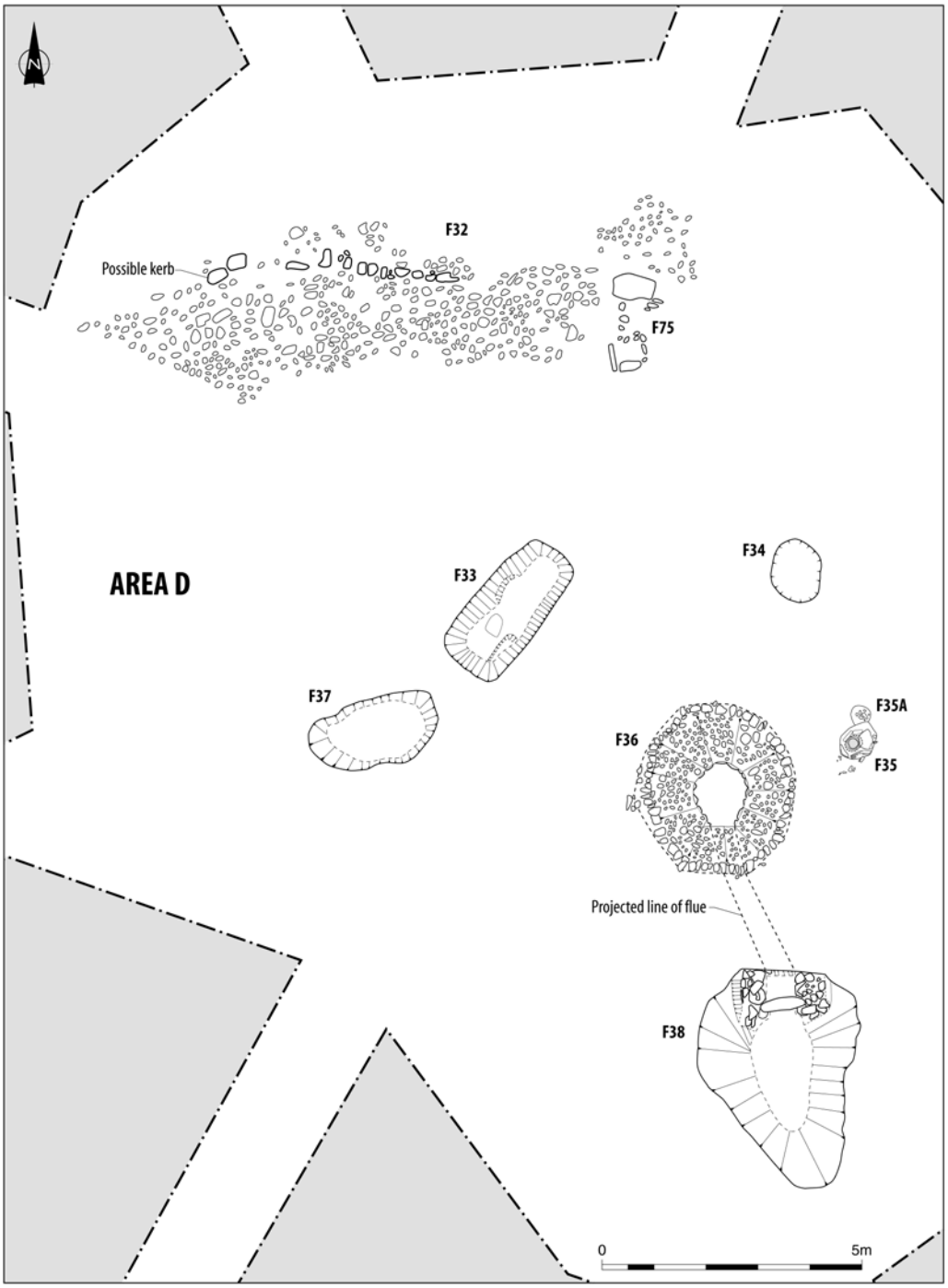
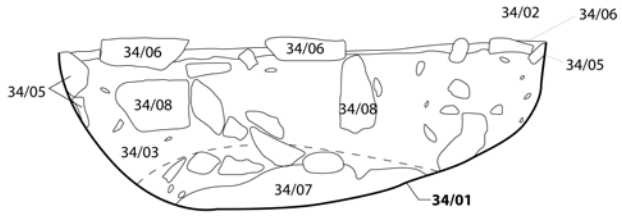
4 BRONZE AGE CEMETERY (Area D)

4.1 Introduction

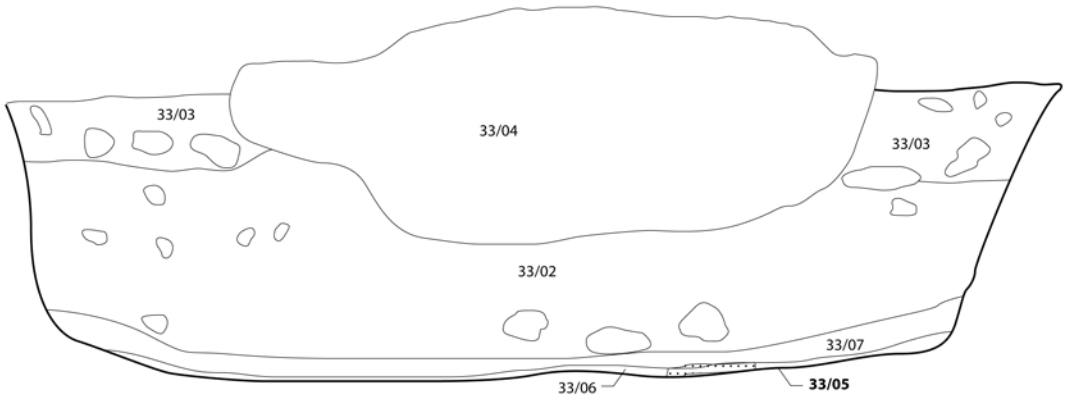
The Bronze Age cemetery (illus 12) was situated at the summit of a low rounded gravel knoll towards the centre of the evaluation area. This would have been a very prominent location and would probably have been inter-visible with the Bronze Age cemetery at Kirkburn, lying slightly to the north. The cemetery consisted of three graves containing cremated remains and two possible inhumation



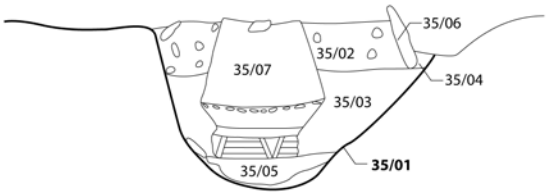
Illus 12 Plan of Area D: funerary features and medieval corn-drying kiln



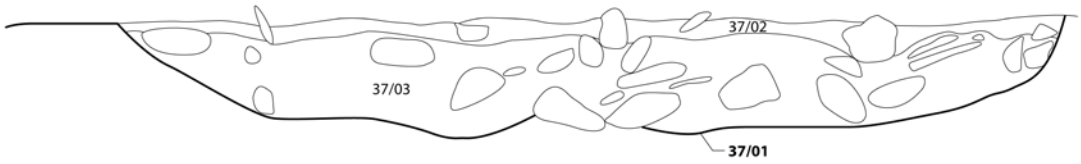
F34, east-facing section



F33, east-facing section



F35, SE-facing section



F37, SE-facing section

Illus 13 Selected sections of graves

graves, but more interments may have been present prior to the insertion of a post-medieval corn-drying kiln. The largest of the possible inhumation graves (F33) was located at the very summit of the knoll with a large stone placed over the top (illus 13), and the other graves were placed around it. A bank of stones situated a little to the north of the graves may have been the denuded remains of a ring-cairn, which was possibly robbed out when the corn-drying kiln was constructed.

4.2 The graves

4.2.1 Central grave F33

A large pit (illus 12) occupied the centre of the top of the knoll. It was sub-rectangular in shape, measuring 2.7m north to south by 1.4m east to west and 0.7m deep. A massive capstone measuring 1.7m by 0.8m by 0.6m thick had been placed on the backfill of the pit. It is estimated that the capstone would have weighed around 6–7 metric tons. The space left between the capstone and the edge of the pit had been back-filled with soil containing a few fragments of cremated bone and small rounded stones. The cremated bone was scattered throughout the fill in very small quantities and might represent the residue from an earlier cremation burial on the site. The capstone sat on top of a 0.25m thick layer of sandy clay and beneath this, the primary fill consisted of a thin layer of black/dark brown silty clay. A flat, riveted copper alloy dagger of Butterwick type, buried in its sheath, and a barbed and tanged arrowhead were recovered from the primary fill towards the south-western end of the pit. A radiocarbon date of 2140–1910 cal BC at 2σ (see section 4.3) was obtained from the organic remains of the dagger sheath. This date lies within the general date range of *c* 2200 BC to 1950 BC for flat riveted daggers of this type. No human remains were identified in the acidic soil, but a layer of darker material (33/05) towards the southern end of the pit may have been a 'body shadow'.

