# HIDDEN VOICES

## THE ARCHAEOLOGY OF THE M8 FERMOY–MITCHELSTOWN MOTORWAY

Penny Johnston and Jacinta Kiely

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with contributions by
N Bower, N Carlin, M Dillon, E Grogan, K Hanley, L Hegarty, J Lehane, D Leigh, L G Lynch, J Lyttleton, M McCarthy, P MacCotter, I Magee, M Monk, J O'Donoghue, S Ó Faoláin, H Roche, F Sternke, J Tierney, M Toscano and T Young

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Front and back cover—The ruins of Caherdrinny towerhouse on Caherdrinny Hill, with extensive views in all directions. The castle sits on the site of a prehistoric hillfort at which, in pre-Norman times, the *óenach* or assembly of the kingdom of Fir Maige (Fermoy) was held (photo by John Sunderland).

Back cover—Made for hunting, a Chalcolithic (c. 4300-year old) flint arrowhead found at Gortnahown 2, south of Mitchelstown (John Sunderland).

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# FOREWORD

Ireland has a special character, deriving equally from the landscape and from the peoples who have lived here from earliest prehistory to modern times. Today's Ireland is a product of their lives and actions, and of their adaptability to changing circumstances and new ideas. This book is about the archaeology of one part of the island, which has its own unique stories, as we shall see.

*Hidden Voices* records a major programme of archaeological investigations on the route of the M8 Fermoy–Mitchelstown motorway, in North Cork. In line with the National Development Plan of 2007–2013, the M8 Fermoy–Mitchelstown motorway forms part of the recently completed motorway between Cork and Dublin, a strategic link between two of our principal cities and a core piece of infrastructure for the economic well-being of Ireland. Locally, the motorway has enhanced the quality of life for people in the historic towns of Fermoy and Mitchelstown, as they no longer carry a large volume of through traffic, including freight and other long-distance commercial traffic. The motorway was opened nine months ahead of schedule and within the planned budget. This was a very significant achievement and is a credit to all involved, in particular Roadbridge Ltd, PCP Consult, Cork County Council and the management and staff of the Council's National Roads Design Office.

*Hidden Voices* represents a successful collaboration between Transport Infrastructure Ireland (TII) and Cork County Council, in funding and managing a planned programme of archaeological investigations along the motorway route at pre-construction stage, and in ensuring an attractive outcome for the public benefit, at the end of the process. The work was conducted for the Council by Eachtra Archaeological Projects. The range of the discoveries is impressive, spanning every major period of human settlement in Ireland—from evidence for Late Mesolithic spear-fishing in the River Funshion (c. 6400–5700 BC) and an intriguing Late Neolithic ceremonial site at Ballynacarriga (c. 2850–2450 BC), to specialist bell manufacturing for early medieval clergy in Gortnahown (c. AD 770–600) and daily life on later medieval farmsteads in Gortnahown and Caherdrinny.

*Hidden Voices* is a clear demonstration of TII's commitment to the Code of Practice for Archaeology agreed with the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs. Furthermore, in keeping with TII's sustainability principles *Hidden Voices* will also be available digitally.

We hope that that the book will be enjoyed by a wide readership and will remain a valuable cultural resource for generations to come. This would not have been possible without the management and staff of Eachtra Archaeological Projects: the authors and all of the contributors to the book are to be warmly congratulated on this fruitful conclusion to their work.

**Michael Nolan**
**Chief Executive**
**Transport Infrastructure Ireland**

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# NOTE ON AVAILABLE SUPPORTING DATA

The following technical documentation is published as part of the TII Digital Heritage Collections via the Digital Repository of Ireland (DRI) website (www.dri.ie). Copies of each excavation report may be downloaded in PDF format by accessing the corresponding DRI persistent identifier web link.

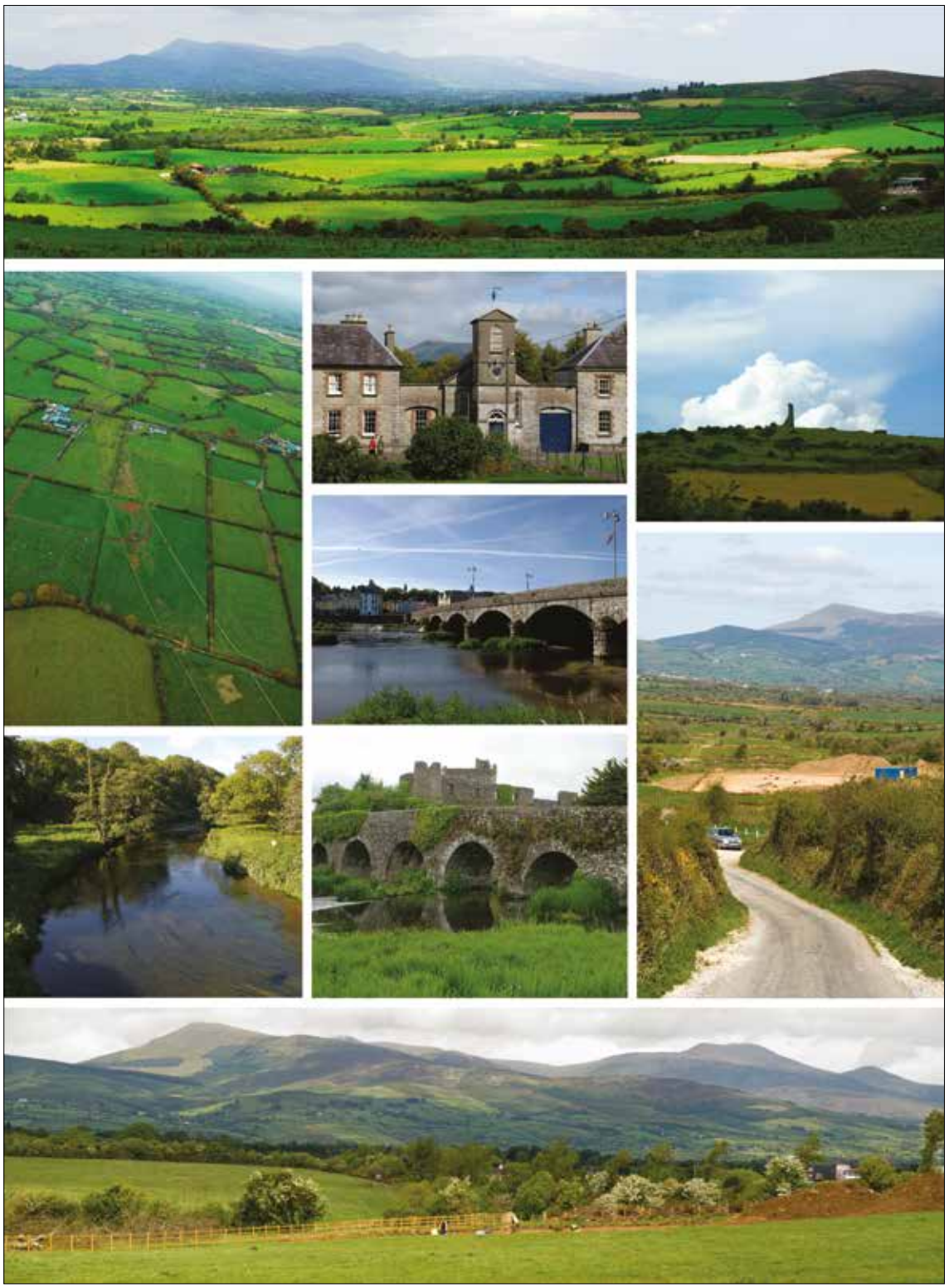
*Table A—Excavation reports and supplementary data available for download from the TII Digital Heritage Collections via the Digital Repository of Ireland*

| Filename | Report description | Author/Excavation Director | DRI persistent identifier web link |
|---|---|---|---|
| Ballinglanna North 1_ E2414.pdf | Archaeological report on the excavation of a burnt mound, metal-working area and post-medieval settlement at Ballinglanna North 1 | Nick Garland, Jacinta Kiely and John Tierney/ Excavation Director John Tierney | https://repository.dri.ie/catalog/br86qj462 |
| Ballinglanna North 2 _E2415.pdf | Archaeological report on the excavation of dispersed pit groups at Ballinglanna North 2 | John Tierney and Andrew Thompson/ Excavation Director John Tierney | https://repository.dri.ie/catalog/bv73rf30d |
| Ballinglanna North 3_ E2416.pdf | Archaeological report on the excavation of an Early Neolithic settlement and two Bronze Age *fulachtaí fia* at Ballinglanna North 3 | Penny Johnston and John Tierney/Excavation Director John Tierney | https://repository.dri.ie/catalog/bz60sb148 |
| Ballinglanna North 4_ E2417.pdf | Archaeological report on the excavation of an Iron Age pit and modern agricultural features at Ballinglanna North 4 | John Tierney and Penny Johnston/Excavation Director John Tierney | https://repository.dri.ie/catalog/c247t698n |
| Ballinglanna North 5_ E2418.pdf | Archaeological report on the excavation of prehistoric (Chalcolithic) pits | Linda Hegarty and Penny Johnston/ Excavation Director Linda Hegarty | https://repository.dri.ie/catalog/c534v3820 |
| Ballinglanna North 6_ E3972.pdf | Archaeological report on the excavation of an Early Mesolithic stray find and Early Bronze Age *fulacht fiadh* | John Tierney/Excavation Director John Tierney | https://repository.dri.ie/catalog/gb19tm702 |

| Filename | Report description | Author/Excavation Director | DRI persistent identifier web link |
|---|---|---|---|
| Ballinrush 1_E2419.pdf | Archaeological report on the excavation of pits that proved to be modern in date | Linda Hegarty/ Excavation Director Linda Hegarty | https://repository.dri.ie/catalog/c821w066v |
| Ballynacarriga 1_ E2411.pdf | Archaeological report on the excavation of a dry river course and Neolithic stray find | John Lehane and Jacinta Kiely/Excavation Director John Lehane | https://repository.dri.ie/catalog/bg25mv94r |
| Ballynacarriaga 2_ E2413.pdf | Archaeological report on the excavation of Neolithic stone tools and an early medieval cliff-edge fort | Jacinta Kiely and John Lehane/Excavation Director John Lehane | https://repository.dri.ie/catalog/bn99pn626 |
| Ballynacarriga 3_ E2412.pdf | Archaeological report on the excavation of Late Neolithic ceremonial complex and Early Bronze Age cemetery | John Lehane, Penny Johnston and Debbie Leigh/Excavation Director John Lehane | https://repository.dri.ie/catalog/bk12nr78m |
| Ballynamona 1_ E2428.pdf | Archaeological report on the excavation of Neolithic and Early Bronze Age pit groups | John Tierney and Penny Johnston/Excavation Director John Tierney | https://repository.dri.ie/catalog/cz3137541 |
| Ballynamona 2_ E2429.pdf | Archaeological report on the excavation of prehistoric artefacts, a Middle Bronze Age settlement and Iron Age metal-working | Linda Hegarty/ Excavation Director Linda Hegarty | https://repository.dri.ie/catalog/d21844386 |
| Caherdrinny 1_ E2420.pdf | Archaeological report on the excavation of a disturbed burnt mound | Linda Hegarty and Nick Garland/Excavation Director Linda Hegarty | https://repository.dri.ie/catalog/cc08ww509 |
| Caherdrinny 2_ E2421.pdf | Archaeological report on the excavation of Middle Bronze Age (possible) cremation pyre | Nicholas Bower and Penny Johnston/ Excavation Director Nicholas Bower | https://repository.dri.ie/catalog/cf95xs344 |
| Caherdrinny 3_ E2422.pdf | Archaeological report on the excavation of a multi-period site with evidence of Neoithic and medieval settlement, as well as features of Bronze Age and Iron Age date | Nicholas Bower, Linda Hegarty, Sebastian Ługowski and Magda Miciak/Excavation Directors Nicholas Bower and Linda Hegarty | https://repository.dri.ie/catalog/cj82zp180 |

| Filename | Report description | Author/Excavation Director | DRI persistent identifier web link |
|---|---|---|---|
| Carrigane 1_E2434.pdf | Archaeological report on the excavation of agricultural ditches and drains (post-medival/ early modern?) | Simon O'Faoláin/ Excavation Director Simon O'Faoláin | https://repository.dri.ie/catalog/dj538k58r |
| Garryleagh 1_E2433.pdf | Archaeological report on the excavation of a late medieval smithing hearth | Simon O'Faoláin/ Excavation Director Simon O'Faoláin | https://repository.dri.ie/catalog/df667p74w |
| Glenatlucky 1_ E2427.pdf | Archaeological report on the excavation of an Early Bronze Age burial | Linda Hegarty and Penny Johnston/ Excavation Director Linda Hegarty | https://repository.dri.ie/catalog/cv442b705 |
| Gortnahown 1_ E2423.pdf | Archaeological report on the excavation of undiagnostic Early Bronze Age and Iron Age activity and possible Bronze Age house | Julianna O'Donoghue/ Excavation Director Julianna O'Donoghue | https://repository.dri.ie/catalog/cn700k02g |
| Gortnahown 2_ E2426.pdf | Archaeological report on the excavation of prehistoric features, early medieval bell manufacturing and an undefended late medieval settlement | Jacinta Kiely and Julianna O'Donoghue/ Excavation Director Julianna O'Donoghue | https://repository.dri.ie/catalog/cr571f86t |
| Gortnahown 3_ E2477.pdf | Archaeological report on the excavation of late prehistoric hearths | Julianna O'Donoghue, Debbie Leigh and Penny Johnston/Excavation Director Julianna O'Donoghue | https://repository.dri.ie/catalog/dn409g423 |
| Gortnahown 4_ E3832.pdf | Archaeological report on the excavation of an *ex situ* burnt mound | James Lyttleton and Antonia Doolan/ Excavation Director James Lyttleton | https://repository.dri.ie/catalog/fn10mc82q |
| Gortore 1b_E2410.pdf | Archaeological report on the excavation of early prehistoric settlement (Mesolithic and Neolithic) | Julianna O'Donoghue/ Excavation Director Julianna O'Donoghue | https://repository.dri.ie/catalog/bc38m010v |
| Gortore 2_E3973.pdf | Archaeological report on the excavation of early modern field ditches and furrows | John Tierney, Debbie Leigh and Penny Johnston/Excavation Director John Tierney | https://repository.dri.ie/catalog/gf06vh54x |

| Filename | Report description | Author/Excavation Director | DRI persistent identifier web link |
|---|---|---|---|
| Kildrum 1_E3971.pdf | Archaeological report on the excavation of an Early Bronze Age *fulacht fiadh* | John Tierney and Andrew Thompson/ Excavation Director John Tierney | https://repository.dri.ie/catalog/g732sq86f |
| Kilshanny 1_E2430.pdf | Archaeological report on the excavation of a late prehistoric (enclosed?) settlement | James Lyttleton and Nicholas Garland/ Excavation Director James Lyttleton | https://repository.dri.ie/catalog/d5055122j |
| Kilshanny 2_E2431.pdf | Archaeological report on the excavation of a pit group (Late Bronze Age/ modern?) | James Lyttleton and Nicholas Garland/ Excavation Director James Lyttleton | https://repository.dri.ie/catalog/d7925x066 |
| Kilshanny 3_E2432.pdf | Archaeological report on the excavation of a Late Bronze Age *fulacht fiadh* | James Lyttleton and Nicholas Garland/ Excavation Director James Lyttleton | https://repository.dri.ie/catalog/db796s901 |
| a) N8 Fermoy–Mitchelstown Revised Lithics Reports (PDF document; file downloads as tt4533958.pdf)<br>b) N8 Fermoy Mitchelstown Revised Lithics Data Sheets.xls | Supplementary data providing a reinterpretation of the chipped stone assemblages from the following sites: Ballinglanna North 1 (E2414), Ballinglanna North 2 (E2415), Ballinglanna North 3 (E2416), Ballinglanna North 5 (E2418), Ballinglanna North 6 (E3972), Ballynacarriga 1 (E2411), Ballynacarriaga 2 (E2413), Ballynacarriga 3 (E2412), Ballynamona 2 (E2429), Caherdrinny 3 (E2422), Gortnahown 2 (E2426) and Gortore 1b (E2410). File formats: Adobe PDF (reports) and Microsoft Excel Spreadsheet (data sheets) | Farina Sternke | https://repository.dri.ie/catalog/tm711b27k<br>https://repository.dri.ie/catalog/th840f43q |



# CHAPTER 1
# INTRODUCTION

*Ken Hanley, Penny Johnston and Jacinta Kiely*

We urge you, on some clear, cool, early morning, to make the journey to the top of Caherdrinny Hill, in north County Cork, and gaze north-west across the broad low-lying plains that nestle between the brooding Galtee Mountains and the softer Kilworth Mountains. You will see an ever-evolving landscape, shaped and re-shaped by the toil and enterprise of successive generations—a process that continues to this day. From your vantage point you will also see the recently completed M8 Fermoy–Mitchelstown motorway easing its way across the foothills of the Kilworth Mountains and relieving the historic town of Mitchelstown of traffic congestion. The construction of this road has provided an opportunity for archaeologists to better understand how this landscape has changed over the millennia. And changed it has. Each archaeological site, excavated in advance of the road construction, has provided new insights into the character and distribution of archaeological settlement in the region, spanning a 10,000-year period. Within the archaeological record—the empirical description and measurement of pits and post-holes—lie observations from which broader archaeological interpretations and insights are possible: post-holes often represent buildings, deposits of cremated bone can indicate small prehistoric cemeteries. What is typically missing from this evidence, however, are the human experiences and emotions that have long since dispersed from each site, like mist. One can only imagine what some of the earliest settlers to the North Cork region experienced when they fished the River Funshion for the first time: fishing tools used by these Mesolithic people were found at Gortore (Chapter 2.18). Gone is the laughter and banter of those who, some 5,700 years ago, built the Early Neolithic house at Caherdrinny (Chapter 2.12). Silent are the voices of a community who gathered in ceremony at the timber circles at Ballynacarriga some 4,600 years ago. More poignantly, gone are those who witnessed the heartbreak and sorrow of our Early Bronze Age forebears who, almost 4,000 years ago, buried a young pregnant woman and some children at a hitherto forgotten cemetery at the same site (Chapter 2.8). Likewise, we can wince in our minds at the inevitable burns and scalds suffered by the highly specialised early medieval iron-workers who, approximately 1,300 years ago, hammered and toiled in dim light to forge iron bells at Gortnahown for distribution across North Cork (Chapter 2.16). It is these people that this book is about. It is their experiences, in the hills and lowlands between what are now the towns of Fermoy and Mitchelstown, that have left behind the material remains recorded here. The discipline of archaeology, perhaps like no other, allows us to physically connect our time with theirs: a stone axehead dropped from the hand of a distant Mesolithic ancestor, in a forest trail some 10,000 years ago, is next felt by the hand of an archaeologist excavating in advance of these road works. The

*Facing page: Illus. 1—The historic landscape of North Cork (John Sunderland).*

features and artefacts unearthed during these archaeological excavations offer snapshots in time and tell many stories of life and death in this part of County Cork over the millennia.

## 1.1 Topography, geology and soil

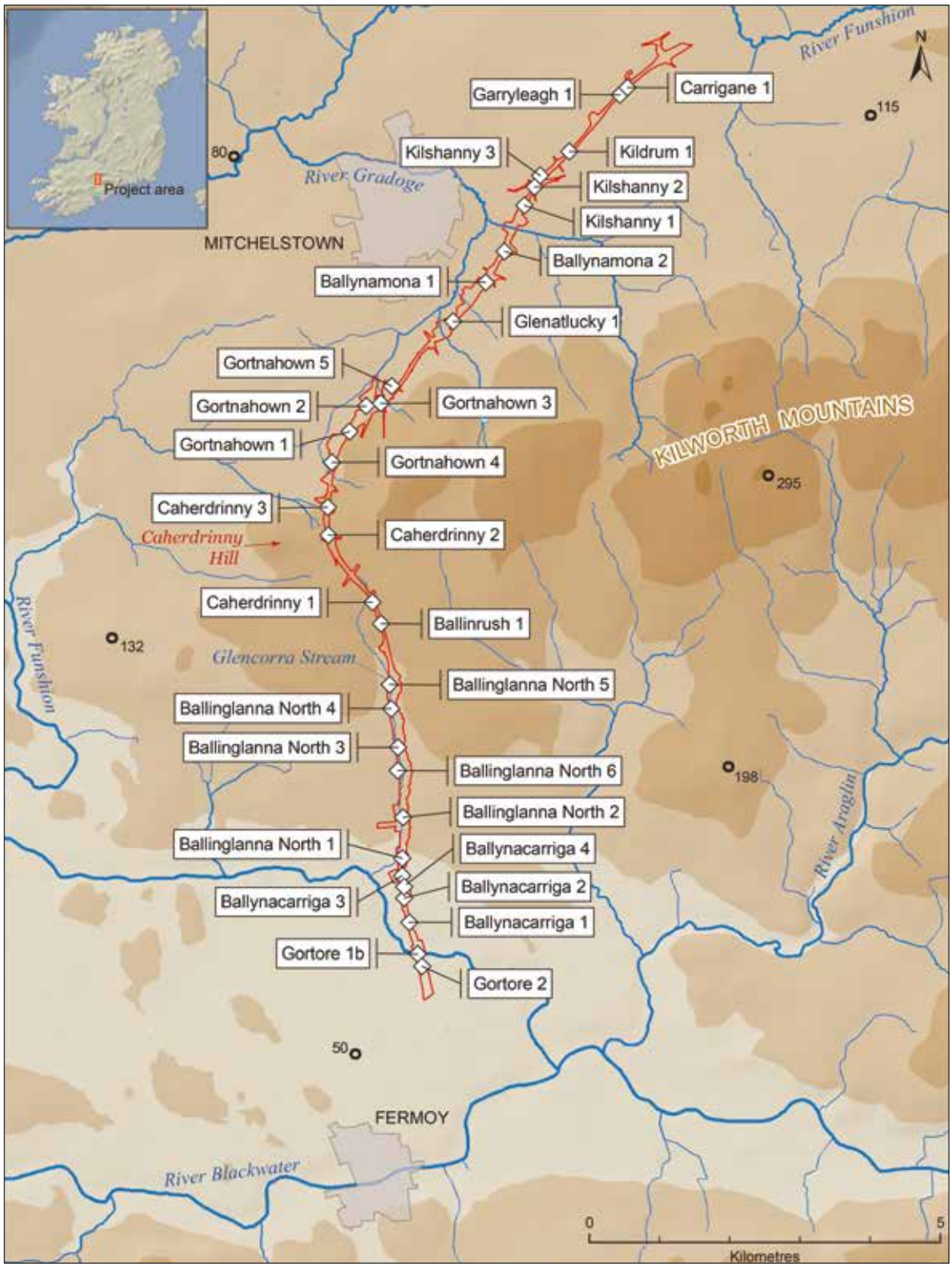
The route of the M8 Fermoy–Mitchelstown motorway crosses the rich pastureland of North Cork. It is c. 16 km long and occupies approximately 154 hectares of former agricultural land. The road passes through the townlands of Gortore, Ballynacarriga, Glenwood, Ballinglanna North, Ballinrush, Caherdrinny, Gortnahown, Ballybeg, Turbeagh, Glenatlucky, Ballynamona, Kilshanny, Corracunna, Kildrum, Garryleagh, and Carrigane. The townlands are located in the parishes of Kilcrumper, Glanworth and Brigown and the barony of Condons and Clangibbon, with the exception of Gortore and Glenwood, which are located in the barony of Fermoy.

The route (Illus. 1.1.1; Illus. 2.1–3) begins at the northern end of the M8 Rathcormac–Fermoy motorway, at Gortore—approximately 2 km north of Fermoy, at an elevation of c. 40 m OD—and continues north across the River Funshion, along the west bank of one of its tributaries, the Glencorra Stream, for a distance of 4 km. At Caherdrinny, the road rises to its maximum elevation of c. 180 m OD, as it crosses over the western extremities of the Kilworth Mountains. From there it descends north-east onto a broad plain between the Galtees and Kilworth Mountains that extends east and north-east from Mitchelstown, at an elevation of 100–120 m OD. The route crosses the old N8 Cork–Dublin road at Gortnahown and passes to the east of Mitchelstown, crossing the R665 Mitchelstown–Ballyporeen road and linking up with the M8 Cashel–Mitchelstown motorway at Carrigane, south of Kilbeheny village, 2 km west of where the county boundaries of Cork, Limerick and Tipperary intersect.

The landscape of the area is dominated by the Galtee Mountains to the north, the Ballyhoura Mountains to the north-west, the Kilworth Mountains to the east and the Nagle Mountains to the south. The region is drained by the River Blackwater, the River Funshion (which flows into the River Blackwater, approximately 2 km north-east of Fermoy) and the Glencorra Stream. The Kilworth Mountains divide two different, low-lying drainage systems—over the millennia, the mountain range is also likely to have separated two ancient territories, one located to the north and one to the south. The largest population centres in the area, Fermoy and Mitchelstown, have developed on the banks of the rivers Blackwater and Gradoge, respectively.

The topography of North Cork consists of east–west-aligned valleys, separated by intervening ridges (Illus. 1.1.1). The ridges consist of sandstones and mudstones of the Devonian Period (Old Red Sandstone) laid down 410–355 million years ago and the valleys of Carboniferous limestones laid down 355–290 million years ago (Sleeman & McConnell 1995). The subsoil sediments covering many of the rocks are mainly of glacial origin, deposited by glacial ice or meltwater.

The soils on the southern portion of the route (south of Gortnahown) are characterised by acid brown earths, derived from mixed sandstone and limestone glacial till. These soils occur generally in the valleys of Cork and Waterford (Gardiner & Radford 1980, 61), and have a wide use range, being suitable for tillage and grass production. The soils on the western limits of Kilworth Mountains (in the vicinity of Caherdrinny) are characterised by brown podzolics derived from sandstone. The soils on the northern portion of the route (north of Gortnahown) are characterised by brown podzolics




*Illus. 1.1.1—Locations of sites excavated on the route of the M8 Fermoy–Mitchelstown motorway, which crosses both upland and lowland landscapes.*

derived from sandstone and shale glacial till. Both of these soils have a wide range of potential uses and are well suited to arable and pastoral farming. Land use along the route is now almost entirely grassland, devoted to intensive dairying and cattle rearing, with only occasional tillage.

## 1.2 Archaeological fieldwork

The delivery of a road scheme—from concept, to design, to construction—is a complex matter with many stakeholder concerns and many statutory procedures involved. The National Development Plan 2000–2006 identified the route of the M8 Fermoy–Mitchelstown motorway as part of its development strategy for national primary roads in Ireland. Following an environmental review of route options, an Environmental Impact Statement (EIS) on the preferred route was prepared by Punch-Mouchel-Parkman, on behalf of Cork County Council, and published in late 2005. The road was designed as a dual carriageway to replace the single carriageway on the old N8 Cork–Dublin road. It required three key grade-separated junctions: at Moorepark, Ballybeg and Carrigane. The EIS recognised that the scheme would have a significant impact on archaeology, and that a managed programme of geophysical survey, archaeological testing, excavation and monitoring would be undertaken.

The archaeological mitigation measures were undertaken in compliance with the *Code of Practice* agreed, in 2000, between the National Roads Authority (NRA) and the Minister for Arts, Heritage, Gaeltacht and Islands. Under this Code a Project Archaeologist was assigned by the NRA (now Transport Infrastructure Ireland (TII)) to oversee all archaeological aspects of the scheme. An archaeo-geophysical survey was undertaken by Earthsound Archaeological Geophysics/Substrata Ltd (Bonsall et al. 2007), on behalf of Cork County Council, in August–September 2005. A magnetic susceptibility and magnetic gradiometer survey were conducted along the centreline of the road corridor. These initial surveys help archaeologists identify buried features of archaeological potential. Areas showing anomalies of potential archaeological origin were further investigated using a magnetic gradiometer at a higher sampling resolution. Significant anomalies were also investigated with an earth resistance meter. Follow-on archaeological investigations were carried out by Eachtra Archaeological Projects, on behalf of Cork County Council. Phase 1 of the investigations (machine-cut archaeological testing of the route) was carried out in October 2005, under licence 05E1150 issued by the Department of Culture, Heritage and the Gaeltacht (DCHG). The principal aims of this phase of investigation were to test for any previously unknown sites—using an extensive, scheme-wide programme of centreline and offset test trenching—and to test sites of known archaeological potential previously identified in the EIS and by geophysical surveying. In addition, five sites were tested under individual excavation licences 05E1122–05E1126. Phase 2 of the investigations involved some supplementary testing (in total, the combined area comprised c. 13.6 ha of test trenching) and the excavation of all sites of significant archaeological potential identified within the proposed road corridor (the combined excavation areas comprised c. 10.6 ha). This work was carried out prior to commencement of the construction works, in September 2006–September 2007, and funded via the National Development Plan 2007–2013. Being an approved road scheme under the definition of the National Monuments (Amendment) Act 2004, the project was assigned the Ministerial Directions reference A040. A total of 28 sites were excavated during Phase 2, under separate excavation registration numbers

(Table 1.3.1), issued by the DCHG. Two further excavations were undertaken by The Archaeology Company in 2009, on behalf of Roadbridge Ltd, with respect to ancillary road works. In total, an area of c. 24.2 ha was archaeologically investigated across the scheme. On the conclusion of on-site excavation works, a programme of post-excavation analysis and reporting was devised. The aim of this work was to appraise the significance of the findings and to produce detailed reports on the excavation results. Artefacts and environmental samples were sent to specialists for more technical analysis and reporting, while some environmental samples were selected for radiocarbon dating. All these data were then assimilated into the stratigraphic descriptions of each site, culminating in the final excavation reports. The last of the excavation reports from Eachtra Archaeological Projects was received by Cork County Council in 2011. During the preparation of this book, some additional analysis was undertaken on the stone tool assemblage from the project. This analysis resulted in a reinterpretation of some of the excavated sites presented here. The reference links to all the excavation reports and other supplementary datasets are listed in Table A.

This book presents the results from 22 of the more significant sites excavated by Eachtra Archaeological Projects. Reference is also made to two minor excavations (Chapters 2.23–4) undertaken by The Archaeology Company. The road was constructed by Roadbridge Ltd and was opened in May 2009.

## 1.3 Where the road takes us

Roads do many things. Primarily, they connect people geographically, but, as you will see, they can also connect people across time. Ours is an unusual journey, a journey of discovery. Our story begins not with field and furrow, but with water and woods—it is the post-glacial period (c. 14,000 BC) and the land mass of Ireland, freshly scarred by the ravages of vast ice sheets, witnessed vegetation slowly recover, fed by gorged river systems and open flood plains. With time, forests of pine, oak, elm, alder and hazel developed and with them wild boar and game began to flourish. It is not known when this area was first colonised by humans. Recent research (Dowd & Carden 2016) has identified tool-marking on a sample of bear bone from a cave in County Clare that was dated to c. 10,500 BC. Though modest, this is the strongest evidence to date for human settlement in the Palaeolithic period in Ireland. While it is plausible that there was also human settlement in Cork at this time, no such evidence has been found to date. Certainly, by c. 8000 BC the natural route ways along the resource-rich valleys of the River Funshion (and its tributaries) in North Cork began to attract early settlers, who migrated inland from coastal regions. These Mesolithic people were the first (that we know of) to look up at Caherdrinny Hill and to taste the cool waters of the River Gradoge and Glencorra Stream. They moved with the seasons, hunting, fishing and gathering wild foods across what is now North Cork. Remarkably, traces of their presence were found at Ballinglanna North (Chapters 2.1 and 2.6), at Caherdrinny (Chapter 2.12) and at Gortore (Chapter 2.18). Their mobile way of life continued uninterrupted for thousands of years. Then, c. 4000 BC, the winds of change began to blow. Farming was introduced and, with it, a new way of living—a new type of domestic architecture appears, the use of pottery begins, new types of stone tools appear, as do new methods of burying the dead. These Neolithic people were culturally very different and they viewed the landscape in a completely new way. Within a relatively short period

of time they set about building more permanent settlements, clearing woodland, cultivating crops and practising animal husbandry. We now know that the first of these farming communities to arrive lived in areas such as Ballinglanna North (Chapter 2.3), Caherdrinny (Chapter 2.12) and Gortore (Chapter 2.18). Over time their communities grew and became more complex. Farming would improve food security and self-sufficiency, but it could also generate food surplus and relative wealth. A social elite developed and soon these people began building megalithic tombs and other places of communal gatherings. Few of their megalithic tombs survive in County Cork—rare examples include the passage tomb at The Lag near Baltimore and at Killickaforavane on Cape Clear Island, as well as the portal tomb at Ahaglaslin near Rosscarbery, all located in West Cork (O'Brien 2012, 43–8). At Ballynacarriga (Chapter 2.8), north-east of Fermoy, these early farmers would have gathered to perform ceremonial rituals at specially constructed timber circles, where Late Neolithic pottery was also uncovered.

Manipulation of the natural world became even more sophisticated from c. 2450 BC in the Chalcolithic period. A suite of new technological skills—metal ore (in particular copper and gold) extraction, refinement and smithing—was introduced into Ireland, which accelerated people's ability to work the land and led to social stratification. A hoard of early copper axeheads, made by these Chalcolithic innovators, was found at Castletownroche (O'Brien 2012, 63). These innovations coincided with the arrival of Beaker pottery in Ireland and it was these same people who built a new form of megalithic monument known as wedge tombs, including a fine example at Labbacalle, north-west of Fermoy, just c. 4 km west of the M8 Fermoy–Mitchelstown route. Beaker pottery and other Chalcolithic remains were found along the route of the motorway, at Ballinglanna North (Chapter 2.5), Ballynacarriga (Chapter 2.8), Ballynamona (Chapter 2.10), Caherdrinny (Chapter 2.12) and Gortnahown (Chapter 2.15). Improvements in metallurgy from soon after 2200 BC saw the gradual adoption of bronze. Bronze Age people buried their dead in new ways, forgoing the large megalithic tombs of earlier cultures. At Ballynacarriga (Chapter 2.8), in the Early Bronze Age, a group of burials included the remains of a young pregnant woman, as well as other children. This, remember, was also the site of the ceremonial timber circles of some 600 years earlier. Clearly, the ridge overlooking the River Funshion had remained a special place in the minds of people. Despite the pain and heartache, life continued. Bronze Age houses were found at Ballynamona (Chapter 2.10) and Gortnahown (Chapter 2.15). The presence of saddle querns, rubbing stones and large amounts of carbonised grain (wheat and barley) points to a thriving tillage economy at the time. Many of the *fulachtaí fia*, near-ubiquitous monuments frequently found on marginal lands, were formed at this time. Designed to heat water for various purposes, examples of these sites were found at Ballinglanna North (Chapter 2.3), Kildrum (Chapter 2.19) and Kilshanny (Chapter 2.22). It is likely that the substantial hillfort on Caherdrinny Hill was constructed in the Late Bronze Age and its occupants are likely to have ruled over the surrounding region. Indeed, there is ample artefactual evidence for warrior elites during this period. A range of bronze weapons began to be made, including spears, rapiers, swords and shields—all possibly linked, according to O'Brien (2012, 223), to 'the new warrior ethos, with its emphasis on hand-to-hand combat'.

From c. 800 BC iron-using Celtic peoples began to dominate in Europe. Their influence was soon felt in Ireland as the first use of iron and of artefacts with elements of continental Celtic design appeared. These occurrences broadly coincided with some notable changes in the Irish

archaeological record. Much of the material culture of Bronze Age society began to disappear: pottery use (which had been in decline) ended and the use of *fulachtaí fia* began to fade out, albeit slowly. By c. 300 BC a subsequent Celtic affiliation, referred to by scholars as the La Tène culture, had extended across Europe. It is at this time that widespread evidence for iron production (smelting and smithing) appears in the Irish archaeological record. Such early iron-working was carried out by the occupiers of Ballynacarriga (Chapter 2.8) and Ballynamona (Chapter 2.10). There is, however, increasing evidence (O'Brien 2012, 249; 2013, 196) to suggest that these early iron-workers are unlikely to have been immigrants from the European mainland but rather were indigenous Late Bronze Age communities merely adopting continental influences and innovations. In any event, iron-working would change society on this island.

During the early medieval period (c. AD 400) the range and sophistication of ironwork had increased. At Gortnahown (Chapter 2.16)—at the point, south of Mitchelstown, where the new M8 motorway crosses the old N8 Cork–Dublin road—the excavated evidence indicates the site was, in the seventh century, a highly specialised centre for iron bell manufacturing (Chapter 3.11). This site would prove broadly contemporary with a cliff-edge fort excavated at Ballynacarriga (Chapter 2.7). This latter enclosure contained evidence for significant iron-working and clearly exerted control over the River Funshion at that time, including (possibly) a fording point across the river. The enclosure also contained a souterrain—a concealed underground chamber designed to store foodstuffs, but also to offer refuge from raiders.

More organised and more colonially minded raiders arrived on our shores in the late 12th century. The Anglo-Norman conquest of Ireland was a transformative, though piecemeal process. The Anglo-Normans fortified existing centres of population (such as Cork, Limerick and Dublin) and created new towns (such as Mitchelstown) and networks of rural manors. Medieval manors were primarily agricultural production centres that supplied the market (including Cork, Dublin and Britain) with produce. The excavated late medieval settlement at Gortnahown (Chapter 2.16)—replete with evidence for oat cultivation—may have formed part of this manorial network. Increases in the rural population attracted other, ancillary services, such as the late medieval smithy excavated at Garryleagh 1 (Chapter 2.13). The conquest was also accompanied by a new wave of religious orders, attracted to the growing population centres; it was during this time that the Cistercian Abbey in Fermoy was founded. As the centuries passed the population in Ireland grew steadily. The network of bridges and roadways improved accordingly, initially connecting towns and villages but, in the 18th and 19th centuries, also servicing the needs of the landed gentry and their network of country demesnes. These rural estates, like the medieval manors, supplied the burgeoning Irish, British and continental markets with produce. The foundations of a stone building excavated at Ballinglanna North (Chapter 2.1) may have represented a tenant's/cottier's dwelling or may have been used by workers during the construction of the late 19th-century bridge over the Glencorra Stream, which was built to service the road from Kilworth to Glanworth. The remains of jugs, plates and cups found in the building remind us that our story of archaeological discovery—a story that started 10,000 years ago—is about the lives of people whose voices would otherwise never be heard, were it not for the opportunity afforded by the construction of the M8 Fermoy–Mitchelstown motorway.

*Table 1.3.1—Periods of activity on archaeological sites excavated on the M8 Fermoy–Mitchelstown motorway*

| | Mesolithic (c. 8000–3900 BC) | Neolithic (c. 3900–2450 BC) | Chalcolithic (c. 2450–2200 BC) | Early Bronze Age (c. 2200–1600 BC) | Middle Bronze Age (c. 1600–1100 BC) | Late Bronze Age (c. 1100–700 BC) | Suspected Bronze Age (c. 2200–700 BC) | Iron Age (c. 700 BC – AD 400) | Early medieval (c. AD 400–1169) | Later medieval (AD 1169–1534) | Post-medieval to early modern (AD 1534–1900) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sites excavated by Eachtra Archaeological Projects** | | | | | | | | | | | |
| Ballinglanna North 1 (E2414) | | | | | | | | | | | |
| Ballinglanna North 2 (E2415) | | | ? | | | | | | | | |
| Ballinglanna North 3 (E2416) | | | ? | ? | | | | | | | |
| Ballinglanna North 4 (E2417) | | | | | | | | | | | |
| Ballinglanna North 5 (E2418) | | | | | | | | | | | |
| Ballinglanna North 6 (E3972) | | ? | | | | | | | | | |
| Ballynacarriga 2 (E2413) | | | | | | | | | | | |
| Ballynacarriga 3 (E2412) | | | | | | | | | ? | | |
| Ballynamona 1 (E2428) | | | | | | | | | | | |
| Ballynamona 2 (E2429) | | | | | | | | | | | |
| Caherdrinny 2 (E2421) | | | | | | | | | | | |
| Caherdrinny 3 (E2422) | | | | | | | | | | ? | |
| Garryleagh 1 (E2433) | | | | | | | | | | | |
| Glenatlucky 1 (E2427) | | | | | | | | | | | |
| Gortnahown 1 (E2423) | | | | | | | | | | | |
| Gortnahown 2 (E2426) | | | | | | | | | | | |
| Gortnahown 3 (E2477) | | | | | | | | | | | |
| Gortore 1b (E2410) | | | ? | | | | | | | | |
| Kildrum 1 (E3971) | | | | | | | | | | | |
| Kilshanny 1 (E2430) | | | | | | | | | | | |
| Kilshanny 2 (E2431) | | | | | | ? | | | | | |
| Kilshanny 3 (E2432) | | | | | | | | | | | |
| **Sites excavated by The Archaeology Company** | | | | | | | | | | | |
| Ballynacarriga 4 (E3764) | | | | | | | | | | ? | |
| Gortnahown 5 (E4015) | | | | | | | | | | | |

In addition, on the following excavated sites no significant archaeology was found: Ballinrush 1 (E2419), Ballynacarriga 1 (E2411), Caherdrinny 1 (E2420), Carrigane 1 (E2434), Gortnahown 4 (E3832) and Gortore 2 (E3973)

## 1.4 Organisation of the book

A list of the 30 sites excavated on the M8 Fermoy–Mitchelstown route is given in Table 1.3.1 (Illus. 1.1.1) and links to the excavation reports for the 28 sites excavated by Eachtra Archaeological Projects are presented in Table A. The excavation reports are also published online as part of the Eachtra Archaeological Projects Journal (www.eachtra.ie/journal). The excavation reports for the two sites excavated by The Archaeology Company were not available when this book went to print.

This volume presents the results from 24 of the more significant excavated sites. Chapter 1 introduces the scheme and its landscape setting. In Chapter 2, summary accounts of each excavation are provided, with the sites presented in alphabetical order for ease of reference (Table 2.1). Chapter 3 provides discursive overviews arising from the discoveries made and Chapter 4 draws conclusions from the findings. Appendix 1 contains a list of the 102 radiocarbon dates obtained from the archaeological excavations.

In the text, all date ranges provided with associated laboratory codes in parenthesis are radiocarbon dates. These dates are calibrated or adjusted versions, in calendar years (at two sigma probability), of the original radiometric measurements. The origin of radiocarbon-dated samples is also provided in the illustrations, but without laboratory codes. The precise date ranges for the commonly used chronological periods in Irish archaeology are not fixed. For the purpose of this book the principal authors adhere to the chronological date ranges presented in Table 1.3.1. All co-ordinates within the text and illustrations are provided in Irish Transverse Mercator format.

*Illus. 2—Scenes from the daily work of excavation and recording (John Sunderland).*

# CHAPTER 2
# THE EXCAVATIONS

*Ken Hanley*

The backbone of this book is the harvest of new information gleaned from archaeological excavations along the route of the M8 Fermoy–Mitchelstown motorway. Summary accounts of results from 24 (Table 2.1) of the more significant sites excavated are presented here, in alphabetical order. These excavation results stem from a managed process of archaeological intervention, overseen by Cork County Council on behalf of TII.

In this chapter you will hear the voices of the archaeologists charged with managing the excavations. Their summary accounts of the archaeological remains unearthed at each site provide a key primary resource that preserves-by-record the provenance of the features, finds and other evidence witnessed during excavation. As with anything witnessed, however, many interpretations are possible and this, too, is reflected in this chapter, where interpretations are discussed and in some cases new interpretations are provided that differ from those originally held by the excavator.

All archaeology is fragmentary, with excavated remains often representing less than 1% of the physical assemblage of objects, buildings and other tangible products of human interaction that might once have occupied a site. Such partial remains, as presented in this chapter, are all that survive for us to begin our quest to understand how, over the millennia, the various families and communities represented by this evidence settled and exploited the lands around what is now the towns of Fermoy and Mitchelstown, in north County Cork. All the broader appraisals of the archaeological insights gained, that follow in Chapter 3, stem from these primary excavation accounts.

*Table 2.1—List of 24 sites for which summary accounts are provided in this volume*

| Site | Excavation Registration Number | Excavation Director | Description | Co-ordinates (ITM) | Height (m OD) |
|---|---|---|---|---|---|
| **Sites excavated by Eachtra Archaeological Projects** | | | | | |
| Ballinglanna North 1 | E2414 | John Tierney | Multi-period site | 581417/603247 | 38 |
| Ballinglanna North 2 | E2415 | John Tierney | Dispersed pit groups | 581417/603247 to 581414/604205 | 71 |
| Ballinglanna North 3 | E2416 | John Tierney | Early Neolithic settlement and Bronze Age *fulachtaí fia* | 581348/604865 | 113 |

*Table 2.1—List of 24 sites for which summary accounts are provided in this volume cont'd*

| Site | Excavation Registration Number | Excavation Director | Description | Co-ordinates (ITM) | Height (m OD) |
|---|---|---|---|---|---|
| **Sites excavated by Eachtra Archaeological Projects** | | | | | |
| Ballinglanna North 4 | E2417 | John Tierney | Iron Age pit | 581272/605339 | 135 |
| Ballinglanna North 5 | E2418 | Linda Hegarty | Chalcolithic pits | 581240/605694; 581233/605747; 581249/605884 | 142 |
| Ballinglanna North 6 | E3972 | John Tierney | Early Mesolithic find-spot and Early Bronze Age *fulacht fiadh* | 581348/604508 | 90 |
| Ballynacarriga 2 | E2413 | John Lehane | Neolithic Stone tools and early medieval cliff-edge fort | 581499/602656 | 51 |
| Ballynacarriga 3 | E2412 | John Lehane | Late Neolithic ceremonial site and Early Bronze Age ring cemetery | 581424/602656 to 581424/602936 | 54 |
| Ballynamona 1 | E2428 | John Tierney | Neolithic and Early Bronze Age pit groups | 582567/611514 to 582646/611544 | 100 |
| Ballynamona 2 | E2429 | Linda Hegarty | Prehistoric artefacts, Bronze Age settlement and Iron Age metal-working | 582746/611784 to 582901/612098 | 91 |
| Caherdrinny 2 | E2421 | Nicholas Bower | Middle Bronze Age cremation pyre | 580366/607891 | 171 |
| Caherdrinny 3 | E2422 | Nicholas Bower and Linda Hegarty | Multi-period site with evidence of Neoithic and medieval settlement | 580315/608211 to 581660/601869 | 150 |
| Garryleagh 1 | E2433 | Simon Ó Faoláin | Late medieval smithing hearth | 584517/614249 | 128 |
| Glenatlucky 1 | E2427 | Linda Hegarty | Early Bronze Age burial | 582133/610972 | 103 |

*Table 2.1—List of 24 sites for which summary accounts are provided in this volume cont'd*

| Site | Excavation Registration Number | Excavation Director | Description | Co-ordinates (ITM) | Height (m OD) |
|---|---|---|---|---|---|
| **Sites excavated by Eachtra Archaeological Projects** | | | | | |
| Gortnahown 1 | E2423 | Julianna O'Donoghue | Undiagnostic Early Bronze Age and Iron Age activity and possible Bronze Age house | 580655/609398 to 580577/609219 | 130 |
| Gortnahown 2 | E2426 | Julianna O'Donoghue | Prehistoric features, early medieval bell manufacturing and undefended late medieval settlement | 580806/609646 to 580961/609829 | 120 |
| Gortnahown 3 | E2477 | Julianna O'Donoghue | Late prehistoric hearths | 581102/609786 | 135 |
| Gortore 1b | E2410 | Julianna O'Donoghue | Early prehistoric settlement (Mesolithic and Neolithic) | 581711/601556 to 581612/601655 | 33 |
| Kildrum 1 | E3971 | John Tierney | Early Bronze Age *fulacht fiadh* | 583798/613406 | 110 |
| Kilshanny 1 | E2430 | James Lyttleton | Late prehistoric (enclosed?) settlement | 583045/612442 to 583124/612605 | 91 |
| Kilshanny 2 | E2431 | James Lyttleton | Pit group (Late Bronze Age/ modern?) | 583304/612896 | 92 |
| Kilshanny 3 | E2432 | James Lyttleton | Late Bronze Age *fulacht fiadh* | 583372/613066 | 94 |
| **Sites excavated by The Archaeology Company** | | | | | |
| Ballynacarriga 4 | E3764 | John Purcell | Undated pit group and early modern furrows | 581507/602840 | c. 53 |
| Gortnahown 5 | E4015 | Stuart Elder | Two undated *fulachtaí fia* | 581212/610050 | c. 18 |
| Site locations—Barony of Condons and Clongibbon: civil parish of Kilkrumper (Ballinglanna North 1–6 and Ballynacarriga 2–3); civil parish of Brigown (Ballynamona 1–2, Garryleagh 1, Glenatlucky 1, Kildrum 1, and Kilshanny 1–3); civil parish of Kilphelan (Caherdrinny 2–3); civil parish of Glanworth (Gortnahown 1–3); Barony of Fermoy: civil parish of Kilcrumper (Gortore 1b, 2) | | | | | |


*Illus. 2.1—Test trenches and excavation areas along the southern end of the M8 Fermoy–Mitchelstown motorway in 2006–07, sequenced from south to north (A-B-C) (background imagery: ESRI World Imagery basemaps).*


*Illus. 2.2—Test trenches and excavation areas along the middle part of the motorway route, south-east of Mitchelstown (background imagery: ESRI World Imagery basemaps).*


*Illus. 2.3—Test trenches and excavation areas along the northern-eastern end of the motorway route. (background imagery: ESRI World Imagery basemaps).*

## 2.1 Ballinglanna North 1—Mesolithic and Early Bronze Age stone tools, Iron Age *fulacht fiadh*, early medieval bloomsmithing and early modern building

*Jacinta Kiely, John Tierney and Nick Garland*

Resource-rich areas tend to attract human attention time and time again, over the millennia. Our first site, at Ballinglanna North 1 (Illus. 1.1.1), was located at the base of a steep slope, on the western bank of the Glencorra Stream (Illus. 2.1; Illus. 2.1.1). Excavation indicated periodic use of the site since the eighth millennium BC.


*Illus. 2.1.1—An elevated view of the multi-period site of Ballinglanna North 1 nestled in the flood plain of the Glencorra Stream, looking south-west (main photo by Hawkeye; inset of Glencorra Bridge by John Sunderland).*

### Prehistoric stone tools

The earliest human presence on the site is indicated by an assemblage of small stone finds of prehistoric date, found during excavation. A flint blade (Illus. 2.1.2) of Early Mesolithic date (c. 8000–7000 BC) and six Early Bronze Age flints were found in the topsoil. The Early Bronze Age flints comprised three retouched artefacts, at least one of which was a possible micro disc scraper (Illus. 2.1.2), and three pieces of debitage. No contemporary features were noted. Those who left the stone tools behind were likely to have been exploiting the Glencorra Stream. In time, the stream would attract others.

## Iron Age *fulacht fiadh*

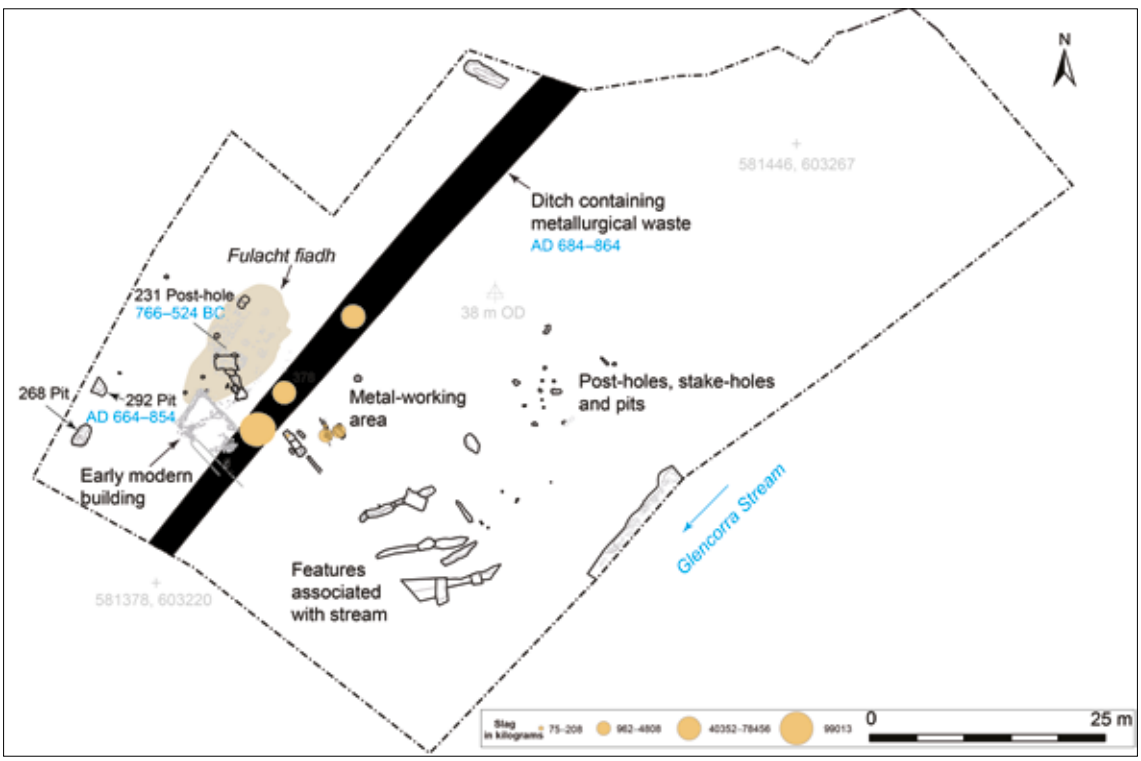

*Illus. 2.1.2—Ballinglanna North 1: residual Early Mesolithic blade (left) and Early Bronze Age micro disc scraper (right).*

The first less transient use of the site came in the form of a *fulacht fiadh*. These much-excavated monuments were used throughout Ireland in the later prehistoric period. They continue to illicit much academic debate about their precise function: heating water was a recurring activity in the vast majority of excavated examples and it now seems likely that these sites were put to a range of different uses including, for example, cooking, cleansing, textile processing and perhaps even brewing. The example at Ballinglanna North 1 comprised a mound of heat-shattered stone, located a short distance west of the Glencorra Stream (Illus. 2.1.3). The mound overlay an earth-cut trough, gully and well (Illus. 2.1.4). The trough was rectangular in plan with a flat base and it had some stone lining still evident (see Table 3.2.1). The south-east corner of the trough was connected, via a gully-like trench, to a well at the south—a possible water-management system? The trough, gully and well were cut by three pits (187, 191 and 219, all possible secondary troughs). A series of six post-holes, five stake-holes and three pits were also sealed by the burnt mound. Three of the post-holes cut the corners of the main trough and most likely these once supported some kind of timber lining. A sample of charcoal (willow/poplar) from one of the post-holes (231) was radiocarbon dated to 766–524 BC (UBA-12969), an Early Iron Age date. This date is interesting as it lies within a period of steady decline in the use of *fulachtaí fia* in Ireland, which coincided with the arrival of the first wave of continental Celtic influences into the country.

## Early medieval iron-working

While no other remains relating to the Iron Age period survived at the site, tell-tale evidence of an early medieval, highly specialised bloomsmithing operation was found. Although none of the excavated features could be diagnostically shown to form structures used in metal-working, a significant quantity of iron-working waste was, nonetheless, uncovered. The presence of such waste suggests that the primary smithing operations were undertaken just outside of the area excavated. A large ditch (Illus. 2.1.1; Illus. 2.1.3) was unearthed, running broadly parallel to (and 35 m west of) the Glencorra Stream. It was from this ditch that 90% of the iron-working residues were recovered; the remainder was recovered from a group of nearby pits (Illus. 2.1.3). The exposed length of ditch (c. 60 m long by 1.5 m wide by 0.55–1.4 m deep) was deepest at the northern end and shallower to the south, thus following the natural topography of the stream valley. The ditch contained eight distinct phases of backfilling: these involved episodes of silting at the base, over which lay deposits

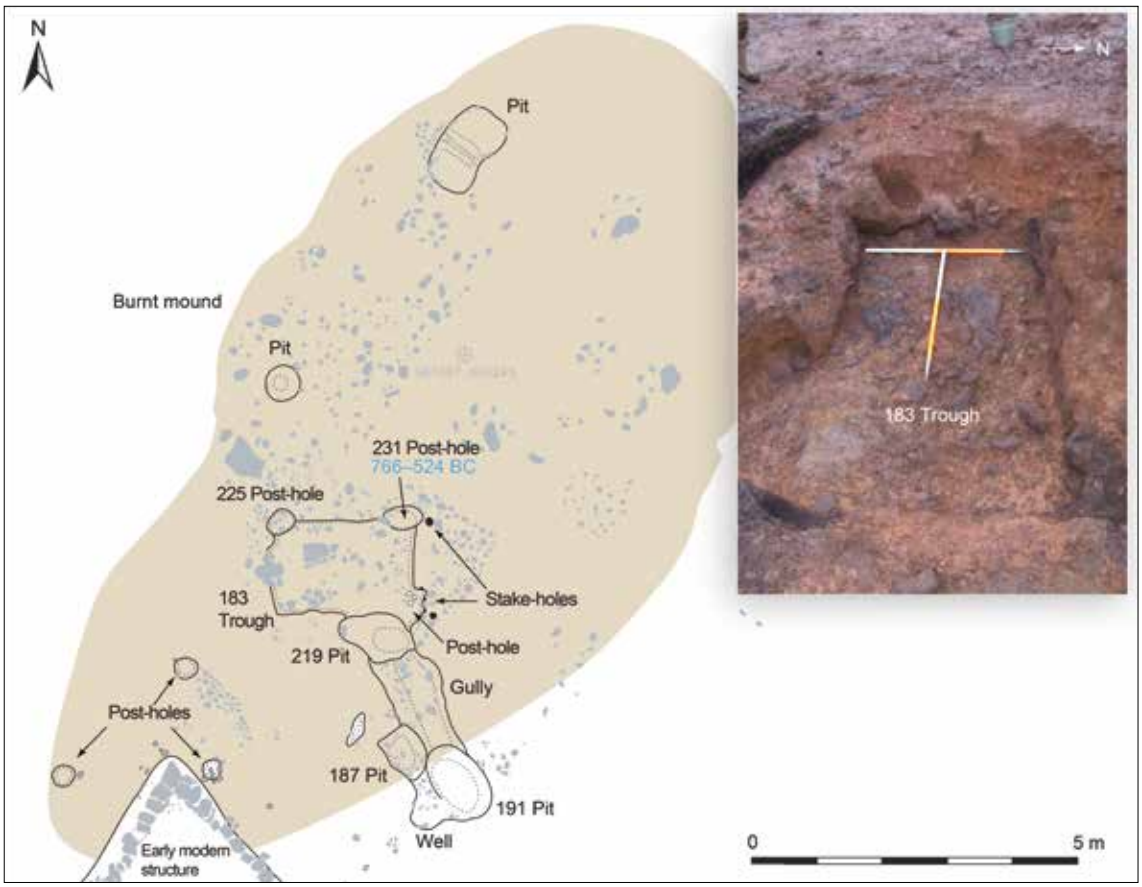
of primary metal-working residues punctuated by further layers of silt, followed by secondary layers of metal-working residues. (The amount of metal-working residues in these secondary layers was considerably smaller than in the primary layers.) A sample of charcoal (hazel/alder) from one of the primary metal-working layers was dated to AD 684–864 (UBA-12968). The silt deposits may have accumulated during a period of relative inactivity or during periodic flooding by the stream. The ditch was finally sealed by a sequence of colluvium deposits, washed down from the steep valley slopes to the west. A small assemblage of calcined animal bones, comprising sheep/goat, cattle and ('probably domestic') goose, was recovered from the primary metal-working layers and an iron wedge tool (E2414:222:1) was recovered from the secondary metal-working layer.




*Illus. 2.1.3—Ballinglanna North 1: Iron Age* fulacht fiadh*, early medieval iron-working and the foundations of an early modern building.*

Other features included five pits, forming an iron-working area. These pits were clustered within 6 m of one another, between the ditch and the current course of the Glencorra Stream. This iron-working area (Illus. 2.1.3) contained charcoal, iron nails, iron slag and an iron knife blade (E2414:214:3). Two large storage pits (268 and 292) were located in the western corner of the site. A sample of hazelnut shell from one of the pits (292) was dated to AD 664–854 (UBA-12970). Iron slag and some cereal grains (oats, rye and barley) were recovered from the second pit (268). A concentration of features—11 post-holes, 14 stake-holes, two pits and nine irregular cuts—was located on the eastern side of the ditch and these features may also be associated with this early

medieval phase. Flecks of burnt bone and charcoal were recorded in the fills of many of these features and small quantities of plant remains, including hazelnut shell fragments, oats and barley, were recovered.




*Illus. 2.1.4—Ballinglanna North 1: plan of Iron Age* fulacht fiadh*, with post-excavation view of trough (inset).*

An assessment of the iron-working waste by Young (Chapter 3.11) considers the assemblage to be unusual in many respects. The site provides a unique insight into iron production on a large scale in early medieval times. The iron waste residues, which were dominated by 64 smithing hearth cakes, are almost entirely from smithing. In addition, the size of the smithing hearth cakes—being unusually large in comparison to other contemporary assemblages—suggests to Young that primary-bloom iron smithing, rather than end-use blacksmithing, was undertaken at the site. Significantly, Young is of the opinion that the large ditch may once have serviced a water-powered hammer. While no evidence of early medieval water-powered bloomsmithing has been found in Ireland to date, the technology was available in contemporary mills: a horizontal-wheeled mill (RMP Ref. CO027-108) is located on the northern side of the Glencorra Stream, 100 m south of Ballinglanna North 1 (Power et al. 2000, 473). These early Irish mills were built in the period between the early

seventh and late 10th centuries (Rynne 1989, 110–4) and the early medieval dates from the iron-working activity at Ballinglanna North 1 fall comfortably within this range.

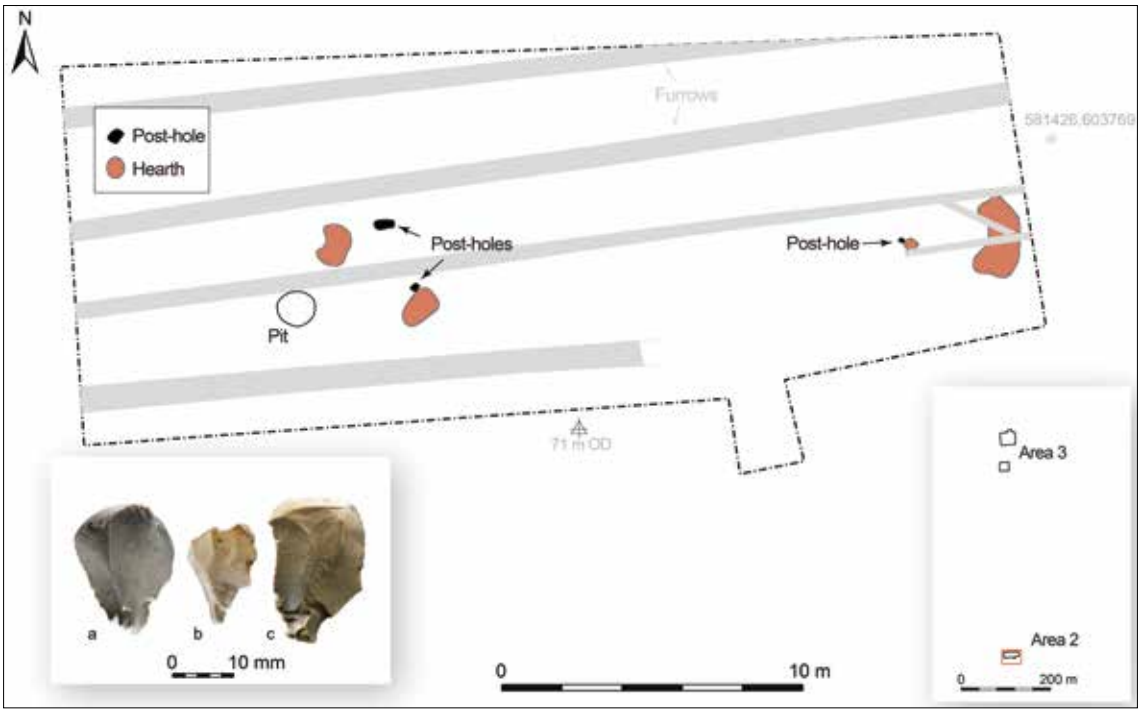
### Early modern building

The excavation also revealed foundation remnants of a rectangular, stone building (c. 8 m NW–SE by 5 m wide) in the south-west corner of the site (Illus. 2.1.1). The building contained early modern pottery—comprising sherds of jugs, plates and cups of glazed red earthenware, decorated slipware, transfer print ware, creamware and stoneware—as well as some glass, iron nails and clay pipes. The building lies adjacent to the late 19th-century Glencorra Bridge that services the road from Kilworth to Glanworth. It is possible that the excavated building acted as a workers' cottage during the construction of the bridge, or, perhaps more likely, may simply have been a tenant's/cottier's dwelling.

## 2.2 Ballinglanna North 2—Pits of possible Chalcolithic and early medieval date

*John Tierney and Jacinta Kiely*

Not all sites are easily interpreted and Ballinglanna North 2 is a case in point. Located on a slight east-facing slope, overlooking the steep-sided valley of the Glencorra Stream, the site (comprising




*Illus. 2.2.1—Ballinglanna North 2: plan of Area 2, with chipped stone of possible Chalcolithic date from topsoil (inset): a) split pebble (E2415:1:2); b) debitage (E2415:1:3); and c) flake (E2415:1:1) (inset by John Sunderland).*

Areas 1–3; Illus. 2.1; Illus. 2.2.1) contained dispersed groups of archaeological features, mostly undated. No archaeology was found in Area 1.

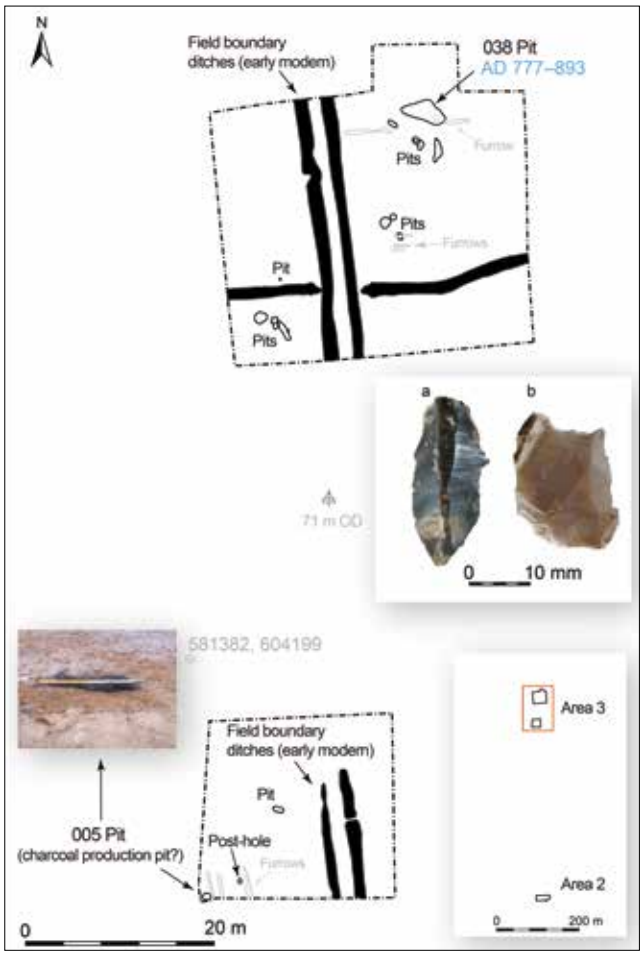
## Chipped stones, hearths and other dispersed features

Excavations at Area 2 revealed two hearths, a pit, two post-holes and a stake-hole located 15 m west of a second concentration of archaeological features (two hearths and one post-hole). The dispersed features were shallow and represent the remains of outdoor activity of uncertain date.

Three chipped stones—a split pebble, a piece of debitage and a flake (Illus. 2.2.1 [a–c])—were recovered from the topsoil in Area 2. Dating these stones proved difficult, but the use of bipolar technology may indicate that they are Chalcolithic.

## Early medieval activity

A dispersed group of 18 pits and two post-holes of uncertain date were recorded in Area 3 (Illus. 2.2.2). One of the pits had abundant charcoal and may have been a charcoal-production pit. A sample of charcoal (hazel/alder) from another pit was dated to AD 777–893 (UBA-12971). Two residual flints of possible Chalcolithic date were also recovered from Area 3.




*Illus. 2.2.2—Ballinglanna North 2: dispersed pit groups in Area 3, with residual flints of likely Chalcolithic date (inset): a) blade (E2415:29:1) and b) flake (E2415:1:4).*

## 2.3 Ballinglanna North 3—Neolithic settlement, Early Bronze Age *fulachtaí fia* and Iron Age building

*Penny Johnston and John Tierney*

Excavation at Ballinglanna North 3 (Illus. 1.1.1; Illus. 2.1) revealed yet further evidence of the importance of the Glencorra Stream valley since early prehistoric times; in particular, it provided evidence for the spread of farming communities deep into north County Cork during the early fourth millennium BC.

The site (Illus. 2.3.1) overlooks a steep gorge cut by the Glencorra Stream. The remains of two Early Neolithic rectangular houses (Buildings 1 and 2; Illus. 2.3.2–3) were recorded, as were outlying features associated with Early Neolithic occupation. This site was a domestic settlement, from which fragmentary remains of Early Neolithic carinated bowls—representing at least 36 separate vessels—were recovered. Small quantities of emmer wheat, including some emmer chaff (a by-product of crop processing), were found in association with Buildings 1 and 2 (including from some post-holes external to Building 1). Two grains of barley were also found in the vicinity of Building 2. The houses were located on the south- and north-facing sides of a broad depression, which would have acted as a conduit for surface water during wet weather. Other features exposed were two Early Bronze Age *fulachtaí fia* and a possible post-frame building of Iron Age date (Building 3).

## Building 1: Early Neolithic house and associated features

Building 1 measured c. 9.1 m east–west by 6 m. It survived only as a foundation trench, which would once have held end-set planks and posts. The outline of the building was generally rectangular but curved in a slight arc at the western end (Illus. 2.3.3).

Five post-holes were recorded along the line of the foundation trenches. Some of these were set deeply (up to 0.76 m) into the subsoil and they were evidently for load-bearing posts, probably to support a heavy thatch roof (Illus. 2.3.4). Some of the load was also borne by two large internal post-holes. These posts probably acted as roof supports but they may also indicate the position of an internal division within the building, forming two rooms. The entrance to Building 1 was via a gap 1.2 m wide in the centre of the southern wall.

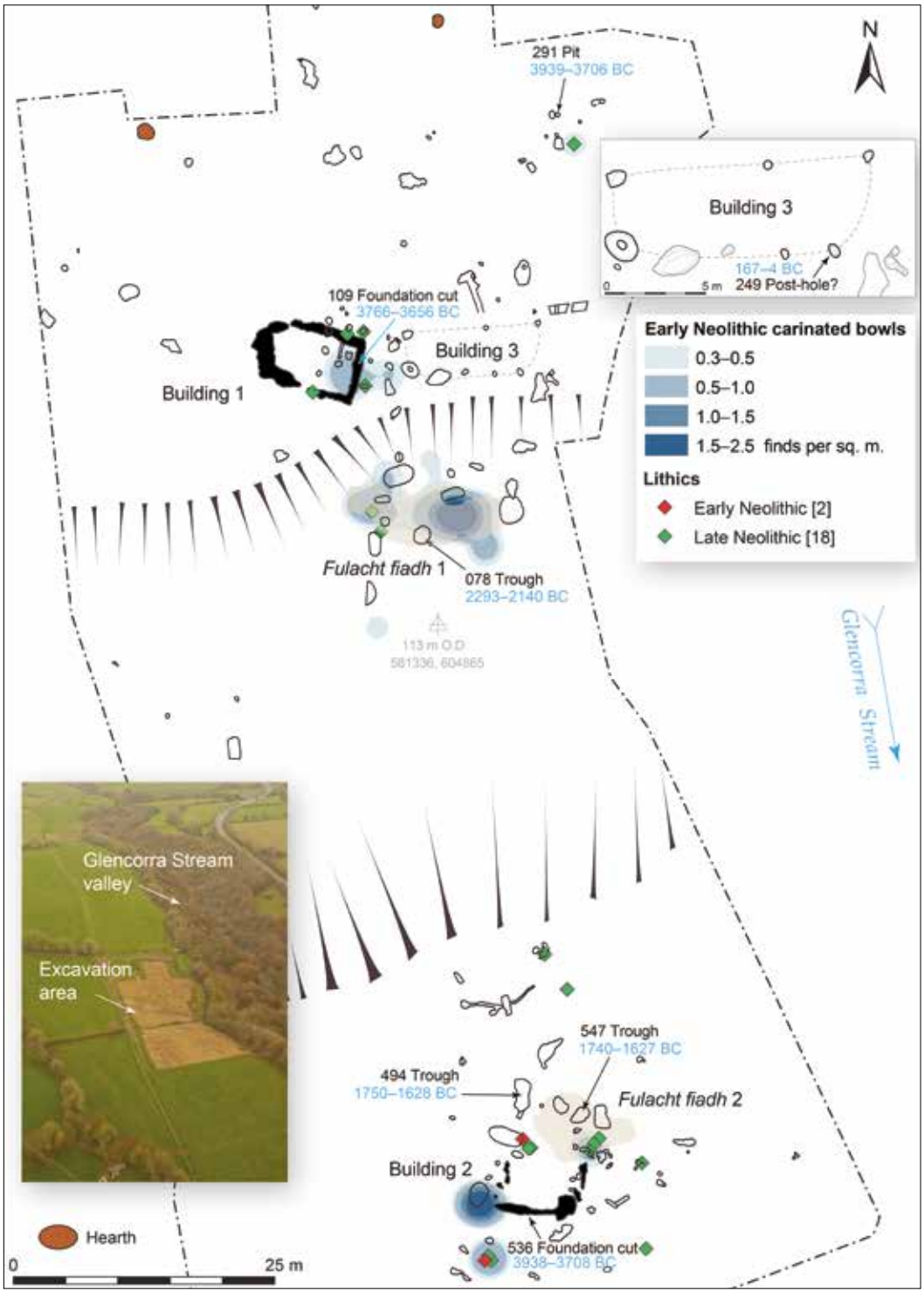
There were five post-holes located immediately outside the north and eastern walls of the house. These suggest that the roof extended beyond the foundation trench and that it was supported by external posts. This design echoes an example at Tankardstown South (Grogan 1988, 42), where the roof ridge pole probably extended beyond the house walls at the gable end, providing shelter for an exposed wall.

Pottery, representing at least 15 Early Neolithic carinated bowls, was recovered from Building 1 (Chapter 3.9). The ceramic evidence corresponds to the Early Neolithic radiocarbon date of 3766–3656 BC (UBA-10499) obtained from a sample of hazelnut shell from the eastern foundation trench of the building.

## Building 2: rectangular house?

Building 2 was characterised by a foundation trench, although only the southern part of this survived since the northern portion of the building was truncated by later agriculture and potentially, though not demonstrably, by activity associated with an Early Bronze Age *fulacht fiadh* (Illus. 2.3.1). The dimensions of the east–west aligned building were 7.5 m in length by 6 m (Illus. 2.3.3). No internal features were noted, apart from two pits flanking the eastern wall.

Sherds of Early Neolithic carinated bowls were found in various deposits associated with Building 2, including the foundation trench for the southern wall. Sherds from at least three vessels were represented, two of which had traces of carbonised residues on the internal and external surfaces. (Further, residual, Early Neolithic carinated bowl sherds were recovered from the adjacent




*Illus. 2.3.1—Ballinglanna North 3: Early Neolithic settlement (Buildings 1 and 2), two Early Bronze Age* fulachtaí fia *and possible building of Iron Age date.*


*Illus. 2.3.2—Ballinglanna North 3: looking south across the site, with the foundation cut of an Early Neolithic house (Building 1) visible in the foreground (John Sunderland).*

Bronze Age *fulacht fiadh*.) These bowls would have been used domestically, e.g. for cooking and food storage. The evidence from the pottery corresponds well with the Early Neolithic radiocarbon date of 3938–3708 BC (UBA-13145) obtained from a sample of charcoal (hazel) from the foundation trench.

