RECENT ARCHAEOLOGICAL DISCOVERIES IN DUNMORE CAVE, COUNTY KILKENNY: FURTHER QUESTIONS REGARDING VIKING ACTIVITY AT THE SITE

MARION A. DOWD, LINDA G. LYNCH AND MARGARET MCCARTHY

Recent archaeological monitoring in Dunmore Cave resulted in the recovery of a quantity of human bones, animal bones and artefacts. The first radiocarbon dates for human remains from the site were obtained and, overall, the evidence is consistent with earlier discoveries that link the cave to Viking activity of circa 10th century date.

Introduction

Dunmore Cave (KK014-017), Mohil townland, has been a tourist attraction since the 1970s and is one of the most successful show caves in Ireland. Between 2004 and 2005 the Office of Public Works upgraded the existing lighting system at the site which involved ground disturbance at six locations both inside and outside the cave. The work was archaeologically monitored by one of the authors (M.D.) under licence 04E1517. Apart from the ground disturbance, eight clusters of *ex situ* human and animal bones that lay exposed at different locations throughout the cave were recorded and lifted following consultation with the Department of the Environment, Heritage and Local Government (DEHLG) and the National Museum of Ireland. Four human bones recovered during the works were radiocarbon dated in 2006 under a research programme initiated by one of the authors (M.D.) and funded by the DEHLG.

Summary of archaeological significance of Dunmore Cave

The *Annals of Ulster*, the *Annals of Inisfallen*, the *Annals of the Four Masters* and the *Chronicon Scotorum* all record for the year 930 AD that *Derc Ferna* – believed to be an earlier name for Dunmore Cave – was the site of a Viking massacre. Indeed, a collection of Viking material, including nine silver coins dating to around 930 AD, were found during excavations in the cave in 1973 (Drew and Huddart 1980, 17). In 1999, a second collection of Viking material – though of later 10th century date – was discovered at the site including 14 Anglo-Saxon silver pennies, a silver penannular arm-ring, hack silver, strap tags and 16 conical-shaped objects woven from silver wire (Wallace and Ó Floinn 2002, 223). Since 1699, visitors to Dunmore have commented on the quantity of human remains contained in the cave and a series of 19th and 20th century excavations at the site also involved the recovery of human bones (Dowd 2004, 464-7).

