

# An end to medieval reindeer in Scotland

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## ABSTRACT

*This review of the present evidence concludes that endemic, wild reindeer became extinct in Britain c 8000 years ago.*

## INTRODUCTION

Today, wild reindeer (*Rangifer tarandus*) inhabit Scandinavia, Russia, Alaska, Canada, Greenland and neighbouring islands. The reindeer is the most northerly species of deer and it has many special adaptations for life in the tundra and arctic regions. It is also the most migratory of all deer and huge herds may travel for hundreds of miles between their summer and winter quarters.

During the last Ice Age, at the end of the Pleistocene period, reindeer were much more widely distributed over Europe than they are today, and they extended from Britain southwards as far as Spain. As the climate warmed up at the beginning of the Holocene, 10000 years ago, the species retreated north, and its numbers greatly declined, probably as a result of human exploitation as much as of climatic change.

For over a century and a half, the possibility that reindeer may have survived in Scotland until comparatively recent times has proved an appealing subject for speculation in antiquarian and scientific literature. The idea was initiated by the perceptive observation of Hibbert (1831) that the 12th-century *Orkneyinga Saga* contains a reference to reindeer supposedly present at that time in Caithness; a cervid represented on a Pictish symbol stone (see illus 4) from Grantown-on-Spey, Moray, identified as a reindeer in the early literature (Smith 1870, 219–20), seemed to complement the saga reference. Biological evidence appeared to be forthcoming from antler fragments found on a number of late Iron-Age sites and identified as coming from contemporary reindeer (Smith 1870, 188–204).

The venerability of the latter claim, at times coupled indiscriminantly with accounts of other reindeer remains from much earlier, Ice Age, deposits, has ensured widespread knowledge and acceptance of the idea that reindeer were to be found in Scotland up to the late Viking or early medieval period. Despite cautionary statements from a number of early writers (for example Henderson 1887, 304; Breuil 1922, 274; Gregory & Currie 1928, 6) enthusiasm for the late survival of reindeer in Scotland has continued and many recent publications have accepted it as fact (for example, Whitehead 1972; Lawson 1984; Whitaker 1986).

Scepticism about reindeer survival arose independently in the minds of the present writers. On the one hand, a long-term programme was in progress for obtaining and collating radiocarbon dates,

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aimed at establishing the latest dates of survival for species of mammal that have become extinct in Britain during the Holocene. These dates had produced nothing later than  $8300 \pm 90$  bp, as shown in table 1.

On the other hand, a survey of archaeological finds revealed no other evidence from Scotland for remains of reindeer other than those described from 19th-century excavations. It began to look suspiciously as though these published fragments were likely to be intrusive fossils or they might have been antlers that were traded as raw material from Scandinavia, where there was a thriving antler industry in Viking times (MacGregor 1985, 37–8). A joint review of all the biological and archaeological evidence was obviously the only way to establish the probable date of latest survival of the reindeer in Scotland.

TABLE 1  
The latest radiocarbon dates (uncalibrated) to be obtained on reindeer bone or antler in the British Isles (see Clutton-Brock 1986; Lawson 1984)

Site	Radiocarbon age	Lab no
Feltwell, Norfolk	$11560 \pm 110$ bp (9610 bc)	BM-1735
Roddan's Port, Co Down, Ireland	$10250 \pm 350$ bp (8300 bc)	LJ-658
Gough's Cave, Cheddar Somerset	$9920 \pm 130$ bp (7970 bc)	Q-1581
Anston Stones Cave Yorkshire	$9850 \pm 115$ bp (7900 bc)	BM-439
	$9940 \pm 115$ bp (7990 bc)	BM-440A
	$9750 \pm 110$ bp (7800 bc)	BM-440B
Darent gravels, Kent	$9760 \pm 70$ bp (7810 bc)	BM-1674
Creag nan Uamh, Assynt, (Inchnadamph) Sutherland	$8300 \pm 90$ bp (6350 bc)	SRR-2105

