NATIONAL MUSEUM OF IRELAND

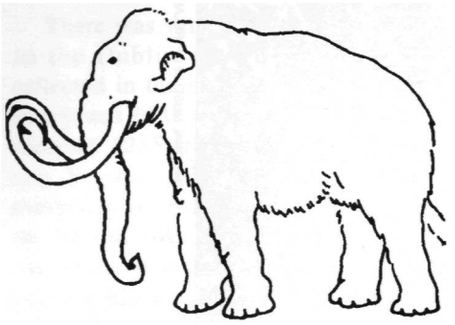
FROM MICE TO MAMMOTHS

Dating Ireland's Earliest Faunas

Peter C. Woodman and Nigel Monaghan

NEARLY TEN YEARS AGO, a conference was held on the problems of the Post-glacial colonisation of Ireland. While the conference covered all aspects of Ireland's fauna and flora, there was a particular interest in the origins of Ireland's mammalian fauna. An enthusiastic discussion, which was chaired by Frank Mitchell, came up with several proposals for tackling these problems of origins, but in the intervening years very little actually happened.

Obviously there have been individual pieces of work which have helped, the two most noticeable being the discovery of mammoth and musk ox bones in Pleistocene deposits on the shores of Lough Neagh; these may date to more than 50,000 years ago. There was the detailed investigation of the Post-glacial marls at Newlands Cross in Co. Dublin. Here *Apodemus sylvaticus* (wood mouse) was found in 8,000-year-old deposits. Until then, wood mice were thought to have been introduced to Ireland by the Vikings. However, in general, no serious effort was made to address the problems as a whole. Even something fairly simple, like the age of certain mammalian faunas, remained untackled.



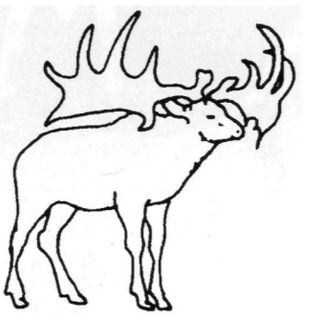
Mammoth

There were obvious reasons why this particular problem was left. As certain types of animals were living in Ireland during the Pleistocene, before any known occupation by the human species, it was not really regarded as archaeology. Similarly, to many geologists much of the material was very late, while zoologists were not usually overly concerned with the history of mammalian species in Ireland.

While some animal bones had been dated by radiocarbon dating, notably by Frank Mitchell, many of our ideas about how and when various animals came to Ireland were a series of convenient circular arguments. Certain animals were presumed to belong to particular periods, therefore when their bones were found they were placed in that period. Thus giant deer were Late-glacial in age while red deer were Post-glacial.

The problem was compounded by the fact that Ireland is not overendowed with groups of animal bones from well-dated early archaeological sites — before 4,000 BP. In fact, many of our earlier groups of bones from the Pleistocene come from caves which had been dug out by Adams Scharff and others during the second half of the 19th century. Obviously radiocarbon dating was an ideal solution to the problem of chronology of many of these animals but many of the bones from the caves had been discarded. Radiocarbon dating of bone is best carried out on collagen extracted from the bone. This existed in only small quantities in many bones and so few museums would risk the destruction of a whole bone to obtain a date. It was only with the development of A.M.S. (accelerator mass spectrometry) C^{14} dating, that a real breakthrough was achieved. With this new form of radiocarbon dating, samples of less than a gram of collagen were required. This has been of particular importance in the dating of those rare humanly-manufactured artefacts made from bone and antler, such as those from the British Palaeolithic cave sites. In the Irish case, it meant that surviving whole bones did not have to be sacrificed to obtain a date as only a few grams were needed.

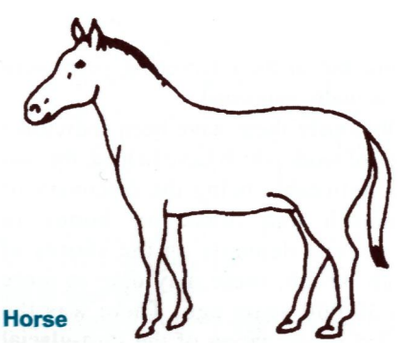
Using C^{14} dating to assess the age of certain mammalian species in Ireland was an ideal project for funding by the National Heritage Council, which was concerned with the identification of areas where innovation and interdisciplinary co-



Giant Deer

operation were required. Therefore the authors obtained the active support of Dr Rupert Housely of the Oxford University Accelerator Unit for a programme of C^{14} dates of Irish mammals; in fact, the Oxford Unit paid for one-third of the samples. Ms Margaret McCarthy (of the Archaeological Services Unit at University College Cork) helped with the identification of the key samples chosen for dating.