## Domestic activity in the north and north-east of the site

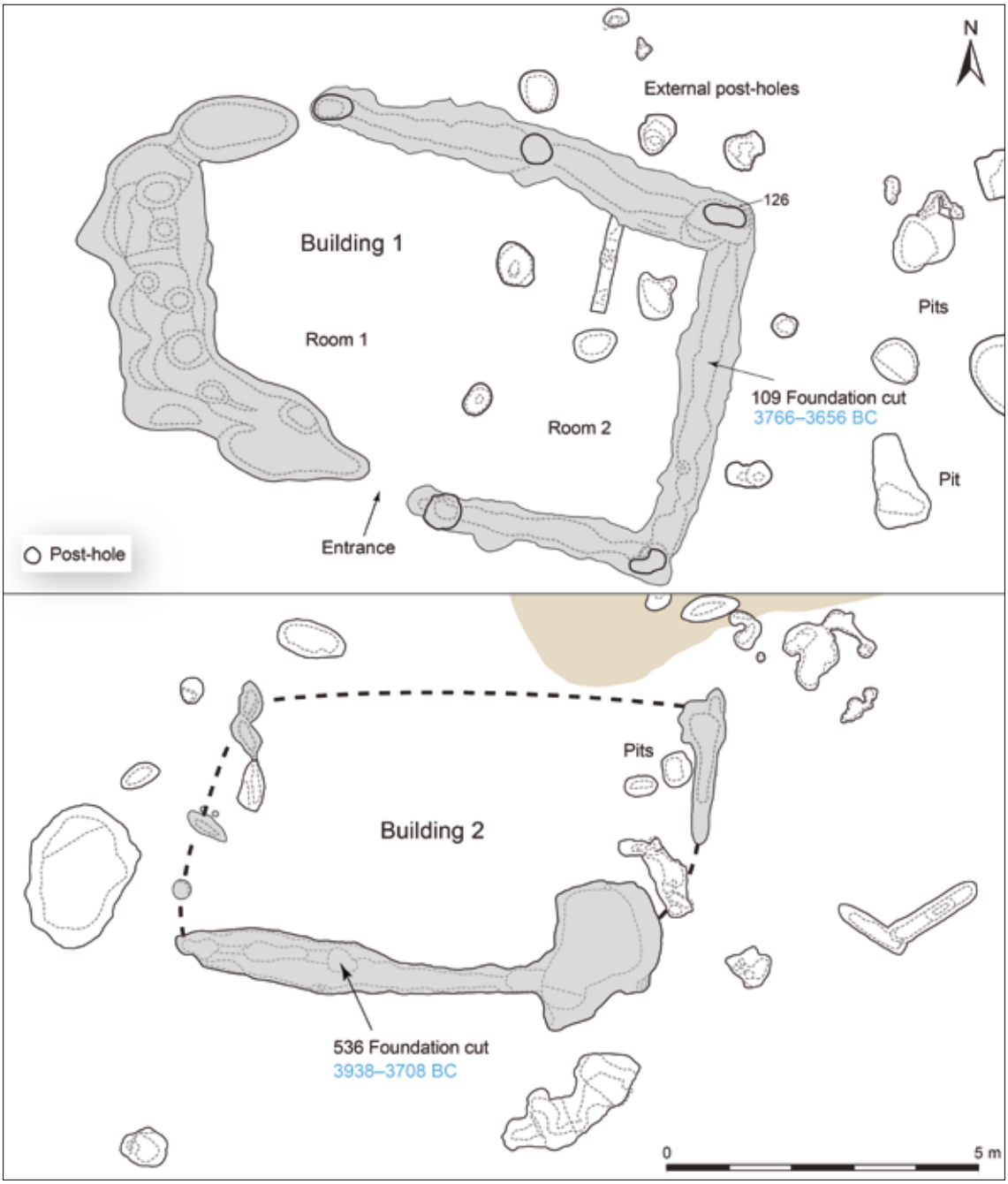
Nine pits and five post-holes were dispersed c. 20 m to the north and east of Building 1 (Illus. 2.3.1). The features varied in shape and size. Early Neolithic pottery and an Early Neolithic date of 3939–3706 BC (UBA-13146; from hazel charcoal) were recovered from the pits. Thus, the evidence suggests that these pits were broadly contemporary with the occupation of both Building 1 and Building 2. Two hearths excavated to the north of Building 1 may also represent the remains of outdoor activity associated with the Early Neolithic house.

## Two *fulachtaí fia* of Early Bronze Age date

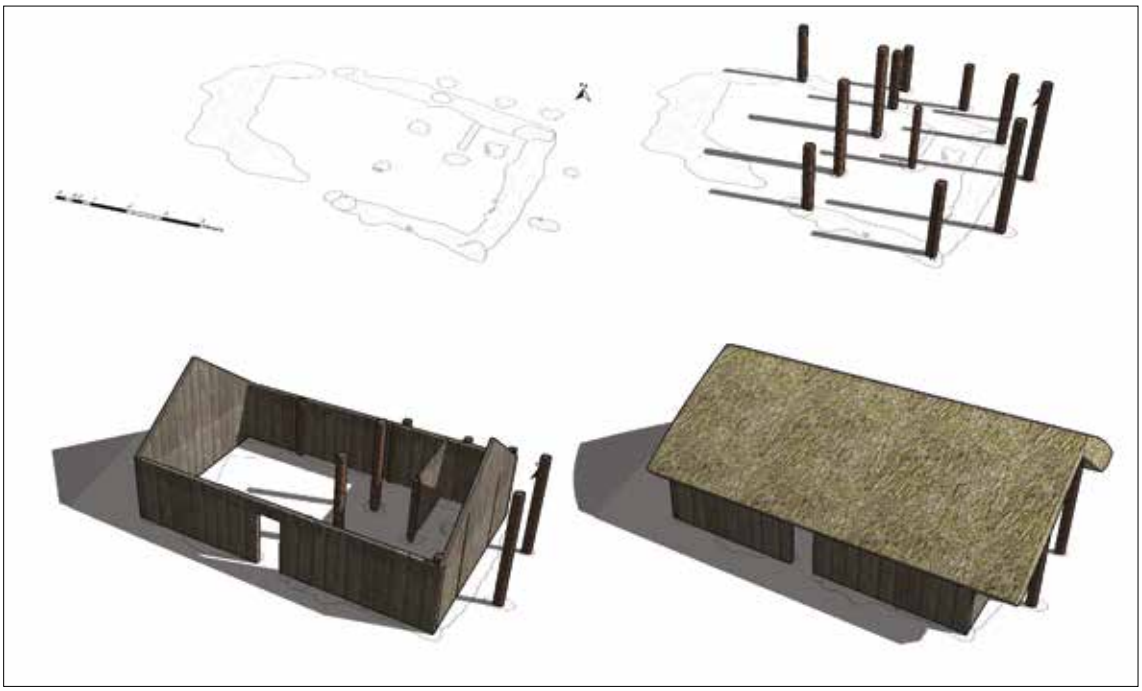
### *Fulacht fiadh* 1

The mound of heat-shattered stone associated with *Fulacht fiadh* 1 covered an area of approximately 43 $m^2$ (Illus. 2.3.5) and it was made up of irregular layers. (A layer of colluvium, containing residual

sherds of Early Neolithic pottery, had, over time, washed downslope from the Early Neolithic settlement and become incorporated into the burnt mound deposits.) Three troughs (015, 022 and 078; Table 3.2.1) were associated with the burnt mound. The earliest trough (022) was re-cut by Trough 015. A sample of charcoal (oak) from the fill of Trough 078 was dated to 2293–2140 BC




*Illus. 2.3.3—Ballinglanna North 3: Early Neolithic houses (Buildings 1 and 2).*



*Illus. 2.3.4—Ballinglanna North 3: digital reconstruction of Early Neolithic house (Building 1) (Eachtra Archaeological Projects).*

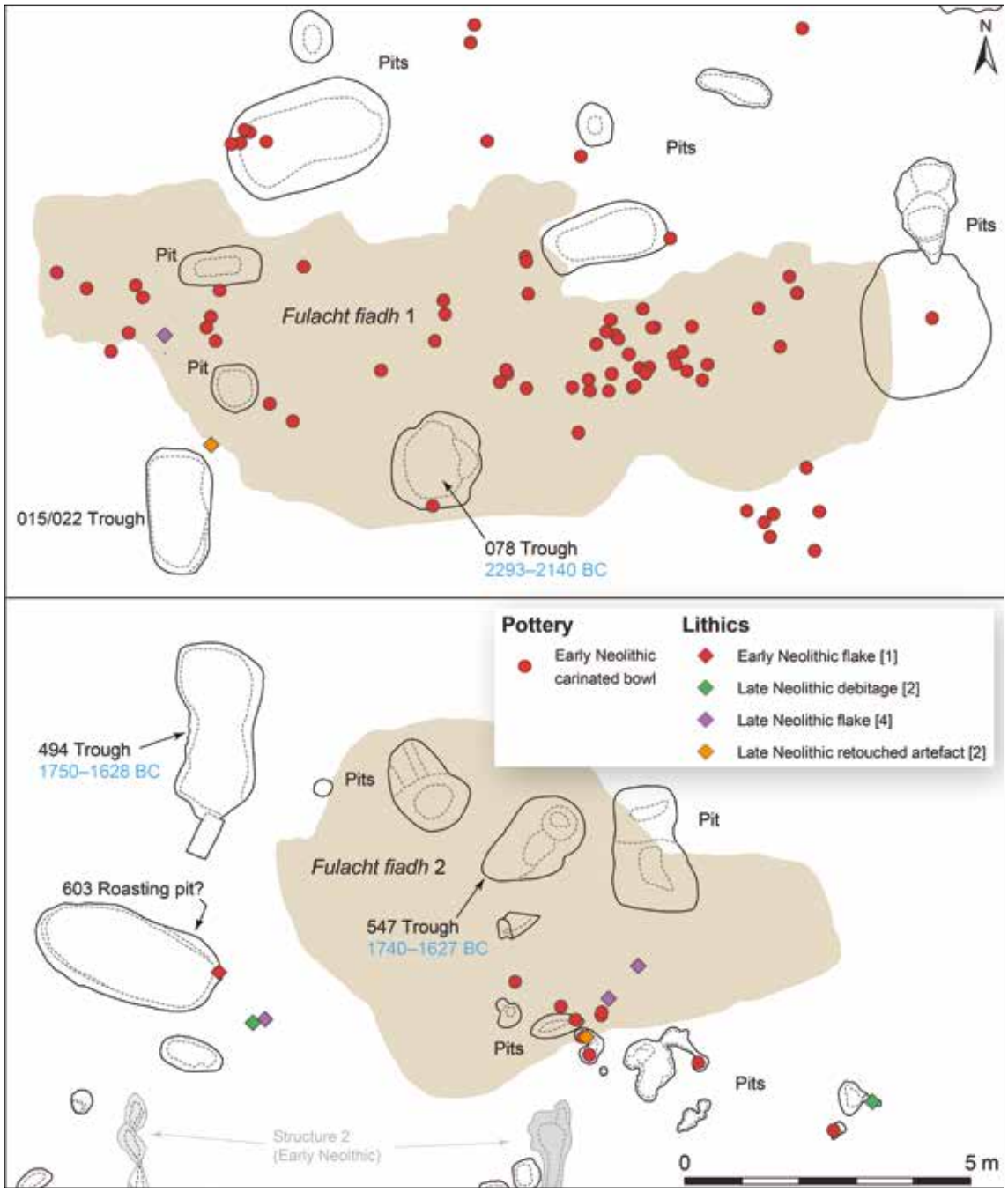
(UBA-13147). Two other pits were found beneath the burnt mound and seven to the north of the mound.

### *Fulacht fiadh* 2

Located 54 m to the north of *Fulacht fiadh* 1 (Illus. 2.3.1), the burnt mound from this site measured 9.8 m by 6.5 m by 0.18 m deep and covered an area of 40 $m^2$ (Illus. 2.3.5). The mound of heat-shattered stone was associated with two troughs (494 and 547; Table 3.2.1). A sample of charcoal (hazel) from Trough 494 was dated to 1750–1628 BC (UBA-13148), an Early Bronze Age date. A sample of charcoal (alder) from the second trough (547) was radiobarbon dated to 1740–1627 BC (UBA-13149). Six pits were found beneath the burnt mound and another six pits were found immediately nearby, including one (603) interpreted as a roasting pit.

## Iron Age building (animal pen?)

A group of six, irregularly spaced post-holes formed the remains of a possible building (Building 3; Illus. 2.3.1), to the immediate east of Building 1, the Early Neolithic house. This smaller building was sub-rectangular in plan (11.6 m east–west by 3.5 m). A sample of charcoal (hazel) from one of the post-holes was dated to 167–4 BC (UBA-13150). This was a relatively insubstantial building and may have been used as a shelter for animals or storage. It is nonetheless an important discovery, contemporary with established, iron-using, communities across Ireland.




*Illus. 2.3.5—Ballinglanna North 3: two Early Bronze Age* fulachtaí fia, *with distribution of residual Neolithic finds from layer of slope-washed 'colluvial' soil.*

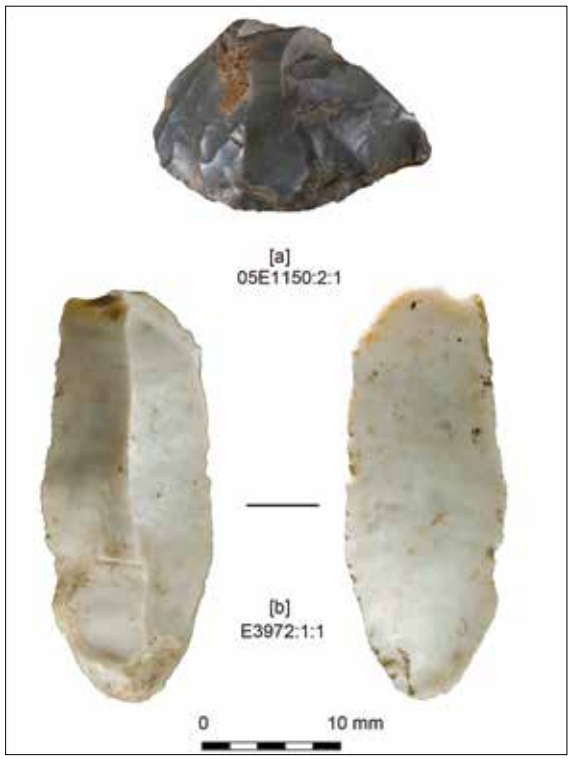
## 2.4 Ballinglanna North 4—Iron Age pit

*Jacinta Kiely and John Tierney*

Occasionally isolated features are uncovered about which little can be inferred. Ballinglanna North 4 (Illus. 2.1) was one such site, where a single pit (1.03 m by 0.74 m by 0.33 m deep) was recorded. A sample of charcoal (hazel/alder) from the otherwise sterile fill was dated to 167 BC–AD 2 (UBA-12972), contemporary with the date obtained from Building 3 at nearby Ballinglanna North 3. The four excavation areas forming Ballinglanna North 4 also contained evidence of an early modern field system, surviving as truncated ditch remnants.

## 2.5 Ballinglanna North 5—Chalcolithic pits and other features

*John Tierney and Penny Johnston*




*Illus. 2.5.1—Stone tools: (a) Flint scraper from Ballinglanna North 5 and (b) Early Mesolithic flint blade from Ballinglanna North 6.*

At Ballinglanna North 5 (Illus. 2.1), two isolated large pits were recorded c. 200 m apart, in two separate excavation areas. A flint micro disc scraper (Illus. 2.5.1[a]) was recovered from the southernmost pit and a sample of charcoal (hazel) from the northernmost pit was dated to 2432–2150 BC (UBA-13151). A third, central excavation area contained no archaeological features.

## 2.6 Ballinglanna North 6—Early Mesolithic blade, possible Neolithic quern-stone and Early Bronze Age *fulacht fiadh*

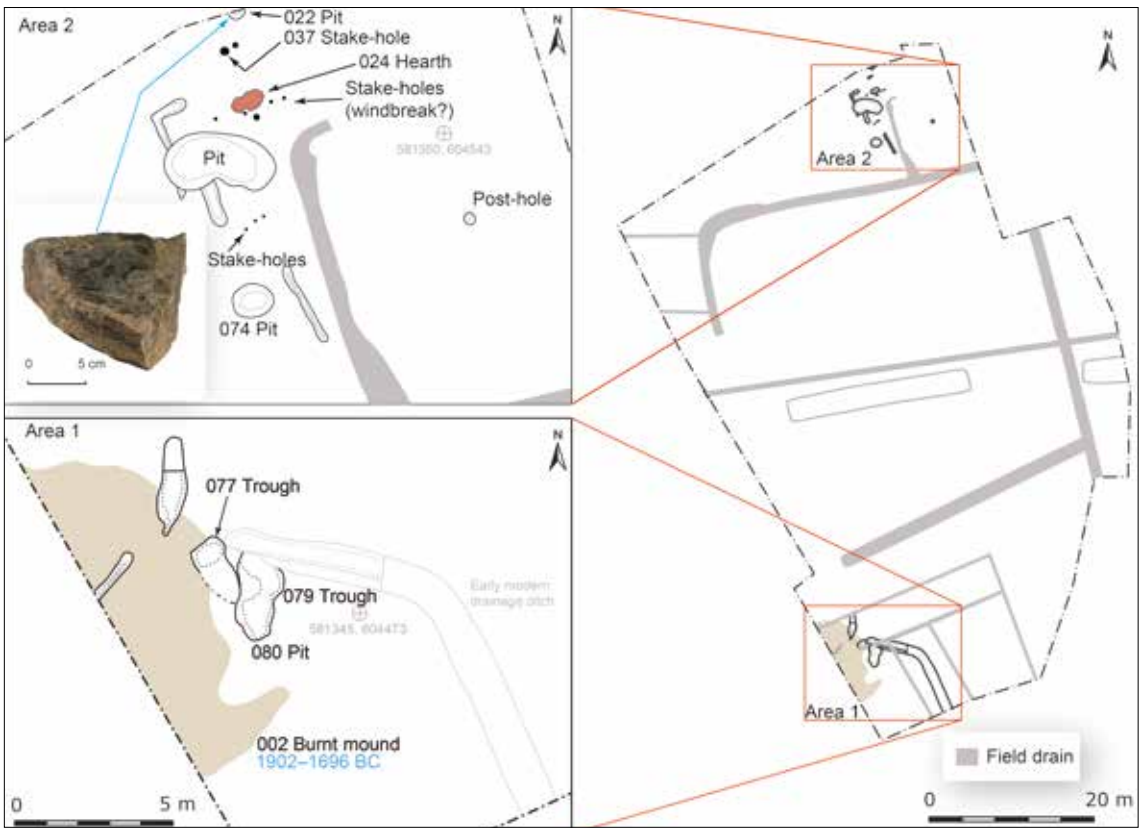
*Linda Hegarty and Penny Johnston*

Ballinglanna North 6 was located on an elevated site to the west of the Glencorra Stream (Illus. 2.1). Consistent with other sites in the same townland, it revealed archaeological evidence from multiple prehistoric periods.

### Early Mesolithic flint blade

As with Ballinglanna North 1, this site also contained residual evidence of Early Mesolithic (c. 8000–7000 BC) activity flanking the Glencorra Stream valley. Here, a solitary Early Mesolithic flint

blade (Illus. 2.5.1[b]) was recovered when cleaning topsoil from the site. This tool would have been used for a variety of purposes, such as preparing food, shaping wooden tools and cutting hides, in what was at that time a nomadic hunter-gatherer society.




*Illus. 2.6.1—Ballinglanna North 6: details of possible Neolithic features in Area 2 and an Early Bronze Age* fulacht fiadh *(comprising a burnt mound and associated troughs) in Area 1.*

## Neolithic features?

A cluster of features at the northern end of the site (Area 2; Illus. 2.6.1) comprised a hearth (024) and associated windbreak located downslope, three pits (022, 032 and 074) and associated stake-holes and three linear cuts. The hearth (024) was located in a shallow hollow and adjacent to scorched subsoil. The hearth fill contained small quantities of plant remains, including hazelnut shells, oats and barley grains and chaff. A mixed sample of grain from the hearth was, however, dated to AD 1666–1952 (UBA-13230), suggesting either possible modern contamination or that the hearth is of post-medieval/early modern date. A heat-affected metalled surface partly overlay the hearth and continued for a short distance to its west and also south towards the windbreak. A flint flake (E3972:21:2) and a roughed-out fragment of a quern-stone (E3972:21:1; Illus. 2.6.1) were recovered from Pit 022. The quern-stone, which seemed stained (possibly with ochre), appears to have broken before it was ever used. One of the pits (074) underlay a second possible hearth (not

illustrated). Dating these features is problematical: the quern-stone is considered to be of possible Neolithic date, however, the presence of iron nail fragments in the fill of one of the stake-holes (037) and the late date (and oats) recovered from the hearth may indicate the site is a post-medieval/early modern habitation site, with perhaps only Pit 022 being of possible Neolithic date.

### Early Bronze Age *fulacht fiadh*

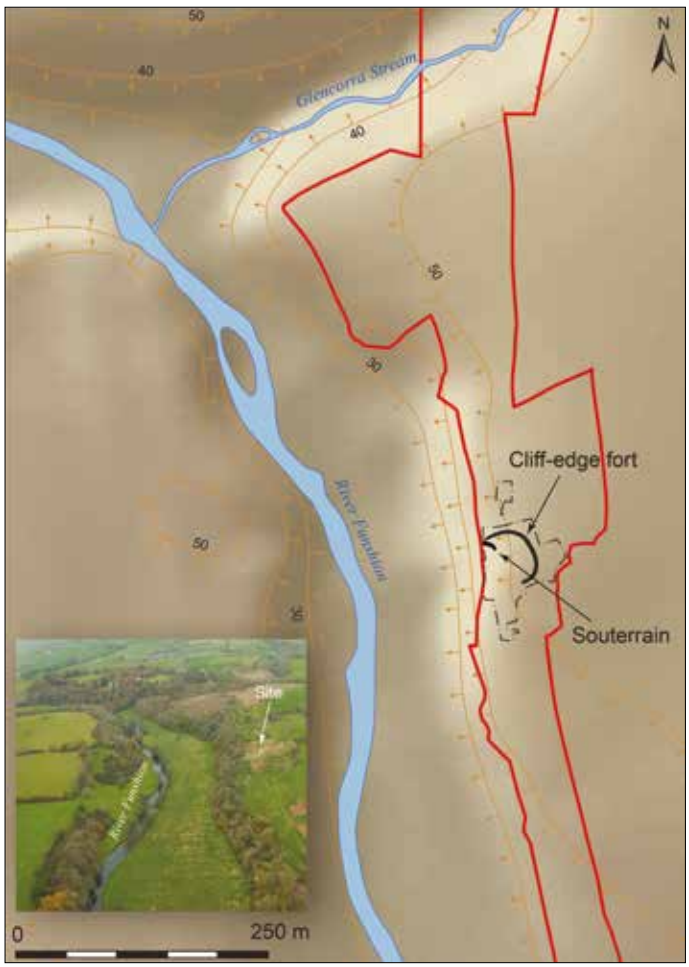
A *fulacht fiadh* was only partly excavated, since it extended westwards beyond the limit of the road corridor. The exposed portion of the associated mound of heat-shattered stone (Illus. 2.6.1) measured 11.2 m by 4.3 m by 0.27 m deep. A sample of charcoal (hazel/alder) from the mound was dated to 1902–1696 BC (UBA-12973). Two troughs (Table 3.2.1) were located by a rising spring. (There was anecdotal evidence from the landowner for a groundwater 'river' flowing through this part of the site during times of heavy rainfall.) The area was disturbed in the modern period by a series of land drains.

## 2.7 Ballynacarriga 2—Neolithic stone tools and early medieval cliff-edge fort

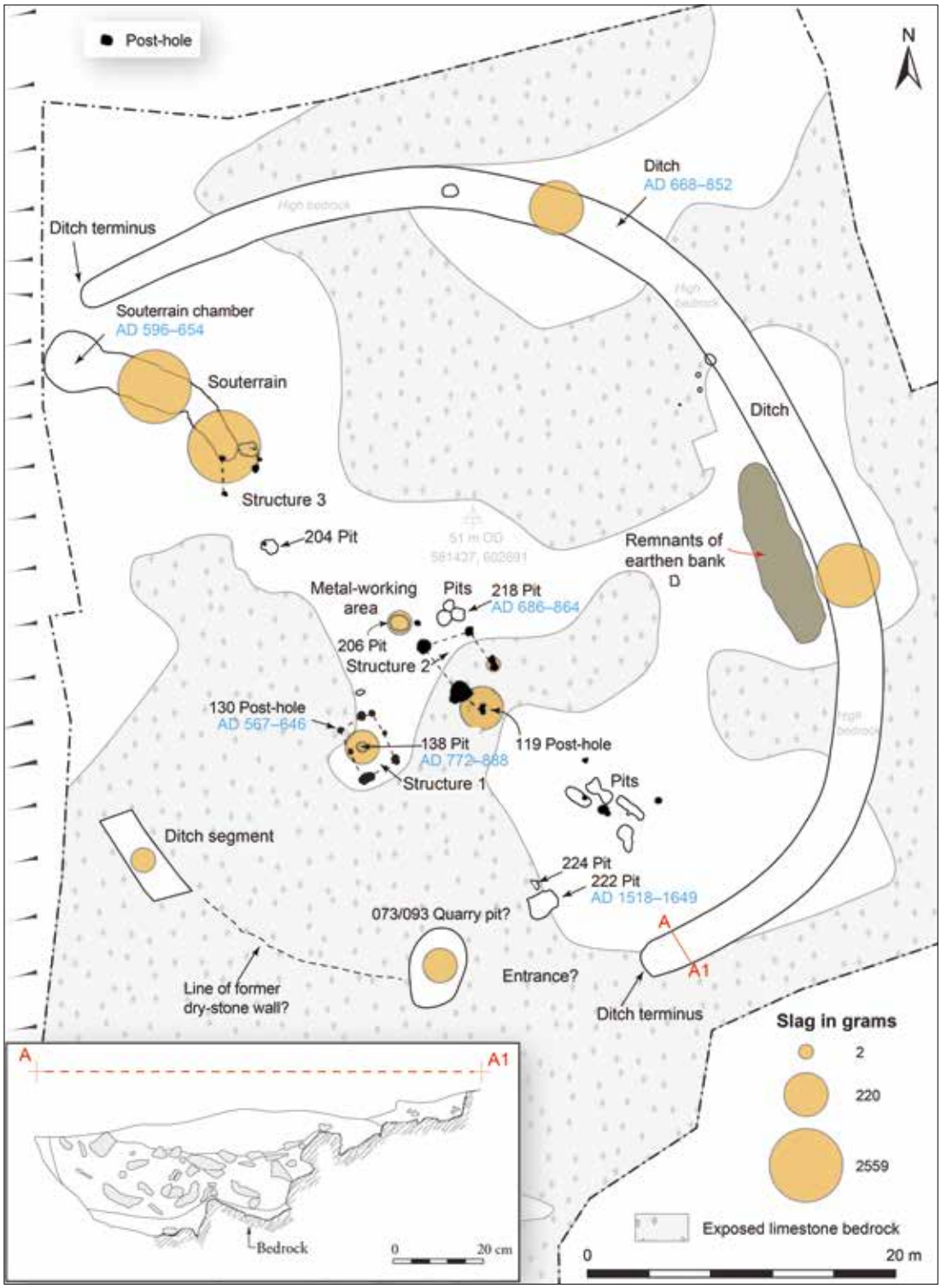
*Jacinta Kiely and John Lehane*

Ringforts were ubiquitous settlement sites in the early medieval period. Cliff-edge forts are a classification of ringfort-like enclosures that were built against steep stream and river ravines, but with no apparent defences along the cliff edge (Power et al. 2000, 364). Clearly, cliff-edge forts must have served a particular purpose—but what exactly?

The example excavated at Ballynacarriga 2 was located near the edge of a limestone scarp, overlooking the River Funshion to the west (Illus. 1.1.1; Illus. 2.1; Illus. 2.7.1). A small collection of stone tools recovered from the site—including a fine example of a hollow scraper (Illus. 3 [2])—suggests that the scarp was occupied in the second half of the




*Illus. 2.7.1—Ballynacarriga 2: location plan of cliff-edge fort overlooking the River Funshion (inset photo by Ken Hanley).*




*Illus. 2.7.2—Ballynacarriga 2: plan of cliff-edge fort with distribution of iron slag residues.*

Neolithic period. The main phase of occupation at the site, however, comprised a cliff-edge fort of early medieval date. Two rectangular structures and a well-built, drystone souterrain were located within the enclosure (Illus. 2.7.2). A small (8.4 kg), but diverse assemblage of archaeometallurgical residues—including slags from both iron smelting and smithing—was recovered from the site, though no confirmed metallurgy-related features (such as furnaces or smithing hearths) were identified.

## Early medieval cliff-edge fort

The enclosure (Illus. 2.7.2) was formed by ditch along its northern and eastern sides. A terminus was recorded at both ends of the ditch, which was broadly U-shaped in profile, with dimensions ranging from 2.6–3.8 m in width by a maximum depth of 1.32 m. The ditch was, however, frequently interrupted by high bedrock. A sample of charred hazelnut shell from the basal fill was dated to AD 668–852 (UBA-10501).

A further, short segment of ditch was noted on the south-western side, in an area dominated by surface bedrock. Here clusters of angular limestone surface rubble suggest that this part of the enclosure was originally formed by a drystone (cashel) wall that collapsed following abandonment. The west-facing side overlooking the scarp had no corresponding defences, which is typical of cliff-edged forts. The remnants (3.2 m wide by just 0.6 m deep) of the base of a possible internal earthen bank were recorded flanking part of the eastern sector of the enclosure ditch (Illus. 2.7.2). Overall, the enclosure encompassed an area of approximately 2000 $m^2$.

Several charcoal-rich deposits were recorded in the southern terminus of the ditch and 60% of the animal bone recovered from the ditch came from here. This sample was dominated by cattle, followed by sheep/goat and pig and included smaller amounts of horse (Chapter 3.7). The plant remains recovered from the ditch all contained relatively small percentages of oats, and larger percentages of wheat and barley. The finds were an iron knife blade (Illus. 2.7.3[e]), a limestone hone (E2413:83:4), a 15th-century iron key (E2413:65:3), iron smelting and smithing slags and fragments of a possible *tuyère* (a clay nozzle for attaching bellows to a furnace).

### Central metal-working area

Two structures and a group of pits, possibly representing a metal-working area, were located in the centre of the enclosure (Illus. 2.7.2; Illus. 2.7.4). Structure 1 was rectangular in plan (3.8 m by 2.9 m) and was represented by seven post-holes. A sample of charcoal (fruitwood) from one of the post-holes (130) was dated to AD 567–646 (UBA-13152). It was not possible to identify an entrance. A single pit, containing small quantities of animal bone (cattle teeth) and iron slag was recorded in the interior of the structure. A sample of charcoal (hazel) from this pit was dated to AD 772–888 (UBA-13155). It is not clear if this structure represented a roofed building/hut or an unroofed pen/screen.

Structure 2 was recorded 4.5 m north-east of Structure 1. It too was rectangular in plan (3.9 m by 2.7 m). The two post-holes on the north-east side were both for double posts, cut into the bedrock. No features were found in the structure interior. Small fragments of slag and animal bone (cattle) were recovered from two of the post-holes. One post-hole (119) contained a possible fragment of a weathered or roasted claystone ore, suggesting the ore used for smelting at the site might not have been bog ore, which is more commonly found on excavated early iron-working sites in County Cork.


*Illus. 2.7.3—Ballynacarriga 2: (a) E2413:1:10, iron buckle from topsoil; (b) E2413:225:2, copper-alloy object (button/part of brooch?) from Pit 224; (c) E2413:291:1, iron buckle from backfill of souterrain passage; (d) E2413:229:1, iron nail from Pit 206; (e) E2413:83:2, iron whittle tang knife blade (Type E) from fill of enclosure ditch; (f)E2413:1:9, copper-alloy object (part of brooch?) from topsoil; and (g) E2413:87:1, iron object (part of a binding?) from fill of recut (093) to possible quarry Pit 073 (John Sunderland).*

Four pits and a post-hole were identified to the immediate north of Structure 2 (Illus. 2.7.2). Metallurgical residues were recovered from two of the pits: burnt clay and fuel-ash slag were recovered from Pit 206, while small fragments of both smelting and smithing slags and a fragment of (possibly roasted) claystone iron ore were recovered from Post-hole 119. A sample of charcoal (hazel) from Pit 218 was dated to AD 686–864 (UBA-13153). A small amount of animal bone was also recovered from two of the pits.

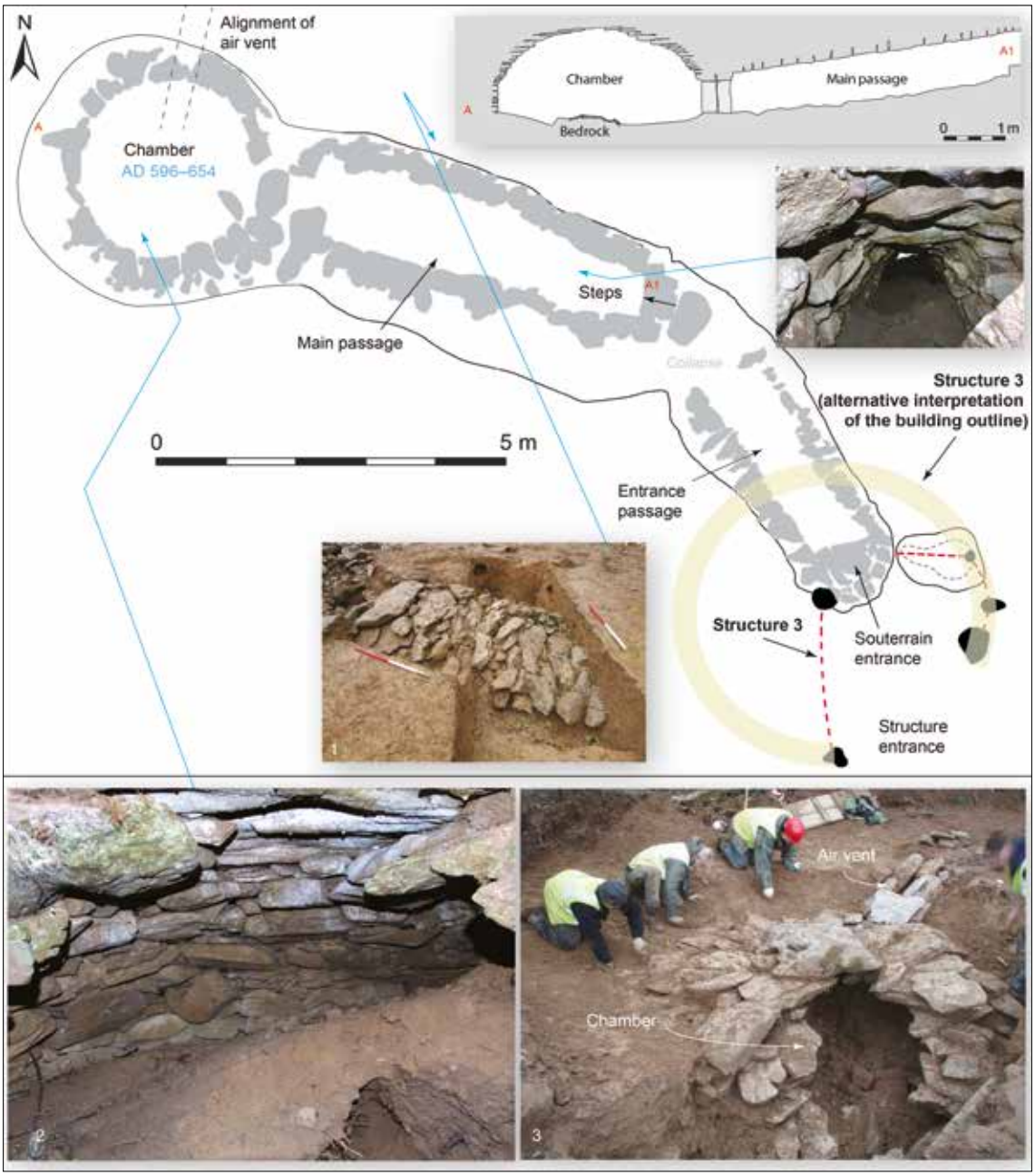
A second group of pits and post-holes was located at the southern end of the site. The group included six pits and four post-holes. A large assemblage of oats was recovered from a nearby pit


*Illus. 2.7.4—Ballynacarriga 2: aerial view of the cliff-edge fort, looking west (Hawkeye).*

(222). As this pit was radiocarbon dated to AD 1518–1649 (UBA-12974), it is not clear if it was contemporary with the pits and post-holes to its north-east.

### Souterrain with concealed entrance

A souterrain was located in the north-west quadrant of the enclosure (Illus. 2.7.2; Illus. 2.7.5–6). This structure was a known monument, recorded on the Record of Monuments and Places (RMP Ref. CO0027-109), but was not known to be associated with a cliff-edge fort. Upon excavation, the souterrain was found to comprise a single circular 'beehive' chamber (2.6 m in diameter by 1.4 m high), a main passage (5.3 m long by 1 m high) and a ramped entrance passage (4.7 m long by 0.8 m wide), these three components representing three stages of construction. Overall, the mode of construction involved a top-down, open cut, which was then lined with stone and backfilled. Drystone walls were built against the side of the entrance and passage trenches and these walls were capped with flagstones, although the flagstones over the entrance did not survive. The stonework in the entrance passage was inferior to that in the main passage and chamber. A drystone wall was built against the side of the chamber pit to a height of 0.6 m (part of the wall was built upon exposed limestone bedrock). Above the wall was a corbelled roof, capped with a single large capstone, thus forming a complete beehive chamber. An air vent (1 m long by 0.5 m wide) exited at c. 45% angle from the upper north-west side of the chamber (Illus. 2.7.5). The sides of the vent were stone lined and it too was stone capped. The earthen floor of the souterrain passages sloped gently downwards from the entranceway towards the chamber and, roughly midway, two stone steps provided access




*Illus. 2.7.5—Ballynacarriga 2: plan of souterrain with entrance passage, main passage and chamber. Pre-excavation images (by John Sunderland) inset, showing (1) main passage with capstones in place, looking south-east; (2) beehive chamber, looking west; (3) exposed chamber with stone-lined air vent leading northwards; and (4) internal view of main passage, looking WNW (blue arrows indicate angle of photograph view).*

from the entrance passage down to the long main passage. The chamber was entered via a low creep from the passage.

Ten layers were recorded in the entrance passage. These were a mixture of sandy silt and clay with inclusions of iron slag, charcoal and animal bone. A bone handle (Illus. 2.7.7) was recovered from one of the upper layers and a rubbing stone (E2413:282:1) was recovered from silt between the entrance wall stones. The main passage floor contained five thin habitation layers that overlay the earthen original floor: one layer continued into the chamber floor. Animal bone, iron slag and a metal buckle (Illus. 2.7.3[d]) were recovered from one of the lower layers in the passage. Five thin layers underlay the collapse debris in the chamber. These layers contained animal bone, iron slag and stone tools (siltstone blade and chert scraper). A sample of charcoal (Pomoideae, a family of fruiting trees) from one of these basal layers was dated to AD 596–654 (UBA-13154)—similarly early date ranges were attributed to two souterrains excavated at Lowpark, Co. Mayo (Gillespie 2010, 249, 260; 2011, 192, 195) and an example excavated at Raystown, Co. Meath (Seaver 2016, 25). The faunal assemblage from the souterrain (487 fragments) was dominated by cattle (28%) and sheep (22%).

Five post-holes and a pit were located immediately south of the entrance to the souterrain. The post-holes may have supported a screen or small hut (measuring 3 m by 2.5 m)—or, alternatively, perhaps even a round-house, measuring approximately 4 m in diameter (Illus. 2.7.5, Structure 3).

It seems the structure was intended to enclose (and presumably hide) the souterrain entrance. Significantly, the entrance to the structure faced south-east, the same direction as both the entrance to the souterrain and to the enclosure itself. This line of sight was facilitated by the gap between Structures 1 and 2 (Illus. 2.7.2).

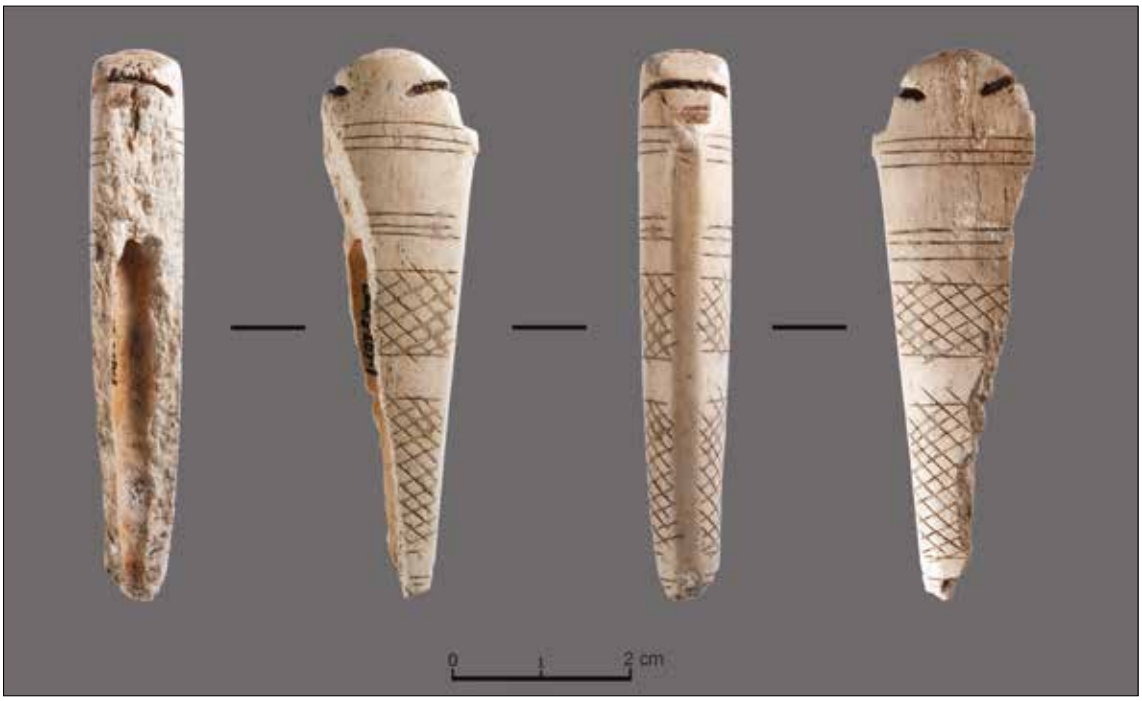
To the south-east of the souterrain entrance was a pit (204), cut by a post-hole. Some animal bone (cow and sheep/goat) and a piece of decorated bone (Illus. 2.7.8) were recovered from the pit.

## Activities at the site

The term 'ringfort' cannot be applied to this enclosure as the ditch circuit was not regular or complete. The enclosure at Ballynacarriga 2 does, however, fit into the classification of cliff-edge forts (Power et al. 2000, 364). The main phase of activity at the site dates to the early medieval period, but the radiocarbon dates form two clusters. Two of the dates—from Structure 1 and from the souterrain chamber—ranged from the mid sixth to the mid seventh century, while the other three dates—from the ditch, a pit to the north of Structure 2 and Structure 2 itself—ranged from the mid seventh century to the mid ninth century. In terms of function, no readily discernible houses were found at the site, apart, perhaps, from Structure 3. This begs the question: was the site a domestic settlement, or had it some other special purpose? Clearly, the enclosure was sited in a prominent position, with commanding views over the River Funshion valley below. Cliff-edge forts are considered defensive structures and the concealed entrance to the souterrain, with its apparent sight line to the enclosure entrance, hints at the need for caution in the eyes of the occupants. However, the enclosing ditch was insubstantial and the presence of high bedrock in its base meant that it was not an effective barrier to attack.

The excavated evidence confirms that both iron smelting and iron smithing were practised at the


*Illus. 2.7.6—Ballynacarriga 2: mid-excavation view of souterrain, looking east (John Sunderland).*




*Illus. 2.7.7—Ballynacarriga 2: various views of an elegantly carved bone handle (E2413:269:1) from an upper fill in the entrance passage of the souterrain (John Sunderland).*


site—interestingly, the iron ore used for smelting (albeit, based solely on the presence of a single piece of possibly roasted claystone ironstone) might not have been bog ore (Young 2011a, 109), which is more commonly found on excavated early iron-working sites in County Cork. While the quantity of metallurgical residues recovered was modest and no metallurgical features were identified, the central position of the metal-working area within the enclosure, and the diversity of metal objects recovered (nails, buckles, knives, a possible copper-alloy brooch fragment and binding clasps) suggest that metal-working was a significant activity at the site during the early medieval period. About 60% of the archaeometallurgical residues from the site were recovered from the souterrain.

Archaeozoological evidence from the site—which shows a dominance of cattle, a significant amount of sheep, some pig and small numbers of horse, deer and hare—is considered 'typical' for ringfort assemblages (Chapter 3.7). Cattle would have been used as draft animals and for their milk, meat and hides. Sheep provided wool, milk and meat, while horses were used as pack animals and ridden. This evidence is consistent with the site being a farmstead.

It is noteworthy that the presence of surface bedrock within the site and the possible use of stone walling for the enclosure boundary, coupled with the prominence of the site on the edge of a steep limestone scarp, seem likely to have provided the

*Illus. 2.7.8—Ballynacarriga 2: decorated bone (E2413:205:1) found in Pit 204 (John Sunderland).*

townland name: Ballynacarriga, 'the rocky *baile* or homestead'. Even more so, perhaps, if stone was also used for internal buildings that are no longer surviving.

## 2.8 Ballynacarriga 3—Multi-period prehistoric ceremonial site

*John Lehane, Penny Johnston and Debbie Leigh*

Ballynacarriga 3 is an intriguing site. It is located on relatively level ground, on a scarp above the confluence of the Glencorra Stream and the River Funshion, with panoramic views in all directions (Illus. 2.8.1). It is no surprise, therefore, that such a location would attract people throughout the prehistoric period and excavation identified use of the site in the Neolithic, Chalcolithic, Early Bronze Age, Iron Age and possibly the early medieval period. The Late Neolithic remains at Ballynacarriga 3 comprised pits, post-holes and finds over a large area. While initially interpreted as comprising a series of domestic houses and related structures (Lehane et al. 2011), an alternative reinterpretation is offered here[1]. The evidence may instead represent at least three timber circles (Illus. 2.8.2) and other timber-built structures, associated with a substantial assemblage of Late Neolithic Grooved Ware pottery. Some of the other significant features were an Early Bronze Age cemetery (at the southern end of the site) and some iron-working of Iron Age date. A rectangular enclosure ditch appears to be a later feature (perhaps early medieval), unrelated to the Late Neolithic ceremonial site.

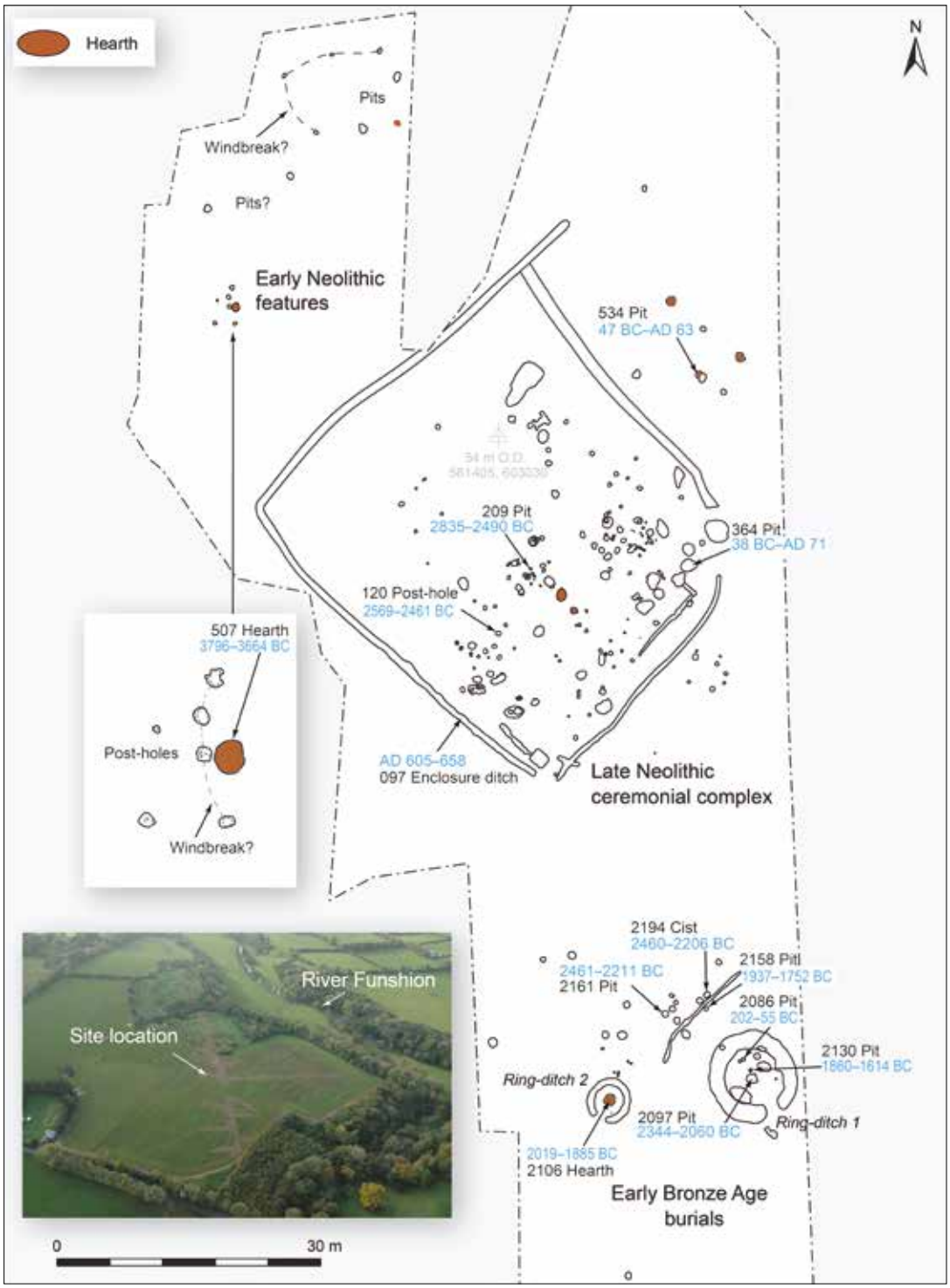
### Early Neolithic hearth and post-holes

It appears that it was the region's earliest farmers who occupied the site first. At its north-western end was a hearth (containing grain—primarily emmer wheat grains and chaff) and a group of six associated post-holes (Illus. 2.8.1). A sample of charcoal (undiagnostic, diffuse porous wood) from the hearth was dated to 3796–3664 BC (UBA-13169). Four of the post-holes, which formed an arc to the immediate west of the hearth, may have supported a windbreak. A similar, though undated configuration of post-holes (possible windbreak) and hearth was located a short distance further north.

### Middle Neolithic pottery

Sherds from Middle Neolithic globular bowls were recovered at Ballynacarriga 3. These represented two separate vessels (Chapter 3.9), one from Pit 154 and the second from Pit 250 (Illus. 2.8.2). Given the dominance of Late Neolithic Grooved Ware in these same pits, it seems the Middle Neolithic pottery sherds were residual and may have derived from some earlier (perhaps transient) use of the site.

[1] The authors are grateful to Dr Neil Carlin and Dr Farina Sternke for their assistance in reappraising the site and the stone tools.



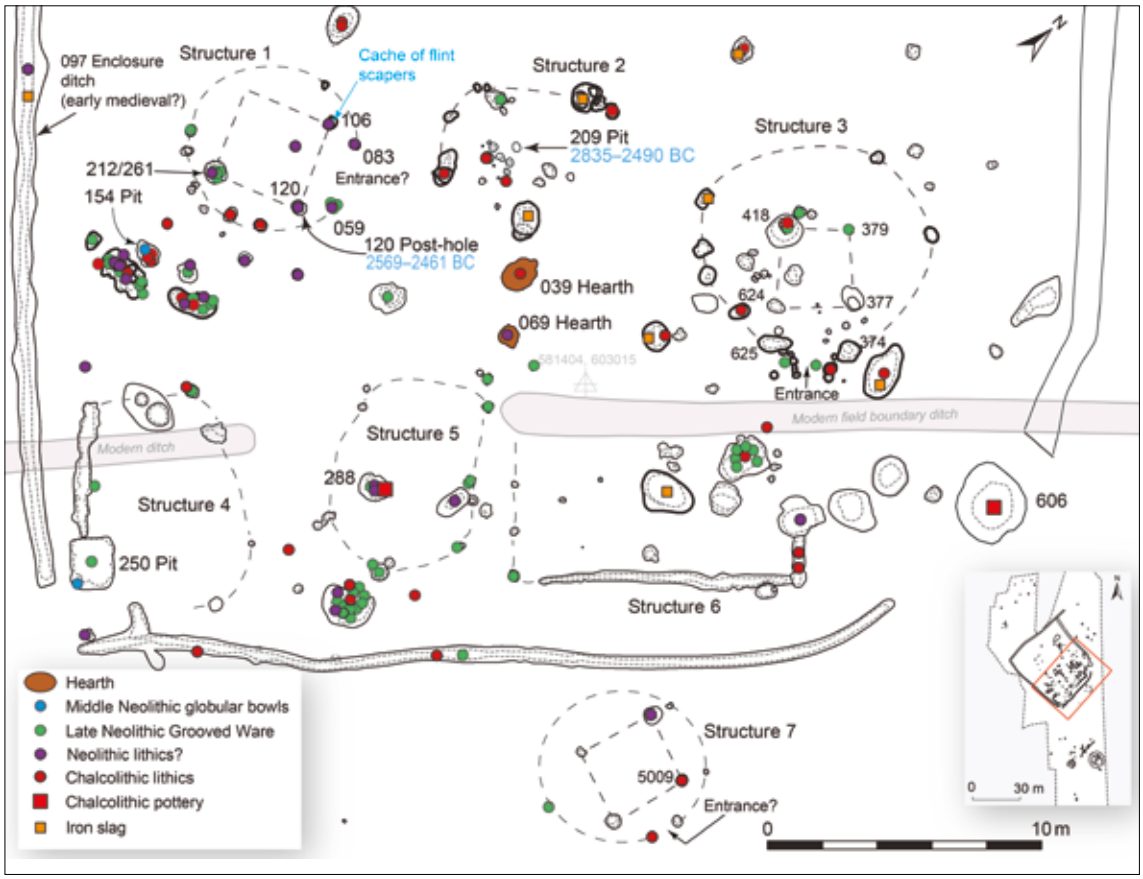

*Illus. 2.8.1—Prehistoric sacred ceremonial site at Ballynacarriga 3, an elevated site that overlooks the River Funshion to the west (inset photo, looking south, by Ken Hanley).*

## Late Neolithic ceremony

Pottery and radiocarbon dates indicate that the primary phase of occupation was Late Neolithic in date. A high concentration of pits and post-holes near the centre of the excavation area were first interpreted as the remains of several domestic buildings (Lehane et al. 2011). A different interpretation is offered here. The significant assemblage of Late Neolithic Grooved Ware recovered from the site represents a total of 62 vessels (Chapter 3.9). Such pottery is often associated with timber circles (Sheridan 2004) and a review of the excavated evidence from Ballynacarriga 3 does show the plausible outline of up to three timber circles and some other, less well-defined, timber-built structures (Illus. 2.8.2).

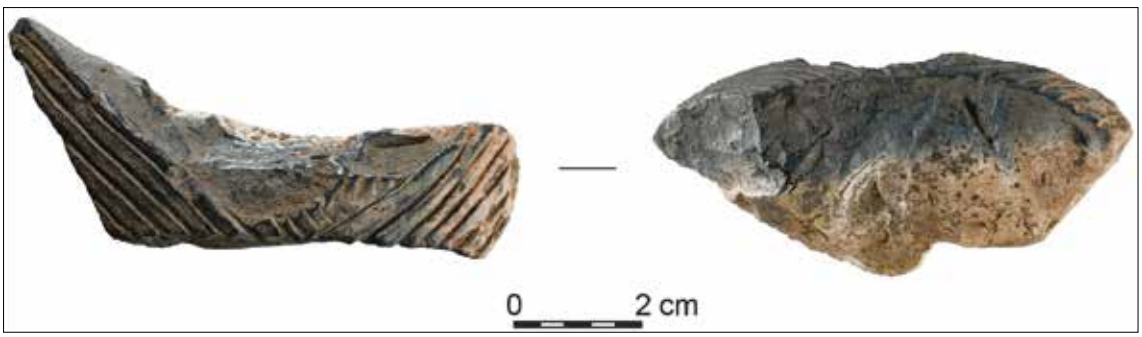
### Structure 1, timber circle

Structure 1 has been reinterpreted as a Late Neolithic timber circle. The structure comprised an inner four-poster element 3 m by 3m (Post-holes 106, 120 and 212/16) and an encircling ring of post-holes (6 m in diameter), with a north-east-facing entrance. The fourth post-hole in the inner




*Illus. 2.8.2—Ballynacarriga 3: Late Neolithic structures, comprising three possible timber circles (Structures 1, 3 and 7) and miscellaneous other structures (Structures 4–6).*

arrangement was missing, perhaps lost to erosion. One of the post-holes (212) contained three sherds from two Grooved Ware vessels (Vessels 4 and 5). A smaller pit (261) may be an example of the re-digging of a post-hole in order to deposit materials within it: the fill contained three sherds from two Grooved Ware vessels (Vessels 58 and 59), a piece of flint debitage, a flint core and a highly unusual carved ceramic-like (but possibly stone) object (Illus. 2.8.3; Chapter 3.9). Another post-hole (120) yielded four Grooved Ware fragments (Vessel 6), a quartz crystal core and a flint flake. The third post-hole (106) produced 15 flint artefacts, including a cache of seven scrapers (used for hide processing), three bipolar cores and a blade. Evidently these features were the focus of a higher level of deposition (pottery, lithics, quartz crystal) of objects than seen elsewhere on the site.




*Illus. 2.8.3—Ballynacarriga 3: unusual carved ceramic or stone object (E2412:213:3) of unknown function from a post-hole pit (261), associated with Structure 1 (John Sunderland).*

Two of the outer post-holes (059 and 083) seem to display axial symmetry with two of the post-holes (120 and 106) that form part of the four-poster element and may signal the entrance into this square arrangement. One of these post-holes (059) contained over 70 sherds of pottery, deriving from six Grooved Ware vessels (Vessels 3–8), as well as burnt and unburnt flint blades. A sample of charcoal (hazel) from Post-hole 120 was dated to 2569–2461 BC (UBA-13167). The second post-hole (083) produced a single worked piece of flint. The north-east-facing arrangement of these post-holes is approximately consistent with known Irish Late Neolithic timber circles, which generally have a well-defined entrance facing south, south-east or east (Illus. 3.1.2).

### Structure 2

Structure 2 was sub-circular in plan and its projected diameter measured c. 6 m. It comprised eight pits and six post-holes. The numerous internal features, including six stake-holes, 10 post-holes and two pits, did not form a coherent pattern. A sample of charcoal (oak) from an internal pit was dated to 2835–2490 BC (UBA-13157). Artefacts from Structure 2 included two pieces of flint debitage, a retouched flint artefact and a single fragment of Late Neolithic Grooved Ware.

### Structure 3, timber circle

Structure 3 exhibited a square-shaped, four-poster element very similar to that in Structure 1. It comprised four post-holes (379, 417/418, 377 and 624) and a further two external post-holes or pits (625 and 374) that shared the same axial symmetry as the square setting. Together with some other post-holes in this area, they seem to demarcate the entrance to the four-poster element on

the south-east side. Significantly, almost all of the Grooved Ware from this area was found in features forming the four-poster element and the entrance. A Grooved Ware sherd (E2412:380:1, Vessel 15) came from Post-hole 379, while two sherds (E2412:405:3a, 4) and a fragment (E2412:405:3b)—all from Vessel 16—came from another of these post-holes (418). An arc of post-holes or pits aligned with the entrance's inner post-holes (625 and 374) to form the perimeter of Structure 3, which measured c. 8 m in diameter.

### Structures 4–6

In the area between Structures 1 and 3 and Structure 5 there was a number of post-holes and slot-trenches, with Late Neolithic Grooved Ware present in many of these features (Illus. 2.8.2). Two hearths were also located in the area outside the structures: these contained a small number of lithics and Late Neolithic Grooved Ware. It is plausible that at least three other structures—two sub-circular and one rectangular—were located here, though the outlines of the buildings were not as definite or complete as those of Structures 1 and 3. Structure 4 was located south-east of Structure 1 and comprised a slot-trench and six possible post-holes. This structure measured c. 8 m WNW–ESE by 5.8 m. An arc of seven possible post-holes formed a small semi-circular building (Structure 5; c. 7 m NW–SE by 5 m) to the north-east of Structure 4. Further to the north-east, Structure 6 comprised two slot-trenches and an alignment of three post-holes (one of which contained a sherd of Late Neolithic Grooved Ware), forming an apparent rectangular structure, measuring c. 10. 2 m NE–SW by 5.2 m—the northern end may have been disturbed by an early modern field boundary ditch.

### Structure 7, timber circle

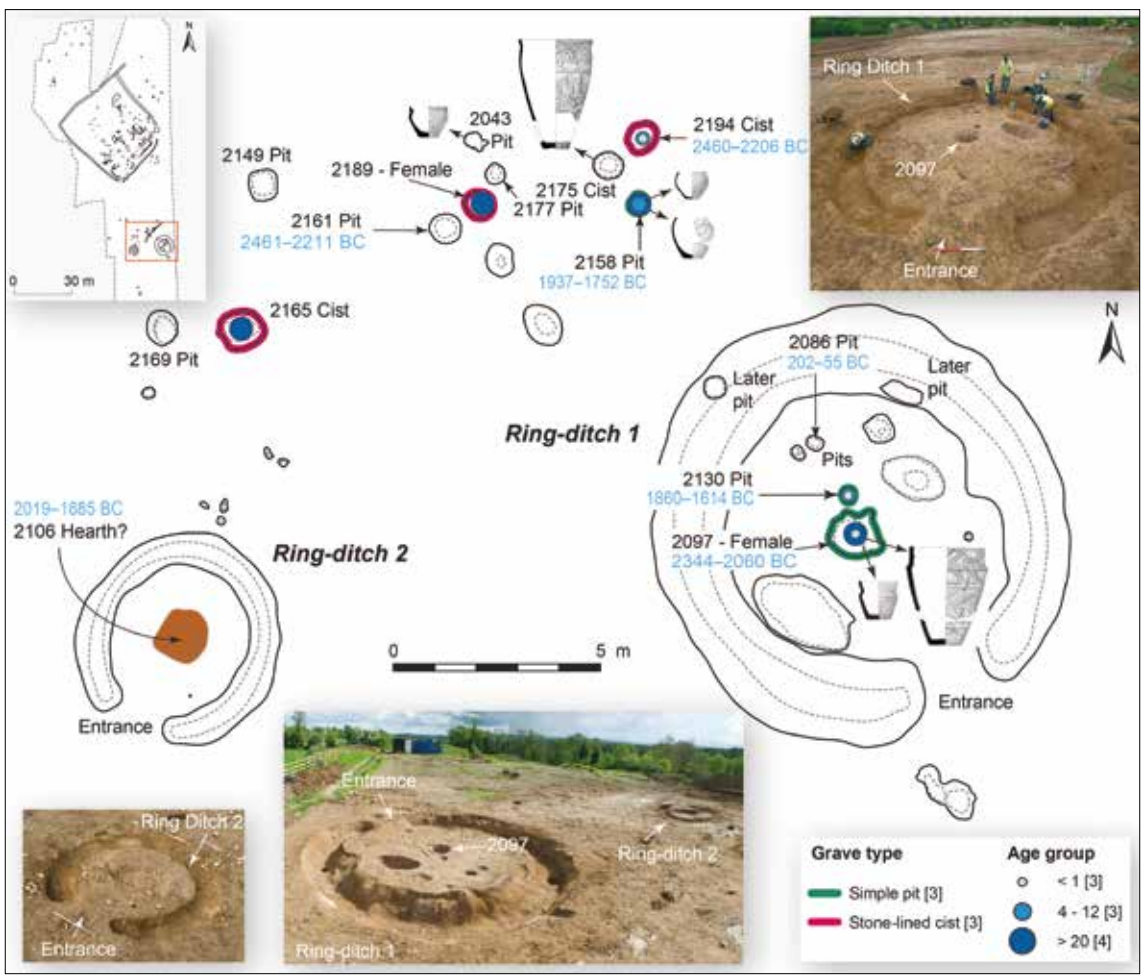
The third timber circle, Structure 7, comprised four post-holes with two post-holes forming a possible ESE-facing entrance (Illus. 2.8.2). Two aligned post-holes were all that survived of a possible outer ring of posts, encompassing an area c. 5.7 m in diameter. A small number of lithics, possibly dating to the Late Neolithic/Chalcolithic, were recovered from three of the post-holes forming the structure.

## Large rectangular enclosure

The date of the rectangular enclosure (Illus. 2.8.1) is uncertain. Evidence in support of a Late Neolithic date includes the presence of some Late Neolithic Grooved Ware pottery from the fill of the enclosing ditch; the fact that the ditches appear to respect the majority of the Late Neolithic structures; that the enclosure ditches do not cut any pre-existing features; and that no other features of early medieval date were found at the site. Evidence in support of an early medieval date includes the dating of a sample of charcoal (fruitwood) from the fill of one of the ditches to AD 605–658 (UB–13161); the presence of fragments of iron slag from the ditch fill; and that not all of the potential timber circles (specifically Structure 7) lie within the enclosure. The available dating evidence is, therefore, inconclusive as to the true date of the enclosure.

## Chalcolithic artefacts and child burials

A small assemblage of Beaker pottery, comprising 13 sherds from three vessels, was recovered from the topsoil and two pits (288 and 606; Illus. 2.8.2) in the eastern section of the enclosure at Ballynacarriga 3. Charcoal and heat-shattered stones were included in the fills of both pits. In the case of Pit 288, the Beaker pottery was found with sherds of Late Neolithic Grooved Ware. Specialist analysis identified three diagnostically Chalcolithic stone tools: these are a micro disc scraper (found in topsoil) and two small convex end scrapers, one from Pit 557 (Illus. 2.8.7) and the other from Post-hole 5009 (Illus. 2.8.2). In addition, samples from a pit (2161) and cist (2194) (Illus. 2.8.4)—located south of the Late Neolithic site (Illus. 2.8.1)—were dated to 2461–2211 BC (UBA-13165; fruitwood) and 2460–2206 BC (UBA-14777; human bone). Poignantly, one of the pits (2194) contained the cremated remains of an infant (< 1 year) and a juvenile (4–12 years)—a reminder of the hardships that people must have had to endure at that time. These burials appear to have been the earliest in a series of burials at Ballynacarriga 3 (Table 2.8.1).




*Illus. 2.8.4—Ballynacarriga 3: Early Bronze Age ring-ditches and adjacent pits and burials (inset photos by Hawkeye).*

## Early Bronze Age cemetery—a burial place exclusively for women and children?

Early Bronze Age burials at Ballynacarriga 3 were found to the south of the Late Neolithic ceremonial site and adjacent to the Chalcolithic burials (Illus. 2.8.1). The burials were all cremations and they were associated with two ring-ditches and a group of cists and pits (Illus. 2.8.4). Early Bronze Age funerary pottery, food vessels and encrusted urns, were found in some of the burials.

*Table 2.8.1—Summary of burials and associated pottery and radiocarbon dates at Ballynacarriga 3*

| Cist/Pit | Context description | Dimensions (m) length/ width/depth | Identified remains | Finds | Associated features | Radiocarbon date (2 sigma cal. BC) |
|---|---|---|---|---|---|---|
| **2043** | Pit | 0.6/0.37/0.3 | — | Food vessel (tripartite vase) Vessel 2 (2042:2) | External pit | — |
| **2097** | Pit | 1.25/0.95/0.56 | One young adult female and one midterm foetus | Food vessel (tripartite vase) Vessel 1 (2096:1) and encrusted urn Vessel 5 (2096:6) | Within Ring-ditch 1 | 2344–2060 BC (UBA-14778) |
| **2130** | Pit | 0.37/0.31/0.17 | One juvenile and one infant | — | Within Ring-ditch 1 | 1860–1614 BC (UBA-14776) |
| **2149** | Partly stone-lined cist | 0.79/0.77/0.33 | — | — | External cist | — |
| **2158** | Pit | 0.49/0.44/0.62 | One juvenile and one adult | Two food vessels (bipartite vases) Vessel 3 (2180:1– 7) and Vessel 4 (2179:1–15) | External pit | 1937–1752 BC (UBA-13172) |
| **2161** | Stone-lined cist | 0.79/0.73/0.4 | — | — | External cist | 2461–2211 BC (UBA-13165) |
| **2165** | Stone-lined cist | 1/0.9/0.35 | One adult | — | External cist | — |
| **2169** | Pit | 0.84/0.78/0.18 | — | — | External pit | — |

*Table 2.8.1—Summary of burials and associated pottery and radiocarbon dates at Ballynacarriga 3 cont'd*

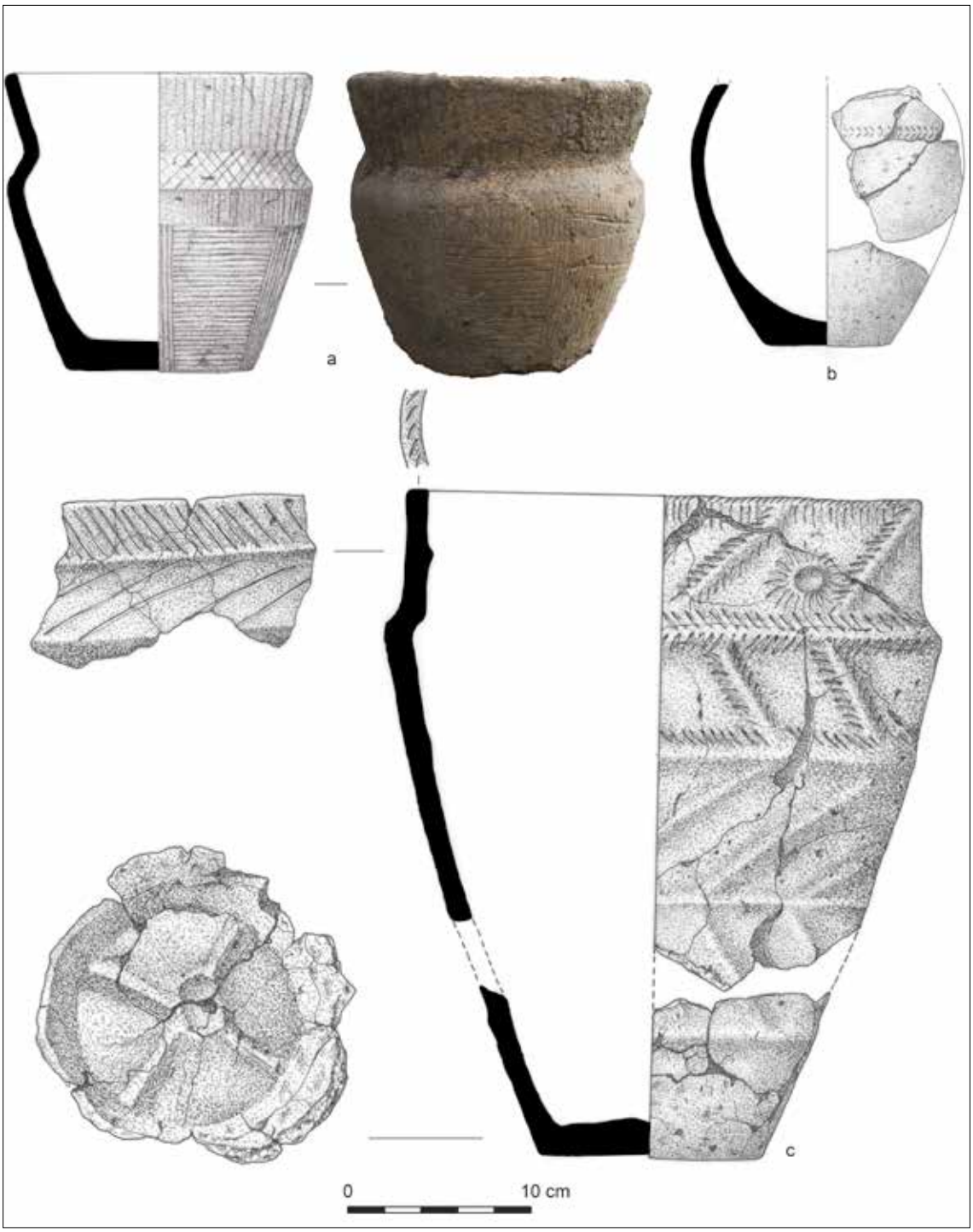
| Cist/Pit | Context description | Dimensions (m) length/ width/depth | Identified remains | Finds | Associated features | Radiocarbon date (2 sigma cal. BC) |
|---|---|---|---|---|---|---|
| **2175** | Stone-lined cist | 0.73/0.63/0.51 | — | Encrusted urn Vessel 6 (2156:1) | External cist | — |
| **2177** | Sub-circular stone-lined cist | 0.53/0.5/0.42 | — | — | External cist | — |
| **2189** | Stone-lined and stone-capped cist | 0.83/0.8/0.48 | One young adult female | — | External cist | — |
| **2194** | Stone-lined cist | 0.68/0.65/0.2 | One juvenile and one infant | — | External cist | 2460–2206 BC (UBA-14777) |

## Ring-ditch 1

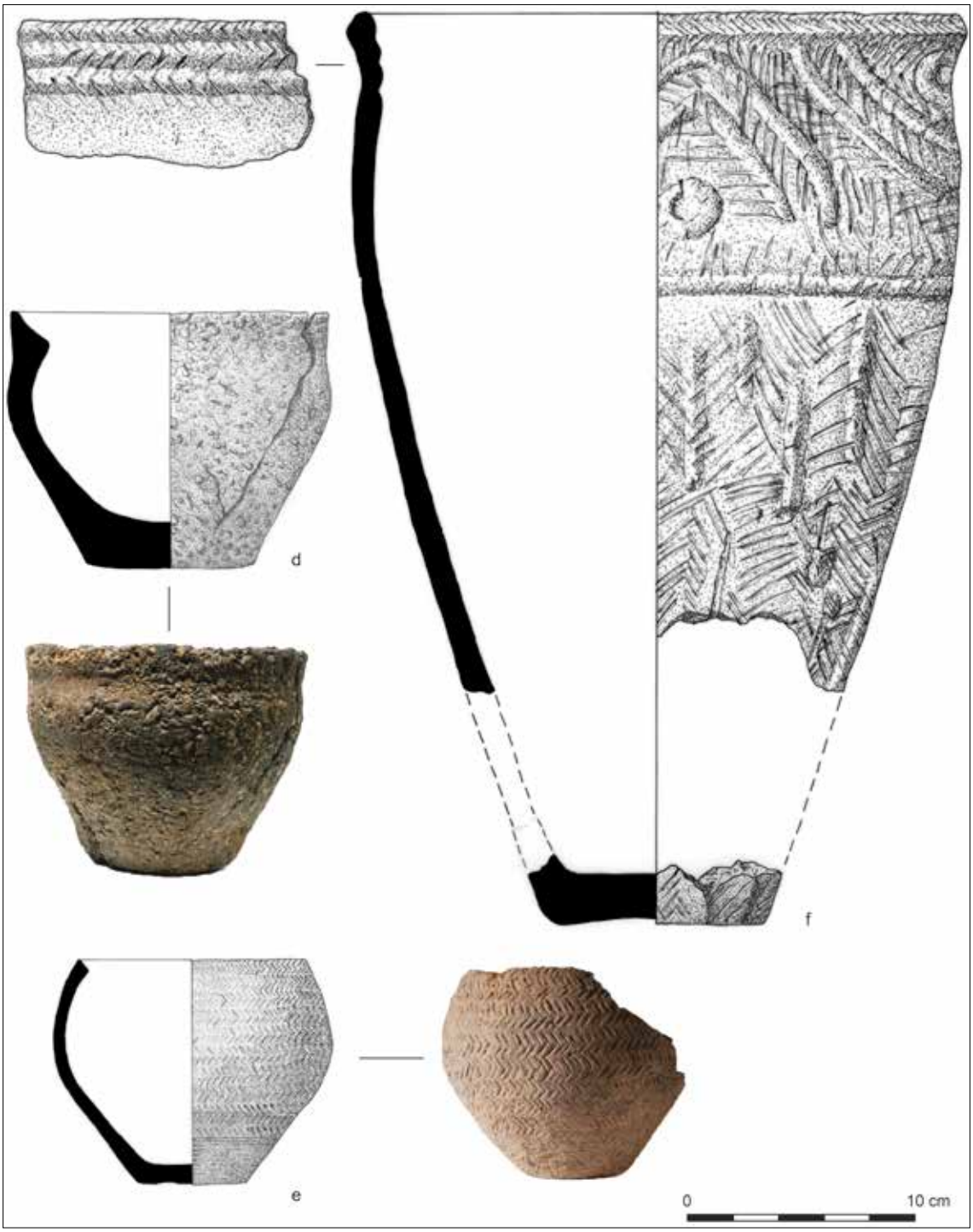
Measuring 1.8 m wide by c. 0.8 m deep, the penannular ring-ditch was 6 m in diameter (internal) and the entire circumference measured 25.5 m. There was a causewayed entrance into the centre, at the south-east side. There was no surviving evidence for an associated mound. Cremated bone recovered from two of the pits within the ring-ditch comprised the remains of four different individuals (Table 2.8.1). A female adult and a midterm foetus had been deposited in an encrusted urn in the large central pit (2097; a small tripartite vase was also present, Illus. 2.8.5 (a)). It is believed the deceased woman was pregnant (in her second trimester) when cremated. A sample of cremated bone from this burial was dated to 2344–2060 BC (UBA-14778); however, according to Grogan & Roche (Chapter 3.9) there is a disparity between the date obtained from the bone in this pit and the accepted date range (c. 2020–1900 BC) of the vessel it reposed in. In contrast, a sample of charcoal (cherry/sloe) from a pit (2158) to the north of the ring-ditch, which contained two small biconical vases (Illus. 2.8.5 [b]; Illus. 2.8.6 [e]), was dated to 1937–1752 BC (UBA-13172).

