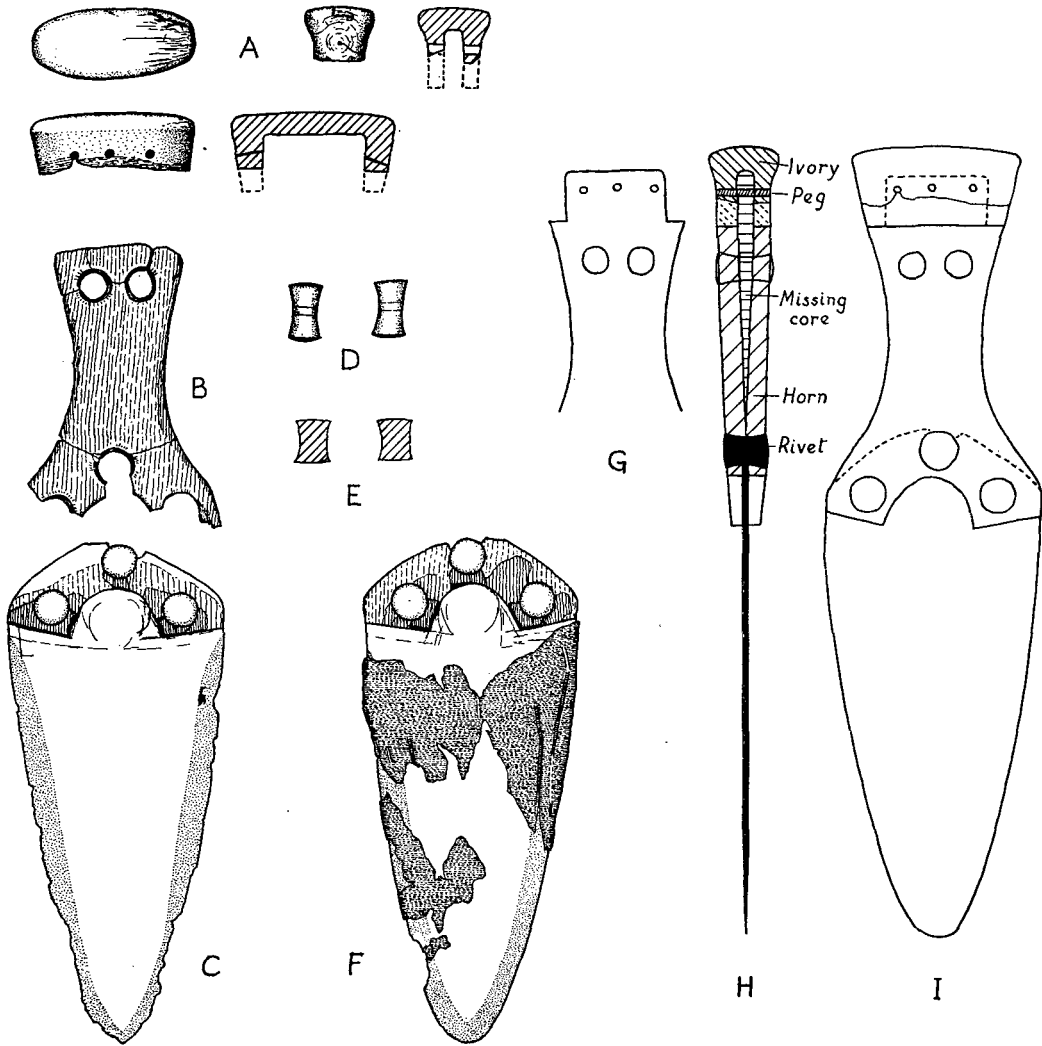


FIG. 5. The dagger from cist 1. A, ivory pommel; B, horn hilt-plate; C, bronze blade; D, rivets from top of hilt-plate; E, sections through side and central rivets in blade; F, opposite side of blade with remains of sheath; G, plan of missing core of hilt (the precise length uncertain); H-I, reconstruction of section and plan of the dagger

the actual construction of the hilts does not seem to have been examined in detail. When a reconstruction of the Ashgrove hilt is attempted (Pl. VIII) it is evident that one element is missing, a piece which has formed a flat wedge-shaped core between the upper parts of the hilt-plates, and has projected into the socket of the pommel in order to attach it to the hilt (fig. 5, G, H). Of this core, and of the pegs which fastened the pommel, there were no traces, and it is likely that they were either of wood or leather. The portion of the hilt which overlaps the dagger is entirely horn,

4.0 to 4.5 mm. thick. Near the top the plates were attached to the core by a pair of rivets. Marks across the shanks of these rivets seem to result from a difference in corrosion, presumably due to the different substances through which they passed, the junctions appearing like incised lines. This corrosion indicates that the plates were here 5 to 6 mm. thick, and the core 2.5 mm. thick. At the lower end of the pommel the plate thickness must have been similar (decay means that an accurate measurement is impossible), but the thickness of the core has increased to 5 mm. There is further evidence that the thickness of the hilt increased in that the lowest pair of rivets is 10 mm. long, the central rivet in the blade is 11 mm. long, and the two upper rivets, which are also narrower, are 14 to 14.5 mm. long, which is roughly the same thickness as the pommel.