With the opportunity to date 30 samples, it was decided to concentrate on two different areas.



Horse

Pleistocene Fauna

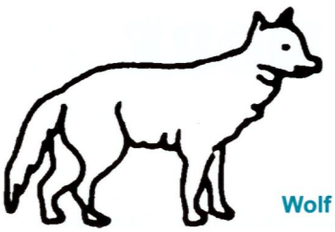
It was expected that there should be two episodes; a period before the development of the last ice sheet, the Midlandian, ie more than 20,000 years ago, and the Late-glacial period when the ice was wasting away and the planet was warming up, from 14,000 to 10,000 years ago. In spite of the richness of the fauna from the caves, very few samples had been dated. Frank Mitchell had shown that some mammals lived in Ireland before 30,000 BP and there was evidence of giant deer and reindeer living in the Late-glacial. It was not possible to say whether the fauna from each cave belonged to one particular episode or had accumulated through time.

Therefore samples from several caves were chosen for dating. These were:

(a) Castlepooke, Co. Cork, near Doneraile, where tens of thousands of bones had been found, investigated at the turn of the century.
(b) Foley Cave, Co. Cork, near Castletownroche, investigated in the 1940s.
(c) Shandon Cave, Co. Waterford, near Dungarvan, investigated in the middle of the last century.
(d) Red Cellar Cave, Co. Limerick, near Lough Gur, investigated by S.P. Ó Ríordáin.
(e) Edenvale and New Hall Cave Complexes, Co. Clare, investigated at the turn of the century.
(f) Keshcorran Caves, Co. Sligo, also investigated in the early 1900s.

PRE-MIDLANDIAN

Giant deer	Castlepooke, Co. Cork	32,060 ± 630 BP
Reindeer	Foley Cave, Co. Cork	28,000 ± 370 BP
Norwegian lemming	Castlepooke, Co. Cork	27,930 ± 390 BP
Mammoth	Shandon Cave, Co.Waterford	27,150 ± 350 BP
Brown bear	Foley Cave, Co. Cork	26,340 ± 320 BP
Red deer	Shandon Cave, Co. Waterford	26,090 ± 320 BP
Arctic lemming	Castlepooke Cave, Co. Cork	20,300 ± 210 BP
Arctic fox	Castlepooke Cave, Co. Cork	19,950 ± 250 BP



Wolf

The results of this section of the programme showed the expected division into a pre-Midlandian phase and a post-Midlandian (Late-glacial) phase. We have given the dates in chronological order.

The earliest dates show that in the period of possibly 15,000 years before the maximum extent of the Midlandian ice sheet, a rich diversity of animals lived in Ireland. These range from the red deer which flourish in temperate conditions to cold climate species such as mammoth and Norwegian lemming. However, the most exciting dates are those of the arctic fox and arctic lemming which show that at the time when the ice sheets extended as far as the Cork-Limerick border, there were still animals living in Ireland.

LATE-GLACIAL

Reindeer	Castlepooke Cave, Co. Cork	12,480 ± 130 BP
Brown bear	Keshcorran Caves, Co. Sligo	11,920 ± 85 BP
Red deer	Keshcorran Caves, Co. Sligo	11,790 ± 120 BP
Giant deer	Newhall Cave, Co. Clare	11,750 ± 90 BP
Wolf	Keshcorran Caves, Co. Sligo	11,150 ± 90 BP
Reindeer	Edenvale Cave, Co. Clare	10,850 ± 80 BP
Brown bear	Red Cellar Cave, Co. Limerick	10,650 ± 100 BP
Arctic Lemming	Edenvale Cave Co. Clare	10,000 ± 80 BP

The above dates show the expected sequence of cold faunas at the beginning with the warmer Woodgrange faunas present after 12,000 BP and then a brief return to arctic faunas after 11,000 BP. It would now appear that an argument can be made for wolf, red deer and bear establishing themselves in Ireland during the Late-glacial period and surviving the Nahanagan cold snap to become a part of Ireland's Post-glacial fauna.