The cremated remains of an infant and a juvenile were deposited in the pit (2130) to the north, but no pottery accompanied this burial. A sample of the cremated bone was radiocarbon dated to 1860–1614 BC (UBA-14776).

A further six pits were located within the ring-ditch. Two of these pits revealed evidence of burning *in situ* and may have been associated with funerary activity at the site, but only one of these was large enough (c. 1.6 m by 1 m by 0.4 m) to have been a pyre pit. A sample of hazel charcoal from one of the pits in Ring-ditch 1 was dated to 202–55 BC (UBA-13162), an Iron Age date. A further two, later pits were cut into the fills of the ring-ditch.




*Illus. 2.8.5—Early Bronze Age pottery from Ballynacarriga 3. Pit 2097: (a) Vessel 1 tripartite vase (E2412:2096:1) and (c) Vessel 5 encrusted urn (E2412:2096:16). Pit 2158: (b) Vessel 4 bipartite vase (E2412:2179:1) (drawings by Malgorzata Kryczka, photo by John Sunderland).*




*Illus. 2.8.6—Early Bronze Age pottery from Ballynacarriga 3. Pit 2043: (d) Vessel 2 tripartite vase (E2412:2042:1). Pit 2158: (e) Vessel 3 bipartite vase (E2412:2180:1). Cist 2175: (f) Vessel 6 encrusted urn (E2412:2156:61) (drawings by Malgorzata Kryczka, photos by John Sunderland).*

### Ring-ditch 2

A second, smaller (0.76 m by 0.35 m) ring-ditch was located c. 9 m west of Ring-ditch 1 (Illus. 2.8.4). It had an internal diameter of just 3.2 m. The entrance was defined by a causeway in the south-west part of the ditch. As at Ring-ditch 1, there was no evidence for an associated mound.

There were no burials associated with Ring-ditch 2, but there was a possible hearth located centrally within it. A sample of charcoal (oak) from the hearth was dated to 2019–1885 BC (UBA-13170).

### Cists and pits

A group of cists and pits was situated to the north of the ring-ditches (Illus. 2.8.4). The morphology of these features varied from simple earth-cut pits to stone-lined and capped cists. Cremated bone was recovered from four of these features and the bone comprised the remains of seven different individuals (Table 2.8.1). Cremated bone from a juvenile and an adult were accompanied by two food vessels in Pit 2158 (Illus. 2.8.5 [b]; Illus. 2.8.6 [e]). An encrusted urn was recovered from Cist 2175 (Illus. 2.8.6 [f]), but there was no accompanying burial. A single food vessel was found in Pit 2043 (Illus. 2.8.6 [d]), while Cist 2189 contained the cremated bone of an adult female.

The dating evidence suggests that burial at the site, which had started in the Chalcolithic period, continued into the Bronze Age. There appears to have been two periods of burial. The first phase was sometime between c. 2400 BC and 2000 BC. The second phase was later in the Early Bronze Age, sometime between c. 1900 BC and 1600 BC.

### Interpreting the burials

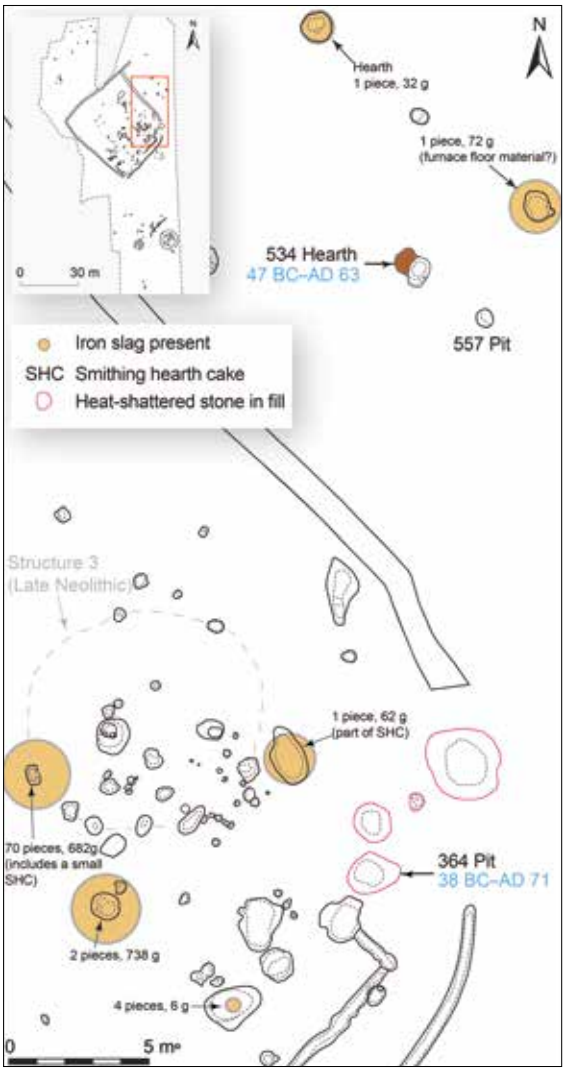
Where the human remains could be identified (Table 3.8.1), they were exclusively those of women and children. No identifiable adult male bone was found to be present. (For a discussion on the apparent lack of adult male burials, see Chapter 3.8.) On the available evidence, it seems the cemetery may have been used exclusively for women and children and the series of 'blind burials'—cists and pits containing no identifiable bone—may have been the burials of other neonatal or infant remains, bones inherently more fragile and less likely to survive the cremation process. In any event, the cemetery was clearly a solemn place, where the Early Bronze Age inhabitants in this part of North Cork buried their dead with ceremony and communal respect.

## Iron Age iron-working

A small quantity of iron-working residues and three late prehistoric radiocarbon dates (Illus. 2.8.7) indicate that a small, but significant amount of Iron Age activity took place at Ballynacarriga 3.

The earliest Iron Age date, 202–55 BC (UBA-13162), was obtained from a sample of charcoal (hazel) from Pit 2086 (Illus. 2.8.4), located within one of the Early Bronze Age ring-ditches (Ring-ditch 1). The pit did not contain any cremated bone and so its location within the ring-ditch may be coincidental. If not, then its presence suggests that the ring-ditch was re-used (and, presumably, still visible above ground) in the so-called Developed Iron Age (c. 400–0 BC).

A cluster of mostly large pits and three hearths (at the eastern side of the Late Neolithic timber circles) appeared to relate to iron production. Four of the pits contained heat-shattered stone. A sample of charcoal (hazel) from one of them was dated to 38 BC–AD 71 (UBA-13164). Iron slag—




*Illus. 2.8.7—Ballynagarriga 3: post-excavation plan of iron-working features at northern eastern end of the site.*

which included some fragments of smithing hearth cakes, as well as smelting slags—was found in several of the pits (Illus. 2.8.7). One nearby hearth contained residues of possible furnace floor material, while a sample of charcoal (hazel) from an adjacent second hearth was dated to 47 BC–AD 63 (UBA-13171).

## Continuity of purpose?

Timber circles from the Late Neolithic period are thought to have been ceremonial sites of high communal significance, where an outer circle of posts enclosed an inner (typically four-post) arrangement of posts that demarked a hallowed place (Hughes 2015, 18–9). It is not surprising, therefore, that such a high concentration of pottery was deposited at the site. The Late Neolithic Grooved Ware (representing a minimum of 62 vessels) recovered from the site is one of the largest assemblages of such pottery found in Ireland to date (Chapter 3.9). This was clearly a special place in the eyes of our Late Neolithic ancestors. What is more intriguing is the apparent continuity of ceremonial significance ascribed to the site in the centuries that followed. In the Chalcolithic period, the site was used as a burial place for an infant and a juvenile. Soon after, Early Bronze Age people buried their dead with funerary pottery and equal solemnity. The burials were of women and children. (While only women were identifiable, other adults of unknown sex were also present.) It is possible that the Chalcolithic/Early Bronze Age people were aware of the importance of the Late Neolithic site and they chose a place, just 35 m to the south, for continuity of use of this sacred or special place. The burials at Ballynacarriga are part of a large concentration of Bronze Age burials from North Cork (Chapter 3.8)—Power et al. (2000, 195) list a total of 41 Bronze Age burials in the area and there is a notable concentration of these along the River Funshion. The Iron Age activity occurred for the most part in the eastern part of the site. The full nature of the activity is not clear but it seems that small-scale iron-working was carried out. It is probable that memory of the significance of the site at Ballynacarriga 3 was lost by the Iron Age when the iron smiths began their work.

## 2.9 Ballynamona 1— Pits and pottery of Neolithic and Bronze Age date

*John Tierney and Penny Johnston*

Ballynamona 1 was situated on a flat plain, in a low-lying area on the lower slopes of the Kilworth Hills, close to the River Gradoge (Illus. 1.1.1; Illus. 2.2). Groups of pits dating to both the Neolithic and Early Bronze Age were located in two separate cuttings (Areas 1 and 2), located c. 60 m apart (Illus. 2.9.1). Associated pottery evidence indicates that this may once have been a sacred place. Late Neolithic Grooved Ware is normally associated with ceremonial sites, such as timber circles (Ballynacarriga 3, above). In addition, the presence of a vase urn, normally associated with Early Bronze Age burials, hints at Ballynamona 1 being a place of special significance in the third to early second millennium BC.

### Late Neolithic Grooved Ware pottery

Area 2 comprised two pit groups, c. 6.5 m apart. A sample of charcoal (hazel/alder) charcoal from the fill of one pit (Illus. 2.9.1) was dated to 3760–3644 BC (UBA-12975), an Early Neolithic date. The same pit, however, contained 15 sherds of Late Neolithic Grooved Ware, from a single vessel. The charcoal may, therefore, have been residual from an earlier phase of occupation on the site.

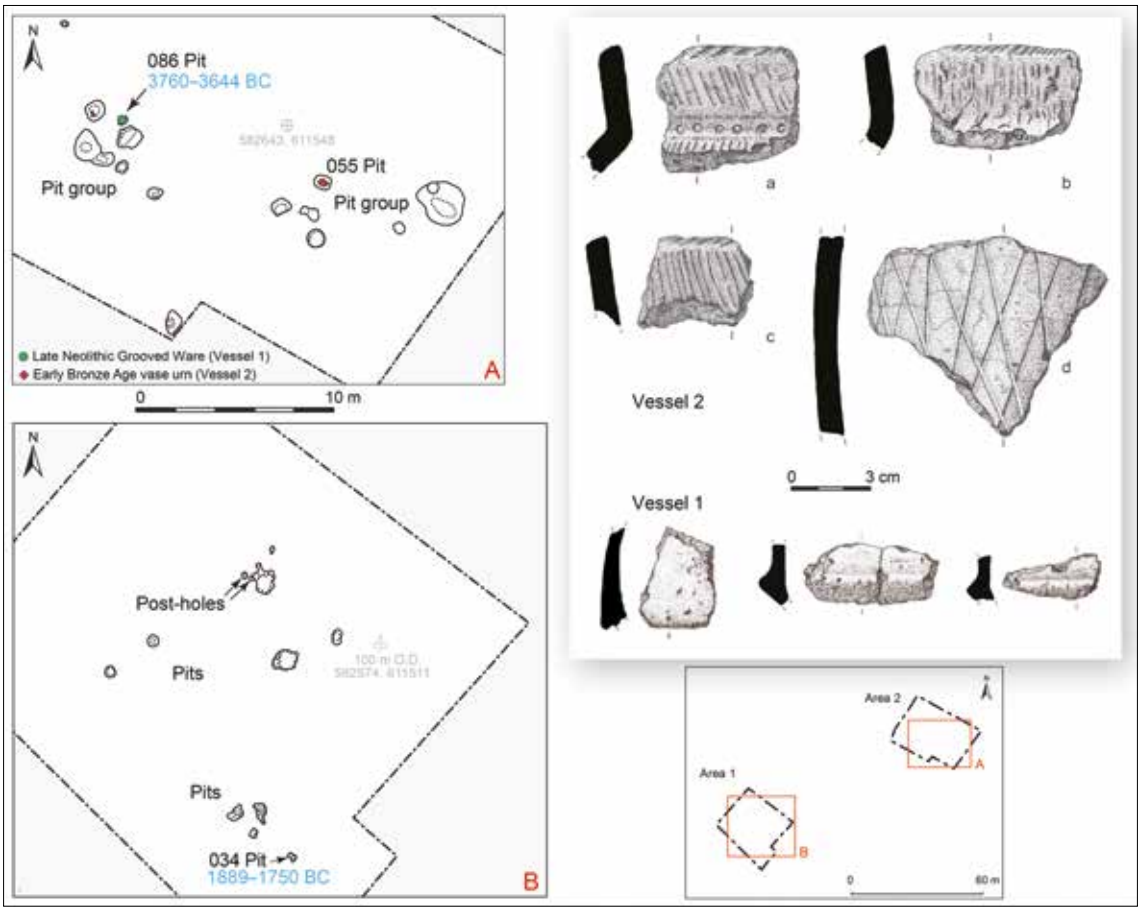
### Early Bronze Age vase urn

Features of Early Bronze Age date were present in both Area 1 and 2. Area 1 had a scattering of nine pits and two post-holes. A sample of charcoal (hazel) from one of the pits was dated to 1889–1750 BC (UBA-13173). In Area 2, one of the pits contained 66 sherds from a single vase urn (Vessel 1, Illus. 2.9.1). This pottery type, which is thought to date to c. 1930–1830 BC, is usually found associated with Early Bronze Age burials; however, in this instance there was no cremated bone in the pit. It may be that this particular vase urn, which had carbonised residue on its interior surface, was not used as funerary ware, or that it was redeposited from a burial elsewhere. Early Bronze Age pottery of the Vase Tradition was also recovered at Ballynacarriga 3 and Glenatlucky 1 (this volume) and at both these nearby sites the pottery was associated with cremated human bone.

## 2.10 Ballynamona 2—Early prehistoric finds, Bronze Age settlement and Iron Age metal-working

*Linda Hegarty, Penny Johnston and Jacinta Kiely*

The site at Ballynamona 2 was situated on level ground (90–100 m OD), in an area drained by the River Gradoge (Illus. 1.1.1; Illus. 2.2; Illus. 2.10.1). Archaeology was recorded in three separate areas (Areas 1–3) and there was evidence for several phases of occupation, in the Neolithic and

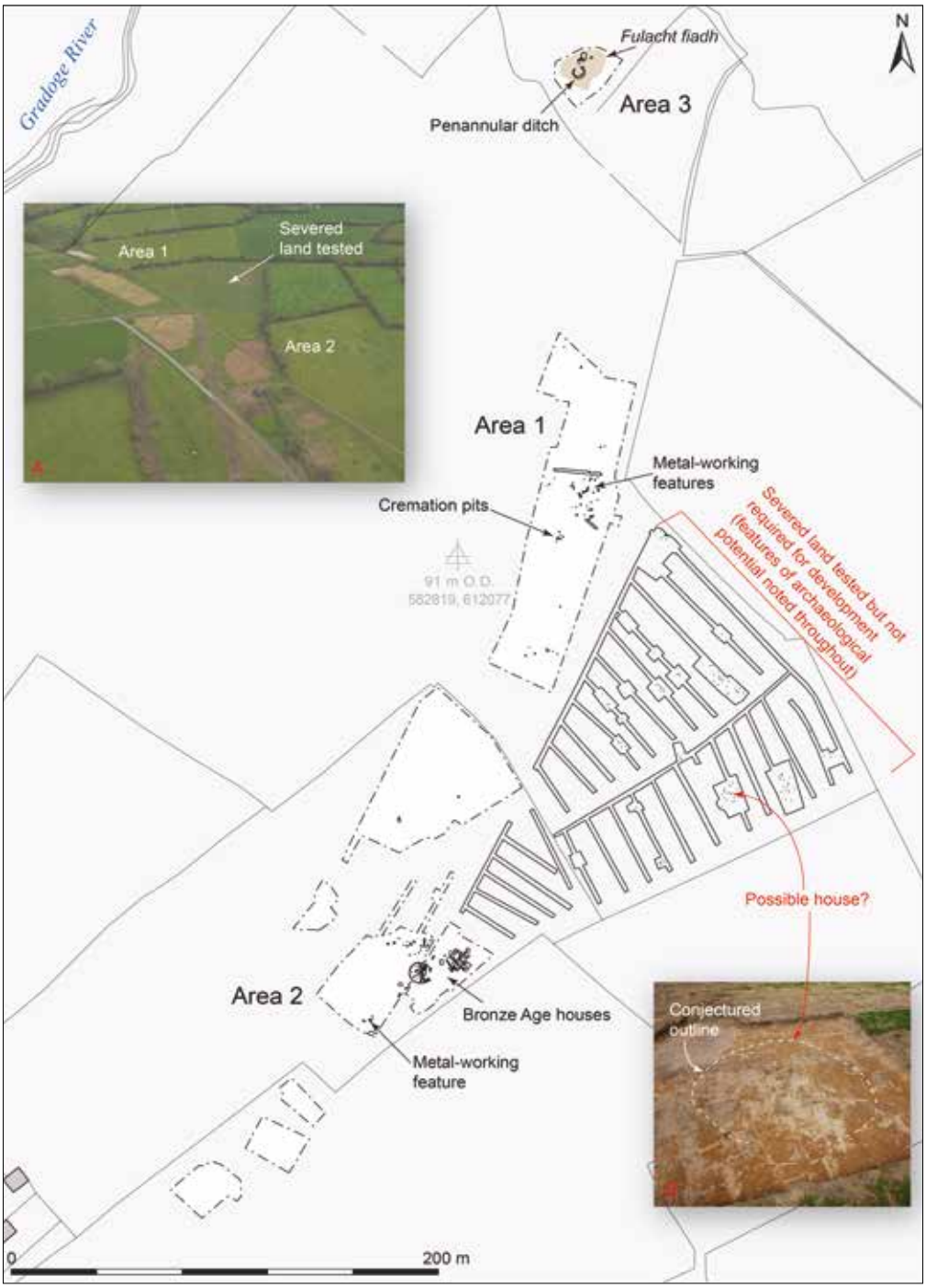



*Illus. 2.9.1—Ballynamona 1: pits groups from Area 1 and Area 2, with (inset) Late Neolithic Grooved Ware (Vessel 1) from Pit 086 and sherds of Early Bronze Age vase urn (Vessel 2) from Pit 055 (pottery drawings by Malgorzata Kryczka).*

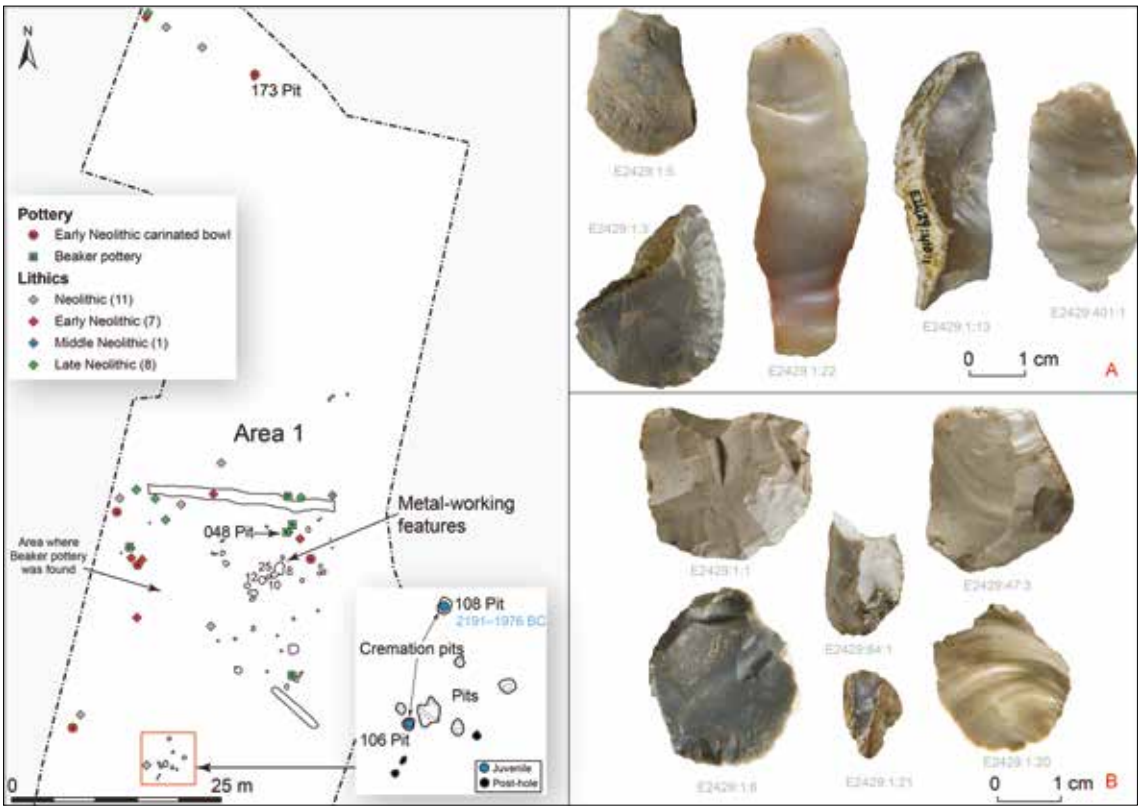
Chalcolithic periods, the Bronze Age and Iron Age. The Middle Bronze Age settlement was the most extensive phase of occupation at the site, with less substantial evidence for occupation at other periods.

## Hints of early occupation: Neolithic stone tools and pottery

Artefacts dating to the Neolithic period were only found in Area 1 (Illus. 2.10.2). The pottery and stone tools recovered provide residual evidence for domestic occupation and tool manufacture. The Early Neolithic finds included sherds of carinated bowls, representing a minimum of nine vessels. These were generally recovered from topsoil, however, one sherd was found within a pit (173) and a second sherd was recovered from the fill of a shallow depression. A total of 28 lithic artefacts dating to the Neolithic was found, seven of which were diagnostically Early to Middle Neolithic in date (see Illus. 2.10.2, inset A, for a sample). These were mostly recovered as surface finds and were widely dispersed across Area 1, suggesting extensive disturbance and redeposition of Early to




*Illus. 2.10.1—Ballynamona 2: layout of excavation cuttings with significant archaeological features excavated in Areas 1–3. Extensive remains of archaeological potential were identified in an area of land severed by the new motorway, but not used for construction (inset A: aerial view of site, by Ken Hanley, looking north-east; inset B, by Hawkeye, looking WSW, showing rough outline of possible, though unconfirmed, third round-house).*

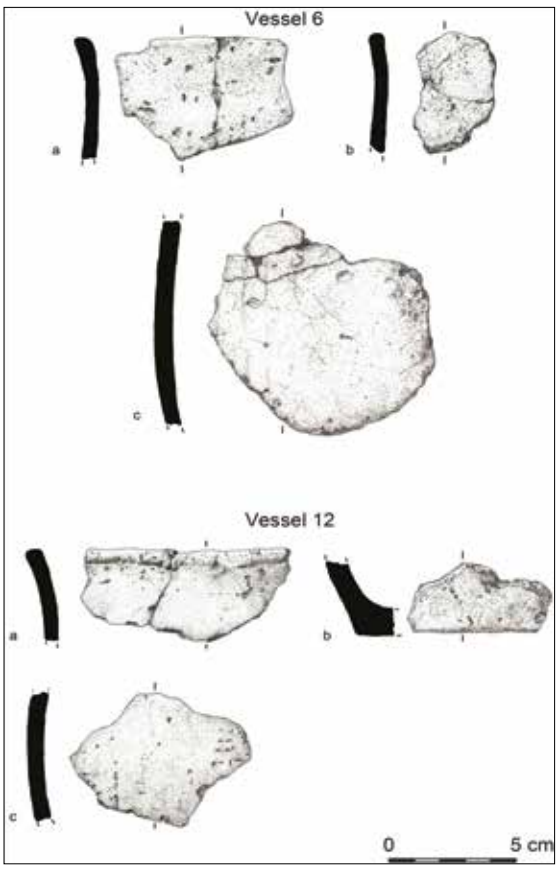



*Illus. 2.10.2—Ballynamona 2: Area 1, with early prehistoric artefact distribution, each symbol representing a single artefact, with Early Neolithic lithics from topsoil (inset A) and Late Neolithic lithics (inset B) (John Sunderland).*

Middle Neolithic material within the site. Evidence for occupation in the Middle to Late Neolithic was also recovered from Area 1. This was mostly limited to stone tools, including retouched artefacts (Illus. 2.10.2, inset B) associated with food and/or fibre processing.

## Pits with Beaker pottery

Sherds of Beaker pottery, representing a minimum of 13 fine Beaker vessels and one domestic Beaker vessel, were recovered from within several pits in Area 1 (Illus. 2.10.2–3). The dispersed pits are difficult to interpret and it is not certain what type of settlement they represent. (Neolithic artefacts were recovered from some of the same pits as the Beaker pottery, suggesting some redeposition of artefacts across the site, perhaps deliberately.) The absence of any buildings is not surprising: Beaker-associated buildings are rarely found in Ireland and no examples are known from County Cork (Carlin 2011, 4). Beaker pottery is predominately found in pits, with artefacts such as lithics, burnt and unburnt animal bone and the charred remains of cereals and fruit. There is a lot of variety in the nature of the pits; the more mundane ones contain only a few sherds of ceramics (ibid., 3).




*Illus. 2.10.3—Ballynamona 2: sherds from two undecorated fine Beaker pottery vessels from Area 1 (Malgorzata Kryczka).*

## Early Bronze Age children's burials

Placed within two small pits (Illus. 2.10.2, inset) were cremated juvenile remains. The cremated bone from one of the pits (106) represented a child, aged between three and seven years of age. Being just 19 g in weight, these remains represented a token quantity of the original cremated human remains. The bone from the second pit (108) was also probably from a child, aged between six and 12 years old. The remains (612 g in weight) from this pit represented almost the entire individual (Chapter 3.8)—it is also possible that the remains from both pits represent the same individual. A sample of bone from Pit 108 was dated to 2191–1976 BC (UBA-15101). Clearly, this was a place of sorrow for a community who laid to rest their young, sometime around the end of the third millennium BC.

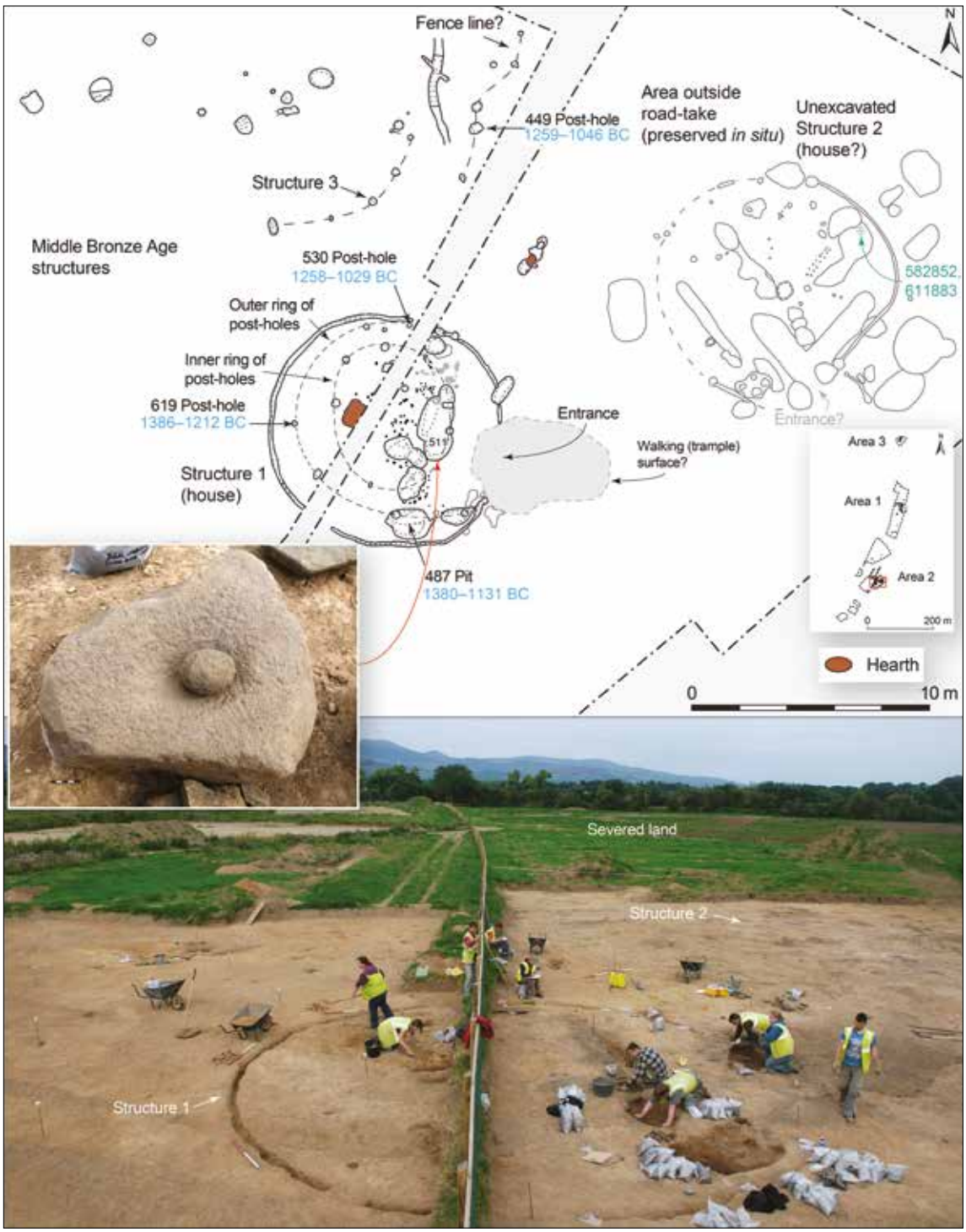
## Middle Bronze Age settlement: *fulacht fiadh* and penannular ditch

While largely vestigial remains of earlier periods were present, significant occupation occurred in the Middle Bronze Age; these remains included a domestic settlement (comprising two round-houses and a third, undiagnostic structure; Area 2), a *fulacht fiadh* and an associated penannular ditch (Area 3; Illus. 2.10.1, 2.10.4–5).

Structure 2, at the eastern part of the site, was preserved *in situ,* as this land was not subsequently required for the construction of the road. In addition, a substantial area of land—acquired as part of the compulsory purchase order as it was severed by the motorway—was archaeologically tested (Illus. 2.10.1) and found to contain extensive cut features of likely archaeological significance. Among these was a sub-circular arrangement of post-hole-like features that may have represented a third round-house. As this land was not subsequently required for the construction of the motorway all these features were also preserved *in situ.*

### Structure 1—round-house

Measuring 9.4 m in diameter (Illus. 2.10.4), this circular structure was defined by a narrow foundation trench (0.18 m wide by 0.12–0.18 m deep). Imprint traces of upright planks or panels of wattle were visible in places around the top of the foundation trench. The planks/panels would have been held in place with packing stones that were still *in situ* in some parts of the trench. As the planks/panelling in the trench were likely to have been too insubstantial to hold the (presumably




*Illus. 2.10.4—Ballynamona 2: two round-houses (Structures 1 and 2) in Area 2, with view (Hawkye) of Structure 1 looking north-west and inset (John Sunderland) of a pestle and mortar from Pit 511.*

thatched) roof of the structure, much of the support for the roof probably came from internal posts, including those that once stood in the two surviving, deep post-holes, and in the two discernible, though irregular internal arcs of post-holes. The outer arc was made up of seven post-holes and the inner arc comprised seven post-holes and a pit. A sample of charred cereal grain from one of the post-holes was dated to 1258–1029 BC (UBA-14113), while a sample of hazelnut shell from another was dated to 1386–1212 BC (UBA-14152) and a sample of charred grain (barley) from the fill of an internal pit was dated to 1380–1131 BC (UBA-14111), all three date ranges indicating a date towards the end of the Middle Bronze Age.

The entrance was probably in the east of the structure, where there was a gap in the foundation trench. This gap was 3.2 m wide and it may be the present gap is larger than the original entrance as there seemed to be some subsequent disturbance to the entrance area (Illus. 2.10.4).

A single internal hearth (1.5 m by 1.12 m by 0.3 m) was found within Structure 1. Two large, slab-like stones were placed near the base of the hearth.

A total of seven pits were present within Structure 1. Saddle querns, rubbing stones and large amounts of carbonised grain were recovered from the pits—one pit (511) also contained a large pestle and mortar (Illus. 2.10.4, inset). The large quantities of grain (Chapter 3.6) and the associated finds of quern and rubbing stones suggest that the area was used to store and process cereals. The distribution of grain suggests that emmer wheat was stored in the south-eastern part of the house and naked barley was stored in the central and southern parts of the house.

A dense concentration of stake-holes was present within the interior of the structure. It is likely that these stake-holes represent intense activity within the building over time, although it was not possible to distinguish structural patterns.

### Structure 2 (unexcavated, probable house)

Structure 2 was sub-circular; 9.7 m in diameter and defined by a foundation trench (0.2 m wide by 0.2 m deep). Two possible post-holes marked each terminus of the footing trench, with the entrance possibly located in the south-east of the structure (Illus. 2.10.4). At the centre there was a pit that contained a large stone. Some large pits were found to the east and north-east of the structure. As this land was not ultimately required for the construction of the road, no further investigation was undertaken at Structure 2 and the exposed features were preserved *in situ* and covered by geotextile. The severed area was subsequently returned to farmland.

### Structure 3 (arc of post-holes)

A small arc of post-holes (possible structure) was found c. 4 m to the north of Structure 1 (Illus. 2.10.4). The arc comprised six post-holes, but it was not a full circle. There was no evidence for an entrance. An external line of five post-holes (fence line?) was excavated just to the east of Structure 3. These latter post-holes were significantly deeper than the post-holes forming Structure 3. Large quantities of naked barley were found in the fill of one of these post-holes (449) and in an associated pit. A sample of the grain from the post-hole was dated to 1259–1046 BC (UBA-14112), an almost identical date to that returned from one of the post-holes in Structure 1.

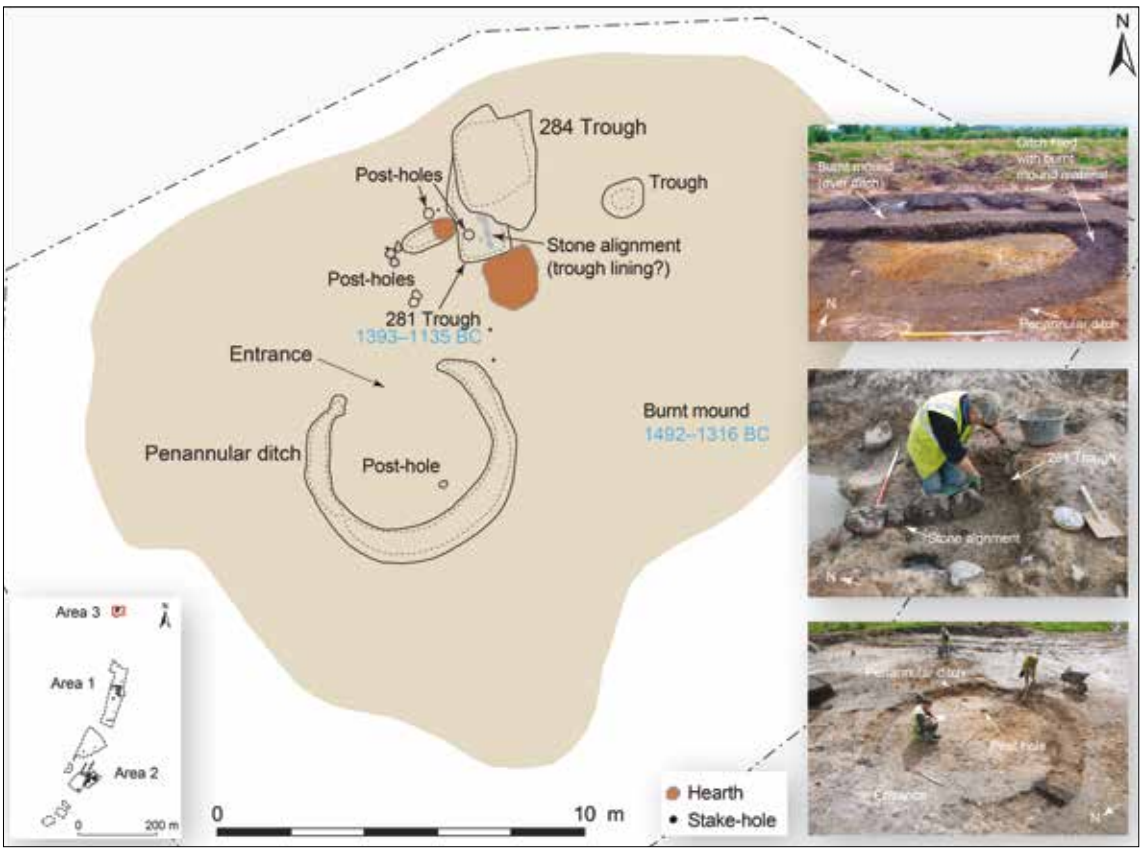
The round-houses excavated at Ballynamona 2 were located c. 3 km from three similar houses excavated at Mitchelstown 1 (Cotter 2006; 2013b). The radiocarbon date ranges from both settlement sites all fall within the Middle Bronze Age. The plant remains assemblage from Ballynamona 2 was,

however, very different. Ballynamona 2 produced a rich assemblage of charred grain with few weeds (Johnston 2010) while the remains from Mitchelstown 1 were exactly opposite, with a relatively rich assemblage of weeds, a type that may have been collected as food, and almost no grain. The quantity of grain from Structure 1 at Ballynamona 2 was so large that it was questionable whether this was simply a 'house' site, perhaps an interpretation as a granary, or a dual function granary/house, may be more appropriate (ibid.).

The radiocarbon dates returned from Structure 1 were very similar to the date obtained from the trough of a *fulacht fiadh* excavated (below) in more marginal ground c. 440 m to the north. This strongly suggests that the occupiers of the settlement may have constructed the *fulacht fiadh*.

### *Fulacht fiadh* and penannular ditch in Area 3

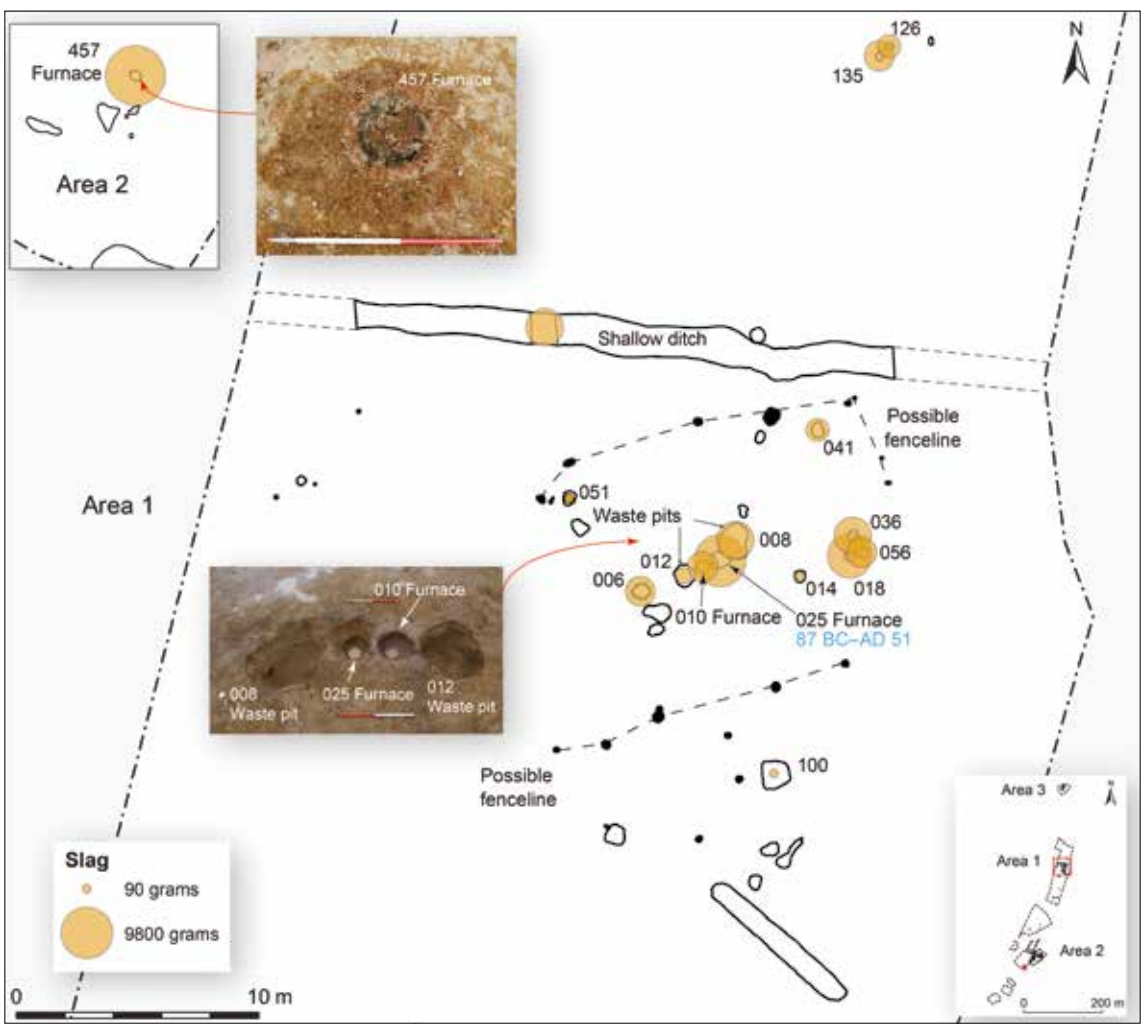
The remains of a Middle Bronze Age *fulacht fiadh* were exposed in Area 3 (Illus. 2.10.5), on a localised area of raised ground in what was otherwise low-lying marginal land, a short distance from the River Gradoge. The associated mound of heat-shattered stone sealed three troughs (see Table 3.2.1 for detail), which were all filled with similar heat-shattered stone. An alignment of large stones was found placed centrally along the base of Trough 281, next to a post-hole. A sample of charred hazelnut shell/barley grain from the trough fill was dated to 1393–1135 BC (UBA-14114).




*Illus. 2.10.5—Ballynamona 2: Middle Bronze Age* fulacht fiadh *and penannular ditch in Area 3 (inset photos by John Sunderland).*

The northern part of this trough was truncated by a second trough (284). The third, smaller trough was located 2 m north-east of Trough 281. Two areas of hearth-like scorched subsoil were noted adjacent to Trough 281. A sample of charred grain from the burnt mound was dated to 1492–1316 BC (UBA-14115).

Unusually, for this site type, the burnt mound covered a small (4.5 m diameter) penannular ditch, with an apparent entrance on the north-west side (Illus. 2.10.5). The ditch, which measured 0.5–1.1 m wide by up to 0.3 m deep, had fills of heat-shattered stone and silt, similar in composition to the overlying burnt mound material, so it would appear it was contemporary with it. A single post-hole was the only feature enclosed by the ditch. It is not clear what this particular ditch represents, given its apparent association with the *fulacht fiadh*. Penannular ditches of this size are similar to ring-ditches, which are typically associated with burials (cf. Ballynacarriga 3, Chapter 2.8); although, there was no cremated bone noted in association with the example at Ballynamona 2. It seems more likely




*Illus. 2.10.6—Ballynamona 2: Iron Age metal-working features in Areas 1 and 2.*

that the ditch represents the footprint of a hut that was in use at the same time as the *fulacht fiadh,* perhaps as a temporary shelter or sweathouse.

### Small-scale iron smelting and smithing in the Iron Age

Several metal-working features were identified in Areas 1 and 2 (Illus. 2.10.6). An iron-smelting furnace in Area 1 (010; 0.55 m in diameter by 0.22 m deep) was lined with oxidised clay and filled with a slag-rich deposit. The dimensions of the furnace are typical of the basal parts of slag-pit iron-smelting furnaces. Six other shallower features of similar dimensions in Area 1 (014, 018, 036, 056, 126, 135), all containing iron-smelting slags, were also probably the truncated remains of iron-smelting furnaces (Chapter 3.11). The two larger pits (008 and 012), adjacent to Furnace 010, contained metallurgical waste, but are not typical of furnace pits (Johnston 2010). A sample of charcoal (ash) from Pit 012 was dated to 87 BC–AD 51 (UBA-14151).

Post-hole alignments to the north, east and south of the furnaces may have supported fences/wall lines—perhaps forming a temporary enclosure, sheltering an area up to 150 $m^2$ (Illus. 2.10.6) and, perhaps, similar in function to the early medieval iron-working structure excavated at Lowpark, in County Mayo (Gillespie 2010, 225–33, 317; Hughes 2015, 58–9).

The furnace (457) in Area 2, measuring 0.43m in diameter by 0.32m deep, represents the basal pit of a slag-pit iron-smelting furnace. This furnace appears to have been abandoned with very little clearance of the waste from its last smelt; there was 10.1 kg of slag remaining in the furnace pit.

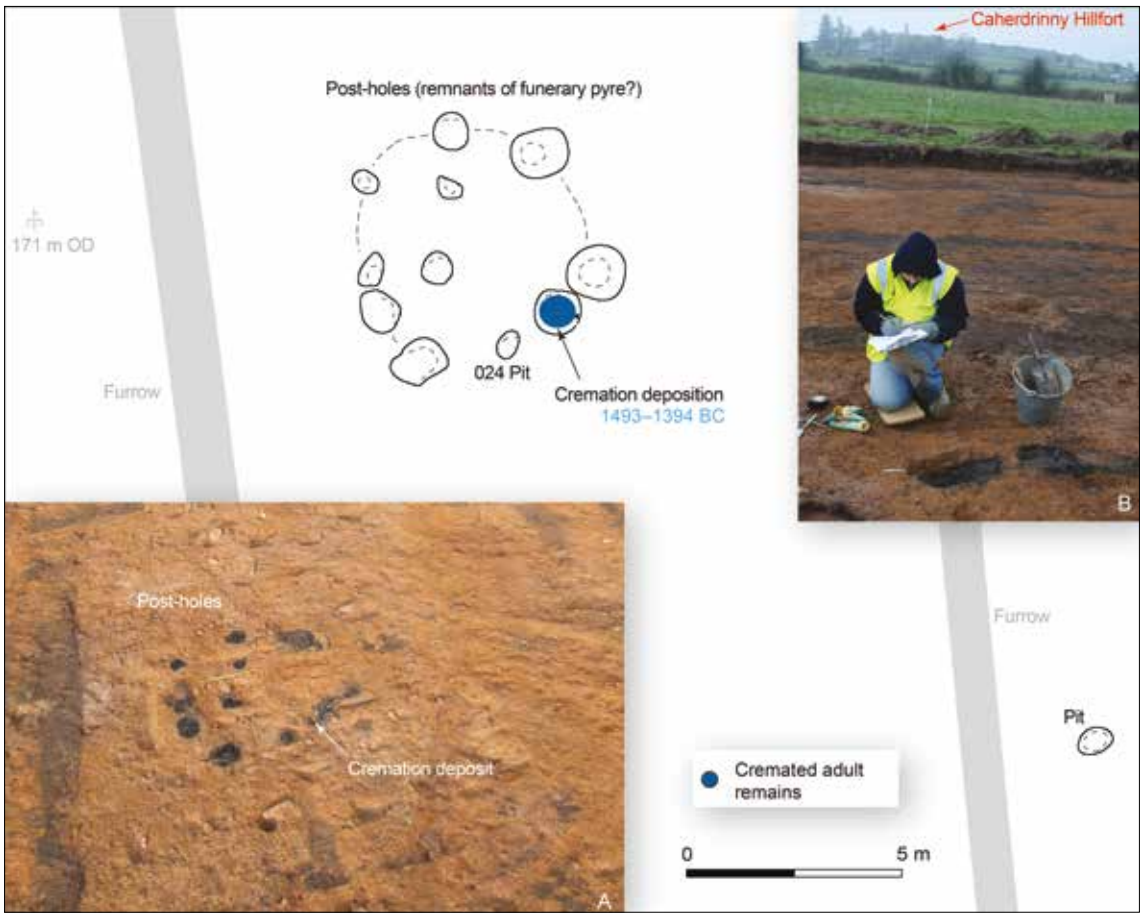
## 2.11 Caherdrinny 2—Middle Bronze Age cremation pyre?

*Nicholas Bower and Penny Johnston*

A circular arrangement of seven post-holes at Caherdrinny 2 (Illus. 1.1.1; Illus. 2.1; Illus. 2.11.1) appeared to form a structure, measuring 2.1 m in diameter. Five of the posts were noticeably larger in diameter and deeper than the others. These larger examples contained the remains of *in situ* burnt wooden posts. There were also two internal post-holes.

A deposit containing charcoal and burnt human bone was recorded in a very shallow (c. 0.1 m deep) depression at the entrance to the structure—an associated shallow pit (024), containing tiny fragments of undiagnostic burnt bone, was located immediately nearby. The cremated bone was quite worn and represented small portions of an adult of indeterminate sex (Chapter 3.8). A sample of charcoal (sloe/cherry) from the fill containing the human bone was dated to 1493–1394 BC (UBA-12976), a Middle Bronze Age date.

The function of the structure at Caherdrinny 2 is unknown, but the inclusion of human remains may indicate that it was associated with a funerary pyre. There appears to be evidence for only one episode of burning. The absence of *in situ* burning of the subsoil could indicate that the pyre was raised above the ground, with the posts smouldering down to their bases (cf. Geber 2009, 222–4). There is no evidence that the cremated remains were buried at the site. The site shows some similarities to a sub-oval arrangement of pits and post-holes excavated at Fermoy 3, Co. Cork (Murphy 2013a), a site dated to the Early Bronze Age. This latter site was associated with at least




*Illus. 2.11.1—Caherdrinny 2: Middle Bronze Age funerary site (pyre?). Inset photo A (Hawkeye) showing elevated mid excavation view of site looking north. Inset photo B (John Sunderland) showing site being recorded, with Caherdrinny Hill in the background to the east.*

three food vessels, but did not contain any identifiable bone. Interpreted by the excavator (ibid.) as a possible light structure, Fermoy 3 may have served a similar function to that of Caherdrinny 2.

## 2.12 Caherdrinny 3—Mesolithic artefacts, Early Neolithic, later prehistoric and early medieval settlements

*Nicholas Bower, Linda Hegarty and Jacinta Kiely*

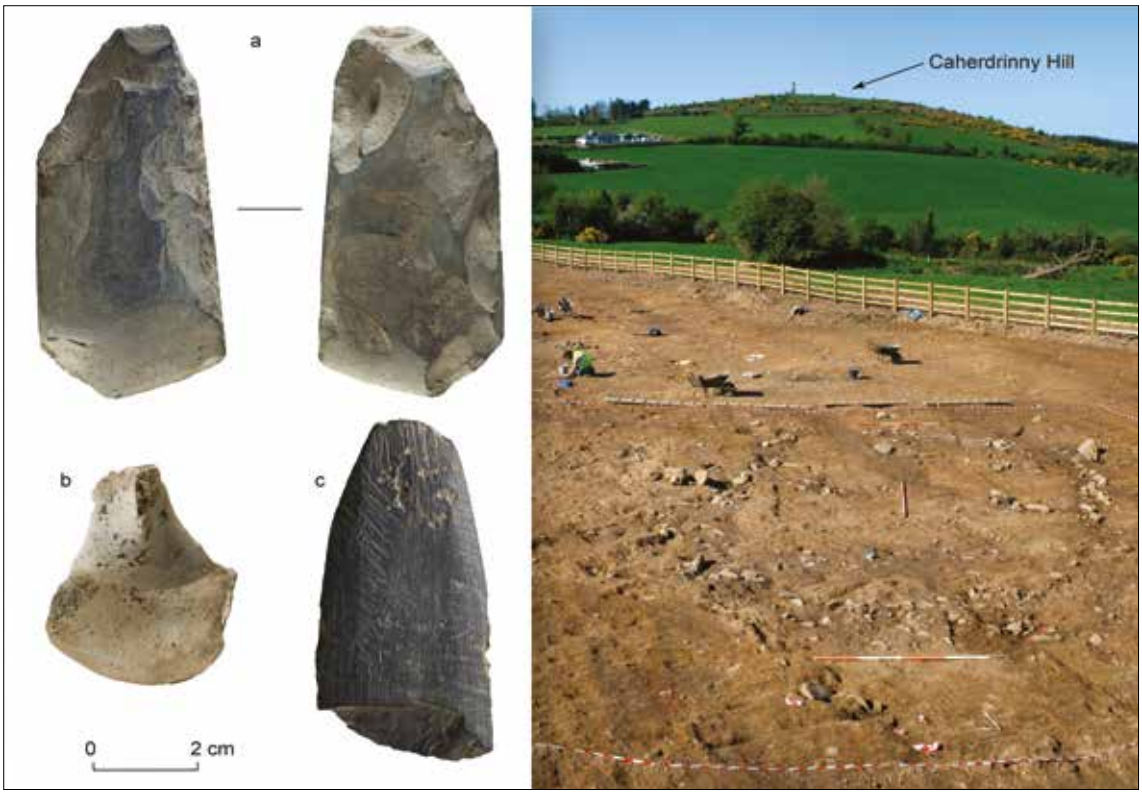
Caherdrinny 3 was an unusually rich and varied site, located within the shadow of Caherdrinny Hill (Illus. 2.1; Illus. 2.12.1). The principal settlement excavated was Early Neolithic in date, but the site was also occupied in the Mesolithic, Chalcolithic, Bronze Age, Iron Age and the late medieval periods (Illus. 2.12.2). The occupiers of these settlements also left behind a large assemblage of stone tools and pottery.

## Residual evidence from Mesolithic hunter-gatherer occupants

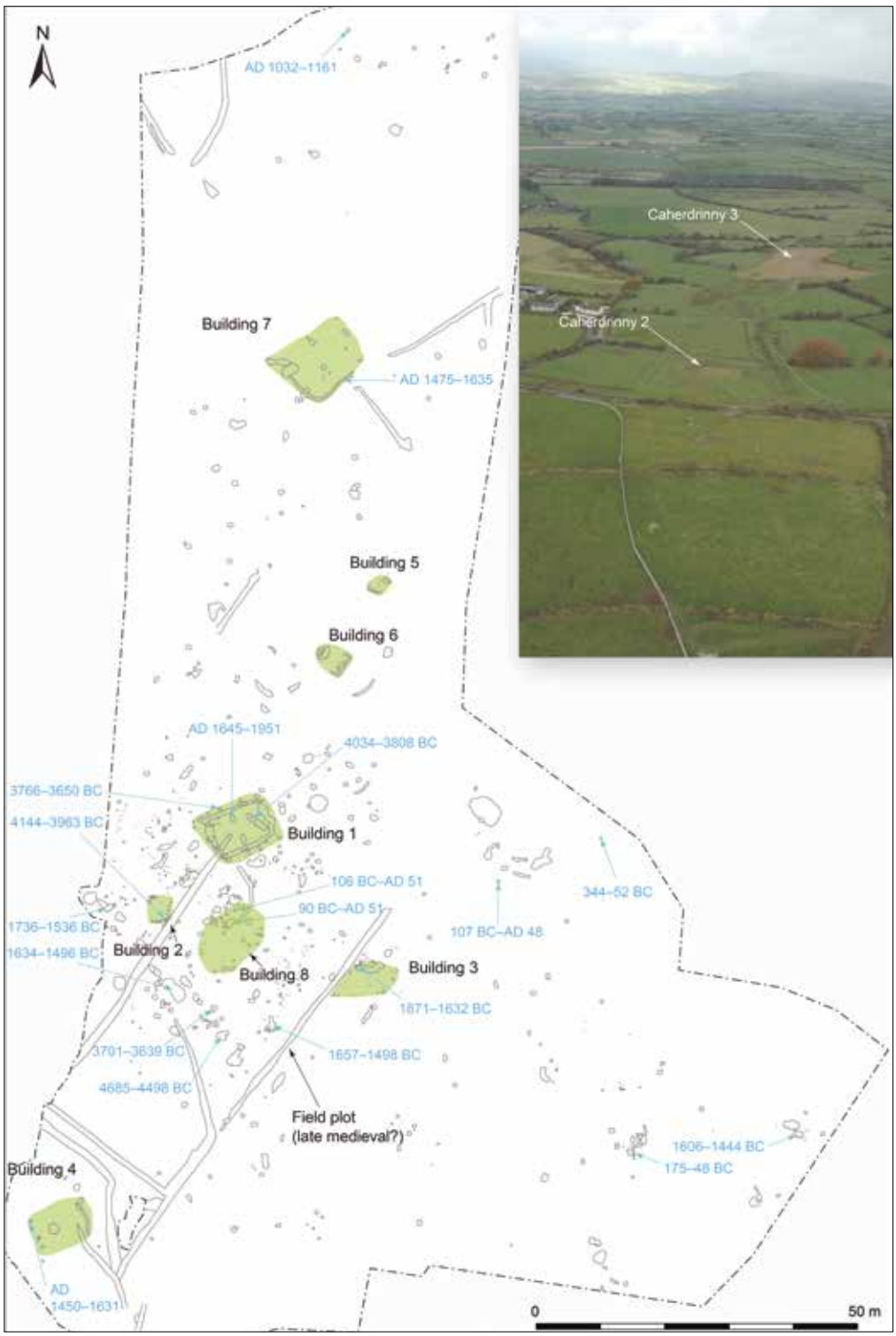
As is often the case, traces of transient occupation by early prehistoric nomadic hunter-gatherers were elusive on the M8 Fermoy–Mitchelstown motorway project. One pit and three artefacts of Mesolithic date were, however, recorded at Caherdrinny 3. Two residual artefacts—a mudstone axehead (Illus. 2.12.1 [a]) and a flint flake (Illus. 2.12.1[b]), both dated to the Early Mesolithic (8000–7000 BC)—were recovered from two different layers within a later occupation surface (Illus. 2.12.3). A broken fragment of a shale Moynagh point (Illus. 2.12.1[c]) of Late Mesolithic date was recovered from topsoil. Use-wear traces indicate that this type of stone tool was once attached (hafted) to a handle, for use as a spear point for hunting and fishing—a similar example was recovered from Gortore 1b (Chapter 2.18). A sample of charcoal (hazel) from the fill of a pit (289; Illus. 2.12.3) was dated to 4685–4498 BC (UBA-13287), further indicating Late Mesolithic use of the site, albeit ephemeral.

## A settlement of Early Neolithic farmers

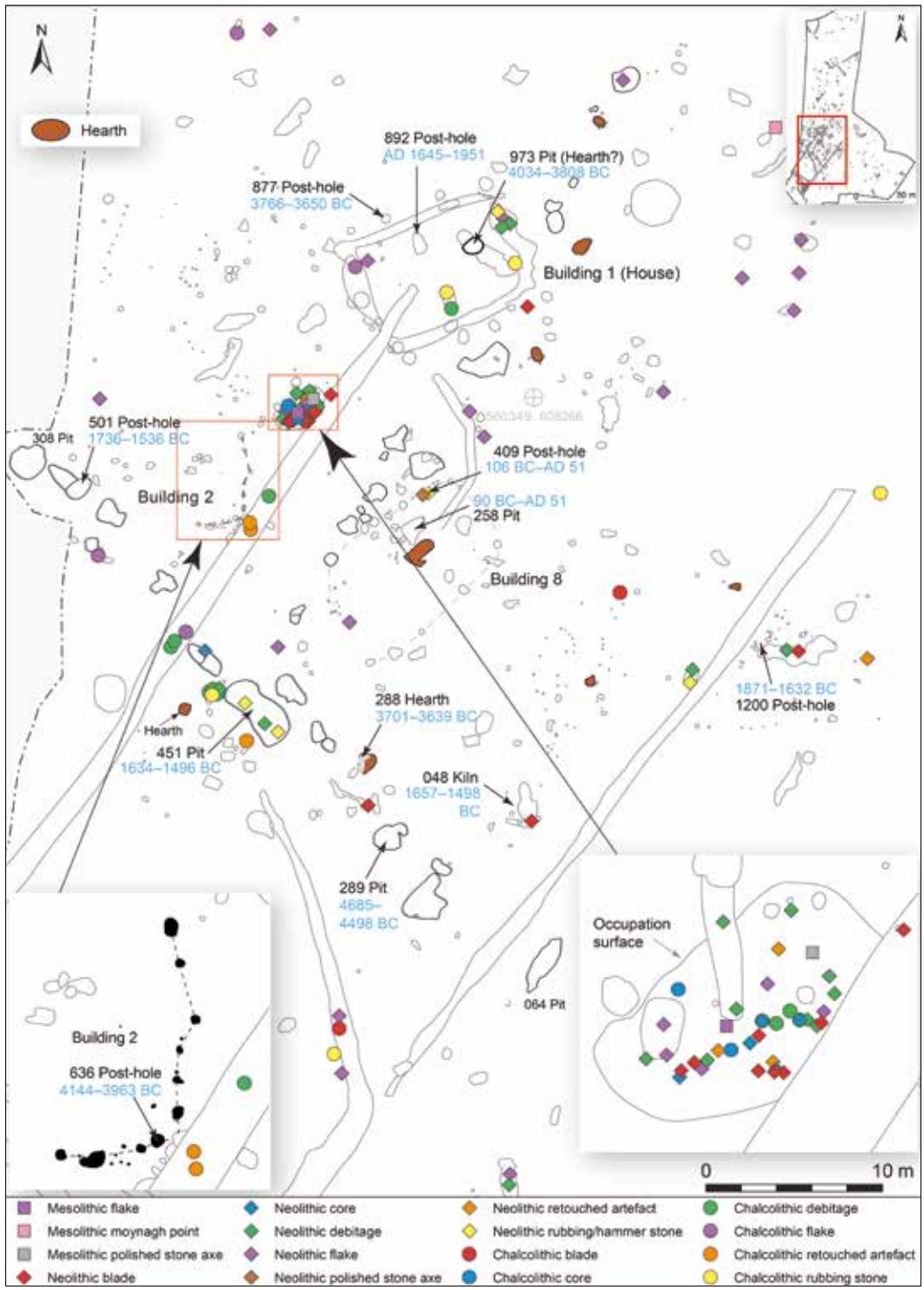
While nomadic hunter-gatherer groups in North Cork might only have passed through Caherdrinny from time-to-time, the excavated evidence confirms that the region's first farmers planned to stay.




*Illus. 2.12.1—Caherdrinny 3: view of site looking south-west towards Caherdrinny Hill, with residual finds of Mesolithic date (inset), namely (a) an Early Mesolithic ground mudstone axehead (E2422:287:1), (b) a flint flake (E2422:476:2) and (c) a broken fragment of a shale Moynagh point (E2422:1:9) (John Sunderland).*




*Illus. 2.12.2—Caherdrinny 3: distribution of archaeological remains across the site.*



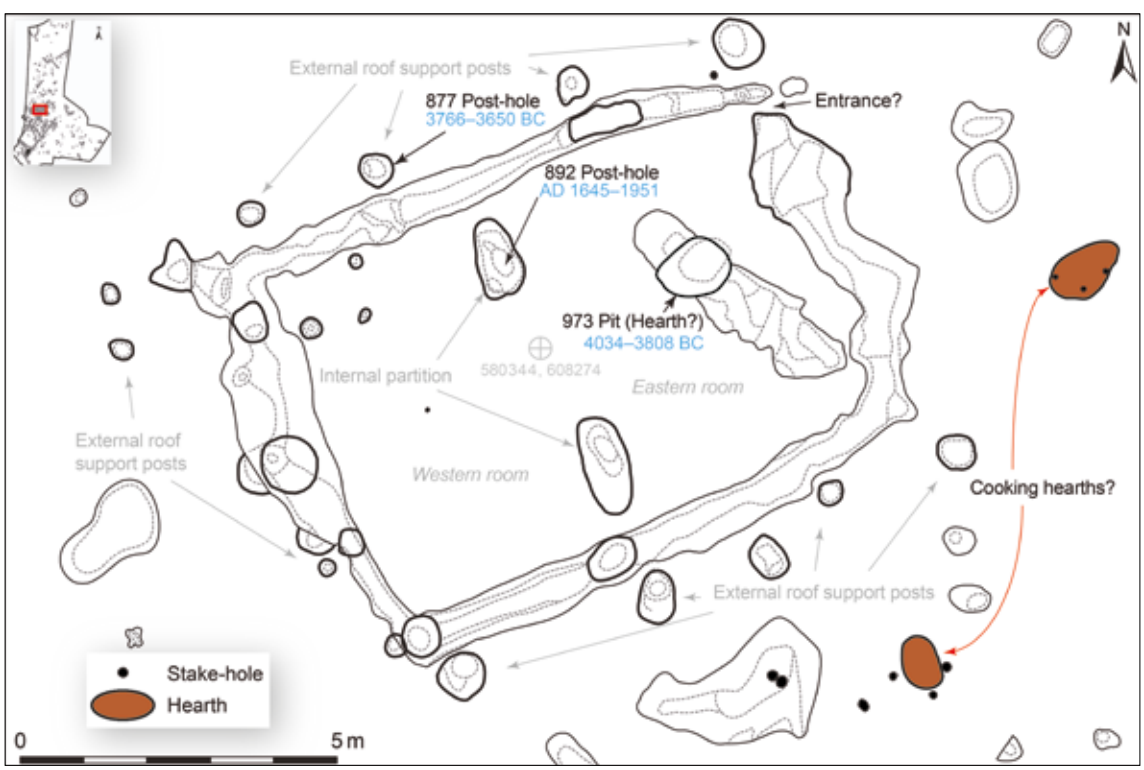

*Illus. 2.12.3—Caherdrinny 3: detail of prehistoric features including an Early Neolithic house (Building 1) and possible second building remains (Building 2).*

The site contained Early Neolithic buildings and other settlement remains, such as pits and hearths. Sherds representing 36 Early Neolithic carinated bowls were also recovered.

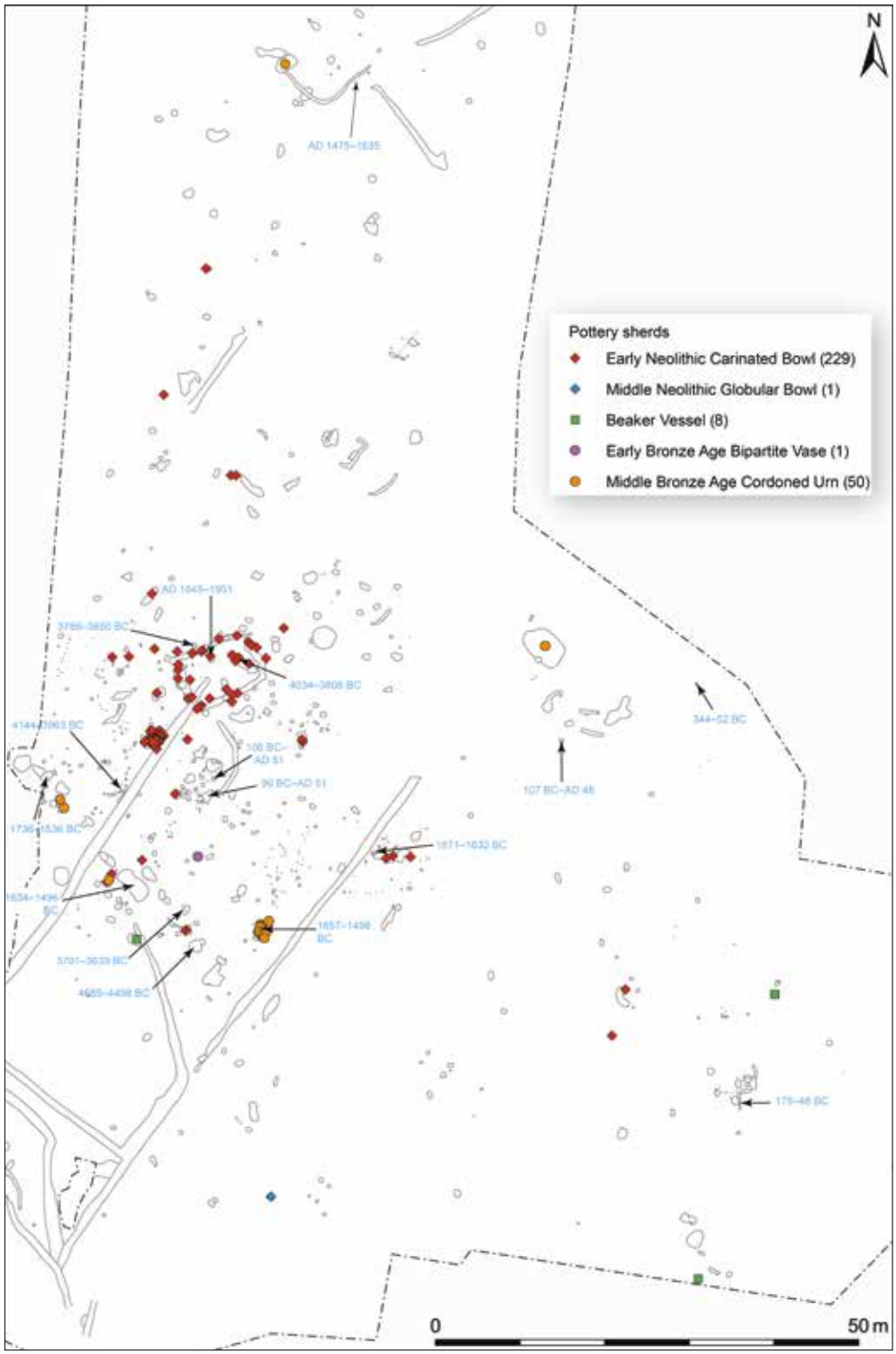
## Building 1

The Early Neolithic remains included a substantial (9.2 m long by 6.3 m) rectangular house, aligned ENE–WSW (Building 1; Illus. 2.12.3–4). The surviving remains comprised a foundation trench that would once have held planks and upright wall posts. The foundation trench was continuous on the north, west and south sides but a narrow (0.2 m wide) gap in the north-east corner may represent the location of the entrance (Illus. 2.12.4), though the doorway would presumably have been wider than the gap evident in the wall foundation cut. Alternative entranceway locations are possible, but none were evident. Limestone bedrock was exposed in part of the foundation trench. Eight post-holes were located within the line of the trench and 15 post-holes were located immediately outside the northern, western and southern walls. Many of the external posts were paired with posts set within the foundation trench, except on the eastern wall where there were no external posts. The presence of external post-holes suggests that the roof extended beyond the foundation trench and that it was supported by external upright posts. A similar arrangement of posts was recorded around the north-east corner of a similarly dated house (Building 1) at Ballinglanna North 3 (Illus. 2.3.3).

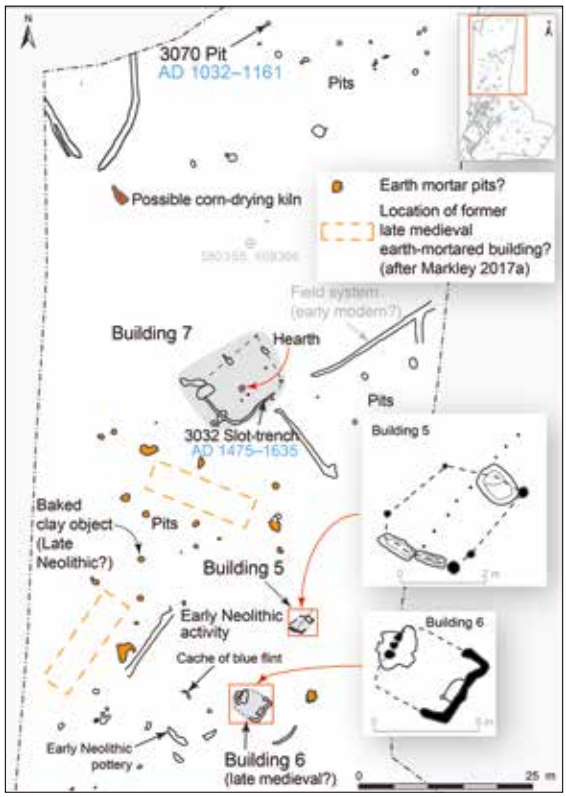
Two post-holes were located roughly midway in the interior of the house. They were set deeply into the subsoil and were clearly load bearing. The two post-holes may also indicate the location




*Illus. 2.12.4—Caherdrinny 3: Building 1, an Early Neolithic house.*




*Illus. 2.12.5—Caherdrinny 3: plan showing distribution of prehistoric pottery sherds.*




*Illus. 2.12.6—Caherdrinny 3: Early Neolithic and medieval features at north-eastern end of the site (interpretation of clay mortar pits and associated buildings based on Markley 2017a, fig. 54).*

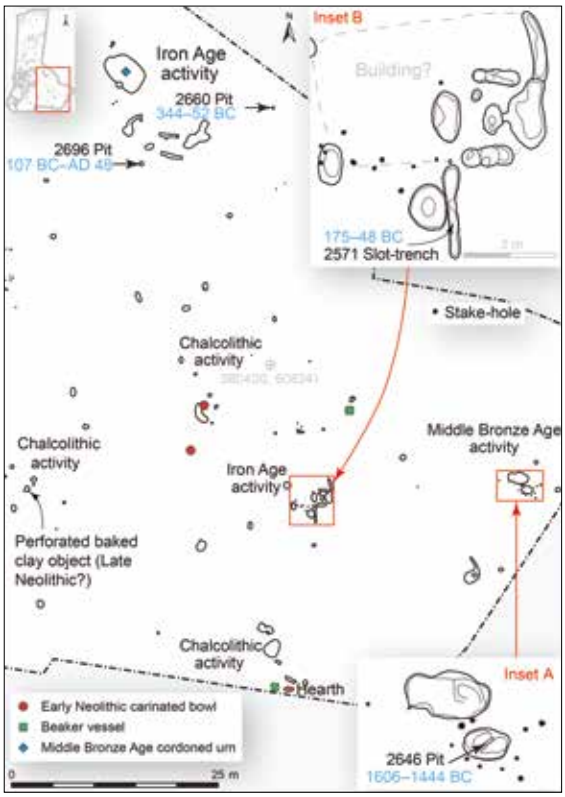
of an internal division within the building. The western room would have measured 3.6 m$^2$ and the eastern room 3.8 m$^2$. Other internal features included a large pit in the eastern portion of the house. The base of the pit was heat scorched (hearth?), but none of its fills were burnt. Three post-holes, spaced 1 m apart, were set against the north-west corner of the interior and may have supported some internal furniture.