The width of the upper end of the upper hilt-plate is 34 mm., and the width of the lower end of the pommel is 40 mm. The curve of the sides of these pieces suggests that they were intended to meet accurately, which indicates that about 7 mm. are missing from the lower edge of the pommel through decay. A dagger from Wasbister, Rousay, Orkney, has retained its horn hilt though lacking the pommel. The hilt is of just the same form as the reconstruction of the Ashgrove hilt, but is cut from one piece of horn. The tang at the top, intended to take the pommel, is 0.75 in. long, and retains one wooden peg.¹

The pommel is faintly stained with bronze, particularly towards one side of the upper end. Some tiny fragments of bronze oxide were found in the vegetable mass, and these were probably responsible for the staining. It is not known what these fragments were.

The skeleton (appendix III). Only parts of the skeleton survived. The skull is relatively small and brachycephalic, and wear on the teeth suggests an age of about 55 years. It was not possible to determine the sex, but the prominent muscular markings on the tibiae and fibulae suggest a male rather than a female. There are 'squatting facets' at the distal ends of both tibiae, suggesting that the individual assumed a squatting posture during his daily life.

The vegetable remains (appendix IV). The 'stick' overlying the upper part of the body was identified as probably a fern rhizome, and was about 1 ft. long. An unusual feature of the burial was the quantity of plant remains which were recovered, consisting of leaf fragments, bark, twigs, and plant tissue. Mostly it was too decayed for identification, with the exception of one or more fragments of birch, cross-leaved heath, rush, moss and fairly abundant sphagnum moss. Miss Lambert suggests that as sphagnum moss was used as a surgical dressing it could perhaps have been used to staunch a wound in the chest. In addition to the plant remains, twenty-three types of pollen and spores were identified. With the exception of a high proportion of lime and fairly high proportion of meadow-sweet, the other pollens convey 'an impression of open plant communities affected by agricultural activity'. The high proportion of lime and meadow-sweet might be explained by a flowering bunch of these plants being deliberately included with the burial: both plants are noted for their fragrance. It is interesting to note that lime is no longer native to Scotland.

¹ *P.S.A.S.*, XLII (1907-8), 74-77.

Sphagnum moss and other plant remains were found in a dagger grave at Amesbury, Wiltshire. In this case the sphagnum must have been brought some distance to the site. In a Derbyshire grave at Shuttlestone the body had been covered with fern leaves.¹ There was also vegetation in the Kirkcaldy dagger grave, for vestiges of leaves may still be seen on one side of the leather sheath and 'frog'.

The contents of Cist 2

The Food Vessel (fig. 6). The pot, of which nine sherds were recovered, had a diameter of 6.5 in., and a height of at least 6.25 in. It has two slightly raised cordons with a hollow between, producing a gently tripartite form. The rim bevel is