4.2.2 Cremation burial F34

Pit F34 (illus 12) was sub-rectangular on plan, measuring 1.18m north to south by 0.9m east to west by 0.47m deep. A deposit of cremated bone had been placed at the base of the pit. The cremated bone suggested the presence of at least two individuals; an adult male and a juvenile (Anderson below). This deposit was almost entirely charcoal-free, suggesting that it had been picked out from the pyre debris prior to being placed in the pit. An antler pin and seven burnt flints including a plano-convex knife, were recovered from the cremation deposit (McLaren below; Warren below). A layer of large, rounded stones had then been placed over the cremation and a stone wristguard had been placed on top of the stones. The pit was backfilled using redeposited natural subsoil and rounded stones. The top of the backfilled pit was then covered with sub-angular stones, and a layer of dark-brown sandy silt had built up on top of them. A radiocarbon date of 2130–1920 cal BC (2σ) was obtained from the cremated bone.

4.2.3 Cremation burial F35A

Pit F35A was incomplete, having been cut into by a later cremation burial (F35). The surviving remains of the pit measured 0.35m north to south by 0.4m east to west by 0.45m deep. Cremated remains were identified on the base of the pit, but these had been disturbed at the southern end by the excavation of the later pit. The small quantity of bone was identified as adult (Anderson below). Overlying the cremated remains there was a lens of darker organic soil, but there were no artefacts present and no visible charcoal. The pit had been backfilled with redeposited subsoil and stone and a larger stone had been placed in the pit and covered over with a further deposit of subsoil. Some larger rounded stones placed within the upper layer of redeposited subsoil may have been to mark the position of the grave. Radiocarbon dating of the cremated bone indicates that this burial dated to 2030–1880 cal BC (2σ), making it broadly contemporary with the cremated remains from F34.

4.2.4 Cremation burial with Collared Urn F35

Pit F35 (illus 12) was ovoid in shape, measuring 1.05m in length by 0.65m in width and had cut through the southern edge of cremation pit F35A. This pit contained an inverted Collared Urn (illus 13), which was sitting on top of a slab of red sandstone measuring *c* 0.35m across by 0.07m thick. The pit had been lined with edge-set slabs, possibly after the pot had been set in place. The gap between the stones and the edge of the pit had been filled with reddish-brown silty sand, which contained fragments of cremated bone, which may have been redeposited from pit F35A. An irregular flake of chert was also recovered from this deposit. The urn still survived to a maximum height of 0.42m, although the base of the vessel was largely missing, probably having been damaged by ploughing. Some fragments of the base were recovered from inside the vessel, indicating that it had been complete at the time of burial. The urn contained the cremated bone of a mature adult male, and a possible hammerstone. Radiocarbon dating of the cremated bone from the urn produced a date of 1910–1690 cal BC (2σ), suggesting a slightly later date than those obtained for the other burials.

4.2.5 Grave F37

Grave F37 (illus 12) was sub-oval in shape, measuring 2.5m by 1.3m and 0.3m deep. The

Table 4 Radiocarbon dates from the Bronze Age cemetery

SUERC Lab No.	Context	Type	Species	Date BP	Calibrated 1σ BC	Calibrated 2σ BC
19244	F34/07	Cremated bone	Human	3635±25	2030–1955	2130–1920
19245	F35/09	Cremated bone	Human	3490±35	1880–1760	1910–1690
19246	F35A/03	Cremated bone	Human	3590±30	2010–1890	2030–1880
19817	F33/05	Animal hide	Indeterminate	3645±35	2120–1950	2140–1910

primary fill of the pit was *c* 0.25m deep and consisted of many large to medium rounded stones sitting within a matrix of orange/grey-brown sandy silt. The upper fill of the pit was *c* 0.05m deep and consisted of grey-brown silty sand containing a large quantity of sub-rounded small/medium-sized stones. There was no evidence of human remains or grave goods and the interpretation of this feature as an inhumation burial is based entirely on the morphology of the feature and its position within a known cemetery.

4.2.6 Possible ring cairn F32 and cist F75

Immediately to the north of the Bronze Age cemetery, a stone bank (F32) measuring 12m long by 3m wide was identified (illus 12). The bank had a slight curve to it, which followed the curve of the summit of the knoll. This curve might indicate that it was the remains of a ring-cairn, which would originally have enclosed the cemetery. Along the northern edge of the stone bank, a possible kerb was identified, defining what has been interpreted as the outer face of the ring cairn.

At the eastern end of the stone bank, a possible cist (F75) was identified. This was defined by three end-set stone slabs and measured 0.5m × 0.5m. It sat within a shallow cut with a depth of *c* 0.1m. A large flat stone located *c* 0.5m to the north may have been a capstone and measured 0.8m × 0.5m. There was no evidence of a burial and the interpretation of this feature as a burial cist is based entirely on its morphology.

4.3 Radiocarbon dates

Four samples were submitted for dating. Three dates came from cremated human bone and one date came from the dagger's sheath of animal hide recovered from the central grave. The date (2140–1910 cal BC (2σ)) obtained from the central burial is broadly in keeping with the dates from F34 and F35A (Table 4), which were both obtained from cremated bone. A chi-squared test of the radiocarbon dates suggests that burials F33, F34 and F35A were broadly contemporary, but that F35 may have been inserted some 50–300 years later.

4.4 Collared urn, by Melanie Johnson

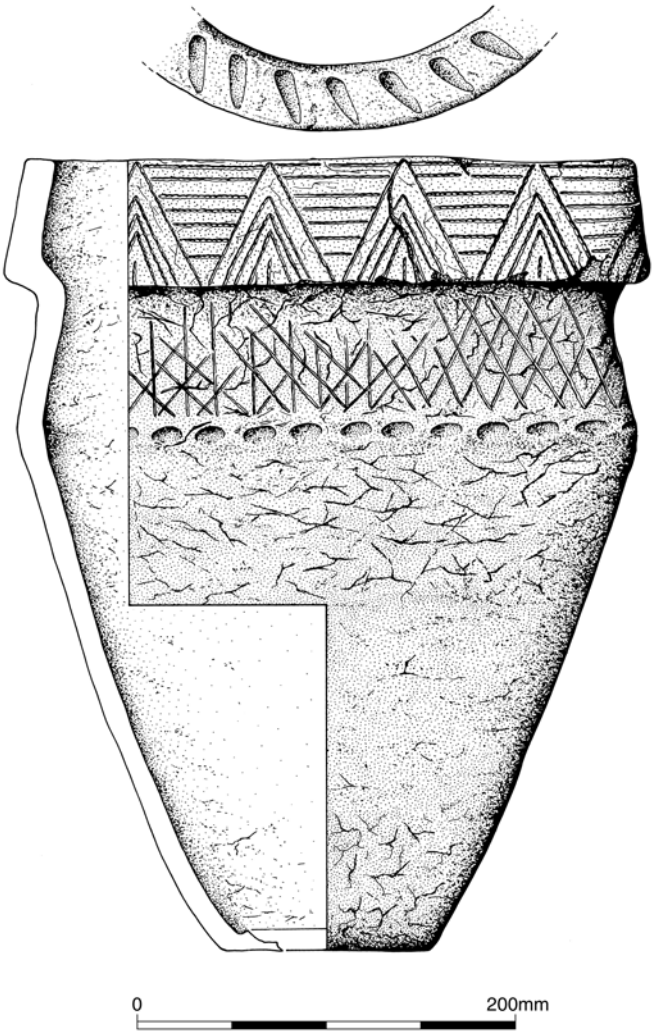
4.4.1 Introduction

A Collared Urn containing the cremated remains of a mature adult male was found within stone-lined pit F35. The urn was exposed by excavating a box-section around the pit; the pit fill was then removed and sampled. The urn was bandaged and consolidated as appropriate, in order to lift it in one piece. Conservation and excavation of the urn were carried out by Will Murray of the Scottish Conservation Studio; its contents were removed in 3cm spits. A detailed conservation report has been deposited with the site archive.

The vessel was inverted and was found sitting on a flat slab of red sandstone measuring *c* 0.35m across by 0.07m thick, and had been propped up on one side with two small thin stones placed under the rim, perhaps functioning as chocking stones to level up the vessel. The base of the vessel was missing, with just a few fragments found inside it, presumably caused by ploughing knocking off its uppermost part. The cremated bone was found towards the rim of the vessel, with the rest of the pot's contents comprising soil and stones; this suggests that when the vessel was deposited it contained only the cremated bone, which did not fill the pot. When the vessel was inverted to go into the pit, the bone settled towards the rim of the pot leaving a void in the rest of the vessel; this void probably filled with soil following the damage to the base. Some large stones were found in the upper fills of the urn, which had probably fallen in, and some body sherds had also been pushed down into the fill. One of these stones was a possible hammerstone (Jackson below), and it is unclear whether this was deliberately deposited or not. Radiocarbon dating of the cremated bone from the urn produced a date of 1910–1690 cal BC (2σ).

