5 BONE AND ANTLER ARTEFACTS (see Appendix Two), *by Alan Saville, with contributions by Ywonne Hallén and László Bartosiewicz*

5.1 Introduction

Two pieces of antler and 114 pieces of bone were identified as modified for, or by, use. In the main these artefacts belong to the category of bevel-ended tools; the remainder are bone points or miscellaneous pieces. The typology and provenance are summarised in Table 18 (a detailed catalogue including all worked pieces is given in Appendix Two). Most worked artefacts derive from C36, the main shell-bearing deposit at the rear of the ledge, where conditions for the preservation of bone were most favourable. All remaining bone tools were recovered from C31 (or the C38 and C39 subdivisions of it), which, like C36, was characterised by several shell layers. Radiocarbon dating of the bone artefacts is discussed in Section 11 below.

5.2 Bevel-ended tools (illus 33–38)

This category includes implements with a characteristic bevel at one or both ends. The assemblage comprises seventy-nine tools with a single bevel-end, nine tools with a bevel at both ends, and two tools where a bevel at one end is combined with a functional point at the other. The opposed ends of five double-bevelled tools may have been used sequen-

Table 18 Typology and context of bone and antler artefacts

Type	C31	C36	C38	C39	Total
Single bevel-ended tools	26	51	2	0	79
Double bevel-ended tools	2	7	0	0	9
Combined bevel-ended tools and points	0	2	0	0	2
Points	2	11	0	0	13
Miscellaneous	2	10	0	1	13
TOTAL	**32**	**81**	**2**	**1**	**116**

Illus 33 Bevel-ended tools. Left to right: CAT 81; 83; 80; 1; 8; 37; 31 (see Appendix Two for details) (photo: NMS)

Illus 34 Large bevel-ended tools. Left to right: CAT 45; 44; 32 (see Appendix Two for details) (photo: NMS)

tially rather than concurrently. This is indicated by notable damage – usually a longitudinal split – to one bevelled end, and it is thought that the opposite bevel may have been formed when it replaced the former as the tool's functional part. Six of the eight double-ended pieces, where both ends are sufficiently intact for recording, have the most heavily worn part of the bevel on the same face at both ends of the tool.

As the double bevel-ended pieces are characterised by two surviving opposed working-ends, they are clearly intact in terms of their lengths (illus 35–36). It is much more difficult to assess the intactness of the single-bevelled examples, and only the completeness of the following types of specimen is certain:

1) pieces where the end opposite the bevel is formed by an original articular end of the bone, e.g. illus 36: 69; illus 37: 45;
2) pieces where the lateral edges at the bevel continue uninterrupted to the base of the support, e.g. illus 33: 8, 37 & 31; illus 35: 76 & 65; and
3) pieces where there is obvious polish and/or rounding of the basal edges, e.g. illus 33: 1.

In most other cases it is a matter of conjecture as to whether the tool is broken at the base or not.

However, as the length ranges in Table 19 show, most tools appear to be between 40mm and 70mm long. Since the ranges of the definitely and probably broken tools are almost identical to the range of the intact tools, most of the damaged pieces are probably only slightly shorter than they were immediately after manufacture. A small number of bevel-ended tools which are significantly longer than average pieces, in the range of 110–170mm, may belong to a functionally different tool type (illus 34, 36 & 37). Alternatively, it is possible that the smaller tools were hafted for use, whereas the longer examples were hand-held. The tapered form of the non-bevelled ends on some pieces, and the occasional evidence for shaping of the lateral sides or lateral chipping, may indicate hafting. However, the fact that the polished bases of some tools never have an abrupt edge to a polished zone, as might be anticipated if part of the tool was inside and part outside a haft, speaks against this interpretation, as does the rarity of transverse snapping.

Only one of the bevel-ended tools is made on antler (CAT 7), identified as from a red deer, but another (CAT 65; illus 35) is on a raw material, which, although not definitely identified to species, is most likely to be cetacean bone. All the others appear to be made from longbones of mammals of the sub-order ruminantia, of the size of roe deer or larger. Where a positive identification can be made to species (44 of 89 cases), all instances are red deer, except for one possible roe deer. The identifiable skeletal parts (47 of the 89 cases) comprise 18 metatarsi, 13 metacarpi, 11 unspecified medapodia, 4 tibiae and 1 femur. The metapodial bones of red deer are thus the preferred raw material for these tools (cf Foxon 1991, 108).