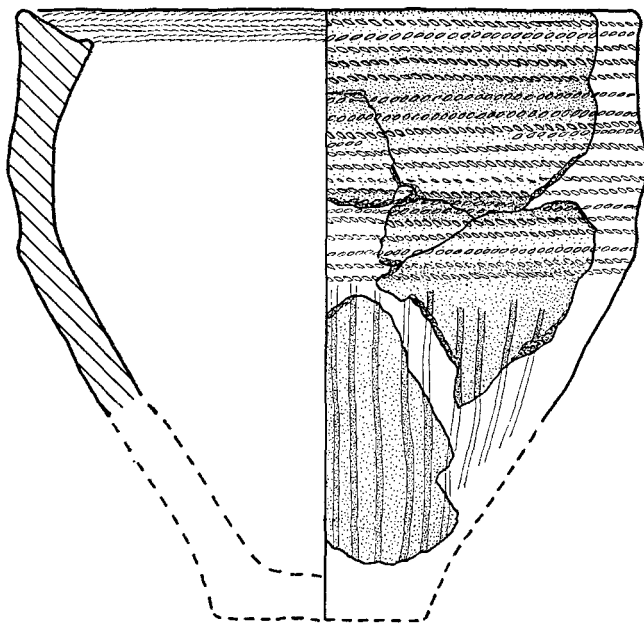


FIG. 6. The Food Vessel from cist 2

decorated with six lines of cord impressions arranged in pairs with the slant of the twist in opposite directions. The upper part of the exterior is covered with carefully applied cord impressions, again arranged in pairs (two cords must have been used, for the direction of the twist is, of course, the same whichever way the cord is applied). Below, there are wide shallow vertical incisions or grooves, apparently covering the rest of the pot. The ware is a dark grey heavily gritted paste, fairly hard, brown-buff on the surface. The outside is covered by a fine slip.

The skeleton (appendix III). Only parts of the left humerus, three ribs, and pieces of the skull were recovered. The age at death is estimated at about 45 years.

¹ *W.A.M.*, XLV (1930-2), 435, 440; Bateman, T., *Ten Years' Diggings* (1861), 35. I am indebted to Professor Piggott for these references.

Comments

In a recent paper Professor Piggott has re-examined the chronology of British beakers and daggers, and the relationship of the inhumation graves in which they are found.¹ Flat riveted daggers are rarely associated with Beakers, and class III daggers (to which group in Piggott's classification the Ashgrove dagger belongs) have only twice been found with Beakers, both English long-necked Beakers. It is now apparent that graves with Beakers and graves with riveted daggers belong to groups with different traditions. When a Beaker is found in a grave containing a weapon (dagger or battle-axe) it probably belongs to the tail-end of the Beaker tradition.

The Beaker from Ashgrove is not a long-necked Beaker, a type which is rare in Scotland, but it belongs to a small little-studied group with incised decoration related to the short-necked Beakers. There is only one other Scottish riveted dagger (class II) certainly associated with a Beaker, from Cairn Greg, Linlathen, Angus. This Beaker is also incised and similar in form to that from Ashgrove. At Kirkcaldy, Fife, two adjacent cists, almost certainly contemporary, produced a dagger and an incised Beaker. Another similar Beaker also comes from Fife, but has no associated finds.²

It is not proposed to discuss the dagger in detail, for it is intended to re-examine all the Scottish riveted flat daggers, and to publish a corpus of them in the near future.

Through the kindness of Professor Godwin a radiocarbon date was produced from the vegetable material in cist I by the Sub-Department of Quaternary Research. The date given is 3046 ± 150 B.P. This is much younger than expected, for the grave can hardly be later than the first phase of the Wessex culture, and should belong to the first half of the sixteenth century B.C. or perhaps slightly earlier.

APPENDIX I

Report on hair and skin remains from Ashgrove Farm, Methil, Fife, and other Bronze Age sites

by M. L. RYDER, M.Sc., Ph.D., F.I.BIOL., F.S.A.SCOT.
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Hairs from the Ashgrove dagger hill

These were short, straight hairs of bovine character, being apparently similar to the hairs from Masterton, Fife, examined by Mr H. M. Appleyard in 1961, and similar to the hairs in the Neolithic Meare skin.³ The Ashgrove hairs were sent to Mr Appleyard for independent examination, and he considered that they provided insufficient evidence for identification. He regarded them as being different from the Masterton hairs because they had less pigmentation and medullation. In view of the range of variation known to occur in the coat of (particularly domestic) animals I consider that these three specimens are sufficiently similar to be grouped together, and that they are

¹ L. Ll. Foster and L. Alcock, ed., *Culture and Environment* (1964), 65-91.

² *P.S.A.S.*, XII (1876-8), 449; LXXVIII (1943-4), 110; VIII (1868-70), 143.

³ Ryder, M. L., 'Report on the Meare skin', *P.P.S.*, XXIX (1963), 98.

quite distinct from the undoubtedly cattle hairs of the same period. After the Ashgrove hair had been examined a fourth specimen of similar type was found at Pyotdykes, and this has already been described.¹

The asymmetric distribution of pigment, in which it is concentrated towards one side of the hairs, in the Masterton specimen is interesting. It seems to be the character that led Mr Appleyard to liken this hair to that of the bison (*Bison bonasus*), and was also found in the Meare specimen. The skewed-to-fine distribution of fibre diameter found in these specimens is another feature found in the bison. The bison is thought to have died out in Britain before the land bridge was broken in Mesolithic times, but the skins could have come in with invaders or traders. On the other hand the fineness of the hairs suggests an animal different from the bison, and so these specimens could possibly be from the now extinct aurochs (*Bos primigenius*). This possibility has been discussed at greater length in the Pyotdykes report.² But until more evidence becomes available this must remain a tentative suggestion.

