
11 RADIOCARBON DATES, *by Alan Saville and Karen Hardy*

In total, 18 radiocarbon dates have been obtained from An Corran. One initial date (OxA-4994) was carried out at the Oxford University Radiocarbon Accelerator Unit in 1994 (Saville & Miket 1994a; 1994b), ten dates were carried out by the Scottish Universities Research and Reactor Centre between 1997 and 1998 at the AMS facility of the University of Arizona (Saville 1998), and a further seven dates were obtained more recently from Oxford by Nicky Milner (Bronk Ramsey et al 2009, 330; Milner & Craig 2009, table 15.1).

Six dates were taken from bevel-ended tools, one from a bone point, five from human bones, two from pig, three from aurochs and one from

an unspecified ruminant (illus 51–52). Table 35 presents all the determinations from An Corran in descending ‘stratigraphic’ order of the contexts from which the samples derived. All the dates in this table are given as uncalibrated radiocarbon years BP (i.e. before AD 1950). In Table 36 these determinations are presented in descending chronological sequence on the basis of their age in calibrated years BC.

Two of the determinations are on burnt animal bones (AA-27745 & 27746) and both of these are from C41. This was the basal context from which no unburnt bone survived, so the burnt samples were, reluctantly, used for dating. It has to be concluded that the results from these burnt samples are probably unreliable and neither result accurately dates the bones themselves nor the context, and they should probably be ignored.

Nevertheless, the other dates show a significant lack of cohesion, even within individual contexts. Assuming all the determinations, apart from those from C41, are themselves accurate, there are at least four possible reasons for the diversity of dates within individual contexts. First of all, the nature and speed of the excavation, and the difficult conditions under which it was carried out, may have led to inadvertent misidentification of contexts. Secondly, due to these same difficult conditions, some samples may have become incorrectly labelled. Thirdly, the lowest layers of An Corran (C31–38) may have become mixed at some time in antiquity – either by accident or design. And fourthly, bioturbation and disturbance of various kinds could account for the movement of bones and artefacts between contexts. We have no specific reasons for suggesting the first two reasons apply, and therefore incline towards a combination of the other two as the explanation.

The human remains clearly demonstrate the difficulties of using the An Corran radiocarbon dates to understand the Mesolithic activity. Four of these pieces (three from C31 and one from C36) have 4th millennium BC Neolithic ages which overlap at the 95.4 per cent confidence level. The fifth piece, again from C36, has a mid-3rd millennium BC age which separates it entirely from the other four, and allows for interpretation as either Late Neolithic or Early Bronze Age. One possibility which might explain the presence of the human remains in these contexts is that they had been deliberately intruded into them.

This potential complexity indicated by the position of the human remains is further compounded by the dates for the bevel-ended tools from C31, C36 and C38, which range from the



Illus 51 Radiocarbon-dated bevel-ended tools (after sampling). Upper row: left CAT 6, right CAT 70. Lower row: left CAT 52, centre CAT 26, right CAT 76. Scale = 100 mm (photo: Alan Saville)

Table 35 Uncalibrated radiocarbon determinations BP in descending 'stratigraphic' order

Lab. No.	Catalogue No.	$\delta C13$	Material	Context	BP (uncal)
AA-27744	AC/HB0628	-20.2‰	human bone (metatarsal III)	C31	4405±65
AA-29311	AC/BT0076	-23.3‰	bevelled tool (red deer)	C31	4175±60
AA-29314	AC/BT0052	-20.6‰	bevelled tool (ruminant)	C31	3975±50
OxA-13549	AC/HB0627	-19.4‰	human bone (navicular tarsal)	C31	4650±55
OxA-13550	AC/HB0632	-20.5‰	human bone (vertebra)	C31	4360±55
OxA-14753	AC/AB0713	-21.6‰	animal bone, rib (bovine)	C34	7525±45
AA-27743	AC/HB0270	-24.0‰	human bone (ulna)	C36	3885±65
AA-29312	AC/BT0102	-22.0‰	bone point (roe deer)	C36 Col.1:SH	2045±60
AA-29315	AC/BT0026	-21.3‰	bevelled tool (red deer)	C36	5190±55
AA-29316	AC/BT0006	-20.6‰	bevelled tool (ruminant)	C36	6215±60
OxA-4994	AC/BT0044	-21.6‰	bevelled tool (red deer)	C36 (base)	7590±90
OxA-13551	AC/HB0143	-21.5‰	animal bone, rib (pig)*	C36	7485±55
OxA-13552	AC/HB0458	-19.9‰	human bone (vertebra)	C36	4535±50
OxA-14751	AC/AB0132	-22.3‰	animal bone, lumbar vertebra (bovine)	C36	7555±45
OxA-14752	AC/AB0178	-22.0‰	animal bone, radius (bovine)	C36	7595±50
AA-29313	AC/BT0070	-23.9‰	bevelled tool (red deer)	C38	3660±65
AA-27745	AC/AB0675	-26.0‰	animal bone, proximal phalanx (pig; burnt)	C41	3120±60
AA-27746	AC/AB0678	-22.8‰	animal bone, unident. long bone (ruminant; burnt)	C41	6420±75

* Originally identified as a human rib fragment, subsequently reclassified as pig (see [Bronk Ramsey et al 2009: 330](#))

7th millennium BC to the 3rd or 2nd millennia BC. These dates not only pre- and post-date the human bone dates from the same contexts, but they also, at the recent end, fall entirely outside the chronological framework for the Mesolithic in Scotland. Although bevel-ended bone tools have generally been perceived as a Mesolithic tool type, these dates clearly indicate that bevel-ended bone tools were also in use during the Neolithic and into the Bronze Age period (cf [Saville 2004a](#), 204).