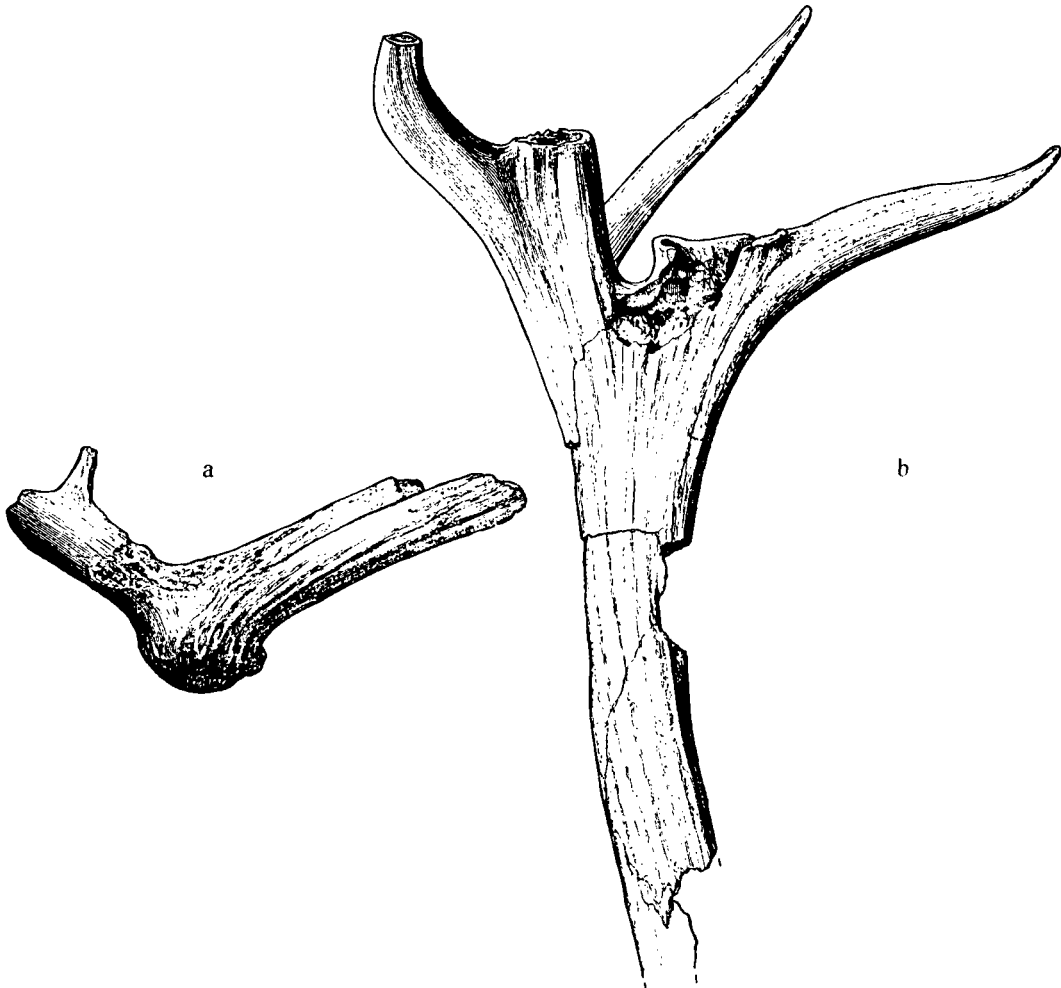
As a first step, an attempt was made to assemble as many of the original specimens as possible from archaeological contexts later than 8000 bp. These are listed below, together with details drawn from the original publications and our own observations, which reveal conclusively that none of the bones or antlers that we have examined can be identified as reindeer.

## SUPPOSED REINDEER ANTLERS FROM ARCHAEOLOGICAL SITES OF KNOWN DATE

### 1 KEISS, CAITHNESS

The 'Harbour Mound' at Keiss was investigated by Samuel Laing who later published an account of the broch and ancillary buildings (Laing 1866, 22–30). Some time after the finds were deposited in the National Museum of Antiquities for Scotland [now part of the Royal Museum of Scotland] the attention of Alexander Smith was drawn to two antlers: one was a basal fragment incorporating the burr and brow tine (illus 1a; RMS no GJ 41), recovered from an early deposit in the midden sequence; the other was a section of a beam, near the crown, from which three tines had been sawn and two remained (illus 1b; RMS no GJ 38). The form of these antlers (though not their surface characteristics) seemed distinctive to Smith, and Richard Owen (Natural History Department, British Museum) to whom they were submitted, wrote that the apparently flattened beam came from, 'a large rein-deer or variety called "carabou"' (Smith 1870, 192–200; 1879a, 76–7).