4.4.2 Description

The vessel is tripartite in form, tall and narrow, with a base diameter of approximately 110mm and a rim diameter of 320mm (illus 14). The rim is flat-topped, almost upright, and, along with the collar, slightly thicker than the walls of the pot. The collar is straight, turning at approximately 90° in to the



Illus 14 Area D collared urn (F35)

neck, which is also straight. The neck and collar are both *c* 70mm long. The body tapers down below the shoulder to a flat base. The vessel stands 420mm high and has walls of average thickness 10–15mm. It is complete except for the base, of which only a small part survives; the rest is likely to have been lost through plough action. Overall it is in good condition. However, part of the collar and rim has been pushed in from the outside, so the rim circumference is uneven and is now oval in shape. This probably occurred after the pot had been placed on the slab and could have been caused by a stone falling into the pit during backfilling or being pushed against the vessel as the pit's fill settled; there is also damage to the vessel's surface at this point on the exterior, with surface loss and extensive cracking.

The fabric is well-fired and hard, with a hackly fracture, medium coarse, and both surfaces have been smoothed. In colour it has an orange/orange-brown exterior shading to a dark-grey interior in places. Fine cracking is evident on the exterior, with protruding inclusions. Inclusions comprise 3–5% content of small grit and stones, the latter up to 10mm in size. Laminar fracture is evident at coil joins. Some sooting is evident on the interior.

The vessel is decorated with impressed twisted cord on the collar and neck, with narrow horizontal oval impressions running along the shoulder. The twisted cord impressions across the neck form a lattice motif around the whole pot, but half of the pot has additional vertical lines running through the lattice and unevenly dividing it. On the collar there are triangles of twisted cord, with the spaces between filled by horizontal lines. The rim top is decorated with a series of small oval impressions.

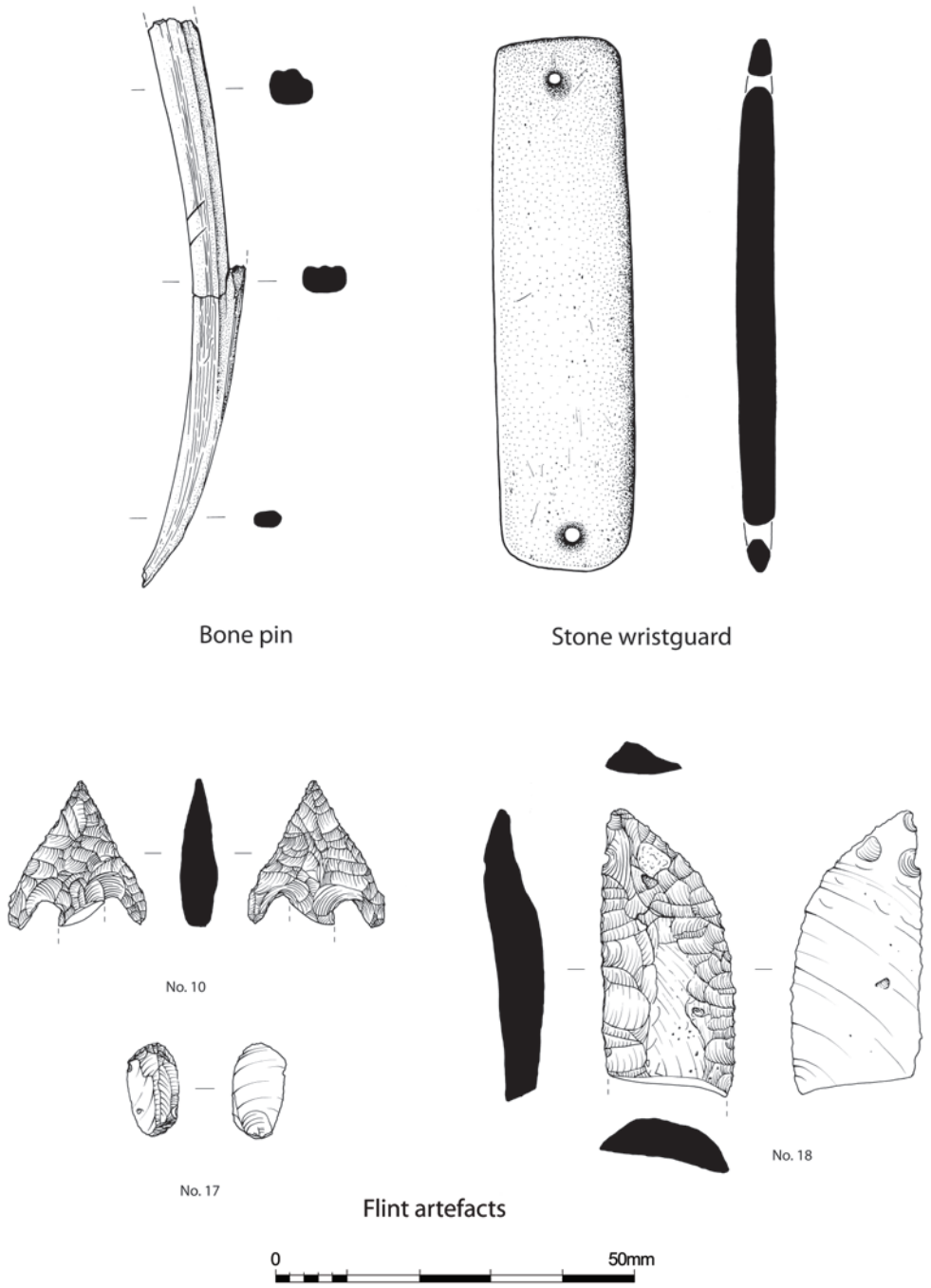
4.4.3 Discussion, with Alison Sheridan

Thanks to the results of the National Museums Scotland *Dating Cremated Bones Project* (Sheridan 2003) and the comprehensive dating of an Early Bronze Age cemetery at Skilmafilly, Aberdeenshire (Johnson & Cameron forthcoming), it is now clear that the currency of Collared Urn use in Scotland falls mostly within the date bracket 1900–1600 BC (Sheridan 2007c, 165) – a range within which the Lockerbie urn date of 1910–1690 cal BC (SUERC-19245) fits well. A similar currency has been found for Irish Collared Urns (Brindley 2007), and although far fewer reliable radiocarbon dates exist for their English counterparts, it seems that Longworth's (1984) argument for their initial emergence in England, then their spread northwards and westwards, holds true (Sheridan 2007c, 165); Needham has argued that they were probably first used around 2100/2000 BC (Needham 1996). Their adoption forms part of a wider change in funerary traditions, from around the 21st century BC, in which cremation became increasingly popular as the method of dealing with the body.

Collared Urns are well represented in southern Scotland and northern England, with a nearby example known from the Early Bronze Age cemetery at Kirkburn, Lockerbie (Cormack 1963, Pit 35). In a similar fashion to the present example, the Kirkburn Collared Urn had been inverted onto three flattish stones within a pit, with flat stones placed within the pit around the urn. The urn was decorated with incised herringbone/chevrons across the collar and neck.

4.5 Chipped stone, by Graeme Warren

Nine artefacts were recovered from Area D, all in association with cremated bone or other burial deposits of Bronze Age date, including one (F35) associated with a Collared Urn. Seven burnt flints including a plano-convex knife were found in the cremation deposit F34/07; one flint barbed and tanged arrowhead from the 'body shadow' F33/05 associated with a copper alloy dagger, and an irregular flake of blue-grey southern uplands chert was recovered



Illus 15 Area D finds from F34 and arrowhead No. 10 from F33

from a fill of F35. This piece came from the backfill of the pit and may simply be residual.

The arrowhead (10) (illus 15) from the body shadow is a small (20 × 19 × 2mm) but fine example of a 'Sutton' barbed and tanged arrowhead with straight laterals (Green 1980). The barbs are rounded/pointed but minor damage to the tang means that this is unclassifiable in length/morphology; the overall form is therefore unclear. The artefact is generally in very fine condition, and the tip is very fresh. The artefact was found in association with a copper alloy dagger of Butterwick type. As reviewed by Sheridan & Cowie (2003, table 4), lithic artefacts associated with Butterwick type daggers in Scotland are rare, limited to a small number of burnt chips from Cleigh, Argyll & Bute. More broadly, the same review notes that dagger graves sometimes include barbed and tanged arrowheads (in flint or quartz), whereas graves with bronze knife-daggers appear to be more likely to include plano-convex stone knives. The current Lockerbie find is in keeping with this pattern and the association is an important addition to the corpus.