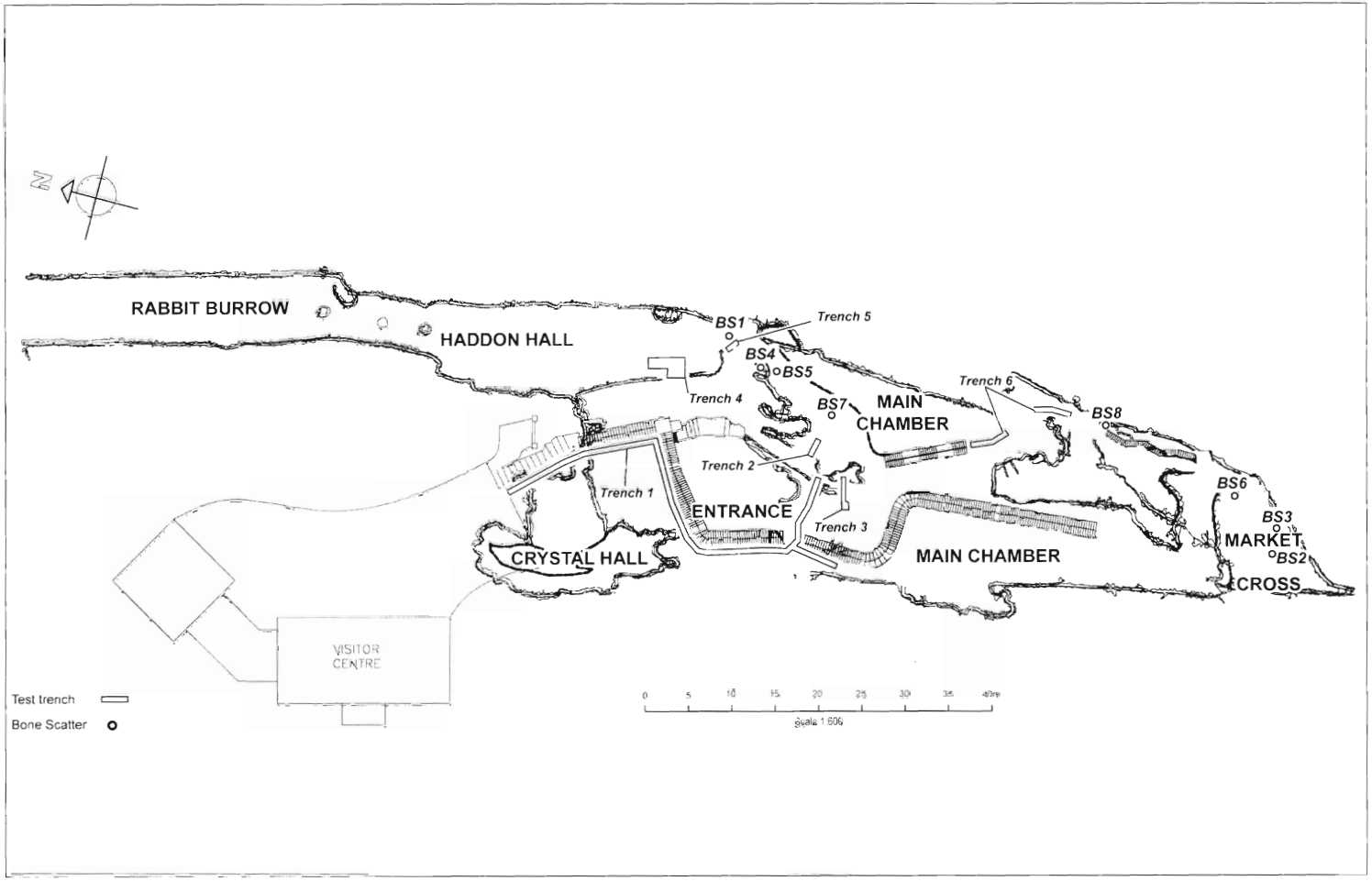

Figure 1: Plan of Dunmore Cave indicating location of trenches and bone scatters

Description of works

The six cable trenches that were opened to facilitate the new lighting system were all quite small (*see* Table 1) and involved digging through the uppermost stratum in the cave, often through pathways and floors that had been laid out in the 1970s (Figure 1). The degree of disturbance to the cave deposits was apparent by the recovery of modern debris and builder's rubble commingled with the archaeological material. Furthermore, a high degree of fragmentation was evident in the human and animal bone assemblages. Excavated deposits were wet sieved on-site through a 3mm mesh sieve. The archaeological material recovered from each trench, and the contents of the eight bone scatters, are summarised in Table 2.

	Area of cave	Dimensions
	Length x width x depth	
Trench 1	Outside cave	50.8m x 0.40m x 0.30m
Trench 2	Main Chamber	1.8m x 0.7m x 0.1m
Trench 3	Main Chamber	1.1m x 0.9m x 0.2m
Trench 4	Haddon Hall	1.8m x 0.7m x 0.2m
Trench 5	Main Chamber	7m x 0.5m x 0.3m
Trench 6	Main Chamber	5.8m long x 0.4m wide x 0.15m
Bone Scatter 1	Main Chamber	-----
Bone Scatter 2	Market Cross Chamber	-----
Bone Scatter 3	Market Cross Chamber	-----
Bone Scatter 4	Main Chamber	-----
Bone Scatter 5	Main Chamber	-----
Bone Scatter 6	Market Cross Chamber	-----
Bone Scatter 7	Labyrinth	-----
Bone Scatter 8	Helectite Passage	-----

Table 1: Table of areas of archaeological investigation and their dimensions.

Artefacts

The artefacts discovered during the 2004/5 monitoring works all comprise personal ornaments and include a ringed pin (Figure 2), the shaft of a second ringed pin (Figure 3), half a shale/lignite bracelet (Figure 4), a blue glass bead (Figure 5), six foil-covered glass beads (Figure 6) and a bronze pin. This material is consistent in date and nature with artefacts recovered during previous investigations in the cave (Drew and Huddart 1980; OPW 1994; Wallace and Ó Floinn 2002, 223). The intact ringed pin is a plain-ringed, baluster-headed, decorated type (Fanning 1994, 6 and 8) which became a dominant form in Viking Dublin between *circa* 925 and 975 AD (ibid., 54). The damaged ringed pin shaft is a simple loop headed form. At least four other ringed pins have been recovered from the cave during earlier investigations. All six now known from the site probably adorned clothing of the dead. The blue glass bead finds close parallel to a bead found in the cave in 1949 (OPW 1994, 17). The shale/lignite bracelet is the first recorded from Dunmore but these are typical finds on Early Medieval and Viking sites across Ireland (Edwards 1990, 96). The six foil-covered glass beads are identical to two others found in the same part of the Market Cross Chamber during the 1973 excavations (Drew and Huddart 1980, 16 and 18;