Both of these pieces of antler survive, with that shown in illus 1b being in six fragments, and they are unquestionably the antlers of red deer (*Cervus elaphus*) and not reindeer. Two other beams of



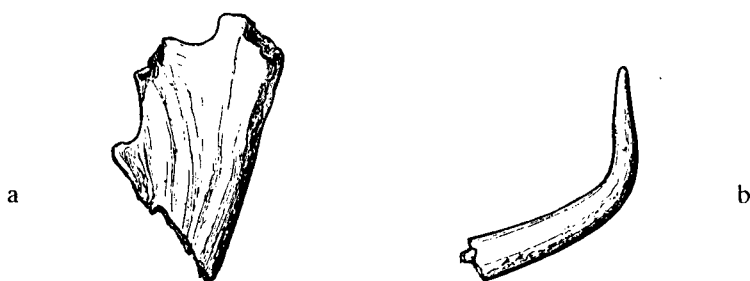
ILLUS 1 Antlers of red deer, *Cervus elaphus*, previously identified as reindeer, *Rangifer tarandus*, from Keiss, Caithness: a, basal part of antler, RMS no GJ 41 (from Smith (1870, 193, fig 1)); b, crown of antler, RMS no GJ 38 (from Smith (1870, 199, fig 1))

antlers are also quite definitely from red deer; one (RMS no GJ 40) has had the brow and bez tines sawn off and the beam has been sawn below the trez tine. The pedicle of this antler has been used as some kind of pounder. The other (RMS no GJ 39) is a beam and pedicle of an antler with the tines broken or chewed off. All these antlers can be identified as red deer from the shape of the beam and tines and the rugose ribbing on the surface. The surface of a reindeer antler is quite smooth, the burr has a characteristic pearly different from that of the red deer, and the beam is much flattened.

Of all the post-Pleistocene antlers which we have seen from 19th-century excavations that were identified as reindeer the most anomalous is no GJ 41 (illus 1a). The angle of the brow tine and beam is very wide open for red deer and there is an extra little tine coming off the brow tine which is unusual. The surface of this antler has been much polished, either by human use or by some taphonomic process, but its structure is still inconsistent with that of reindeer antler.

## 2 YARROWS, CAITHNESS

Joseph Anderson's excavations in 1866–7 at the broch of Yarhouse (now named Yarrows), some five miles to the south of Wick, were reported only cursorily as part of a survey article on brochs (Anderson 1871, 131–42). From one of the secondary buildings revealed outside the broch (building D) three antler fragments were recovered which were later identified by Smith and confirmed by Owen as reindeer (Smith 1870, 200–1). One flattened piece in particular (illus 2a; RMS no GK 58) they found reminiscent of the palmate antlers of reindeer; the smoothness of the surface (a feature noted also on the two other fragments, both tines with RMS nos GK 59, shown in illus 2b, and GK 60) seemed to confirm the identification to Smith and Owen.



ILLUS 2 Pieces of antler of red deer, *Cervus elaphus*, previously identified as reindeer, *Rangifer tarandus*, from Yarhouse (Yarrows), Caithness: a, fragment of beam from near base of crown, RMS no GK 58; b, tine, RMS no GK 59 (from Smith (1870, 199, figs 2 & 3))

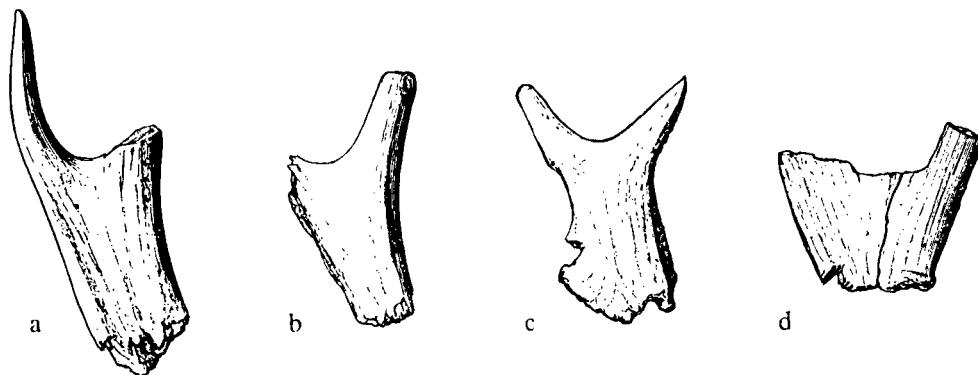
Like the antlers from Keiss, however, the fragments from Yarrows are not from reindeer but are undoubtedly from red deer. The two tines are quite characteristic and the piece of beam is flattened because it comes from the base of the crown, a part which is nearly always flat in a red deer antler.