Building 1 was firmly dated to the Early Neolithic period. Sherds of Early Neolithic pottery were well distributed throughout the various post-holes and foundation trenches (Illus. 2.12.5); a sample of charcoal (cherry/sloe) from the fill of the large, partly scorched, internal pit was dated to 4034–3808 BC (UBA-13284, suggesting the pit may represent pre-house activity on the site), while a sample of charcoal (hazel) from an external post-hole was dated to 3766–3650 BC (UBA-13286)—both Early Neolithic dates. Samples taken from structural features (post-holes, foundation trenches and internal pits) associated with the house contained small quantities of hazelnut shells, fruit seeds (raspberry/blackberry seeds and apple/pear pips) and cereal grains, including emmer wheat.

## Other settlement features

A concentration of archaeological features was located in a broad area (30 m north–south by 17 m) to the south of Building 1. Two outdoor hearths were located immediately outside Building 1. Each hearth was associated with a tripod arrangement of stake-holes (Illus. 2.12.4), a configuration suggestive of drying or cooking having taken place. An occupation surface was located 5 m south-west of Building 1 (Illus. 2.12.3). With the exception of the house itself, the largest quantity of Early Neolithic pottery recovered from Caherdrinny 3 came from this deposit (Illus. 2.12.5). Over 40 lithics, including eight cores (flint and quartz crystal) and debitage, were also recovered (Illus. 2.12.3). These finds included a blade (E2422:553:2) and a flake (E2422:553:3) that were derived from a distinctive nodule of blue flint.

A cluster of features, including a hearth, eight pits, two post-holes and a foundation trench, were located 24 m south of Building 1. A flint blade (E2422:277:1) and a sherd of Neolithic pottery (E2422:277: 2) were recovered from one of the pits. A sample of charcoal (hazel) from the hearth (294) was dated to 3701–3639 BC (UBA-13289).




*Illus. 2.12.7—Caherdrinny 3: prehistoric features at south-eastern end of the site.*

## Building 2

An L-shaped building was located 10 m south-west of Building 1 and adjacent to the 'occupation surface' described above (Illus. 2.12.3). The building comprised 12 post-holes and eight stake-holes, incorporating an area of c. 5.2 m by 2.4 m. It is not clear whether this represented the remnants of a rectangular house, or merely a fence line. An Early Neolithic date 4144–3963 BC (UBA-13292) was obtained from hazel charcoal from one of the posts. The single date is older than the 3700 BC date typical for Early Neolithic houses and—coupled with the 4034–3808 BC (UBA-13284) date returned for the pit within the confines of Building 1—suggests, significantly, that Caherdrinny 3 contains settlement remains dating to the very onset of the Neolithic period in Ireland.

## Building 5

At the northern end of the site there were possible remains of a small building, comprising a rectangular arrangement of post-holes, pits, stake-holes and a possible foundation trench (Illus. 2.12.6, inset). The building measured 2.1 m (NE/SW) by 1.8 m. A line of eight stake-holes extended from the mid-point of the foundation trench 3.5 m to the north-east. The intervals between the stake-holes were very regular and ranged from 0.3–0.4 m. These stake-holes were smaller than the two that comprised the western wall. No artefacts were recovered from any of the features and the building's date was not determined.

Features of Early Neolithic date were recorded extending c. 25 m north from Building 1, in the vicinity of Building 5. These features included five pits, three post-holes and four short linear cuts. Early Neolithic pottery was recovered from the topsoil adjacent to one of the linear cuts and a cache of blue flint flakes and debitage was recovered from a second linear cut (Illus. 2.12.6). The linear cuts were not dated but did not appear to relate to the phase of late medieval field boundary cuts. The flakes were distinctly blue in colour and are among the largest recovered from Caherdrinny 3. Three of the flakes form a group that were knapped off a single platform core. They are similar to two flakes recovered from the occupation surface associated with Building 1. Blue flint was also recovered at Gortore 1b, a site located 5 km to the south (Chapter 2.18). All of the blue flint may be derived from the Cork coast (Peter Woodman pers. comm.), c. 45 km away, and is an indication of a probable link between the two excavated sites in the Early Neolithic period. (The blue flint from both sites was checked for refitting, but none was identified.) The blue flint is unusual and, in the Neolithic period, was possibly regarded as having special properties.

## Middle Neolithic evidence

A single body sherd from a Middle Neolithic globular bowl was recovered from an isolated pit at the southern end of the site (Illus. 2.12.5).

## Chalcolithic evidence

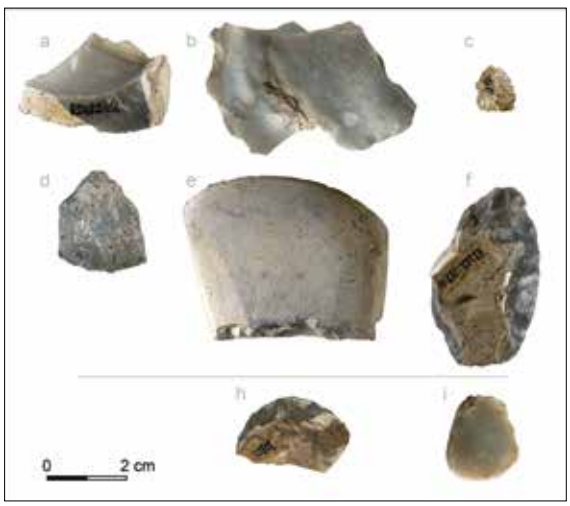
Chalcolithic activity—comprising three groups of pits, with some post- and stake-holes—was recorded in the eastern part of the site (Illus. 2.12.7). No definite building was identified and each group of features differed to the others. Sherds from the same Beaker pot were recovered from features in two separate areas, which suggest that all the Chalcolithic activity may have been contemporary. Other items recovered included hazelnut shells, barley grain, a rubbing stone, a flint flake and debitage and a perforated baked clay object of uncertain function. Specialist analysis suggests this latter find type is only known from Late Neolithic Grooved Ware sites. A portion of a similar, albeit unperforated, example was found in a disturbed context at the western end of the site.

Residual lithics of Chalcolithic date were recovered from elsewhere on the site. These included a dome-shaped micro disc scraper (Illus. 2.12.8h), three convex end scrapers (see example in Illus. 2.12.8i) and two bipolar cores. Unfortunately, these artefacts were recovered from secondary contexts, including topsoil, the Early Neolithic house and from the fills of early modern field boundaries.

## Bronze Age building, kiln and other activity more difficult to interpret

A possible building (Building 3; Illus. 2.12.2; Illus. 2.12.9) survived as an alignment of irregularly spaced post- and stake-holes, forming an area 8.5 m north–south by 7.8 m. A sample of charcoal (hazel) from one of the post-holes was dated to 1871–1632 BC (UBA-13291), an Early Bronze Age date. The function of the building is unknown, but it seems unlikely to have been a dwelling and may have been an animal pen. An alternative interpretation of the pattern of surviving post- and stake-holes is that the structure was a smaller, rectangular building, measuring 5.8 m NW–SE by 4.2 m. A small hearth was located nearby, to the south. A large irregular pit within the building contained pottery and lithics dated to the Early Neolithic period (Illus. 2.12.3; Illus. 2.12.5), suggesting that the pit pre-dated the building, or that the finds were redeposited.

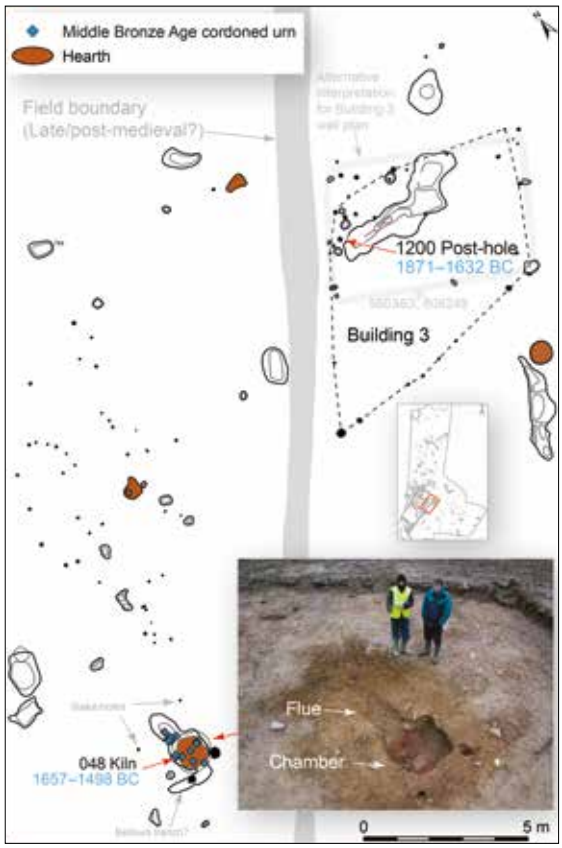
Other Bronze Age evidence included a kiln




*Illus. 2.12.8—Caherdrinny 3: Neolithic stone tools, (a) possible concave scraper (E2422:1:16), (b) a rare strike-a-light (E2422:1:41), (c) a flat scraper (E2422:1649:1), (d) a quartz crystal core (E2422:287:17), (e) a broken and burnt polished mudstone axehead (E2422:413:1), (f) a retouched flake (E2422:287:10), and two of Chalcolithic date, (h) a dome-shaped scraper (E2422:1:24) and (i) convex end scraper (E2422:266:7).*

and some pits. In addition, four Early Bronze Age dates (Illus. 2.12.2) were obtained from features within a broad area (c. 30 m north–south by 17 m) of intensive prehistoric activity across the central area of the site.

The small, key-hole-shaped kiln was recorded 15 m to the south-west of Building 3 (Illus. 2.12.9). The base of the kiln chamber was heat scorched. A post-hole and a linear cut were recorded on the southern side of the chamber: the linear cut may have held bellows. Two stake-holes were located 0.7 m both to the east and west of the flue entrance. Sherds of Middle Bronze Age domestic cordoned urns were recovered from fills within the kiln and one of the stake-holes. Barley grain (148 grains) and seeds from the knotgrass family were recovered from the kiln. A sample of barley was dated to 1657–1498 BC (UBA-13231), a Middle Bronze Age date. This date range is virtually identical to the date range of 1667–1496 BC obtained from a corn-drying kiln excavated at Knockgraffon, Co. Tipperary (McQuade et al. 2009, 33), strengthening the likelihood that corn-drying kilns were in use in Ireland much earlier than was tradionally believed.




*Illus. 2.12.9—Caherdrinny 3: Early Bronze Age Building 3 (animal pen?) and Middle Bronze Age corn-drying kiln.*

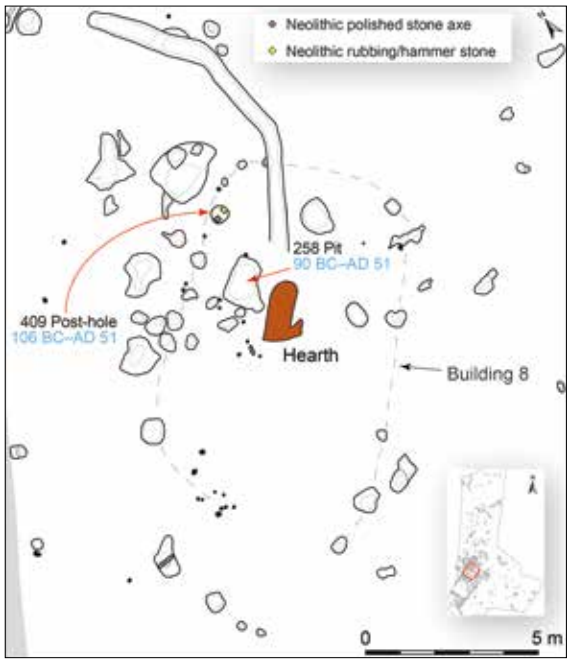
A cluster of features, including a large pit and some post-holes and hearths, was located c. 15 m west of the kiln (Illus. 2.12.3). A Middle Bronze Age date of 1634–1496 BC (UBA-13294) was obtained from a sample of charcoal (cherry/sloe) from the large pit, but pottery and lithics dated to the Neolithic were also recovered.

A group of large pits/post-holes was recorded on the edge of the area of excavation, c. 20 m south-west of Building 1, the Neolithic house (Illus. 2.12.3). An Early Bronze Age date of 1736–1536 BC (UBA-13293) was returned from one of these features and sherds of a Middle Bronze Age domestic cordoned urn from another (Illus. 2.12.5). The function of these pits/post-holes is unknown, although they appeared to align with a series of other large pits to form a possible NW–SE alignment (outlined in bold in Illus. 2.12.3).

At the eastern limit of the excavation was an isolated area of Middle Bronze Age activity, comprising two irregular pits and a cluster of 12 associated stake-holes (Illus. 2.12.7, inset A). A sample of charcoal (hazel) from the small pit was dated to 1606–1444 BC (UBA-13300). Charred remains of barley, knotgrass and hazelnut were also recovered from this pit.

## Iron Age activity

The site was also occupied in the Iron Age. Evidence from this period included a house-like building (Building 8; Illus. 2.12.2) and the remnants of a possible second structure, and other features, at the eastern end of the site (Illus. 2.12.7).




*Illus. 2.12.10—Caherdrinny 3: possible Iron Age house (Building 8).*

### Building 8

A cluster of pits, post-holes and stake-holes were recorded 9 m south of the Early Neolithic house (Building 1). Some of these cuts appeared to be aligned and they may represent a sub-rectangular building (Building 8), measuring c. 10.4 m long by 6.5 m, with a centrally located hearth (Illus. 2.12.10). A mudstone axehead and a quartzite rubbing stone (both dated typologically to the Neolithic) were recovered from the upper fill of one of the post-holes, while a sample of charcoal (willow/poplar) from the basal fill of the same feature was dated to 106 BC–AD 51 (UBA-13290)—this indicates that the stone objects were most likely redeposited. A sample of charcoal (hazel) from one of the associated (internal) pits was dated to 90 BC–AD 51 (UBA-13295).

### Other Iron Age features

At the eastern end of the site were two further clusters of Iron Age features. One cluster comprised irregular pits and some stake-holes/post-holes with no coherent ground plan. A sample of charcoal (oak) from one pit—which contained burnt clay and iron slag (potentially indicative of iron-working?)—was dated to 344–52 BC (UBA-13303), while a sample of charcoal (fruitwood) from a large, nearby post-hole was dated to 107 BC–AD 48 (UBA-13302). A second cluster, located further south (Illus. 2.12.7, inset B), comprised five pits, four linear slot-trench-like features and 13 stake-holes. The layout of the features might indicate that these represent a building of some kind, but the presence of heat-shattered stone in the fills of all of the pits hints at some other function. A sample of charcoal (willow/poplar) from one of the slot-trenches was dated to 175–48 BC (UBA-13299).

## A medley of medieval activity

The medieval activity at Caherdrinny 3 was mostly confined to the northern area of the site (Buildings 6 and 7 and a corn-drying kiln; Illus. 2.12.2; Illus. 2.12.6) and the south-west corner (Building 4; Illus. 2.12.2; Illus. 2.12.11).

### Building 4

This rectangular building measured 8.8 m east–west by 4.5 m (Illus. 2.12.11). The eastern wall of the building comprised a foundation trench and a short length of post- and stake-holes formed the western wall. A metalled surface (of compressed small stones) set halfway along the projected line of the southern wall may mark the location of the entrance into the building. No evidence for the northern wall survived. A sample of charcoal (hazel) from a post-hole forming the north-west corner of the building was dated to AD 1450–1631 (UB–13288), a late/post-medieval date. There was a large hearth in the interior. A tiny sample of indeterminate burnt bone was recovered from the hearth. A charcoal-rich layer overlay the metalled surface to the south-east of the hearth. An assemblage of charred plant remains, which included a cache of oats, was recovered from this layer. The building appeared to be enclosed within a contemporary field plot (Illus. 2.12.2), with associated plough furrows aligned NE–SW (not illustrated). The shallow ditch at the south-east end of the building is interpreted as a drain, but it is not known if the two features were contemporary.

### Building 6

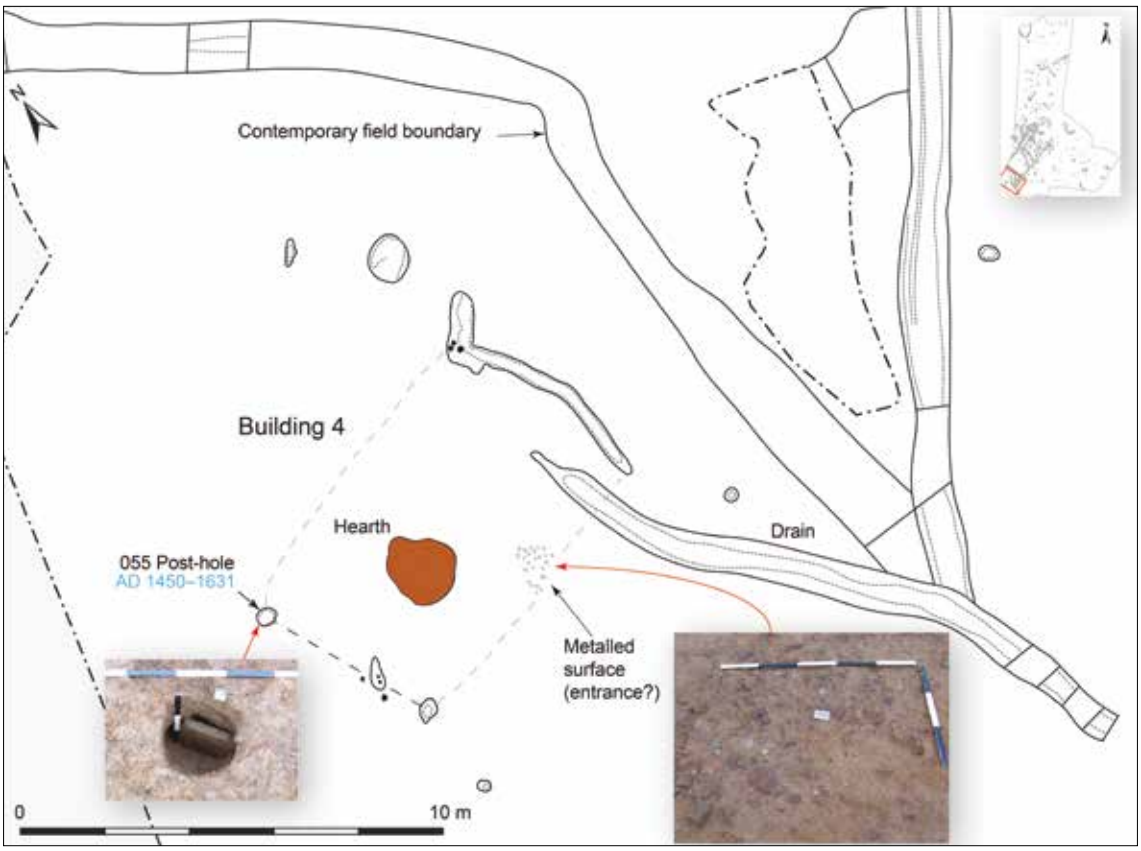
Comprising three substantial post-holes and an opposing stone-lined foundation trench, this building was located towards the northern end of the site (Illus. 2.12.2; Illus. 2.12.6). The foundation trench was 3.3 m long with returns at either end (the corners) 1.4 m long. The building was orientated NW–SE. The sides of the foundation trench were stone lined and wide flat stones bridged the top (not illustrated). Charred plant remains (mostly oats) were recovered from a burnt layer located on the internal side of the foundation trench. A second trench was located 2.6 m to the north-west; the base of this was cut by three deep post-holes, set adjacent to one another. Building 6, which had a floor plan of 13.3 $m^2$, is assigned to the medieval period merely on the basis of the strong presence of oats.

### Building 7 and field system

Located c. 45 m to the north of Building 6 was a cluster of cut features. The identifiable remains appeared to represent a possible building foundation and field enclosure.

Building 7 (7 m NE–SW by 6.5 m; Illus. 2.12.6) comprised an L-shaped foundation trench and can only tenuously be described as a building. A sample of charcoal (sloe/cherry) from the trench fill was dated to AD 1475–1635 (UB–13297), a late/post-medieval date and contemporary with the radiocarbon date obtained from Building 4. Two large irregular pits were located at the northern tip of the foundation trench and a third pit and two associated stake-holes were truncated by the trench. A single (probably residual) sherd of a Middle Bronze Age cordoned urn was recovered from the fill of one of the pits. A hearth (0.65 m in diameter) and an associated tripod arrangement of stake-holes were located in the interior of Building 7. A small amount of indeterminate burnt bone fragments, charred plant remains, including oats, and a clay pipe stem were recovered from the hearth. Fragments of animal bone (cow and sheep/goat or pig), glass and corroded iron were also recovered from one of the pits located to the north of the hearth. The pits located to the north and east of the hearth may have been located in the interior, as the north-eastern limits of the building were not determined. Charred plant remains, including oats, were recovered from some of the pits and post-holes.

The field enclosure survived as two perpendicular ditches that enclosed an area measuring c. 15 m NE–SW by 20 m. The field enclosure extended beyond the area of the excavation, to the north-east. A clay pipe stem and fragments of early modern glass were recovered from some of the fills of the ditches. Four shallow pits were located within the enclosed area.




*Illus. 2.12.11—Caherdrinny 3: Building 4, the remains of a possible building of late/post-medieval date at the southern end of the site.*

## Evidence of other building remains?

A recent reappraisal by Markley (2017a, 222–35, fig. 54) of the excavated evidence at Caherdrinny 3 has identified possible earth mortar pits that may have been used to mix natural clay with gravel for use as earth mortar in the construction of earth-mortared stone buildings. Markley suggests these pits would have been positioned around the perimeter of the building and, therefore, interprets the distribution of the pits at the northern end of Caherdrinny 3 as indicating the location of, perhaps, two further rectangular buildings (Illus. 2.12.6), for which no other evidence survives. Markley's research (Markley 2017b, 129) also suggests that earth-mortared stone buildings were a well-established, vernacular building style in the later medieval period in Ireland. Regional field surveys across counties Sligo, Leitrim and Roscommon have shown that 19% of upstanding later medieval structures in County Leitrim can be reappraised to be of earth-mortared stone construction. This corresponds to 17% in County Roscommon and 24% in County Sligo, respectively (ibid., 126–7).

Similarly, a reappraisal of below ground excavations also confirms the widespread use and presence of earth-mortared stone construction in the later medieval settlement record in Ireland (ibid., 127–30).

### Possible corn-drying kiln and other miscellaneous features

A series of pits, linear boundaries, and hearths was recorded in the northern portion of the site (Illus. 2.12.6). The features were dispersed across a broad area (100 m north–south by 50 m). A sample of charcoal (willow/poplar) from a pit (3070) on the northern edge of the excavation was dated to AD 1032–1161 (UBA-13296), an early medieval date. A sample of indeterminate burnt bone was recovered from this pit. The pit was one of a cluster of 15 pits. Another pit contained a substantial assemblage of charred plant remains, including free threshing wheat and oats. The wheat, which was mostly bread wheat, made up 84% of the identifiable cereal assemblage, with the remainder being mostly oats. A large number of legume seeds (peas, beans and clover) were also present. The base of the pit was heat scorched and it had a flue-like extension leading north-west. The feature may, therefore, have been a corn-drying kiln (Illus. 2.12.6). Bread wheat was probably introduced in Ireland in the early historic period, but it gradually became more common in the later medieval period, possibly due to the influences of Anglo-Norman farming (Monk 1986, 34).

## 2.13 Garryleagh 1—Late medieval smithing hearth

*Simon Ó Faoláin and Jacinta Kiely*

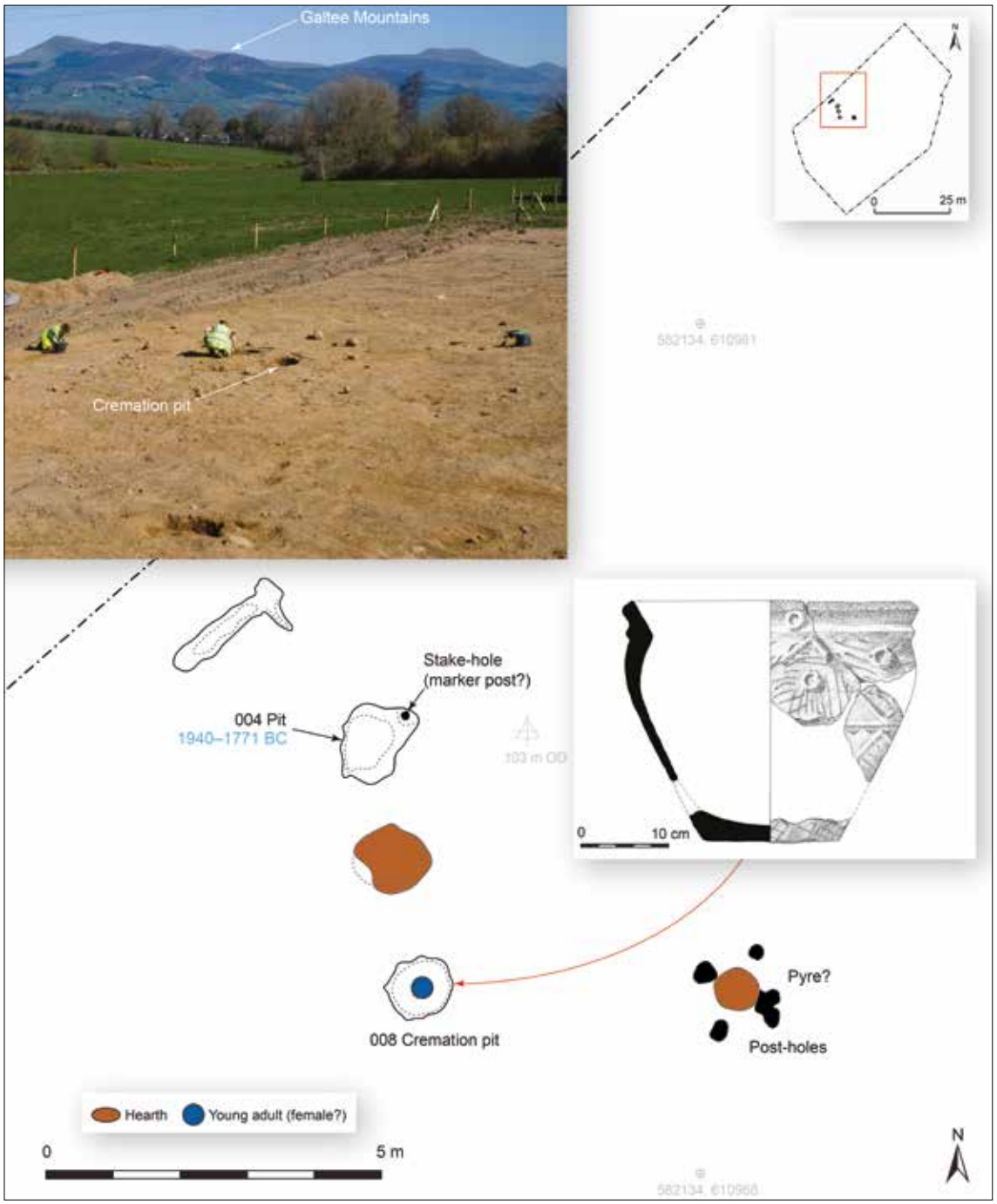
Evidence for small-scale blacksmithing was unearthed at Garryleagh 1, on poorly drained pasture land, in the broad plain between the Galtee Mountains and Kilworth Mountains (Illus. 1.1.1; Illus. 2.3). Excavations revealed a short (10 m long) segment of a ditch, containing metallurgic residues, and a small smithing hearth (Illus. 3.11.1). The ditch was 1.4 m wide by 0.4 m deep and was exposed fully within the excavation cutting. The hearth had within it charcoal, slag (dominated by small smithing hearth cakes), furnace-lining slag, hammerscale and fragments of ceramic *tuyères* (Chapter 3.11). A sample of charcoal (hazel/alder) from the hearth was dated to AD 1283–1390 (UBA-12977). The evidence indicates that the ditch was open when the smithing hearth was in use, as it was used as a dump for the metal-working that was carried out at the hearth. The blacksmithing carried out on the site most likely serviced local communities in the late 13th/14th centuries.

## 2.14 Glenatlucky 1—Early Bronze Age burial

*Linda Hegarty and Jacinta Kiely*

The site was situated on relatively flat ground on the northern foothills of the Kilworth Mountains, with views of the Galtee Mountain range in the distance (Illus 1.1.1; Illus. 2.2; Illus. 2.14.1). A stream bounded the field near the site, becoming the River Gradoge further north.

A cremation pit and associated features were excavated at the site. The cremation pit contained




*Illus. 2.14.1—Glenatlucky 1: plan of funerary features associated with the Early Bronze Age cremation of a young adult (possibly female), with inset drawing of the accompanying encrusted urn (photo by John Sunderland; pottery drawing by Malgorzata Kryczka).*

some sherds from an encrusted urn of Early Bronze Age date (c. 2000–1800 BC; Chapter 3.9), a flint slug knife and a second possible flint knife blade. Cremated bone from this pit fill represented a young adult (<25 years old), most likely a female, of indeterminate age. The weight of the cremated remains (695 g) suggests that the burial represents a redeposition of part of the original cremated remains. A sample of charcoal (willow/poplar) from the pit was dated to AD 1677–1953 (UBA-12978), a date clearly anomalous with all the other evidence from the cremation pit.

A nearby pit resembled a cremation on the surface, as it contained large quantities of charcoal. There was, however, no evidence for associated burnt bone. This pit may, instead, have been a symbolic burial or 'blind burial', perhaps representing the symbolic burial of someone who died elsewhere (Chapter 3.8). A sample of charcoal (willow/poplar) from this pit was dated to 1940–1771 BC (UBA-12979), an Early Bronze Age date that is contemporary with the pottery type found in the cremation pit.

Two hearths were also identified. Associated finds included a flint flake, as well as charcoal and baked clay. One of the hearths was surrounded by four post-holes, suggesting a timber structure had been erected at or over the fire. Although there is no direct evidence to connect this hearth to the cremation deposit, it is possible that it was associated with funerary ritual. Despite the absence of even tiny fragments of cremated bone the hearth may, nonetheless, have been used as a pyre (cf. Geber 2009, 222–4).

## 2.15 Gortnahown 1—Early Bronze Age and Iron Age features/possible house

*Julianna O'Donoghue and Jacinta Kiely*

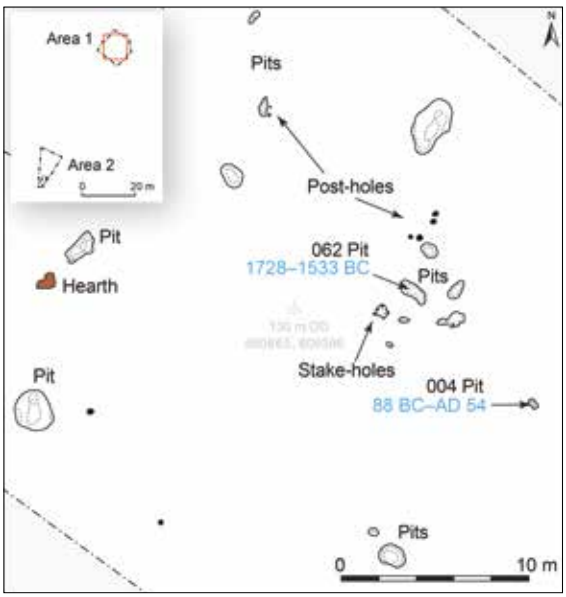
Located on the eastern bank of the River Gradoge (Illus. 1.1.1; Illus. 2.1), the excavation comprised two separate areas (Areas 1 and 2), located 40 m apart. Bronze Age features were recorded in both areas, while a single pit of Iron Age date was recorded in Area 1.

### Early Bronze Age and Iron Age activity in Area 1

A cluster of pits, post-holes and a hearth were located in Area 1 (Illus. 2.15.1). It was difficult to discern any pattern in the distribution of these cut features. A sample of charcoal (blackthorn) from the fill of one of the pits was dated to 1728–1533 BC (UBA-12980), an Early Bronze Age date. A small pit was located 8 m south-east of the main group of pits. A sample of charcoal (hazel) from this pit was dated to 88 BC–AD 54 (UBA-13174), an Iron Age date. It was not possible to determine if any of the other features were also Iron Age, making further interpretation difficult.

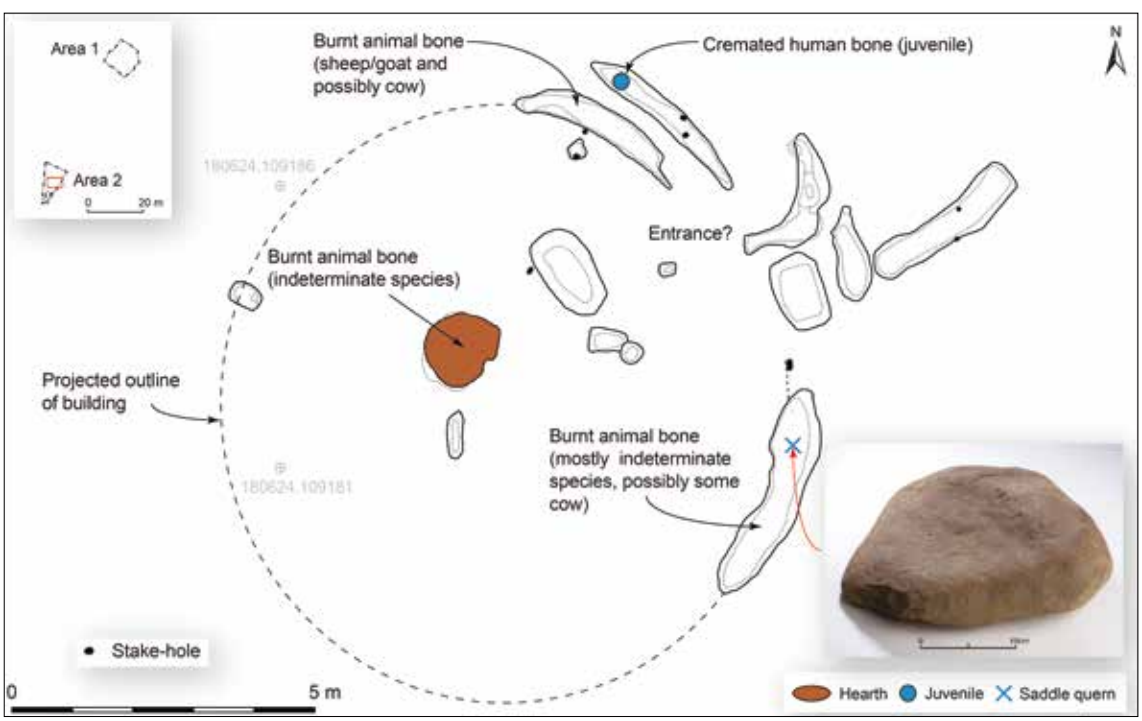
### Structure (Bronze Age?) in Area 2 containing the cremated remains of a juvenile

The cut features in Area 2 are likely to represent the partial remains of circular structure, measuring c. 8.8 m in diameter (Illus. 2.15.2). The surviving portion of the structure was defined by a foundation trench and an apparent north-east-facing entrance, c. 2.6 m wide. Cremated human

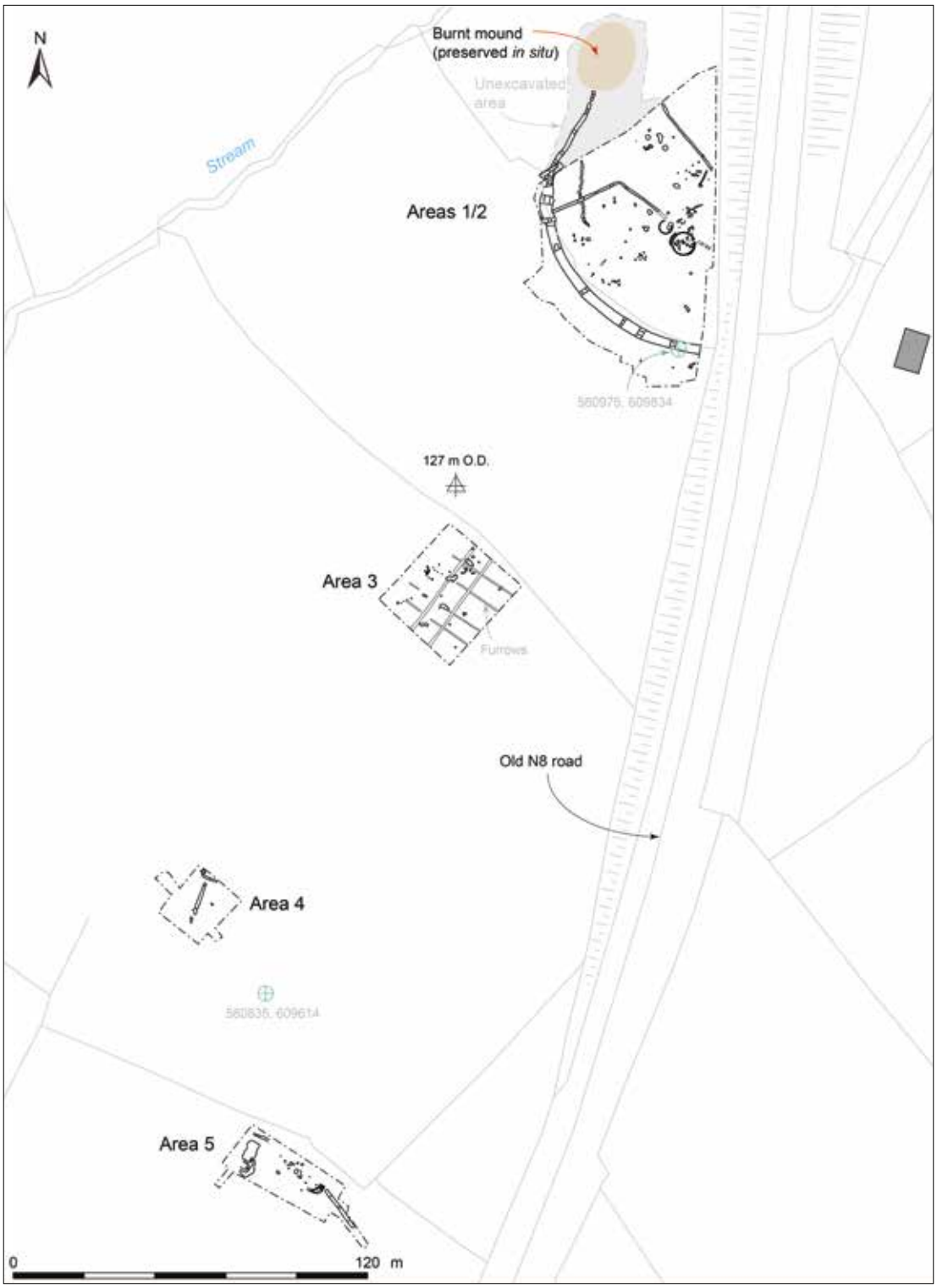



*Illus. 2.15.1—Gortnahown 1: remnant Bronze Age and Iron Age settlement features from Area 1.*

remains (14 g), representing a juvenile (Chapter 3.8), were recovered from the fill of an outer trench (concentric to the main foundation trench), located to the north of the entrance. A complete saddle quern (E2423:36:1; Illus. 2.15.2) was found in the foundation trench on the opposite side of the entrance. Three other external trenches were in the area of the entrance and may have formed part of a porch or annex. An external trench, lying perpendicular to the building, may have been a drip gully for the overhang of the porch roof. Four post-holes and four pits were recorded within the interior of the building. One pit is likely to have been a central hearth. Burnt animal bone was recovered from the fills of two of the foundation trenches and from the hearth. The only diagnostic bone was from an adult sheep/goat, while several other larger fragments were possibly from a cow. None of the bone from the hearth could be identified to species. Unfortunately, no radiocarbon date was obtained from the building, however, it is deemed likely to be Bronze Age in date by virtue of its form, the presence of the saddle quern and the human remains (cf. Cleary 2005).




*Illus. 2.15.2—Gortnahown 1: plan of circular building (house?) of possible Bronze Age date from Area 2.*

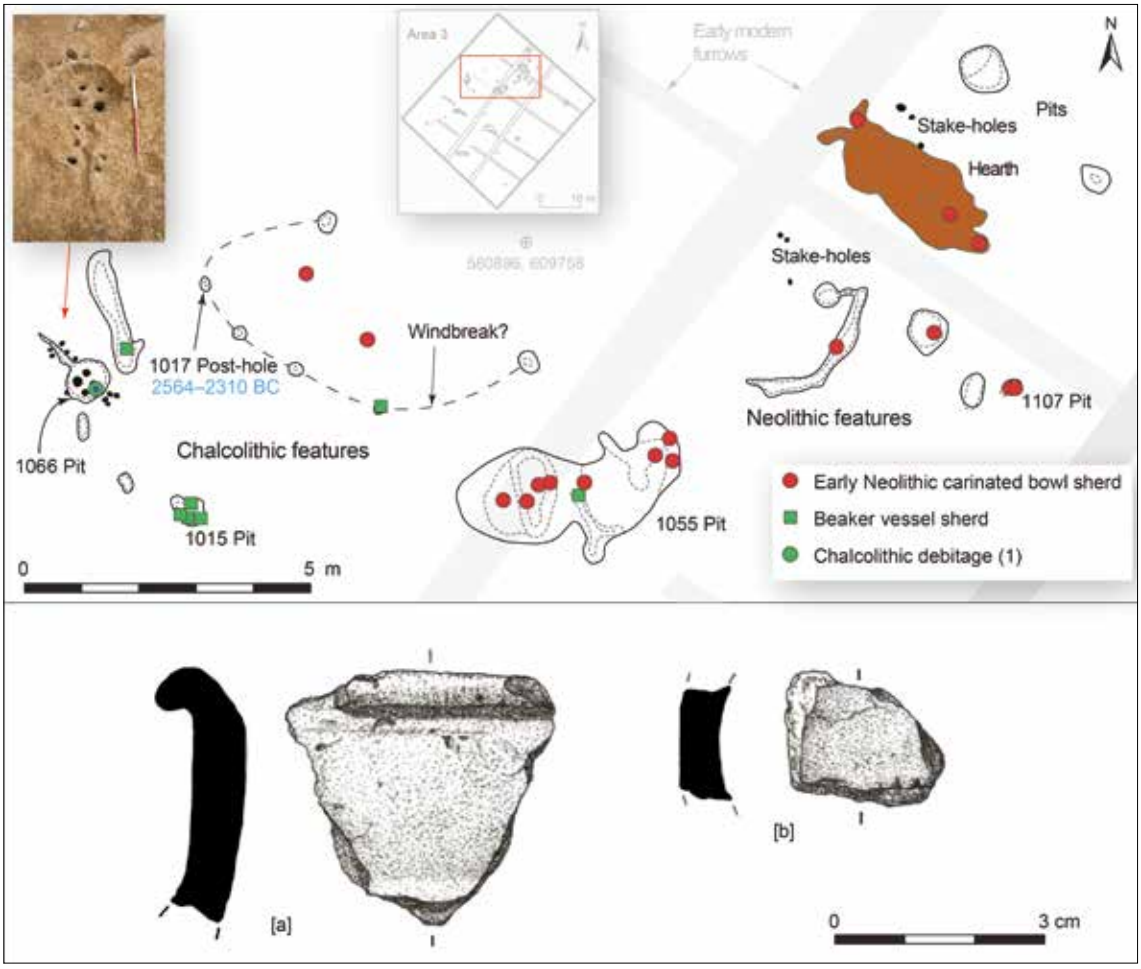



*Illus. 2.16.1—Gortnahown 2: plan of excavation areas.*

## 2.16 Gortnahown 2—Prehistoric features, early medieval bell manufacturing and late medieval settlement

*Julianna O'Donoghue and Jacinta Kiely*

The site at Gortnahown was located at the base of the Kilworth Mountains, 150 m east of the River Gradoge (Illus. 1.1.1; Illus. 2.1). The excavation comprised five separate areas (Illus. 2.16.1, Areas 1–5). Activity dating to the Neolithic, Chalcolithic and Bronze Age was recorded in Area 1/2 and Area 3. The main phase of activity at Gortnahown 2 dated, however, to the early medieval period—with extensive evidence for (enclosed?) settlement and iron-working recorded in Area 1/2. The iron-working at Gortnahown 2 involved the manufacture of iron bells and is the earliest evidence for bell manufacture in Ireland (Chapter 3.11; Young 2011b). Two late medieval houses were recorded in Area 5.



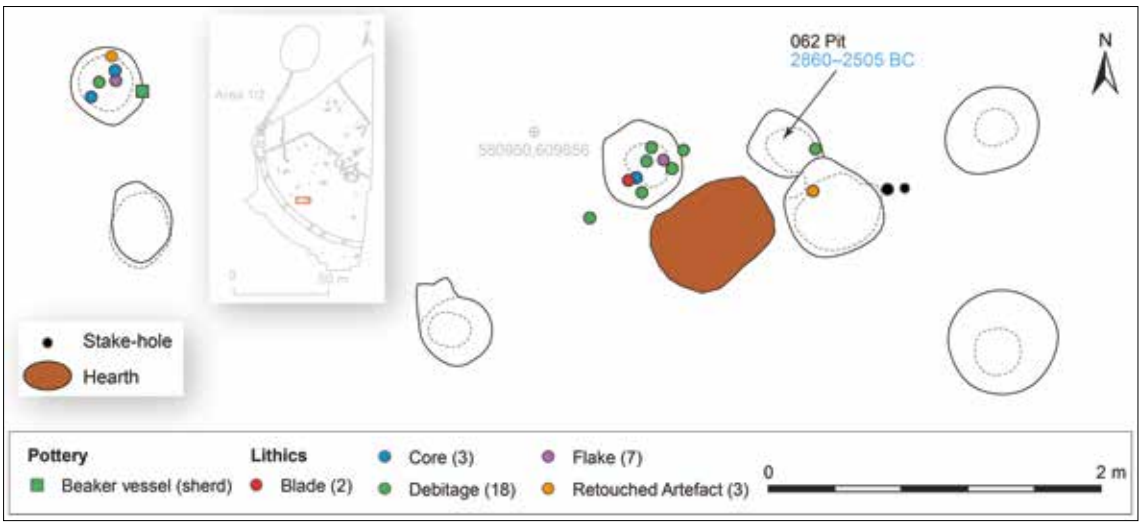

*Illus. 2.16.2—Gortnahown 2: features of Neolithic and Chalcolithic date from the northern end of Area 3, with (bottom) Early Neolithic carinated bowl sherds from a single vessel (Vessel 4), comprising (a) a rimsherd (E2426:1105:1) and (b) body sherd (E2426:1054:6) (pottery drawings by Malgorzata Kryczka).*

## Neolithic activity

Just a single sherd of Early Neolithic carinated bowl was recovered from Area 1/2 (from Pit 673; Illus. 2.16.6), while in Area 3, some cut features located in the northern part of the excavation area (Illus. 2.16.2) dated to the Early Neolithic. Here, sherds of Early Neolithic carinated bowls and one (presumably intrusive) sherd of Beaker pottery were recovered from a large pit (1055). A nearby pit was heat scorched and probably functioned as a hearth. Three stake-holes on either side of the hearth may represent successive pairing of stake-holes, perhaps for a grill or spit. Some adjacent pits and a curvilinear cut also contained sherds of Early Neolithic carinated bowls. It was not possible to discern any pattern in the distribution of these other features. The assemblage of Early Neolithic pottery from Area 3 represented a minimum of four bowls.

## Late Neolithic/Chalcolithic flint knapping and enigmatic pyrotechnic structure

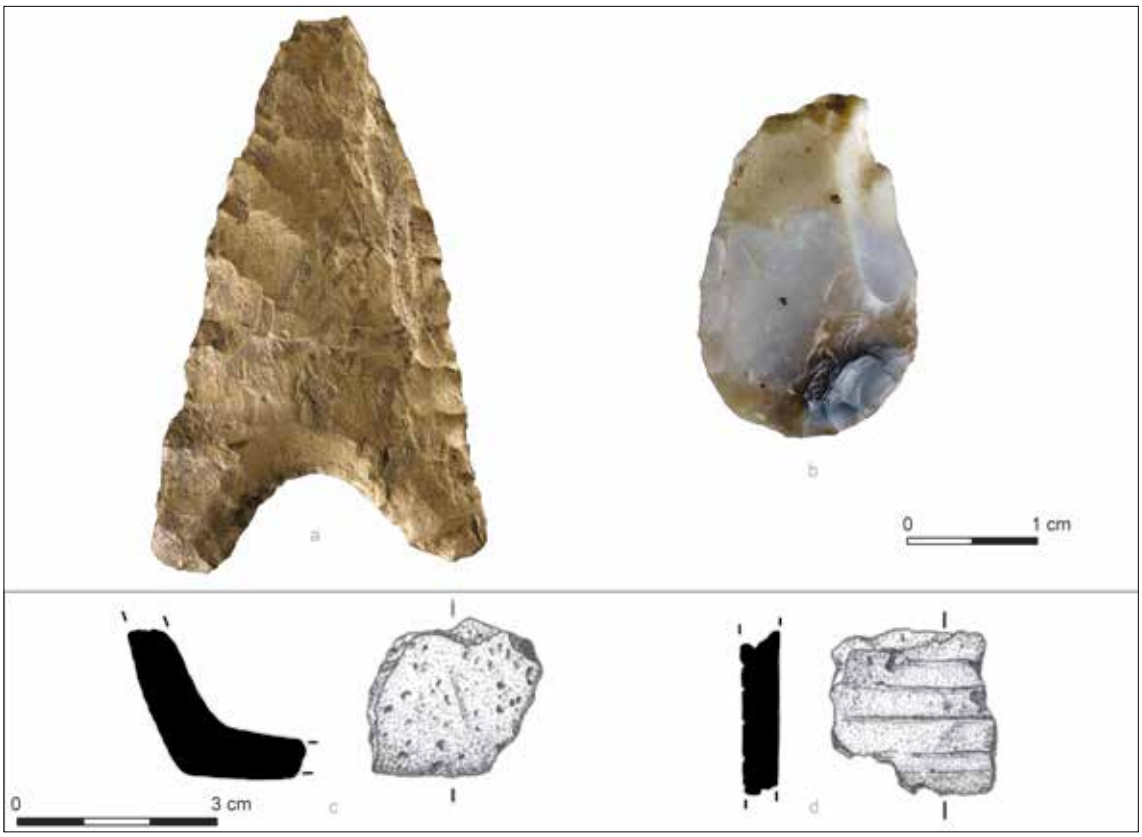
In Area 1/2, there was evidence of flint knapping associated with a group of seven small pits and two stake-holes, all set around a hearth (Illus. 2.16.3). A sample of charcoal (hazel) from the fill of one of the pits was dated to 2860–2505 BC (UBA-13219), a Late Neolithic date. However, the stone tool assemblage (flint blades, cores, flakes and debitage) recovered from this pit group is considered to be diagnostically Chalcolithic in date (Chapter 3.10). A sherd of Beaker pottery was also recovered from a nearby pit. In addition, a flint arrowhead was recovered from topsoil and a flint end scraper was found in Pit 673; both finds (Illus. 2.16.4, [a–b]) being Chalcolithic in date.




*Illus. 2.16.3—Gortnahown 2: pit group and hearth in Area 1/2. The associated artefacts indicate flint was knapped on the site in the Late Neolithic/Chalcolithc period.*

Cut features of Chalcolithic date were also found in Area 3 (Illus. 2.16.2). These features comprised a cluster of five pits, 10 post-holes and nine stake-holes. One of the pits (1066) was intriguing. The base of this pit was cut by four post-holes. A linear slot-trench—flanked by stake-holes on both sides—extended from the north-western side of the pit. Burnt clay and charcoal were present in

the pit fills and its associated stake-holes and post-holes. The feature was some kind of pyrotechnic structure, evidently temporary, but with no surviving 'product' evidence. An adjacent arc of six post-holes may be the remains of a light shelter or windbreak, which was open to the north-east. Beaker pottery was recovered from one of the post-holes and a sample of charcoal (hazel) from the fill of another was dated to 2564–2310 BC (UB–13220). A nearby pit (1015) also contained Beaker pottery (Illus. 2.16.4, [c–d]).




*Illus. 2.16.4—Gortnahown 2: images of (a) a flint arrowhead (E2426:1:8) from topsoil; (b) an end scraper (E2426:663:1) from Pit 673 in Area 1/2; and sherds (c and d) of Beaker pottery from a single vessel, Vessel 8 (E2426:1007:2–3), recovered from Pit 1015 in Area 3 (photos by John Sunderland; pottery drawings by Malgorzata Kryczka).*

## Bronze Age activity

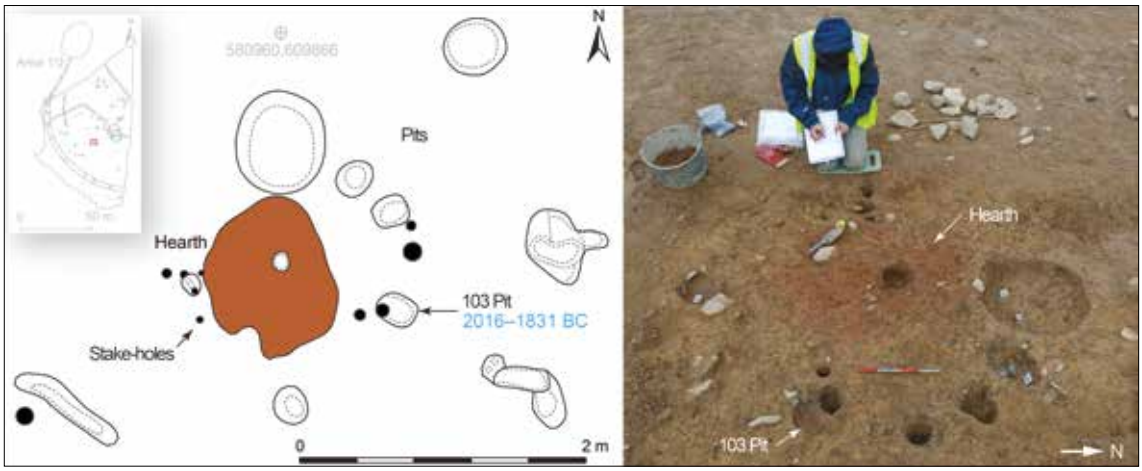
### Work area in Area 1/2

Located 12 m north-east of the area of Late Neolithic/Chalcolithic flint knapping in Area 1/2 was a group of nine small pits, 11 stake-holes and three linear cuts, surrounding a comparatively large central hearth (Illus. 2.16.5). A sample of charcoal (fruitwood) from the fill of one of the pits was dated to 2016–1831 BC (UBA-13217), an Early Bronze Age date. In contrast to the nearby Late Neolithic/Chalcolithic work area associated with flint knapping, no artefacts were recovered from

this work area. It is instead more likely that these features are the remains of an organised work space associated with food processing.

### Burnt mound

Site clearance at the northern extreme of Area 1/2 revealed a burnt mound of likely Bronze Age date (Illus. 2.16.1; Illus. 2.16.8). This feature was preserved *in situ*.



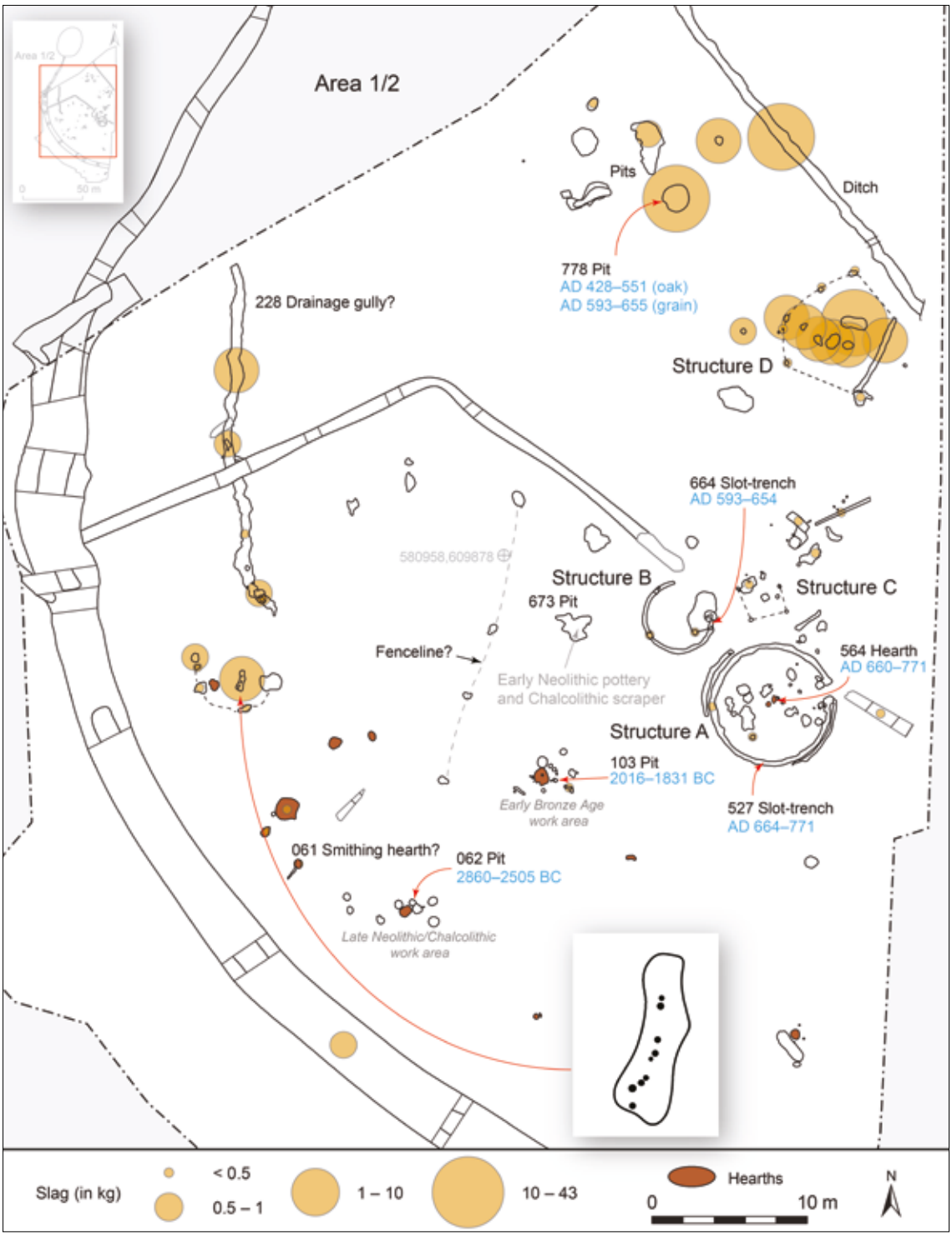

*Illus. 2.16.5—Gortnahown 2: Early Bronze Age features, possibly associated with food processing (photo by John Sunderland).*

## Early medieval settlement and highly specialised iron bell manufacturing

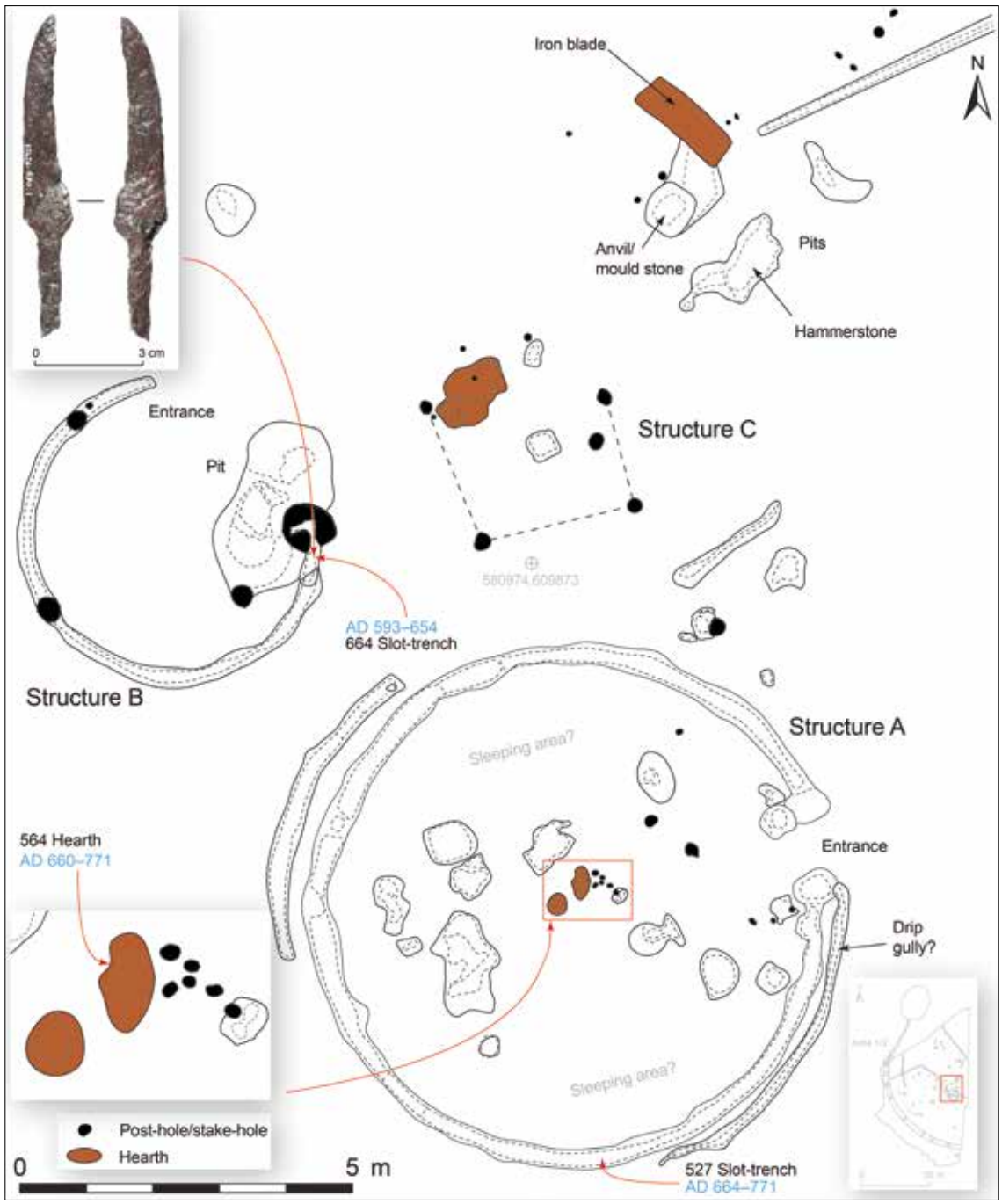
Two early medieval round-houses, a post-built structure and a metal-working workshop were recorded at Area 1/2 (Illus. 2.16.6). The two round-houses (Structures A and B; Illus. 2.16.6–8) were located in close proximity to one another.

### Structure A (house?)

This structure survived as a circular (7.2 m in diameter) slot-trench, with an entrance 0.7 m wide located on the eastern side—both ends of the slot-trench terminated in a post-hole (Illus. 2.16.7). A shallow, concentric, but discontinuous trench extended from the southern side of the entrance, for a length of 5.4 m: this is likely to have been a drip gully, caused by water run-off from the roof. A similar feature 5.7 m long was present on the NNW side of the foundation trench. A total of 11 post-holes were located within the interior of the building and four of these are likely to have supported the (presumably thatched) roof or perhaps an internal loft. Eight pits and two hearths were also recorded in the interior. Six stake-holes, located to the east of one of the hearths, would have supported hearth-side furniture. A sample of charcoal (hazel) from the fill of the slot-trench was dated to AD 664–771 (UBA-13215). Significantly, a sample of charcoal (mixed cereal and hazel) from one of the internal hearths was dated to AD 660–771 (UBA-13256), an exact match to the date from the slot-trench.

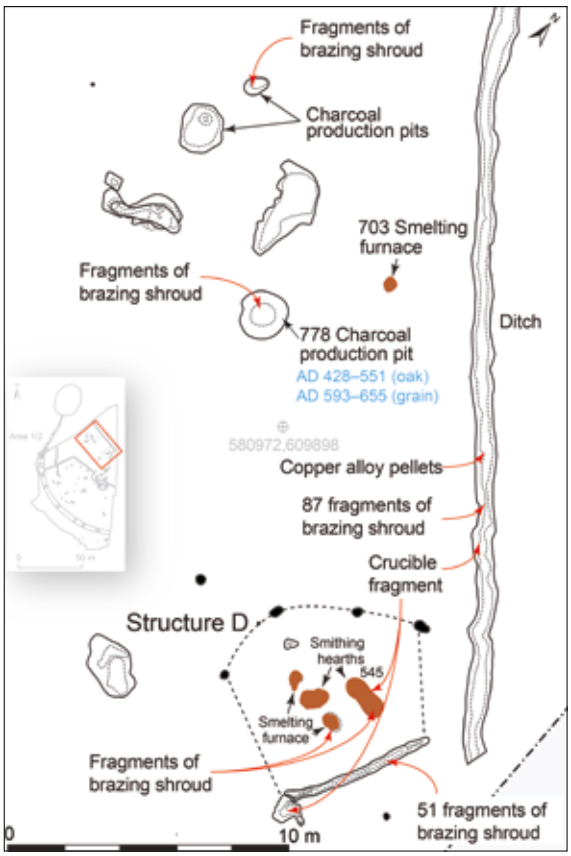



*Illus. 2.16.6—Gortnahown 2: plan of Area 1/2 with evidence of early medieval iron-working associated with Structures A–D. Two prehistoric work areas are also present, each centred around a large hearth.*




*Illus. 2.16.7—Gortnahown 2, Area 1/2: detailed plan of early medieval structures A–C with image (inset) of iron knife blade found in the slot-trench of Structure B (photo by John Sunderland).*


N
Exposed burnt mound
(preserved *in situ*)
Stream
(tributary of the
River Gradoge)
Old N8 road
Structure D
Structure B
Structure A
Curved ditch
N
Structure D
Slot-trench
Smelting furnaces
Smithing hearths
N
Structure B
Structure A
Impression of brazing shroud fabric
0
2 cm




*Illus. 2.16.9—Gortnahown 2: detail of iron-working features in the vicinity of Structure D, where iron bells were manufactured in the early medieval period, probably some time in the early seventh century.*

## Structure B (house?)

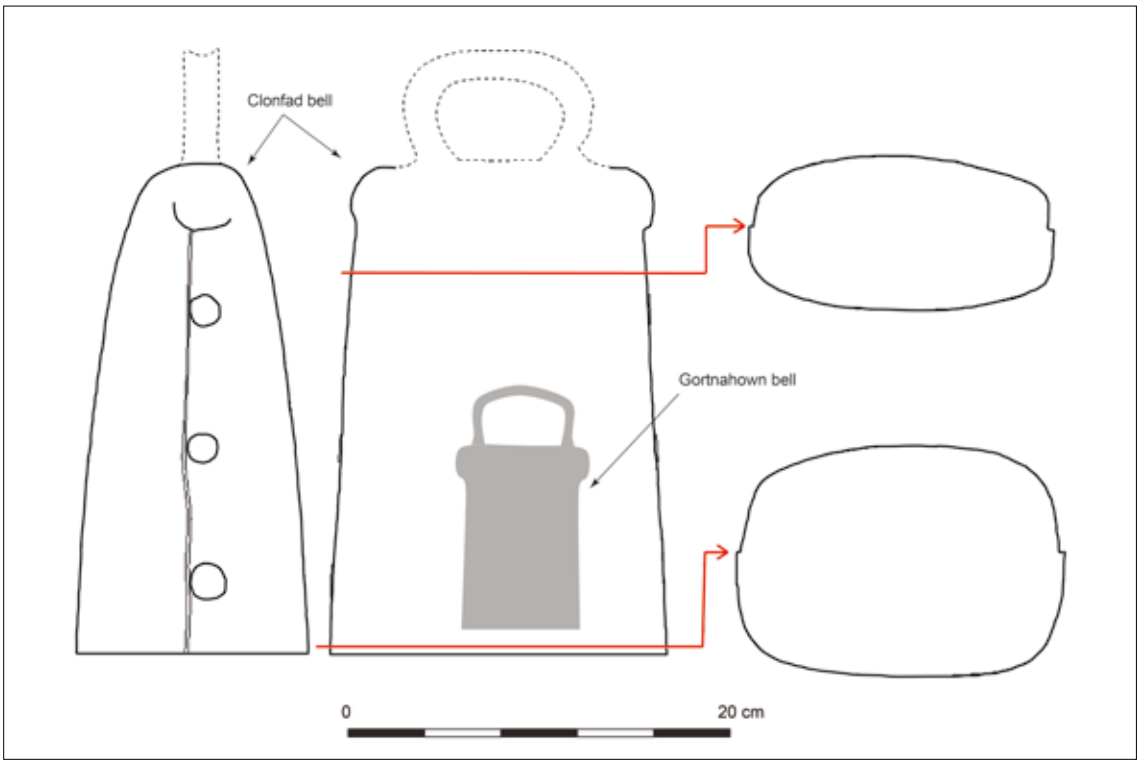
Located 1.9 m to the north-west of Structure A, this structure survived as three post-holes and a stake-hole set within a slot-trench 4.3 m in diameter (Illus. 2.16.7). An entrance 2.9 m wide was located on the north-east side of the structure. The eastern terminal of the slot-trench was cut by a post-hole and a short slot-trench (664)—possible evidence of structural repair. An iron knife (Illus. 2.16.7) was recovered from the fill of the slot-trench. A sample of charcoal (fruitwood) from the same fill was dated to AD 593–654 (UBA-13216)—indicating that Structure B pre-dated Structure A, perhaps by a generation at most. A large pit was recorded in the eastern area of the entrance. This pit was cut by a post-hole, containing a small quantity of iron slag.

## Structure C (workshop?)

A small post-built structure stood 3 m north of Structure A (Illus. 2.16.7). This building survived as a square group of five post-holes and five stake-holes and measured c. 3 m north–south by 3 m. The structure sheltered a hearth and two pits. A small amount of iron slag was recovered from the hearth fill. A group of three pits, a hearth, a linear slot-trench and a broad alignment of nine stake-holes were recorded 5 m to the north-east of Structure C. A small amount of iron slag, a hammerstone, a rubbing stone and an iron knife blade were recovered from some of these features (Illus. 2.16.7). None of the pits could be interpreted as furnaces or smithing hearths but they are, nonetheless, likely to have been associated with the processes of metal-working.

The most concentrated evidence for metal-working was located in the northern portion of the site (Illus. 2.16.6). The metal-working features were bounded to the north-east by a narrow ditch (Illus. 2.16.9). The ditch, which measured 0.6 m wide by c. 0.7 m deep, extended beyond the area of excavation and may have functioned to shelter or enclose the metal-working area. A fragment of crucible, some copper-alloy pellets and two rubbing stones were recovered from the ditch fill. A highly significant discovery, however, was the cache of 87 fragments of brazing shrouds, recovered from the same ditch fill—impressions of fabric were discernable on some of the clay sherds (Illus.

*Facing page: Illus. 2.16.8—Gortnahown 2: aerial images of the remains of Structures A, B and D, with (below) a fragment of brazing shroud, with imprint of brazing shroud fabric evident on interior (aerial photos by Hawkeye; artefact photos by John Sunderland).*




*Illus. 2.16.10—From Young (2011a, fig. 1), a conjectured comparison between an early medieval bell manufactured at Gortnahown 2 and an example of an ecclesiastical bell manufactured at Clonfad, Co. Westmeath (Stevens 2010).*

2.16.8). The brazing process involved the coating of an object (made principally with iron) with thin copper-alloy sheets, then sealing it with clay (the 'brazing shroud') before firing at high temperatures. Following firing, the baked brazing shroud is removed to reveal the fused, copper-coated object. According to Young (Chapter 3.11), in the case of the brazing shroud fragments from Gortnahown 2, the objects being brazed were (mostly small) iron bells (Illus. 2.16.10).

### Structure D (workshop)

Located just south of the narrow ditch was a D-shaped structure (Illus. 2.16.6), surviving as a mix of post-holes and stake-holes, and a slot-trench defining the southern wall. A further 51 fragments of brazing shrouds, some residues of iron smelting and a hammerstone were recovered from the fill of this slot-trench. A group of four hearths were located within the structure (Illus. 2.16.6; Illus. 2.16.9). Two of the hearths were identified as smelting hearths and two as possible smithing hearths. Two fragments of crucible and nine brazing shroud fragments were recovered from one of the smithing hearths (545) and four brazing shroud fragments from one of the smelting furnaces. As the majority of the brazing shrouds (with the exception of those from the ditch) were recovered from the area of the workshop, this would indicate that Structure D, of likely lean-to construction, was where the iron bells were brazed.

A group of six pits was recorded 14 m to the north of Structure D (Illus. 2.16.9). No evidence of a structure or shelter associated with this group was recorded. Two of the pits were identified by Young (Chapter 3.11) as charcoal-production pits and one as an iron-smelting furnace. Slag was recovered from fills of four of the pits and four fragments of brazing shrouds came from the charcoal-production pit. Two early medieval dates were obtained from the charcoal-production pit: AD 593–655 (UBA-13255) from a sample of charred grain in the upper fill and AD 428–551 (UBA-13218) from a sample of charcoal (oak) in the basal fill.

### Metal-working in the western section of the site

About a quarter of all the archaeometallurgical residues from the site were recovered from a gully and a series of pits and hearths in the western part of the site (Illus. 2.16.6). The gully was 0.35 m deep, irregular and curved to follow the natural topography of the ground. It may, therefore, have been scoured out over time, by water. Sloping downhill, to the north-west, the water in the ditch would seem to have been directed past/away from the iron-working area. Iron smelting and smithing slags were recovered from its fills. An arc of five pits was recorded to the south of the gully. The pits were shallow and insubstantial, but slag was recovered from the fills of four. The base of a hearth and a long rectangular pit were located centrally within the arc. An alignment of nine stake-holes cut the base of the rectangular pit. It proved difficult to interpret the various features, but they were clearly associated with metal-working.

The truncated remains of at least five other hearths were located to the south. Some of these hearths may have been associated with metal-working or with the Early Bronze Age activity present in the area. Slag was recovered from the fills of two of the hearths. One of these was identified as an appropriate size for a smithing hearth (Chapter 3.11). No smelting furnace was identified in this area.

### Large ditch

A substantial curving ditch (1.6 m wide by 1.15 m in depth) was recorded in Area 1/2 (Illus. 2.16.6). As the ditch did not appear to fully enclose the site, the early medieval site may have been an open settlement site. The date of the ditch was not established and it may be later medieval or post-medieval in date. The primary ditch extended into the much lower ground to the north, where its course was exposed but left *in situ*. No archaeometallurgical residues were recovered from the primary fills of the ditch, which suggests that the ditch was not open when metal-working was being carried out. Two-thirds of the ditch were re-cut in the early modern period as a field boundary. The lands to the east of Area 1/2 were built over by the existing N8 road, which was built in the 1960s. Despite the lack of surviving evidence, it is possible that the ditch once continued east and north under this road—perhaps enclosing the settlement site. If the ditch did once continue, on a regular course, then the enclosure would have been approximately 100 m in diameter.