The Post-glacial Faunas (after 10,000 BP)

The second part of the programme tackles the origins of the Post-glacial fauna. Other than the few animal bones from the Mesolithic sites of Mt Sandel and Lough Boora, little is known about the animals living in Ireland between 10,000 BP and the arrival of agriculture. How far back could we trace red deer? Could horse be found in Ireland before the appearance of Beaker pottery at 4,000 BP?

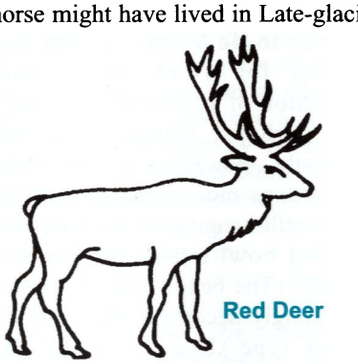
POST-GLACIAL

Brown bear	Donore Bog, Co. Laois.	8930 ± 80 BP
	Derrykeel Bog, Co. Offaly	8880 ± 80 BP
Red Deer	Stonestown, Co. Westmeath	4190 ± 65 BP
	Ventry Beach, Co. Kerry	3985 ± 60 BP
	Newhall Cave, Co. Clare	2270 ± 60 BP
	Sydenham, Co. Down	2020 ± 65 BP
Horse	Edenvale Cave, Co. Clare	1675 ± 60 BP
	Keshcorran Cave, Co. Sligo	1580 ± 55 BP
	Drumquin, Co. Tyrone	635 ± 60 BP
	Curran Point Beach, Co. Antrim	380 ± 60 BP
	Sydenham Beach, Co. Down	120 ± 65 BP

The dates above show that certain carnivores, such as bear, continued to survive into the Post-glacial period.

These samples were from contexts such as intertidal beaches or caves where it might have been expected that the bones of red deer were early. So far, there is no evidence that red deer survived from the Late-glacial into the Post-glacial period.

It has been received wisdom that the horse was only introduced into Ireland about 4,000 BP, yet horse was found in some abundance in Britain during the Late-glacial. It was considered possible that horse might have lived in Late-glacial or early Post-glacial Ireland. Therefore samples from caves or potentially early beach deposits were dated. The Drumquin horse tooth had been thought of as possibly pre-Midlandian in age and contemporary with the horse from Shandon which Mitchell suggested dated to 40,000 years ago. The results underpin the traditional idea that horse was introduced late to Ireland.



Red Deer

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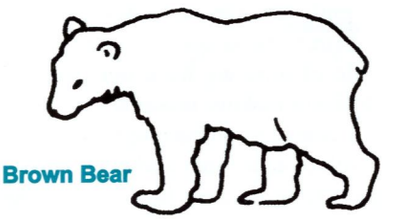

Brown Bear

As often happens, this programme of research has raised as many questions as it has solved. Does the earlier Pleistocene fauna represent a long period of occupation with different species inhabiting different ecological niches? In general, work in recent years has begun to suggest that many of our cool interstadial environments were very rich and inhabited by a diverse range of species. Alternatively, as the climate fluctuated, was there a greater mobility and movement of species into and out of Ireland? In either instance, the richness of the fauna again raises the question — why is there no evidence of the most adaptable of all mammals in Ireland before 10,000 years ago? Why no humans?

It is hoped to address some of these question in a second phase of C^{14} dating. In particular:

(1) Is there evidence of warmer and colder phases in the pre-Midlandian phase?

(2) Is there any further evidence that certain species which have been traditionally associated with the Post-glacial period arrived in Ireland earlier, ie in the Late-glacial period?

(3) The date of the arrival of certain domesticated species — particularly at the beginning of the Neolithic.

At the same time the C^{14} programme should help us formulate more precise questions in the hoped-for examination of caves with Pleistocene deposits.

Photo page 31: one of the caves in Co. Clare excavated 1902–4. L to R Mrs Stacpoole, R.J. Ussher, and James Duffy and Robert Griffin, Museum attendants.