It was the finds of so-called reindeer antler from Keiss and the broch of Yarhouse in Caithness that were quoted by Harting in his classic work on extinct British animals (Harting 1880, 70–3). They appeared to provide an osteological basis for acceptance of the comment in the *Orkneyinga Saga* about reindeer in Caithness and it is mainly on this evidence that present day statements on the survival of reindeer in Scotland until the medieval period are founded.

## 3 CINN TROLLA, SUTHERLAND

A two-day excavation was carried out in 1864 at Cinn Trolla broch on the farm of Kintradwell, near Brora by the Revd J M Joass (Joass 1865, 242–5; 1890, 95–102). In the course of 'clearing out' the broch, 'pieces of flattened deer's horns had been found among the bones, shells, and other remains'; these were again forwarded to Owen, who considered that 'all the horns sent were portions of antlers of the *Cervus tarandus*' (Smith 1870, 188–92). Four of the fragments so identified were illustrated by Smith and are reproduced here as illus 3a-d.

Thirteen of the pieces of antler from Cinn Trolla are recorded as still being in the Royal Museum of Scotland collections and are numbered GL 43–55. All but nos GL 44 and 45 were sent on loan to the British Museum (Natural History) and as with the other antlers, none of these pieces can be identified as reindeer; they have all the surface characters of red deer antler.



ILLUS 3 Pieces of antler crowns from red deer, *Cervus elaphus*, previously identified as reindeer, *Rangifer tarandus*, from Cinn Trolla, Sutherland: a, RMS no GL 43; b, RMS no GL 48; c, RMS no GL 46; d, RMS nos GL 54 & 53. (From Smith (1870, 191, figs 1–4))

#### 4 LOCHLEE, AYRSHIRE

Following his campaign of excavations in 1878 at Lochlee Crannog near Tarbolton, Robert Munro submitted the abundant skeletal remains from the site for examination by George Rolleston at Oxford (Munro 1879, 244–5; 1882, 142–3). Two antler fragments presented particular difficulties: both lacked diagnostic features such as tines and burr and were in addition highly degraded, but nevertheless Rolleston considered them to be ‘too tabular’ to represent anything other than reindeer.

These fragments were never illustrated and are now lost. A note (Munro 1882, 151) records that the zoological material analysed by Rolleston was deposited in the Anatomical Museum at Oxford, while the remainder of the finds were sent to the museum at Kilmarnock. All enquiries have failed to locate these specimens so no first-hand reinterpretation is possible, but given the severe limitations of the material we may doubt that Professor Rolleston would have considered them as an adequate basis from which to postulate the presence of a species deprived of all other corroboration.

#### 5 DALGETY, FIFE

Only one addition has been made in recent years to the list of specimens for consideration. Investigation of an Early Bronze Age cemetery at Barns Farm near Dalgety revealed one cist grave (cist 6) containing, in addition to a food vessel, a degraded cylindrical fragment of material with a striated surface; this was published as being, perhaps, the base of a reindeer antler (Barnetson *in* Watkins 1982, 100–1). Further examination at the British Museum (Natural History) has shown this to be a fossil coral.

The above represents, to our knowledge, the totality of archaeological sites in Scotland, of post-Pleistocene date (since 10000 bp), which has produced evidence claimed for the late survival of reindeer. In the course of compiling this review we have sent enquiries to fellow workers currently investigating animal remains from excavations in Scotland, but no further identifications of reindeer have been forthcoming.

The result to emerge from our examination of supposed reindeer remains is unequivocal: no trace of the species exists in any late prehistoric or early historic context so far excavated in mainland Scotland or the Scottish islands. Early identifications all appear to have been made on less than adequate evidence, but have proved seductive to later researchers who might otherwise have been more circumspect in their pronouncements.