The bevel-ended tools in bone appear to be made by longitudinal fracturing of the raw material, probably by pounding it with a stone hammer to produce suitably shaped and sized blanks. In some cases, the lateral edges appear to have been shaped by subsequent flaking or chipping. The segments of bone used in manufacture seem to condition the shape of the bevel; where the bevel is positioned on the ridged surfaces found anteriorly and posteriorly on red deer metatarsals, it is irregular in depth, while other segments of bone with a convex-concave profile (marrow cavity) show a more uniform bevel.

The bevelled surfaces normally exhibit spalling and/or pocking, and sometimes they have easily visible striations, which tend to be aligned perpendicular to the breadth of the bevel. There is also relatively frequent longitudinal splitting of the bevel. All these features are interpreted as relating to the use, rather than the manufacture, of the tools. Although it is unclear exactly how a working

Table 19 Bevel-ended bone tools: length values

Length (mm)	D/E & point	Complete	Fragmentary	Total
20–29	0	0	1	1
30–39	0	3	6	9
40–49	4	10	10	24
50–59	2	18	6	26
60–69	3	8	3	14
70–79	1	4	2	7
80–89	0	2	0	2
90–99	0	0	0	0
100–109	0	0	1	1
110–119	0	1	1	2
120–129	0	0	0	0
130–139	0	0	0	0
140–149	1	1	0	2
150–159	0	0	1	1
160–169	0	1	0	1
TOTAL	**11**	**48**	**31**	**90**

Notes: 1) D/E & point = double-ended bevelled tools and bevelled tools and points combined; 2) Complete = all single bevel-ended tools characterized as complete, virtually complete, probably complete, and possibly complete; 3) Fragmentary = all (apparently) single-ended bevelled tools characterized as definitely, or probably, or possibly broken; 4) The mean length value for the 59 tools in the first two columns is 61.9 mm; the mean length value for the 31 fragmentary tools is 54.7 mm; the overall mean is 59.4 mm.

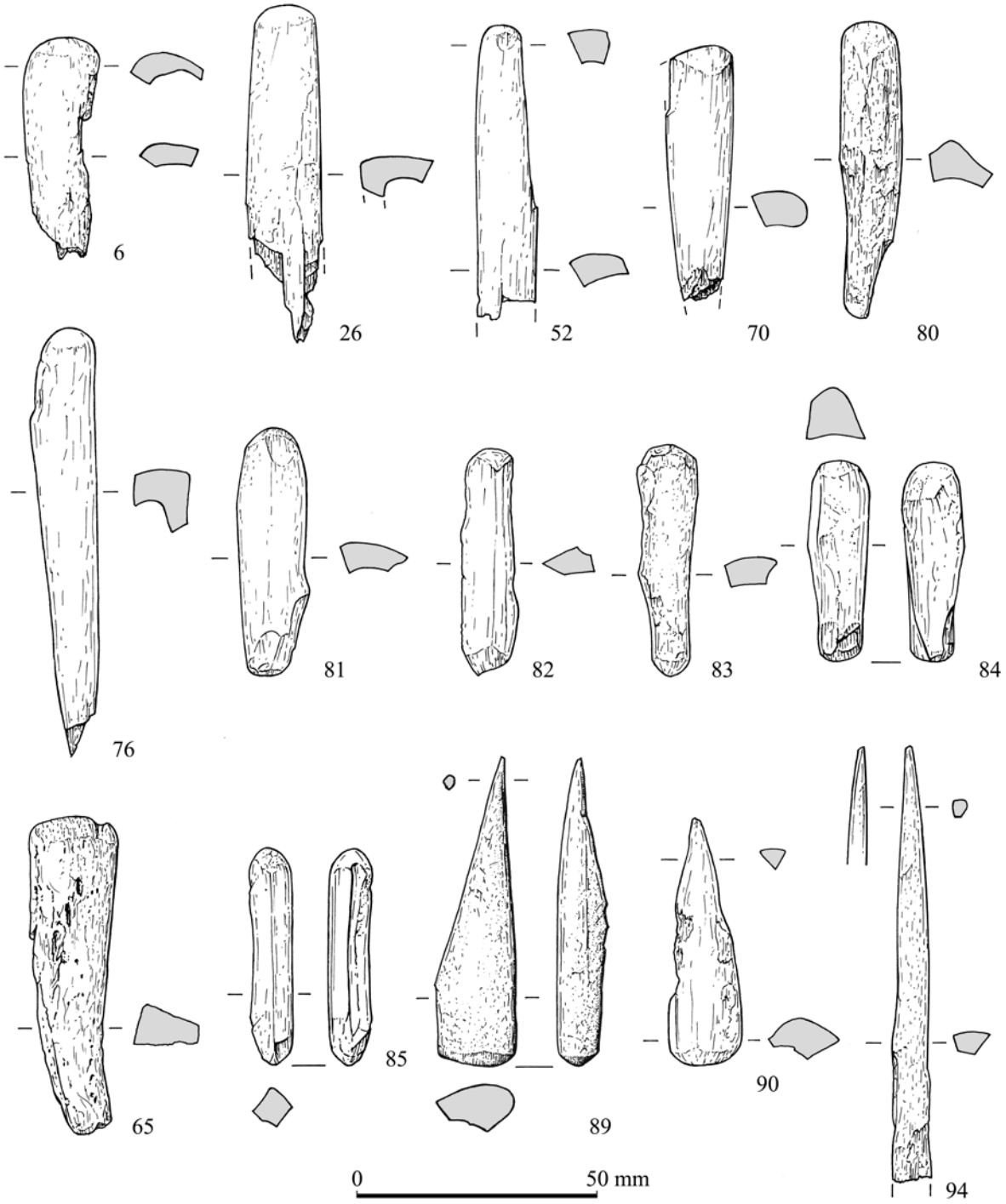
edge was formed at the end of the chosen blank, it is suggested that the bevelled surface as present when the tool was abandoned was largely the result of use. The implication is that the bevelled end was used in such a way that pressure of the tool against an abrasive surface created or enhanced the smooth, rounded bevel. This use probably involved forceful pressure, which led to the more dramatic features of spalling and breakage.