Location	Human bones	MNI (humans) * = individual dated	AMS date human bone	Animal bones	Animal species present	Artefacts/ other
Trench 1	1	1 adult	-----	42	cattle, sheep, pig,	-----
Outside cave					horse, fox, rabbit, frog	
Trench 2	2	1 possible adult	1091± 31BP (UB-7281)	283	cattle, sheep, pig,	shale/lignite
Main Chamber		1 juvenile (6-7 yrs) *	892 - 1013 AD		goat, rabbit, mouse, frog	bracelet
Trench 3	0	-----	-----	185	cattle, sheep, pig,	
Main Chamber					horse, dog, frog	-----
Trench 4	5	1 adult male (25-45 yrs)	1091± 30BP (UB-7284)	81	sheep, pig,	ringed pin
Haddon Hall		1 adolescent (11-16 yrs) *	892 - 1013 AD		cat	shank
		1 juvenile (1-3 yrs)				
Trench 5	2	1 adult	-----	0	-----	-----
Main Chamber						
Trench 6	0	-----	-----	7	sheep	-----
Main Chamber						
Bone Scatter 1	28	1 adult	-----	379	cattle, sheep, pig	charcoal
Main Chamber		1 juvenile (?3-6 yrs)				
Bone Scatter 2	74	1 adult	1151± 31BP (UB-7283)	1	cattle	ringed pin
Market Cross Chamber		1 young juvenile (1-2 yrs) *	779 - 973 AD			blue glass bead
		1 infant (under 1 yr)				
Bone Scatter 3	237	2 adults (one young ?18-24 yrs)	-----	0	-----	bronze pin
Market Cross		4 juveniles (4.5-5 yr old;				six glass beads
Chamber		1.5-2 yr old; infant under 1 yr;				
		foetus 28.8 weeks in utero)				
Bone Scatter 4	1	1 young juvenile	-----	218	cattle, sheep, pig,	charcoal
Main Chamber					hare, frog	
Bone Scatter 5	1	1 adult *	1125± 31BP (UB-7282)	54	cattle, sheep,	-----
Main Chamber			783 - 991 AD		rabbit	
Bone Scatter 6	0	-----	-----	116	cattle, sheep, pig,	-----
Market Cross Chamber					dog	
Bone Scatter 7	0	-----	-----	88	cattle, sheep, pig,	-----
Labyrinth					dog, hare, rabbit, frog	
Bone Scatter 8	0	-----	-----	88	cattle, sheep, pig	-----
Helectite Passage						
TOTAL	**351**			**1,544**		

Table 2: Summary table of the archaeological material recovered from each trench, and the contents of the eight bone

OPW 1994, 17). These beads are well-known from Viking contexts in Scandinavia, the type is dated by Callmer (2003, 43 Fig. 4.4, A, 20) to the mid-10th century. The bronze pin is of a type classified as 'wound-wire headed' which has a long life span with examples found in contexts dating from the 13th century to 18th century in Ireland and Britain (Carroll and Quinn 2003, 274-5). This is somewhat later than the dates for the other artefacts found at Dunmore.