### Macro stone tools

The 13 macro tools recovered from Area 1/2 (Illus. 2.16.11) can be divided into six types: two possible hammerstones, three polishing/rubbing stones, four rubbing/hammerstones stones, one large anvil/mould stone (with evidence of possible re-use/rubbing), two used stones (showing some evidence of rubbing) and a possible loom weight or netsinker. Eight of the stone tools came


*Illus. 2.16.11—An assemblage of large stone tools from Gortnahown 2, Area 1/2 (John Sunderland).*

from topsoil and the circular (perforated) loom weight/netsinker was found in the upper fill of the substantial curving ditch. The remaining four (the large anvil/mould stone, two hammerstones and rubbing stone) were stratigraphically associated with the early medieval iron-working site.

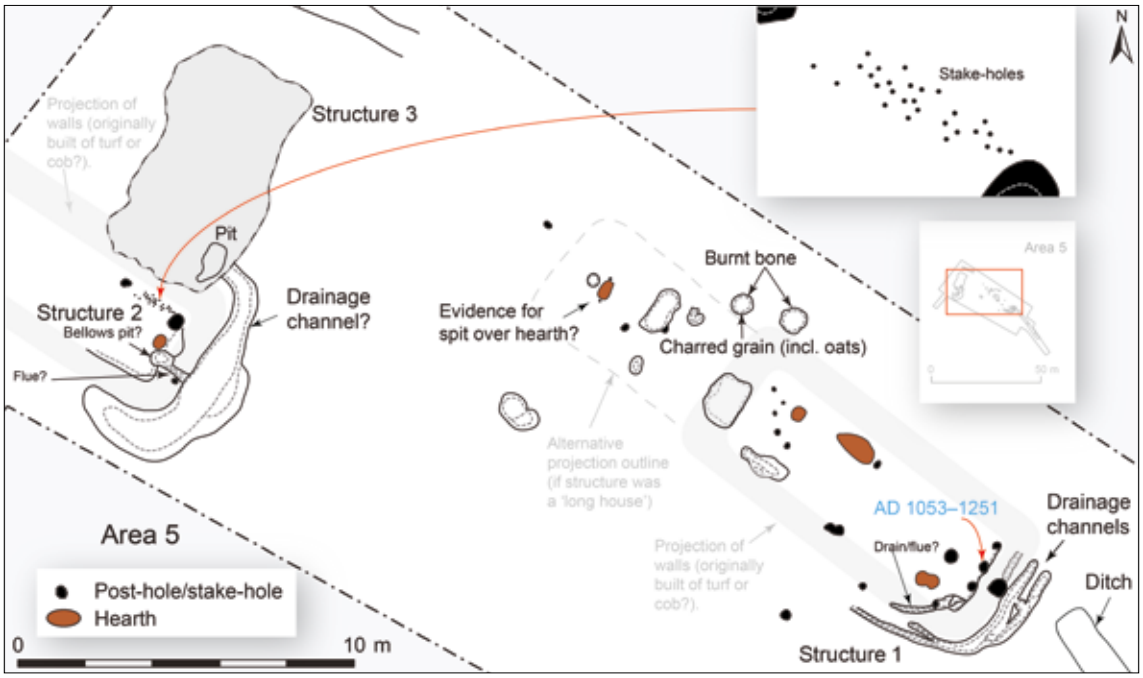
### Discussion on early medieval settlement

This site ostensibly fits into the general category of unenclosed early medieval settlement, but there remains doubt as to whether it was originally an enclosed settlement. Lynn (1994, 85; 2011) has shown that the earliest medieval house structures in Ireland were usually round-houses, constructed of wicker or post-and-wattle walls. The roofs were generally of thatch. The smaller structures measured 4–5 m in diameter and the larger structures 6–10 m in diameter. At Gortnahown 2, Structure A (diameter 7.2 m) belongs to the larger category of houses, while Structure B (diameter 4.3 m) belongs to the smaller. The central internal area of Structure A was a busy place, most likely used for a variety of functions—eight pits, two hearths and stake-holes were recorded in the centre. In contrast, there were no cut features located on the northern and southern sides and these areas may, therefore, have served as the sleeping quarters (Illus. 2.16.7). There were no cut features in the interior of Structure B, which suggests that it may have been solely used for sleeping or as a private space.

Significantly, all phases of iron-working were undertaken at this site. Evidence for specialist iron-working activity was concentrated to the north-east of the domestic structures, in the vicinity of Structure D. The range of archaeometallurgical processes—iron smelting, smithing and brazing—being undertaken at Gortnahown suggests that the occupants possessed a complete in-house suite of expertise in the production and use of iron. The iron was smelted on-site and processed right through to a demonstrable finished product, iron bells. Such a production line is rare in the archaeological record for early medieval Ireland. According to Young (Chapter 3.11) other sites with comparable industrial evidence are Clonmacnoise (unpublished) and Woodstown (Young 2009a).

## Undefended late medieval rural settlement

Area 5 was located 260 m south of Area 1/2 (Illus. 2.16.1). Here, excavation revealed the remains of two late medieval houses (Structures 1 and 2), aligned in the same NW–SE direction (Illus. 2.16.12–13). No evidence for the north-western wall of either house survived. This could be explained by the north-west end of each house being downslope. A third structure (Structure 3) was aligned NNE–SSW. This was represented by a sub-rectangular cut that post-dated Structure 2. Structures 1 and 2 are likely to have been dwelling houses, as both contained hearths. Both are interpreted here as having had walls, possibly constructed using cob (clay), sods of turf or some other locally available building material. The houses may have had rounded corners with rounded hipped roofs. Structure 3, on the other hand, was unlikely to have been a domestic dwelling.




*Illus. 2.16.12—Gortnahown 2, Area 5: plan of late medieval rural settlement, comprising two houses, Structure 1 and 2, and other features.*

## Structure 1 (house)

The surviving floor plan of this house was sub-rectangular/oblong in shape. The dwelling had a slightly sunken floor, cut into the sloping ground. The floor area was delineated by four post-holes on the south-east side, forming part of the gable wall. No evidence for the north-west wall survived. Two intercutting gullies/channels lay immediately upslope of the house. These may have formed as drip gullies, from rainwater from the roof or, perhaps more likely, they may have been deliberately constructed as drainage channels, inserted upslope of the house to draw water away from the walls. A notable gap (c. 0.7 m wide) between the drip gullies and the four post-holes may mark the location of former (possible cob) walling (cf. Eogan & Kelly 2016). A similar building style is possible for Structure 2. The late medieval house (House 1) excavated at Mondaniel 3, near Rathcormac, in north County Cork (Quinn 2013, 254, illus. 6.1.3), had a similar gap between the scarped floor and the external trenches (drip gullies?)—this gap was interpreted by the excavator as a possible 'aisle', but in light of the evidence from Gortnahown 2, this gap might also be reinterpreted as marking the location of a (cob?) wall. The full dimensions of Structure 1 were not possible to determine, but the building measured c. 4.5 m wide by, perhaps, 10 m long, if not longer (Illus. 2.16.12). A sample of charcoal (willow/poplar) from the fill of one of the post-holes was dated to AD 1053–1251 (UBA-13221), at the very beginning of the late medieval period. Some hearths and post-holes were present in the interior of the building. A series of features formed a group to the north-west. They comprised a hearth (with associated evidence for a spit) and a series of pits, post- and stake-holes. It seems unlikely that all were located within the limits of Structure 1. Tiny flecks of burnt bone,

too small to be identified, were recorded in the fills of two pits. A cache of charred cereals, mostly oats, was recovered from one of these pits. Alternatively, Structure 1 may have been longer (a 'long house'), with these features being located internal to the building.

### Structure 2

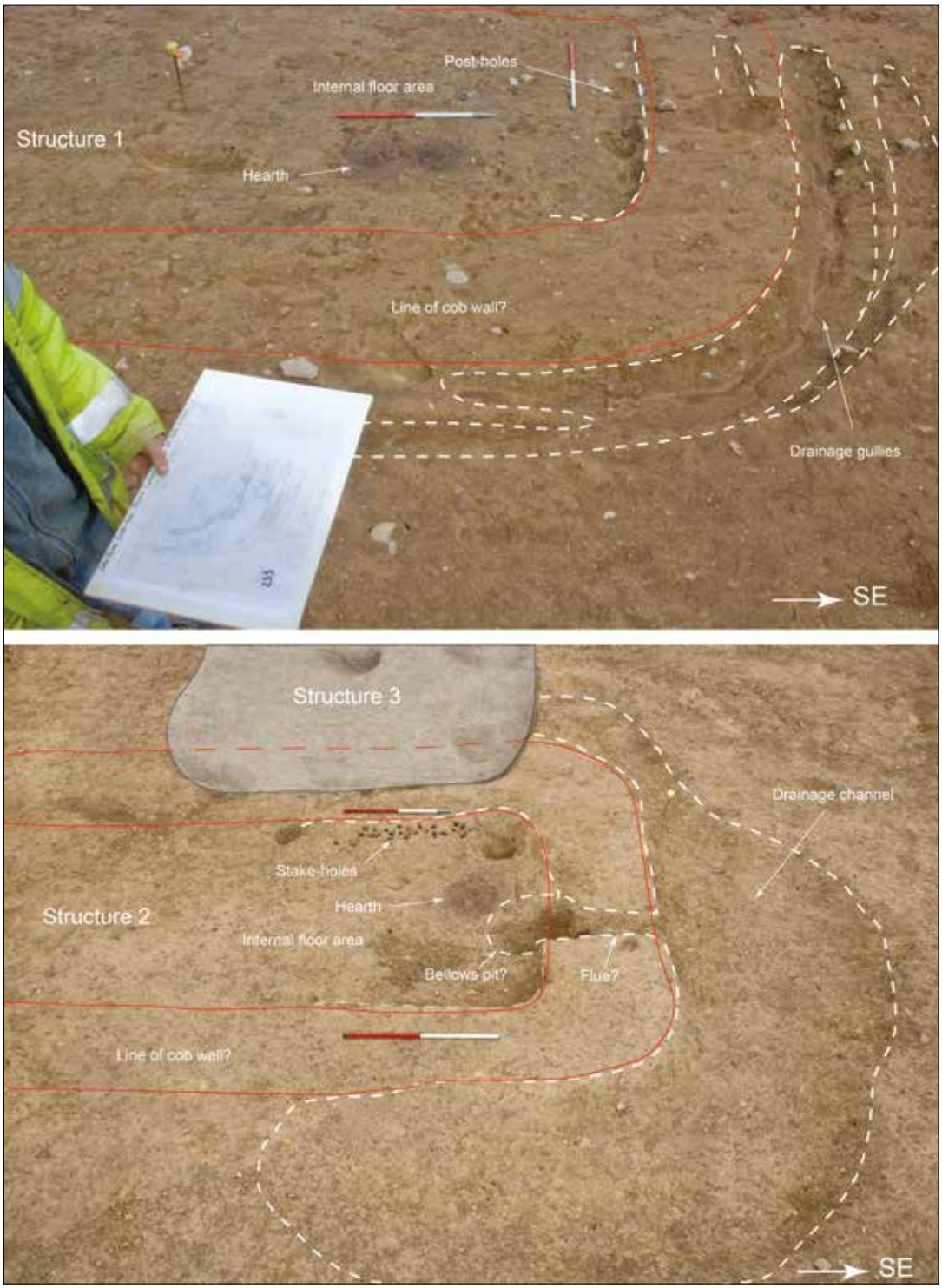
The remains of this house were located c. 25 m to the north-west of Structure 1 (Illus. 2.16.12). Here again, the internal floor level was cut into the ground slope and a c. 0.7 m gap between the floor area and a broad, c. 0.2 m deep cut (drainage channel?), located to its south-east, may mark the location of former (possible cob) walling. The channel cut was located upslope, to draw water away from the house. The basal remains of two post-holes and a cluster of 29 stake-holes flanked the inside of the north-east wall. The mass of stakes may have formed a solid core to another cob wall, supported between two stout posts (represented by the two post-holes, one on either side). Alternatively, the stakes may have held up to four parallel lines of wattle wall. A hearth lay close to the south-east wall. A post-hole and a narrow cut were located between the sunken floor and the external drainage channel. The narrow cut led under the line of the possible cob wall into a large oblong pit, located adjacent to the hearth. The function of this pit and cut is unclear, but they could represent a bellows pit and associated flue. The full dimensions of Structure 2 were not possible to determine. The sub-rectangular/oblong house was c. 4.7 m wide and may have been c. 10 m long. No evidence of a western wall survived. In the case of Structure 2, in particular, it is possible that the north-west end of the house was poorly defined as this may have been the lower gable of a byre-house and thus designed to be pulled away seasonally to allow the cattle out. In byre-houses the family lived in the upslope part of the house, where the hearth was, whereas livestock (typically two to three cattle and perhaps a horse) lived in the downslope, byre-end of the house, from where animal effluent could be drained away from the living area. The north-east end of the house foundation for Structure 2 was cut by the sub-rectangular floor of a possible third and most likely unrelated structure, Structure 3.

### Structure 3

This structure survived as a shallow rectangular cut, measuring just c. 0.35 m deep. Fragments of clay pipes and sherds of early modern glass were recovered from the backfill of the floor cut, suggesting that Structure 3 was not associated with Structures 1 or 2, but was the stance for a modern/early modern building, of unknown function.

### Discussion

The radiocarbon date returned from a sample of charcoal from Structure 1 ranged from AD 1053–1251 (UBA-13221). This date range spans the period of the Anglo-Norman invasion of Ireland. Was this a pre-invasion farming settlement or was it built within the newly formed Anglo-Norman manor of Caherdrinny (Chapter 3.4)? If the latter, were the occupiers of this settlement early frontier colonists or were they Gaelic Irish living and farming under a new system of manorial governance? Perhaps, the answer might lie in the clear similarity in building styles of the Gortnahown houses to those of the late medieval houses excavated at Mondaniel (Quinn 2013, 253, illus. 6.1.2). These comparisons strongly suggest the arrival of a new building style in the region, which would seem to indicate a swift cultural change; however, in the case of Gortnahown, did this change come




*Illus. 2.16.13—Gortnahown 2, Area 5: views of Structure 1 (top) and Structure 2 (bottom), highlighting the possible outline of two late medieval cob-built houses (background images by John Sunderland).*

with Anglo-Norman colonists or did the architectural influences merely come first? Does the lack of imported (or any other) pottery from the structures indicate that the occupants were from traditionally non-ceramic-using Gaelic Irish stock or were these cottiers on a Norman manor (Gaelic or otherwise) who had no access to the high-value ceramics used by their lords and masters? And who was the most likely to inhabit a *bothán* on a Norman manor? Not the colonist principal tenant (Fleming, Norman and Saxon) but perhaps the Gaelic *betagh* class of native labourer?

## 2.17 Gortnahown 3—Late prehistoric hearths

*Julianna O'Donoghue, Debbie Leigh and Penny Johnston*

The site at Gortnahown 3 contained archaeology of Chalcolithic, Bronze Age (Middle and Late) and Iron Age date. It was located at the base of the Kilworth Mountains, 250 m east of a tributary stream to the River Gradoge (Illus. 1.1.1; Illus. 2.2).

### Chalcolithic stone tools

Tentative evidence for occupation in the Chalcolithic period was limited to a flint core and a piece of debitage. The objects were recorded from dispersed pits (Illus. 2.17.1) and deemed to be of possible Chalcolithic date.

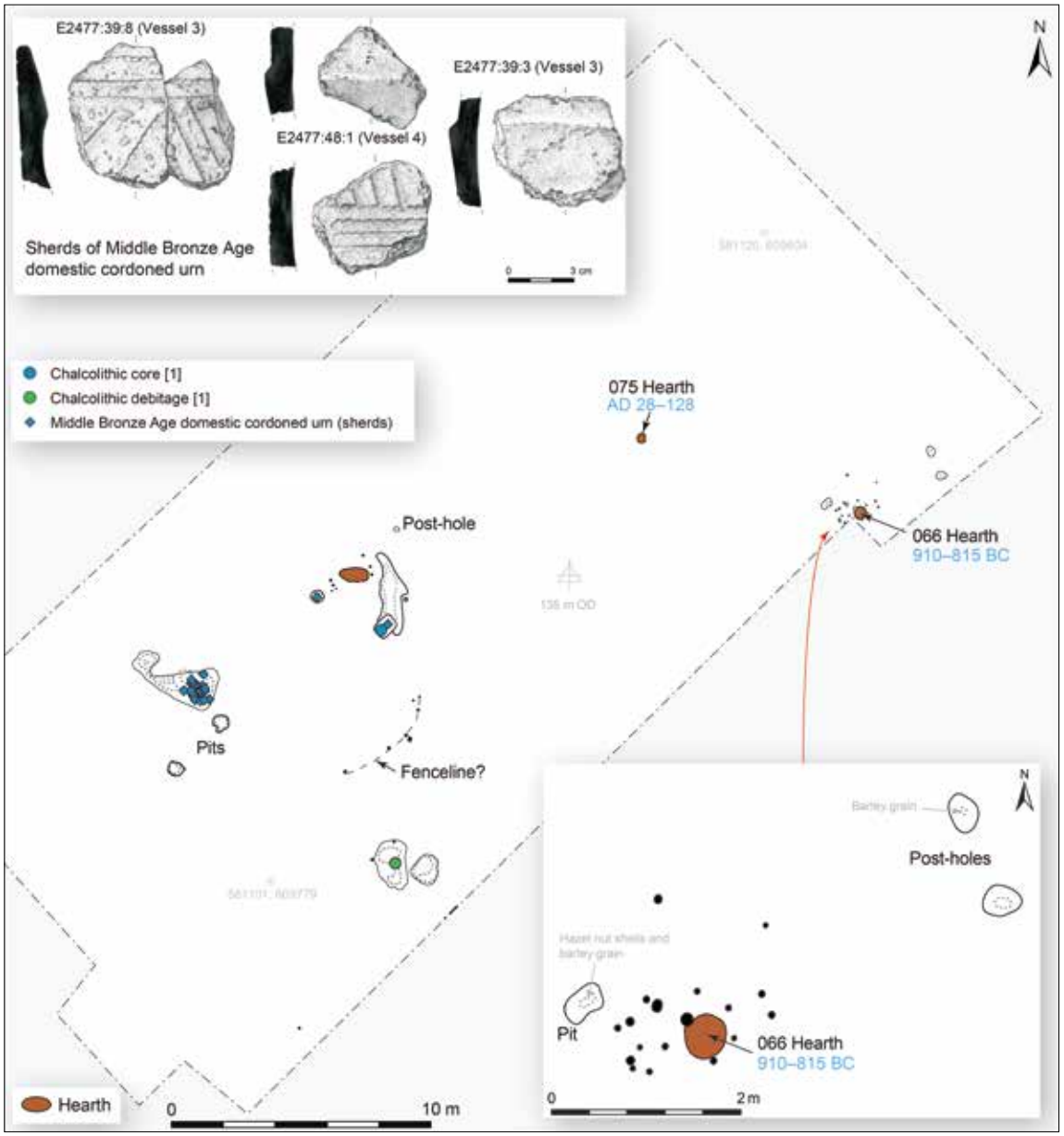
### Bronze Age hearths and pottery

The main concentration of archaeological features was located at the western end of the site (Illus. 2.17.1). The features—comprising a hearth, stake-holes, pits, a post-hole and the remains of a possible fence line—were associated with pottery sherds from two Middle Bronze Age domestic cordoned urns. Stake-holes on either side of the hearth may be the result of successive spits being erected over it. An arc of seven stake-holes may indicate the existence of a structure that acted as a shelter from prevailing winds or may, alternatively, have been used as a rack for hanging/drying items, such as food, textiles or leather. The nature of these remains indicates temporary use of the site (possibly as a domestic camp) in the Middle Bronze Age.

At the north-east end of the site was a hearth, surrounded by a cluster of stake-holes and associated with a pit and a pair of post-holes. The hearth contained fragments of burnt animal bone (type undetermined). A sample of charcoal (hazel/alder) from the hearth was dated to 910–815 BC (UBA-12981). A tiny amount of plant remains (hazelnut shell and barley grain) was recovered.

### A lone Iron Age hearth

An isolated hearth was located between the two concentrations of Bronze Age features. A sample of charcoal (hazel/alder) from the hearth was dated to AD 28–128 (UBA-12982). Little further interpretation of the feature was possible.

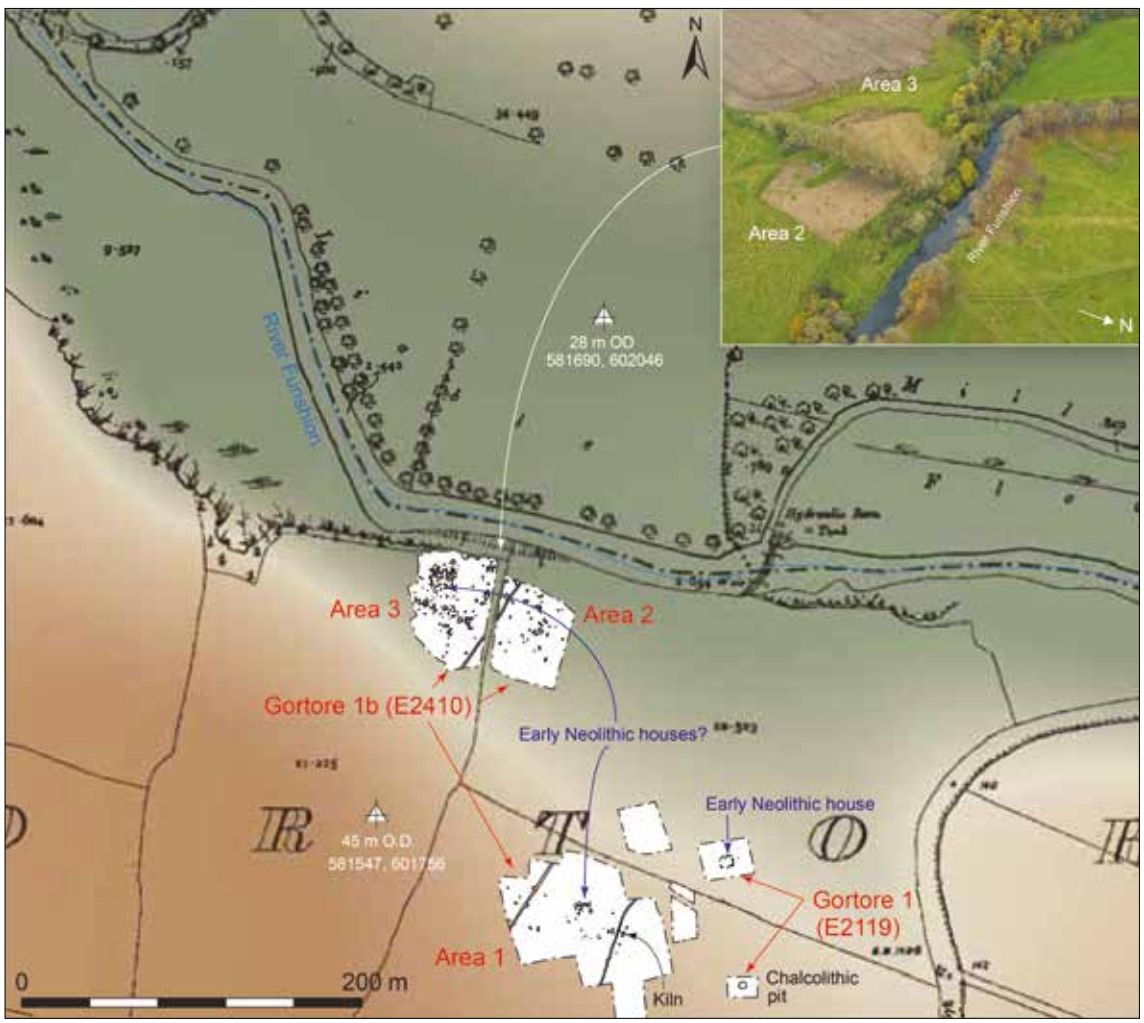



*Illus. 2.17.1—Gortnahoun 3: features of Bronze Age and Iron Age date with sherds of Middle Bronze Age pottery inset (pottery drawings by Malgorzata Kryczka).*

## 2.18 Gortore 1b—Mesolithic fishing, Neolithic settlement and early medieval corn-drying kiln

*Julianna O'Donoghue and Jacinta Kiely*

This site was located on the southern bank of the River Funshion. It contained a high concentration of mostly prehistoric (Mesolithic and Neolithic) archaeology, derived from the exploitation by people of the resource-rich River Funshion valley, as early as c. 8000–7000 BC. Gortore 1b (Illus. 1.1.1; Illus. 2.1) comprised three separate excavation areas (Areas 1–3), in adjoining fields (Illus. 2.18.1). Area 1 was located 220 m south of the river, while Area 2 and Area 3 were located on the south bank of the river and separated by a modern field boundary. Overlooking the river, the north-west edge of Area 3 was perched on a limestone scarp, which extended for a distance of at least 300 m along the edge of the river flood plain.




*Illus. 2.18.1—Location map of excavation areas at Gortore 1b and those at a previous excavation at Gortore 1.*

## Early Mesolithic stone tools

None of the excavated features could be assigned to the Early Mesolithic period, but a group of 29 stone tools of that date was recovered from the topsoil (Illus. 3.10.1). It is likely that the corresponding Early Mesolithic settlement was located on slightly higher ground to the south and that the slope was subject to erosion, redepositing the stone tools downslope, in topsoil. The artefacts included a polished mudstone axehead (Illus. 2.18.2[a]), flint blades (Illus. 2.18.2[b]), flint flakes, and four retouched flint artefacts recovered from Areas 2 and 3. The polished mudstone axehead is of particular importance to archaeologists, as it is considered to be one of the earliest specimens of this artefact recovered in Ireland to date and it may be used as an example to argue for the indigenous development of the type (Peter Woodman pers. comm.). Such axeheads were most likely used as a general utility tool to cut wood for house-building and for shaping wood for weapons and tools.


*Illus. 2.18.2—Gortore 1b: Early Mesolithic finds from topsoil, (a) a polished stone axehead (E2410:1:231) and (b) a flint blade (E2410:1:128) (John Sunderland).*

## Late Mesolithic spear-fishing at the River Funshion

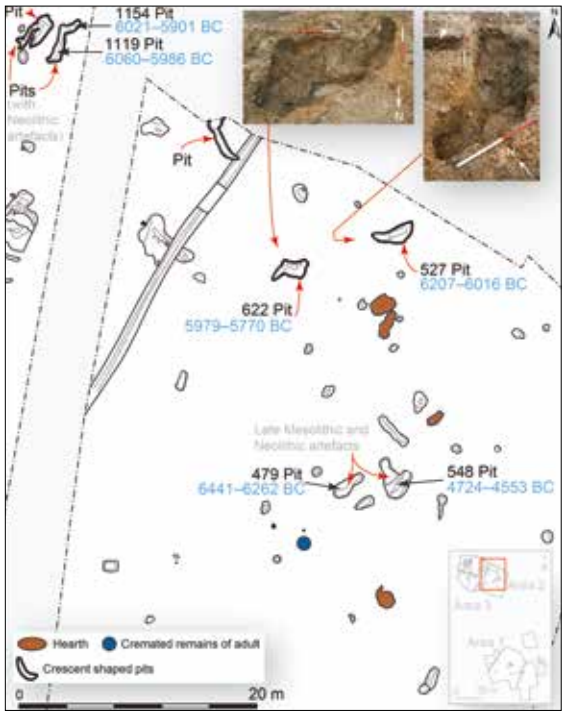
The site was also exploited in the Late Mesolithic period. Seven diagnostically Late Mesolithic artefacts were found—these included a flint blade (Illus. 2.18.3[b]) and a Moynagh point (Illus. 2.18.3[c]), recovered from the topsoil; a rare complete Kerry point (Illus. 2.18.3[a] from Pit 548 and some flint flakes from Pit 479 (Illus. 2.18.3[d]; Illus. 3.10.4). The assemblage of Late Mesolithic stone tools from Gortore 1b is considered (Chapter 3.10) to be unusually large for this part of Ireland and constitutes evidence for intense or prolonged use of the riverine location, presumably for fishing, during that period. Ground stone points of this date appear to be unique to Ireland and were first recognised as a distinct implement type by Raftery (1944). Functional and use-wear experiments show that the elongated Moynagh points were hafted as spear points and used to catch larger fish, such as salmon, and that the shorter, broader examples and the Kerry points were most likely knives, and used for processing fish (Woodman et al. 1999).


*Illus. 2.18.3—Gortore 1b: Late Mesolithic stone tools including (a) a Kerry point (E2410:548:1) from Pit 548 , (b) a retouched blade (E2410:1:60) and (c) a Moynagh point (E2410:1:58), both from topsoil, and (d) a large flint blade (05E1150:1:1, recovered during testing) from Pit 479 (John Sunderland).*

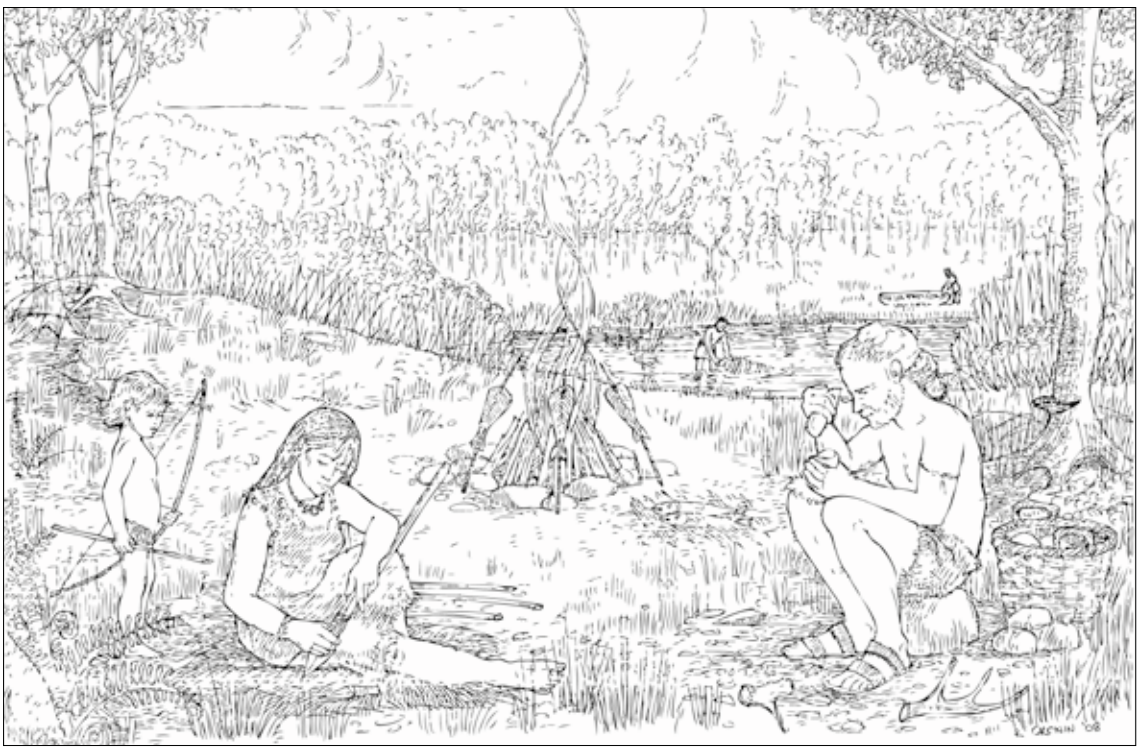
Six large, crescent-shaped pits were recorded on the northern edge of the area of excavation—three in Area 2 and three in Area 3 (Illus. 2.18.4). One of the fills in each of the pits was a distinctive, compact, sandy soil, which was very difficult to excavate. This soil type did not occur naturally on the site, nor was it found in any of the other features excavated. The Late Mesolithic pits may have formed part of a temporary structure or structures, associated with riverine fishing/hunting and related processing activities. Six Late Mesolithic radiocarbon dates were obtained from samples taken from the large pits in Areas 2 and 3 (Illus. 2.18.4). In Area 3, one pit (1154) was dated to 6021–5901 BC (UBA-13401, hazelnut shell) and a second pit (1119), which cut the former, was dated to 6060–5986 BC (UBA-13404, hazelnut shell). In Area 2, Pit 527 was dated to 6207–6016 BC (UBA-10500, hazelnut shell), Pit 622 to 5979–5770 BC (UBA-13222, fruitwood), Pit 479 (which contained the large flint blade) to 6441–6262 BC (UBA–12983, hazelnut shell) and Pit 548, which contained the Kerry point, to 4724–4553 BC (UBA-13223, willow/poplar). Some of these pits,

however, also contained artefacts of Neolithic date, namely pits 1154, 1119, 479 and 548. Some other pits and hearths were located nearby, but it was not possible to determine if any of them was contemporary with the Late Mesolithic features. The radiocarbon dating evidence, combined with the recovery of Monagh points and Kerry points from the site, suggests that spear-fishing and fish-processing were carried out on the banks of the River Funshion sometime in the sixth and seventh millennia BC (Illus. 2.18.5).

The cremated human remains of a young adult were recovered nearby (Illus. 2.18.4). It was the only cremation recovered from the site. While cremation pits of Mesolithic date are known (Collins & Coyne 2003), no radiocarbon date was obtained for the burial at Gortore: the




*Illus. 2.18.4—Gortore 1b: large cresent-shaped Late Mesolithc pits on the south bank of the River Funshion.*

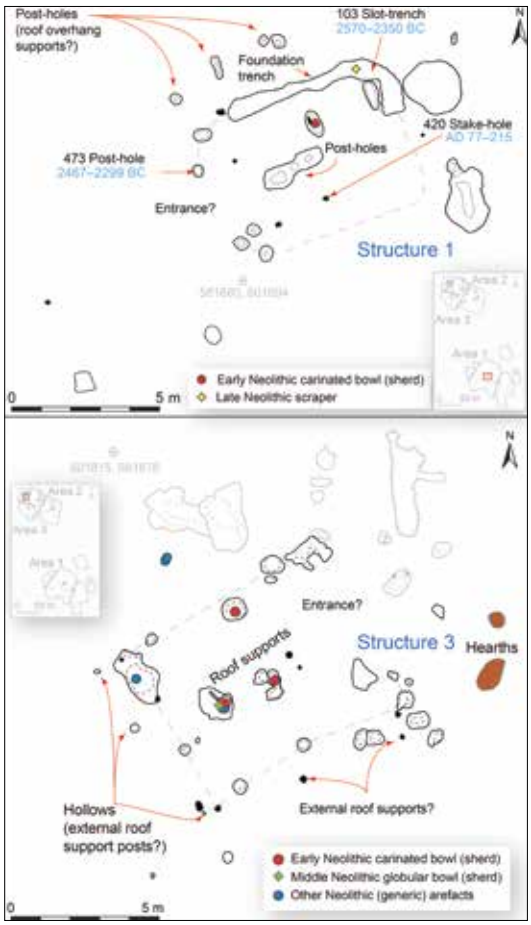


*Illus. 2.18.5—Gortore 1b: artist's impression of fishing and hunting at the River Funshion in the Late Mesolithic period, c. 6500–4500 BC (Rhoda Cronin).*

burial was located in proximity to pits dated to the Late Mesolithic, but the features might not be contemporary.

## Neolithic settlement

Features dated to the Neolithic period were recorded in Area 1 and Area 3, while artefacts of Neolithic date were also recovered from Area 2. A truncated (Neolithic?) house (Structure 1) was located in Area 1 (Illus. 2.18.6, top). Separately, a group of at least three possible houses and associated outdoor work areas were located in Area 3 (Illus. 2.18.7). One radiocarbon date, recovered from the northernmost outdoor work area, places at least some of this activity in the Middle Neolithic. The date is supported by the recovery of Middle Neolithic pottery and Middle–Late Neolithic stone tools from the settlement site. A reinterpretation of the site has, however, identified one of the buildings as a possible rectangular house (Structure 3), with features that contained Early Neolithic pottery.




*Illus. 2.18.6—Gortore 1b: two Early Neolithic houses; Structure 1 in Area 1 and Structure 3 in Area 3.*

### House in Area 1 (Early Neolithic?)

Structure 1 (Illus. 2.18.6) was a rectangular house, aligned roughly east–west, measuring c. 6.7 m by 5.3 m and occupying an area of c. 33.5 m$^2$. Two contiguous slot-trenches represented the angle of the northern long wall and adjoining eastern end wall of the house. Packing stones present in the slot-trench fills may have supported a split-plank wall. No post-holes were recorded in the slot-trenches. Four post-holes defined the slightly rounded western wall. A gap 2.4 m wide in the west wall may have formed the entrance to the house. The southern wall and the south-eastern corner of the house did not survive.

There were four post-holes on the exterior of the north wall. These suggest that the roof extended beyond the slot-trench and was supported by external upright posts. A short slot or trench (2.2 m long) in the middle of the building seemed to divide the floor area longitudinally. Three shallow depressions within the cut may indicate where roof support posts once stood. Three other pits and three stake-holes were recorded in the interior of the house.

The dating evidence for the house is ambiguous. A sample of charcoal (oak) from the northern slot-trench was dated to 2570–2350 BC (UBA-13224) and a sample of charcoal (hazel) from a post-hole on the western wall was dated 2467–2299 BC (UBA-13225), both indicating a Chalcolithic date for the house. Houses of Chalcolithic date in Ireland are, however, quite rare and a distinctive architectural form for such houses cannot be recognised (Carlin & Brück 2012, 194). A sherd of Early

Neolithic carinated bowl was recovered from a pit in the interior of the house (Illus. 2.18.6), while a Late Neolithic flint scraper was recovered from the northern foundation trench. To add further complexity, a sample of charcoal (cereal and hazelnut shell) from a stake-hole within the house was dated to AD 77–215 (UBA-13233), an Iron Age date. Despite the paucity of Early Neolithic artefacts and the lack of a corresponding radiocarbon date, it is considered most likely that the house is, in fact, Early Neolithic in date. This interpretation is based on consideration of the orientation of the house, the presence of external roof supports and the slightly curved western gable, which are features known to occur in other Early Neolithic houses in the region, such as at Ballinglanna North 3 and Caherdrinny 3 (Chapters 2.3 and 2.12).

A group of 13 pits was located in the central portion of Area 1, just c. 20 m to the south-east of Structure 1. Ten of the pits were small and shallow and three were larger in size. Sherds of Early Neolithic pottery were recovered from three of the pits. In total, sherds representing a minimum of five Early Neolithic carinated bowls were recovered from across Area 1.

### Early Neolithic evidence from Areas 2 and 3

The evidence for the Early Neolithic in Areas 2 and 3 was provided by the recovery of lithics (Illus. 3.10.5) and pottery (Illus. 2.18.7–8), but the assemblages were most often mixed with artefacts from other prehistoric periods. For example, four pits in Area 2, which were dated to the Late Mesolithic, also included lithics dating to the Neolithic (Illus. 2.18.4).

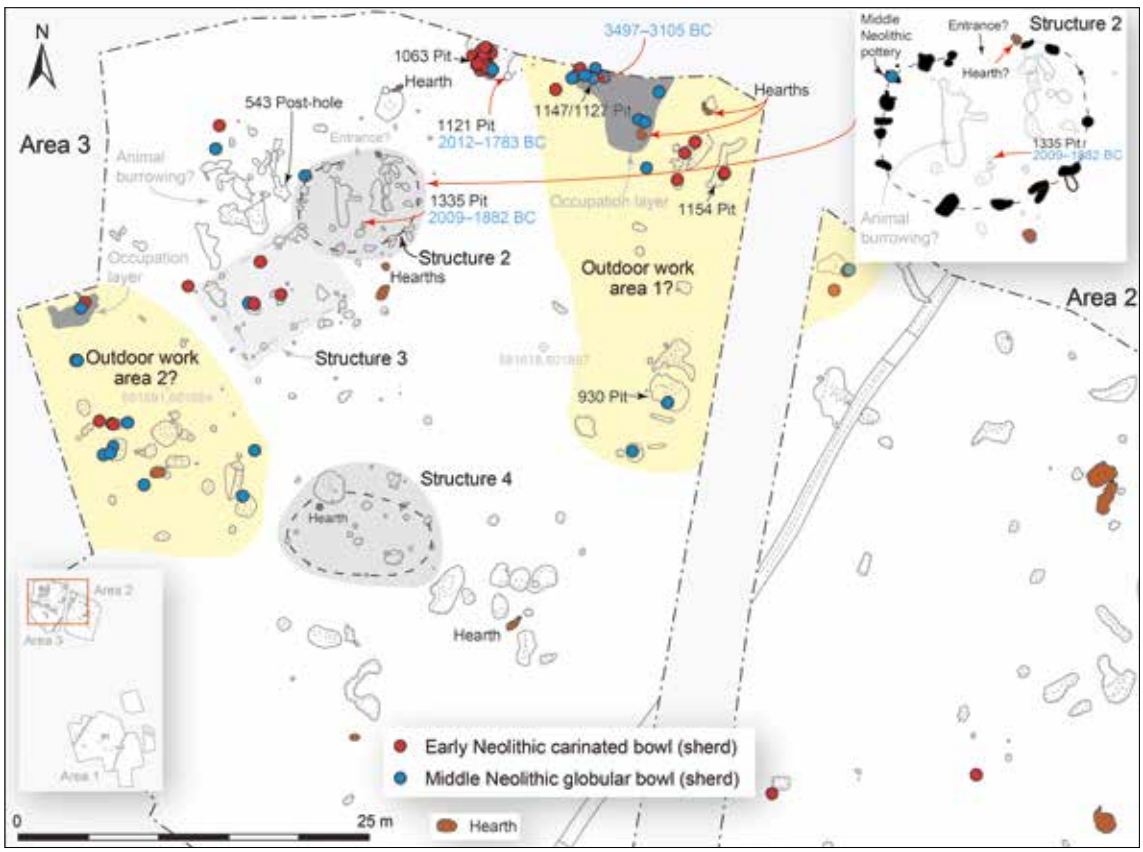
Evidence of on-site flint knapping, which included a blue flint core (E2410:1130:2) and refitted flake (E2410:1108:4), were recovered from a large pit, located close to the field boundary in Area 2. The presence of this blade and flake, derived from a specific nodule of very distinctive and unusual blue flint, provides a direct link between the two communities living at Gortore and Caherdrinny 3, with evidence of tools made at Gortore being traded and used by the Early Neolithic community at Caherdrinny 3 (Chapter 3.10).

### An Early Neolithic house (Structure 3) in Area 3?

A reinterpretation of the evidence from the western end of Area 3 indicates the possibility that the excavated features include the remains of a rectangular Early Neolithic house, here designated as Structure 3 (Illus. 2.18.6–7). The dimensions of the house (6.8 m by 5.7 m; c. 43 m2), its SW–NE alignment, its apparent central row of internal roof support posts (albeit an unusual occurrence) and its external roof support posts are all similar to the possible Early Neolithic house excavated in Area 1 (Structure 1). While no radiocarbon dates were obtained from the house, sherds of Early Neolithic carinated bowl were recovered from three internal pits/post-holes. Lithics of Neolithic date were also present. The entrance to the structure appears to have been from the north-east. No hearth was evident within the structure, although there were two undated hearths located externally, to the north-east (Illus. 2.18.6). The location of the hearths, relative to the house, is very similar to the location of the hearths external to Structure 1 at Caherdrinny 3 (Illus. 2.12.4).

A short distance (c. 80 m) to the east of Structure 3, sharing a common elevation and aspect, was another Early Neolithic house excavated at Gortore 1, on the route of the adjoining M8 Rathcormac–Fermoy motorway (O'Donoghoe 2006; O'Donoghoe & Johnston 2013) (Illus. 2.18.1; Illus. 3.1.1). This latter rectangular house measured 6.3 m by 5.1 m (occupying an area of 33 $m^2$) and was represented by a discontinuous slot-trench, with a possible entrance 2.7 m wide along the

southern wall. Some post-holes flanked the outside of the house walls and suggest that it extended beyond the walls and was supported by external upright posts. Internally, part of a clay floor survived but there was no indication of a hearth. Sherds from two Early Neolithic carinated bowls were recovered, as were grains of emmer wheat, the remains of charred apple core, pear/apple pips and some hazelnut shells. The building was dated to 3928–3655 BC (UBA–6769). It is likely that this house was contemporary with the two Early Neolithic houses found at Gortore 1b and that the houses represent a single settlement of Early Neolithic date. (Their presence suggests that further Early Neolithic houses may exist along the slopes that overlook the River Funshion.) The three buildings are broadly comparable in form, alignment and dimensions to the other Early Neolithic houses excavated in County Cork (Illus. 3.1.1).




*Illus. 2.18.7—Gortore 1b: interpreted plan of the Neolithc features from Areas 2 and 3, showing the distribution of Early Neolithic and Middle Neolithic pottery and the location of Structures 2–4 and of the 'work areas'.*

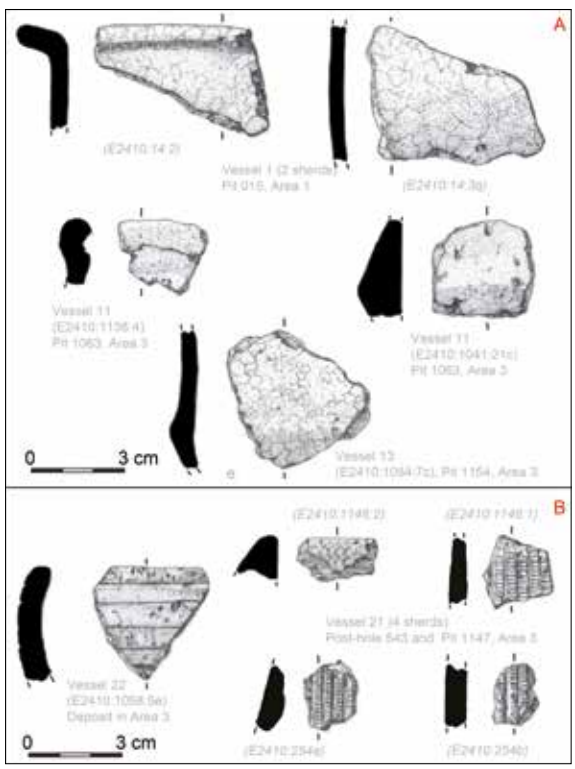
## Middle Neolithic evidence from Area 1

A dispersed pattern of 13 pits was located in the eastern portion of Area 1. Five sherds representing a single Middle Neolithic globular bowl were recovered from one of the pits. Apart from a sherd of Early Neolithic carinated bowl from topsoil, these are the only diagnostic artefacts recovered from this part of the site and all the activity in this eastern area has been interpreted as belonging to the Middle Neolithic.

## Middle/Late Neolithic evidence from Area 3

Most of the activity in Area 3 was Middle/Late Neolithic in date. While significant quantities (62 sherds, representing at least six vessels) of Middle Neolithic pottery were uncovered, most of the dating evidence is supplied by the large lithic assemblage. Unfortunately, in terms of dating certainty, these stone tool types were in use throughout the Middle and Late Neolithic periods (Chapter 3.10). The evidence from other artefacts, radiocarbon dates and plant remains recovered from the site is insufficient to narrow the date range. It is perhaps significant, however, that no Late Neolithic pottery was present. This fact might indicate a Middle Neolithic date for much of the settlement evidence in Area 3.

Most of the Middle/Late Neolithic activity at Gortore 1b was concentrated in two specific zones within Area 3 (Illus. 2.18.7; Illus. 3.10.8A–B), i.e. on the north-eastern fringe and in the central/western area. These areas represent the remains of at least two outdoor 'work areas', dating to the Middle/Late Neolithic, where a range of day-to-day activities, such as hide working, food processing, arrowhead production and bone/wood working most likely took place. The evidence for this domestic work was provided by the presence of concave and hollow scrapers, flint blades and flakes, a single burin and rubbing stones. Occupation layers were recorded in shallow hollows at both work areas. These deposits were represented by firmly compacted, stony, sandy silt layers, with associated stone tools and pottery sherds. The two outdoor areas were very different in character from one another: Work Area 1 was characterised by a small number of large pits, while Work Area 2 was characterised by a dense concentration of smaller pits and post-holes, in close proximity.




*Illus. 2.18.8—Gortore 1b: sherds of [A] Early Neolithic carinated bowls (Area 1, Vessel 1; Area 3, Vessels 11 and 13) and [B] Middle Neolithic globular bowls (Area 3, Vessels 21 and 22) (drawings by Malgorzata Kryczka).*

## Arrowhead manufacture in Work Area 1

The northern outdoor work area was only partly excavated, as it extended beyond the limits of excavation, to the north (Illus. 2.18.7). The area comprised a group of pits, two hearths and a thin (0.07 m) occupation layer, which overlay one of the hearths and one of the large pits. A total of 28 lithics, the largest concentration of lithics associated with the Middle/Late Neolithic occupation, including 12 pieces of debitage, a hollow scraper, a fragment from a porcellanite stone axehead, a rubbing stone and six sherds of Middle Neolithic pottery were recovered from the occupation layer (Illus. 2.18.8 [B]). Two large pits, recorded on the edge of the area, were also associated with the work area. The westernmost pit (1063) contained a variety of flint, pottery

(Early and Middle Neolithic), hammerstones and rubbing stones. (The rubbing stones would have been used for food processing.) Pottery of Early and Late Neolithic date was also recovered from the pit. The pit was cut by at least four smaller pits, a hearth, a post-hole and several stake-holes—an Early Bronze Age date of 2012–1783 BC (UBA-13402) was obtained from hazelnut shell from one of the later re-cuts (1121). The easternmost pit (1127) had been cut by at least four pits and three stake-holes. The only Middle Neolithic radiocarbon date from Gortore 1b—3497–3105 BC (UBA-13400)—was obtained from hazelnut shell from this pit (1127). A large concentration of flint cores, debitage, leaf-shaped arrowhead fragments, arrowhead production flakes and both Early and Middle Neolithic pottery were recovered from the pit and the occupation layers to its east and west. Complete examples of arrowheads were not recovered, which suggests that the arrowheads produced at this site were completed, hafted to the arrows and used elsewhere. The quality of the waste from arrowhead production hints at the presence of a skilled flintknapper (Chapter 3.10). A further 12 pits, recorded on the eastern edge of Area 3, were probably associated with the work area. Some Middle Neolithic pottery, a schist axehead, flint debitage and two rubbing stones were found in the largest of the pits (930) in this group.

### Outdoor work area 2

A second work area was recorded on the western edge of Area 3 (Illus. 2.18.7). Here a total of 18 pits, a hearth and nine post-holes were found in very close proximity to one another, and formed an organised work space associated with food processing, flint knapping and wood and/or bone working. An occupation layer 0.4 m deep was recorded in a slight hollow to the north of the pits. Some Early, but predominantly Middle Neolithic pottery and a group of 28 hand-chipped stones—including debitage and a burin, dated to the Middle/Late Neolithic—were recovered from the area.

### A Middle Neolithic house (Structure 2)?

Located in the northern end of Area 3 was a possible house (Illus. 2.18.7), comprising up to 18 post-holes and pits that enclosed a sub-circular/sub-rectangular area, measuring c. 8.1 m (east–west) by 6.5 m. The structure may have been entered via the north, on the downslope side, facing the river. A large pit, four smaller pits and at least three post-holes were recorded in the interior, although it was not possible to determine how many of these, if any, were contemporary with the structure. A sample of hazelnut shell from the fill of one of the 'interior' post-holes was dated to 2009–1882 BC (UBA-13403), an Early Bronze Age date. This date appears more likely, however, to be derived from intrusive material, as most of the activity and artefacts surrounding the structure dated to the Neolithic period. In addition, a sherd of a Middle Neolithic globular bowl was found in one of the structural post-holes forming the wall of Structure 2 (Illus. 2.18.7) and two lithics of Neolithic date were also found in the interior of the structure. No hearth was noted within the structure, but two undated hearths were located immediately to the south. These hearths may instead be contemporary with the Early Neolithic house (Structure 3), nearby.

### Structure 4 (Middle Neolithic?)

Located to the south-east of Work Area 2 was a sub-oval arrangement of 10 post-holes, tentatively interpreted as a structure. Measuring 6.5 m by 9 m and roughly oval in plan, the interior of the structure enclosed six post-holes, four pits and a hearth. One of the internal posts may have


*Illus. 2.18.9—Gortore 1b: aerial view of Area 2 showing location of Structures 2–4, with the assemblage of large stone tools from the site depicted in inset A, the Late Mesolihic Moynagh point in inset B and an early medieval corn-drying kiln from Area 1 in inset C (main photo by Hawkeye; inset photos by John Sunderland). The large stone tools from the site included two polished stone axeheads, seven hammerstones, 29 polishing/rubbing stones, five rubbing/hammerstones, three elongated pebbles, seven used chipped stones and used but unmodified natural stone (manuport).*

functioned as a central roof support. The structure is undated, but the possible association of Middle Neolithic pottery to the immediate north-west suggests that it formed part of the Neolithic settlement at the site. Two chipped stones, one of Neolithic date and another deemed likely to be Chalcolithic in date, were found during the removal of residual topsoil from over the structure.

## Sporadic use of the site in later prehistoric times

Some stone tools of apparent Chalcolithic date (Chapter 3.10; Illus. 3.10.9) were recovered in Area 3, from pits in Work Areas 1 and 2—which included a barbed-and-tanged arrowhead roughout (E2410:1123:17)—and from the topsoil. In addition, two Early Bronze Age radiocarbon dates—2012–1783 BC (UBA-13402) and 2009–1882 BC (UBA-13403)—were obtained from two features in Area 3; these being from an intrusive pit near Work Area 1 and from a post-hole located within, but possibly unrelated to Structure 2 (Illus. 2.18.7). No finds of Bronze Age date were found on the site, reinforcing the likelihood that the site was only re-occupied for a short period at that time.

### Early medieval grain drying in Area 1; undated field ditches

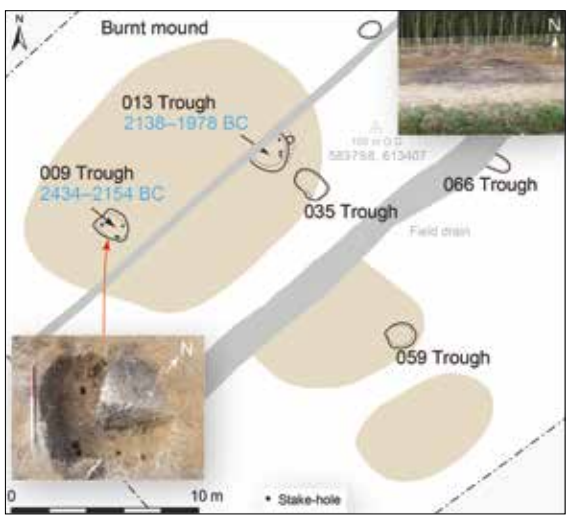
A simple, earth-cut, 'figure-of-eight' kiln in Area 1 (Illus. 2.18.1; Illus. 2.18.9) was represented by a NNE–SSW aligned chamber and a flue. The mouth of the flue was to the SSW. Some large stones in the base of the flue may have been the remnants of stone lining, or stones that were placed here to stop sparks travelling up the flue and igniting the crops during the drying process. The base of the oval chamber was heat scorched. Preservation of the charred plant remains from the kiln was poor and the majority of the cereals were not determined to species. A sample of emmer wheat from the kiln was dated to AD 661–771 (UBA-12984). Two hearths were located nearby, one to the NNE and the other to the SSW of the kiln. It is not clear if these hearths were associated with the use of the kiln.

Two long, linear ditches were recorded in Area 1 and a corresponding third example crossed Areas 2 and 3 (Illus. 2.18.1). The ditches were located 55 m apart, were parallel and were aligned NNE–SSW. There were two gaps (both less than 1 m in width) in the eastern ditch, wide enough for access for a person or an animal. It is difficult to assign a date to the ditches, but they appear to represent the earliest large-scale sub-division of lands at Gortore and are very similar in form to examples excavated at Rath-healy 1 (Linnane 2013) and at Ballybrowney Lower 1 (Cotter 2013a).

## 2.19 Kildrum 1 (Corracunna)—Chalcolithic/Early Bronze Age *fulacht fiadh*

*John Tierney, Andrew Thomson and Penny Johnston*

A previously unrecorded small *fulacht fiadh* was excavated on low ground, on a gentle west-facing slope in the townland of Corracunna (Illus. 1.1.1; Illus. 2.3: though registered as Kildrum 1, the site is actually located in Corracunna, just over the townland boundary with Kildrum). Five troughs survived below the shallow (0.1–0.22 m deep) patches of heat-shattered stone that formed the burnt mound (Illus. 2.19.1). Two troughs had evidence—in the form of stake-holes in their bases—to suggest they were once lined with timber that had been pegged in place by wooden stakes. A sample of charcoal (willow/poplar) from one of these troughs was dated to 2138–1978 BC (UBA-12985) and a sample of charcoal (hazel/alder) from the second to 2434–2154 BC (UBA-12986), suggesting a Chalcolithic/Early Bronze Age date. No water source was evident in the immediate environs of the site, but water was running in the base of the field drain that crossed the site and the troughs may, therefore, have been fed from the underlying groundwater table.




*Illus. 2.19.1—Kildrum 1: Chalcolithic/Early Bronze Age* fulacht fiadh *with views of the associated burnt mound (inset, top right) and Trough 009 (inset, bottom left).*

## 2.20 Kilshanny 1—Late prehistoric (enclosed?) settlement

*James Lyttleton, Nick Garland and Jacinta Kiely*

Kilshanny 1 comprised six excavation areas (Areas A–F; Illus. 1.1.1; Illus. 2.3). Areas A–D contained mostly early modern field boundaries, furrows and pits, although a pit in Area B was dated to 768–522 BC (UBA-13229). The archaeology from the combined Area E/F was very interesting, albeit somewhat difficult to interpret. On the face of it, the site comprised a round-house within an enclosure defined by pits and ditch segments. The radiocarbon dates, however, suggest otherwise.

### Pit alignments (enclosure boundary/fence line?)

Sited on a broad, slightly undulating plain, in a low-lying area between the hills and mountains in the surrounding landscape, the prominent feature at Kilshanny 1 was a series of alignments of distinctly large pits, with some post-holes and—in the case of the northern alignment—an arcing shallow ditch/gully (Illus. 2.20.1). The pit/post-hole alignments may originally have supported timber-built fences, or some other physical boundary, that enclosed the round-house on its northern, southern and eastern sides. A sample of charcoal (hazel/alder) from the fill of one of the pits on the eastern alignment was dated to 1889–1748 BC (UBA-13226), an Early Bronze Age date. This was the only dated material obtained from the alignments.

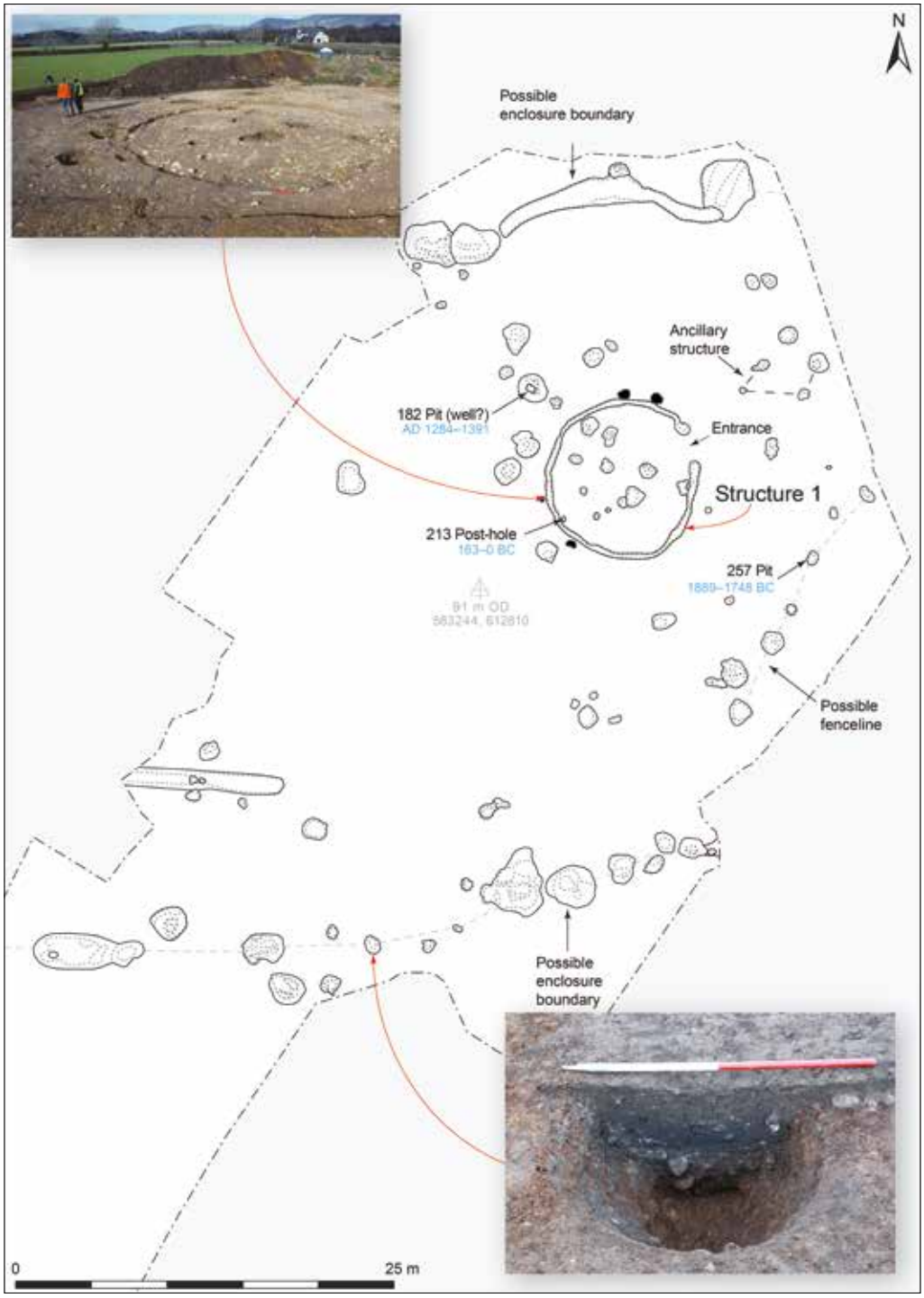
### Round-house

The settlement at Kilshanny 1 comprised the remains of a round-house (Structure 1), a possible ancillary structure, and some nearby pits (Illus. 2.20.1). The round-house—defined by a substantial (0.77 m wide by 0.14 m deep) foundation trench—measured 9.1 m in internal diameter and enclosed an area of 65 $m^2$. The house was entered from the north-east, via a 1.85 m-wide gap in the foundation trench. There were seven internal post-holes, some of which may have acted as roof supports. A sample of charcoal (alder) from one of these post-holes was dated to 163 BC–AD 0 (UBA-13227), an Iron Age date. (There is no second date, or cultural material, to corroberate the reliability of the Iron Age date.)

There were at least four (possibly five) external post-holes and a small pit associated with the foundation trench. These post-holes may indicate that the roof of the house extended beyond the foundation trench and required some support outside the walls, as well as within the house.

### Ancillary structure?

A group of four post-holes was recorded 4 m to the east of the entrance of Structure 1. It is possible that these represent the remains of a small (3.5 m by 1.5 m) rectangular structure, ancillary to the round-house. Such a structure may have been used for storage (perhaps a four-poster grain store, a type of structure well known in Iron Age Britain) and other activities associated with the occupation of the round-house.




*Illus. 2.20.1—Kilshanny 1: plan of a sub-circular building (Structure 1), possibly enclosed by a boundary formed by deep pits and short segments of ditch. Top inset shows elevated view of Structure 1 from the south-east. Bottom inset shows mid-excavation view of one of the large pits demarking part of a possible enclosure boundary.*

### Pit (well?)

A sample of charcoal (willow/poplar) from the fill of a pit (182), located to the north-west of the round-house, was dated AD 1284–1391 (UBA-13228), a late medieval date. This pit was a re-cut of a larger pit. Being c. 0.8 m deep, with a post-hole equidistant on either side, this pit may have been used as a well or rainwater cistern.

### Discussion

Overall, the radiocarbon dates from Kilshanny were not contemporary and do not give a clear picture of the phases of occupation at the site. Despite the differing radiocarbon dates, it is possible that the round-house and the boundary alignments were, in fact, contemporary, and potentially all Early Bronze Age in date. A large number of Bronze Age houses have been excavated on recent infrastructural projects in Ireland, but the nearest comparison for the structure at Kilshanny 1 is the Middle Bronze Age round-house excavated at Ballynamona 2 (Chapter 2.10). The house excavated at Ballynamona 2 was in some ways similar to that at Kilshanny: it contained a foundation trench (albeit slightly different in form) and an unclear pattern of post-holes and pits associated with the house. Comparable houses of Iron Age date were excavated at Moneylawn Lower, Site 13 (Structure 2), Co. Wexford (McKinstry 2011) and at Ballinaspig More, near Ballincollig, west of Cork City (Danaher 2013a, 160–2). Despite the disparity in dates, the house is central to the 'enclosure' and, overall, this arrangement of these features is more likely to be Bronze Age than Iron Age.

## 2.21 Kilshanny 2—Late Bronze Age and/or modern pits

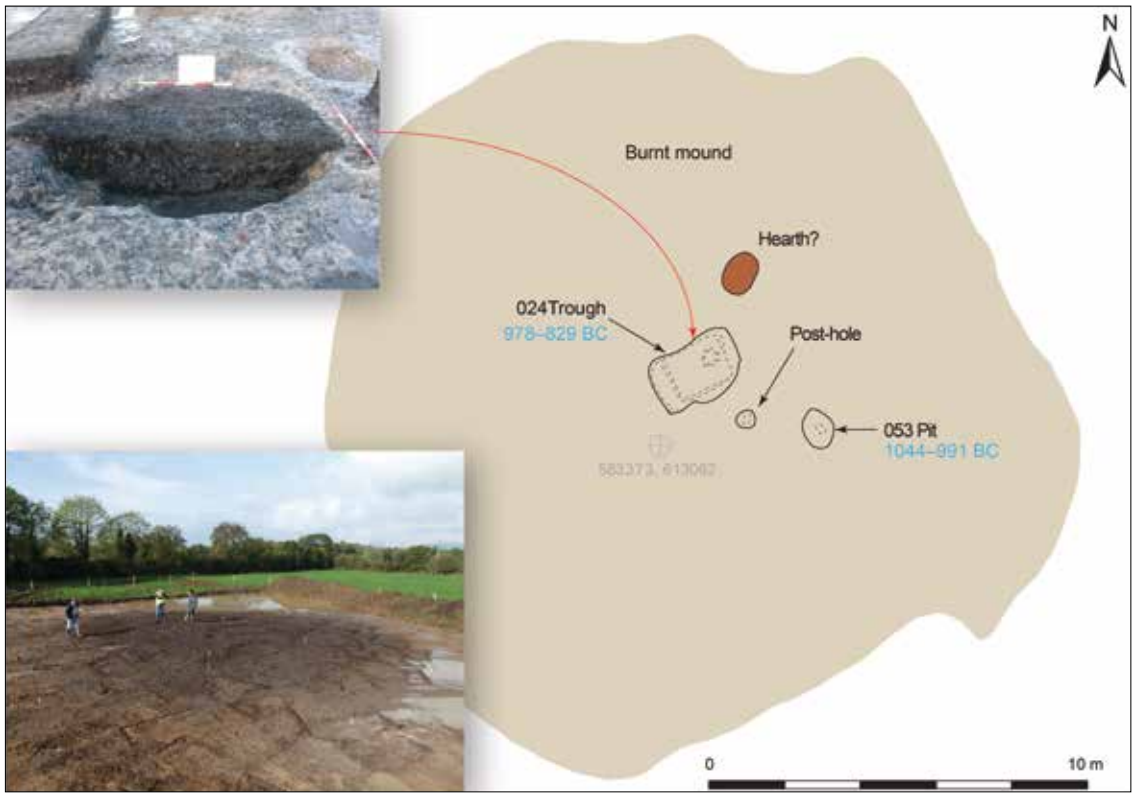
*James Lyttleton, Nick Garland and Jacinta Kiely*

Here, five large, irregular pits were recorded on poorly drained ground. Three of the pits were intercutting. Whereas modern pottery and animal bone were recovered from one of these pits, a sample of charcoal (hazel/alder) from the fill of another pit was dated to 1126–944 BC (UBA-12987), a Late Bronze Age date. It is possible, however, that the dated charcoal was redeposited, and that the Late Bronze Age date from this site might, as a result, be unrepresentative.

## 2.22 Kilshanny 3—Late Bronze Age *fulacht fiadh*

*James Lyttleton, Nick Garland and Jacinta Kiely*

Located on low, poorly drained ground, c. 1.5 km east of Mitchelstown (Illus. 1.1.1; Illus. 2.3), was a large *fulacht fiadh*, comprising a substantial mound of heat-shattered stone, sealing a central trough, two associated pits and a post-hole (Illus. 2.22.1). A sample of charcoal (fruitwood) from the trough fill was dated to 978–829 BC (UBA-12989), a Late Bronze Age date. Two pits were recorded to the east of the trough and a post-hole to the south. A sample of charcoal (hazel/alder) from the fill of




*Illus. 2.22.1—Kilshanny 3: plan of Late Bronze Age* fulacht fiadh *with images of the associated burnt mound ( inset, bottom) and trough (inset, top) (images by Eachtra Archaeological Projects).*

one of the pits (053) was dated to 1044–911 BC (UBA-12988). Heat-scorching at the sides of the larger of the two pits may indicate it was used as a hearth. The main extent of the mound measured 19.9 m by 19.4 m by 0.3 m in depth. Charred seeds, including wheat and weed seeds, were found in samples from the burnt mound and within a fill of the trough.

## 2.23 Ballynacarriga 4—Undated pit group and early modern furrows

*Ken Hanley*

This site was excavated by John Purcell for The Archaeology Company.

Located outside the road corridor, the site was excavated in January–Feburary 2008, in advance of stone quarrying by the contractor on severed lands (Severence Area 1; Illus. 1.1.1; Illus. 2.1; Illus. 2.23.1). The excavation area measured c. 30 m by 60 m and was located in the northern half of a largely level, well-drained field. A preliminary account of the excavation (Shanahan 2009) states that the western end of the excavation area comprised a high concentration of intercutting furrows (in

a grid pattern), bounded on the southern side by an old, winding field boundary ditch (0.5–0.8 m wide by 0.3 m deep). The ditch contained animal bone fragments and a number of metal slag pieces. One of the furrows contained a fragment of red brick and another contained a sherd of possible late medieval pottery (ibid., 2). A total of 17 pits were dispersed across the excavation area. Two of the pits, at the centre of the site, were associated with a row of seven stake-holes. Most of the pits contained flecks of charcoal. One contained heat-shattered stone, with frequent charcoal lumps, but with no evidence of *in situ* burning. Three charcoal-flecked deposits were also noted, one of which was truncated by the old field boundary ditch.


*Illus. 2.23.1—Ballynacarriga 4: aerial view showing location of the site on the east side of the River Funshion valley (photo by Roadbridge Ltd).*

The features exposed seem to represent early modern tillage, which, evidently, truncated probably prehistoric occupation features, including at least one pyrotechnological pit.

## 2.24 Gortnahown 5—Two *fulachtaí fia* of possible Bronze Age date

*Ken Hanley*

This site was excavated in February–March 2009 by Stuart Elder for The Archaeology Company.

A small *fulacht fiadh* was excavated in an area of severed land required for an extension to the contractor's construction compound (Illus. 1.1.1; Illus. 2.2; Illus. 2.24.1, based on Buggie 2009, 9). The site comprised a small (10 m NW–SE by 6 m) mound of heat-shattered stone, sealing a substantial sub-rectangular trough. The site has not been dated, but is likely to be Bronze Age. A second *fulacht fiadh*—with a potential (wood-lined?) trough—was exposed near a field drain/field boundary, c. 5 m to the south-west. This latter feature (co-ordinates: ITM 581225/610029) was covered in geotextile and preserved *in situ* (ibid., 5–6).


*Illus. 2.24.1—Gortnahown 5: aerial view showing location of the excavated* fulacht fiadh. *A second* fulacht fiadh *was exposed to its south-west, but preserved* in situ *(images by Roadbridge Ltd).*


*Illus. 3—Artefacts of the ancient inhabitants of North Cork (photos by John Sunderland; drawings by Malgorzata Kryczka), various scales. (1) Chalcolithic flint arrowhead from Gortnahown 2; (2) Later Neolithic flint scraper from Ballynacarriga 2; (3) Early Bronze Age encrusted urn from Ballynacarriga 3; (4) early medieval knife blade from Ballynacarriga 2; (5) Early Neolithic flint scraper from Ballynamona 2; (6) Early Bronze Age bipartite vase from Ballynacarriga 3; (7) early medieval bone handle from Ballynacarriga 2 (8) Early Bronze Age tripartite vase from Ballynacarriga 3.*

# CHAPTER 3
# GIVING VOICE TO A BURIED PAST

*Ken Hanley*

The preceding chapter provided a summary account of 24 of the more significant sites excavated on the route of the M8 Fermoy–Mitchelstown motorway, but just how significant are these findings? How do the results help us to better understand the development of human settlement and landscape management within this part of what is now north County Cork? This chapter will explore what new information has come to light and will distil what we have learned about aspects of the lives and material culture of people whose individual activities were completely lost to us, until now. Before doing so, however, it is worth reminding ourselves of just how fortunate we are to have such insights. Consider the centuries (in most cases, millennia) that have passed since these sites were occupied. Consider the ravages of time, the processes of disturbance, both natural and human, and the chance nature of discovery. This last is made possible by the adequate provision of resources by TII and, ultimately, by the keen eye of field archaeologists in recognising the importance of a soil discoloration or piece of chipped stone, and by the archaeologists and other specialists involved in excavating the sites and analysing the remains uncovered.

All that survives of these ancient generations are fragments of physical remains. Some are remnants of buildings where our ancestors once lived—on this road project settlement evidence from the prehistoric period (Neolithic to the Iron Age) survived, as did some significant medieval settlements. Further insights come from human remains of women and children who lived in North Cork during the Bronze Age.

Other physical items unearthed were plant remains (which provide evidence for past environments and food production) and animal bone (most significantly from the early medieval period). The recovery of ancestral pottery and stone tools allows archaeologists to examine their use and the technological advancements they represent over time. The finds also provide insights into cultural and economic interactions between the people represented by the archaeology of the M8 Fermoy–Mitchelstown motorway and other peoples in the region and, indeed, further afield. Such artefacts also help archaeologists to date sites—as do the 102 radiocarbon dates obtained from the excavations presented here (Appendix 1).

Some of the excavations revealed rare evidence for specialised early medieval iron-working, which has provided some very interesting insights into a, heretofore, little understood aspect of the regional economy during this early historic period. This is a period from which (unlike the prehistoric period) we have other sources of information to help frame the discoveries in a broader historical context. All these new insights are explored in this chapter, while more detailed technical analysis is available in the digitally published excavation reports (Table A).

## 3.1 Prehistoric settlements and communal places

*Penny Johnston*

Archaeological evidence for occupation can take many forms—a scatter of flints or of a few pits with prehistoric dates or, perhaps, a few small sherds of pottery. However, it is the remains of houses that represent long-term settlement of an area. These were where families lived. The following review will focus on these dwellings, their form and how they have added to our understanding of the make-up and distribution of prehistoric settlement in North Cork.

### Earliest inhabitants

Unfortunately, archaeologists have yet to discover the huts of any of the region's earliest inhabitants. Recent research (Dowd & Carden 2016) has revealed evidence of human presence in a cave in County Clare, where a tool-cut bear bone was found. Dating to c. 10,500 BC, this bone represents the first probable evidence of human activity in Ireland during the Palaeolithic period. The earliest evidence for a human presence in County Cork dates to c. 8100 BC, in the Mesolithic period (Tierney et al. 2013; Trainor & Plunkett 2013). No direct evidence for Mesolithic house settlement was found on the route of the M8 Fermoy–Mitchelstown motorway. There was, nonetheless, evidence of Mesolithic people at four sites: Gortore 1b, Caherdrinny 3, Ballinglanna North 1 and Ballinglanna North 6. Most notable of these was the evidence (from Gortore 1b) for the manufacture of fishing spears on a terrace overlooking the River Funshion, c. 6000 BC.