The small assemblage from F34/07 seems to include artefacts that have passed through the cremation process, including one elaborate knife. The seven artefacts from the cremation deposit include five small burnt pieces, one a blade burnt

after manufacture, the rest thermal spalls. A tiny (12 × 7 × 2mm) convex end scraper is manufactured on a small flint flake (17) (illus 15) and heavily burnt post flaking. A broken plano-convex knife (18) (illus 15) (surviving fragment 40 × 19 × 6mm), with a slight curve to the right at distal lateral was identified. The overall morphology is obscured by the break, but there are suggestions of crescentic shape. The artefact is heavily burnt, again post flaking. Plano-convex knives are well known from Bronze Age burial contexts, often in association with Food Vessels, but also a variety of Urns (Clark 1932). For example, at Kirkburn, a comparable example (*c* 50mm in maximum length) had been deposited unburnt in a Collared Urn along with cremated remains (Cormack 1963, 128). This example reminds us that very similar artefacts may have entered a cremation deposit through different routes. Finlayson (in Mercer & Midgeley 1997) discusses use-wear analysis of a small sample of unburnt plano-convex knives, and argues that the more elaborate examples were not manufactured for practical use.

4.6 Stone objects

4.6.1 Hammerstone from F35, by Adam Jackson

A hammerstone recovered from within cremation urn F35 is of typical expedient form and was quite possibly used once and discarded. Such finds are commonplace on Scottish sites of prehistoric and later date. It is impossible to determine whether the stone was deliberately placed in the cremation urn, or accidentally deposited during the infilling of the pit.

4.6.2 The stone wristguard from F34, by Alison Sheridan and Adam Jackson

The wristguard (illus 15) is 73mm long, 18mm wide and 6mm in maximum thickness. Its two perforations, drilled from both sides, measure 1.5mm at their narrowest and are positioned at either end; one is midway across the width, the other slightly off-centre. Rectangular in shape, its corners are gently squared off at one end and rounded at the other. Its sides are basically straight – one side tapers minimally towards the ends – and it is flat on both its upper and lower surfaces. According to the latest typological scheme for wristguards (Fokkens *et al* 2008, fig. 1), the Lockerbie Academy example falls within the '2Spp' type (ie two perforations; straight sides; flat (plano) on top and underside; this equates to Smith's '2SF' type (Smith 2006) and Atkinson's 'B1' type (as cited in Clarke 1970). Within the size range recorded for British wristguards by Ann Woodward and colleagues, the Lockerbie Academy specimen falls towards the smaller end (Woodward *et al* 2006, 534). The narrowness of the perforations suggests that the wristguard may well have been riveted to a strap made of animal hide, rather than being fixed to the wrist using a thong.

There are no obvious signs of wear, but a shallow spall is missing from one end on the underside, having become detached in antiquity from beside one of the perforations. The spall scar is darker than the rest of the wristguard, and it may be that both the spalling and this discoloration were caused by heat damage if the object, like the other artefacts in the grave, had been with the corpse on the pyre. The degree of burning is not as severe as that seen on the flint artefacts from the grave, however.

The stone from which the wristguard has been made is a fine-grained rock, of pale bluish/greenish-grey colour, with small, dark red-brown mineral inclusions. The object's outer surfaces have been stained orange from contact with the local, sandstone-derived sediment, but the original colour is visible down the holes, especially on the top side. Analysis and petrological evaluation of the stone were undertaken as part of a current project encompassing British wristguards, *Ritual in Early Bronze Age Grave Goods*, directed by Ann Woodward and John Hunter of the University of Birmingham (Woodward *et al* forthcoming). There was particular interest in this specimen as Woodward *et al* had discovered that other speckled wristguards, of similar-looking blue/green-grey stone, had been made from tuff from a specific area in Great Langdale, Cumbria (Roe & Woodward 2007; Woodward *et al* 2006, 538. Great Langdale tuff had previously been used to make Group VI stone axeheads). Electron microprobe analysis and the production of high-magnification backscatter images was undertaken by Lore Troalen, of National Museums Scotland, using the NMS' scanning electron microscope, and the results were evaluated by project petrologist Dr Rob Ixer, who reports: 'The very fine-grained nature of the bracer makes a lithological identification very difficult. The evidence from the SEM photographs suggests that this non-clastic, uniform rock, despite its poor planar fabric, is an altered ?basic lava rather than a volcaniclastic. It lacks most of the defining characteristics of the Group VI bracers. Petrological thin-sectioning would be necessary to obtain further information' (R Ixer pers comm).

The Lockerbie Academy wristguard is the twenty-third such object to have been found in Scotland (this total excludes two items that had previously been listed as wristguards by Harbison in his 1976 survey, but rejected by Woodward *et al*). The others mostly cluster in Aberdeenshire and around the Moray Firth, but there is a scatter in the Hebrides and in southern Scotland. Across the North Channel, there is a remarkable concentration in County Antrim (*ibid*, Fig. 2) – no doubt partly due to intensive antiquarian activity in this part of Ireland during the 19th century (Woodman *et al* 2006). Most Irish wristguards are of two-holed type, with straight or tapering sides, whereas in Scotland, from the twenty examples whose shape is known,

only eleven – just over 50%, in other words – are two-holed. The Lockerbie Academy example is similar in shape and colour to one from Mid Torrs, Glenluce (NMS X.AT 1; Harbison 1976, 29). Colour seems to have been a significant factor in the choice of stone for making wristguards (Woodward *et al* 2006, 534–5). Most of the Irish examples are of reddish stone, while in Britain there was a preference for grey, including blue-grey and green-grey variants (as seen in the Group VI and Lockerbie Academy examples), and also mid to dark green. One group, mostly from southern England, had been made from a distincitve whitish-blue nephrite, almost certainly imported.

Stone wristguards have been found in both Chalcolithic and Early Bronze Age contexts in Britain and on the Continent and seem to be a Beaker period innovation, being part of a set of prestige items buried with, and signalling, high-status 'hunter/warrior' males. The adult's remains in the Lockerbie Academy grave are those of a male (Anderson above). Wristguards are one element in the archery equipment that often features in these funerary assemblages. They were introduced to Britain, as part of a set of Continental novelties, by Beaker users. The earliest dated wristguards in Britain – from the 'Amesbury Archer' in Wiltshire and from Dornoch Nursery Cist in Highland – date to 3890±32 BP (P-13852, 2471–2243 cal BC at 2σ) and 3850±40 BP (GrA-26515, 2461–2205 cal BC at 2σ) respectively, and are two-holed, with straight sides (Fitzpatrick 2002; Ashmore 1989; Sheridan 2007d, 109). Ann Woodward *et al*, in their review of British wristguards, have argued that the more elaborate wristguard types, including the waisted, four-holed examples (eg Ardiffery, Cruden, Aberdeenshire: Kenworthy 1976, 81), developed after the two-holed examples had been in use for some time, emerging around the time of Needham's Beaker 'fission horizon' (Needham 2005), when Beaker use and diversity increased. This is borne out by (*inter alia*) the date of 3732±27 BP (KIA-25326, 2204–2035 cal BC at 2σ) for one such example, of Great Langdale tuff, found at Ferry Fryston, West Yorkshire (Brown *et al* 2007, 30). That two-holed wristguards continued in use after these more elaborate versions had emerged is shown by a fragmentary example from Old Rayne, Aberdeenshire (old at its time of deposition and dated to 3690±45 BP, GrA-23982, 2201–1951 cal BC at 2σ: Sheridan 2007d, 114) and by the Lockerbie Academy example, itself dated to 3635±25 BP (SUERC-19244, 2126–1922 cal BC at 2σ). The latest British wristguards, found in a Collared Urn in Lancashire and a Cordoned Urn in Ferniegair, South Lanarkshire, date to within the first half of the second millennium and may have been heirlooms.

There has been much recent discussion about the function and use of wristguards, with Fokkens *et al* pointing out (2008, 112–6) that, among 30 examples from across Europe where the position of the wristguard with regard to the corpse's arm could be determined confidently, in 17 cases it lay on the outside of the wrist. In these cases, at least, the wristguard would not have functioned to protect the wrist but would have been a prestigious ornament, analogous to the native American silver *ketoh* that were worn in the same way (*ibid*). Whether or not the Lockerbie Academy example had protected its owner's wrist, it would undoubtedly have been a status symbol; the special regard in which the Lockerbie Academy wristguard was held is shown in its position in the grave, placed carefully on top of stones covering the deposit of cremated bones and other artefacts.

4.7 The antler pin, by Dawn McLaren

Two conjoining fragments of an incomplete, curved and calcined pin (illus 15) were recovered from amongst an unurned cremation deposit at the base of pit F34 (illus 13) along with seven burnt flints including a plano-convex knife (Warren above). The fragments are from the shaft and point only and their overall length is 79mm, and weight 3.5g. Thin cracks are present along the length of the pin, probably due to heat damage, which has resulted in the loss of the head and a long splinter from one edge. The remaining shaft is oval-sectioned (7 × 5mm), tapering to a fine narrow point 1.5mm in diameter. The pin's original length is unknown.