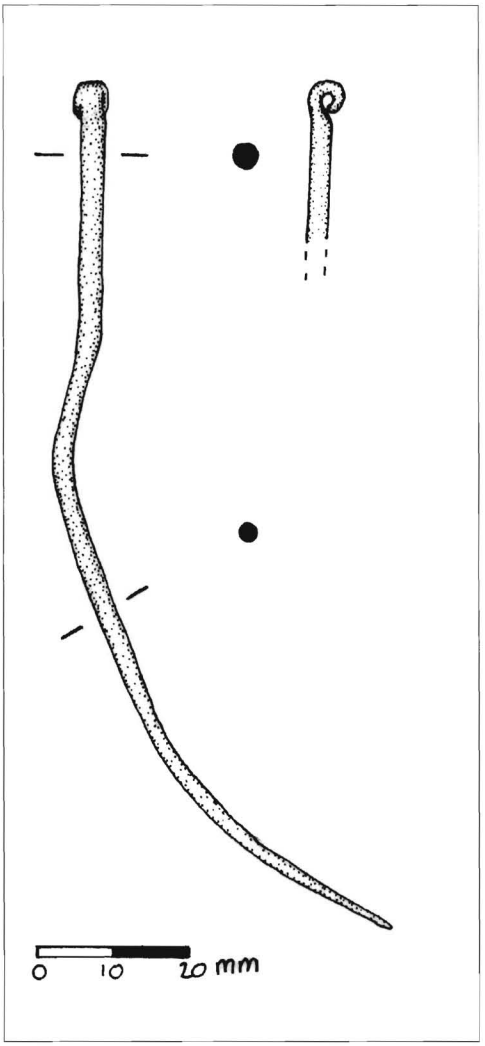

Figure 3: Shank of ringed pin (04E1517:03)

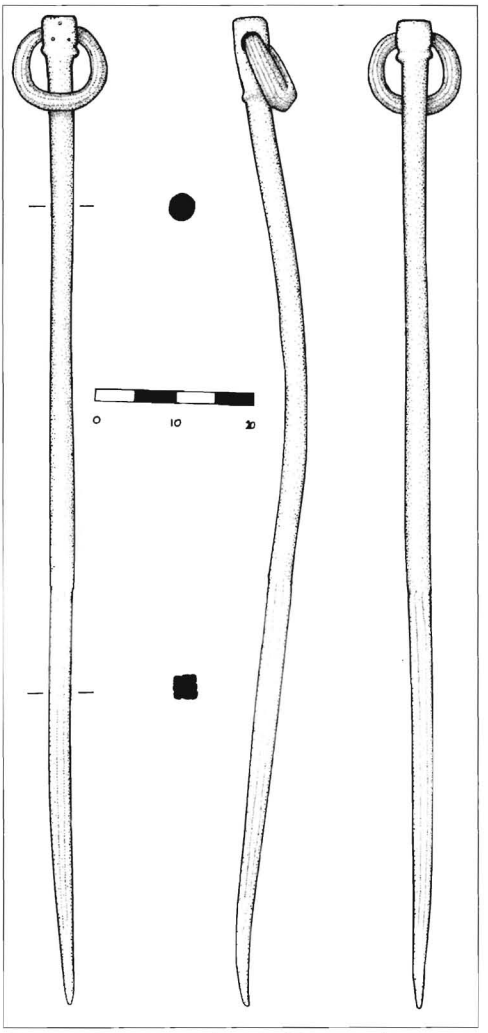

Figure 2: Bronze ringed pin (04E1517:02)

Faunal remains

A total of 1,544 animal bones were recovered during the 2004/5 monitoring works and analysed by M.MC. (see Table 2). The numbers of bones found, and the species present in the individual trenches and bone scatters, are indicated in Table 2. This assemblage included natural occurrences, such as animal prey consumed in the cave, while

other bones derived from modern livestock species supported by the presence of a few modern butchery marks. Consequently, the faunal assemblage cannot be viewed as exclusively Early Medieval in date. The highly fragmented nature of many of the bones meant that identification to species level was not possible for 35% of the total assemblage. Apart from the wild fauna and the modern intrusions, most of the assemblage represented food debris which is likely to indicate different periods of activity considering that the cave was a well-known visitor attraction during the 18th and 19th centuries. Seven bones exhibited charring or burning to varying degrees, again consistent with food preparation.