Neither does the evidence from other sources adduced to corroborate these claims stand up to close examination. The often-repeated passage from the *Orkneyinga Saga* clearly does mention reindeer but its significance is at best equivocal. The original passage is as follows:

‘Pat var siðr jarla nær hvert sumar at fara yfir á Katanes ok þar upp á merkr at veiða rauðdyri eða hreina.’

Translators differ slightly in the rendering of this text into English (see Whitaker 1986, 12–15 for various opinions of it). We are informed by Dr Ruth Ellison that the following is most probably the correct version, ‘It was the earls’ custom to go over to Caithness nearly every summer and up into the woods there to hunt red deer or reindeer.’ Some scholars prefer ‘and’ to ‘or’ as the appropriate translation for ‘eða’, but deprived of all supporting evidence for the presence of reindeer in Viking-age Scotland we are bound to agree with Eiríkr Magnússon (quoted in Harting 1880, 73–4) that the Icelandic sagaman used the terms as synonyms without intention to distinguish between one species and the other. Both red deer and reindeer would have been accessible game in the Norwegian homeland; the distribution of red deer in Scandinavia up to the period in question has been charted by Ahlén (1965), but there is no reason to suppose that the compiler of the saga would have had any notion of their detailed distribution; the particular species of deer inhabiting northern Scotland was, in any case, irrelevant to his story.

The case in support of the Pictish representation from Grantown-on-Spey is equally hollow. Here we still have the evidence to hand (illus 4) and can see that there is very little basis for the belief that it represents a reindeer. Although the upstanding tail is characteristic of a dominant reindeer stag the antler has the typical brow, bez and trez tines, and crown of the red deer; it is far from being a ‘spirited representation of a reindeer drawn from life’, as described by Ritchie (1920, 342).

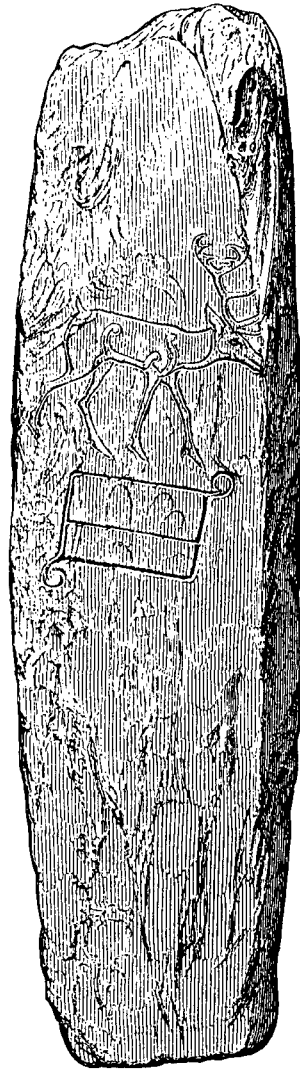
This being accepted, no shred of evidence remains, at present, to sustain the idea that reindeer survived into the historic period in Scotland.

## REMAINS OF REINDEER FROM PLEISTOCENE AND UNDATED DEPOSITS IN SCOTLAND

The notion of a late currency for reindeer, as outlined above, has at times received unwarranted support by bringing into consideration other remains of this deer which are derived from fossil contexts. Their presence relates to the cold phases of the Upper Pleistocene when reindeer were widespread throughout Britain and has no bearing on the foregoing discussion, although they have served from time to time to confuse the issue. Some authors have further added to this confusion by implying associations of human and reindeer remains where, in reality, none existed. The following list of finds is included here in order to exclude the possibility of further confusion; it is not intended to be a contribution to the study of the reindeer in the Pleistocene or early Holocene.

### 1 ISLAND OF ROUSAY, ORKNEY

A pair of antlers still attached to the frontal bones, together with another single antler of exceptionally large size, that were claimed to have been dug from the peat at Westness, near the Muckle Water loch, were described by Platt in 1936. The antlers had cut marks on them, some of which Platt considered to have been recently made with a sharp knife and some she believed to be older and of a different character (Platt 1936, 440–1, Fig 3). The date when these antlers were found in the peat is not recorded but conceivably they are the same ones as were noted in 1883 ‘nailed up near the front door’ at Westness House, as described by Buckley & Harvie-Brown 1891, 82; see below



ILLUS 4 A Pictish representation of a red deer, previously identified as a reindeer, carved on a stone found near Grantown-on-Spey, Moray (from Smith (1870, 219))

p 32). If so, they would have been exposed to interference for more than half a century before their examination by Platt. Unfortunately it has not been possible to locate these antlers.