Cattle hair

The present report provides an opportunity to describe other old specimens of cattle hair that have accumulated, and which provide a comparison of measurements with the specimens in doubt. The first two of these are from Schleswig, Germany, one from Harrislee being dated 1600 B.C. and so comparable in date with the above finds, and the other from Windeby dated A.D. 100. These were supplied by Dr K. Schlabow of the Textilmuseum, Neumunster. The third, dated about A.D. 1000, is from Walcheren, Holland, and was supplied by Dr P. J. van der Feen of the Zoologisch Museum, Amsterdam. Another from Scotland is from the dagger blade found at Collessie, Fife (EQ 55 in the National Museum of Antiquities).³

Another example of hair, from a cist at Cuninghar, Tillicoultry, Clackmannanshire (also in the

TABLE I
HAIR COMPARISONS

Source	Mean diameter	Diameter range	Diameter distribution	Pigmentation	Medullation
'Bovine'					
Ashgrove	18 μ *	18-46 μ	skew-fine	little	little
Masterton	19 μ	8-42 μ	skew-fine	moderate (asymmetric)	moderate
Pyotdykes	14 μ	6-38 μ	skew-fine	none	moderate
Modern bison	30 μ	12-66 μ	skew-fine	moderate (asymmetric)	moderate
<i>Definitely ox</i>					
Harrislee	39 μ	12-90 μ	continuous/ skew-fine	little	moderate
Collessie	49 μ	10-108 μ	continuous/ normal	much	little
Windeby	40 μ	10-150 μ	continuous/ skew-fine	much	little
Walcheren	75 μ	28-118 μ	continuous/ normal	moderate	much

* 1 μ (micron) = 0.001 mm.

¹ Ryder, M. L. 'Report on the skin from Pyotdykes', *P.P.S.*, xxx (1964), 193-7.

² *ibid.*

³ *P.S.A.S.*, xii (1876-8), 440, 452.

National Museum),¹ turned out to be a fur fibre, possibly fox; this was sent to Mr H. M. Appleyard for specific identification and he reported it to be possibly stoat.

Table I shows the measurements of these specimens alongside those of the unidentified 'bovine' specimens.

Material from the dagger blade

This apparently degraded sheath material was received in a wet condition, and two separate pieces were sectioned and stained by the method of Ryder (1963).² The sections stained grey as opposed to the maroon stain of moderately degraded leather, and the green of parchment and fresh skin. Little microscopic structure was evident, but this appeared to consist of degraded collagen (skin) fibres; there appeared to be traces of melanin (animal pigment), but there were no hair remains that would allow identification of species.

One of the fragments was submitted to the British Leather Manufacturers' Research Association for a chemical investigation, and they considered that the material was 'ash' (presumably metal oxide from the dagger blade) and not skin. Indeed, the remaining fragments, which had in the meantime dried out, were seen to be greenish sheets of hard, brittle material. They resisted burning when put in a flame, and although the ubiquitous sodium flame coloration was produced, and not that of copper, the heat produced patches of what appeared to be copper metal in the oxide.

It seems impossible that such material could have been sectioned without damage to the knife, and so the conclusion was drawn that there were pieces of both degraded skin and metal oxide (or other metal compound) among the fragments.

A clue to this enigma was obtained from the sectioning of the sheath remains from the Kirkcaldy dagger.³ Fragments from a loose piece of material (possibly from the frog) and from the sheath itself, stained greyish-maroon with some brownish granular patches like those interpreted as pigment in the Ashgrove material. These fragments were certainly degraded skin, but again there were no hair remains. The third piece of material, which was from the inner layer of the sheath, had a greenish tinge, and after sectioning stained like the first two pieces. But although apparently skin, with indications of fatty tissue, and possibly some unidentified hair remains, it had some rounded bodies, as seen in the Ashgrove material. These bodies might be particles of metal oxide, and lacking any further evidence, it is tentatively suggested that metal compounds might be deposited within the structure of a sheath as corrosion of the blade it encloses proceeds, and that in extreme cases, when there is also decay of the skin, the sheath might in fact be gradually replaced by these compounds in a process akin to fossilisation.

APPENDIX II

Identification of materials in the dagger haft

by A. S. CLARKE, B.Sc., PH.D.
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The two items from the Bronze Age dagger haft submitted for identification of their constituent materials appear to be the pommel and the outer covering of one side of the haft.