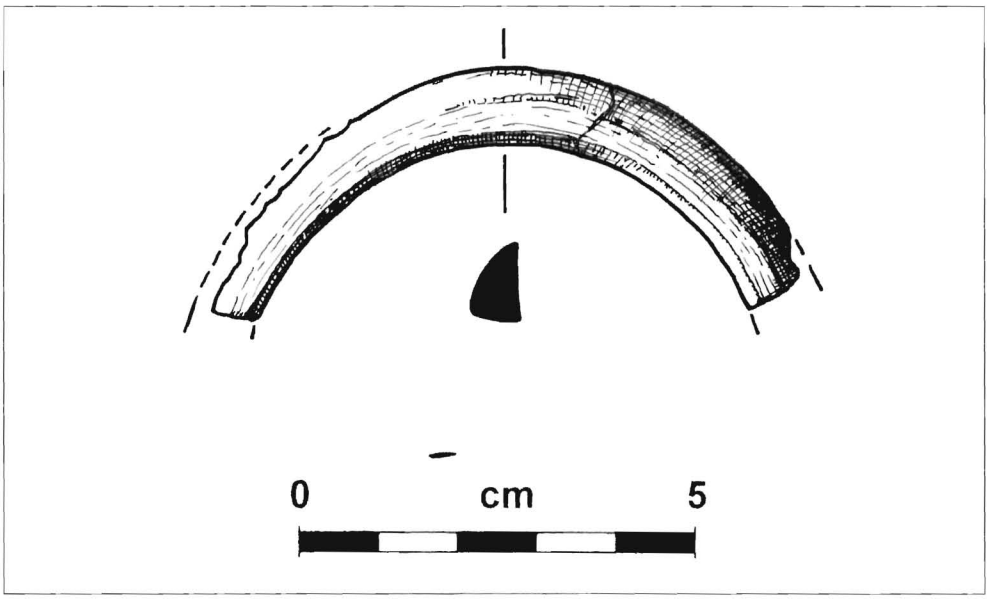

Figure 4: Shale/lignite bracelet (04E1517:01)

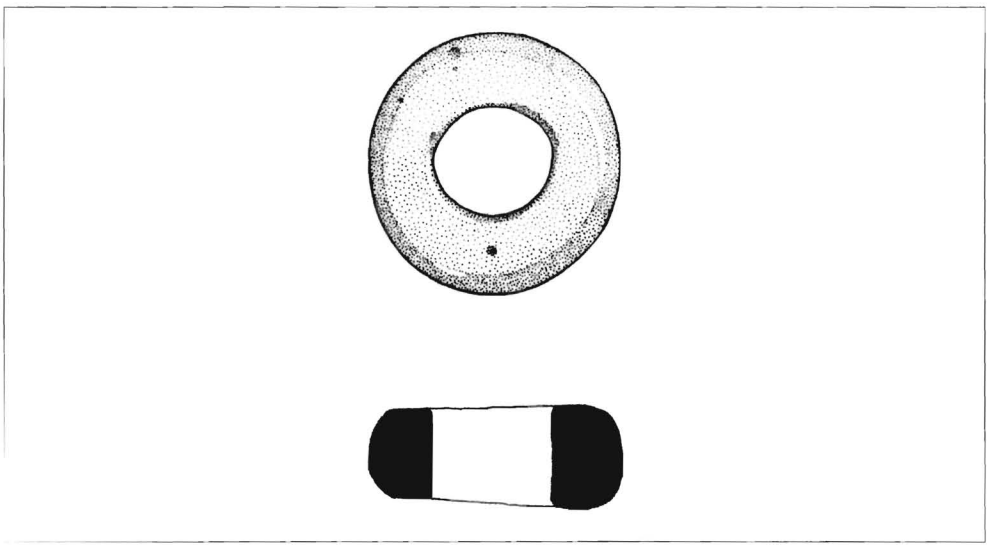

Figure 5: Blue glass bead (04E1517:04)

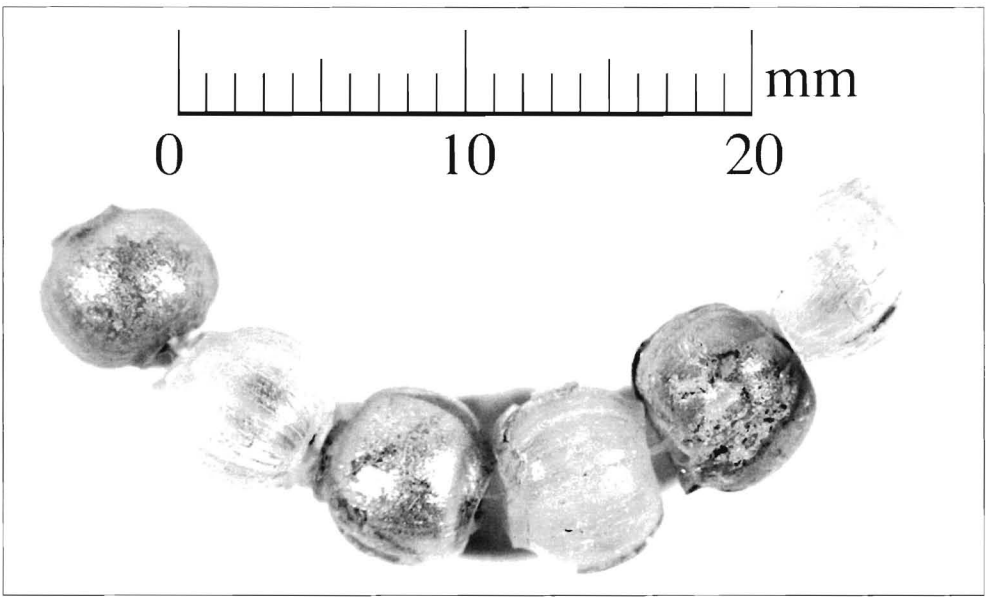

Figure 6: Glass beads (04E1517:06-11)