### Earliest farmers

The Neolithic period in Ireland lasted for roughly 1500 years. To put the recent discoveries in context, prior to the TII road schemes no confirmed site[2] was known where Neolithic people lived in what is now County Cork, i.e. not a single house, from our largest county, over such a long timescale. Archaeological investigations in advance of recent national road schemes have since revealed nine possible Neolithic houses (eight Early Neolithic and one Middle Neolithic) from County Cork, six of which were found on the route of the M8 Fermoy–Mitchelstown motorway alone. This same motorway has also revealed a site with four Late Neolithic timber circles, a place where Neolithic people gathered to mark important communal events. Make no mistake about it, the M8 Fermoy–Mitchelstown motorway has had a remarkable impact on our knowledge of the region's Neolithic past.

Perhaps as many as five Early Neolithic rectangular houses were found on the route of the M8 Fermoy–Mitchelstown motorway, as was extensive other evidence for settlement in this period (Table 3.1.1). These results are discussed here in conjunction with the discovery of another Early Neolithic house at Gortore 1 (O'Donoghue 2006; O'Donoghue & Johnston 2013), which was excavated nearby, in 2005, on the route of the interconnecting M8 Rathcormac–Fermoy motorway.

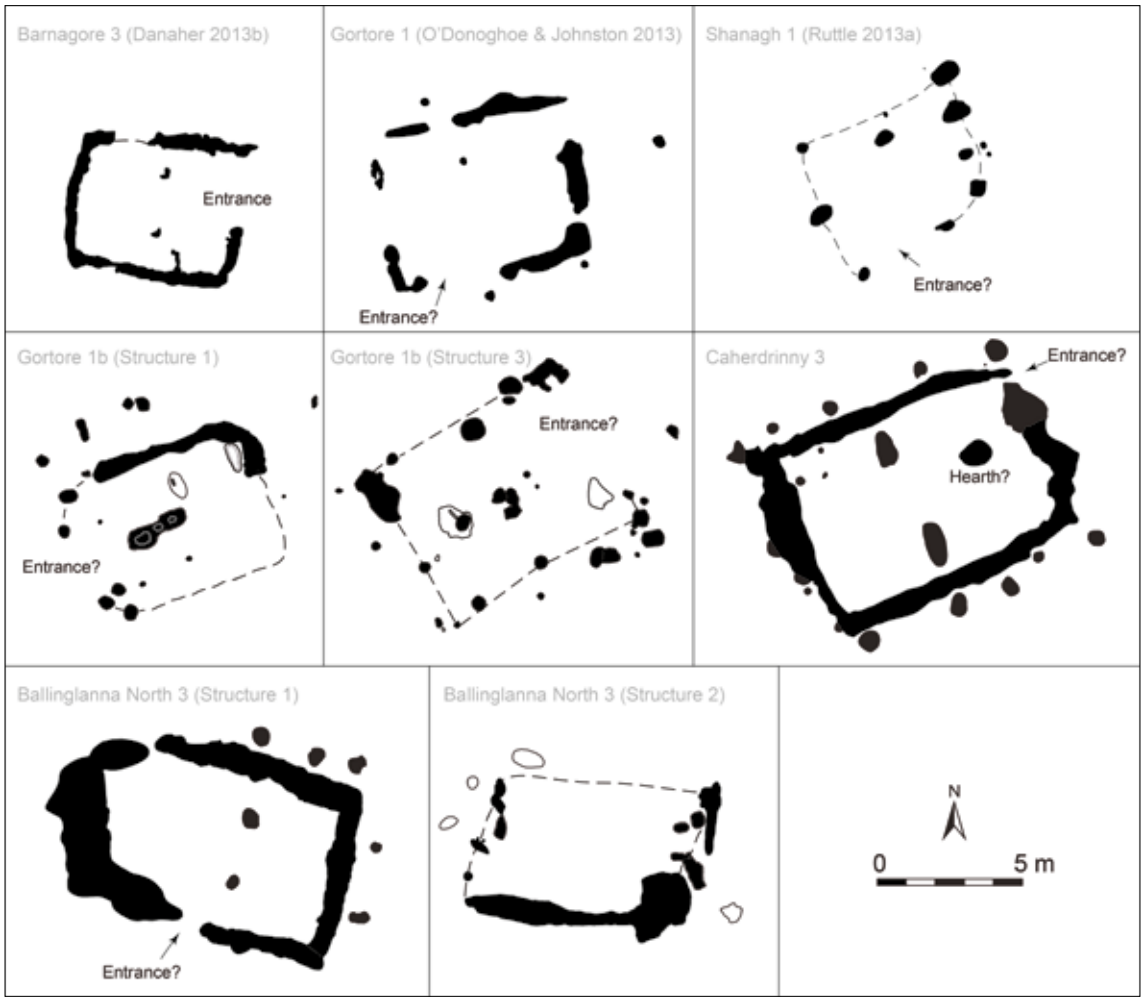
[2] A possible Early Neolithic house was reported from Pepperhill in North Cork (Gowen 1988, 44–51) but, in light of more recent studies (Smyth 2014), this is now considered unlikely to have been a house.

*Table 3.1.1—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Neolithic period (4000–2450 BC)*

| Site | Features | Artefacts | Plant remains | C14 date (2 sigma cal.) |
|---|---|---|---|---|
| Ballinglanna North 3 (E2416) | One well-preserved rectangular house and one poorly preserved structure, possibly a rectangular house | Early Neolithic carinated bowl, single platform flake | Hazelnut shell fragments, fruit stones from sloes and cherries and cereal, in particular emmer wheat | 3766–3656 BC (UBA-10499)<br>3938–3708 BC (UBA-13145) |
| | | Stone tools assemblage is dominated by Later Neolithic types | — | — |
| Ballynacarriga 2 (E2413) | | Stone tool scatter: hollow scrapers and retouched tools typologically dated to the Middle Neolithic | — | — |
| Ballynacarriga 3 (E2412) | Hearth and associated post-holes | — | Early Neolithic plant remains included chaff and grains from emmer wheat | 3796–3664 BC (UBA-13169) |
| | Pits (Middle Neolithic material likely to have been redeposited) | Middle Neolithic globular bowl | — | — |
| | Settlement, including the remains of three sub-circular structures | Late Neolithic Grooved Ware | Late Neolithic plant remains included small quantities of barley (most likely naked barley) and a single grain of emmer wheat | 2569–2461 BC (UBA-13167)<br>2835–2490 BC (UBA-13157) |
| Ballynamona 1 (E2428) | Pits | Late Neolithic Grooved Ware | Hazelnut shell fragments | 3698–3658 BC (UBA-12975) |

*Table 3.1.1—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Neolithic period (4000–2450 BC) cont'd*

| Site | Features | Artefacts | Plant remains | C14 date (2 sigma cal.) |
|---|---|---|---|---|
| Ballynamona 2 (E2429) | Topsoil/pit | Early Neolithic carinated bowl and eight diagnostic Early Neolithic stone implements | — | — |
| | | Middle Neolithic stone tool | — | — |
| | | Late Neolithic stone tools | — | — |
| Caherdrinny 3 (E2422) | Rectangular house | Early Neolithic carinated bowl | Early Neolithic hazelnut shell fragments, apple/pear pips and other fruit seeds, emmer wheat and a single oat grain | 3766–3650 BC (UBA-13286) 4034–3808 BC (UBA-13284) 3701–3639 BC (UBA-13289) |
| | | Middle Neolithic globular bowl | — | — |
| | | Late Neolithic stone tools | — | — |
| Gortnahown 2 (E2426) | Pits (from two separate areas of site) | Early Neolithic carinated bowl | — | — |
| Gortore 1b (E2410) | Rectangular house at Gortore 1, rectangular houses (Structure 1 and 3) and on-site flint knapping at Gortore 1b | Early Neolithic carinated bowl and stone tools | — | — |
| | Middle Neolithic structure (Structure 2) (Gortore 1b) | Middle Neolithic globular bowl | — | — |
| | Hearths and pits | Middle/Late Neolithic stone tools | — | 3497–3105 BC (UBA-13400) |




*Illus. 3.1.1—Composite of floor plans of known Early Neolithic houses in County Cork (cf. Smyth 2014, 28–30, fig. 3.5 a–c). All of these sites were found during archaeological investigations in advance of national road schemes.*

Combined, these six rectangular building foundations—all believed to be houses—were excavated at Gortore 1, Gortore 1b (two examples), Ballinglanna North 3 (two examples) and at Caherdrinny 3 (Illus. 3.1.1). Such rectangular foundations are considered the typical house site of the Irish Early Neolithic (Smyth 2014, 27–34; McQuade et al. 2009, 19).

These Early Neolithic houses were found in quite different aspects. The site at Gortore 1 was found at an elevation of 43 m OD. The settlement was located near the River Funshion, above the level of any potential flood waters. The house was located on a gentle north-facing slope, which is quite unusual, as most known Early Neolithic settlements are on warmer south-facing slopes (Cooney 2000, 74). A second possible Early Neolithic house, at Gortore 1b (Structure 1), was located on a similar elevation, whereas yet a further example at Gortore 1b (Structure 3) was located at a slightly lower level (30 m OD), on north-sloping ground above a natural scarp that overlooks the river (Illus. 2.18.1). The site of Ballinglanna North 3 was situated on slightly higher ground, at 113 m

OD, and overlooked the steep gorge of the Glencorra Stream. The most convincing house (Structure 1) was located on a south-facing slope that overlooked a natural hollow. The remains of a second structure, also a possible house (Structure 2), were located on the crest of a north-facing slope at the other side of the hollow (Illus. 2.3.1). Thus the house sites at Gortore 1/1b and at Ballinglanna North 3 both overlook water courses. In contrast, the example at Caherdrinny 3 was located in quite a different setting, on higher ground at 148 m OD, at a watershed in the western foothills of the Kilworth Mountains.

The clustering of Neolithic structures is now recognised as a feature of settlement in this period (Grogan 2002, 522; Danaher 2009, 11; Smyth 2014, 23–5). This follows excavation of multiple houses at such sites as Tankardstown South, Co. Limerick (Gowen 1988, 26–43; Gowen & Tarbett 1988, 156), Corbally, Co. Kildare (Purcell 2002; Tobin 2003, 185–7) and Coolfore, Co. Louth (Ó Drisceoil 2003, 176–81). Many other sites are found as isolated buildings, although in some cases their perceived isolation may simply be a result of the spatial constraints of predevelopment excavations. At Gortore 1/1b, Ballinglanna North 3 and Caherdrinny 3 extensive areas were archaeologically excavated. The house at Caherdrinny 3 was evidently a single, isolated building, with some external settlement activity. The evidence from Gortore 1/1b suggests a larger settlement, although the evidence is hampered by uncertainty over the age of two of the possible Early Neolithic houses (Structures 1 and 3, from Gortore 1b). Two rectangular Early Neolithic buildings (Structures 1 and 2) at Ballinglanna North 3 were located 80 m apart. While the remains of Structure 2 were poorly preserved, the area of the floor plan was nonetheless roughly the same as that of Structure 1. The remains of one linear slot-trench from Structure 2 survived. The surviving layout suggests that the building was originally rectangular in plan and it may have looked quite similar to Structure 1, when both buildings were still in use.

Although the evidence for clustered Early Neolithic settlement in this part of North Cork is tentative, the close proximity of all these settlement sites indicates that their inhabitants were part of a wider community, whose farmsteads were located within a relatively short distance of each other. Gortore 1/1b, the southernmost site, was 3 km south of Ballinglanna North 3, which in turn was 3.6 km to the SSE of Caherdrinny 3. Even within a heavily forested environment, these settlements were within a few hours walk of one another, although from Gortore this would have involved crossing the River Funshion. Furthermore, the artefact record from Gortore 1b and Caherdrinny 3 provides some tantalizing evidence for contact between the communities: stone tools made from the same nodule of unusual blue beach flint were found at both sites (Chapter 3.10). Another Early Neolithic house at Shanagh (Illus. 3.1.1; Ruttle 2013a; forthcoming), excavated on the route of the proposed N73 Clogher Cross–Waterdyke road realignment, was located c. 16 km west of Mitchelstown. The only other Early Neolithic house known from County Cork was excavated at Barnagore 3 (Illus. 3.1.1; Danaher 2009; 2013b), c. 3 km east of Ballincollig, on the route of the N22 Ballincollig Bypass.

*Table 3.1.2—Dimensions of the Early Neolithic rectangular buildings excavated along the route of the M8 Fermoy–Mitchelstown motorway, compared to the other known examples from County Cork*

| Site (Structure) | Internal length by width (m) | External length by width (m) | Wall mid-point length by width (m) | Floor area ($m^2$) | Hearth? | Long axis orientation | Entrance (width/ orientation) | Elevation/ aspect |
|---|---|---|---|---|---|---|---|---|
| Ballinglanna North 3 (Structure 1) | 7.8 by 5.2 | 10 by 6.7 | 9.1 by 6 | 49 | No | ESE–WNW | 1.2 m/south | 113 m OD /south |
| Ballinglanna North 3 (Structure 2) | 7.2 by 4 | 7.8 by 4.8 | 7.5 by 4.4 | 45 | No | E–W | Unknown | 110 m OD/north |
| Caherdrinny 3 (Structure 1) | 8 by 5.7 | 10.1 by 7 | 9.2 by 6.3 | 57 | Yes? | ENE–WSW | 0.2 m/NE | 148 m OD/SW |
| Gortore 1 | 6.3 by 5.1 | 7.6 by 6.4 | 7 by 6 | 33 | No | E–W | c. 2.7 m/ south | 43 m OD/ north |
| Gortore 1b (Structure 1—Early Neolithic?) | 6.5 by 4.6 | 7.5 by 5.5 | 6.7 by 5.3 | 30 | No | ENE–WSW | c.2.5 m/ WSW | 43 m OD/ level |
| Gortore 1b (Structure 3—dated by pottery association only) | 6.4 by 5.2 | 7.8 by 6 | 6.8 by 5.7 | 43 | No | ENE–WSW | c. 4.3 m/ ENE | 30 m OD/ north |
| Other Early Neolithic houses excavated in County Cork | | | | | | | | |
| Barnagore 3 | — | — | 5.5 by 4.5 | 25 | No | E–W | c. 2.7 m/NE | 30 m OD/ level |
| Shanagh 1 | — | — | 5.5 by 5 | 27.5 | No | ENE–WSW | c. 2.7 m/ SSE | 87 m OD/ level |

The size range of Early Neolithic houses in Ireland may be divided into two distinct clusters—one measuring 6–8 m long by 4–7 m wide and the second measuring 9–13 m long and 6–8 m wide (Smyth 2014, 27). Based on the dimensions of the various houses[3], all of the examples excavated on the route of the M8 Fermoy–Mitchelstown motorway—apart, perhaps, from Structure 1 at Caherdrinny 3 and Structure 1 at Ballinglanna North 3 (Table 3.1.2)—fit into the smaller range. The small size of these buildings, when compared to Early Neolithic rectangular structures in North

[3] The measurements of floor area for each building in Table 3.1.2 were calculated using a midline in the foundation trenches, or post-hole alignments, as the most likely location of the original wall.

Britain, for example, has been considered to indicate a domestic function (Smyth 2011, 22) and their size is considered suitable for the accommodation of one family or kin group (Grogan 2004a, 104). These smaller house sizes compare favourably with the other known Early Neolithic houses from County Cork—Barnagore 3 (Danaher 2009; 2013b) and Shanagh 1 (Ruttle 2013a; forthcoming).

Recent research into radiocarbon dates from Early Neolithic rectangular structures has led to the conclusion that construction of such buildings probably (68% probability) commenced sometime between c. 3715 BC and 3680 BC and that they probably (68% probability) ceased to be built sometime between 3635 BC and 3615 BC (McSparron 2008, 19; Cooney et al. 2011, 586–97; Smyth 2014, 48–9). It seems likely, though unproven, that individual houses stood for a generation or two, at most. Only one of the radiocarbon dates (UBA-10499, Ballinglanna North 3) from the Early Neolithic buildings in North Cork was obtained from hazelnut shell. All dates from the other structures were obtained from charcoal (Appendix 1). While these dates were all concentrated at the beginning of the fourth millennium BC, they were not as tightly centred around 3700 BC as they might have been if other, more suitable material such as hazelnut shell or cereal grains had been available for dating.

The evidence from the immediate environs of all the excavated Early Neolithic houses in North Cork indicates that activity extended beyond the confines of the houses. This is common in contemporary settlements, and a range of activities, from cooking to maintenance, was probably carried out in the open air (Cooney 2000, 62–3). For example, Early Neolithic flint knapping was identified at Gortore 1b, possibly linked to Structure 3 or, perhaps, to the contemporary house at Gortore 1 (235 m to the south-east). At other sites on the M8 Fermoy–Mitchelstown motorway there was evidence for Early Neolithic occupation, but these were not associated with any identifiable structures. An Early Neolithic radiocarbon date came from an isolated hearth at Ballynacarriga 3. Early Neolithic carinated bowls were found at Gortnahown 2 and Ballynamona 2. It may be that these latter sites are evidence for less formal (perhaps more transient) types of settlement that may have co-existed with the distinctive rectangular houses.

### Middle Neolithic (3600–3100 BC) and Late Neolithic (3100–2450 BC)

Evidence for Middle Neolithic occupation was found at Gortore 1b, Ballynacarriga 2, Ballynacarriga 3, Caherdrinny 3 and Ballynamona 2 and Late Neolithic activity was identified at Ballinglanna North 3, Ballynacarriga 3, Ballynamona 1 and 2 and Gortore 1b (Table 3.1.1).

Most of the evidence for the Middle Neolithic came in the form of artefacts, in particular the characteristic globular bowls of the period (Caherdrinny 3, Gortore 1b and Ballynacarriga 3). This type of pottery is usually recorded from Leinster and east Ulster, but 12 sherds (representing three vessels) were also found at Fermoy 5 (Reilly 2013a), located just c. 5.5 km south of Gortore. This pottery type dates from 3500–3000 BC (Eogan & Roche 1997, 51–100). Other Middle Neolithic artefacts included stone tools, although in many cases it was impossible to distinguish between the lithic technology of the Middle and the Late Neolithic period.

Archaeologists have found it difficult to identify buildings from this period in Irish prehistory, based on the excavated remains. These often manifest, archaeologically, as clusters of pits and post- and stake-holes that do not have a clear pattern or groundplan (Smyth 2007, 117–9). The effect of this is that Middle and Late Neolithic houses and settlements can be difficult to identify almost everywhere in Britain and Ireland (Bradley 2007, 42; Bradley 2003a, 219). It was fortunate, therefore,

to identify structures dated to the Middle/Late Neolithic at Gortore 1b, as well as a significant Late Neolithic settlement/ceremonial site at Ballynacarriga 3 (Table 3.1.3). The most clearly defined building of possible Middle Neolithic date was at Gortore 1b (Structure 2). This structure, which contained Middle Neolithic pottery in one of its structural post-holes, had a distinctive sub-circular/sub-rectangular shape, very similar to known Middle Neolithic houses at Townleyhall 1, Co. Louth, and Knocknarea 1 and 2, Co. Sligo (Smyth 2011, 16). The building at Gortore 1b may have been contemporary with the nearby Middle/Late Neolithic 'work areas', where diagnostic artefacts were found in abundance.

The complex of structures excavated at Ballynacarriga 3 may represent both domestic buildings (Structures 2, 4-6) and ceremonial timber circles (Structures 1, 3 and 7), all associated with Grooved Ware pottery. The possible domestic buildings were sub-rectangular or rectangular. None had internal hearths. The timber circles had a diagnostic form, similar to other excavated examples in Ireland (Illus. 3.1.2, see text box for a discussion by Carlin on timber circles).

*Table 3.1.3—Buildings of Middle and Late Neolithic date at Gortore 1b and Ballynacarriga 3*

| Site | Shape | Dimensions | Radio-carbon date (2-sigma cal.) | Pottery | Stone | Other finds | Description of structure |
|---|---|---|---|---|---|---|---|
| Middle Neolithic | | | | | | | |
| Gortore 1b (Structure 2) | Sub-circular/ sub-rectangular | Max. 6.5 m N/S by 8 m | (Intrusive?) Early Bronze Age date 2009–1882 BC (UBA-13403) | Middle Neolithic globular bowl | Rubbing stones | — | House? Sub-circular/ sub-rectangular building comprising up to 18 post-holes and pits |
| Gortore 1b (Structure 4)? | Sub-oval | 9 m E/W by 6.5 m | — | Sherds of Middle Neolithic globular bowl nearby | Chipped stone of Middle Neolithic date nearby | Chipped stone of Early, Neolithic and Chalcolithic date nearby | Ancillary building? |
| Late Neolithic | | | | | | | |
| Ballynacarriga 3 (Structure 1) | Circular | c. 8 m in diameter | 2569–2461 BC (UBA-13167) | Grooved Ware | Cache flint tools | Middle Neolithic globular bowl | Circular post-built structure, enclosing a four-post arrangement |

*Table 3.1.3—Buildings of Middle and Late Neolithic date at Gortore 1b and Ballynacarriga 3 cont'd*

| Site | Shape | Dimensions | Radio-carbon date (2-sigma cal.) | Pottery | Stone | Other finds | Description of structure |
|---|---|---|---|---|---|---|---|
| Ballynacarriga 3 (Structure 2) | Uncertain | c. 6 m in diameter | 2835–2490 BC (UBA-13157) | Grooved Ware | Retouched artefact | — | Circular post-built structure, enclosing a four-post arrangement |
| Ballynacarriga 3 (Structure 3) | Sub-circular | c. 8 m in diameter | No date | Grooved Ware | — | — | Circular post-built structure, enclosing a four-post arrangement |
| Ballynacarriga 3 (Structure 4) | Sub-rectangular | c. 7 by 6 m | — | Grooved Ware and Middle Neolithic globular bowl | Small amount of chipped stone | — | Slot-trench and six possible post-holes |
| Ballynacarriga 3 (Structure 5) | Sub-rectangular | c. 7 by 6 m | — | Grooved Ware | Small amount of chipped stone | — | Arc of c. seven possible post-holes |
| Ballynacarriga 3 (Structure 6) | Rectangular | 10.3 by c.5 m | — | Grooved Ware | Small amount of chipped stone | — | Two slot-trenches aligned with row of three post-holes |
| Ballynacarriga 3 (Structure 7) | Circular | c. 6 m in diam | — | Grooved Ware | Small amount of chipped stone | — | Timber circle? Partial remains of a circular post-built structure, enclosing a four-post arrangement |

## A note on Late Neolithic timber circles in an Irish context

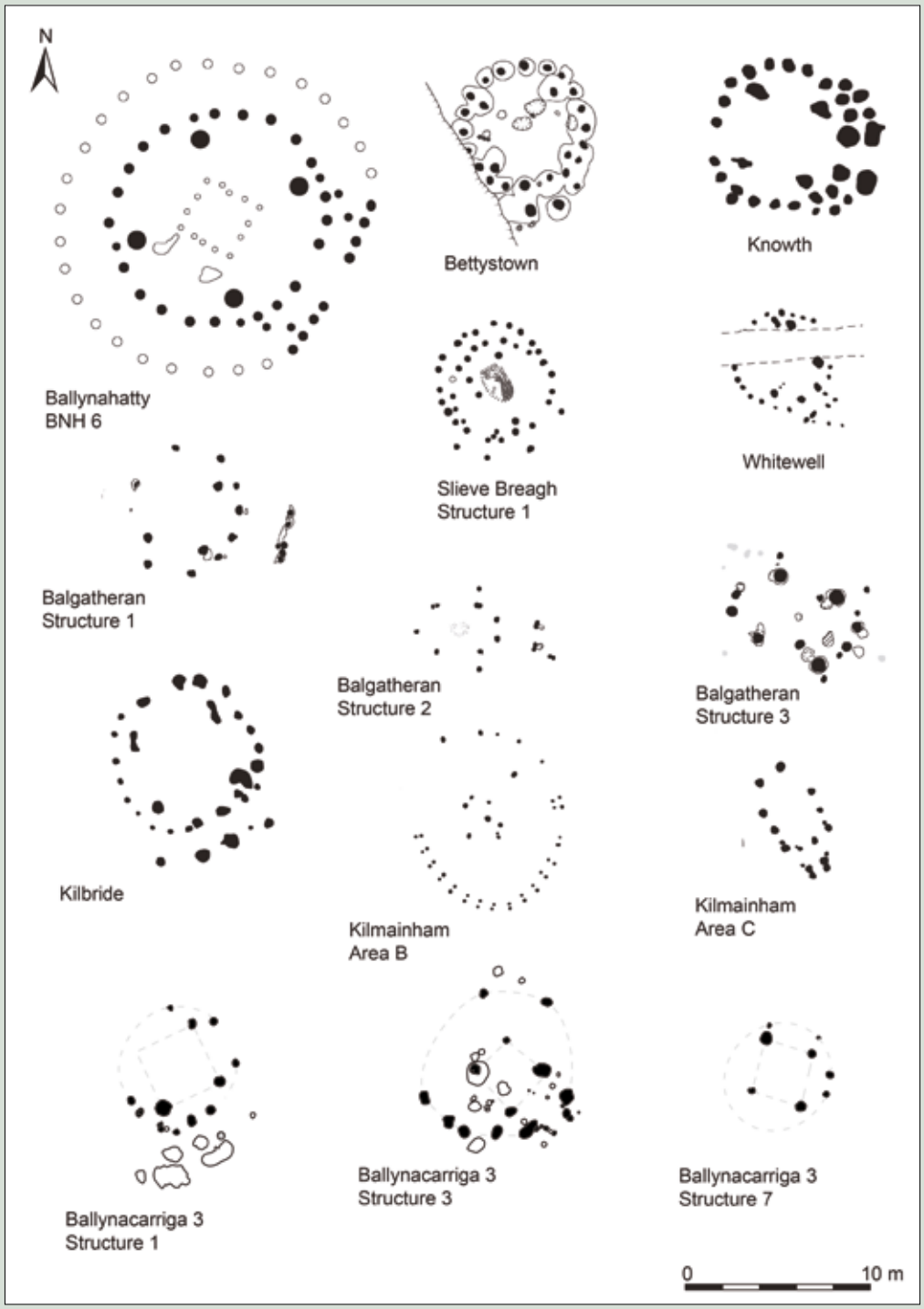
*Neil Carlin*

An unusually large assemblage of Late Neolithic Grooved Ware was recovered from Ballynacarriga 3 (Chapter 3.9), where it was possible to distinguish the remains of at least three circular or sub-circular structures, with a distinctive, central arrangement of four post-holes. Originally interpreted as the partial remains of houses, our reinterpretation here suggests these may, in fact, be what are often regarded as timber circles.

Grooved Ware is closely associated with the adoption and adaptation of distinctive practices, culture materials and architecture (including timber circles) across Ireland and Britain during the first half of the third millennium BC (Carlin 2017). Although Grooved Ware displays a particularly strong association with passage tombs, excavations over the past 15 years reveal this pottery form was widely used across the island of Ireland and not exclusively associated with large ceremonial centres. Most of the excavated Grooved Ware sites comprise pits and anthropic soil spreads, but collectively include also a total of at least 20 distinctive timber structures (Illus. 3.1.2). The shape and size of Structures 1, 3 and 7 at Ballynacarriga 3 certainly form part of the spectrum of axially symmetrical sub-circular Late Neolithic structures, exemplified by the well-known examples from Knowth and Ballynahatty, Co. Down (Eogan & Roche 1997, 220–1; Hartwell 1998). While these vary in size and scale, with most being 5–7 m in diameter, they all share the same basic architectural plan. Typically, these structures comprise a sub-circular ring of post-holes enclosing a central square setting of four larger post-holes with a well-defined east-facing entrance (Carlin & Cooney 2017, 41). Timber circles occur both singly and in clusters of three or four, as at Balgatheran, Co. Louth and Scart, Co. Kilkenny (Ó Drisceoil 2009; Monteith 2008, Laidlaw 2008).

At Ballynacarriga, the recovered artefacts and radiocarbon date of 2569–2461 BC (UBA-13167) from a structural post-hole indicates that these structures fall within the current date range of 2700–2450 BC for timber circles and similar structures in Ireland. However, while the large four-post element and the accompanying entrance posts are clearly present at Ballynacarriga, only incomplete outer post-rings were identified. This has also been the case at other sites like Balgatheran, Scart and Prumplestown, Co. Carlow (Ó Drisceoil 2009; Monteith 2008; Laidlaw 2008; Carlin et al. 2015). Based on comparison with more complete examples, it is probable that the internal, square, four-post settings at each of these were originally encircled by a complete ring of smaller posts, for which incomplete traces only have survived.

At Ballynacarriga, occupation debris, including Grooved Ware sherds, stone tools and debitage, were recovered from Structures 1, 3 and 7. An unusual carved cylindrical stone/ceramic object and a cache of seven scrapers from Structure 1 seem to reflect special deposits (Chapters 2.8 and 3.9). While the cylindrical object is unique, such a combination with more or less everyday objects is highly characteristic of this type of structure regardless of whether these were very substantial timber circles or much slighter constructions. Most of the artefacts from these types of structures have been found within pit-like voids that were deliberately created in the upper part of the post-holes, usually those forming the internal, square, four-




*Illus. 3.1.2—Examples of Irish Late Neolithic timber structures (after Smyth 2014, fig. 5.13) with comparable examples (Structures 1, 3 and 7) from Ballynacarriga 3 also shown.*

post settings. These seem to have been specially selected to receive deposits during or after the dismantling of these structures, presumably as part of ritualised acts of abandonment or commemoration. Examples of this phenomenon are known from Knowth, Balgatheran and Prumplestown (Eogan & Roche 1997, 220–1; Ó Drisceoil 2009; Carlin et al. 2015), as well as Ballynacarriga 3.

While these structures have been interpreted either as domestic dwellings or as ceremonial monuments, often depending on their size, scale and their context of discovery, it is increasingly recognised that the domestic and ritual were interconnected at this time so that identifying a purely domestic or ceremonial component to these structures is highly problematic (Carlin & Brück 2012; Bradley 2003b). Some of these structures were certainly used in the context of ceremonial activities, while others (such as those at Ballynacarriga) could have fulfilled a range of domestic and ritual functions and could even have changed from dwellings to monuments over the course of their use-lives (Bradley 2005, 53–6; Thomas 2007, 2010).

## Settlement in the Chalcolithic

The Chalcolithic period covers a comparatively short timespan in Ireland (c. 2450–2200), when knowledge of metal-working (copper and gold) and production of a new pottery type spread across the island, coupled with some new innovations in stone tool technology and with a new form of burial monument—the wedge tomb. While elements of this distinctive material culture (typically Beaker pottery and stone stools) are frequently found on archaeological excavations, it is rare that clearly defined houses or other dwellings are found. This may indicate that society, at this time, favoured a more nomadic pastoral lifestyle (O'Brien 2012, 68). It is not surprising, therefore, that no discernible structures of confirmed Chalcolithic date were identified on the route of the M8 Fermoy–Mitchelstown motorway. Evidence of Chalcolithic occupation was identified at nine sites (Table 3.1.4), including four sites (Ballynacarriga 3, Ballynamona 2, Caherdrinny 3 and Gortnahown 2) that contained Beaker pottery. However, none of these sites contained diagnostic buildings and Beaker-associated buildings in Ireland continue to be rare (Carlin & Brück 2012, 194). The results do, nonetheless, add to the ever-growing corpus of known Chalcolithic sites in County Cork. An east–west aligned, rectangular building was excavated at Gortore 1b (Structure 1). The radiocarbon dates from the building included two Chalcolithic dates, 2570–2350 BC (UBA-13224) and 2467–2299 BC (UBA-13225)—an Iron Age date of AD 77–215 (UBA-13233) was, however, obtained from a stake-hole within the structure. Despite the absence of Early Neolithic radiocarbon dates, a sherd of Early Neolithic pottery was found in a pit within the structure and it is possible that the structure is Early Neolithic, rather than Chalcolithic in date. This suggestion is based on consideration of the orientation of the building and certain structural elements, including the presence of external roof supports and a slightly curved western gable—the layout of the building is comparable to the Early Neolithic structures recorded at Ballinglanna North 3, Caherdrinny 3, Gortore 1 and Gortore 1b (Structure 3).

*Table 3.1.4—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Chalcolithic period (2450–2200 BC)*

| Site | Features | Artefacts | Plant remains | C14 date (2 sigma cal.) |
|---|---|---|---|---|
| Ballinglanna North 2 | Hearths, pits and post-holes | Chipped stone | — | — |
| Ballinglanna North 3 | *Fulacht fiadh* | — | — | 2293–2140 BC (UBA-13147) |
| Ballinglanna North 5 | Pits | Chipped stone | — | 2432–2150 BC (UBA-13151) |
| Ballynacarriga 3 | Pits | Chipped stone and Beaker pottery | — | 2461–2211 BC (UBA-13165)<br><br>2460–2206 BC (UBA-14777) |
| Ballynamona 2 | Pits | Beaker pottery | — | — |
| Caherdrinny 3 | Pits | Chipped stones and Beaker pottery | Hazelnut, knotgrass and barley from a pit | |
| Gortnahown 2 | Hearth-side activity, pits and post-holes | Chipped stones and Beaker pottery | — | 2860–2505 BC (UBA-13219)<br><br>2564–2310 BC (UBA-13220) |
| Gortnahown 3 | Pits | Chipped stones | — | — |
| Gortore 1b | Structure 1 in Area 1 and Outdoor Work Area 1 and 2 in Area 3 (Structure 1 is likely to be Early Neolithic, see Table 3.1.2) | Chipped stones | Hazelnut shells and cereal from Structure 1 | 2570–2350 BC (UBA-13224) 2467–2299 BC (UBA-13225) |
| Kildrum 1 | *Fulacht fiadh* | — | — | 2434–2199 BC (UBA-12986) |

## Settlement in the Bronze Age

Unlike the Chalcolithic period, settlement in the Bronze Age is far more readily identifiable in the archaeological record for the region, with the frequency of known domestic dwellings peaking in the Middle Bronze Age. The Bronze Age not only witnessed the widespread adoption of bronze metal use, it also saw the adoption of new forms of pottery and burial practices, most notably the

practice of single burials, replacing the near 2000 year-old custom of megalithic tomb building. The inhabitants of North Cork, as elsewhere at this time, lived in typically circular 'round-houses'. These were mostly timber-built dwellings (although stone-built examples are known), most likely with thatched roofs, although other roofing materials, such as sod, may have been used.

Details of the Bronze Age sites from the M8 Fermoy–Mitchelstown motorway are provided in Tables 3.1.5–7.

The remains of Bronze Age buildings, interpreted here as houses, were excavated at two sites along the route of the M8 Fermoy–Mitchelstown motorway. Two Middle Bronze Age round-houses and a possible third structure were found at Ballynamona 2 and the partial remains of a round-house of possible Bronze Age date were excavated at Gortnahown 1 (Area 2). The most comprehensively dated building was Structure 1 at Ballynamona 2, where multiple radiocarbon dates indicate a Middle Bronze Age phase of occupation. There was evidence for regularly spaced post-holes within the structure. These may have held roof supports but may also have supported some form of upper storey or loft in the building; such a loft may have been used for grain storage and it may account for the large quantities of charred grain found in the deposits from this structure (Johnston 2010). The dates suggest the house was in use sometime between 1400 and 1000 BC—it is assumed that the adjacent, unexcavated, round-house (Structure 2) was roughly contemporary. This period broadly correlates to the date of the majority of known Bronze Age houses in Ireland (Ó Néill 2010, 11). Only the front section and entrance of an undated building survived at Gortnahown 1 (Area 2). The remains comprised a foundation trench and a central hearth. An external slot-trench, extending from the northern side of the entrance, followed the curve of the foundation trench. It may have functioned as drip gully for water from the roof or may have been part of a revetment for the outer face of a clay wall.

*Table 3.1.5—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Early Bronze Age (2200–1600 BC)*

| Site | Features | Artefacts | Plant Remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballinglanna North 1 | Topsoil | Early Bronze Age lithics | — | — |
| Ballinglanna North 3 | *Fulachtaí fia* | Redeposited Mesolithic and Neolithic artefacts | — | 1750–1628 BC (UBA-13148) 1740–1627 BC (UBA-13149) |
| Ballinglanna North 6 | *Fulacht fiadh* | — | — | 1902–1696 BC (UBA-12973) |

*Table 3.1.5—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Early Bronze Age (2200–1600 BC) cont'd*

| Site | Features | Artefacts | Plant Remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballynacarriga 3 | Cremation pits/cists and ring-ditches | Early Bronze Age food vessels and encrusted urns | Naked barley from a pit in Ring-ditch 1. Weed seeds in the fill of a burial cist | 2344–2060 BC (UBA-14778) 1860–1614 BC (UBA-14776) 2019–1885 BC (UBA-13170) 1937–1752 BC (UBA-13172) 1860–1614 BC (UBA-14776) |
| Ballynamona 1 | Occupation activity | Encrusted urn | Hazelnut shell fragments | 1889–1750 BC (UBA-13173) |
| Ballynamona 2 | Cremation pits | — | — | 2191–1976 BC (UBA-15101) |
| Caherdrinny 3 | Large pit (part of alignment of large pits?) | — | — | 1736–1536 BC (UBA-13293) |
| Glenatlucky 1 | Cremation burial and pits | Encrusted urn | Cereals, primarily barley and wheat | 1916–1771 BC (UBA-12979) |
| Gortnahown 1 | Occupation activity in Area 1 and partial round-house in Area 2, with cremated human remains | Saddle quern | — | 1728–1533 BC (UBA-12980) |
| Gortnahown 2 | Hearth-side activity, pits and post-holes | — | — | 2016–1831 BC (UBA 13217) |
| Gortore | Pits, one located internal to a possible Middle Neolithic structure | — | — | 2012–1783 BC (UBA-13402) 2009–1882 BC (UBA-13403) |
| Kildrum 1 | *Fulacht fiadh* | — | — | 2138–1978 BC (UBA-12985) 2434–2199 BC (UBA-12986) |
| Kilshanny 1 | Bronze Age occupation, beside a probable Bronze Age round-house | — | — | 1889–1748 BC (UBA-13226) |

The form of the Bronze Age houses excavated on the route of the M8 Fermoy-Mitchelstown motorway compares well with other Bronze Age houses excavated in the Mitchelstown area of North Cork (Illus. 3.1.3). The construction methods used at these houses is not entirely clear. It is likely that the trenches that outlined the perimeter of the buildings served as foundation trenches for plank walls or wattle and daub panels. At Ballynamona 2 there were indications that the trench of Structure 1 held such panels in place and that they were individually approximately 1 m long. There was no clear evidence for internal divisions within the houses. It is likely, however, that some were originally present, in particular within Structure 1, at Ballynamona 2, where multiple stake-holes were found aligned north–south, seemingly partitioning the public side of the house—just inside the entrance—from the private side of the house at the rear, where the hearth was (cf. McQuade et al. 2009, 87). The partition may have been moveable, or may have been taken down and replaced on many occasions. It seems evident that internal hearths were much more common in the Bronze Age, compared to known Early Neolithic houses (Illus. 3.1.1).

*Table 3.1.6—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Middle Bronze Age (1600–1100 BC)*

| Site | Features | Artefacts | Plant remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballynamona 2 | Two round-houses | Intrusive Late Bronze Age coarse ware associated with Structure 1. Rubbing stones and a saddle quern were recovered from Structure 1 | Abundant plant remains | 1258–1029 BC (UBA-14113) |
| | *Fulacht fiadh* | — | — | 1386–1212 BC (UBA-14152)<br>1380–1131 BC (UBA-14111) |
| Caherdrinny 2 | Cremation site | — | — | 1493–1394 BC (UBA-12976) |
| Caherdrinny 3 | Corn-drying kiln | Middle Bronze Age domestic cordoned urns | Barley, indeterminate cereal and knotgrass from kiln | 1657–1498 BC (UBA-13231) |
| | Pit | — | — | 1606–1444 BC (UBA-13300) |
| | Large pit (part of alignment of large pits?) | Middle Bronze Age cordoned urn sherd nearby | — | 1634–1496 BC (UBA-13294) |
| Gortnahown 3 | Occupation activity | Middle Bronze Age domestic cordoned urns | Single barley grain | — |

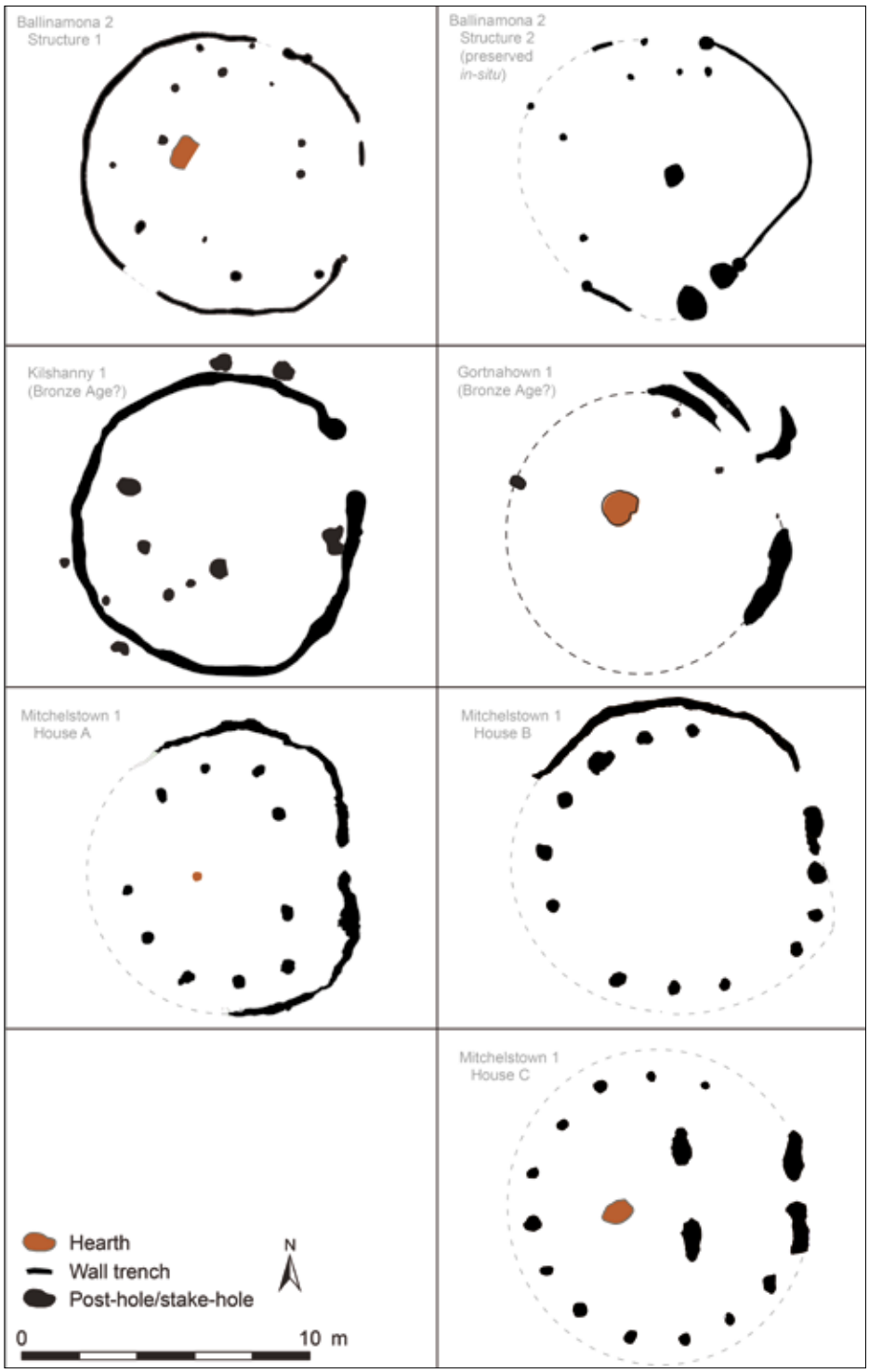
*Table 3.1.7—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Late Bronze Age (1100–700 BC)*

| Site | Features | Artefacts | Plant remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballynamona 2 | — | Sherd Late Bronze Age pottery | — | — |
| Gortnahown 3 | Hearth at eastern end of site | — | A small amount of hazelnut shells, weed seeds and barley grains | 910–815 BC (UBA-12981) |
| Kilshanny 2 | Four pits | Intrusive modern pottery | — | 1126–944 BC (UBA-12987) |
| Kilshanny 3 | *Fulacht fiadh* | — | — | 1044–911 BC (UBA-12988) 978–829 BC (UBA-12989) |

Ritual deposition was evident at the Gortnahown 1 house, where cremated human remains of a single juvenile were found deposited within a slot-trench near the entrance. Such token burials within settlements have some parallels in the Irish archaeological record and were probably a deliberate act of deposition (Cleary 2005, 26–7), intended, perhaps, as a way of seeking the protection of the otherworld or of merely keeping the departed connected to the house and its living occupants.

At Ballynamona 2, it appears that Structure 1 was particularly associated with cereal processing, based not only on the finds of grain (recovered in large quantities from most deposits associated with the building), but also on the finds of artefacts (such as saddle querns) that were associated with grain processing. Perhaps this building was a granary. In Britain there is scant evidence for specialised buildings in this period (such as stables and byres) and only occasional evidence for small ancillary buildings (such as storehouses). Bradley (2007, 190) interprets both the evidence from excavation sites and the absence of specialised buildings as indications that the round-houses served a number of functions. At Ballynamona 2, large quantities of grain were also found in deposits near Structure 3, suggesting that grain storage was probably not an exclusive function of Structure 1. It is possible that the large quantities of grain found at Ballynamona 2 simply indicate that it was a building used for many purposes, and where large amounts of grain were stored as a matter of course. These grains survived at this site because the building was burnt down in antiquity (we do not know if this was by accident or deliberate).

The evidence for Bronze Age settlement from this project tended to be recorded within relatively well-drained and fertile farming land. The cluster of houses at Ballynamona 2 was found at 90 m OD, while the settlement at Gortnahown 1 was more elevated, being located at 134 m OD. The Bronze Age house sites were concentrated at the northern end of the scheme. It is possible that they were not identified at the southern end of the scheme because here the road ran just along the break-of-slope above the steep Glencorra Stream—although contemporary *fulachtaí fia* and burial sites were present at this location, as were Early Neolithic houses.




*Illus. 3.1.3—Outline plan of (confirmed and possible) Bronze Age houses from TII road schemes in the vicinity of Mitchelstown, Co. Cork (plans of Mitchelstown 1 houses after Cotter 2013a, 111, illus. 4.3b.17).*

More than 110 Bronze Age houses have been identified in Munster to date: 81 were listed by Doody (2007, 87) and a further 24 Bronze Age structures were excavated along the route of the M8 Cashel–Mitchelstown motorway (McQuade et al. 2009, 85) and more recent excavations on national road schemes in County Cork have revealed the remains of a further 13 house-like buildings of Bronze Age date (Hanley 2013a). The evidence suggests, therefore, that the population in Bronze Age Munster was relatively high, with permanent settlement featuring large round-houses a common feature on the landscape. Doody (2007, 87) calculated that almost 63% of the houses in his study group (where details were known) were circular or oval in plan and along the M8 Cashel–Mitchelstown motorway all but one of the excavated Bronze Age houses were circular or sub-circular (McQuade et al. 2009, 85). On the recent national road schemes in County Cork, all 13 Bronze Age structures identified were roughly oval or circular (Hanley 2013).

*Table 3.1.8—Dimensions of Bronze Age and Iron Age building foundations excavated on road schemes in North Cork*

| Structure | Description of structure | Diameter (m) | Finds | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballynamona 2 (Structure 1) | Circular slot-trench and internal post-holes | 9.4 | Late Bronze Age coarse ware | 1380–1131 BC (UBA-14111)<br>1258–1029 BC (UBA-14113)<br>1386–1212 BC (UBA-14152) |
| Ballynamona 2 (Structure 2) | Sub-circular slot-trench and post-holes (unexcavated) | 9.7 | — | — |
| Caherdrinny 3 (Structure 8) | Sub-rectangular alignment of post-holes and pits with an internal hearth | 10.4 (NE/SW) by 6.5 | Neolithic mudstone axehead and quartzite rubbing stone | 106 BC–AD 51 (UBA-13290)<br>90 BC–AD 51 (UBA-13295) |
| Kilshanny 1 | Sub-circular slot-trench and internal post-holes | 9.1 | — | 163 BC–AD 0 (UBA-13227)<br>AD 1284–1391 (UBA-13228) |
| Mitchelstown 1 (House A) | Trenches and regularly spaced post-holes (axial symmetry present), sub-circular | 9.8 by 9.1 | — | 1493–1305 BC (UBA-6771) |
| Mitchelstown 1 (House B) | Trenches and regularly spaced post-holes sub-circular | 11 | — | 1419–1213 BC (UBA-6773) |
| Mitchelstown 1 (House C) | Regularly spaced post-holes, sub-circular | 10 | — | 1431–1267 BC (UBA-6774) |

There is a number of comparative structures dating to the Bronze Age in the immediate vicinity of the M8 Fermoy–Mitchelstown motorway. In particular, three round-houses were excavated along the route of the N8/N73 Mitchelstown Relief Road in 2005 (Cotter 2006; 2013b) and a configuration of unenclosed houses—with entrances facing a communal space, similar to the arrangement of houses at Ballynamona 2—was excavated at Ballybrowney Lower 1, on the M8 Rathcormac–Fermoy motorway (Cotter 2013a). (A general comparison between known houses in the Mitchelstown region is presented in Illus. 3.1.3; Table 3.1.8.) The sizes of Bronze Age round-houses are known to vary considerably, with a survey (Doody 2007, 88) of houses excavated from Munster suggesting most examples were 5–9 m in diameter. The examples from M8 Fermoy–Mitchelstown motorway were somewhat larger than this, since they measured 9–10 m in diameter.

Multiple structures were found at several of these sites, for example at Ballynamona 2 (Illus. 2.10.4) and Mitchelstown 1 (Cotter 2013b). Both of these sites demonstrate similar patterns to those identified in Bronze Age settlements in lowland Britain, where round-houses are known to occur in pairs, with one house usually slightly larger than the other (Bradley 2007, 190). The site at Ballybrowney Lower 1 (Cotter 2013a), however, clearly shows that the Bronze Age population in County Cork, certainly by c. 1500 BC, had risen to such an extent that some larger farming settlements began to develop that incorporated multiple families, most likely bonded by kinship. Evidence of higher populations was also found at Corrstown, Co. Derry, where a Bronze Age 'village' was excavated that contained a dense grouping of 74 round-houses and interconnecting trackways (Ginn & Rathbone 2011)—Corrstown is, thusfar, unique in the archaeological record for Ireland and Britain. Population increases through the Bronze Age may have coincided with greater levels of societal unrest; the archaeological record shows an increase in the quantity and range of weaponry in the Late Bronze Age (bronze spears, rapiers, swords and shields begin to be made). Some of the large defensive hillforts in County Cork would appear to date to this period. At least one of them, Clashanimud, shows evidence of having been burnt to the ground in a deliberate act of warfare (O'Brien 2012, 221–2).

## Settlement in the Iron Age

Sometime during 800–700 BC knowledge of iron-working spread into Ireland from 'Celtic' cultures that had become established across large swathes of mainland Europe. The demographic make-up of society in the early centuries of the Iron Age is, however, poorly understood. The emerging archaeological evidence suggests that indigenous Late Bronze Age communities may have continued living across much of Munster during this time. Certainly, there is strong evidence to suggest that the widespread production (smelting and smithing) of iron did not occur in the area of County Cork until perhaps about 300 BC onwards. There would seem to have been some political/tribal tensions during the centuries that followed. The Cliadh Dubh is a partly surviving, long, sinuous earthwork that formed a territorial boundary from the north-western part of County Cork as far as the southern coastline, south-east of Cork Harbour. The longest extant portion is 14 km in length and spans the lowlands between the Ballyhoura Hills and the Nagle Mountains. Archaeological excavations by Doody (2008, 559–68) indicated that the boundary went out of use by c. AD 100. There would appear, therefore, to have been such political instability within the country as to require the construction of this extraordinary territorial boundary, which was built

on a regional scale. Despite the political upheavals that may have existed in the Iron Age, life for the inhabitants of the region continued. While nine sites excavated on the route of the M8 Fermoy–Mitchelstown motorway contained features of Iron Age date (Table 3.1.9), dwellings from this period proved somewhat elusive.

A large complete round-house was recorded at Kilshanny 1, at 90 m OD. The date of this structure is uncertain since there was an Iron Age date obtained from a small post-hole enclosed by the house foundation, a later medieval date from an external pit and an Early Bronze Age date from a possible fence line east of the house. Unfortunately, there was no second radiocarbon date obtained from the house and no artefacts were found that could be used to corroberate the Iron Age date. The house at Kilshanny 1, which was similar to Structure 1 at Ballynamona 2, was characterised by a foundation trench that defined almost the entire perimeter of the building. There was no evidence for regularly spaced post-holes within the structure.

A possible building of Iron Age date was identified at Caherdrinny 3 (Structure 8). This structure comprised a cluster of pits, post- and stake-holes, surrounding a hearth. Like many of the structures known from this period, this did not follow a recognised ground plan. This is in contrast with the Bronze Age and it may be a reflection of an Iron Age trend towards the construction of relatively simple, dispersed dwellings (Frazer 2012, 134).

Few surveys of Iron Age house types have been done, as these sites remain a rarity. The evidence from the period suggests that most were post-built and were circular or sub-circular in plan (Becker et al. 2008, 25). Houses with footing trenches and gullies dating to the Iron Age, similar to Kilshanny 1, have been identified (ibid., 26–7), for example at Ballinaspig More 5 in mid County Cork (Danaher 2013a). Iron Age houses were also identified along the route of the M8 Cashel–Mitchelstown motorway (McQuade et al. 2009, 149–61), though the remains were less substantial. Caherdrinny 3 adds to an emerging picture of dispersed rural settlements, in a thinly populated landscape, at this time in the region (O'Brien 2013, 199).

*Table 3.1.9—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Iron Age (c. 700 BC–AD 400)*

| Site | Features | Artefacts | Plant remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballinglanna North 1 | Burnt mound | — | Barley, rye, wheat and oat from burnt mound | 766–524 BC (UBA-12969) |
| Ballinglanna North 3 | Date from post-hole | — | — | 167–4 BC (UBA-13150) |
| Ballinglanna North 4 | Date from a single pit | — | — | 167 BC–AD 2 (UBA-12972) |
| Ballynacarriga 3 | Secondary re-use of Bronze Age funerary monuments and Iron Age dates from features linked with iron-working | Iron-working slag | An Iron Age hearth contained a cache of hulled barley grains | 202–55 BC (UBA-13162)<br>47 BC–AD 63 (UBA-13171)<br>38 BC–AD 71 (UBA-13164) |

*Table 3.1.9—Sites from the M8 Fermoy–Mitchelstown motorway with evidence dating to the Iron Age (c. 700 BC–AD 400)*

| Site | Features | Artefacts | Plant remains | Radiocarbon dates (2-sigma cal.) |
|---|---|---|---|---|
| Ballynamona 2 | Iron Age metal-working | No Iron Age artefacts | No Iron Age plant remains | 87 BC–AD 51 (UBA-14151) |
| Caherdrinny 3 | Groups of pits and post-holes<br>House (Structure 8)? | — | Small amounts of barley grains | 344–52 BC (UBA-13303)<br>175–48 BC (UBA-13299)<br>107 BC–AD 48 (UBA-13302)<br>106 BC–AD 51 (UBA-13290)<br>90 BC–AD 51 (UBA-13295 |
| Gortnahown 1 | Date from single pit (see Illus. 2.15.1) | — | — | 88 BC–AD 54 (UBA-13174) |
| Gortnahown 3 | Date from hearth | — | — | AD 28–128 (UBA-12982) |
| Gortore 1b | Date from stake-hole (see Illus. 2.18.6) | — | — | AD 81–207 (UBA-13233) |
| Kilshanny 1 | Date from a circular house | — | — | 163 BC–AD 0 (UBA-13227) |

As was the case from other excavations on recent national road schemes in County Cork (Hanley 2013, 154), none of the Iron Age sites from the route of the M8 Fermoy–Mitchelstown motorway produced artefacts of diagnostic Celtic design or influence and all these sites were, instead, identified as Iron Age solely on the basis of radiocarbon dating. Only two sites (Ballynamona 2 and Ballynacarriga 3) had evidence of iron-working. Notwithstanding the paucity of Iron Age buildings uncovered, apart from Structure 8 at Caherdrinny 3, features of Iron Age date were, nonetheless, found at 10 of the 24 sites of archaeological significance excavated on the route of the motorway. Of these, just one site, a *fulacht fiadh* at Ballinglanna North 1, contained features dating to the Early Iron Age (c. 700–400 BC); seven sites had features dating broadly to the Developed Iron Age (400–0 BC) and two dated to the Late Iron Age (AD 0–400). (This chronological sub-division of the Iron Age period follows Becker et al. 2008, 17.)

## 3.2 *Fulachtaí fia*

*Jacinta Kiely and Mary Dillon*

A total of eight sites excavated on the route of the M8 Fermoy–Mitchelstown motorway can be classified as *fulachtaí fia*, in varying states of preservation (Table 3.2.1). Charcoal and cereal fragments from seven of the *fulachtaí fia* were radiocarbon dated and returned dates ranging from the Chalcolithic to the Early Iron Age. In addition, a poorly preserved burnt mound was excavated

at Caherdrinny 1. The undated remains were located at the side of a stream with no accompanying cut features evident. A substantial burnt mound was exposed during earthworks at Gortnahown 2 and a small burnt mound at Gortnahown 5, but these two sites were preserved *in situ*.

## Setting

The majority of the *fulachtaí fia* were located between 90 and 110 m OD. Ballinglanna North 1 and Gortnahown 2 (the unexcavated burnt mound) were located on the bank of water courses; the Glencorra Stream and River Gradoge, at 38 m OD and 120 m OD, respectively. The two *fulachtaí fia* at Ballinglanna North 3 were located 50 m apart. The neighbouring Glencorra Stream was 50 m to the east, within a steep-sided valley, and so water was probably supplied to the sites from a nearby hollow which would have acted as a conduit for water in wet weather. The remaining sites were located on the margins of, or within, wet marshy ground and may have only been used on a seasonal basis, when the water table was sufficiently high.

Habitation evidence was recorded in the vicinity of some of the *fulachtaí fia*. A contemporary settlement site, dated to the Middle Bronze Age, was located 500 m to the south of the example at Ballynamona 2. Although the example at Gortnahown 2 was not dated, habitation dating to the Bronze Age and Iron Age was recorded within a 250 m radius of the site. Evidence of earlier occupation, dated to the Early Bronze Age and Early Neolithic, respectively, was recorded at Ballinglanna North 1 and 3.

*Table 3.2.1—Summary details of the features associated with the excavated* fulachtaí fia *on the route of the M8 Fermoy–Mitchelstown motorway*

| Site | Trough ref. nos | Trough form/ dimensions (m) | Volume ($m^3$) | Radio carbon dates (2-sigma cal.) | Watersource | Dimensions of burnt mound (m) | Altitude (m OD) |
|---|---|---|---|---|---|---|---|
| Ballinglanna North 1 | 183 | Rectangular with corner post-holes/2.2 by 1.8 by 0.8 deep | 3.2 | 766–524 BC | 50 m west of Glencorra Stream on flood plain of stream. Well associated with largest trough | 15.6 by 7.75 by 0.4 deep | 38 |
| Ballinglanna North 3 (*Fulacht fiadh* 1) | 015 | Rectangular /1.9 by 1 by 0.31 deep | 0.6 | — | Site located on steep slope above Glencorra Stream. No evidence that troughs were self-filling | 5.6 by 3.5 by 0.55 deep | 113 |
| | 022 | Rectangular /2.26 by 1.2 by 0.45 deep | 1.2 | — | | | |
| | 078 | Sub-circular /1.75 by 1.3 by 0.2 deep | 1.5 | 2293–2140 BC | | | |

*Table 3.2.1—Summary details of the features associated with the excavated* fulachtaí fia *on the route of the M8 Fermoy–Mitchelstown motorway cont'd*

| Site | Trough ref. nos | Trough form/ dimensions (m) | Volume ($m^3$) | Radio carbon dates (2-sigma cal.) | Watersource | Dimensions of burnt mound (m) | Altitude (m OD) |
|---|---|---|---|---|---|---|---|
| Ballinglanna North 3 (*Fulacht fiadh* 2) | 494 | Sub-rectangular /3 by 1.38 by 0.2 deep | 0.8 | — | Site located on steep slope above Glencorra Stream. No evidence that troughs were self-filling | 9.82 by 6.5 by 0.18 deep | 113 |
| | 547 | Sub-rectangular /1.96 by 1.19 by 0.3 deep | 0.7 | 1740–1627 BC | | | |
| Ballinglanna North 6 | 077 | Sub-rectangular /2 by 1.1 by 0.2 deep | 0.4 | 1902–1696 BC | No apparent water source but rising ground water in field in wet season | 11 by 4.3 by 0.27 deep | 100 |
| | 079 | Sub-rectangular /3 by 1.3 by 0.24 deep | 0.9 | | | | |
| Ballynamona 2 | 281 | Rectangular /4.7 by 1.31 by 0.49 deep | 3.0 | 1393–1135 BC | No apparent water source but rising ground water in field in wet season | 21 by 13 by 0.3 | 90 |
| | 284 | Sub-square /2.27 by 1.76 by 0.56 deep | 2.2 | — | | | |
| | 265 | Sub-circular /0.98 by 0.9 by 0.23 deep | 0.2 | 1492–1316 BC | | | |
| Kildrum 1 | 009 | Sub-rectangular with corner stake-holes/1.6 by 1.52 by 0.54 deep | 1.3 | 2434–2199 BC | No water source in vicinity but rising ground water in adjacent field boundary | 6 by 5.8 by 0.1 deep | 110 |
| | 013 | Sub-circular with stake-holes part-lining base/2.9 by 2.2 by 0.6 deep | 3.8 | 2138–1978 BC | | | |
| | 035 | Sub-rectangular/1.8 by 1.3 by 0.28 deep | 0.7 | — | | | |
| | 059 | Oblong/1.4 by 1.4 by 0.43 deep | 0.8 | — | | | |
| | 066 | Sub-circular/1.3 by 0.93 by 0.43 deep | 0.4 | — | | | |
| Kilshanny 3 | 024 | Rectangular /2.54 by 1.6 by 0.56 deep | 2.3 | 978–829 BC | No apparent water source but rising ground water in field in wet season | 19.9 by 19.4 by 0.56 deep | 94 |
| | | | | 1044–991 BC (pit) | | | |
| Gortnahown 5 | — | Sub-rectangular/ 'substantial' | — | — | | 10 by 6 | c.18 |

## Morphology

There were six main types of archaeological feature encountered at the *fulacht fiadh* sites on the route of the M8 Fermoy–Mitchelstown motorway: these were layers of burnt mound material, troughs and boiling pits, smaller pits, stake- and post-holes, hearths and a water source.

The burnt mounds (comprising layers of heat-shattered stone and charcoal) at Ballynamona 2 and Kilshanny 3 were the largest and the least disturbed of all eight excavated burnt mounds on the project. The remaining mounds had been levelled and heavily disturbed.

Troughs were typically large pits—of variable shape and size—excavated, it is generally accepted, for the purpose of retaining water. In some cases water would have been poured into the trough, while in others (particularly in marshy areas) water would have percolated into the trough naturally. The water was then boiled by the addition of fire-heated stones. While the popular consensus is that *fulachtaí fia* were used for food processing, several other interpretations are possible.

The number of troughs, re-cut troughs, and associated pits varied at each site. This variation could be an indication of the processes carried out at the site or the duration of the site use. A single large rectangular trough, with evidence for lining, was located at Ballinglanna North 1 (Illus. 2.1.3–4). The trough was connected to a well, via a gully. Three pits, which comprised a later phase of activity, cut the gully and the well. They may have functioned as smaller troughs or boiling pits. At least two troughs and a number of smaller pits were identified at each of the two *fulachtaí fia* excavated at Ballinglanna North 3 (Illus. 2.3.5). None of the troughs was lined. The single trough at Ballinglanna North 6 was re-cut (Illus. 2.6.2). Three troughs were recorded at Ballynamona 2 (Illus. 2.10.5). Here, a group of seven post-holes and two stake-holes were on the western side of the largest trough and the burnt mound overlay a ring-ditch. The function of the ring-ditch is unknown. Five troughs were recorded at Kildrum 1 (Illus. 2.19.1). Evidence for possible wattle lining, in the form of stake-holes in the base of the troughs, was recorded in two of the five troughs. The Chalcolithic/Early Bronze Age dates from these two troughs conform to the early date range for such wattle-lined troughs from excavated examples across Ireland (Hawkes 2015, 34). It is envisaged that these troughs would have functioned, in conjunction with the other elements at the site, in food processing. But were all the troughs used as part of the same process or was the site used seasonally for different processes? A single unlined trough was recorded at Kilshanny 3 (Illus. 2.22.1). A pit and post-hole to the east of the trough could have functioned in tandem with the trough. Small pits were recorded at Ballinglanna North 3 and were deemed too small to function as troughs. Such features may have held containers made from organic material such as wooden baskets or buckets, but evidence is lacking.

Stake- and post-holes are regularly present at burnt mound sites and can be found both within the troughs and around them. Stake-holes located at the base of the trough are interpreted as evidence for lining and multiple stake-holes located to one side or more are believed to represent evidence for trough-side furniture or wind breaks. Single or multiple post-holes in proximity to troughs may represent frames associated with butchery (Delaney & Tierney 2009, 43). Post- and stake-holes were located to one side of the largest trough at Ballinglanna North 1, Ballynamona 2 and Kilshanny 3.

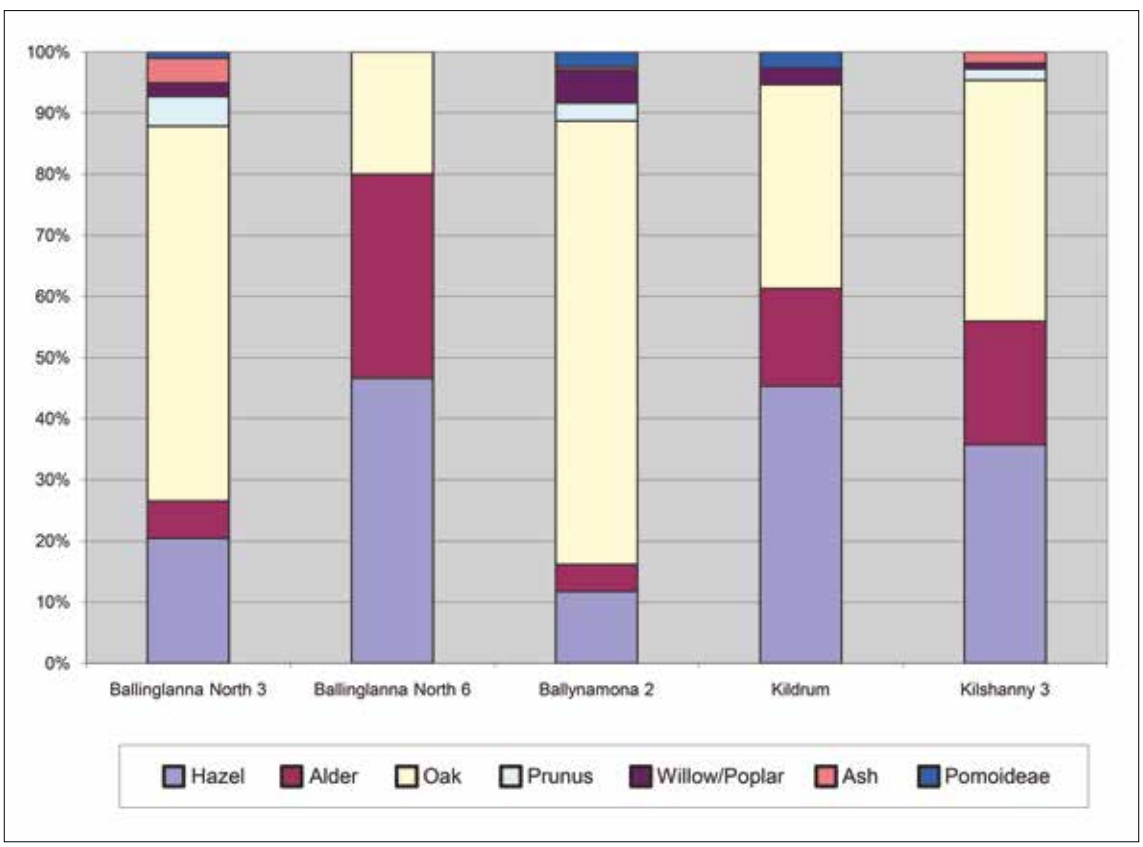
While no discrete hearths were recorded at any of the sites, two patches of scorched clay at Ballynamona 2 (Illus. 2.10.5) are likely to have been caused by hearths, and heat-scorching at the sides of a large pit at Kilshanny 3 (Illus. 2.22.1) suggests the feature was also used as a hearth. As a

heat source was essential for all *fulachtaí fia*, it seems likely that hearths were originally present at all of the examples excavated, but that most hearths simply did not survive.

## Charcoal analysis

Charcoal analysis was carried out on 45 samples from six burnt mound sites, resulting in a total of 927 identified charcoal fragments. Up to 50 fragments from each sample were analysed. Half of the samples from Kilshanny 3 were dominated by vitrified charcoal. Vitrification takes place when wood is burnt at very high temperatures, and when oxygen is more limited than in normal charcoal production. This charcoal becomes very solid and takes on a glass-like appearance. It is difficult to break and usually impossible to identify to wood species. A further 10% of the charcoal from Kilshanny 3 was affected by iron pan in the soil, which was absorbed by the charcoal and made it unidentifiable.

At all the sites oak, hazel and alder were the most commonly used woods (Illus. 3.2.1), a trend also reported from *fulachtaí fia* excavated on other national road schemes in County Cork (Monk 2013, 360). At Ballinglanna North 3 and Ballynamona 2 oak was the dominant wood. While oak is often present in samples from such sites (usually making up between a quarter and a third of the assemblage) it does not often dominate the samples. The results suggest that mature oak woodland




*Illus. 3.2.1—Percentage diagram of wood charcoal identified from* fulachtaí fia *sites (based on fragment count).*

was growing in the vicinity of these two sites (in the Early Bronze Age and Middle Bronze Age, respectively) and that oak wood was consequently available in abundance.

### A site in hot water!

The excavated *fulachtaí fia* on the route of the M8 Fermoy–Mitchelstown motorway conform to the hypothesis that these sites were used to boil water within troughs. The excavations did not, however, shed light on what the boiled water was used for. Competing theories remain: cooking, leather-processing, textile-dying, bathing, even brewing. While most of these excavated examples comprised a general arrangement of pits and troughs, the site at Ballinglanna North 1—with its well-made rectangular trough and connected gully, well and other pits—suggests a production-line configuration of features, most likely signifying a sequence of distinct processes being undertaken, using the heated water. Although 107 or so *fulachtaí fia* sites have been excavated in County Cork to date (O'Brien 2012, 128), certainty about the true function of these near-ubiquitous prehistoric sites remains elusive—*fulachtaí fia* still stubbornly refuse to offer up all their secrets. The evidence nationally is that these site types first appeared on the Irish landscape in the Early Neolithic period (c. 4000–3000 BC), coinciding with the arrival of farming (Ó Néill 2010; Hawkes 2013). It seems plausible, therefore, that their origins may relate more to cooking and cleansing, and that they were later put to a wider array of uses through the Chalcolithic period and, in particular, the Bronze Age.

## 3.3 Early medieval settlement

*Michael Monk*

A significant feature of the excavations carried out on behalf of TII in advance of road developments across the country is the great diversity of evidence that has come to light and this is particularly so for the early medieval period (O'Sullivan et al. 2008, 86). Unusual sites were recorded on earlier road schemes in County Cork, such as at Ballynacarriga AR17, near Youghal, Curraheen 1, near Ballincollig, and Skahanagh North 3, near Watergrasshill (Hanley & Hurley 2013). The three sites, Ballinacarriga 2, Ballinglanna North 1 and Gortnahown 2, in the eastern hinterland of Glanworth parish, are similarly unusual. The contribution to archaeological knowledge that the three sites are making can be assessed at several levels. There are the individual pieces of evidence that each has provided, the contribution they make to our understanding of the range of contemporary settlement activities at the broader scale and the need to view the evidence they have provided in the context of their locality and previous work in that locality.

### The archaeology of the Glanworth district

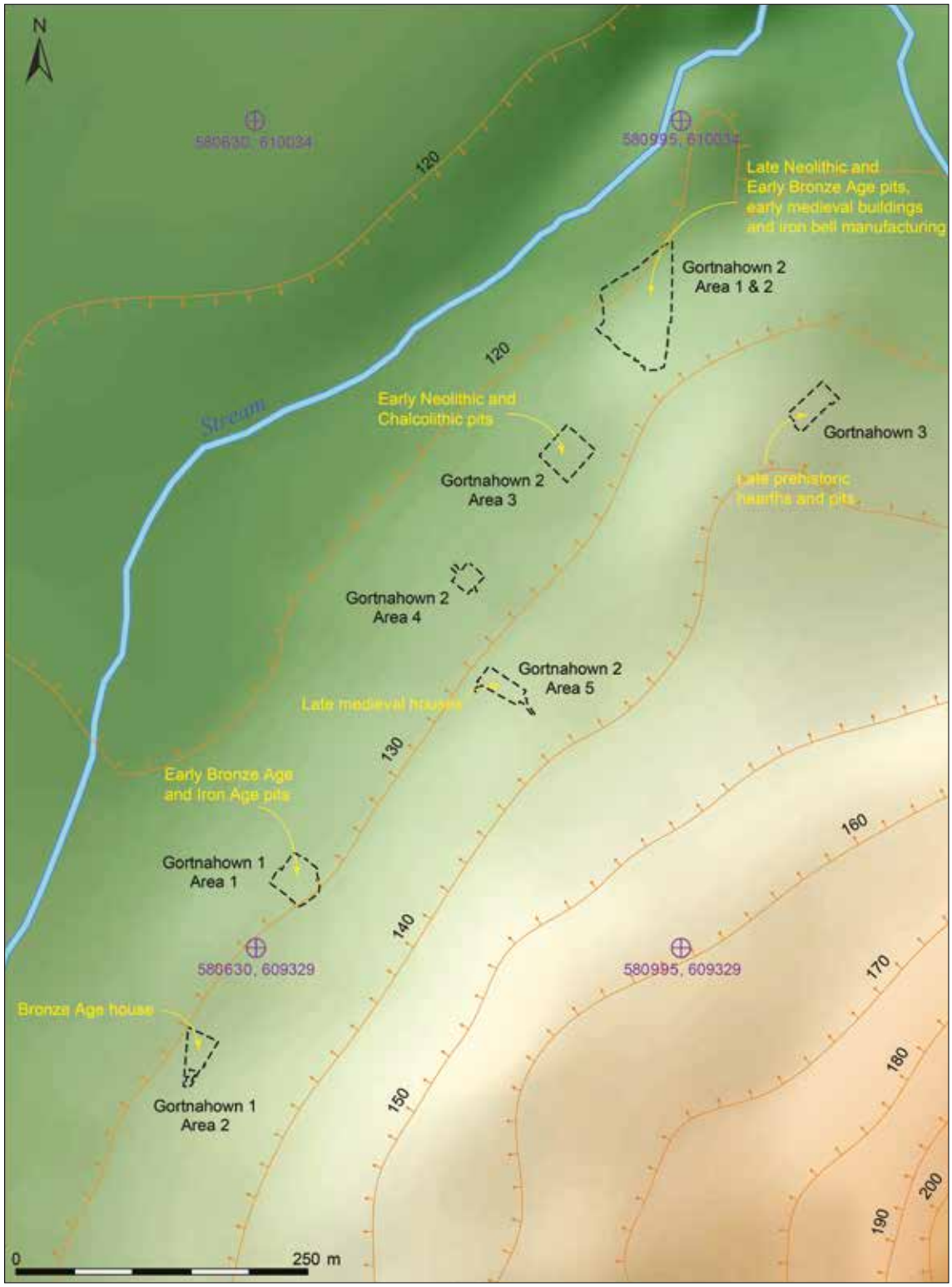
This area, centring on Glanworth and the valley of the River Funshion (Illus. 3.3.1), has a high density of extant early medieval settlement, particularly ringforts and, to a lesser extent, ecclesiastical sites. The richness of the archaeological evidence of all periods in this region has attracted the attention of antiquarians and amateur historians from as early as the beginning of the 20th century

*Illus. 3.3.1—Glanworth castle and bridge. The 13th-century castle was built by the Condons on the banks of the River Funshion and was later passed onto the Roches, Lords of Fermoy (photo by John Sunderland).*

(Byrne 1912; Grove-White 1915; Lee 1932 and Coleman 1947). The wealth of early medieval archaeology was a significant influence in this area being selected to develop a ringfort settlement project by this author in the early 1980s (Monk 1988a, 1995 and 1998; Ní Liatháin 2007). Also of significance is the fact that this is one of the few areas of the country that has a surviving topographical manuscript, *Críchad an Chaoilli*, which, while it is of 15th-century date, preserves evidence of an earlier time (12th/13th century; Power 1932).