A selection of the bevel-ended tools (including those which were radiocarbon dated) is illustrated to demonstrate their general attributes. All the double-ended bevelled tools are illustrated, as are the two combined points and bevel-ended tools (illus 35–38).

Implements like these, in stone, antler and bone, have been found in abundance on Scottish coastal Mesolithic sites, and they are one of the most distinctive tool-types of the so-called 'Obanian' (Lacaille 1954; Mellars 1987). The nature and function of these implements have been discussed since they were first discovered and termed either 'limpet-hammers' (Grieve 1885, 57), 'skin-dressing tools' (Anderson 1895, 222), 'limpet scoops' (Bishop 1914, 95) or 'flaking tools' (Breuil 1922, 267). Recent studies of these implements (Birch 2003 & 2007; Connock et al 1992; Foxon 1991; Griffitts & Bonsall 2001; Hardy 2007; Reynolds 1983) have shed some light on their character and manufacture, and metrical analysis has confirmed the essential homogeneity in size of the bevelled bone tools. The mean length of the An Corran tools (Table 19) appears somewhat greater than that cited for most other 'Obanian' assemblages (Connock et al 1992, table 3; Griffitts & Bonsall 2001, table 1; Reynolds 1983, table 4), even allowing for the bias introduced by the seven exceptional pieces longer than 100mm, but this does not affect the general pattern. The earliest of the An Corran radiocarbon dates is on one of the longer, larger examples of a bevel-ended bone tool (CAT 44; illus 37), confirming that this type, previously known from the MacArthur Cave and Druimvargie rockshelter assemblages (Anderson 1895; 1898; Lacaille 1954, figs 81–82), but not independently dated, is definitely a Mesolithic form.

Both Foxon (1991, 109) and Reynolds (1983) disagree with the view of Clark (1956, 92) – and thereby with that of the present study – that the bevel is created primarily by use, preferring to see the bevel as the result of initial preparation prior to use. No absolutely clear picture of the specific function or functions of bevel-ended tools has yet emerged. In the most recent studies, however, based on both experimental and microscopic analyses, there seems to be strongest support for the use of the bone and antler examples in hide processing (Birch 2003 & 2007; Hardy 2007). No association of bevelled tools with pigments was observed, unlike at Sand (Hardy 2007), but was not specifically searched for when the An Corran pieces were studied.