Sheep slaughtered at a young age for the primary purpose of meat production dominated the domestic component of the assemblage. The presence of almost entire carcasses of sheep indicated that slaughtering and butchery were carried out in the vicinity of the cave. Domestic cattle and pig bones were also recovered, again with meat bearing elements present and evidence of butchering. The dog and cat bones found may represent pets of people living adjacent to the cave. The quantities of fox, rabbit, mouse and frog bones are clearly natural occurrences; the smaller mammals possibly fox prey. The rabbit indicates post-13th century activity and the frog remains are of post-19th century date. The virtual absence of other potential food resources such as wild game and wild fowl is worthy of note considering that these would have been plentiful in the local environment.

As a sample from which to reconstruct local animal husbandry practices or to investigate the possibility of ritual activity, the 2004/5 faunal assemblage is far from ideal. The recovered samples are too small and too mixed to be significant and in all instances they cannot be precisely dated. There is no definitive evidence that the faunal material accumulated by any means other than the disposal of domestic food refuse. Animals appear to have been brought to the cave as complete carcasses or perhaps on the hoof and slaughtered nearby. Unfortunately, the data obtained cannot be used to meaningfully interpret the activities which led to the formation of the samples.

Human remains

In total, 351 human bones were recovered during the 2004/5 monitoring works and analysed by L.G.L. As can be seen from Table 2, most of the trenches and bone scatters produced few or no human bones. With the exception of Bone Scatter 1, the general trend was that trenches or bone scatters that produced high numbers of human bones produced low numbers of animal

bones, and *vice versa*. In instances where low numbers of human bones occurred, this is likely to reflect *ex situ* and disturbed material with the complete cadavers originally deposited elsewhere. Previous investigations in the cave testify that human remains are widely dispersed throughout almost all areas of Dunmore Cave.

Significant numbers of human bones were recovered from Bone Scatters 1, 2 and 3. The 28 human bone fragments in Bone Scatter 1, representing an adult and a 3-6 year old child, had been gathered together in a pile in recent years and placed to one side. The 74 human bone fragments in Bone Scatter 2 were found at the base of a vertical drop (circa 4m) between massive boulders, 1.5m to the west of the Market Cross Stalagmite Pillar in the Market Cross Chamber. The bones had probably fallen in through this vertical opening or had been washed in. Large numbers of human bones had previously been recovered from this general area of the cave in the 19th and 20th centuries (Dowd 2004, 464-7). The 2004/5 assemblage represented an adult, a 1-2 year old child and an infant under one year of age. Other skeletal elements from these three individuals were almost certainly recovered during previous investigations. The ringed pin and blue glass bead found with the bones support the idea that the human remains, though disturbed, indicate the original location where human bodies/burials were deposited.

Bone Scatter 3 comprised bones that were recovered when the spoil heaps of excavations that took place in the Market Cross Chamber in 1973 were sieved (Drew and Huddart 1980). These spoil heaps (with bones protruding through the clay) were visible at the sides of the 1973 excavation trenches which occur to the immediate east-south-east of the Market Cross Stalagmite Pillar. The 1973 investigations, lit only by helmet lamps (ibid., 16), were of a geomorphological and geological nature but a significant quantity of archaeological material was also recovered including a hoard of Viking coins, glass beads and large quantities of human bones. The human remains can no longer be located (Dowd, Fibiger and Lynch 2006, 19). The 237 human bones found during sieving in 2004/5 represent two adults, a 4.5-5 year old child, a 1.5-2 year old child, an infant under one year old and a foetus aged 28.8 weeks (*in utero*). The foetal bone may represent a miscarriage, a stillbirth, or the death of a pregnant woman. No animal bones were found but six glass beads and a bronze pin were recovered.