Topographically, these sites are located in an interface zone between the upland Kilworth Hills to the east and the lower ground that borders the River Funshion to the west (Illus. 3.3.2). It is in the latter area that the majority of the ringforts are located. Two of the sites, Ballinglanna North 1 and Ballynacarriga 2, are positioned along a probable north–south routeway, defined by the incised valley of the Glencorra Stream. Gortnahown 2 is positioned close to a tributary of the River Funshion. The sites are also located close to probable east–west transport routes, including the River Funshion valley. All three sites are in optimal positions for settlement.

Not only are the three sites quite different in type to ringforts, they are also located in areas of low settlement density. They would seem to be 'outliers' positioned in a zone that borders the edge of upland heathland in the Kilworth Hills, to the east. It would seem this area is a border zone between the *túatha* of Maille Mahaire and that of Uí Chonaill (Chapter 3.4) but, unlike at other borders (like that to the south along the River Funshion), here there is an apparent lack of strategically located 'defensive' early medieval settlement.


N
580630, 610034
580995, 610034
120
Late Neolithic and
Early Bronze Age pits,
early medieval buildings
and iron bell manufacturing
Gortnahown 2
Area 1 & 2
120
Stream
Early Neolithic and
Chalcolithic pits
Gortnahown 3
Gortnahown 2
Area 3
Late prehistoric
hearths and pits
Gortnahown 2
Area 4
Gortnahown 2
Area 5
Late medieval houses
130
Early Bronze Age
and Iron Age pits
160
Gortnahown 1
Area 1
140
580630, 609329
580995, 609329
170
Bronze Age house
180
150
Gortnahown 1
Area 2
200
190
0
250 m

## Significant features of three early medieval sites

### Ballynacarriga 2

The specifics from these three sites can be paralleled with evidence locally and farther afield. The cliff-edge site at Ballynacarriga 2, in particular, can be paralleled with three other sites that the Cork Archaeological Survey has similarly described as 'cliff edge forts': at Ballyderown, to the east on the River Awbeg; at Templenoe (near Templenoe House, overlooking the River Blackwater); and Creggolympry South, immediately to the south-east again, on the opposite bank of the River Blackwater (Power et al. 2000, 364–5). Ballynacarriga 2, in terms of its shape and location, fits into an increasingly recognised general site type: the ovoid D-shaped enclosure. Over the last 10 years many similar non-circular enclosures have been recognised and excavated countrywide, particularly on behalf of TII. A database of such sites has been compiled by the Early Medieval Archaeological Project (EMAP) (O'Sullivan et al. 2008, 72–8). Sites that, arguably, have a similar form to Ballynacarriga include Ballycasey More and Cahircalla More in County Clare; Roestown in County Meath; possibly Croom in County Limerick; Lackan Rath 1 in County Wicklow; and Ballyhenry Rath 1 in County Antrim (Kinsella 2010, 94, 100, 101, 106–7 and 109). Where dates are available their range is similar to that for Ballynacarriga 2 and it has been suggested (ibid., 119, 122) that their builders and occupants would have been of a similar status in early medieval society to the ringfort occupants.

The souterrain at Ballynacarriga 2, with its beehive chamber and lintelled passage, was first identified before 1900 (Power et al. 2000, 368). It can be paralleled with a number of similar souterrains known locally, but it represents the only excavated example in the area. The other sites are relatively close by—particularly two examples recorded in Manning townland, approximately two miles along the Funshion, to the west, and another a mile to the south, in Ballyvoskillakeen. Within the area, but farther to the south-west, beehive chambered souterrains have also been noted at Carrignagroghera and Conva townlands (ibid., 378, 369, 371). Clinton (2001, 115, fig. 36, 121) notes that these represent a significant cluster of souterrains of this construction type outside County Meath, where they are mainly located, and that their presence outside this core area cannot be readily explained. McCarthy (1983, 101, pers. comm.) has argued that the architecture of souterrains is influenced by the nature of the substrata they are dug into and the type of raw material available for their construction. It is possible that specialisation in the craft of souterrain building and the influence of kin groups, as well as the period of building, are also factors influencing the types of souterrains constructed (McCarthy 1977, pers. comm.; Clinton 2001, 39). Nevertheless, the questions remain: is the similarity in construction of the cluster of beehive chamber souterrains in this area of County Cork and those in County Meath simply fortuitous or was there a direct link between the occupants of both regions? Could this possible association have been via kinship or the use of the same specialised souterrain builders?

The material remains from Ballynacarriga 2 also need to be seen in the light of evidence from similar dated sites and particularly in a local and regional context. The range of plant remains evidence

*Facing page: Illus. 3.3.2—An example of archaeological diversity in the interface zone between the uplands of the Kilworth Hills and the lower ground that borders an unnamed stream that would later become a townland boundary (after Kiely & Donoghue 2011, 59).*

(Chapter 3.6) can be paralleled with those from the Lisleagh ringfort excavations (Monk et al. 1998, 69), three miles to the north-west. The cereals present at Ballynacarriga 2 include oats, wheat and barley in that order of frequency. A significant difference, however, is the relative incidence of wheat, which can be paralleled with sites farther afield, particularly Mackney, Co. Galway (Dillon et al. 2008, 28–9). The plant remains evidence from Ballynacarriga 2 contrasts with that identified from Gortnahown 2 (Chapter 2.16), as well as the early medieval evidence from Conva, near Ballyhooley (McClatchie 2008a, 608) and the evidence from Skahanagh North (Murphy 2013b), all four sites being in the same region of north County Cork. The animal bone assemblage from Ballynacarriga 2 (Chapter 3.7) represents the largest recovered from the area. The nearest parallel for such an assemblage is from Ballynagallagh, Lough Gur, Co. Limerick, which has a similarly frequent presence of sheep/goat, after cattle (Cleary 2006).

The possibility that Ballynacarriga 2 was of a later date than the radiocarbon dates would suggest is indicated by the presence of a rectangular building (albeit used for specialist iron-working) in the centre of the enclosure. According to Lynn (1994, 85), rectangular houses were beginning to replace circular buildings during the ninth–10th century. Of the artefacts, the only one that would suggest a late date is the rectangular buckle (Illus. 2.7.3[c]), which can be paralleled with a very similar example from a 13th-century context in Cork City (Carroll & Quin 2003, 279, fig.5.10:1–3). However, as this object, along with an undiagnostic decorated bone handle (Illus. 2.7.7), was from the backfill of the souterrain, it may simply indicate a late date for its infilling.

### Ballinglanna North 1

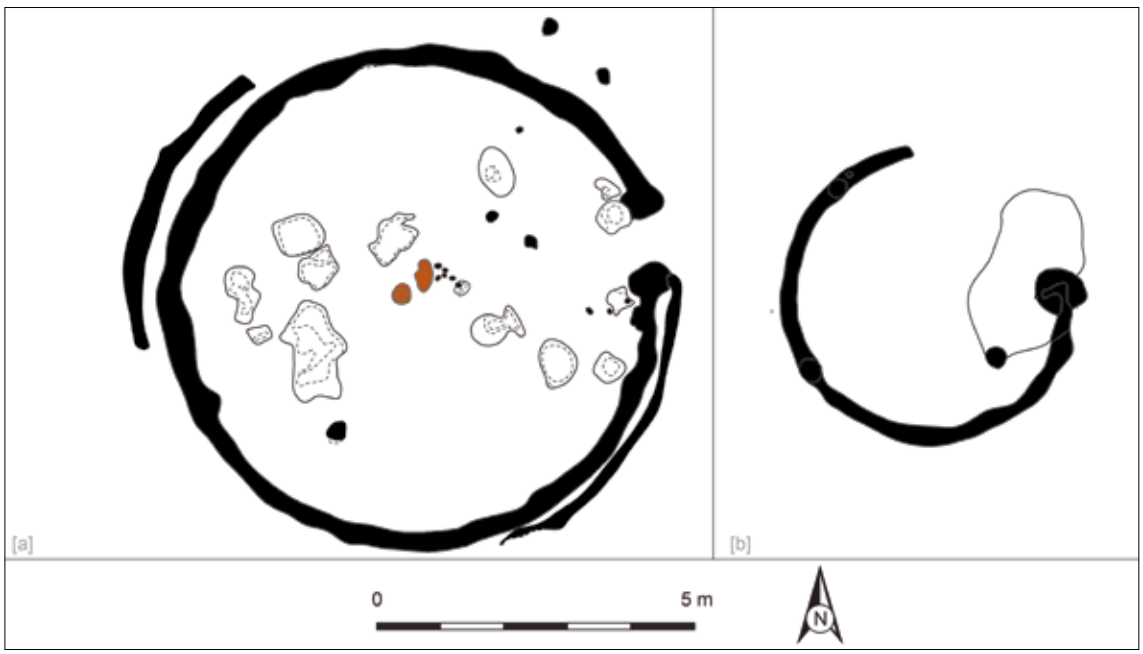
Although not a definable settlement, unlike Ballynacarriga 2 and Gortnahown 2, the Ballinglanna North 1 site has, nonetheless, produced some tantilisingly significant evidence. In particular, there was a ditch to the west of the Glencorra Stream that was partially overlain by colluvium and returned an early medieval date (Illus. 2.1.3). It is possible that the ditch represents an attempt to manage the water flow at this point along the Glencorra Stream. Of relevance is the earlier discovery, in the 1950s, of a water mill (RMP Ref. CO027-108) less than 200 m downstream from this point in Glenwood, which consisted of fragments of six millstones and 'what appears to be an ancient headrace extending for some distance up the stream' (Power et al. 2000, 473). In this context, Rynne (pers. comm.) is of the opinion that the profile of the ditch at Ballinglanna North 1, as well as its straightness and gradient, would fit the interpretation that it was a headrace and possibly linked to the one identified at Glenwood.

### Gortnahown 2

Perhaps the most fascinating of the three sites is Gortnahown 2. The three significant features of the site are: it is unenclosed, it has two circular buildings (Illus. 3.3.3) and it provided evidence for extensive specialised iron-working. The one thing that links all three sites, but at the same time has a broader context in this area of North Cork, is iron-working.

Unenclosed early medieval houses have been recorded elsewhere in Ireland, for example at Terryhoogan and Ballyvolan, Co. Antrim, and at Platin, Co. Meath (O'Sullivan et al. 2008, 92–3) and, on the route of the M8 Fermoy–Rathcormac motorway, at Skahanagh North 3 (Murphy 2013b). In the case of Gortnahown 2, there is not a definite enclosure or any other known early medieval settlement close by.

Both round-houses at Gortnahown 2 are similar in size to those identified in the excavations of the two ringforts in Lisleagh townland (Monk 1988a). While the larger house at Gortnahown 2 is similar to Structure V at Lisleagh, in having an off-centre hearth and a partial double slot-trench (on south-west side, as opposed to the north-west at Lisleagh), it is dissimilar in having a slightly in-turned entrance. It also differs in having evidence for internal posts that the excavators suggest were part of the structure. Such posts would be unnecessary unless they were to support a louver or a loft.




*Illus. 3.3.3—Plans of early medieval buildings from Gortnahown 2, Area 1/2: (a) Structure A and (b) Structure B.*

The presence of one large and one smaller building suggests different functions. The absence of a hearth in the smaller structure is also suggestive of this, though if the hearth was slightly raised it could simply have been removed by later ploughing. While the two buildings are located close together, they were not clearly linked by any stratigraphic evidence, and so we can only assume that they were built and occupied at the same time as each other. Both their entrances, however, face east (opposite the prevailing wind direction—sensible if there were no enclosing bank to act as a wind break). In the case of the smaller Structure B, the possible entrance (really just a break in the wall line) is in the direction of a possible rectangular building (Structure C).

The most significant feature of this site is the evidence of specialised iron-working (Chapter 3.11), as evident by the large quantity of clay brazing fragments from bell making and the presence of probable smelting and smithy hearths in a distinct iron-working area within the site, centred on Structure D.

## New avenues of research

Overall, the archaeological evidence from these three sites amplifies pre-existing knowledge about

the diversity of early medieval settlement forms and activities that has been coming to light on excavations in advance of national road projects elsewhere. However, if this new evidence from the Glanworth district is to be capitalised on, follow-up research projects are essential: in this case, an exploration of the concentration of sites (with iron-working debris) in the hinterland of the ecclesiastical site at Brigown, in the neighbouring *tearmann* lands of Brí Gobhan, in North Cork (Chapter 3.4).

While it could be argued that there is likely to be a topographical bias in the range of sites being discovered (as noted above), had these road improvements not taken place would the view of secular early medieval settlement not have continued to focus on ringforts? The challenge for early medieval research now is to develop a more nuanced understanding of early medieval settlement overall, but in so doing to explore how these new settlement forms fit with temporal and extant regional patterns of ringfort and ecclesiastical settlement, and to then identify and investigate the underlying socio-economic drivers for such diversity and, indeed, potential complexity of settlement.

## 3.4 Historical context for the early medieval sites

*Paul MacCotter*

This contribution sets out to provide an historical context for the three early medieval sites at Gortnahown 2, Ballinglanna North 1 and Ballynacarriga 2. These sites lie within a few kilometres of each other and share elements of function. An introductory orientation regarding the value of historical background research to archaeology may be helpful.

The subjects of archaeological investigation normally do not exist in isolation, but form part of a nexus of wider community, political and economic units. Reciprocally, this may provide evidence of assistance in interpreting elements of the individual sites, and hence the value of background historical research to archaeology. Single settlements with evidence of habitation cannot have existed in isolation from neighbouring settlements, just as manufacturing settlements, producing hardware, cannot be fully understood without taking into account the question of the settlements of the consumers of their products. Again, the political context of the area in which the settlement lies may provide further interpretative value, in terms of understanding such elements as fortifications and land use. Put simply, the individual site cannot be fully understood unless seen as an element of a wider whole. One must move from the micro to the macro, as it were, and back again.

In the absence of documentary evidence relating to individual sites—as is more often the case—the historian must rely on the spatial or areal units in which the site lies. A brief survey of these follows. In Ireland we have a hierarchy of such units, all of which have their roots in the early medieval period. Much work remains to be done in this area, particularly with the larger units and some of the smaller ones (MacCotter 2008). This author is currently engaged in research into a number of the smaller units, especially the townland and *baile*, and some of this work has been published (MacCotter 2012a). Beginning with secular units, we note the smallest, the townland. It is certain that townlands originated as sub-divisions of a bigger unit, the *baile*. This was the basic taxable unit of landholding, the economically independent estate, the fundamental allodial property unit of the lineage group, independent of any superior landlord (ibid., 23–4, 53–4). Such lineage

groups functioned on the basis of periodic re-divisions of their property among their families, and it is certain that the townland originates as part of that sub-division process. This is not to say that all of our modern townlands have such ancient roots, but it is clear that the modern system is based upon this earlier foundation, and we can trace the diachronic descent of this unit under its various guises, Anglo-Norman *vill*, Gaelic *fearann*, 17th-century ploughland, down to its modern equivalent, the townland. The evidence suggests that townland boundaries, despite clear evidence of occasional amalgamation, sub-division and truncation, will in a majority of cases still preserve the boundaries of ancient agricultural units. Another relevant consideration is the toponomastic study of individual townlands, which often reveals something of their history.

A unit long vanished is the Anglo-Norman manor, whose reconstruction can often be achieved by reference to the civil parish structure, as both originated during the first generations of the Anglo-Norman settlement and, more importantly, were closely related. This is because the parochial rectory was formed as the direct ecclesiastical corollary of the secular manor (MacCotter et al. forthcoming). While manors appear to have several possible spatial origins, it is clear that many of them were formed directly from the indigenous *baile*, whose shape they thus preserve, while others originated as sub-divisions of *túatha*, or even entire *túatha* (MacCotter 2008, 21, 27, 48). In pre-invasion Ireland, *bailte* were grouped together into a larger unit, the *túath*, essentially the local community with its hereditary *taísigh* family, which possibly served as the unit of military levy, just as the *baile* did for taxation (ibid., 23, 47). The *túath* may be thought of as the earliest manifestation of the local community, best represented in more recent times by the secular elements of the rural parish (e.g. parish schools and sports clubs).

Our final 'local' unit to be considered is the *trícha cét*. This was normally ruled by the lowest order of king, 'the king who was king over no other kings'. These were kings in name only, as the *trícha* was normally grouped together into 'real' kingdoms, those I have elsewhere called 'regional kingdoms' (ibid., 22, 46–8). In terms of size, the *trícha cét* can be compared with its descendants, the Anglo-Norman cantred and the modern administrative barony, just as the area of many regional kingdoms is preserved in that of their ecclesiastical corollary, the diocese and, somewhat less often, the county. This hierarchy of spatial units has survived in truncated form down to the present day in the schema: townland – civil parish – barony – county.

## The late medieval boundary of Gortnahown

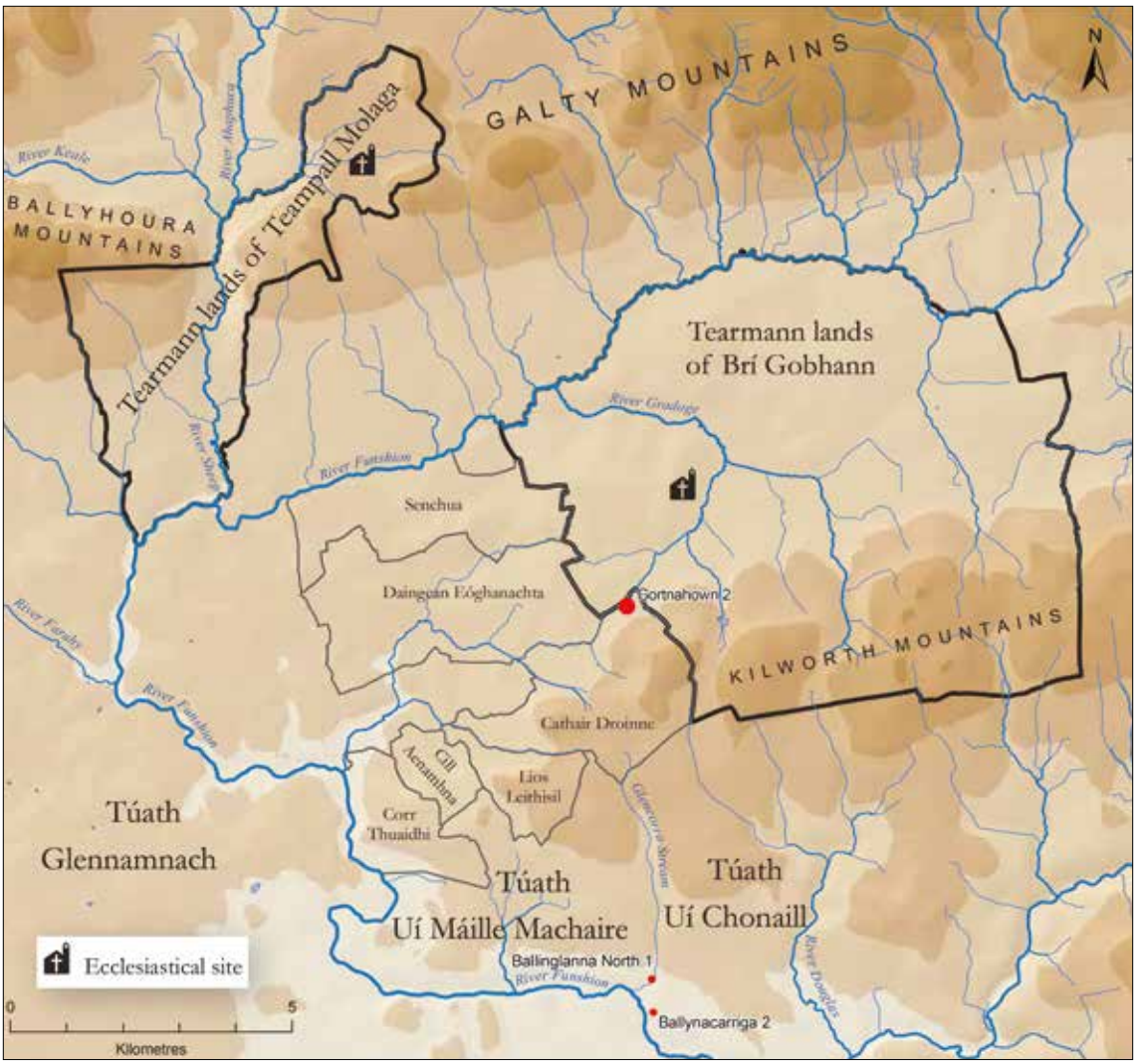
The townland of Gortnahown lies in the parish of Glanworth and barony of Condons and Clangibbon. It contains 574 acres (232 hectares: given the historical context of what follows, only acreages will be given henceforth). The name certainly derives from *Gort na hAbhann* which, in this instance, can be understood as a reference to an area of tillage bordering the (Gradoge) river, which forms the north-western boundary of the townland. The toponym (Gurtinehouaane) first occurs in the grant of 1588 to Arthur Hyde, and again (as Gortnehowane) in the surrender and regrant to Patrick Condon of Ballyderown, chief of his name, in 1610 (*The Irish Fiants of the Tudor Sovereigns,* Vol. 3, No. 5291; Rolls, 194). Patrick was the ruling Condon chief, and lord or overlord of much of the barony. The path towards an explanation for this situation begins in the Down Survey barony map of Condons and Clangibbon (from 1656), which shows a single large denomination here, which it mistakenly calls Carrikegreny. This is, of course, Caherdrinny, the

name of a modern townland lying adjacent to Gortnahown, to the south. The Caherdrinny of 1656, however, contained the modern Caherdrinny, Gortnahown, Ballynacaheragh and that portion of Ballybeg which lies in Glanworth parish—a total area of 1,762 acres. The area so shown is to be identified with the manor of Caherdrinny as mentioned in a pleading of the early 1580s, in which Maurice, Lord Roche of Fermoy, sought his rent from a number of manors from Richard, the chief of the McMaug, a sub-lineage of the Condons. Among these manors was Caherdrinny. Around the same time one Richard mac Piers Condon of Caherdrinny was executed at Cork as a rebel and his lands granted to Arthur Hyde, in 1588. In 1592 McMaug claimed Caherdrinny as his inheritance, against Hyde, unsuccessfully (MacCotter & Nicholls 1996, 192). From this we learn that the manor of Caherdrinny was held by a junior branch of the Condon lineage, subject to chief rents from no fewer than three overlords, McMaug Condon, the Condon chief, David, and the Roche lord of Fermoy. This Condon junior branch must have been the builders of the towerhouse at Caherdrinny (Power et al. 2000, 524). That its area is that shown in the map of 1656— including Gortnahown— is confirmed by its subsequent history of ownership, where these lands descended in the possession of a single owner, as we see from the 19th-century Primary Valuation (Griffith 1852).

The Roche claim to overlordship here was based on the possession of the manor of Glanworth by the Lords of Fermoy. Such arrangements hark back to the feudal period, in this case to a marriage between an earlier Roche and a daughter of the Caunteton (later Condon), lord of Fermoy in the middle of the 13th century (MacCotter 1997, 89–91). Caherdrinny's existence as a manor at this time is shown by a pleading of 1303 in which Anstace, widow of David Condon, sought her dower in (*inter alia*) the messuage and five carucates of 'Caherdrone' against her son (or son-in-law) James fitz David Condon. These Condons were a wealthy junior branch found holding lands in northern Glanworth parish and in Carrigdownane (MacCotter et al. forthcoming). That the manor of Caherdrinny had no corresponding ecclesiastical rectory indicates that it must have originated as a sub-fee of the demesne of Glanworth, during the middle of the 13th century. Caherdrinny's status as a sub-fee must in turn date back to the sub-infeudation of the area. The reference to the five carucates of Caherdrinny is interesting. The carucate is the medieval ploughland, usually extended at 120 medieval acres. While these varied in actual size the common rule of thumb is to allow approximately 300 statute acres per carucate, thus giving roughly 1,500 acres to this manor. This figure compares well with the 1,762 acres of the manor of Caherdrinny, as indicated by the Down Survey barony map. A further indication that these boundaries date to the Anglo-Norman settlement period is shown by the reference to 'Cathyrdron' in the so-called '1301 List' of colonial vills in the cantred of Fermoy (Ó Buachalla 1966–7, 40). This very extensive list does not include any other toponyms that can be associated with the manor of Caherdrinny. In summary then, the manor of Caherdrinny, which included Gortnahown, originated as a colonial fee during the first decades of the Anglo-Norman invasion (1182–1200, approximately). It is possible, therefore, that the medieval settlement excavated at Gortnahown 2, Area 5 (Chapter 2.16), belonged to early colonial settlers, who serviced the manor of Caherdrinny.

## Cathair Droinne before the invasion

The old Irish kingdom of Fir Maige or Fermoy, which comprised approximately the area of the baronies of Fermoy and of Condons and Clangibbon, is fortunate in having a topographical tract or




*Illus. 3.4.1—Map showing* tearmann *lands of Bri Gobhann and Teampall Molaga and the associated* baile *of the* túath *of Glennamnach and the site of Gortnahown 2. Also depicted is the general location of Túath Uí Chonaill and Uí Máille Machaire and the sites of Ballinglanna North 1 and Ballynacarriga 2.*

gazetteer listing its *túatha, bailte* and churches, and the chief family or families of each *baile*, *Críchad an Chaoilli* (Power 1932). This can be dated to the first half of the 12th century (MacCotter 2008, 265–6). The level of detail preserved in this document is remarkable and unique. The principal *túath* of the kingdom was that of Eóganacht Glennamnach, the demesne *túath* of the kings of Fir Maige, the Uí Caím or O Keeffes. Eight full *bailte* are listed in this *túath*, one of which is Cathair Droinne, whose proprietors are named as Uí Annratháin, apparently the later surname O Hanrahan (Power 1932, 45–6). Remarkably, this surname is still found in the area. Of the 14 *bailte* and sub-denomination names in this *túath,* 12 can be identified with certainty and another located approximately. It is possible, therefore, to establish an approximate location and size for the *bailte* of the *túath*, including Cathair Droinne (Illus. 3.4.1). To the south of Cathair Droinne lay

the *bailte* of Lios Leithisil (Lisleagh) and Cill Aenamhna (Killeenemer) and to the north that of Daingean Eóghanachta (Ballindangan) and its sub-denomination of Achadh Loiscthe (Curraheen and Flemingstown). To the north and east of Cathair Droinne lay the *tearmann* lands of the church of Brí Gobhann (Brigown), in which we can identify the names of Kiltrislane, Glenatlucky and probably Turbeagh. The one area of uncertainty concerns the townland of Kilphelan and its immediate neighbours to the south. The colonial history of these is obscure and they may originally have formed a detached portion of Brí Gobhann or have been part of Cathair Droinne (MacCotter 2012a, 243–4). In any case, it is certain that, at a minimum, the 12th-century lands of the *baile* of Cathair Droinne contained all of those later found in the manor of Caherdrinny, and that the northern and eastern borders of the modern townlands of Gortnahown and Ballybeg (Glanworth parish) are those of the *baile* of Cathair Droinne.

What can we say of the history of these borders before AD 1100? In the case of the *baile* of Cathair Droinne there is surface evidence for the presence of high-status fortified residences over a long period of time in the form of its late prehistoric hillfort, which was, in part, re-used to form part of the bawn wall of the later towerhouse (Power et al. 2000, 205). Such a residence implies the existence of a significant surrounding estate. It appears that the *túath* boundaries in Fir Maige are significantly older than the 12th century, even if some diachronic division and amalgamation is evident (MacCotter 2012a, 249–61). A Middle Irish eulogy from the Book of Leinster concerns King Cathal mac Finguine of Munster (AD 721–42). The eulogy mentions Cathal's Glenndomain estate, that is, the *túath* of Eóganacht Glennamnach. The estate is said to have been mensal, the eulogy describes it as comprising seven *bailte,* and even names three of these (MacCotter 2008, 266). While this poem in its present form cannot be older than the 11th century, it clearly contains older material, some of which may derive from the time of its subject. Note that this *túath* as described in *Críchad* is given eight *bailte*, close enough to the seven *bailte* of the poem, and the three that are named in the poem also occur in *Críchad*. The borders of the *túath* of Eóganacht Glennamnach therefore are probably as old as the eighth century, if not older. This *túath* is again associated with the regnal line of Eóganacht Glennamnach in annals of the 640s but, remarkably, there is an even older connection (MacCotter 2004, 53–4). This concerns the royal ancestor of Cathal mac Finguine, King Coirpre Crom of Munster (obit. AD 580). In a number of sources, some of which are very early, Coirpre is associated with a church called Cill Cromglaise and a place called Féic. These places can be identified with the church of Ballyclogh and with Clondulane, places in or on the borders of the *túath* of Glennamnach (MacCotter 2012a, 238, 250–1). This suggests that the secular estate or *túath* structure in Fir Maige appears to date from the period of earliest record in the sixth century.

The *baile* of Cathair Droinne, however, was not simply a *baile* estate, but appears to have been the hilltop site of the *óenach* or annual assembly of the kingdom of Fir Maige (Illus. 3.4.2). Cathair Droinne means 'the caher of the assembly or throng'. It lies on the northern border of this royal *túath*, on a hilltop (the site of a late prehistoric multi-vallate hillfort) giving extensive views, and on royal land near the centre of the kingdom. These are all diagnostic features of assembly sites (MacCotter 2012b, 280).

## The ecclesiastical estate of Brí Gobhann

As shown in *Críchad*, the ecclesiastical estate of Brí Gobhann was a large church estate with an area corresponding, approximately, to the civil parish of Brigown (Power 1932, 46–7). Its importance is indicated both by its archaeology and history. The monastery had a round tower and still retains elements of one of the very few 11th-century pre-Romanesque churches in County Cork (Ó Carragáin 2002, 29–30). It was subject to Viking raids during the ninth century (Todd 1867, 14). The 12th-century traditions preserved at the church, concerning its origins, are written in the life (*beatha*) of its patron Findchua or Fanahan (obit. AD 655). These place Findchua's *floruit* firmly in the first half of the seventh century and credit King Cathal mac Áeda of Munster (AD 619–628) as being chief benefactor of the monastery (Stokes 1890, 85–90). Cathal was yet another member of the lineage of Eóganacht Glennamnach. From all of this, it seems clear that the church of Brí Gobhann, and its estate, originated during the first half of the seventh century, and may originally have formed part of the Glenndomain royal estate.

## Bells, clerics and metallurgy

The archaeological investigations at Gortnahown 2 (Area 1/2) have revealed the existence of what may be called a bell forge dating to the period of the late sixth century to the middle of the seventh century. This site revealed a full metal-work process, producing small iron bells coated with copper alloy. While the function of these remains uncertain, Young (Chapter 3.11) believes that they were probably animal bells. However, some evidence for the production of larger bells was also found here, while some surviving saints' bells were of similar size to animal bells (ibid.). There is evidence, therefore, to posit the production of larger bells at this workshop.

Such handbells are normally associated with clerics and saints, and many have survived as objects of veneration. The use of handbells by clerics in the early Irish Church is well attested in the historical sources. As an example, we may note the incident recorded in the life (*beatha*) of Columcille, where the saint curses the high-king, Conall, by striking his bell as part of cursing the king, as do all of the saint's monks (Kelleher & Schoepperle 1994, 346–7). The sources indicate that, as well as being weapons of cursing, such bells were used for collecting ecclesiastical revenue, administering oaths, curing disease and plague in both animals and humans, and simply for calling the monks and nuns to gather for communal activities (Plummer 1910, clxxvii). That their use was widespread is certain. We may note the (possibly 12th-century) reference to the monastery of Inch, Co. Kerry, as 'a dwelling of bells and clerics' (Ó Corráin 2004, 262).

The toponym *Brí Gobhann*—which can be translated as 'hill of [the] smith—was understood by the anonymous author of the life (*beatha*) of Findchua to refer to a settlement of master smiths near the saint's residence, who created artefacts for the saint, which no doubt included bells (Stokes 1890, 2931). Brigown is less than 3 km from Gortnahown 2. We may note two additional local associations with the theme of saints' bells. The church site of Killaclug (Marshalstown parish) lies just 5 km north of Gortnahown. This derives from *Cill a' Chluig*: the church of the bell. This could represent an early church site, where a handbell was an object of veneration. About 10 km north of Gortnahown lies the ecclesiastical site of Templemolaga or Labbamolaga, whose bell—said to be that of the seventh-century patron saint—is now in the National Museum of Ireland (Bourke 1980, 65).

## The rise and fall of the Gortnahown forge

It has proved possible to identify and reconstruct, with some degree of certainty, the estate boundaries within which lay the site called Gortnahown 2. These appear to have been of considerable antiquity: they are at least as old as the 11th century and the evidence suggests that such boundaries were stable for some considerable time before this. The site lies on the northern border of its *túath* (Glennamnach), c. 100 m from the River Gradoge, across which lay the large ecclesiastical estate of Brí Gobhann, whose borders are very likely to have remained largely static since the seventh century. Similarly, the *túath* here, Glenndomain, was a royal estate and, as such, is equally likely to have had fairly static boundaries. Therefore, the site was on the border with Brí Gobhann and also lay 10 km from another important ecclesiastical estate, that of Teampall Molaga (Templemolaga) (Illus. 3.4.1). Such a location, in proximity to many potential customers, may not be coincidental. Gortnahown 2 has produced evidence of the production of significant amounts of small bells and some evidence for the production of larger handbells, and all of this may explain the choice of location for the metalworkers' settlement at Gortnahown 2. Can we speculate that such production ratios reflect the normal output of such an operation? It may be significant that the forge here appears to have ceased production during the first half of the seventh century, at the very time later sources place the foundation of both Brí Gobhann and Templemolaga. The possibility should be considered that the forge at Gortnahown 2 transferred to the metallurgical settlement of Brí Gobhann soon after its foundation, or that the establishment of this settlement of smiths rendered obsolete the forge at Gortnahown 2.

## Ballinglanna and Ballynacarriga

The sites at Ballinglanna North 1 and Ballynacarriga 2 merit additional comment as significant early medieval sites, displaying evidence of metallurgy. These sites lie in adjacent townlands, about 6 km south of Gortnahown 2. Ballinglanna North 1 was a large-scale, specialist, bloomsmithing operation lying adjacent to the Glencorra Stream, while Ballynacarriga 2, which lies 500 m south of Ballinglanna North 1, displayed evidence of metal-working in a large, fortified, domestic site flanking the River Funshion.

Ballinglanna North townland was clearly smaller in 1656 than its modern descendant, but it is uncertain whether it then contained the site, as the Down Survey barony map is difficult to interpret here. The position in relation to Ballynacarriga is unclear. No early references to these townlands survive, suggesting they originated as sub-denominations. Both townlands occur (as Ballynekarigie and Ballyngleanny) in the regrant to David Condon of Ballyderown in 1610 (Commissioners on the Public Records of Ireland 1966, 192). The place-names are clearly derived from the forms *Baile na Carraige* (the rocky *baile*), and *Baile an Ghlanna* (the valley or glen *baile*). Both townlands lie in the civil parish of Kilcrumper, the main segment of which represents the area of the manor of Ballytandeny (modern Ballyhindon), which therefore contained both townlands. This manor can be shown to have been a Caunteton (Condon) possession during the first decades of the 13th century (MacCotter et al. forthcoming).

*Illus. 3.4.2—The ruins of Caherdrinny towerhouse on Caherdrinny Hill, with extensive views in all directions. The castle sits on the site of a prehistoric hillfort at which, in pre-Norman times, the* óenach *or assembly of the kingdom of Fir Maige (Fermoy) was held, where laws and royal pedigrees were proclaimed, royal tribute collected, sporting and social events held, and commercial interaction occurred (photo by John Sunderland).*

*Críchad* tells us that the western boundary of the *túath* of Uí Chonaill was Gleann Cubra (Power 1932, 47). This is the modern Glencorra Stream, whose waters were used in the metal-working process at Ballinglanna North 1, and which forms the eastern boundary of Ballinglanna North townland. However, the stream does not form the parish boundary here (between Kilcrumper and Kilworth), which runs parallel to the deep Glencorra valley, but near its eastern rim or scarp at an average distance of 500 m from the stream. Thus it is not clear if the *túath* boundary here ran along the stream itself or along the top of its glen to the east. It is probably significant that the parish boundary takes this latter line. Therefore, we can be certain that Ballinglanna North, which lies west of the stream, lay in the *túath* of Uí Maille Machaire but cannot be certain of the location of Ballynacarriga, which lay east of the Glencorra Stream, but in the parish of Kilcrumper, that is, in our zone of uncertainty. On balance, we should also assign Ballynacarriga to Uí Maille Machaire (Illus. 3.4.1).

As for assigning these townlands to earlier *bailte*, it seems clear that Ballinglanna lay in the very large *baile* of Leathnocht. Of more relevance, however, is Ballynacarriga. While the metal-working element here may not have been significant, the nature of the site is very much so. Ballynacarriga 2 is a cliff-edge fort, on a limestone scarp overlooking the River Funshion, with an internal area of c. 2000 $m^2$. The landward side of the fortification was ditched and possibly featured a cashel wall, and there was an internal souterrain and other domestic and metal-working remains. These are the typical features of a large *ráth*. A similar D-shaped fort lies slightly downstream, in Ballyderown, and quite close to a towerhouse, again indicating significant continuity (Power et al. 2000, 364). In the early medieval period the *ráth* was the principal residence of the typical *bóaire* or freeman and his family and servants. Such units did not, however, exist in isolation but were grouped together into single kinship estates, typically referred to in the laws as the *coicráith* or 'five-*ráth*' unit. I have argued elsewhere (MacCotter 2008, 103–8) that such kinship-based estates were the precursor to the later *baile* estate of the 11th century, and that this descent did not feature significant changes in estate size. It is clear, however, that the fortified *ráth* was eventually abandoned in favour of non-fortified residential models (Doherty 1998, 315–18), and this is precisely what happened in Ballinacarriga, where the archaeology suggests that the site was occupied sometime between the mid seventh century and the late ninth century. We do not find here the certainty of boundary reconstruction exhibited in the case of Gortnahown above, but it seems clear that the principal *Críchad baile* in this area was Cúl Baedáin, which can be located approximately in Ballyhindon and Gortore (MacCotter 2008, 266). This probably also extended across the River Funshion to the north—many *bailte* in *Críchad* were trans-riverine—to include Ballynacarriga and perhaps some of its neighbours to the west. It may be significant that the limestone scarp at Ballynacarriga 2 appears to be the name-giving element in the townland, and it may also be that the (233 acre) townland of Ballynacarriga represents the farm or kinship estate portion of the family who resided in its D-shaped fort. These were, perhaps, members of the Uí Thaimhdinig sept, who resided here in the time of *Críchad*, and who gave their name to Ballyhindon (the earlier Ballytandeny). The evidence does not allow us to go beyond these possibilities.

## 3.5 Later medieval cob-built houses at Gortnahown 2

*Jacinta Kiely and Penny Johnston*

In Ireland, there is ample evidence for early medieval settlement sites and their associated house types but, up to now, clearly defined houses from the later medieval period have rarely been found. Why should this be the case? Evidence of late medieval structures recently recorded on national road projects in counties Cork and Wexford may hold the clue. The emerging evidence is that a particular vernacular style of building, the cob house—which can leave little physical trace in the archaeological record—may have been more popular in Ireland during the late medieval period than previously recognised. Some recently excavated examples provide archaeologists with rare insights into the late medieval building form. The remains of cob-built structures were excavated Gortnahown 2 (Area 5) on the M8 Fermoy–Mitchelstown motorway (Chapter 2.16) and at one site, Mondaniel 3, on the M8 Rathcormac–Fermoy motorway (Quinn 2013, 252–7). These later medieval houses (Illus. 3.5.1) are comparable to three other examples recently excavated in County Wexford, in Camaross, Landscape 2 and Moneycross Upper 6 (Eogan & Kelly 2016).

O'Connor (1998, 57, 71) found that archaeological evidence for undefended dispersed settlement within the bounds of Anglo-Norman manors was scanty and that very few isolated farmsteads had been recognised in the east of Ireland. Evidence from Ulster suggested that two types of dwellings were used by peasants in Gaelic Ireland: small one-roomed circular houses (ibid., 95) and a more substantial house, sub-rectangular in plan with low walls built of clay, sods or post-and-wattle, with a central hearth and opposing doorways (ibid., 96). Results from the excavations of moated sites and undefended rural settlement sites were published more recently, including Camaross (Tierney 2009; this site was mistakenly reported as being located in Carrowreagh townland) and Moneycross Upper (Schweitzer 2009). The later medieval sites at Gortnahown 2 and Mondaniel 3 are welcome additions to the growing number of excavated late medieval Gaelic and Anglo-Norman settlement sites in Ireland. A more recent review (Gardiner & O'Connor 2017) details how archaeological investigations of late medieval sites on TII road schemes, represented by an archive of approximately 200 excavation reports, detailing a vast array of site types, has opened up to scholarship a much expanded understanding of the landscape in Ireland at that time. Gardiner & O'Connor (ibid.) also outline how, from the 12th century, there was a movement away from the use of earthfast posts in house construction towards timber framing, as well as a likely prevalence of cob-built houses. While the emerging building evidence includes examples of possible timber-frame houses, set on drystone footings, such as the 14th-century house at Boyerstown, Co. Meath (Martin 2009, 139) and at least one of the late 13th/early 14th-century houses at Ballinvinny South, Co. Cork (Cotter 2013c), this section will focus on the evidence for cob-built houses.

### Settlement settings

Four of the sites mentioned above (Gortnahown 2, Mondaniel 3, Landscape 2 and Moneycross Upper 6) are the remains of undefended rural settlements or farmsteads. The fifth site, Camaross, was a moated site, whereby the settlement was defended by earthworks and a water-filled moat. Gortnahown 2, Mondaniel 3 and Landscape 2 each had two buildings. Those at Gortnahown 2

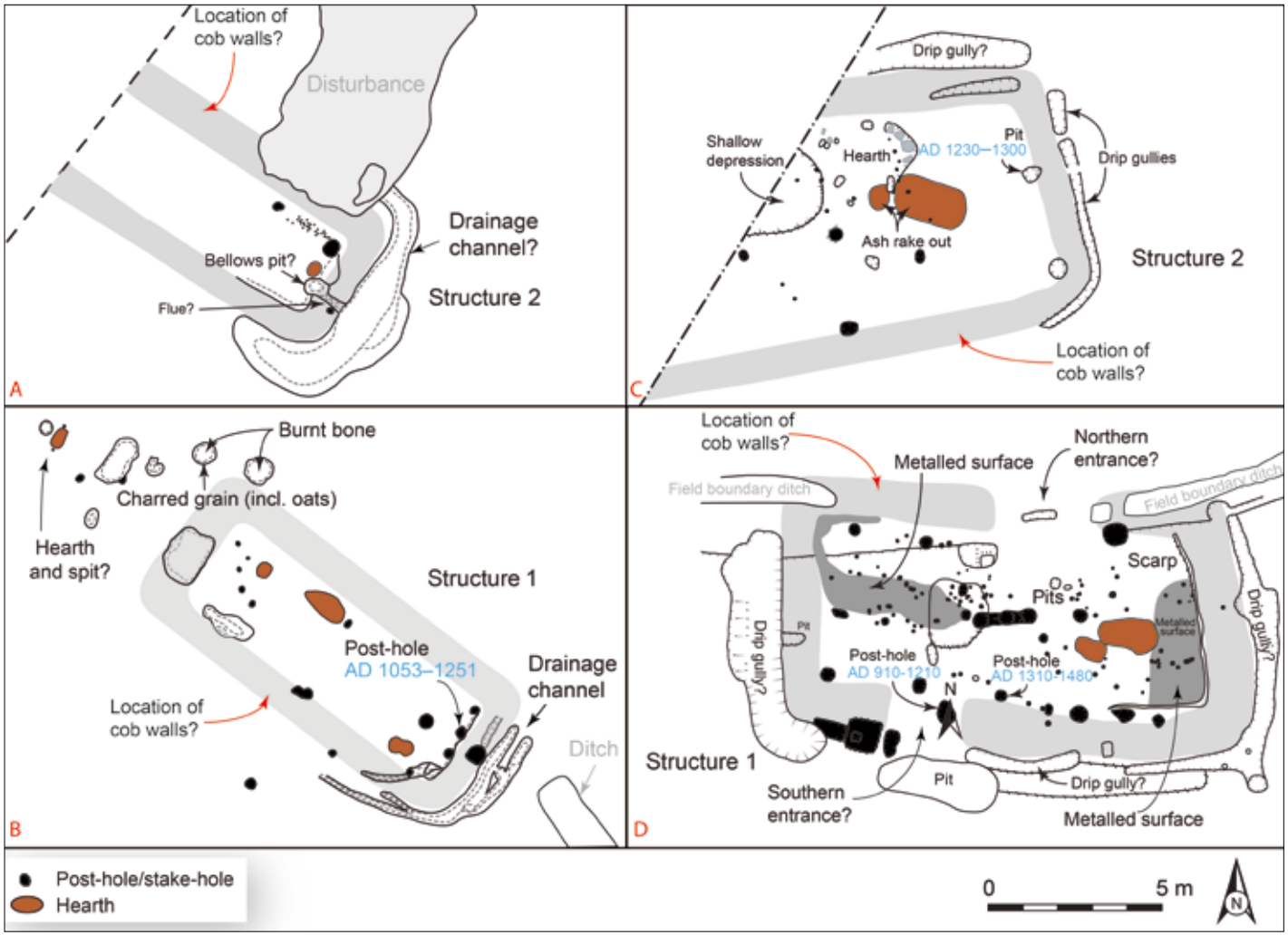
were located 25 m apart and were orientated in the same NW–SE direction. Similarly, the buildings at Mondaniel 3 were located 26 m apart and were orientated in the same east–west direction. No evidence of an enclosing element or associated field system was recorded at either Gortnahown 2 or Mondaniel 3. The structures at Landscape 2 were located 10 m apart and at right angles to one another, within a field system that extended over an area of c. 2000 $m^2$ (Eogan & Kelly 2016, 221). Structure 1 was orientated east–west and Structure 2 was orientated north–south. The structure at Moneycross Upper 6 was located on the east side of a field system that measured c. 2,500 $m^2$ (ibid.). The structure at Camaross was located in the interior of a moated site.

## Building forms

It is not possible to fully compare the size of the structures, as not all of the houses were fully excavated. The structures at Mondaniel 3 (Structure 2) and Camaross were located partially outside the roadtake. The north-west ends of the two houses at Gortnahown 2 were truncated, as was the interior of the house at Moneycross Upper 6. Structure 1 at Mondaniel 3, the two structures at Landscape 2 and the two at Moneycross Upper 6 were all similar in size, being on average 14 m in length by 6 m in width. Where evidence of entrances has survived, for example at Moneycross Upper 6, they are in the long axis of the buildings. Evidence of an internal hearth was recorded at seven of the sites, with Landscape 2 (Structure 2) being the exception. None of the hearths was centrally located and one example at Mondaniel 3 (Structure 2) was located at the gable end.

The perimeter or exterior of each of the buildings was defined by a drain, which varied in width and completeness at each of the eight sites. These were variously interpreted by the excavators as trench footings, drains or gullies, but it has since been suggested (Eogan & Kelly 2016, 225-6) that in the examples at Landscape 2, Moneycross Upper 6 and Camaross were drains for surface water and drip from the eaves. The drains that surrounded the perimeter of the structures at Gortnahown and Mondaniel probably served the same function. Only the south-east portion of the drain had survived at both of the Gortnahown structures: the drain at Structure 1 was irregular and measured between 0.3 m and 1 m wide by 0.05–0.23 m deep while the drain at Structure 2 was more uniform, measuring 1.65 m wide by 0.23 m deep. The drain at Landscape 2 (Structure 1) was the most uniform: it was on average 0.36 m wide and varied in depth from 0.06 m to 0.33 m. In contrast, the drain at Structure 2 was irregular in plan, measuring up to 2 m in width and 0.5 m deep at the north end. The irregular plan suggests that the trench was re-cut (ibid., 12).

The most interesting common feature of this group of eight buildings is the blank, generally featureless area that is located between the external drain and the internal floor area. These blank areas measured between 0.8 m and 1.2 m in width in all of the structures, with the exception of Camaross, where it measured 2 m. The blank area is interpreted as the location of a cob (clay or earthen) wall. In the early modern period (1700–1900), these walls were very common in both domestic and farm buildings, which were generally single storey with hipped roofs of thatch (Illus 3.5.2). The following description of post-medieval cob or clay walls construction is by the Heritage Unit of Cork County Council (2014, 65): 'Clay or "cob" walls were made by mixing clay and sand with water and straw…Cob walls were built up in layers, with each layer allowed to harden slightly before the next layer was added. In some cases a stone footing was used as a base and a thick lime




*Illus. 3.5.1—Evidence of late medieval cob-built buildings from archaeological excavations undertaken in advance of recent national road schemes in County Cork: (A) Gortnahown 2 (Area 5), Structure 2; (B) Gortnahown 2 (Area 5), Structure 1; (C) Mondaniel 3, Structure 2; (D) Mondaniel 3, Structure 1. (Mondaniel 3 illustrations are a reinterpretation of Quinn 2013, 254, illus. 6.1.3, 256, illus. 6.1.5.)*

*Illus. 3.5.2—A 19th-century example of a cob-built house with stone foundations near Enfield, Co. Meath (Walter Pfeiffer). Where walls are constructed entirely of cob, little physical evidence would survive the passage of centuries.*

render was applied when the wall was dry. It is likely that clay or earthen walls built in the earlier medieval period were constructed in a similar fashion'.

## Material culture

The material culture of the former inhabitants of the two sites in County Cork was poor by comparison with the sites in County Wexford. While a cache of charred cereal, mostly oats, was recovered from a pit outside Gortnahown 2, Structure 1, no diagnostic artefacts were recovered from the site. A single sherd of 13th–14th-century Waterford-type pottery and a broken, decorated rotary quern-stone were recovered from Mondaniel 3 (Quinn 2013, 254–5). Some burnt bone and cereal grains were also recovered. A large assemblage of Leinster Ware sherds was recovered from Landscape 2, Moneycross Upper 6 and Camaross. The range and type of pottery recovered from Camaross was the largest and most varied of all eight sites under review. Evidence of stored cereal caches of oats and bread wheat was also recovered from the Camaross house.

## Dating

Radiocarbon dates were obtained from all of the structures with the exception of Moneycross Upper 6 and Gortnahown (Structure 2). The radiocarbon dates place the structures firmly in the late medieval period, AD 1169–1534. Sherds of Leinster cooking ware from the fills of the perimeter

drain at Moneycross Upper 6 (Eogan & Kelly 2016, 222–3) also indicate that this house dated to the late medieval period. The dates from Mondaniel 3 are similar in range to the four dates obtained from the three County Wexford sites. The single date from Gortnahown 2, though the earliest of the dates, is broadly contemporary with the other late medieval sites.

## Conclusion

Clearly defined houses from the later medieval period are under-represented in the Irish archaeological record: of the 143 archaeological sites excavated on national road schemes in County Cork over the last 15 years, for example, just 16 of these were of late medieval date, and only four sites contained buildings/houses (comprising seven buildings in total). Evidence of four house types was recorded from the four sites. Rectangular earthen-walled houses (cob houses) were excavated at Gortnahown 2 and Mondaniel 3, both undefended settlements. Although there is not enough evidence to indicate whether these buildings are Anglo-Norman manorial settlements they do, however, represent clearly defined house types from the later medieval period. A further two buildings were excavated in the interior of a moated site at Ballinvinny South (Cotter 2013c), each representing a different house type. One of the buildings, Structure A (ibid.), was constructed of wood with a stone-built chimney located at the gable end. Structure B (ibid.), possibly a timber-framed building set on stone foundations (similar in form to a house excavated within a moated settlement at Boyerstown, Co. Meath (Martin 2009)), represents a third house type. Both buildings measured 11 m in length by 4 m in width and they were set in a T-shaped configuration. The radiocarbon dates from the site were inconclusive, but pottery recovered from the site was late 13th to early 14th century in date. Ballinvinny South was interpreted as having been built by existing settlers, perhaps native Irish, within an implanted Anglo-Norman society (ibid., 264). A fourth house type was excavated at Caherdrinny 3 (Structure 4; Illus. 2.12.11), an undefended settlement. This, albeit much later (AD 1450–1631), building was constructed of wood, with a slightly off-centre hearth.

The current evidence suggests that later medieval houses, located within moated sites and undefended rural settlements, were rectangular in plan, often built in pairs, and comprised a mixture of earth walls, wooden walls, stone walls and/or wooden walls resting on a stone foundation. The form and scale of buildings is usually dictated by cultural norms but the fabric can be a response to local conditions, including the availability of building materials. In any event, four of the seven late medieval buildings (i.e. almost 60%) excavated on national road schemes in County Cork over the past 15 years appear to have been cob houses. This suggests, albeit on the basis of a small sample, that these difficult-to-detect house types may represent the settlements of the majority of the population in County Cork during that period. Future excavations will, no doubt, shed light on this emerging picture. Recent research by Markley (2017a; 2017b) highlighting the high prevalence of earth-mortared stone buildings in regional field studies undertaken in counties Leitrim, Roscommon and Sligo, and, particularly, the possibility of the locations of such buildings being discernible from the identification and distribution of earth mortar pits within excavated sites, as suggested at Caherdrinny 3 (Illus. 2.12.6), will add further to our understanding of later medieval settlement patterns in Ireland.

## 3.6 Plant remains

*Penny Johnston*

This chapter examines the plant remains evidence from the main phases of archaeological activity discovered along the route of the M8 Fermoy–Mitchelstown motorway. The earliest archaeobotanical remains were from Late Mesolithic deposits. Charred plant material was found through the main periods of prehistory and from sites dating to medieval and post-medieval times (Table 3.6.1). These results are compared to other assemblages from the contemporary periods. The chapter then goes on to examine the changes that occur in the archaeobotanical record over time, particularly focusing on the changes in cereal composition.

*Table 3.6.1—Chronological table of identified plant remains from excavations on the route of the M8 Fermoy–Mitchelstown motorway. (Note: these results are simplified. More detailed identifications are available in individual site excavation reports, see Table A)*

| | Late Meso. | Early Neo. | Late Neo. | EBA | MBA | LBA/ IA | Early med. | Later med. | Post-med. |
|---|---|---|---|---|---|---|---|---|---|
| Oats | — | 2 | — | 5 | 1 | — | 818 | 23 | — |
| Barley | — | 0 | 8 | 105 | 11775 | 28 | 213 | 0 | 29 |
| Wheat | — | 11 | 0 | 3 | 3176 | 3 | 184 | 1 | 36 |
| Rye | — | — | — | — | — | — | 25 | — | 7 |
| *Cerealia* sp. | — | 44 | 2 | 67 | 1949 | 11 | 732 | 6 | 27 |
| Weeds | 9 | 2 | — | 50 | 59 | 3 | 349 | 4 | 38 |
| Hazelnut shell fragments | 912 | 554 | — | 122 | 46 | 4 | 134 | — | — |
| Fruit stones (sloe, cherry, haw) | —— | 3 | — | — | — | — | 2 | —— | 1 |
| Legumes | 16 | 1 | — | — | — | — | 10 | — | — |
| Flax | — | — | — | — | 194 | — | — | — | — |

*Key: Late Meso.= Late Mesolithic; Early/Late Neo.= Early/Late Neolithic; EBA=Early Bronze Age; MBA=Middle Bronze Age; LBA/IA=Late Bronze Age/Iron Age; Early/Later/Post-med.= early/later/post-medieval*

### A survey of the archaeobotanical remains

#### Late Mesolithic deposits

The discovery of Late Mesolithic plant material from pits near the River Funshion at Gortore 1b was a fortunate discovery, as this type of material is generally only found in very favourable

circumstances (Behre 2008, 65). These charred remains included seeds from small legume plants and from the knotgrass/dock family, tubers, berries and many fragments of charred hazelnut shell. It is likely that these were the charred remains of plants that had been gathered for food. In general, the preservation was quite poor and, unfortunately, this meant that identification of this early material was sometimes difficult and indeterminate. This is a common problem when examining European Mesolithic archaeobotanical material (Perry 2002, 110).

The Late Mesolithic plant material at Gortore 1b was preserved because it was exposed to fire, as charring converts organic material into inert carbon. Although this meant that the seeds and tubers could not be eaten in prehistory, it also meant that they were preserved in the archaeological record. These foodstuffs may have been burnt during the course of everyday cooking, but it is also possible that they were being roasted to remove toxins and render the items more palatable. There is some evidence from Mesolithic sites elsewhere to suggest that even hazelnuts were roasted in pits to improve their flavour—this was the interpretation given to Mesolithic pits that contained large quantities of hazelnut shell fragments at Staosnaig, in Scotland (Mithen et al. 2001, 228–9).

Although charred plant material from this period is relatively rare in Ireland, there are some comparable assemblages. Examples include Clowanstown 1, Co. Meath (ASUD 2009), where wheat, barley, flax, hazelnut, crowberry, sedges, pondweed, vetchs and alder cones were found. The cereal grains were, however, interpreted as later, intrusive remains.

The Gortore 1b plant remains attest to the hunter-gatherer nature of society at that time. Stone tools from the site also suggest that diet was supplemented by fishing and hunting. Food availability would have been seasonal and this required a high degree of mobility by the small communities occupying North Cork during the Mesolithic period (8000–4000 BC).

### Neolithic deposits

Small quantities of Early Neolithic plant remains were recovered from Ballinglanna North 3, Caherdrinny 3 and Ballynacarriga 3. The cereals were mostly emmer wheat. This is a primitive hulled wheat, one of the earliest types of wheat to be domesticated and the main wheat grown by early farmers across Europe (Nesbitt 2005, 52). Emmer is often the most common cereal found at Early Neolithic rectangular house sites—evidence from Early Neolithic houses at Gortore 1, in North Cork (Monk 2013, 360) and Tankardstown South, Co. Limerick (Monk 1988b, 185), and from ongoing research (Whitehouse et al. 2009, 2) into the earliest evidence for Irish agriculture, has suggested that emmer was the dominant wheat crop at that time.

Barley (not identifiable to type) was also found in very small amounts from Ballinglanna North 3 and, unusually, two grains of oats were recovered in Early Neolithic deposits at Caherdrinny 3. Since this crop was not cultivated until much later, it is likely that these grains were from wild oats that were collected as a food source (McClatchie et al. 2009, 3).

Plant remains dating to the Late Neolithic were recovered in small amounts from Ballynacarriga 3. Cereals were all identified as barley, mostly naked barley, although preservation conditions were not good and identification proved difficult. No emmer or any other type of wheat was discovered in Late Neolithic deposits from this project. By comparison, samples from final Neolithic deposits at Knowth and Newgrange, in County Meath, also yielded grains of naked barley, although at these sites emmer was also found (Monk 1986, 32).

## Early and Middle Bronze Age deposits

Plant remains were found in Early Bronze Age features at Ballinglanna North 6, Glenatlucky 1, Ballynamona 1, Kildrum 1 and Ballynacarriga 3. The remains included hazelnut shell fragments and wild plants. Most of the cereal grains from this period were identified as barley and the majority of these were from naked barley. However, in general, the quantities of plant remains from Early Bronze Age deposits were very small.

The only Middle Bronze Age plant remains assemblage was associated with a round-house (Structure 1) excavated at Ballynamona 2. Cereals were found at this site in unusually large numbers and were evidently stored at the house when it was burnt down. The grain was overwhelmingly identified as naked barley. A total of 10,610 grains of naked barley were found, whereas just 19 grains of hulled barley were counted. A smaller quantity of emmer (3,115 grains) was recovered. This was the only type of wheat found and it was mostly recovered from the southern part of the house (granary?), suggesting that this was the area where it was stored (Johnston 2010, 15).

These Early and Middle Bronze Age results, in particular the prevalence of barley, have many parallels. One of the earliest surveys of plant remains assemblages from Ireland (Monk 1986, 32) indicated that barley was the most common cereal type during the Bronze Age. However, the data relied heavily on seed imprints taken from Bronze Age funerary pottery and was, therefore, not necessarily indicative of its economic importance. Despite this, subsequent studies of the actual plant remains from Bronze Age contexts have largely supported Monk's findings. For example, barley was the dominant cereal type at Middle Bronze Age Chancellorsland Site A, Co. Tipperary (McClatchie 2008b, 475), and from Bronze Age sites along the M8 Cashel–Mitchelstown motorway, most of which dated to the Middle Bronze Age (Halwas 2009, 265). Though only small quantities were found, barley was also the dominant crop type recovered from other Middle Bronze Age settlements excavated on recent national road schemes in Cork, namely at Mitchelstown 1 and Ballybrowney Lower 1 (Monk 2013, 363–4). Despite the predominance of barley in most assemblages, wheat is generally still found in Early and Middle Bronze Age deposits, and it was clearly an important element of the cereal economy.

## Later prehistoric deposits

Only a small amount of the plant remains recovered could be dated to the Late Bronze Age and Iron Age. These were from Gortnahown 3, Kilshanny 3 and Ballynacarriga 3 and included small quantities of hazelnut shell fragments and wheat and barley grains. Identifications suggest that hulled barley was the most common type of cereal.

Unfortunately, the quantities of grains recovered from later prehistoric deposits in this project (just 31 identifiable grains in total) mean that it is impossible to establish whether the assemblage is representative of the general plant economy or not. However, it does appear to match the broad picture obtained from other later prehistoric sites, for example Late Bronze Age Curraghatoor, Co. Tipperary (McClatchie 2007, 64), a Late Bronze Age habitation site at Lough Gur, Co. Limerick (Tierney & Hannon 2003, 155), and, from Cork, two Iron Age corn-drying kilns at Rath-healy 1 and an Iron Age settlement at Ballinaspig More 5 (Monk 2013, 366, table 8.1.3). In the latter two sites some oats were also present.

## Early medieval deposits

Early medieval plant remains were found in deposits from Ballinglanna North 1, Ballynacarriga 2, Caherdrinny 3, Gortnahown 2 and Gortore 1b. Oats were the most common grain type found, making up two-thirds of the entire cereal count. Oats are often the most common type of cereal grain recovered from early medieval deposits, including at Lisleagh II, Co. Cork, and Ballyeagan, Co. Kerry (Monk et al. 1998, 69), Illaunloughan, Co. Kerry (Murray et al. 2004, 185), Knowth Site M (Johnston et al. 2008, 139) and some sites at Killeen Castle Demesne (Dillon & Johnston 2009, 101), the latter two in County Meath. Some corn-drying kilns of early medieval date, excavated on other national road schemes in County Cork (Monk 2013, 367–8, table 8.14), indicated, albeit based on small grain assemblages, that—perhaps up to the end of the sixth century AD—barley was the dominant crop over oats, but that by the early seventh century oats had surpassed barley as the dominant crop, in terms of grain counts. A more recent, national study (McCormick et al. 2011, 53) found a similar trend, with barley dominating oats in the earlier period (fourth to seventh centuries) and with oats significantly increasing (albeit, not quite surpassing barley) in the later period (seventh to 10th centuries). Again, this study was based on grain counts.

There is a problem, however, with the way these results are recorded and collated. There is no doubt that oats are numerically dominant in many (post-sixth century) early medieval samples (and in many samples from a later date), being often found in quantities that far exceed those of wheat or rye and that roughly equal (nationally) those of barley. However, oat grains generally weigh less than the other types of cereals (particularly wheat or barley) and take up less volume. For example, in one sample from Ballynacarriga 2, 46 wheat grains weighed 0.4 g (an average of 0.0087 g per grain). In contrast, 38 grains of oat from the same sample weighed just 0.11 g (an average of 0.0029 g per grain). Granted, these grains were poorly preserved and vesicular, and may not be the best quality examples upon which to base this observation, but preservation was poor for both types of grain. The results suggest that each wheat grain was three times as heavy as each oat grain. The food value from a wheat grain is consequently much higher than that from oats. It seems clear, therefore, that oats may be present in greater quantities in terms of seed numbers, but this does not necessarily mean that they were greater in terms of weight and volume. The economic value of the cereals would have been measured in weight and volume rather than in seed number. Counting grains, which is the basis for these statistics, may therefore bias the results and make oats look more significant than wheat and barley, whereas in reality the yield from wheat and barley in terms of weight may originally have been greater than that of oats.

Wheat and barley were recovered in roughly equal amounts (in terms of grain counts) and a tiny percentage of rye was found. The identifiable wheat grains were exclusively identified as naked wheat: this is usually the most common early medieval wheat type. In Irish archaeobotanical deposits naked wheat is usually identified as bread wheat when the required chaff fragments are present. This type of wheat may also have been found in some prehistoric deposits (McClatchie et al. 2009, 3) but it appears that it was from the early medieval period, and particularly into the later medieval period, that this type of wheat began to be cultivated more frequently in Ireland (Dillon & Johnston 2009, 101).

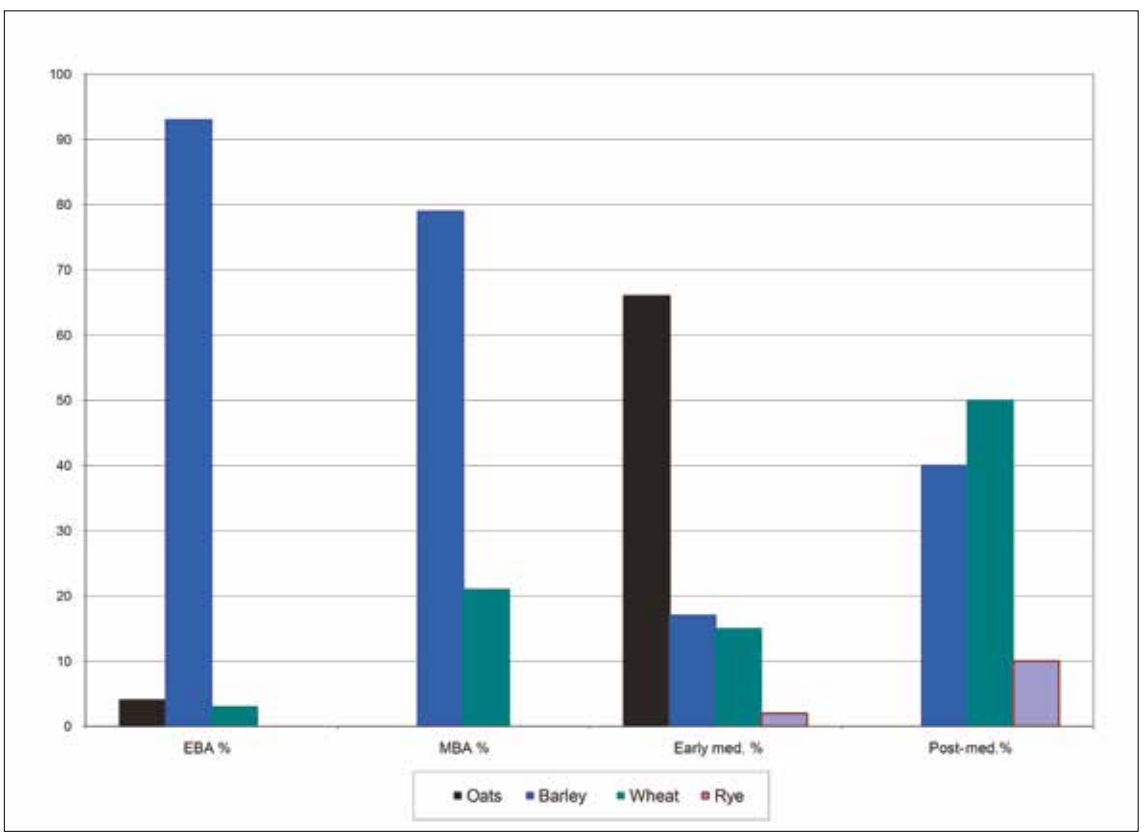
Both hulled and naked barley was recovered from the early medieval samples, but the most common type was hulled barley. There were very few rachis fragments present from barley and it was not possible, therefore, to further identify what type of hulled barley this was. The most

common type in Irish early medieval deposits tends to be six-row hulled barley (Monk 1986, 33) and this was the type that it was possible to identify also in some early medieval sites in south-west Ireland (Monk 1998, 68). However, there are some notable exceptions, for example two-row naked barley was common at the early monastic site at Illaunloughan, Co. Kerry (Murray et al. 2004, 185).

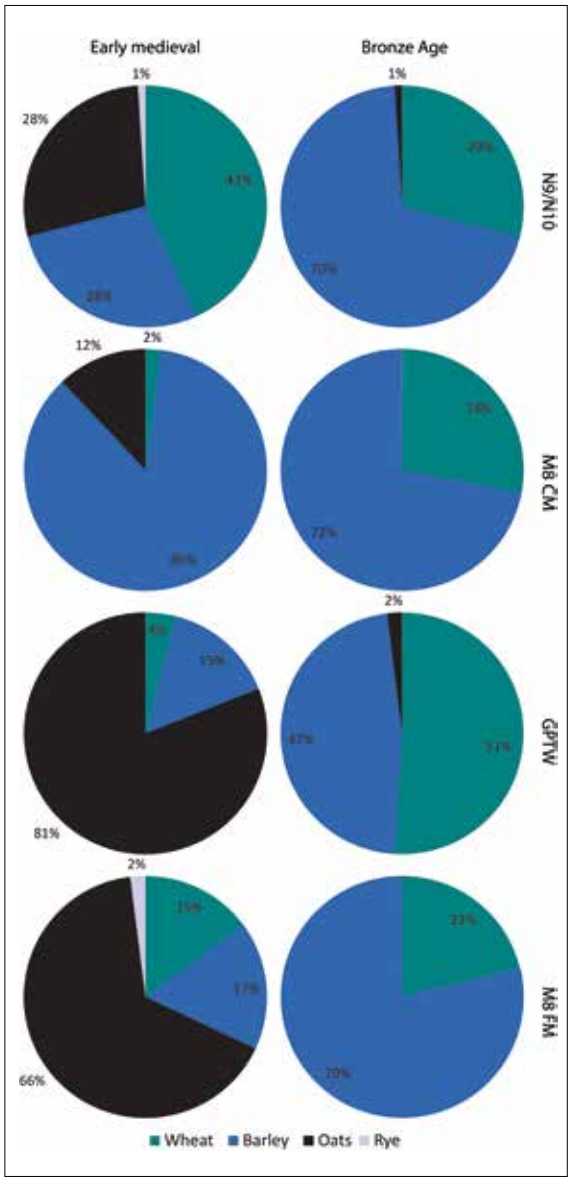
Rye is occasionally found in early medieval deposits but it is generally only recovered in small quantities, often in contexts where it appears to be incidental to the main crop, rather than an important crop in its own right. The small percentage recovered from early medieval deposits in this project reflects this general trend.

## Later medieval and post-medieval deposits

Plant remains from later periods were less common, largely because the significant sites excavated along the route of the M8 Fermoy–Mitchelstown motorway were primarily prehistoric and early medieval in date. Later medieval plant remains were discovered at Garryleagh 1. Most of the cereal grains were identified as oats, with a single grain of wheat. These were the only plant remains from this period from the present project. With regards to environmental evidence from other national road schemes in County Cork, excavation of a corn-drying kiln at Stagpark 2 (Monk 2013, 368, table 8.1.4) and an undefended farmstead at Mondaniel 3 (ibid., 371, table 8.1.6) suggest that during the




*Illus. 3.6.1—Percentage cereal composition from periods with more than 50 identified cereal grains (EBA = Early Bronze Age, MBA = Middle Bronze Age, Early med. = early medieval, Post-med. = post-medieval).*




*Illus. 3.6.2—Comparatve pie charts, showing Bronze Age and early medieval cereal distributions from large infrastructural projects (N9/N10 = N9/N10 Knocktopher–Powerstown road; M8 CM = M8 Cashel–Mitchelstown motorway; GPTW = the Gas Pipeline to the West; and M8 FM = M8 Fermoy–Mitchelstown motorway).*

13th/14th century AD the cultivation of barley and, more notably, wheat had regained some ground in County Cork, in terms of farmer preference, despite the continued dominance of oat cultivation.

The only post-medieval plant remains from excavations on the route of the M8 Fermoy–Mitchelstown motorway were taken from the excavation at Kilshanny 1. They included both hulled and naked barley grains, some rye and wheat (mostly naked wheat).

## Chronological changes in the cereal record

The quantities of grain found were generally quite low. Plant remains were only found in large amounts in deposits dating to the Middle Bronze Age (when over 14,000 grains were counted from the grain-rich site at Ballynamona 2). The only other period represented by plant remains found in significant amounts was the early medieval. Given the low recovery rates from other periods, is it possible to speculate about how preferences in cereal types changed over time? In order to investigate this, percentage cereal composition from periods with more than 50 identifiable cereal grains were plotted (Illus. 3.6.1). The counts of cereal grains from the Early Neolithic, Late Neolithic, Late Bronze Age/Iron Age and late medieval periods were too low to meet this cut-off point. Nevertheless, a general trend over time is visible. The plot of results from the Early and Middle Bronze Ages, early medieval and post-medieval periods suggests that the proportions of barley decreased over time, while proportions of wheat rose. Oats only became significant in the early medieval period and by the post-medieval period had declined again. Rye, although present in early medieval deposits, was only found in significant proportions in the post-medieval period.

It is also possible to compare the results from this project with those obtained from other large infrastructual projects to give a general overview of both chronological and regional (or scheme-

specific) variations in the cereal record. The graph (Illus. 3.6.2) of Bronze Age and early medieval results (the richest periods in terms of plant remains) from this project (M8 FM), the M8 Cashel–Mitchelstown motorway (CM), the Gas Pipeline to the West and the N9/N10 Knocktopher to Powerstown road (N9/N10), indicates a remarkable degree of homogeneity in Bronze Age results (apart, perhaps, from the Gas Pipeline to the West results, where wheat from a Middle Bronze Age pit biased the results, see Johnston 2007, 70–3). The comparisons between results from these large projects suggest that it is possible to identify a 'typical' archaeobotanical assemblage for the Bronze Age.

There are, however, a few points of interest within the broad category of the Bronze Age cereal assemblage. Along the route of the M8 Fermoy–Mitchelstown motorway it was possible to tentatively identify a change in the cereal record between the Early/Middle Bronze Age and the results from later prehistory, since naked barley was most common in the early period and this was replaced by hulled barley later on. Identifying this change could have important implications for how we understand the later prehistoric cereal economy. There are several advantages and disadvantages to the cultivation of both hulled and naked cereals. The most obvious advantage of naked cereals is the fact that processing is much less labour intensive than for hulled cereals. On the other hand, naked grains are generally more susceptible to parasitic diseases and insect attack (Buxó i Capdevila et al. 1997, 21), whereas hulled grains can be stored in their chaff and may therefore be better protected from degradation during storage (Cappers & Raemaekers 2008, 389–90). The change from naked to hulled barley may therefore be a pragmatic response to a wish to increase the long-term storage value of the barley harvest. A similar change from naked to hulled barley has been noted in material from the Iberian Peninsula, although it occurred at an earlier period (probably during the Chalcolithic rather than during the Middle or Late Bronze Age). The reason for the change is unknown, but it was possibly associated with changes in farming practices and the intensification of production (Buxó i Capdevila et al. 1997, 21). The change may also be associated with the construction of hillforts (from c. 1000 BC) and, evidently, the emergence of a more hierarchical/stratified society, with the inevitable relationships between a powerful elite and the control and hoarding of surplus.