The pommel has the smooth, unpitted appearance of ivory rather than bone and the top surface, which is a slightly convex, flattened oval 44 mm. by 19.5 mm., still partly retains a high polish; towards one end, however, the surface is cracked and crumbling. The sides and ends slope inwards to produce a cross-section measuring 40 mm. by 14 mm. at a distance of 12 mm. from the top surface. Below this the rest of the pommel has crumbled away. Along each side of the pommel, centred on

¹ *ibid.*, xxix (1894-5), 194-5.

² Ryder, M. L., 'Remains derived from skin' in Brothwell, D. R. and Higgs, E. S. (ed.), *Science in Archaeology* (1963).

³ *P.S.A.S.*, LXXVIII (1943-4), 112-13.

a line 10 mm. from the top are three, more or less evenly spaced, holes drilled right through and crossing an inner cavity measuring 27 mm. by 5 mm. cut to within 5 or 6 mm. of the top surface. Through each end wall is a finer hole, 0.75 mm. and 1 mm. diameter at 10 mm. and 11.5 mm. respectively from the top surface. Each of these is surrounded by concentric cracks particularly on the end below the region of cracking on the upper surface. This concentric cracking is characteristic of the cone-in-cone structure of degrading ivory and the holes represent the occluded pulp cavity of the tooth. It was not possible, without destructive testing, to identify the type of ivory. Sources available more or less locally would be narwhal and walrus tusks and sperm whale teeth. Walrus tusks can be eliminated from consideration by virtue of the vestigial pulp cavity and narwhal I would consider unlikely. Somewhat tenuous evidence in favour of sperm whale tooth as the raw material comes from the observation that the degradation cracks and the alignment of the two pulp cavity holes reveal an inherently curved construction too pronounced, in the length of the sample, for elephant tusks but quite consistent with the curvature of sperm whale teeth (but also of hippopotamus tusks).

The haft covering is a more or less flat, characteristically shaped piece of material 2-2.5 mm. thick. It clearly shows the striations and laminations so characteristic of horn degradation which is apparent in examples of ox horns which are frequently dug out of peat.

In summary therefore my view is that the pommel is of ivory, possibly from a sperm whale tooth and that the haft is of horn, probably from an ox.

APPENDIX III

Human Remains from Cists Nos. 1 and 2

by T. R. MURPHY, M.Sc., M.D.S., L.R.C.P. & S.

Department of Anatomy, St Salvador's College, University of St Andrews

Cist No. 1

The material is in a poor state of preservation.

Skull. Portions of frontal, both parietals, both temporals, occipital, both sphenoids, zygomatic and maxillary bones. Measurements are not possible due to the fragmentary nature of the material and the poor state of preservation. It is possible to state, however, that the skull is relatively small and brachycephalic. Part of the mandible is also present. There has been antemortem tooth loss in the right premolar and molar regions. The chin is pointed and the bone indicates orthognathism.

Teeth. The left canine and two premolar teeth are *in situ* in the mandible. Two mandibular teeth were separate but are identifiable as the first and second left molars, which had fallen from the fragmented bone.

In all four mandibular cheek teeth there is considerable wear as judged by present-day standards. The occlusal surface of the first molar is devoid of enamel except for a narrow rim. On the occlusal surface of the second molar dentine is exposed on the two buccal cusps and on the distolingual cusp. The three dentinal areas have coalesced into one area.

There is also a great deal of wear on the approximal surfaces of the mandibular teeth. The mesiodistal length of the four cheek teeth placed as in life is 27.5 mm. This compares with an average combined mesiodistal length of corresponding unworn teeth of 28.7 mm.¹

Three other separate teeth are identifiable as the maxillary first, second and third right molars. In the first molar the enamel and dentine are completely worn from the occlusal surface and the pulp has been exposed in life. In the second and third molars dentine is exposed on the whole of the occlusal surface except on the mesiodistal cusp.

The approximal surfaces of the maxillary teeth are also considerably worn. The combined mesiodistal length of the group of three molars placed as in life is 25 mm. This compares with an average combined mesiodistal length of corresponding unworn teeth of 29.5 mm.²

¹ Scott, J. H. and Symons, N. B. B., *Introduction to Dental Anatomy* (1952), 101.

² *op. cit.*

Trunk. Eighteen fragments of bones of vertebral column, one fragment of sacrum and four rib fragments were identified.

Limbs. Pieces of both clavicles, left scapula, right humerus, head of left humerus, left hamate, right hip bone, both femora, both tibiae, both fibulae, right patella, both calcanea, both tali, four other tarsal bones and four metatarsals were identified.