The pin has been manufactured from the tip of a small roe deer antler tine, its shape following the natural curvature of the tine (A Kitchener pers comm). Although artificial flattening of one face and abrasion around the point has been undertaken, modification of the raw material is limited, with areas of the natural ribbed compact outer tissue remaining. Faint traces of polish are visible on the shaft and point, but this is likely to be from the natural activity of the deer rather than deliberate modification. The white, calcined, brittle appearance of the pin suggests that it passed through the pyre, being worn by the deceased. The transverse crescentric cracks along its length are almost certainly the result of heat distortion.

Eight Bronze Age bone/antler pin types have been classified by Longworth (1984, 63–4) which include imperforate, perforated and decorated examples. Due to the loss of the head of the Lockerbie Academy pin, it has not been possible to identify the type. Bone/antler pins are common finds from Bronze Age deposits of cremated remains with five examples known from Dumfries & Galloway (Bishop 1919; Cormack 1963; Cowie *et al* 1981), all of which are manufactured from bone. This is the only antler example known to the writer in this locality, although other Scottish examples come from elsewhere such as Cairnpapple Hill, West Lothian (Piggott 1948, 110, 123) and Seafield West, Inverness, Highland (Cressey & Sheridan 2003, 66, fig. 14). The fact that these artefacts are consistently found in a calcined state argues for their use as a fastener for a funerary

garment, rather than as a pin to secure a bag containing the cremated human remains.

4.8 The bronze dagger from the central grave (F33), by Alison Sheridan and Peter Northover

4.8.1 Description

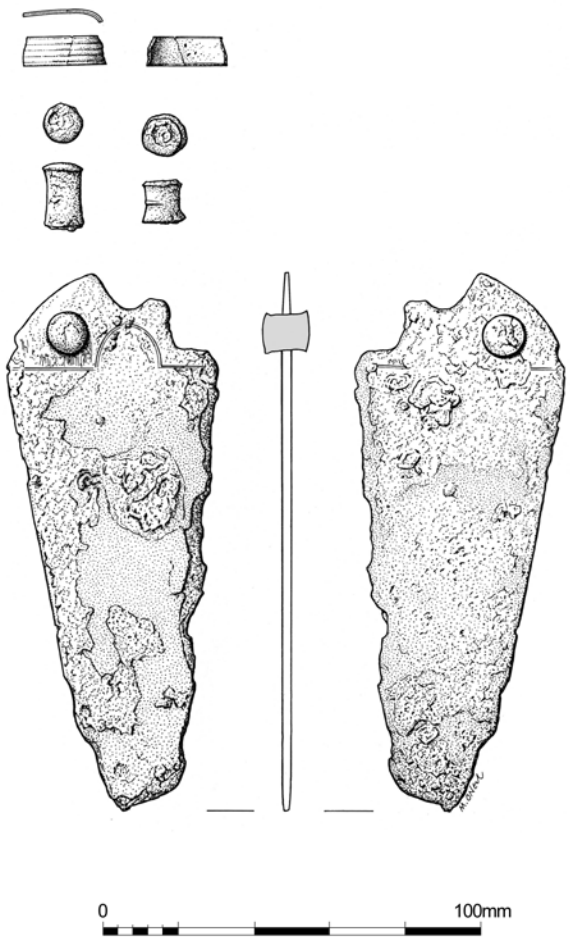
The dagger (illus 16–17) consists of a flat copper alloy blade; three plug rivets that had been used to fix the hilt to the blade (of which one is still in situ); fragments of a ribbed copper alloy hiltband (a decorative binding around the pommel); and traces of its horn hilt and animal hide sheath (all suggesting that the dagger was probably buried complete with the hilt). A small piece of wood found in the vicinity of the dagger could conceivably have come from its hilt, while other detached organic fragments, consisting of a thin layer of blackish, mineralised fibrous material attaching to numerous small lumps of sediment found close to the dagger blade, may well have belonged to the sheath. Unfortunately, as the dagger was not lifted in a block and excavated under laboratory conditions, details regarding the relative positions of this fibrous material, the wood fragment and the blade have been lost.

The blade is almost triangular, with a damaged, arched heel which had originally housed the three plug rivets. The blade's edges were originally straight before curving in to a rather blunt point; while the more intact of the two edges is slightly bevelled as a result of sharpening, the edges were not deliberately bevelled. Much of one edge, approximately 10mm of the point and a section of the other edge near the tip are missing, as is about one quarter of the heel, including the area where two of the rivet holes once were. The notch-like shape of the central rivet hole (to house the largest rivet) is misleading: comparison with all similar daggers makes it clear that it was indeed originally a hole. The largest of the three rivets would have occupied this central hole. There is a well-defined omega-shaped hilt mark at the top end of the blade, just below where the rivets had been (illus 17.1).

The blade's surface displays a brownish-red earthy encrustation over a dry, smooth, slightly glossy, pale green patina, beneath which are exposed areas of darker, blue-green corrosion products forming a surface to thick green corrosion products, most probably the hydroxychlorides atacamite and paratacamite. Where the patina is damaged, secondary corrosion products have erupted, and in fractures at the edge the purplish colour of cuprite is visible.

The dagger as it survives measures 141mm in length and 54mm at its maximum width; the original length would have been between 150mm and 155mm and the maximum width at the heel would have been approximately 63mm, assuming the blade was fully symmetrical. Its maximum thickness (excluding areas of thick corrosion products) is 3.4mm.

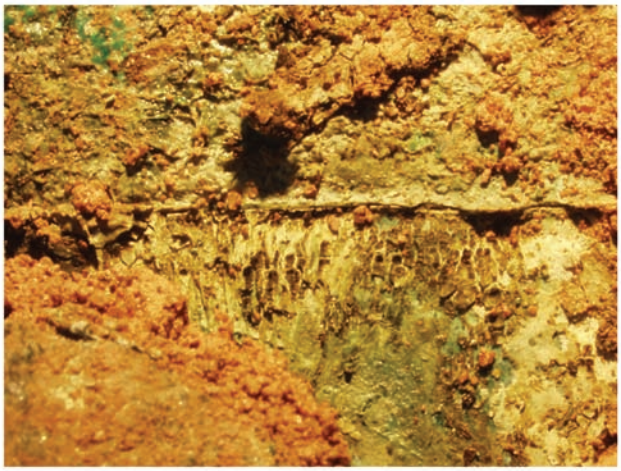
That the dagger's hilt was made (at least partly)



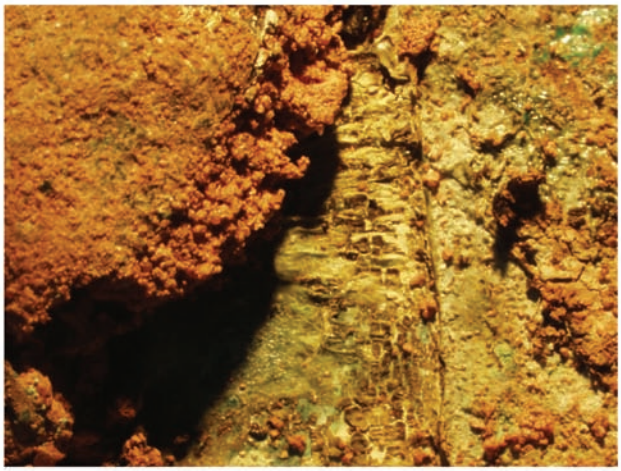
Illus 16 Dagger from F33

of horn – most probably bovine horn (Jacqui Watson pers comm) – is demonstrated by traces that remain in the vicinity of the in situ rivet on either side of the blade (illus 17.2) and on each of the detached rivets. The cellular structure of the interior of the horn is aligned along the dagger's long axis, indicating the use of one or two horn plates, cut vertically along the horn, to construct the hilt. The thickness of the largest rivet indicates that the hilt was originally *c* 11mm thick at its centre.