Due to previous investigations in Dunmore Cave, coupled with the highly disturbed nature of the stratigraphy at the site, it is quite certain that some (if not all) of the individuals represented by the human bones found during the 2004/5 works are also represented in the various assemblages of human remains recovered from the site since the 18th century. This is particularly the case with human remains from the Market Cross Chamber, an area that has been a focus for excavations over the past 200 years. Consequently, it is not possible to state that the current works present an 'addition' to the MNI of 18 adults and 25 juveniles recorded from Dunmore Cave by the *Human Remains from Irish Caves Project* (Dowd, Fibiger and Lynch 2006, 19).

Radiocarbon dates

A significant aspect of the 2004/5 monitoring works was that four of the human bones recovered were radiocarbon dated by the 14CHRONO Centre, Queen's University Belfast. These were the first dates obtained for human bones from the site and are extremely important in several respects. In the first instance, all four bones come from recorded locations in different parts of the cave and were recovered in the course of archaeological work. In contrast, almost all of the human bones previously retrieved from Dunmore Cave were found during non-archaeological investigations and the findspots were usually poorly recorded, if at all. Secondly, these AMS dates

support the dating of the artefactual assemblage. Older interpretations that the human remains might represent 1798 rebels or victims of the Eleven Years War or bones that were washed in from the adjacent graveyard can now be dismissed (Hardman 1875/77, 168; Drew and Huddart 1980, 19).

The four individuals dated comprised a 6-7 year old child (Trench 2), an 11-16 year old adolescent (Trench 4), a 1-2 year old child (Bone Scatter 2) and an adult (Bone Scatter 5). The dates are presented on Table 2. The 6-7 year old child from Trench 2 (Main Chamber) and the 11-16 year old adolescent from Trench 4 (Haddon Hall) produced practically identical dates: 1091± 31BP and 1091± 30BP respectively. The 1-2 year old child from Bone Scatter 2 (Market Cross Chamber) and the adult from Bone Scatter 5 (Main Chamber) also produced practically identical dates: 1151± 31BP and 1125± 31BP respectively (see Table 2 for calibrations). Because nothing resembling a complete skeleton was recovered, it is probable that the four dated bones derive from corpses that were disturbed and dispersed via natural and cultural formation processes.

The radiocarbon results suggest the possibility that 1-2 year old child from Bone Scatter 2 and the adult from Bone Scatter 5 may centre on the mid to late 9th century AD. In contrast, the 6-7 year old child from Trench 2 and the 11-16 year old adolescent from Trench 4 seem to be somewhat later reflecting activities in the mid 10th century AD. This would suggest two main phases of activity in Dunmore Cave. Could the human remains of later date be linked to the two Viking hoards deposited circa 930 AD and 960-970 AD? The foil covered glass beads and the ringed pin found during the 2004/5 works also reflect a mid 10th century date. However, these radiocarbon dates need to be assessed with caution. The calibrations (Table 2) indicate that there is an overlap in the dates and that there may not be two phases of activity, or, if there are two phases of activity, there may not be any significant time lapse between them.

Discussion

Dunmore Cave has been a site of great interest to antiquarians and archaeologists for the past few hundred years. The annalistic references to a Viking massacre at the site in 930AD has traditionally been accepted as the explanation for the large quantities of human bones and the diagnostic Viking artefacts recovered from the cave. However, there are some issues with this interpretation. If the human remains represent a native Irish population massacred by Vikings, why should so many Viking artefacts – rather than native Irish material – be found deep inside the cave? Certainly Viking attackers might have lost some objects in the course of conflict but not the quantity that has been found. Secondly, following a violent clash, one might expect the surviving Irish community to remove the bodies of their massacred dead from the cave for interment in Christian ground. This clearly did not happen. Finally, recent osteoarchaeological analysis of the 2,244 human bone fragments from older excavations in Dunmore Cave (Dowd, Fibiger and Lynch 2006), coupled with the 351 human bones found during the 2004/5 monitoring works, has established that there is absolutely no evidence of trauma or violence on any of the skeletal remains. While violent death may leave no trace on a skeleton (ie. fatal injuries may only penetrate soft tissue), one would expect some signs of violence to be present.

An alternative explanation for the human remains has recently been put forward by Connolly, Coyne and Lynch (2005, 42) and Dowd, Fibiger and Lynch (2006, 19). It is suggested that rather than the site of a Viking massacre, Dunmore Cave is a Viking burial ground similar to Cloghermore Cave, Co. Kerry. This theory would certainly support the diagnostic Viking artefactual assemblage (ie. gravegoods) from the cave and the absence of trauma on the skeletal remains. In addition, previous osteoarchaeological analysis indicated that at least some individuals

lay on the surface of the cave floor (ibid., 19) which might be expected at a burial site. However, this theory also has its problems. Are the annalistic references to a Viking massacre at *Derc Ferna* completely unrelated to Dunmore Cave with its Viking artefacts and human remains? It seems unlikely. Secondly, the four radiocarbon dates discussed above suggest one and possibly two particular events. One would expect a greater spread of dates from a burial site, even one that had only be used for a few decades.