There were also 61 unidentifiable pieces of bone.

Observations. It is not possible to determine sex with any degree of certainty. The prominent muscular markings on the tibiae and fibulae are suggestive of male rather than of female remains.

The only long bone in a sufficiently good state of preservation to permit precise and reliable measurement is the left tibia. Its length is 375 mm. and this is consistent with an approximate stature of 1677 mm. (5 ft. 6 in.) according to the correlation tables of Manouvrier.¹

On the front of the distal ends of both tibiae there are small facets which are continuous with the articular surface of the ankle joint. Such facets are not present in the tibiae of present-day European communities. They are, however, a common feature in the tibiae of present-day ethnic groups who habitually adopt a squatting position where they '... sit hunkered on the heels...'.² Thus they have come to be called 'squatting facets'. This evidence suggests that the subject of the present report frequently assumed a squatting posture during his daily life.

The degree of wear of the teeth is consistent with an age at death of approximately 55 years.³

Cist No. 3

The material is in a fairly good state of preservation.

Bones. The distal end of the left humerus, three pieces of rib and sixteen pieces of skull bone. There are also 14 unidentifiable pieces of bone.

Teeth. Two maxillary teeth are present. These are somewhat aberrant in shape but appear to be left maxillary second and third molars. In both there is a good deal of dentine exposure on the occlusal surfaces. The enamel is represented by a marginal rim from which a projection extends into the dentinal area. There is also a good deal of approximal attrition. The combined mesiodistal length of the two teeth is 17 mm. The average combined mesiodistal length of corresponding unworn teeth is 19 mm.⁴

Observations. No estimation is possible of the sex or stature. The degree of wear of the teeth is consistent with an age at death of approximately 45 years.⁵

APPENDIX IV

The plant remains from Cist 1

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A layer of plant material 30 cm. in diameter and 5 cm. thick lay in front of the skeleton's chest. A 'stick' overlay the plant mass and projected beyond it. Samples of the plant material were received for examination and possible radiocarbon dating.

The 'stick' was identified by Miss Prentice of the Royal Botanic Gardens, Kew, as probably a fern rhizome. Its poor state of preservation prevented a closer identification.

The plant material consisted of abundant dicotyledonous leaf fragments, bark, twigs, wood charcoal (two tiny fragments), plant tissue with crystalline copper salts adhering to it and fairly abundant sphagnum moss. The leaf fragments were several layers thick but their poorly preserved condition prevented their separation and identification.

¹ Cited by Hrdlicka, A., *Practical Anthropometry*, 4th ed., ed. T. D. Stewart (1935), 182.

² Wood Jones, F., *Structure and Function as seen in the Foot* (1944), 112.

³ Miles, A. E. W., *Proc. Roy. Soc. Med.* (Sec. Odontol.), 55 (1962), 881-6.

⁴ Scott, J. H. and Symons, N. B. B. (1952), 161.

⁵ Miles, *op. cit.*

The plant material was treated with dilute NaOH and examined with a microscope using a $\times 6$ magnification.

Macroscopic plant remains

Betula (tree) sp.: 1 fruit and occasional bud scales.

Erica tetralix L.: 1 leaf.

Juncus conglomeratus L. or *effusus* L.

Hylocomium splendens B. & S.: occasional leafy shoots.

Sphagnum palustre L.: abundant leafy shoots.

The two bryophytes were identified by Mr J. H. Dickson of the Sub-department of Quaternary Research.

All the plants represented here could have grown in damp rather acid ground; perhaps a wet heath or the drier part of a raised bog.

Pollen analysis

All pollen expressed as a percentage of the total (200) tree pollen.

<i>Betula</i>	+	Compositae	2.5
<i>Pinus</i>	+	<i>Calluna</i>	13
<i>Quercus</i>	0.5	<i>Filipendula</i>	26 +
<i>Tilia cordata</i>	94	Labiatae	9
<i>Alnus</i>	5	<i>Plantago lanceolata</i>	12
<i>Fagus</i>	0.5	<i>Polygonum persicaria</i>	+
<i>Corylus</i>	2	<i>Scabiosa</i> or <i>Succisa</i>	0.5
<i>Salix</i>	0.5	Ranunculaceae	1.5
<i>Ilex</i>	4	Filicales	1
<i>Lonicera</i>	+	<i>Polypodium</i>	1.5
Gramineae	0.5	<i>Sphagnum</i>	+
Cereals	+		

The pollen analysis is remarkable in the extremely large percentage of *Tilia cordata* grains. This must be due to local over-representation and therefore depresses the values of the other trees and herbs. *Filipendula* was also present locally, as evidenced by clusters of its immature grains. If these two species are neglected the residue conveys an impression of open plant communities affected by agricultural activity.