The absence of any bevel-ended stone tools at An Corran is noteworthy. This may simply reflect the

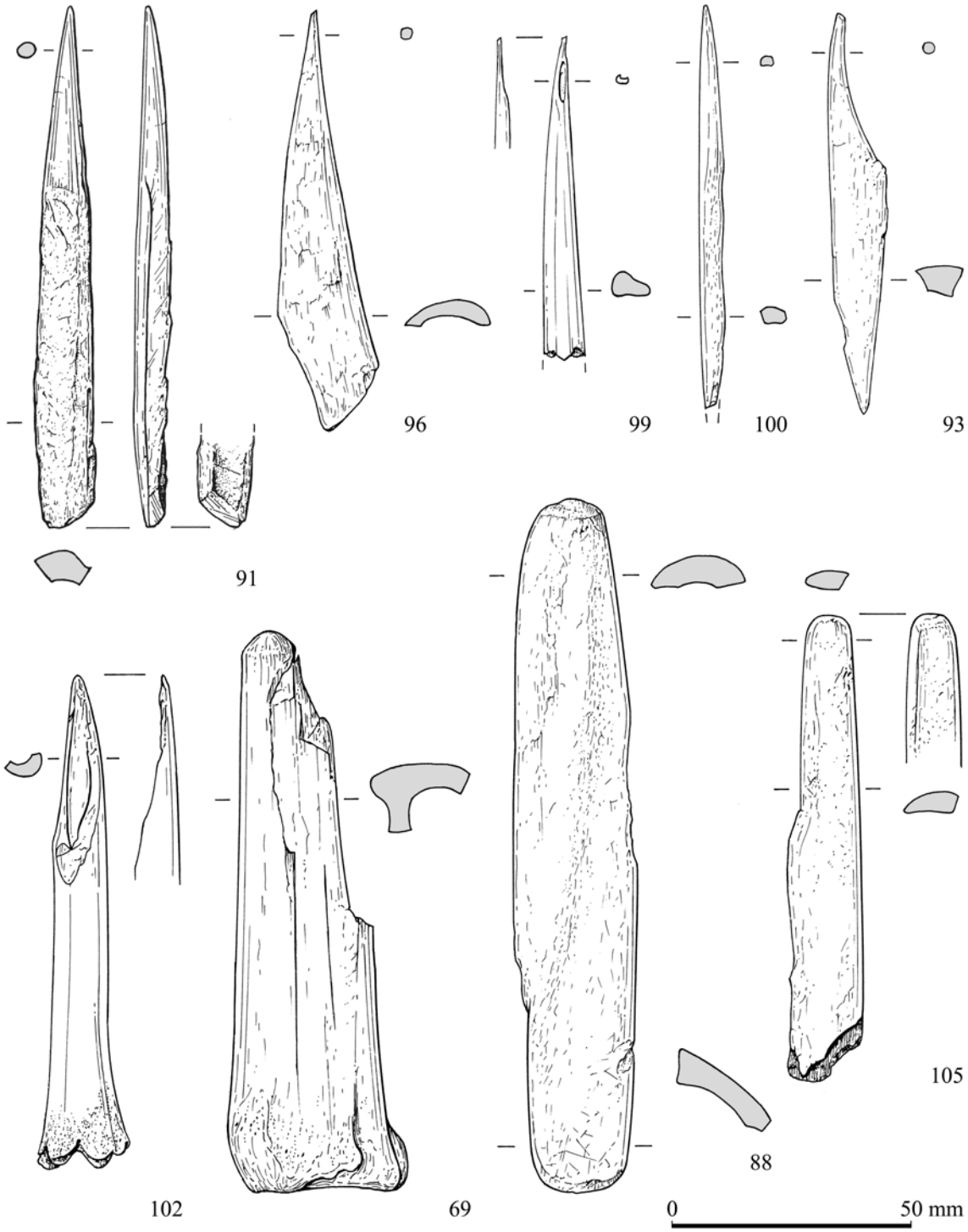


Illus 35 Bevel-ended tools and points: CAT 6, 26, 52, 70 & 76 are radiocarbon dated; CAT 80, 81, 82, 83, 84 & 85 are double-ended bevelled tools; CAT 89 & 90 are combined points and bevelled tools (see Appendix Two for further details) (drawn by Marion O'Neil)

absence of suitably shaped schistose or siltstone pebbles in the immediate environs of the site.