## 2 STENNESS, ORKNEY

Millais (1906, 78) mentioned that he had seen reindeer antlers unearthed from a peat bog 'near the Loch of Stennis' on the Mainland of Orkney, but he gave no further details.

## 3 INCHNADAMPH, SUTHERLAND

Originally excavated in 1926, when it was claimed to show that ‘the period of the early fauna with human associations . . . has been thrown back to the final valley-glacier stage of the Ice Age’ (Callander *et al* 1927, 172), the evidence from the ‘Reindeer Cave’ in the valley of the Allt nan Uamh (‘Burn of the Caves’) had been treated with much scepticism until recent years. New analyses of the stratigraphy and the faunal remains, however, have formed the basis of a fresh interpretation that has returned the site to some prominence (Lawson 1984; Lawson & Bonsall 1986a; 1986b).

The cave in question, formed in a limestone outcrop, the Creag nan Uamh, comprises an outer chamber and an extended inner chamber. From the uppermost of two gravel layers in the outer chamber the original excavators recovered extensive remains of an arctic fauna, including fragments from a minimum of 480 antlers, all from young or sub-adult reindeer (recently re-assessed by Lawson & Bonsall 1986a, 1–3). Overlying the gravel was a layer of ‘cave earth’ which produced remains of a post-glacial fauna, a carefully-buried human skull, the head of a bone pin and a bone awl; other human bones were found in a narrow fissure, lightly covered with a layer of ‘cave earth’; and what was taken for a spear-point made from a tine of a reindeer antler (now lost) came from a shaft at the back of the cave (Callander *et al* 1927, 171).

Recently, Lawson (1984) has obtained a series of radiocarbon dates for samples of reindeer antler and bone from the outer and inner chambers of this cave. The four dates range from  $25360 \pm 810 - 740$  bp (SRR-2130) to the interesting one of  $8300 \pm 90$  bp (SRR-2105) which, as can be seen from table 1, is the latest date to be obtained so far for reindeer in the British Isles and brings its survival down to the beginning of the climatic optimum in the late Boreal.

A sample of the fragments of reindeer antler from the Creag nan Uamh has been sent from the Royal Museum of Scotland to the British Museum (Natural History) on loan, and it can be confirmed that there is no problem about the identification of the antler as reindeer, but these fragments are all very highly mineralized and are unlikely to be of post-Pleistocene date.

## 4 TAIN, ROSS AND CROMARTY

In the course of a survey on the Mor’aich Mor (the ‘great grazing’), an area of sandy flatland on the southern shore of the Dornoch Firth, the Revd James Joass uncovered a palmate antler fragment which lay, along with other bones ‘beneath the moss, and on a natural shell-bed’ (Joass 1866, 387). This fragment, which was not illustrated, and is no longer extant, was identified by Owen as coming from *Cervus tarandus*, ‘probably the tine that springs from the back part of the middle of the beam’ (Smith 1870, 186–8). Joass made his discovery ‘when examining some sections recently exposed by draining 4 feet deep’; although the find was made ‘near two hut circles’, no connection between the two was implied by the excavator. *Less prudent writers have since conflated the antler with the settlement so that Tain is regularly and spuriously quoted, along with the brochs mentioned above, among the habitation sites producing evidence for reindeer.*

## 5 ROSS-SHIRE (ROSS AND CROMARTY)

In an early review of the distribution of reindeer remains, Dawkins (1868, 39) mentioned that ‘in 1865 Sir Philip Egerton met with a small fragment of antler in the peat bogs of Ross-shire which beyond all doubt belonged to this animal.’ Nothing further is known of this find.

## 6 MARLEE, PERTHSHIRE

An early discovery in 1795, and quoted by Smith (1870, 210), in ‘Mr Farquharson’s marl-pit’ on the shores of the loch of Marlee in the parish of Kinloch included ‘a pair of deer’s horns, of large dimensions, and branched’, along with ‘two leg bones, so deeply grooved as to appear like double



bones'. These remains no longer exist and opinions differed on their identity, one authority claiming that the antlers were from an elk (*Alces alces*) which is not impossible if they were large and palmated, or they could even have been from the giant deer (*Megaloceros giganteus*) (*ibid*; Fleming 1828, 27; Sinclair 1977, 615).