This abundance of pollen of *Tilia* and *Filipendula* may be due simply to the chance inclusion of one or more anthers of each of these plants, but it seems more likely that these plants had been interred with the corpse even though no recognisable macroscopic remains of them were found.

The new *Atlas of the British Flora*¹ gives no native localities for *Tilia cordata* in Scotland and whichever explanation we accept of the high pollen values, it seems that the evidence indicates local presence of this tree in Fife during the Bronze Age. The presence of the beech pollen, albeit in low frequency, deserves remark for a similar reason.

It is of interest that *Sphagnum palustre* is one of a group of sphagna which are used, for their absorbent properties, as surgical dressing. It is possible that this plant material was gathered for its *Sphagnum* content to staunch a chest wound. Unfortunately the skeleton is not sufficiently well preserved to see if such a wound had been inflicted.

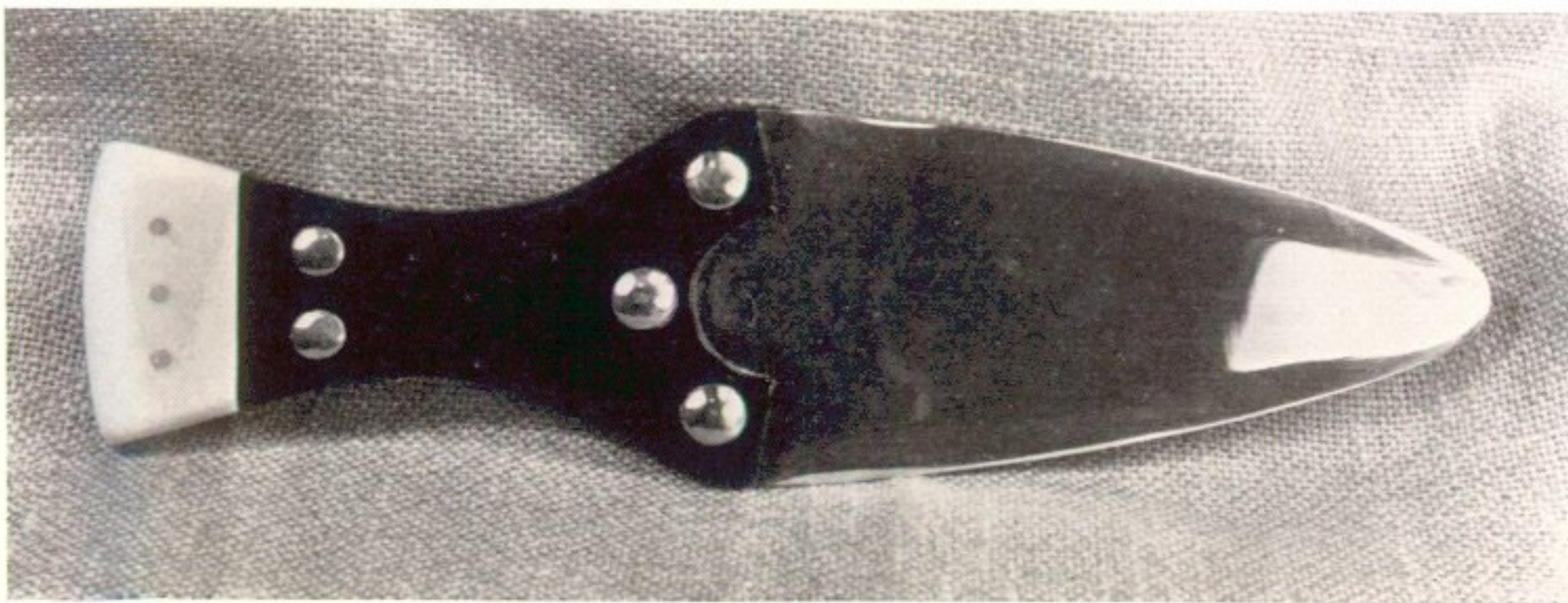
The abundant leaves and bark can hardly have been introduced with a *Sphagnum* dressing, and seem more likely to have been part of a bunch of flowering *Tilia* and *Filipendula* (see the pollen analysis). It is worthy of note that flowers of *Tilia* and *Filipendula ulmaria* are known for their fragrance. This explanation accords with the abundance of immature pollen of *Filipendula*, a condition not otherwise easy to account for.