The three dated bovine bones from C34–36 form a close grouping within the 7th millennium BC and are presumably therefore from aurochs, whilst the pig rib bone from C36 also dates to the 7th millennium BC and is presumably from a wild boar.

The most elaborate of the bone points (CAT 102),

which was identified typologically as of probable Iron Age date, has reassuringly been confirmed as such by the radiocarbon age of 336–78 cal BC. The fact that this implement comes from C36, well below the potentially earlier Late Bronze Age/Early Iron Age copper-alloy pin from C17, further confirms the stratigraphic difficulties.

Irrespective of the more recent items, the determinations which fall within the Mesolithic period are themselves diverse. They range from the 7th to the 5th millennia for C36, and this makes it impossible to allocate individual non-dated bone tools within this range, let alone chronologically discriminate amongst the flaked stone tools. The latter can in effect be regarded as undated by the radiocarbon dates. This is doubly unfortu-

Table 36 Calibrated radiocarbon dates BC in descending chronological sequence

Lab. No.	Catalogue No.	$\delta^{13}\text{C}$	Material	Context	BP (uncal)	cal BC
OxA-4994	AC/ BT0044	-21.6‰	bevelled tool (red deer)	C36 (base)	7590±90	6607–6247
OxA-14752	AC/ AB0178	-22.0‰	animal bone, radius (bovine)	C36	7595±50	6588–6378
OxA-14751	AC/ AB0132	-22.3‰	animal bone, lumbar vertebra (bovine)	C36	7555±45	6480–6264
OxA-14753	AC/ AB0713	-21.6‰	animal bone, rib (bovine)	C34	7525±45	6462–6256
OxA-13551	AC/ HB0143	-21.5‰	animal bone, rib (pig)*	C36	7485±55	6440–6240
AA-27746	AC/ AB0678	-22.8‰	animal bone, unident. long bone (ruminant; burnt)	C41	6420±75	5517–5225
AA-29316	AC/ BT0006	-20.6‰	bevelled tool (ruminant)	C36	6215±60	5312–5018
AA-29315	AC/ BT0026	-21.3‰	bevelled tool (red deer)	C36	5190±55	4229–3807
OxA-13549	AC/ HB0627	-19.4‰	human bone (navicular tarsal)	C31	4650±55	3632–3196
OxA-13552	AC/ HB0458	-19.9‰	human bone (vertebra)	C36	4535±50	3488–3035
AA-27744	AC/ HB0628	-20.2‰	human bone (metatarsal III)	C31	4405±65	3335–2903
OxA-13550	AC/ HB0632	-20.5‰	human bone (vertebra)	C31	4360±55	3316–2884
AA-29311	AC/ BT0076	-23.3‰	bevelled tool (red deer)	C31	4175±60	2896–2581
AA-29314	AC/ BT0052	-20.6‰	bevelled tool (ruminant)	C31	3975±50	2621–2301
AA-27743	AC/ HB0270	-24.0‰	human bone (ulna)	C36	3885±65	2566–2146
AA-29313	AC/ BT0070	-23.9‰	bevelled tool (red deer)	C38	3660±65	2274–1881
AA-27745	AC/ AB0675	-26.0‰	animal bone, proximal phalanx (pig; burnt)	C41	3120±60	1517–1219
AA-29312	AC/ BT0102	-22.0‰	bone point (roe deer)	C36 Col.1:SH	2045±60	336–78

*Originally identified as a human rib fragment, subsequently reclassified as pig (see [Bronk Ramsey et al 2009: 330](#))

Calibrations use OxCal 4.1 ([Bronk Ramsey 2009](#)) and IntCal 09 ([Reimer et al 2009](#)) and are expressed at 95.4% confidence level.



Illus 52 Radiocarbon-dated bones (before sampling). Larger bone: human ulna CAT 270, context 36. Smaller bone: human metatarsal III CAT 628, context 31 (BB4). Burnt bone fragments: CAT 675 & 678, context 41 (photo: Alan Saville)

nate because of the typological indications, from the microliths in particular, for Early Mesolithic presence. The initial radiocarbon determination of 7590 ± 90 BP (OxA-4994), from the base of C36, was greeted with some surprise as it appeared to

suggest that the typologically 'Early Mesolithic' microliths were 'Later Mesolithic' in date. It would now seem that it is more probable that none of the dated bones is necessarily indicative of the actual age of any of the lithic artefacts.