Though the archaeological monitoring work carried out in Dunmore Cave in 2004/5 was small in scale, a wealth of information has been gleaned which confirms that this is a site of great archaeological significance associated with activities involving large quantities of human remains of 9th and/or 10th century date. However, the prevailing questions have not yet been answered. Is Dunmore Cave a burial place or is it the site of the tragic massacre recorded in the annals? Do the human remains reflect Viking burials in 'pagan' ground or do they represent innocent victims of a Viking massacre? Only further research and excavations will illuminate these key questions.

ACKNOWLEDGEMENTS

M.D. would like to thank the OPW, Kilkenny who fully funded the works and especially Colm Murray (formerly of the OPW) for his assistance during all stages of the project. I am grateful to the DEHLG - in particular Con Manning - for providing funding for the radiocarbon dates. For fieldwork and sieving respectively thanks to Ray O'Riordan and Marie Bartlett. Adrian Kennedy undertook the artefact conservation. Figure 1 is courtesy of the OPW with amendments by Abigail Walsh. Artefact illustrations are by Rhoda Cronin (Figure 2); Abigail Brewer (Figures 3, 4 and 5) and Thorsten Kahlert (Figure 6).

BIBLIOGRAPHY

Callmer, J. 2003 'Beads in Scandinavia in the early and high Medieval periods, ca. AD 400-1200', in I.C. Glover, H. Hughes Brock and J. Henderson (eds.) *Ornaments from the past: bead studies after Beck*, London.

Carroll, M. and A. Quinn 2003 'Ferrous and non-ferrous artefacts', in R.M. Cleary and M.F. Hurley (eds.) *Excavations in Cork City 1984-2000*, 257-298, Cork.

Connolly, M., Coyne, F. and Lynch, L. 2005 *Underworld. Death and burial in Cloghermore Cave, Co. Kerry*, Bray.

Dowd, M.A. 2004 *Caves: sacred places on the Irish landscape*, Unpublished PhD thesis submitted to the Department of Archaeology, University College Cork.

Dowd, M., Fibiger, L. and Lynch, L.G. 2006 'The Human Remains from Irish Caves Project', *Archaeology Ireland* 20 (3), 16-9.

Drew, D.P. and Huddart, D. 1980 Dunmore cave, County Kilkenny: a Reassessment, *Proceedings of the Royal Irish Academy* 80, 1-23.

Edwards, N. 1990 *The archaeology of Early Medieval Ireland*, London.

Fanning, T. 1994 *Viking Age ringed pins from Dublin*, Dublin.

Hardman, E.T.	1875/77	'On two new deposits of human and other bones discovered in the Cave of Dunmore, Co. Kilkenny', *Proceedings of the Royal Irish Academy* 12, 168-176.
OPW	1994	*Dunmore Cave*, Dublin (Tourist booklet).
Wallace, P.F. and Ó Floinn, R.	2002	*Treasures of the National Museum of Ireland*, Dublin.

BIOGRAPHICAL NOTES:

Dr. Marion Dowd is a lecturer in prehistoric archaeology at the School of Science, Institute of Technology, Sligo. She is particularly interested in cave archaeology and has directed a number of cave research projects and cave excavations. Her doctoral thesis examined the ways in which caves have been used for funerary and ritual practises in Ireland from the Mesolithic through to the present day.

Margaret McCarthy is a freelance archaeologist who specialises in archaeozoological studies including animal, bird and fish bone. She carried out her MA research on the exploitation of animals in Medieval Cork and has since worked on assemblages from a wide range of sites including Ferriter's Cove and Dún Aenghusa. She is a co-author of the Irish Quaternary Fauna Project and her principal interests are the beginnings of farming in Ireland and the exploitation of marine and avian resources.

Linda G. Lynch is a graduate of University College Cork. An osteoarchaeologist, she has excavated, analysed and published on human remains from sites of all periods in Ireland. Her particular area of interest is the post-medieval period, and she is currently undertaking a PhD in University College Cork.