It is possible that future archaeological finds may augment these rather slight conjectures.

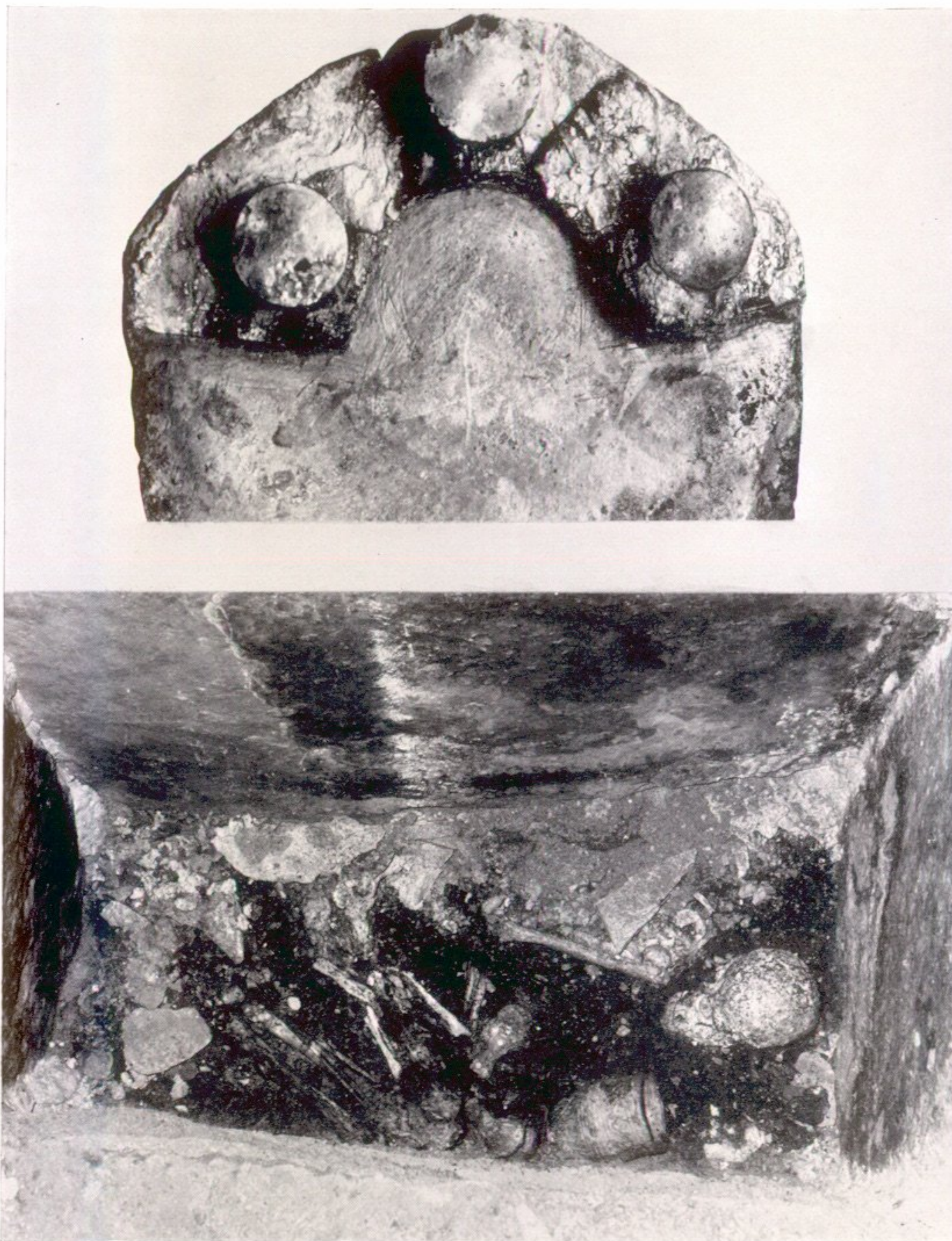
¹ Perring, F. H. and Walters, S. M. 1962. *Atlas of the British Flora*, Nelson.



1. Short Cist No. 2. - Newmonthill Cemetery, Forfar



2. Reconstruction of the dagger from Cist No. 1, Ashgrove



1. *Above*, detail of the dagger showing the scratch marks on the blade below the hilt. *Below*, view of Cist 1, showing the remains of the skeleton, the beaker, and upper part of the dagger with the rivets appearing white
(Photograph by kind permission of I. F. Gordon, Kirkcaldy)

HENSHALL: ASHGROVE.