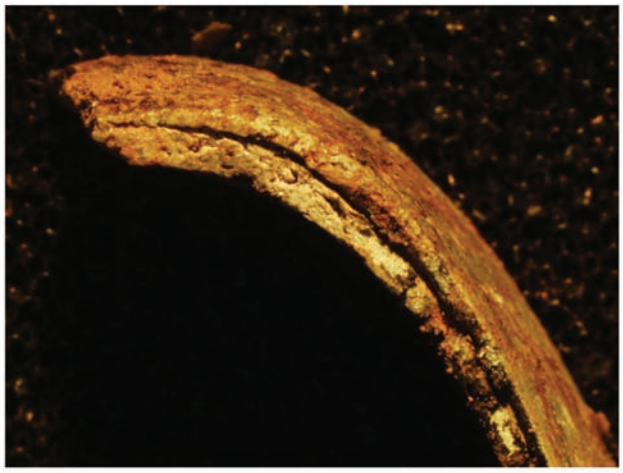
The hiltband consists of two conjoining thin yellowish-green copper alloy fragments forming a piece around 23mm long, 7.7mm wide and 1.25mm thick which curves gently at one end (illus 17.3) but is otherwise straight. This indicates that the pommel's long sides had originally been flat (or at least flattish), and its ends gently rounded. The exterior had been decorated with four low horizontal ribs in false relief, giving it a corrugated appearance; these are most clearly visible on the curving section, and appear to be worn nearly smooth on the flat area. Tiny patches of black organic material on the inner suface (illus 17.4) could conceivably be wood, suggesting that the dagger's pommel (of which the hiltband is an ornamental binding) was wooden. It is unclear whether the detached piece of



Illus. 17.1 - Edge of omega hilt



Illus. 17.2 - Hilt horn and rivet



Illus. 17.3 - Edge of hilt band

Illus. 17.4 - Wood hilt detail

Illus 17 Dagger: microscope photographs

wood (20.3 × 9.9 × 8.9mm, illus 17.4) comes from the pommel; it is too thick to have been part of a composite, rigid scabbard. Semi-quantitative compositional analysis of the surface of the hiltband by Lore Troalen (National Museums Scotland), using X-ray fluorescence spectrometry (XRF), revealed a very high tin content, 86–87%. While there may have been some post-depositional surface enrichment as tin migrated to the surface during degradation – the surfaces of the two detached rivets also had elevated tin contents, of 42% and 27% respectively (cf the analytical results for the blade, below) – it seems at least a possibility that the hiltband was deliberately tin-enriched, possibly by tinning. This would give it a silvery appearance, contrasting with the golden colour of the blade.

Traces of degraded organic material on the surface of the blade are likely to be the remains of an animal hide sheath; one fragment of this material was used for radiocarbon dating. (The term 'sheath' is used to denote a single-material and possibly slightly flexible cover, in contrast to a composite (wood and hide), rigid scabbard. There was no clear evidence for the former presence of any wooden plate.) Some of these patches had what appeared to be fine hairs, suggesting that the outside of the sheath had been the natural hairy exterior of the hide. Additional evidence to support this comes from the dark fibrous material attached to lumps of sediment, for which the following identification has been provided by Penelope Walton Rogers (the Anglo-Saxon Laboratory), on the basis of optical microscopy, using incident light at magnification up to ×160 and transmitted light up to ×640: 'Most of the black sample showed the attenuated mesh of collagen. This apparently fibrous material is in fact from the skin layer of the hide. The paler fibres had the appearance of animal coat fibres, although no cuticular scale pattern was preserved on the sample examined. They were 15–42 microns

diameter and cross-sections were oval. It is impossible to identify species from this limited amount of data. However, the fibres seem fine for ox (even allowing for some shrinkage during mineralisation). Other species, such as sheep, would provide a better match for the range of diameters and cross-sectional shape.' Given that ox-hide, rather than sheepskin, has been noted for other Early Bronze Age dagger sheaths and scabbards (Ryder 1964), an interpretation of the evidence as ox-hide in this case seems more likely. DNA analysis should help to provide a definitive identification.

Flat daggers are the earliest type of dagger to appear in bronze in Britain and, in fact, only one copper example is known, from Rudston in East Yorkshire (Gerloff 1975, no. 38); other copper associated with flat daggers occurs only as rivets. Flat daggers were fully catalogued by Gerloff (*ibid*) who divided them into a number of types, groups and variants (although some of these groups are uncomfortably heterogeneous in both the size and shape of the blades). Several flat daggers have been found since that publication, for example the blade of her Type Butterwick from Gravelly Guy, Stanton Harcourt, Oxfordshire, which combines a bronze blade, copper rivets and a type of bone pommel normally associated with tanged copper daggers (Northover 2005). Recent Scottish finds have been another example of Type Butterwick from Seafield West, Highland (Northover 2003a), and one of Type Milston, Variant East Kennet from Rameldry Farm, Fife (Northover 2003b).

For daggers like the Lockerbie Academy example, with a triangular or sub-triangular blade, Gerloff proposed two major types: *Butterwick*, with a rather broad, rounded tip to the blade and an omega-shaped hilt mark, and *Masterton*, where the sides are straight and the blade tapers to a sharply angled point, and with a V- or omega-shaped hilt mark. There is also a strong north–south divide in their distribution, with Type Butterwick daggers being found mainly in the south of England, Wales and the Peak District, and Type Masterton mainly in the north of England and Scotland, with some overlap in the Peak District and one example in south-east England. Another difference between the two types may be seen in their proportions. Where maximum width is plotted against length, for a given length Type Butterwick tends to be the broader of the two.

The Lockerbie dagger itself has the outline of a Type Butterwick blade, with a more rounded point and an omega-shaped hilt mark. Plotting the proportions of the Lockerbie Academy dagger against those of both Types Butterwick and Masterton, the blade tends towards the more slender Masterton proportions, although having the Butterwick outline. It must be remembered, though, that the dimensions of a number of the blades will have been affected by re-sharpening and by corrosion, especially where the corpse has been buried unburnt, a grave environment can be very inimical to bronze. It should be noted, however, that the best parallels for the ribbed hiltband are those associated with the Masterton-type daggers from Skateraw, East Lothian (Gerloff 1975, plate 8, no. 83) and Collessie, Fife (*ibid*, no. 84), both of gold. A third gold-ribbed hiltband was found associated with a ribbed flat dagger, of a more 'developed' form according to Gerloff's typology, from Blackwaterfoot on the Isle of Bute (Henshall 1968, Fig. 42.5). It may be that the dagger blade started its life in southern Britain – as explained below, its composition suggests that it might possibly have been made in Wales – and that its hiltband was added later, in Scotland (although this cannot be demonstrated compositionally, due to the advanced mineralisation of the hiltband).

The Lockerbie Academy dagger adds to the growing number of Early Bronze Age 'dagger graves' in Scotland (see Sheridan & Cowie 2003 for a recent review of the dagger graves containing flat riveted daggers). The available dating evidence for flat riveted daggers of Types Butterwick and Masterton indicates a currency within the date range 2200–1950 BC, and possibly a narrower date range than that; the date of 2140–1910 cal BC at 2σ (3645±35 BP, SUERC-19817) obtained for the Lockerbie Academy dagger sheath falls within this range. The evidence from associated, reliably-sexed skeletons indicates that 'dagger graves' are those of high-status males (usually those of relatively advanced age), so this strongly suggests that the individual buried at Lockerbie Academy was an adult man.

4.8.2 Analysis of the dagger blade, by Peter Northover

Sampling and analysis

The corroded state of the rivets, and the fact that both they and the hiltband were too completely mineralised, precluded their sampling for analysis (but see above regarding the semi-quantitative compositional analysis of their surface using XRF); also, the edges of the blade were too deeply corroded to allow the cutting of a metallographic sample. Therefore, a single sample was drilled from the blade only, using a hand-held modelmaker's electric drill with a 0.7mm diameter bit. The sample was hot-mounted in a carbon-filled thermosetting resin, and then ground and polished to a 1μm diamond finish. Analysis was by electron probe microanalysis using wavelength dispersive spectrometry. Operating conditions were an accelerating voltage of 20kV, a beam current of 30nA, and an X-ray take-off angle of 40°. Counting times were 10s or 20s per element, and pure element and mineral standards were used. Seventeen elements were analysed as listed in Table 5; detection limits were 100–200ppm.

Five areas, each 30 by 50μm, were analysed on the sample. Individual analyses and their means, normalised to 100%, are given in the table; all concentrations are in weight %.

Table 5 Element analysis of samples from the dagger blade

Sample	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	Cd	S	Al	Si	Mn
R3149/1	0.03	0.02	0.07	89.83	0.00	0.00	0.00	10.01	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.01	0.00
R3149/2	0.10	0.00	0.03	88.44	0.00	0.00	0.00	11.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
R3149/3	0.02	0.01	0.06	85.09	0.02	0.00	0.00	14.44	0.00	0.00	0.07	0.00	0.00	0.28	0.00	0.01	0.01
R3149/4	0.00	0.01	0.07	86.89	0.00	0.03	0.00	12.97	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00
R3149/5	0.00	0.01	0.07	89.21	0.00	0.02	0.00	10.56	0.08	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
R3149/Mean	0.03	0.01	0.06	87.89	0.00	0.01	0.00	11.88	0.02	0.00	0.02	0.00	0.00	0.07	0.00	0.01	0.00

Table 6 Percentages of identified fragments out of total identified to area of skeleton (*expected proportions from McKinley 1994, 6)

Burial	Total wt/g	% Identified	% Skull	% Axial	% U limb	% L limb
*Expected**			18.2	20.6	23.1	38.1
F34/07	2183.1	48.7	38.4	13.9	15.8	31.9
F35/09	1598.5	48.2	24.9	9.7	12.6	52.8
F35A	18.4	62.0	44.7	–	–	55.3

The alloy

The dagger blade was formed from an unleaded medium tin bronze containing 11.9% tin. The only significant impurities were 0.06% nickel and 0.07% sulphur; all other impurities sought were at, or close to, their limits of detection.