#### 7 DREGHORN, MIDLOTHIAN

Several skull fragments and limb bones 'showing many characteristics of reindeer' were recovered from a rock fissure in the Green Craig in the Pentland Hills (Henderson 1887, 302–4; Simpson 1887, 295–6). These were pronounced 'not later than the Upper Palaeolithic' by Gregory & Currie (1928, 18), though some doubt was later thrown on this claim by Macgregor and Ritchie (1940, 330) who thought that they might 'not even be of glacial date at all.'

Without radiocarbon dating it is not possible to assess the age of these bones, but two of them, the left olecranon process and right radius figured by Macgregor and Ritchie (1940, figs 2, 4), have been seen by us and can be confirmed as coming from reindeer.

#### 8 CRAIGTON, WEST LOTHIAN

Writing of reindeer in his *History of Quadrupeds*, Thomas Pennant noted that 'the horns of this species were found fossil, in 1775, in a marle-pit, five feet below the surface, near Craigton, in the shire of Linlithgow' (Pennant 1781, 100). The antlers, reported to Pennant by Dr Ramsay, Professor of Natural History at the University of Edinburgh, are now lost.

#### 9 QUEEN'S PARK, GLASGOW

Fragments of antler and limb bones of reindeer were recovered in 1937 from a sewer tunnel, driven through the glacial till of Mount Florida, at a depth of 15 m or more (Macgregor & Ritchie 1940). Although lying some 60 m apart, the antlers and bones occurred in the same geological deposit, interpreted as belonging to the Last Interglacial.

#### 10 RIVER CLYDE, LANARKSHIRE

Excavations in 1833 to improve the navigation on the Clyde produced some reindeer antler fragments from laminated beds of glacial sands on the north bank, just below the confluence with the River Kelvin. These fragments included a brow tine which 'corresponded precisely to the brow-antler of a fine head of the rein-deer preserved in the Andersonian Museum' (Scouler 1852, 136). A later assertion by Ritchie (1920, 340) that the find was made 'in beds of laminated clay which have yielded many dug-out canoes of prehistoric fishermen' is baseless.

#### 11 RAESGILL, LANARKSHIRE

From glacial clay deposits at Raesgill, near Carluke, an antler fragment, incorporating the burr and junctions of the brow and bez tines, was recovered c 1849 (Smith 1870, 208–9). Later examination confirmed its identification as reindeer and revealed also that it was marked with 'glacial striæ' (Gregory & Currie 1928, 5). Reynolds (1931, 27) inexplicably lists this antler as Iron Age.

#### 12 CROFTAMIE, DUNBARTON

During the excavation of a cutting near Drymen for the Forth and Clyde Junction Railway c 1857, the lower part of an antler beam was recovered with the brow and bez tines broken off and with the attached pedicle broken through. Some 4 m of glacial till overlay 2 m of laminated clay at this spot, the antler coming from the lower levels of the clay (Smith 1858), attributed by Macgregor and Ritchie (1940, 331) to the Late Glacial period.

## 13 SHAWS, DUMFRIESSHIRE

Found 'at the bottom of the moss, lying on the marl, or nearly so', were the bones of various animals including what was taken for part of a reindeer antler (Smith 1870, 216; 1879b, 360). This fragment was described as 'about 12 inches long. . . flattened in character, smooth on its surface, and wavy in its outline, from the projection of one lateral and two terminal tines' (*ibid*).

## 14 KILMAURS, AYRSHIRE

A pair of fragmentary antlers was recovered in 1865 from a bed of blue clay below boulder clay at Woodhill Quarry, Greenhill, along with a mammoth tusk (Smith 1870, 213–16; Ritchie 1928, 189; Gregory & Currie 1928, 5; Macgregor & Ritchie 1940, 331). Recently, a radiocarbon date of more than 40000 bp (Birm-93) has been obtained from one of the antlers.