5.3 Points *(illus 35–36 & 39)*

The thirteen points include one (CAT 100; illus 36 & 39) which is pointed at both terminals. Five are sufficiently complete to allow the conclusion that they never had more than one single pointed end; the remainder are incomplete and their original character uncertain. The two pieces with a point at one end, and a bevel at the other, have already been mentioned. One of the complete bone points has a ground facet at the non-pointed end (CAT 91; illus 36 & 39); this probably relates to some unknown

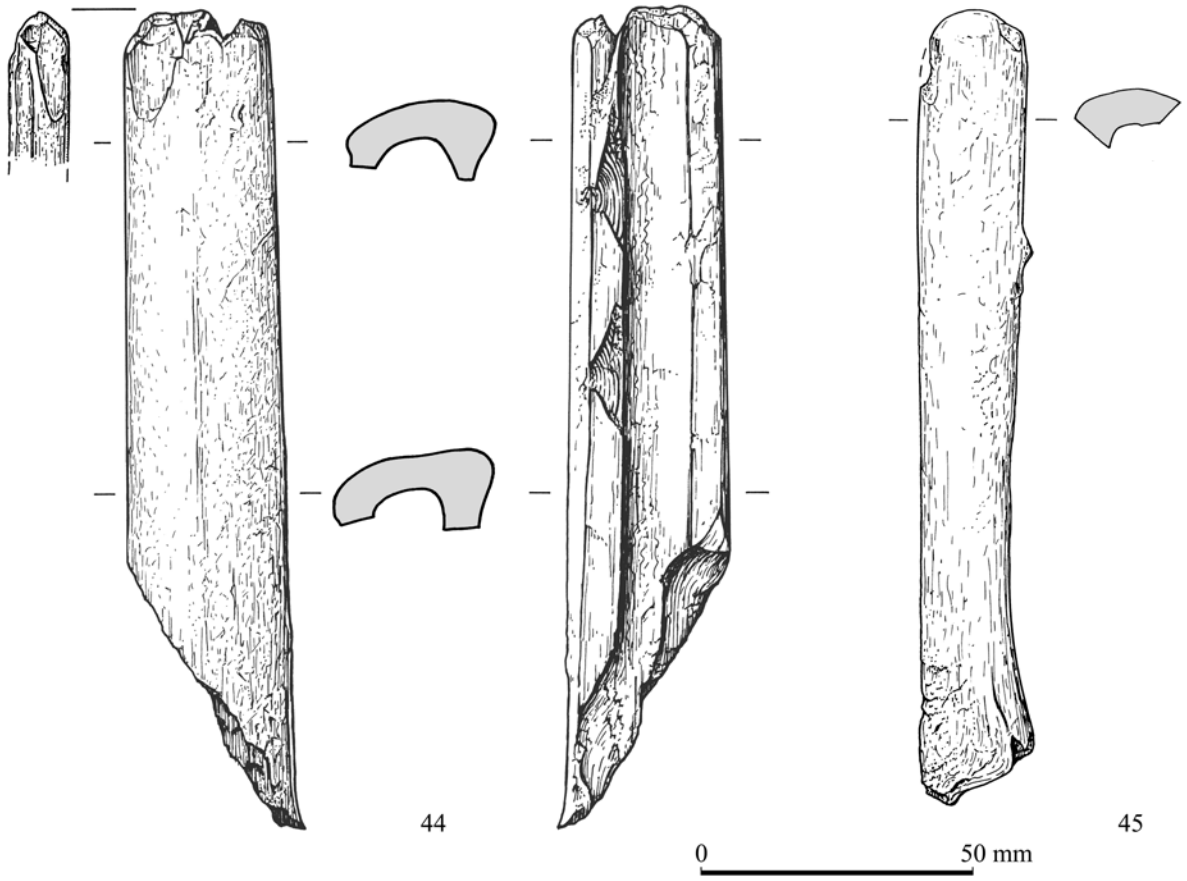


Illus 36 Bevel-ended tools and points: CAT 88 is a double-ended bevelled tool; CAT 100 is a double-ended point; CAT 102 is a gouge/awl; CAT 105 is a spatula-like tool (see Appendix Two for further details) (drawn by Marion O'Neil)

function prior to its being converted into a point (probably after breakage of the original form).