At the outset the variable state of corrosion of Early Bronze Age dagger blades makes assessment of the data difficult, especially in terms of the tin contents. Corrosion-free areas were selected for analysis by electron microprobe, as the metal was well-wrought and annealed (and so homogeneous), and therefore representative. As tin contents are frequently enhanced by corrosion some of the higher tin contents found elsewhere may be suspect. That said, tin contents are generally in the range 8–12%. This dagger is at the higher end of that range and typical enough of the earliest bronze metalwork in most areas of Britain.

At the time bronze was first used in Britain, in the 21st century BC, the majority of copper was supplied from Ireland, characterised by an As/Sb/Ag impurity pattern ('A' metal, Northover 1980), with some local production beginning in Wales and England with copper with either very low levels of impurities ('C' metal) or As/Ni impurities ('B' metal). In Scotland local production, for example of Migdale axes, is dominated by a metal similar to the Irish 'A' metal but with different proportions of arsenic and antimony. Also in Scotland there is some 'B' and 'C' metal but this is very much associated with decorated flat axes probably representing direct imports from Ireland.

Plotting antimony against arsenic as the two most diagnostic impurities produces interesting results. The impurity patterns divide into three groups, those with arsenic and antimony, those with no antimony and a very small cluster with very low impurities. The first group is influenced by Irish and Scottish sources, and the second two by non-Scottish sources. There is one Scottish dagger, that from Masterton, Fife, which has the same levels of arsenic and antimony as the Lockerbie dagger. However, it is very different in having significant silver and lead impurities, and therefore has no connection with the Lockerbie Academy dagger.

4.8.3 Discussion

The form of the Lockerbie Academy dagger is that of Gerloff's Type Butterwick, the earliest form of flat bronze dagger in southern England. As so few (three) Type Butterwick daggers are known from Scotland one might reasonably conclude that the Lockerbie Academy dagger was not made in Scotland. This is supported by the impurity pattern: it is low in almost all impurities except for small traces of nickel and sulphur. There is, of course, the possibility that it was made in Scotland of Irish metal, but this particular impurity pattern does not feature in Ireland. Thus the origin is most probably in England or Wales, although there are no exact parallels. The closest lie in metal group 'B4' which may have a Welsh origin (Northover 1980).

4.9 Cremated bone, by Sue Anderson

4.9.1 Description

This report examines the cremated bone from three Bronze Age burials, one urned and two unurned, as well as the burnt or cremated bone from other contexts.

Collection methods varied depending on the size

Table 7 Summary of EBA cremation burials

Burial	Deposit	Type	Age	Sex	Ave ident frag wt (g)	Notes
F34	07	Unurned	a) Adult b) Juvenile	Male –	0.8	Large pieces, well-preserved; duplication indicates at least two individuals and fragments of abraded bone suggest the presence of a third; adult sexing based on large mastoid process and brow ridges; at least two juvenile unfused epiphyses and fragments of juvenile cranial vault; no degenerative changes but possible evidence for porotic hyperstosis on juvenile cranium; some wormian bones present. Lithic and bone cremation goods included.
F35	09	Urned	Mature	Male	1.2	Large fragments, well-preserved, though some bone not fully calcined; age based on fusion of some cranial sutures, and sex on well-developed occipital crest and pronounced brow ridges; no degenerative changes; some wormian bones present.
	02, 03, 04(?), 08	Unurned	Adult	–	0.7	Several abraded pieces; includes a vertebral articular facet with signs of degenerative disease (unabraded). Not certain that all fragments represent a single individual – some pieces may belong to F35/09 and some to F35A.
F35A	03	Unurned	Adult	–	1.9	Poor, most fragments abraded; size suggests adult, no sexing indicators.

and type of deposit. The burnt bone from the urned burial (F35) was collected in spits of up to 3cm in depth. The remainder were collected as single groups of bone. Apart from fragments which were hand-collected on site, large groups of bone (including separate spits) were wet-sieved and sorted into fractions <5mm, >5mm and >10mm prior to analysis. The smaller fractions were mixed with pea-grit and were separated by hand during analysis so that the bone could be weighed. The fractions were sorted into five categories: skull, axial, upper limb, lower limb and unidentified. All fragments in the first four categories were counted and weighed to the nearest tenth of a gram, those in the fifth were weighed only. This allowed an average fragment weight to be calculated for the identified material. Measurements of maximum skull and long bone fragment sizes were also recorded for the >10mm fragments. These data are listed in the archive.

Observations were made, where possible, concerning bone colour, age, sex, dental remains and pathology. Identifiable fragments were noted. Age of juveniles was estimated from tooth eruption and/or epiphyseal fusion where possible, age of adults from degenerative changes. Sexing of adults was based on size and robusticity. Methods used follow the Workshop of European Anthropologists (WEA 1980) and McKinley (1994 and 2004). A catalogue of burials is included in the archive.

Table 6 shows the bone weights, percentages of identified bone from each burial, and the proportions of bone identified from the four areas of the skeleton (skull, axial, upper limb, lower limb). Expected proportions are provided in the first row.

This shows that skull fragments are always over-represented amongst the identifiable material, and that occasionally other areas of the skeleton may be. For example, the proportion of lower limb remains is significantly higher than expected in F35/09, the urned burial. It has been suggested that 'it should be possible to recognise any bias in the collection of certain areas of the body after cremation' (McKinley 1994, 6). However, there is also some bias inherent in the identification of elements. McKinley notes the ease with which even tiny fragments of skull can be recognised, and conversely the difficulty of identifying long bone fragments. These figures can therefore provide only a rough guide to what was originally collected.

Mays (1998, table 11.2) notes that the combusted weight of an adult skeleton has a mean of around 1500g for females and 2300g for males. Two of the burials in this group, F34/07 and F35/09, are within this range, although F34/07 represents more than one individual (see Table 7 and paras below). F35A was represented by very little bone, probably due to being cut by F35. Bone from the fill of the latter may belong to the former, but this only supplies an additional 22.5g.

In addition to the three burials, deposits of cremated human bone were found in grave F33 (0.6g), and the fills of the corn-drier and its flue (3.7g). This material is assumed to be redeposited, although the inclusion of cremated material in inhumation burials has been noted elsewhere (for example at nearby Kirkburn; Cormack 1963) and may sometimes have been deliberate. The small quantity found in F33 is more suggestive of accidental incorporation.

A summary of observations made for the three main burials is presented in Table 7. Two of the burials appear to have contained a single individual, although one of these (F35) may have included some redeposited material from another. F34, however, contained at least two and possibly three individuals. The possible remains of the third individual were recognised from the presence of abraded fragments. These are too few to indicate a separate individual and they may well have been collected and included in error if the pyre site had been used previously. The presence of a child in an adult cremation burial is not unusual, and such inclusion would explain the relatively large quantity of bone in this burial. The minimum number of individuals (MNI) for this group is four. Two adults were probably male, but the others were not sexable. A few redeposited fragments from grave F33 and corn-drier F36/F38 might represent a fifth and sixth individual.

One individual, amongst the ?redeposited remains around the urn in F35, showed signs of degeneration of the spine. The juvenile in F34/07 may have suffered from porotic hyperostosis, which causes pitting on the surface of the skull and is related to iron-deficiency anaemia. A fragment of adult mandible from F34/07 showed signs of periodontal disease in the form of pitting and new bone growth to the rear of the socket for the third molar root. Wormian bones, extra-sutural bones of the skull which may have a genetic component in their presence or which can be related to stress during development, were present in two burials, F34/07 and F35/09. No other evidence for pathological changes or congenital anomalies was observed.

One of these burials was excavated in spits and this allows for the relative proportions of the four main skeletal areas to be compared. The urn was inverted and was excavated from the base, with spits 1–7 (ie the bottom 21cm) being empty. Apart from tiny fragments from spits 4 and 7, all material was recovered from spits 8–9, with spit 9 representing the top (rim) of the vessel. There is a degree of patterning in the distribution. Upper limb bone is particularly well-represented towards the top (9), decreasing lower down the vessel (8), whilst skull fragments show a slight increase towards the lower layer at the expense of lower-limb bones. Axial fragments are better represented in the top than lower down in the vessel.