## 15 SOURLIE, AYRSHIRE

Fragments of reindeer antler were recovered from late Middle Devensian levels at Sourlie, near Irvine. Dr W G Jardine (pers comm) has informed us that a sample from the antler has produced a radiocarbon date of  $29900 \pm 430-410$  bp (SRR-3023).

Apart from these descriptions there are a few obscure references to finds from Essendene near Kilmarnock, Selkirk (claimed to be Bronze Age) and Middlestots, Berwickshire (Reynolds 1933, 27; Lawson 1984, 1) on which little or no comment can be given.

## CONCLUSIONS

On all this evidence, therefore, there is every reason to believe that reindeer did remain in small numbers in Scotland (as in England, see table 1) beyond the end of the Last Glaciation and into the beginning of the Holocene. However, the latest radiocarbon date for reindeer is  $8300 \pm 90$  (table 1) and, as would be expected, there is no indication that the species did survive the amelioration of the climate that is signified by the ensuing Atlantic pollen zone.

## POSTSCRIPT: RECENT INTRODUCTIONS OF REINDEER TO SCOTLAND

Reindeer have been brought into Scotland at various times since the later part of the 18th century. In 1916 Robert Traill introduced a male and two females from Archangel (USSR) to his farm at Wideford, to the east of Kirkwall, on the mainland of Orkney. They all died during their first winter on the island; inappropriate food and the damp climate were generally held to blame (Smith 1870, 217–18; Buckley & Harvie-Brown 1891, 81–2), although, according to Baikie and Heddle (1848, 19), they were deliberately allowed to die, 'not being found to answer the purposes intended'. Buckley and Harvie-Brown (1891, 81–2) speculated on the possibility that a pair of reindeer antlers displayed at Westness House on Rousay (see above, p 29) may have derived from these animals but Smith (1870) makes it clear that 'their horns were very small indeed, having only a single prong or so'.

Elsewhere the Earl of Fife tried to establish some imported reindeer,

'but all died, even tho one was turned out on the summits, which are covered with dry moss, on which it was supposed they would be able to subsist' (Scrope 1894, 305).

Equal failure rewarded several earlier attempts, in the 1790s, by the Duke of Atholl to populate his estates in the same way: 14 reindeer were imported by him, but some fell victim to the rough sea-crossing from Archangel and more perished on the road from Leith; three at least reached their

destination but none lived beyond two years. A pair of antlers at Blair Castle was thought perhaps to have come from one of these deer (Murray 1908, 131; Sinclair 1977, 375–6).

Only more recently, since 1952, has the reindeer gained a successful foothold with the establishment in the Cairngorms of the now well-known herd by the late Mikel Utsi and Ethel John Lindgren-Utsi. Thanks to their extensive experience of Lappish reindeer and much careful husbanding of the imported animals, *Rangifer tarandus* may be legitimately returned to its place on the list of extant mammals in Scotland, whence it had been dislodged some eight millennia earlier by the inexorable processes of human hunting and climatic change.

Dr Ethel John Lindgren-Utsi, founder of the Reindeer Council of the United Kingdom, died on 23 March 1988 while this review was being written. Her obituary in *The Times* of 28 March, in commenting on the Aviemore reindeer, remarked that ‘The creatures, re-introduced to Scotland after 800 years, were both a challenge and delight to her’. The myth that there were wild reindeer in Scotland in the medieval period must be laid to rest with her. On the present evidence we have to assume that it was 8000 and not 800 years ago that wild reindeer were last seen in the British Isles.

#### ACKNOWLEDGEMENTS

The long-term project to try to establish the latest dates of survival for species of mammal that have become extinct in Britain during the post-Pleistocene period was begun 20 years ago and we are indebted to Richard Burleigh, one of the instigators of the project, for his enthusiasm and for his promotion of the radiocarbon dating of material of archaeozoological importance.

This review could not have been written without the kind cooperation of David Clarke and Jeremy Herman of the Royal Museum of Scotland who made available the specimens that had been previously identified as reindeer from sites in Scotland. Andrew Currant of the British Museum (Natural History) corroborated the new identifications as red deer. We should like to thank the large number of colleagues and museum curators who provided us with information and searched for material, and we are particularly grateful to Miranda Armour-Chelu, Lin Barnetson, Julie Bond, Mary Harman, James Rackham, Beverley Smith, Catherine Smith, and Trevor Watkins.

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