These are generally simple tools, with round or oval cross-sections, and tapering points of various lengths and thicknesses. The degree of polish and edge-rounding on some indicates extensive and/or prolonged use.

The only more elaborate tool is a point based on a roe deer tibia (CAT 102; illus 36). It was made by an oblique diagonal cut or split of the shaft in a longitudinal direction, which exposed the medullary canal. The non-pointed end is formed by the intact epiphyseal terminal, which is not perforated or otherwise modified. The entire surface has a smooth, 'waxy' feel, the tip of the point shows no sign of circular movement or wear, and the tool is well-preserved.



Illus 37 Large bevel-ended tools: CAT 44 is radiocarbon dated (see Appendix Two for further details) (drawn by Marion O'Neil)

It was possible to identify one bone point as from a red deer and four others as from roe deer; the remainder could only be identified as ruminant bones. One point is probably red deer antler. Skeletal parts utilised were identified as metatarsi (two), metacarpi (two), rib (one), tibiae (two) and unspecified longbones (five).

Apart from the obvious use as piercing tools – and several pieces show indications of wear of their tips – it has not been possible to ascribe a specific function to these implements. Points have frequently been described as awls, and in most cases (as at An Corran) they are made on splinters and slivers of bone. They are a characteristic feature of 'Obanian' assemblages (Bishop 1914, fig. 40; Clark 1956, 93; Hardy 2007, illus 89). Similar pieces were found in excavations at shell middens on Oronsay, including exact parallels for the combined point/bevelled tool type (Mellars 1987, 119, fig. 8.4). However, not all 'Obanian' assemblages include points (e.g. Carding Mill Bay: Connock et al 1992), whereas the collection from Risga embraces 16 pieces (Foxon 1991, 101). Foxon divided the Risga examples into points and points/pins, the latter being more highly finished and likely to have been used for fastening rather than piercing; Hardy (2007) distinguishes between triangular and fine points, suggesting a link between the latter and winkle consumption.

There are no Mesolithic parallels in Britain for the more elaborate specimen from An Corran context 36 (CAT 102; illus 36). On the other hand, this type of point, sometimes referred to as an awl or gouge, is a well-known implement type of later prehistory, especially the Iron Age (Cunnington 1923, 82–91; Sellwood 1984, 382–387). Iron Age examples were usually made on sheep metapodia or tibiae, and some analysts have suggested that they may have been used as threaders or shuttles (also known as 'dagger beaters') in connection with weaving on a vertical loom (see Hallén 1994, 205–207; Laws & Armour-Chelu 1991; MacGregor 1974, 78). Scottish examples are recorded from several sites including the crannog at Lochlee, Ayrshire (Munro 1882, 111, fig. 70), the wheelhouses at Clickhimin, Shetland (Hamilton 1968, fig.60, 2) and Cnip, Lewis (Armit 2006, illus 3.20b), and the broch at Howe, Orkney (Ballin Smith 1994, illus 96). The radiocarbon dating of this implement (see below) has confirmed its later prehistoric age, and its position in C36 further complicates assessment of the homogeneity of the An Corran bone tool assemblage.

Illus 38 Combined bevel-ended tool and point: CAT 89, context C36, dorsal (left) and ventral (right) views (photo: Alan Saville)

Illus 39 Bone points. Left to right: CAT 96; 91; 93; 99; 100 (see Appendix Two for details) (photo: NMS)

5.4 Miscellaneous / unclassified worked pieces

This heterogeneous category includes 13 intact or fragmented pieces with definite or probable signs of modification, but which cannot be formally classified. Three pieces may be damaged bevel-ended tools. One longbone fragment has a notch or part of a broken perforation. A worn suid fibula, with one intact semi-bevelled terminal, is probably a broken point (CAT 104). One substantial fragment represents a more elaborate tool, perhaps a spatula-like implement; it has extensive polish from use (CAT 105; illus 36).