Whilst this may suggest a degree of sorting during collection, the fact that elements from all parts of the body are represented throughout the vessel suggests that this is more likely to be due to convenience than any ritual patterning. F35 was very thoroughly collected, several small bones of the feet

being present, for example. The evidence from this urn seems to show that the collector was methodical, starting at the feet and working up the pyre. A degree of mixing is to be expected due to the subsequent inversion of the vessel.

The degree of fragmentation, based on average fragment weight, can also be compared between the spits in this vessel. The largest fragments from all skeletal areas apart from the axial region were found in spit 8. This may partially be a result of inverting the vessel for burial, as smaller fragments might be expected to work their way down through air gaps following deposition. The difference in size of skull fragments between the two spits is quite marked and does tend to suggest that the larger fragments were collected first, which is slightly at odds with the suggestion of meticulous collection from the feet upwards, as suggested by the patterning of body parts.

The majority of bone in this group was fully oxidised and cream to white in colour, although a few fragments from the two more complete burials were grey or brown, indicating incomplete oxidation. This was particularly true of F35, in which at least one of the femora appeared relatively unburnt, suggesting that some bones or fragments may have fallen through the pyre before they were fully calcined. The presence of a high proportion of white bone indicates firing temperatures in excess of *c* 600°C (McKinley 2004, 11). It has been suggested (Mays 1999, 159) that uniformity of colour in surviving bone may be due to poor survival of less well cremated bone. Whilst this appears not to be the case for the urned cremation (despite its relatively low weight of bone for an adult male), differential preservation may have affected the other two burials, both of which contained much higher proportions of white bone.

4.9.2 Summary and discussion

Three cremation burials contained the remains of at least four individuals. The burials contained two adult males, an unsexed adult and a child of indeterminate age. As is generally the case in cremated assemblages, there is little information on the daily stresses and strains of life which leave their mark on the skeleton, but one individual had evidence for changes of the spine which are associated with increasing age, one had a minor infection of the mandibular bone and one may have suffered from anaemia.

Some insight into the cremation ritual can be gained based on the evidence of the vessel which was excavated in spits, the colour of the bone and the degree of fragmentation. The distribution and size of material deposited in the urn may indicate thoroughness and attention to detail of the individual(s) who collected it. The degree of fragmentation suggests that material was carefully collected from the pyre and not subjected to any further intentional breakage before it entered the burial pit or urn. However, the incorporation of abraded material in one of the burials could indicate the reuse of an earlier pyre site from which the bone had not been collected with such care. Most of the bone from the site indicates that firing reached the high temperatures normally associated with cremation, but the urn burial may not have achieved this fully.

4.10 Discussion of the Bronze Age funerary features, with Alison Sheridan

The cemetery appears to be fairly typical of those dating to the Early Bronze Age in terms of its location, on the summit of a small natural knoll, in its spatial organisation, featuring a primary grave (F33), surrounded by secondary graves, and in the variety of funerary practices represented. It consisted of two possible inhumation graves, three cremation burials and the remains of a stone cist set within an area of stones that has tentatively been interpreted as a possible ring cairn. Radiocarbon results suggest its use over several generations between 2140–1910 cal BC (2σ) and 1910–1690 cal BC (2σ), a date range that is supported by the typology of the artefacts recovered, which include a bronze dagger and a Collared Urn. Of the four dated graves (F33, F34, F35 and F35A), the radiocarbon dates suggest that F33, F34 and F35A may have been contemporary, whereas grave F35 may have been inserted between 50 and 300 years later. Where the sex of the deceased could be determined (either directly from the bones, or indirectly from grave goods), it consistently seems to be male.

One of the most striking features of this cemetery is the variety of burial rites, even among the graves that are thought to be contemporary. Cremation burial F35A had simply been placed in a shallow pit with no grave goods and covered over with two layers of redeposited natural subsoil, which were divided by a large stone. Although a few stones had been placed within the upper fill, this feature was practically invisible prior to excavation. Therefore, it is considered likely that the presence of this cremation burial was not known when the pit for the later urned burial (F35) was cut into it. In contrast, cremation deposit F34, which contained an antler pin and a small assemblage of lithics, had a small cairn-like pile of stones built up over it and a stone wristguard had been placed on top of the pile of stones prior to the back-filling of the pit. The position of this grave pit had been marked by a layer of flat stones placed over the upper fill. Although broadly contemporary with F34 and F35A, central burial F33 was an inhumation burial containing a copper alloy dagger and a barbed and tanged flint arrowhead. Inhumation F37 appeared to be of a similar nature to F33, but this burial did not contain any grave goods and it had not been covered by the type of massive boulder that marked the position of F33. Due to the lack of dating evidence, it is unclear if it was contemporary with F33. The reason for the

variety of rites remains unclear, although the shift from inhumation to cremation – reflected in the fact that the primary grave featured the former, and most of the secondary graves the latter – reflects a broader chronological trend. An element of status differentiation seems clear, with the rich grave goods and massive covering stone of F33 suggesting the presence of a high-status man in this 'foundation' grave. The wristguard from F34 would also have been a status indicator.

The closest comparison to the Lockerbie Academy site, both in terms of content and proximity, is the burial site at Kirkburn (Cormack 1963), less than half a kilometre to the north. Like the Lockerbie Academy site, Kirkburn was also situated on a small knoll or hillock, lying between the Kirk Burn and the River Dryfe in close proximity to one of the major north/south routes in Scotland. The site itself was on a rather larger scale than the cemetery at the Lockerbie Academy site, consisting of 14 probable burials representing 16 persons. Three burials of four individuals were in cinerary urns, one burial of two persons was contained within a small cist and the remainder were contained in small pits.

What is considered to be the central burial (F33) at Lockerbie Academy is closely paralleled by a large pit (Kirkburn feature 24) at the centre of the burial site at Kirkburn (although no grave goods were found in the latter). At 9ft (2.7m) × 4ft 6in (1.4m), this pit was the same size as that excavated at Lockerbie Academy and had the same NE by SW orientation. It was also very similar in terms of the fill in that it consisted of tightly compacted stone containing a few cremated bone splinters. Cormack considered that the stones from throughout the pit were too tightly packed to represent collapse on the decay of a coffin or small mortuary building, and the same conclusion can be drawn for the Lockerbie Academy example. Given the location of these large pits at the very highest point on their respective knolls, it is likely that they represent the inhumation of a particularly significant member of a family or community, with other members being placed in satellite burials around this main burial. The presence of a small quantity of cremated bone from around the edges of the upper fill of the central burial might indicate that there had been an earlier cremation burial on the site that was destroyed when the central burial was inserted.

Where the central burial at Lockerbie Academy differs from that at Kirkburn is through the presence of the massive boulder sitting within the fill of the feature. Based on a weight of 2.3–2.75 metric tons per cubic metre, it is estimated that the boulder may have weighed as much as 6–7 metric tons. Assuming that this boulder would have had to have been brought in from elsewhere, its transportation and manoeuvring into position would have involved a significant imput of labour. During the course of the excavation there was some speculation that it may have been a fallen standing stone, although no evidence of a socket was identified. The author was unable to find any direct comparisons for a stone of this size sitting *within* the fill of a grave, but a massive boulder of a similar size covered a cist burial in the Early Bronze Age cemetery at Holly Road, Leven, Fife (Lewis & Terry 2004).

The high status of the individual buried in F33 is underlined by the presence of a dagger and barbed and tanged arrowhead; by the huge covering boulder; and by its central position in the cemetery. The Lockerbie Academy 'dagger grave' brings the total of such graves in Scotland to 31 (see Sheridan & Cowie 2003, table 4 for details of the others and cf Henshall 1968). The next nearest example, roughly contemporary with this one, is from Carlochan Cairn, Dumfries & Galloway (Sheridan & Cowie 2003). Although initially introduced as part of the Beaker 'package' of novelties, the practice of burying an important male with a dagger became particularly popular as soon as bronze began to be used, during the 22nd century BC (Henshall 1968; Sheridan & Cowie 2003).

The other artefact indicative of high status is the wristguard, found in F34. As explained in Sheridan and Jackson's report (above), this object might never have protected a wrist, but it would have been a prestigious ornament and status symbol, and it might have been worn on the pyre. The plano-convex flint knife found in F34 is paralleled at Kirkburn, but the Kirkburn example had not been subject to the cremation process and was recovered from inside an urn (Kirkburn Urn 3, Pit 35).

Other Bronze Age funerary finds within the Lockerbie area include a Cordoned Urn from Shuttlefield, in which a knife-dagger blade was found (Rae 1880; NMRS N0. NY18SW 20), an urn from Broomhill (Anon 1871; NY08SE 26) and five Collared Urns from Millhouse Bridge (Morrison 1968 and Longworth 1984; NY18NW 5). Little is known about the Broomhill urn other than that it contained fragments of bone and several teeth and that it was found in a cist in about 1865.