It is not, however, until the early medieval period that real diversity in plant remains assemblages from different regions is identified (Illus. 3.6.2). There are several likely explanations for this. Perhaps the simplest is that, from the beginning of the medieval period onwards, archaeobotanical assemblages from Irish sites tend to become richer, and greater amounts of grain are available for analysis from the historic period, in contrast to the prehistoric period. This is a generalisation, and there are always sites that are exceptions. The Middle Bronze Age cereal assemblage from Ballynamona 2 is obviously one of these. The better recovery from medieval deposits is particularly helped by the increasing use of corn-drying kilns and, as a consequence, the greater likelihood of burnt cereal grains occurring in the archaeological record. The fact that larger samples are available allows archaeobotanists to pick up more variety and subtle differences in assemblages from different regions. In addition, it appears that there was a greater variety of cereals to cultivate from the medieval period onwards, as 'new' varieties such as oats and rye began to be cultivated.

Although small amounts of oats are found in prehistoric deposits, it is likely that these were wild oats, perhaps weeds of cultivated fields. It is likely that these were widely tolerated 'weeds'

that could be used as a food plant in their own right. The cultivated oat is considered a secondary crop, i.e. it started as a weed that infested cultivated fields but later became so successful it evolved into a plant that could dominate the entire field and was taken into cultivation in its own right (Vavilov & Dorofeev 1992, 152). This appears to have taken place in Ireland some time in late prehistory, and by the early medieval period oats are often the most common grains recovered in archaeobotanical samples—certainly, in the case of the evidence from national road schemes in County Cork, particularly from the seventh century AD (Monk 2013, 368), and in the case of other assemblages from Munster (McCormick et al. 2011, 54, fig. 2.8). It is a crop that is particularly suitable for growing in the damp Irish climate, and it survives better on more marginal ground than wheat or barley.

Rye has also been identified in prehistoric Irish deposits, with grain from Carrowmore, Co. Sligo, being dated to the Iron Age (Monk 1986, 32). The crop appears, however, to be less common in prehistoric deposits than oats, and it generally only occurs in samples that date from the early medieval period or later. Where it does occur, it is often in small proportions relative to other cereal types, as occurs in the deposits from this project. This is surprising, as early historic texts suggest that rye was an important grain crop (Kelly 1997, 221). It is possible that rye was deliberately cultivated as a maslin crop (a mix of more than one crop), in particular since it is good for producing bread, particularly when mixed with wheaten flour (Sexton 1998, 70). There may also be seasonal factors that bias the preservation of charred grain, since most cereals appear to have been spring sown, while rye appears to have been primarily winter sown in the past (Moffet 2009, 48). Alternatively, and perhaps more likely, it is possible that rye was simply not as widely used in Ireland as the historic sources lead us to believe. But despite the fact that rye is generally only found in small amounts in our crop samples, it adds some diversity nevertheless to the cereal economy from the medieval period onwards.

It seems, therefore, that both the larger size of medieval plant remains assemblages and the greater variety of available grain types have a part to play in our emerging ability to distinguish regional variations in the Irish cereal record. Unfortunately, identifying regional variations in the prehistoric cereal record remains an elusive goal.

## 3.7 Animal bones from early medieval Ballynacarriga 2

*Margaret McCarthy*

The past 15 years have seen considerable advances in our knowledge of the pastoral economy of early medieval Ireland, although, even with new excavated bone assemblages, the database for early medieval Munster remains quite limited. At Ballynacarriga 2 a relatively large assemblage of animal bones relating to the economy of this partly enclosed settlement was recovered. The faunal sample represents one of the largest collections of bones from an early medieval settlement site in Munster and it presents an important opportunity to examine the meat diet and the agricultural economy of its occupants. The results of the faunal analysis can be usefully compared with excavated assemblages from contemporary ringforts.

## Animal husbandry at Ballynacarriga 2

The archaeozoological evidence from the site is typical for ringfort assemblages and suggests quite a narrow range of species, with an emphasis on rearing domestic livestock. The most obvious feature of the economy at Ballynacarriga 2 is that cattle is the dominant species, accounting for well over half of the identified fauna from the site, both in terms of the total number of identified specimens and the minimum number of individuals present. Sheep played a supporting role in the pastoral economy and would seem to have been just as important for their wool and milk as their meat. Pigs provided a very small proportion of the meat that was eaten and these animals were probably kept in small numbers within the enclosure, as useful domestic scavengers. Sample sizes were generally insufficient for detailed ageing analysis but the combined evidence suggests cattle were kept well into maturity, consistent with the rearing of these animals to adulthood for their meat, milk and hides. As draught animals, cattle would also have been an essential part of cereal production during the ploughing season. In common with other early medieval assemblages, there was no evidence for goat. For horses, the overall impression is that they were kept at the site in minimal numbers to be worked as pack animals and ridden, as the documentary evidence indicates that their use as draught animals was a later, post-medieval development (Kelly 1997, 8). There was very little evidence that horses provided meat at the site—crude chop marks were present on two limb bones, suggesting some butchery. Neither were wild animals essential to the community as a food source, with the only identified species being red deer and hare. Red deer was represented entirely by antler fragments, although the recovery of unshed rosettes indicates that they were hunted occasionally, with the venison being eaten and the antlers used as a raw material for craft-working.

## Ballynacarriga 2 in context

When reviewing the evidence for pastoral farming in the early medieval period, particularly in Munster, the information found in many excavation reports is not of sufficient detail to allow for a meaningful evaluation of the relationship between man and animals at this time (McCarthy 1998, table 1). Also, many excavated early medieval sites have yielded little or no diagnostic animal bone. Information concerning animal bones from the early medieval period was, nonetheless, greatly enhanced by the publication (McCormick & Murray 2007) of a detailed report on the assemblage from Knowth, in County Meath, which includes a gazetteer of all excavated early medieval faunal assemblages from Ireland. The largest and most informative faunal samples have been found at Knowth and Moynagh Lough, Co. Meath, Deer Park Farms, Co. Antrim, Marshes Upper, Co. Louth, Rathgurreen, Co. Galway, and Illaunloughan, Co. Kerry (ibid.). While the most comprehensive faunal analysis still comes from sites in the northern and eastern regions of the country, recent excavations along the route of the M8 and by University College Cork in Lough Gur have produced some significant faunal assemblages. Foremost among these are the collections from the partly enclosed settlement at Ballynacarriga 2 (Chapter 2.7) and the ringfort at Ballynagallagh, near Lough Gur, Co. Limerick (McCarthy 2006). The assemblages all have certain features in common with Ballynacarriga 2, with cattle tending to be the dominant species at most sites and variations in the proportions of sheep and pig generally being attributed to local environmental factors. Excavated assemblages from sites along the west coast, for instance at Dún Eoghanachta on the Aran

Islands (McCormick & Murray 2007), Owenbristy in Co. Galway (McCarthy 2011a) and Ballyegan in Co. Kerry (McCarthy 1991), show higher incidences of sheep, where the lighter soils are more favourable to keeping these animals. Increased proportions of sheep bones relative to cattle have been reported (McCormick & Murray 2007) in the later phases of the early medieval period at two sites in County Meath, Knowth and Moynagh Lough, and this has been linked by the authors to a change in currency away from live cattle to silver, grain and slaves. This may have begun in the early years of Scandinavian interaction with Ireland, i.e. before they became a major political force in Ireland, during the ninth and 10th centuries. An increased demand for wool at this time also seems to have resulted in farming methods adapting to meet the requirements of a new group of settlers engaged in international trade. The smaller assemblages of bone from Munster (Table 3.7.1) and the lack of close phasing do not allow for such clear shifts in farming practices to be documented, but the indications are that cattle continue to be the mainstay of the pastoral economy in the region up to the 10th century. The frequency of cattle bones is considerably higher at Ballynacarriga 2 in North Cork (McCarthy 2011b) and Ballynagallagh in County Limerick (McCarthy 2006) than it is for other regions and, while the collection from Sluggary ringfort in County Limerick (McCarthy 2000) is admittedly limited in size, the high values for cattle also approach those at Ballynacarriga 2 and Ballynagallagh.

*Table 3.7.1—Animal bones from early medieval sites in Munster (*Sheep/goat; **NISP–Numbers of identified specimens)*

| Site | Cattle | S/G* | Pig | Horse | Dog | Cat | Deer | Hare |
|---|---|---|---|---|---|---|---|---|
| | NISP** | | | | | | | |
| Ballyegan | 272 | 275 | 60 | 9 | 8 | — | 1 | — |
| Croom 1 | 32 | 13 | 5 | 2 | 45 | — | — | — |
| Lisnagun | 2 | 5 | 2 | — | — | — | — | — |
| Raheens 1 | 20 | 1 | — | — | — | — | — | — |
| Raheens 2 | 11 | 14 | — | — | — | — | — | — |
| Sluggary | 264 | 74 | 113 | 3 | 6 | — | 1 | — |
| Ballynagallagh | 406 | 129 | 71 | 1 | 8 | 1 | — | — |
| Carrigrohane | 7 | 2 | 1 | 11 | 12 | — | — | — |
| Ballynacarriga AR12 | 26 | 2 | 5 | 1 | 1 | — | — | — |
| Ballynacarriga 2 | 284 | 122 | 88 | 5 | — | — | 15 | 6 |

Analysis of the archaeozoological evidence for cattle and sheep for much of the early medieval period suggests that raising these animals specifically for meat was not the major focus of animal husbandry. We know from contemporary law tracts that dairying played a significant role in the lives of early medieval secular communities and, prior to the Scandinavian invasion, an individual's wealth was measured in terms of the size of the live herd (Kelly 1997). Most cattle at Ballynacarriga

2 were kept until they were mature or quite old, representing mainly cows, with a few bulls kept for breeding and oxen to provide traction for agricultural purposes. The mature sheep were probably ewes kept for breeding and both wethers and ewes would have been reared for wool. In contrast, the pattern of mortality for cattle at Ballynagallagh ringfort, near Lough Gur (where occupation was dated to the seventh and eighth centuries) indicates that cattle were managed for meat production, primarily, with just a sufficient number of cows being kept to provide milk (McCarthy 2006). The occupants of Ballynagallagh may have engaged in the raising and slaughter of younger stock for redistribution, perhaps, to other farming communities in the region, or perhaps, as an estate farm, supplying meat to a local lord/king.

The faunal material from Ballynacarriga 2, when seen in its wider regional and chronological context, provides an important body of data to further the understanding of animal exploitation in the early medieval period. The analysis of the animal bones has tended to confirm and enlarge upon the evidence from contemporary early medieval sites and suggests that landscape and environment had a significant influence on the nature of animal husbandry. On the abundance of the three main livestock species, Ballynacarriga 2 relates well to other early medieval sites in Munster, where the proportion of cattle is significant, representing dairying as well as, perhaps, herd-size prestige in the community. Since there was sieving control over bone recovery at both Ballynacarriga 2 and Ballynagallagh the results have to be seen as an accurate reflection of the pastoral economy in this region of North Munster. An agricultural economy, focusing on cattle rearing and arable farming, would have required woodland clearance to create pastureland and fields for cultivation. This may have led to the keeping of fewer pigs, as reflected in the data from Ballynacarriga 2 and Ballynagallagh.

The ratio of cattle and sheep bones seems to be more dependent on region and local environmental conditions than anything else during the earlier phases of the early medieval period and it is only from the ninth century onwards that we see the farming system adapting to changing political and social circumstances. In the west of Ireland, communities may always have had to adjust their dietary and economic requirements to the constraints of the natural environment. There is no doubt that cattle and sheep were essential components of the local rural economy at all of the sites discussed, but the very high proportions of cattle at Ballynacarriga 2 and Ballynagallagh indicate that there was a cultural preference for cattle over sheep in North Munster, a preference that could only be sustained by wealthier farmers in control of large areas of pastureland, in environmentally suitable areas. The low-lying, heavy soils of the River Funshion valley would have provided good quality grass and both the river and the nearby Glencorra Stream would have supplied plentiful water, which is essential for successful cattle rearing.

This section does not attempt to offer the definitive statement on animal husbandry in the North Munster region during the early medieval period and other interpretations of the data from Ballynacarriga 2 are possible. The dataset for Munster is still not sufficiently large to reveal the chronological changes in pastoral economy, as observed in the east at Knowth and Moynagh Lough (McCormick & Murray 2007), for instance. A fuller understanding of chronological and regional trends will become apparent as more sites from contemporary settlements in Munster are excavated and larger samples of animal bones are recovered.

## 3.8 Cremated human remains

*Linda G Lynch and Ian Magee*

Burial evidence from the M8 Fermoy–Mitchelstown motorway was found at Ballynacarriga 3, Ballynamona 2, Caherdrinny 2, Glenatlucky 1, Gortnahown 1 and Gortore 1b (Tables 3.8.1–2). All the human remains were cremated. Three of the sites, Ballynacarriga 3, Glenatlucky 1 and Ballynamona 2, were dated to the Early Bronze and one, Caherdrinny 2, to the Middle Bronze Age. No radiocarbon date was obtained for the burial at Gortnahown 1 but, as it was recovered from the slot-trench of an apparent round-house, it probably dates to the Bronze Age. No date was obtained for the burial at Gortore 1b and activity dating to the Mesolithic and Neolithic was recorded to the north of the burial.

The Bronze Age burial record from Ireland is quite large and it is also diverse, with a huge variety recognised in both grave form and content, in particular in the Early Bronze Age (Waddell 1998, 140). The burial record from this project—albeit comprising cremations exclusively—reflects an aspect of that diversity, with some burials accompanied by elaborate pottery vessels and some unaccompanied, some graves containing almost complete skeletal remains while others contain only a token deposit of the cremated body, and some graves containing single individuals while others contained the remains of more than one individual. In addition to this, two of the burials at Ballynacarriga 3 were located within a ring-ditch, and another, smaller ring-ditch, with no associated burials, was found immediately nearby. While it is difficult to infer the symbolic importance of each grave, these burials are, nevertheless, the result of deliberate social activity and they reflect, however incompletely, the nature of their society (Cooney & Grogan 1994, 111).

*Table 3.8.1—Minimum number of individuals (MNI); Sex, age and weight, from cremation burials excavated on the route of the M8 Fermoy–Mitchelstown motorway*

| Site | Period | Context | First individual | | Second individual | | Combined weight (g) |
|---|---|---|---|---|---|---|---|
| | | | Sex | Age | Sex | Age | |
| Ballynacarriga 3 | EBA | Pit (2097) in ring-ditch | F | 20–25 yrs | ? | foetus | 1539.9 |
| Ballynacarriga 3 | EBA | Pit (2130) in ring-ditch | ? | 4–7 yrs | ? | 0–1 yrs | 57.1 |
| Ballynacarriga 3 | EBA | Pit (2158) outside ring-ditch | F | Older adult | ? | 8–12 yrs | 1087.1 |
| Ballynacarriga 3 | EBA? | Cist (2165) outside ring-ditch | ? | Adult | — | | 138.7 |
| Ballynacarriga 3 | EBA? | Cist (2189) outside ring-ditch | F | 20–25 yrs | — | | 288.3 |

*Table 3.8.1—Minimum number of individuals (MNI); Sex, age and weight, from cremation burials excavated on the route of the M8 Fermoy–Mitchelstown Motorway cont'd*

| Site | Period | Context | First individual | | Second individual | | Combined weight (g) |
|---|---|---|---|---|---|---|---|
| | | | Sex | Age | Sex | Age | |
| Ballynacarriga 3 | Chal. | Cist (2194) outside ring-ditch | ? | 4–7 yrs | ? | 0–1 yrs | 153.9 |
| Glenatlucky 1 | ? | Pit | F? | Young adult | — | | 695.6 |
| Gortnahown 1 | BA? | Foundation trench of round-house | ? | Juvenile | — | | 14.0 |
| Gortore 1b | ? | Pit | ? | Young adult | — | | 45.1 |
| Caherdrinny 2 | MBA | Layer between post and pit | ? | Adult | — | | 72.0 |
| Ballynamona 2 | EBA? | Pit (106) | ? | 3–7 yrs | — | | 19.0 |
| Ballynamona 2 | EBA | Pit (108) | ? | 6–12 yrs | — | | 612.0 |

*Key: EBA=Early Bronze Age, EBA?=possibly Early Bronze Age, Chal.=Chalcolithic, ?=unknown, BA?=possibly Bronze Age, MBA=Middle Bronze Age*

## Regional context

The region encompassing North Cork and the adjacent areas of South-East Limerick and South-West Tipperary contains extensive evidence for Bronze Age funerary activity. Although there is some clustering of the evidence (such as in the Emly area of West Tipperary or around Cush, Co. Limerick), the current pattern suggests these are burial places of discrete dispersed communities or families. The burial remains from the M8 Fermoy–Mitchelstown motorway tend to conform to this pattern, although those at Ballynacarriga 3 could be considered part of a cluster of Bronze Age burials that is found along the River Funshion (Power et al. 2000, 195). These sites add to a burial record in North Cork that is already extensive, the Archaeological Inventory for North Cork (ibid., 195–202) lists 41 Bronze Age burials in the area.

## Ring-ditches

The two ring-ditches (Illus. 2.8.4) excavated at Ballynacarriga 3 fit into Newman's (1997, 157) definition of a ring-ditch, as they are both enclosures defined by a penannular ditch with no evidence for a mound or a bank. Doody's (2008, 618) survey demonstrated that barrows, tumuli, ring barrows and ring-ditches were very common in the Limerick/Tipperary plains, but not so prevalent in the archaeological record of the Blackwater Valley (including tributaries such as the River Funshion, located 235 m from the ring-ditches at Ballynacarriga 3). Nevertheless, these are relatively common monuments in North Cork, since the Archaeological Inventory (Power

et al. 2000, 184–94) for the area lists 103 examples. The two ring-ditches at Ballynacarriga 3 are also comparable to another ring-ditch excavated along the route of the M8 Rathcormac–Fermoy motorway in North Cork, at Ballybrowney Lower 3 (Reilly 2006a; 2013b). The radiocarbon date from Ballybrowney indicates an Iron Age phase of use. While this is significantly later than the Early Bronze Age dates obtained from the primary phase of use at both ring-ditches in Ballynacarriga 3, an Iron Age radiocarbon date was obtained from a pit in Ring-ditch 1 at Ballynacarriga 3. Although Newman's (1997, 160, 168) survey of ring-ditches in the 1990s suggested that most of these monuments dated to the Bronze Age, more recent studies (McGarry 2009; Corlett & Potterton 2012) have confirmed that these monument types were also used in the Iron Age (cf. Reilly 2013b)—the results from Ballynacarriga 3 suggest that activity at Ring-ditch 1 may also have extended into the Iron Age.

The external diameters of Ring-ditches 1 and 2 at Ballynacarriga 3 were 10 m and 5 m, respectively. Ring-ditch 1 is almost as large as recently excavated examples found along the route of the Gas Pipeline to the West (Grogan et al. 2007, 125), where diameters were in the range 11–14 m, and those from the M8 Cashel–Mitchelstown motorway (McQuade et al. 2009, 126–8), where two adjacent ring-ditches were 12.5 m and 17.15 m in diameter. Ring-ditch 2 is also similar in size to an example 11 m in diameter at Ballyveelish 3, Co. Tipperary (Doody 1987, 10–21). However, most ring-ditches are, apparently, much smaller and the usual size category is c. 6 m in diameter, or smaller (following Newman 1997, 157). At 5 m in external diameter, it is the smaller Ring-ditch 2 at Ballynacarriga 3 that fits into the most common size range known for these monuments.

## Osteological analysis—what the bones tell us

At Ballynacarriga 3, four adults (three women or probable women and one of indeterminate sex), three individual juveniles and the remains of one foetus were found. The remains of a single individual were recovered from each of the remaining sites: these comprised two juveniles (Gortnahown 1 and Ballynamona 2) and two young adults (Gortore 1b and Glenatlucky 1). In general, it was not possible to determine the sex of these individuals, although it is possible that the remains from Glenatlucky 1 represented a female.

The burial evidence from the Bronze Age is notoriously diverse and complex (Cooney & Grogan 1994, 105; Waddell 1998, 140) and the fact that osteoarchaeological analysis is now routine has the potential to increase that diversity and complexity, as more and more detailed information is recorded from each excavated grave. Osteological analysis of the cremated remains from this project has allowed us to identify an *in utero* burial, the practice of double burials, as well as the insertion of single bones from entirely separate individuals into some graves.

### Burial of a young woman and her unborn child

A burial, comprising the remains of a young adult female and midterm, *in utero* foetus, was recovered from a pit in the centre of Ring-ditch 1 at Ballynacarriga 3 (Illus. 2.8.4). The burial also included a fragment from an adult left clavicle, entirely fused and not belonging to the young adult female. This bone fragment does not appear to belong to any of the other adults excavated from the site. The burial was associated with Early Bronze Age pottery: an encrusted urn (in which the cremated bone was reposed) and a food vessel. A sample of bone from the adult female was, however, radiocarbon

*Table 3.8.2—Skeletal group representation*

| **Site** | **BnC 3 (Pit 2097)** | | **BnC 3 (Pit 2130)** | | **BnC 3 (Pit 2158)** | | **BnC 3 (Cist 2165)** | **BnC 3 (Cist 2189)** | | **BnC 3 (Cist 2194)** | **GnH 1 (Trench 27)** | **Gortore 1b (Pit 611)** | **GL (Pit 8)** | **ChD 2 (Deposit 101)** | **BnM 2 (Pit 106)** | **BnM 2 (Pit 108)** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burial ref. | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No.10 | No.11 | No.12 | No.13 | No.14 | No.15 | No.16 |
| Age | Adult | Foetus | 3–7yrs | Perinatal | Adult | Juvenile | Adult | Adult | 3–7yrs | Perinatal | Juvenile | Adult | Adult | Adult | Juvenile | Juvenile |
| Skull | | | | | | | | | | | | | | | | |
| Dentition | | | | | | | | | | | | | | | | |
| Long bones | | | | | | | | | | | | | | | | |
| Hands and/or feet | | | | | | | | | | | | | | | | |
| Ribs | | | | | | | | | | | | | | | | |
| Vertebrae | | | | | | | | | | | | | | | | |
| Os coxae and/or scapulae | | | | | | | | | | | | | | | | |

*Key: BnC=Ballynacarriga, GnH=Gortnahown, GL=Glenatlucky, ChD=Caherdrinny, BnM=Ballynamona; a coloured cell indicates the presence of human remains*

dated to 2344–2060 BC (UBA-14778), a date range that is earlier than the accepted date range of c. 2020–1900 BC for the encrusted urn the bone was found in (Chapter 3.9). The foetal remains were very fragile. It is unlikely that they were directly exposed to the fire. Instead, it seems that the foetus was sufficiently protected inside the womb to facilitate the survival of the extant skeletal fragments. Remarkably, only one other *in utero* burial is recorded from western European prehistory, known as 'the rich Athenian lady' (Liston & Papadopoulos 2004).

## Double burials

At Ballynacarriga 3, there were six graves with human remains and, of these, four contained multiple burials. These included two graves that contained two juveniles and one grave that contained an adult and a juvenile. While not rare, the incidence of double burials in the Bronze Age is not as common as single burials. A study (Mount 1997, 157) of 225 Early Bronze Age burial sites from south-east Ireland found that multiple burials occurred in 11% of graves, where data were available, with 7.7% being double burials. In contrast, Doody's (1987, 17) survey of Bronze Age burials in Munster suggested that a much higher percentage were multiple burials, c. 31.5% of cremations and

40% of inhumations. More recently, in a survey of 45 burials from examples with well-recorded data, 36% of Early Bronze Age burials contained the remains of more than one individual (Grogan et al. 2007, 123). At Ballynacarriga 3 c. 66% of the graves contained multiple burials; this is significantly higher than any of the studies mentioned above. This high percentage is possibly down to small sample size, but it may also be partly to do with chronology, as the burials from Ballynacarriga 3 were all dated to the Early Bronze Age—with the possible exception of one cist burial (2194; Illus. 2.8.4), which may have been older—and multiple cremation internments tend to be more common in this period than in the Middle and Late Bronze Age (ibid.).

Another interesting aspect of the Ballynacarriga 3 burials is the occurrence of adult and child remains within the same grave, where the adult was likely to be female. This is in contrast to Mount's (1997, 162) findings, where male adults tended to be associated with juveniles more frequently than female adults. The results from Ballynacarriga 3 are more akin to the near complete double-cremation burial of an older female adult and 12–15 year-old sub-adult at Newtownstewart Castle, Co. Tyrone (O Baoill & Murphy 1999).

Also somewhat unusual is the discovery of two burials (2130 and 2194; Illus. 2.8.4), where two juveniles were buried together, with no accompanying adult (apart from an anomalous insertion of the mid-shaft fragment of an adult clavicle in one grave). In Mount's (1997, 162) study from the south-east all the burials with more than one child also contained the remains of adults. Juveniles are often under-represented in the Bronze Age burial record (Lynch & O'Donnell 2007, 108) and Cooney and Grogan (1994, 108) suggest that juveniles did not often receive formal burial, unless their death coincided with that of an adult relative. This is clearly not the case at Ballynacarriga 3, where juveniles were buried without accompanying adults, and where more juveniles were represented in the graves than adults (if the anomalous inclusions of single adult clavicle fragments in two of the graves are not counted as burials).

### Anomalous insertions

Two graves (2097 and 2130; Illus. 2.8.4) at Ballynacarriga 3 each contained a fragment of an adult clavicle. The fragments were not from the same individual and could not be identified with any other cremation at Ballynacarriga 3. There is no obvious explanation for these inclusions. In both cases the fragment of clavicle was found in burials associated with the ring-ditch. These results raise the question of the original intention of withholding (curating?) skeletal elements from previous cremations. Was it for the express purpose of future inclusion, or were portions of cremated individuals withheld for additional ritual purposes, or even sentimental reasons, not unlike the retention of ashes in modern times? Possible further evidence for withholding bone came from Caherdrinny 2, where the surface of the cremated bone was worn, possibly because it was held for some time after cremation and before burial. Withholding remains and subsequently depositing them within the formal burial of another individual or elsewhere may be symbolic reminders of familial/community connection. This could explain practices such as the inclusion of human remains within settlement contexts at Gortnahown 1 (discussed below) and the practice of re-cutting burial pits (as found in one burial pit at Ballynacarriga 3) and the redeposition of burial material (very likely at Glenatlucky 1). Such rituals could have been designed to reinforce familial or community ties in death that were of great importance in life.

### Burials within settlement contexts

At Gortnahown 1 a small deposit of cremated human remains was recovered from the foundation trench of a possible round-house, near the probable location of the entrance. A saddle quern was recovered from the foundation trench on the opposite side of the entrance. The recovery of human remains from the foundation trenches of a building is known from at least two other Irish Bronze Age sites and this 'appears to represent quite deliberate acts of deposition' (Cleary 2005, 26–7). It is possible that these were either foundation deposits, placed during construction to bring good fortune to the settlement as it established itself, or closing deposits, for example where the death of a house is linked to that of its owner (Brück 1999, 154; Cleary 2005, 32). Cleary (ibid., 28) suggests that the cremation burial at Ballyveelish 3, Co. Tipperary, was part of a formal closing ceremony for the house at the same site and notes that the re-use of a saddle quern for the capstone of the cist may symbolise the end of domestic activity at the site. This offers an interesting comparison with Gortnahown 1, where both cremated human remains and a saddle quern were recovered from the foundation trenches of the house.

### Token burials

Small insertions of cremated bone within graves appear to follow the mortuary practice known as 'token' deposition. Most of the burials from this project, apart from one at the centre of Ring-ditch 1 at Ballynacarriga 3, could be considered token deposits, as only a fraction of the expected weight of bone from a full cremated skeleton was found (weights are listed in Table 3.8.1). There may be several potential explanations for the practice of token deposition. It is possible that only a small portion of material was retrieved from the cooled pyre and underwent subsequent processing and deposition. In this case, arbitrary selection of cremated remains would appear likely as there is little evidence for bias in the selection of skeletal elements. Alternatively, the token remains may represent secondary depositions, whereby a portion of an individual's cremated remains was retained or exhumed (pottery fragments included) and redeposited or kept for redeposition at a later date in a new location.

For example, the juvenile remains from burial pit 2158 (Illus. 2.8.4) at Ballynacarriga 3 represented a significantly smaller proportion of the assemblage, when compared to the adult remains within the same burial pit (Table 3.8.2). It is possible that these juvenile remains were a secondary deposition that included pottery fragments from the juvenile's original burial. In addition, the evidence of disturbance from burial pit 2130 suggests the possibility of exhumation and secondary redeposition of the exhumed remains. The incomplete pottery and skeletal elements recovered from Glenatlucky 1 (Chapter 2.14) may also be a redeposition of an earlier burial. It is possible that single 'portion' burials, such as this, represent territorial claim or even spiritual affiliation with the land. The individual at Glenatlucky 1 was associated with highly decorated pottery fragments. As the fragments do not represent an entire urn, it is possible that this also is a secondary redeposition, including pieces of pottery from a primary context.

### Blind burials

A total of six pits/cists at Ballynacarriga 3 and one charcoal-rich pit at Glenatlucky 1 did not contain human remains. These may have been symbolic burials or cenotaphs, sometimes called 'blind burials' (Grogan et al. 2007, 118). They could, for example, represent individuals who died

elsewhere. In the case of Ballynacarriga 3, this may explain why males are, apparently, missing from the cemetery. However, given the presence of either pottery, stone lining, *in situ* burning or loose burnt clay in the majority of otherwise empty pits/cists, it can also be considered that these 'burials' represent the actual or symbolic deposition of cremated stillbirths or newborn infants. It may be worth considering that pits previously considered post-holes, but with tiny fragments of bone, may similarly be the deposition of cremated neonatal or infant remains. These tiny fragments would be all that survived the cremation process. Given the destructive effect of normal cremation practice on exposed foetal material or newborn infants, it is unsurprising that little, if any, bone material would survive the cremation process. A similar interpretation was suggested (Geber 2009, 219) for blind burials excavated along the route of the M8 Cashel–Mitchelstown motorway, as the remains of children are seen as particularly fragile and more likely to decay. This could explain why children are generally under-represented in the Bronze Age burial record when, with a high rate of infant mortality, they should be in the majority (Cooney & Grogan 1994, 108).

### Summary

The M8 Fermoy–Mitchelstown motorway excavations have provided some additional information for an area that already has quite an extensive record of burial practices in the Bronze Age. In particular, osteological examination of the cremated remains has allowed us to identify the practice of mixing the remains of two or more individuals together in one grave. Most authorities (e.g. Cooney & Grogan 1994, 110) suggest that the Early Bronze Age burial record is selective, representing an elite section of society, treating individuals differently depending on age, gender and social status. The graves at Ballynacarriga 3, in particular those within the ring-ditch and accompanied by pottery, could be interpreted as individuals with high social status and, bearing this in mind, it is interesting to note that these were, where identifiable, solely women and children. On the other hand, the findings from Ballynacarriga 3—albeit based on a very small burial assemblage—may be less about elitism and more about the cultural attitudes towards the treatment in death of women and children. The nuanced insights gained from Ballynacarriga 3 are also the result of recent advances in excavation and osteo-archaeological science.

## 3.9 Prehistoric pottery

*Eoin Grogan and Helen Roche*

A significant quantity of prehistoric pottery was recovered from nine sites excavated on the route of the M8 Fermoy–Mitchelstown motorway: these assemblages contained a total of 2,043 sherds, representing a minimum total of 214 vessels (Table 3.9.1). The material demonstrates a very high level of settlement continuity along the western upland fringes of the Kilworth Mountains, focused on the River Funshion. Among these discoveries is new evidence for Early, Middle and Late Neolithic communities and an enhanced understanding of settlement patterns during the Bronze Age.

This material covers the entire span of prehistoric pottery production in Ireland, from the beginning of the Neolithic (c. 3900 BC) to the end of the Bronze Age (c. 800 BC). In addition, a further nine sites contained non-pottery-associated evidence for contemporary activity. Together, this evidence indicates intense settlement in an area with little previous indication of prehistoric occupation and provides an important link between other concentrations of activity at a regional scale.

*Table 3.9.1—Top: the pottery from the M8 Fermoy–Mitchelstown motorway showing the minimum number of vessels by type. Bottom: sites without pottery that produced Early Neolithic to Late Bronze Age evidence*

| Site | Excavation Reg. No. | ENCB | MN | LN | Chal | EBA | E/MBA | MBA | LBA | Sherds | Weight (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ballinglanna North 3 | E2416 | **36** | — | — | — | — | — | — | — | 320 | 1,502 |
| Ballynacarriga 3 | E2412 | **X** | **2G** | **62** | **3/0** | **v4, ©2** | — | — | — | 851[1] | 6,198 |
| Ballynamona 1 | E2428 | **X** | — | 1 | — | **©** | — | — | — | 81 | 1,028 |
| Ballynamona 2 | E2429 | **9** | — | — | **13/1** | **X** | — | **X** | **1** | 81 | 919 |
| Caherdrinny 3 | E2422 | **36** | **1G** | — | **1/0** | **v** | **d© x 5** | — | — | 367 | 2,741 |
| Glenatlucky 1 | E2427 | — | — | — | — | **©** | — | — | — | [2] | N/A |
| Gortnahown 2 | E2426 | **5** | — | **X** | **3/0** | **X** | — | — | — | 40 | 136 |
| Gortnahown 3 | E2477 | — | — | — | — | — | **d© x 4** | — | **X** | 90 | 666 |
| Gortore 1b | E2410 | **14** | **1 BB 7G** | — | **X** | **X** | — | — | — | 213 | 1,115 |
| *Total* | | *100* | *11* | *63* | *20/1* | *9* | *9* | — | *1* | *2,043* | *14,305* |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ballinglanna North 1 | E2414 | — | — | — | — | — | — | — | **X** | — | — |
| Ballinglanna North 5 | E2418 | — | — | — | — | **X** | — | — | — | — | — |
| Ballinglanna North 6 | E3972 | — | — | — | — | — | — | **Z** | — | — | — |
| Caherdrinny 2 | E2421 | — | — | — | — | — | — | **X** | — | — | — |
| Gortnahown 1 | E2423 | — | — | — | — | **X** | — | — | — | — | — |
| Kildrum 1 | E3971 | — | — | — | — | — | — | **Z** | — | — | — |
| Kilshanny 1 | E2430 | — | — | — | — | **XZ** | — | — | **X** | — | — |
| Kilshanny 2 | E2431 | — | — | — | — | — | — | — | **X** | — | — |
| Kilshanny 3 | E2432 | — | — | — | — | — | — | — | **XZ** | — | — |

**X** radiocarbon dated without pottery **Z** date indicated by site type
[1] Ballynacarriga 3 also produced six intact, or nearly intact, vessels [2] The site produced a single, substantially preserved, encrusted urn
**ENCB** Early Neolithic carinated bowls **MN** Middle Neolithic **BB** broad-rimmed bowl **G** globular bowl
**Chal** Chalcolithic Beaker (fine/domestic) **EBA** Early Bronze Age **MBA** Middle Bronze Age **LBA** Late Bronze Age
**v** vase food vessel **©** vase urn **©** encrusted urn **d©** domestic cordoned urn

*Table 3.9.2—The pottery from national road schemes in South Munster showing the minimum number of vessels by type*

| Road scheme | ENCB | MN | LN | Chal. | EBA | E/MBA | MBA/ (MBA/LBA) | LBA | Minimum no. of vessels |
|---|---|---|---|---|---|---|---|---|---|
| M8 Fermoy–Mitchelstown | 100 | 11 | 63 | 20/1 | 9 | 9 | 0 | 1 | 214 |
| N22 Ballincollig Bypass | 5 | 0 | 0 | 16/3 | 2 | 0 | 7/0 | 0 | 33 |
| N25 Youghal Bypass | 0 | 0 | 0 | 0 | 0 | 0 | 0/4 | 0 | 4 |
| N8/N72 Mitchelstown Relief Road | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 4 |
| M8 Rathcormac–Fermoy | 6 | 4 | 0 | 8/3 | 4 | 0 | 11/1 | 1 | 38 |
| N8 Glanmire–Watergrasshill | 0 | 0 | 0 | 1/1 | 2 | 0 | 0 | 1 | 5 |
| M8 Cahir Bypass | 12 | 0 | 0 | 6/5 | 6 | 8 | 0 | 12 | 49 |
| N8 Cashel Bypass | 9 | 0 | 0 | 42/17 | 2 | 0 | 0 | 3 | 73 |
| N25 Waterford Bypass | 37 | 2 | 0 | 2/0 | 9 | 1 | 0 | 0 | 51 |
| *Total* | *169* | *17* | *63* | *95/30* | *37* | *18* | *23* | *19* | *471* |

Key: **ENCB** Early Neolithic carinated bowl, **MN** Middle Neolithic, **LN** Late Neolithic, **Chal.** Chalcolithic Beaker (fine/domestic), **EBA** Early Bronze Age, **MBA** Middle Bronze Age, **LBA** Late Bronze Age

## Early Neolithic pottery (c.3900–3500 BC)

The discovery of Early Neolithic pottery on five sites (Illus. 3.9.1; Table 3.9.1) represents a dramatic development in our understanding of settlement patterns in this area of County Cork: these are some of the first sites of this period—including a small assemblage from Glanworth Castle (Manning 2009) and from an excavated Early Neolithic house at Shanagh, west of Kildorrery (Roche & Grogan 2013)—to produce this material. There are two large assemblages, from Ballinglanna North 3 and Caherdrinny 3, and significant quantities from Ballynamona 2, Gortnahown 2 and Gortore 1b. The concentration of these sites, including Glanworth, along the River Funshion and the Glencorra Stream flowing southwards into it, indicates an important settlement focus, while the River Funshion provides a routeway linking this area with further concentrations in the region.

A minimum total of 100 vessels is represented. All of these are Early Neolithic carinated bowls. Vessels of this type usually have deep bowls and neutral or open profiles, i.e. where the shoulder diameter is equal to, or less than, that of the rim. They represent the earliest type of Neolithic pottery in Ireland (Case 1961: 'Dunmurry-Ballymarlagh styles'; Sheridan 1995: 'classic' carinated bowls). Dated sites indicate that this pottery style was current during the period c. 3900–3600 BC (Grogan & Roche 2010a). The radiocarbon dates from Ballinglanna North 3 and Caherdrinny 3 suggest use at the beginning of this range, although caution is necessary with the Caherdrinny 3 evidence as there is also Late Mesolithic activity on the site; slightly later dates, from the end of this initial Neolithic period, occur at Caherdrinny 3 and Ballynamona 1. The combined date range confirms what has been widely observed, that there was a homogeneity of form and production methods throughout the period.


*Illus. 3.9.1—The distribution of Neolithic and Chalcolithic sites in the area of the M8 Fermoy–Mitchelstown motorway.*

The majority of vessels have simple out-turned rounded rims, gently concave or upright necks and simple angle or low-stepped shoulders. There are both gently rounded, shallow bodies and more deeply rounded profiles. Although few specific measurements were possible, it appears that the vessels were generally of medium size (i.e. between 200 mm and 235 mm in maximum diameter at the rim), but there are also a few smaller examples. The vessels are well fired and expertly made and the majority contain crushed quartzite inclusions (≤ 3.8 mm in length). A large number of vessels retain evidence for burnishing, but it is probable that wear has eroded this feature on many other examples.

At all five of the M8 Fermoy–Mitchelstown motorway sites the pottery is derived from domestic activity and these are associated, at Gortore 1b, Ballinglanna North 3 and Caherdrinny 3, with classic Early Neolithic rectangular houses. Improved dating for these structures indicates a currency during a restricted phase of c. 3750–3600 BC, which is confirmed by the dates from all these sites, although evidence was recorded at Caherdrinny 3 for what appears to be pre-house settlement. A house was excavated immediately to the south of the motorway scheme, at Gortore 1 (O'Donoghue 2006; O'Donoghoe & Johnston 2013), while others were identified at Shanagh 1 (Ruttle 2013a; forthcoming) in North Cork (west of Kildorrery) and in South Cork at Barnagore 3 (Danaher 2009; 2013b). Similar radiocarbon results were recovered from all three sites (3796–3640 BC from Shanagh 1, 3928–3655 BC from Gortore 1 and 3940–3620 BC at Barnagore 3), the radiocarbon dating of charred seed from Shanagh 1 giving a more precise date range.

The sites from the M8 Fermoy–Mitchelstown motorway form a tight-knit cluster on the upland fringes of the River Funshion valley. This sort of location, elevated above the heavier soils of the valley lowlands, has been widely observed (Cooney & Grogan 1994, 44–7) as a key feature of Early Neolithic settlement patterns, which show a preference for thinner, well-drained and more easily worked soils. The cluster also represents a pivotal location in the regional settlement distribution that links a series of distinct occupation groups. To the south, the River Funshion flows into the broad valley of the River Blackwater. Farther to the south, broadly contemporary activity occurs on another tributary, the Bride River, at Curraghprevin 3, which in turn suggests a link in this more upland area to sites such as Killydonoghoe, Barnagore and Ballinaspig More, on the coastal lowlands in South Cork (Grogan & Roche 2013).

To the east, the River Funshion valley opens into the broad lowland zone, to the south of the Galtee Mountains and, beyond this, into the Suir Valley. A cluster of Early Neolithic sites—Ballylegan, Caherabbey Upper and Lower, and Cloghabreedy—occurs in the area around Cahir, Co. Tipperary (McQuade et al. 2009), and small assemblages of carinated bowl pottery were recovered from them (Grogan & Roche 2009). A similar cluster occurs in the Suir Valley, to the north, around Cashel, Co. Tipperary (Grogan & Roche 2006). This network of evenly distributed clusters extends to Tankardstown, Co. Limerick, to the north of the River Funshion, beyond the Ballyhoura uplands, and to the major concentration at Lough Gur (Gowen 1988, 26–42; Ó Ríordáin 1954; Grogan & Eogan 1987).

The distribution of these clusters, and the close similarity of the form, firing and inclusions of the pottery, indicate the rapid spread of settlement in the earliest part of the Neolithic (c. 3900–3800 BC). The patterning further suggests that this occurred along the network of major rivers, the Blackwater, Maigue and Suir, and their tributaries. These routes would also have provided ongoing

interconnections between the settlement clusters and facilitated social networks throughout the period.

## Middle Neolithic pottery (c. 3500–2850 BC)

The reduced number of Middle Neolithic sites, and the contracted distribution, revealed on the route of the M8 Fermoy–Mitchelstown motorway replicates the evidence throughout the country, with the possible exception of north Leinster and east Ulster (Grogan & Roche 2010a, illus. 4.2 and 4.4). What is less clear is whether this is a reflection of population contraction and the number of settlements, or simply a lessened emphasis on pottery production. The latter, while completely speculative at this stage, may have been associated with changes in diet or food-production methods. Further activity in the area is indicated by the probable Linkardstown-type tomb at Lisduggan North, Co. Cork (RMP Ref. CO023-008; Power et al. 1988, 48–50), and passage tombs at Deerpark ('Duntryleague'), Co. Limerick, and Shrough, Co. Tipperary. At a regional level, broadly contemporary settlement occurs at Fermoy 5 (Reilly 2006b; 2013a) and Waterdyke 1 (Ruttle 2013b; forthcoming) in North Cork, Lough Gur in east Limerick (Ó Ríordáin 1954; Grogan & Eogan 1987), and Longstone Cullen, Co. Tipperary (Roche 1995), while funerary evidence comes from Rockbarton ('Caherguillamore'), Lough Gur and Annagh, Co. Limerick (Hunt 1967; Ó Ríordáin 1954; Ó Floinn 1992).

Middle Neolithic pottery was recovered from three sites. Most of this material, representing at least 10 vessels, consists of simple hemispherical globular bowls (Case 1961: 'Sandhills ware; Goodland bowls'; Herity 1982: 'Globular bowls'). There is a single broad-rimmed bowl (Case 1961: 'Dundrum bowls'; Herity 1982: 'Broad-Rimmed Vessels') from Gortore 1b. All of this material belongs to the Impressed Ware tradition in Ireland and Britain (Grogan & Roche 2010a, 29–33, illus. 3–4). This is characterised by decoration impressed onto the pot surface using a wide variety of tools, including twisted and fine, whipped cord, cut birdbone and fingernails. The broad-rimmed vessels, as at Gortore 1b (Vessel 20), appear around, or soon after, 3600 BC and are derived from the carinated bowls of the Early Neolithic. Close affinities are provided by the decorated, heavily modified carinated bowls that dominate the domestic assemblages at Lough Gur during the period 3600–3300 BC and a vessel of this type was associated with a crouched inhumation at Site C (Ó Ríordáin 1954, 371–2). The simple globular bowls are generally later in date, but the close association of these two types at Gortore 1b is closely paralleled by, for example, the domestic assemblages at Knowth, Co. Meath (Eogan & Roche 1997, 51–100). The date range from Gortore 1b of 3497–3105 BC (UBA-13400) confirms the wider chronologies for the period and indicates activity towards the end of the Middle Neolithic.

## Late Neolithic pottery (2850–2450 BC)

Grooved Ware, the characteristic pottery of this period, came from two sites: while only a single vessel was represented at Ballynamona 1, a very large assemblage—one of the largest in the country—consisting of at least 62 fine pots, came from Ballynacarriga 3. These sites provide a very significant advance in our understanding of regional Late Neolithic settlement patterns. The only previous

significant discovery of Grooved Ware from Munster is at Longstone Cullen, Co. Tipperary (Roche 1995, 74–9).

The pottery consists of barrel-shaped, flat-bottomed, pots: these can be compared to the best examples of this form of pottery in Ireland at, for example, Longstone and Knowth, both in County Meath (ibid.; Eogan & Roche 1997). There are only three decorated vessels, one from Ballynamona 1 and two from Ballynacarriga 3. At Ballynamona 1, Vessel 1 has a low horizontal cordon close to the rim on the external surface: a comb-impressed line occurs immediately above the cordon while a similar circumferential line occurs on the base. Comb ornament has not previously been recorded on Irish Grooved Ware, although there are cordons, lugs or applied pellets on vessels from Longstone Cullen, Co. Tipperary (Roche 1995, 74–9), Ballynahatty, Co. Down (Eogan & Roche 1997, 151, fig. 29:V3), Charlestown, Co. Mayo (Gillespie 2009, 8), Knowth and Rathmullan 7, Co. Meath (Grogan & Roche 2010b), and Ask, Co. Wexford (Grogan & Roche 2008). At Ballynacarriga 3, lugs are present on Vessel 21 and on another sherd not assigned to a particular vessel. Part of a composite motif, combining vertical grooves and horizontal lines of impressed plaited cord, occurs on the outer surface of Vessel 7. Cord-impressed ornament is also an occasional feature of Grooved Ware, as at Knowth (Eogan & Roche 1997, 150–1, figs 28:V2, 29:V3) and Ask (Grogan & Roche 2008). Perforations, drilled after the pots had been fired, occur on Ballynacarriga 3 Vessels 29 and 30 and, although again not a common feature on Irish Grooved Ware, examples have been found on vessels from Knowth and Loughcrew, Co. Meath (Eogan & Roche 1997), and Longstone Cullen (Roche 1995).

The radiocarbon date of 2835–2490 BC (UBA-13157) from a pit (209; Illus. 2.8.2) at Ballynacarriga 3, while not directly associated with pottery, falls entirely within the current range for Grooved Ware of 2850–2450 BC (Grogan & Roche 2010a, 34). A post-hole from Structure 1 (120; Illus. 2.8.2) yielded a narrower radiocarbon date range of 2569–2461 BC (UBA-13167)—this structure was associated with Grooved Ware. A similar date of 2860–2505 BC (UBA-13219) from Gortnahown 2 (Illus. 2.16.3) indicates contemporary activity, although no pottery was recovered.

## Other Late Neolithic material

Part of a carved stone or ceramic artefact (E2412:213:3; Illus. 2.8.3) was recovered from Structure 1, at Ballynacarriga 3, in association with a small quantity of Grooved Ware pottery. This object has an estimated maximum diameter at the 'base' of 110 mm, and of 130 mm at the surviving top edge. The piece was examined by Dr M Parkes (National Museum of Ireland), but he could not conclude whether the item is stone or ceramic. Although it is not clear if this was a vessel or a solid, cylindrical or short, barrel-shaped object, it appears to have been deliberately smashed. Parts of the broken interior surface are smoothed and shiny as if the fragment had been handled frequently and suggests it may have been a talisman or token, retaining significance long after the original item was broken. The smoothed external surface was decorated with triangular bands of oblique, opposing, deeply carved grooves.

There are no exact parallels for this artefact; however, the association with Grooved Ware sherds, the decoration and, to a lesser extent the form, all point to a Late Neolithic date. The decoration is similar to that on some Grooved Ware pottery, such as the highly decorated sherd from Deerpark

('Kiltierney'), Co. Fermanagh (Brindley 1999a, fig. 3.4: 1), or two vessels from Knowth, Co. Meath (Eogan & Roche 1997, 150, fig. 28:V1, 211, fig. 47:V73).

Although no other stone vessels have come from Grooved Ware contexts, there is a small number of ceramic bowls from Rathmullan (Grogan & Roche 2010b) and Newgrange (Cleary 1983, 88–91, fig. 36), Co. Meath, which, while slightly larger, may be of similar shape. One of the Newgrange bowls (ibid., no. 35a) is 187 mm in diameter at the rim, 120 mm at the base and 100 mm high, not very much larger than the Ballynacarriga item. Small bowls are an intermittent feature of Grooved Ware assemblages in Britain and occur, for example, at Rinyo, Orkney (MacSween 1995, 42, fig. 4.2: 1B), Balfarg/Balbirnie, Fife (Barclay & Russell-White 1993), and Corporation Farm, near Abingdon in the Thames Valley (Barclay 1999, 9, fig. 2.2: 1).

On the other hand it appears more probable that the Ballynacarriga object is a solid cylindrical artefact. There are no Irish parallels, but it is possible that it was similar to the three cylindrical chalk 'drums' from a burial at Folkton, Yorkshire (Kinnes & Longworth 1985, no. 245; see also Clarke et al. 1985, 66, 248–9, fig. 3.37). These drums are 142 mm, 124 mm and 103 mm in diameter (121 mm, 110 mm and 87 mm high, respectively). Longworth (1999) has drawn attention to the very strong links between the drums and decoration on Grooved Ware pottery although, apart from general similarities within the Grooved Ware tradition, there is no close comparison between the Folkston and Ballynacarriga ornament. Objects of carved stone, especially balls, some of which are highly decorated, are a feature of the Grooved Ware tradition in Scotland and occur, for example, at Skara Brae, Orkney; Towie, Fyvie and Turriff, Aberdeenshire; and Balallan, Lewis (Clarke et al. 1985, figs 3.17, 3.26, 3.27). The balls, as well as the decoration on the pottery and a few other prestige items, such as the Maesmore macehead from Knowth, Co. Meath, almost certainly an import from Orkney (Eogan & Richardson 1982), are also indicative of a strong link between the Grooved Ware and passage tomb traditions. This connection has been widely discussed, although the precise nature of the relationship has not been demonstrated (Roche 1995; Brindley 1999a; 1999b, 134–8; Cooney & Grogan 1994, 91–2; Cleary 1999, 6–7; Bradley 1998, 101–31).

Two baked clay objects were found at Caherdrinny 3 (Illus. 2.12.6–7), one example had a rounded, smoothed exterior surface and evidence for a perforation was present on the interior surface. The second was more fragmented, but it is probable that it was of similar form. The objects were not found in direct association with pottery. The function of these objects is not clear but they may be loom weights and most similar objects come from Late Neolithic Grooved Ware sites. Hard baked clay objects that were roughly shaped, but also had evidence for perforations, were found within post-pits of the timber circle at Knowth (Eogan & Roche 1997, 185–7). Similar objects were also found associated with Grooved Ware at Longstone, Cullen, Co. Tipperary, Dundrum Sandhills, Co. Down, and the Grange Stone Circle, Lough Gur, Co. Limerick (Roche 1995, 116). A crude, intact, fired clay object came from an Early Bronze Age context at Knockgraffon, Co. Tipperary; while it resembles a macehead, Moriarty (2009, fig. 9.10) suggested that the artefact is a loom weight and drew attention to similar items from Late Bronze Age Britain. A broken, possibly oval clay artefact, associated with a copper-alloy awl, from an Early Bronze Age burial at Tremoge, Co. Tyrone, was interpreted by the excavator as a loom weight (Foley 1985, 66, fig. 2).

## Chalcolithic pottery (c. 2450–2200 BC)

The characteristic pottery type, Beaker, came from four sites (Ballynamona 2, Gortnahown 2, Ballynacarriga 3 and Caherdrinny 3) and a minimum number of 21 vessels is represented. There are 20 fine vessels with soft S-shaped profiles of classic Bell Beaker form, with rounded to pointed, slightly out-turned rims and gently curved necks extending down to gently rounded belly outlines. Six of the vessels (Nos 7, 9, 13, 14, 18 and 19) from Ballynamona 2, and an example (No. 3) from Gortnahown 2, have horizontally arranged ornament consisting of decorated panels, usually containing bands of line, interspersed with blank zones. The combination of this decorative arrangement, and the form of these pots, is typical of most Beaker assemblages in Ireland and is generally dated to the early part of the Chalcolithic (c. 2450–2300 BC; Grogan & Roche 2010a, illus. 7a and 7b). These form part of Case's (1993) style 2, within a simple threefold scheme that also includes material from large assemblages at Lough Gur, Windmill 36Bii and Boscabell 18, Co. Tipperary, Knowth and Newgrange, Co. Meath (Ó Ríordáin 1954; Grogan & Eogan 1987; Grogan & Roche 2006; Eogan 1984; Eogan & Roche 1997; Cleary 1983).

Two vessels (13 and 18) at Ballynamona 2 have more unusual decoration, with metope-like motifs of blank rectangles flanked by vertical decorative motifs. The presence of this arrangement on Irish Beakers is unusual and one of the few examples is a footed bowl from Knockadoon, Lough Gur, Site D (Ó Ríordáin 1954, 398, fig. 37).

At least eight of the Ballynamona 2 vessels (Nos 6, 8, 10–12 and 15–17) had no evidence for decoration. Completely undecorated Beakers are a feature of some assemblages and include the Beaker from a burial and vessels from concentration B at Knowth (Eogan 1984, 268–9, fig. 96, 308–12, fig. 117, pl. 80), and several examples from Mell and Newtownbalregan 2, Co. Louth (Roche & Grogan 2005; Grogan & Roche 2005). Within North Munster plain Beakers are a feature of several sites in the Cashel area of County Tipperary including Windmill 36ii, Monadreela 13 and Gortmakellis (Grogan & Roche 2006), but are only an incidental component at Lough Gur, occurring in small numbers at Circle J and Site 10 (Grogan & Eogan 1987, 319, 451–4).

There is a single so-called 'domestic'[4] vessel (No. 19) from Ballynamona 2: the fabric is slightly coarser than the fine Beakers, but is also well made and expertly fired. The pot is decorated with opposing rows of fingernail impressions, a common feature of domestic vessels. Fine and domestic Beakers have frequently been found together and sites in Munster include Lisnasallagh 2, Co. Cork; Sites C, D and K at Lough Gur (Grogan & Roche 2013; Ó Ríordáin 1954; Grogan & Eogan 1987); and Doonmoon, Co. Limerick (Gowen 1988, 52–61), as well as several sites in the Cashel area, such as Gortmakellis, Monadreela 13, Windmill 36ii and Farranamanagh 39 (Roche & Grogan 2008; Grogan & Roche 2006). At a regional level, the M8 Fermoy–Mitchelstown Beaker assemblages provide something of a contrast: the very low number of domestic vessels (only one of 21 pots) compares with 23.5% on the Knockadoon complex, close to the national figure of 25%, while 29% of the Beakers from the Cashel area sites are of the domestic variant.

4 All Beaker pottery in Ireland is essentially domestic ware although it was occasionally used in funerary contexts.

## The regional context

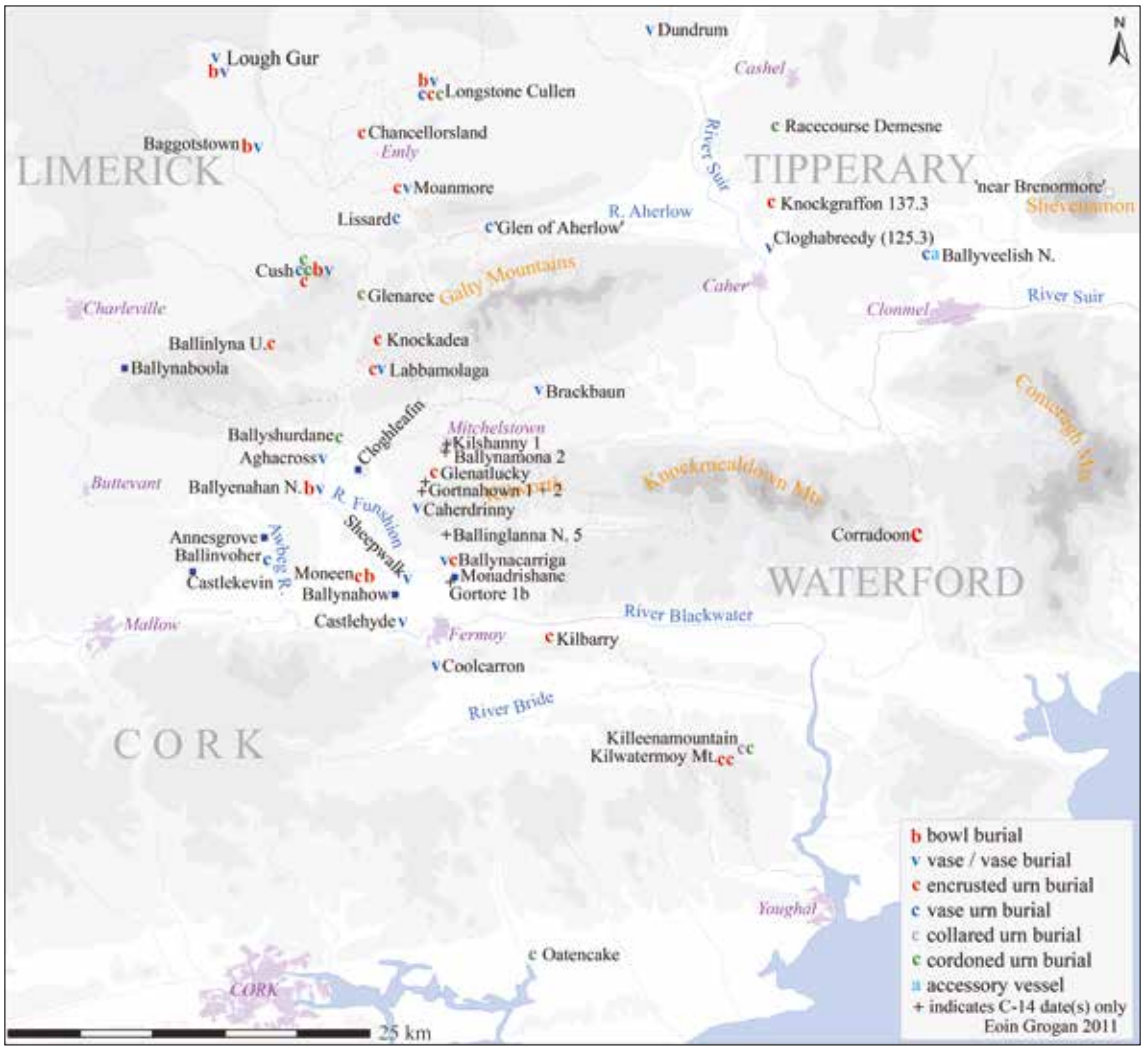
Current research has identified 42 sites, including the Lough Gur complex as a single example, in Munster with Beaker pottery (Grogan & Roche 2010a, illus. 7); while these are widely distributed most, and the majority of the vessels, are concentrated in the triangle between Lough Gur, the Cashel area and the M8 Fermoy–Mitchelstown motorway. Within this sub-region there are additional sites at, for example, Doonmoon, Rathjordan and Kilfinnane, Co. Limerick (Gowen 1988, 52–61; Ó Ríordáin 1948; Roche 2006), and a cluster of sites—Ballydrehid, Ballylegan and two examples at Caherabbey Upper—in the area around Cahir, Co. Tipperary (Grogan & Roche 2009). Further contemporary activity is represented by the wedge tombs at Manning and, on the southern side of the River Funshion, at Labbacallee (Leask & Price 1936), while this is also the period of the primary phase at the Moneen funerary complex (O'Kelly 1952; Brindley et al. 1988). Beyond this immediate area, to the south, Beaker also came from Mondaniel, overlooking the Bride Valley, at Killydonoghoe, on the southern fringes of the mid Cork uplands, along the Butlerstown River, and at Carrigrohane, Curraheen and Barnagore on the Lee Valley (Grogan & Roche 2013, 310–3).

## The Neolithic and Chalcolithic: summary

The unexpected intensity and concentration of early prehistoric activity discovered on the route of the M8 Fermoy–Mitchelstown motorway is matched by the considerable longevity, however episodic, of specific sites (Table 3.9.1). Ballynacarriga 3, Caherdrinny 3 and Gortore 1b persisted over many generations. Another significant feature of the evidence is the occurrence of Early Neolithic and Chalcolithic settlement at three of the sites where pottery was recovered; this reflects a national pattern of similar preferences for precise landscape settlement locations during these two periods. This suggests not just an interest in the same places but probably shared farming requirements. This continuity of activity at particular and favoured places is also a feature of the other settlement clusters, at Lough Gur, the Cahir and Cashel areas, and the Lee Valley: initial settlement in the Early Neolithic was followed by generations of the same communities retaining their attachment and sense of belonging to these niche landscapes. Throughout this period the population level, with perhaps some fluctuation in the Middle and Late Neolithic, appears to have remained low and reasonably steady. Beyond the network of communications between these community clusters a wider engagement with events and developments beyond the region is indicated by the prompt adoption of new ceramic types—Impressed Ware, Grooved Ware and Beaker—and the use of copper and subsequently bronze at the end of this period.

## Early Bronze Age pottery (c. 2200–1600 BC)

There appears to have been a significant increase in population along the River Funshion valley during this period. This is indicated both by the number of sites and by the extended distribution of activity, a pattern greatly enhanced by the new evidence from the M8 Fermoy–Mitchelstown motorway (Illus. 3.9.2). Four sites contained ceramic evidence from this period and a total of nine vessels were recovered: these come from a single cremation pit at Glenatlucky and a funerary complex at Ballynacarriga 3, while the bipartite vase from Caherdrinny 3 and the vase urn from




*Illus. 3.9.2—The distribution of Early Bronze Age sites with ceramic evidence from the area of the M8 Fermoy–Mitchelstown motorway.*

Ballynamona 1 appear to have come from domestic contexts.

The most extensive evidence comes from Ballynacarriga 3, where two ring-ditches provided the focus for a cemetery cluster that contained cremations in both pits and cists. Two cremations in pits (2097 and 2130; Illus. 2.8.4) occurred in the centre of Ring-ditch 1. Two vessels of the Vase Tradition were recovered from one pit (2097)—a decorated tripartite vase and an encrusted urn (Illus. 2.8.5). The remains of a child (aged 3–7) and an infant (0–1) were recovered from the second cremation pit (2130). However, some caution is necessary as a radiocarbon date of 2344–2060 (UBA-14778) from Pit 2097 at Ballynacarriga 3 falls into the earlier, Chalcolithic, period and is improbably early for vases as these are widely dated to c. 2020–1900 BC (Brindley 2007). Dates of 2460–2206 BC (UBA-14777) and 2461–2211 BC (UBA-13165) from two more burials at Ballynacarriga 3 also date to the Chalcolithic, but these were not associated with pottery.


*Illus. 3.9.3—Base of a food vessel (Vessel 4; biconical vase) recovered from a pit (2158) dated to 1937–1752 BC at Ballynacarriga 3 (John Sunderland).*

Although no burials were identified at Ring-ditch 2, a central hearth, perhaps associated with funerary rituals, produced a date of 2019–1885 BC (UBA-13170). There were at least six further burials in the area immediately to the north of the ring-ditches (Illus. 2.8.4). Two biconical vases came from Pit 2158 (Illus. 2.8.4–6; Illus. 3.9.3–4), which contained the cremations of an older adult female and a child (8–12 years), while a plain tripartite vase from a pit (2043) was apparently not accompanied by human remains. A second encrusted urn was recovered from another cist (2175), without an identifiable burial. Female cremations were recovered from two further small pits/cists.

At Glenatlucky fragments of an encrusted urn were recovered from a pit that also contained an adult cremation (Illus. 2.14.1). Two flint pieces, a slug knife and a retouched flint were recovered from the grave. An anomalous radiocarbon date of AD 1677–1953 (UBA-12978) was obtained from charcoal from the pit, but the burial dates to c. 2000–1800 BC, based on associated pottery typology (Brindley 2007), and is contemporary with the Ballynacarriga 3 complex. Two unaccompanied cremations were recorded in two pits at Ballynamona 2; one of these is dated to 2191–1976 BC (UBA-15101). Unaccompanied burials, as at Ballynamona 2 and Ballynacarriga 3, are an occasional feature of the Early Bronze Age and occur in County Cork at, for example, Ballyenahan North

(Fahy 1954: burial B), Sheepwalk (Murphy 1965) and Gortafludig (Waddell 1990, 61), which were all contained in cists. This form of simple cremation becomes a characteristic feature of burial in the Middle and Late Bronze Age.

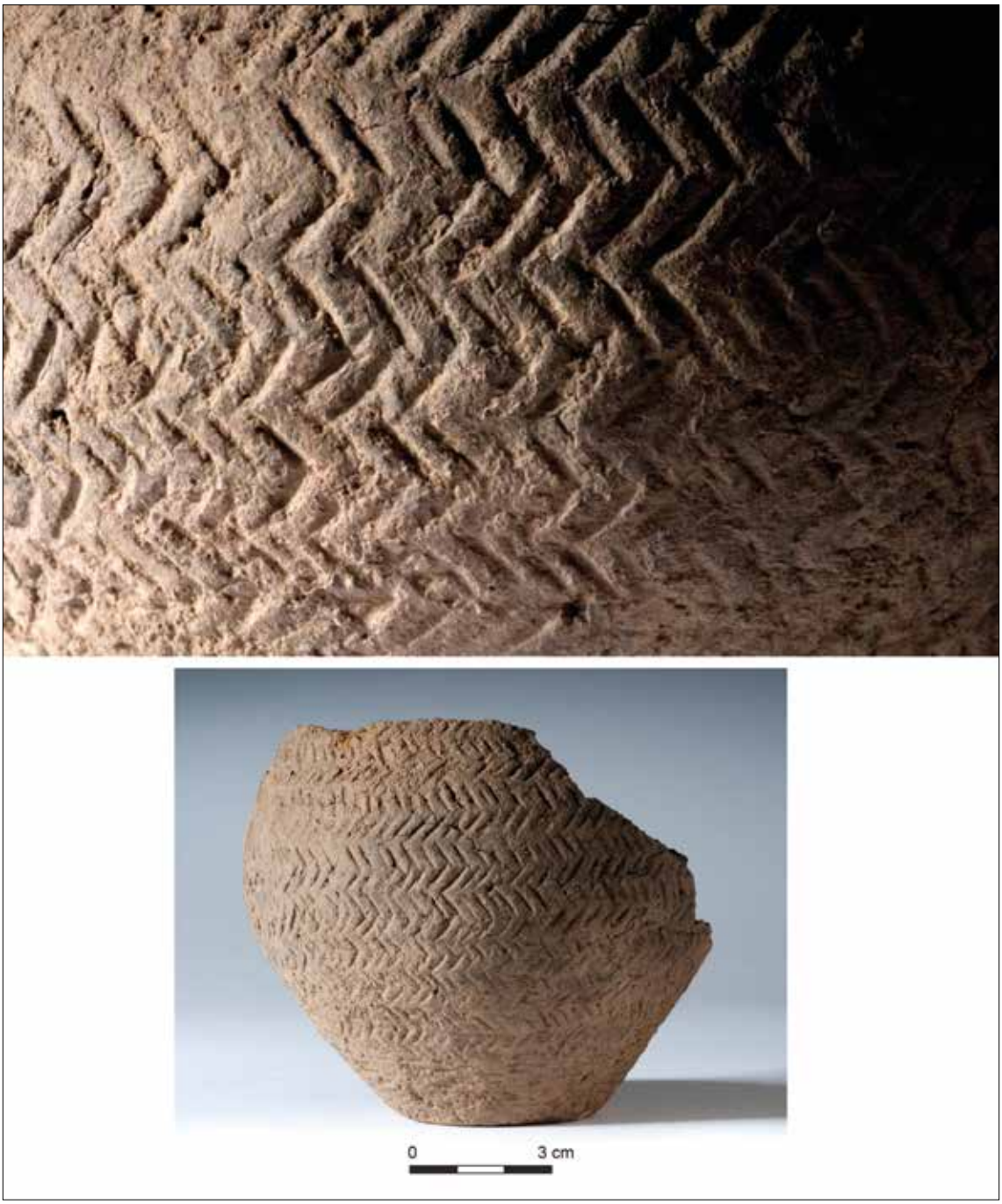
Although the earliest type of Bronze Age pottery—the bowls—are represented in the area, they occur only infrequently, at, for example, Ballyenahan North (Fahy 1954) and Moneen (O'Kelly 1952). The Vase Tradition, as represented at Ballynacarriga 3 by vases and encrusted urns, has a much wider distribution and burials occur in the area at Coolcarron (Waddell 1990, 60), Castlehyde (Day 1905; McCarthy 2006) and Fermoy 3 (Murphy 2013a) on the Blackwater Valley, along the River Funshion to the west at Ballyenahan North (Fahy 1954), Aghacross (Waddell 1990, 58), and on the fringes of the Galtee Mountains to the north along the Sheep River at Labbamolaga (O'Kelly 1950). An encrusted urn burial was recorded at the latter area, as was the site at Knockadea, Co. Limerick (Waddell 1990, 108). Further burials accompanied by encrusted urns, at Moneen (O'Kelly 1952) and Kilbarry (Power 1933), and cordoned urns at Ballyshurdane (Waddell 1990, 60), Mondaniel (Dunne 2013) and the deposit at Mitchelstown (Kiely & Sutton 2007; Grogan & Roche 2013, 313–5), emphasise the density of activity along the River Blackwater and the River Funshion in particular. Together with the other, largely domestic evidence from the M8 Fermoy–Mitchelstown motorway, not associated with pottery, this indicates a major settlement concentration, with wider links to the north into south Limerick, to the north-east towards the complex around Cahir, to the south as far as the River Bride, and to the west where a group of burials, at Annesgrove (Waddell 1990, 58) and Ballinvoher (O'Kelly & Shee 1974), represent activity along the River Awbeg in North Cork (Illus. 3.9.2).

## Middle to Late Bronze Age pottery (c.1600–800 BC)

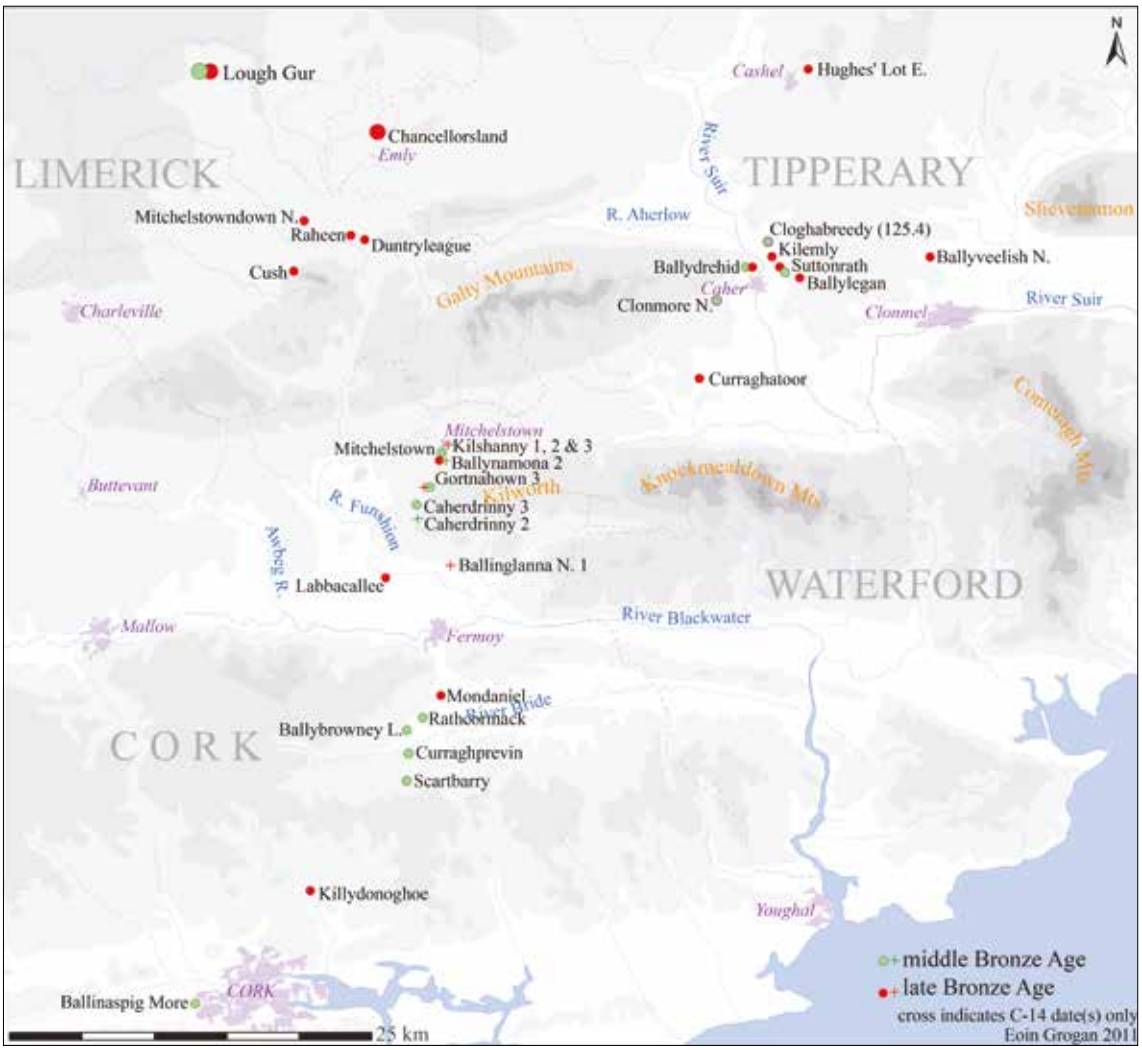
Domestic cordoned urns were recorded at two sites, five examples from Caherdrinny 3 and four from Gortnahown 3. The material from Caherdrinny 3 was spread out over a large area of the site. The vessels are barrel shaped and flat based and the presence of cordons, heavy cord and whipped cord-impressed ornament indicates these are a domestic variant within the cordoned urn tradition (Grogan & Roche 2010c; Waddell 1995, 113, 118; Brindley 2007, 143; Kavanagh 1976, 330). Similar typological features were noted at Ballinaspig More 5, Co. Cork (Grogan & Roche 2004; 2013, 317–21), where vessels had both cordons and heavy cord-impressed decoration. The Gortnahown vessels came from three pits that represent a (partly disturbed) domestic site.

Domestic cordoned urns have come from a number of settlement sites in this region (Illus. 3.9.5), including Ballyveelish and Chancellorsland, Co. Tipperary (Doody 1987; 2008; Cleary 2008). There is a large assemblage from Lough Gur, Co. Limerick, at Sites C, D (Ó Ríordáin 1954, 333–40 and 392–4, figs 18: 7–9, 19: 1–6, 34: 26, pl. 34), Circle L and Site 10 (Grogan & Eogan 1987, 405 and 449–51, figs 45: 891, 68: 893–911). Vessels of this type have also been found at Ballinaspig More, Rath-healy, Rathcormack and Scartbarry, Co. Cork (Grogan & Roche 2013, 317–21). Reasonably extensive dating, including that from Ballybrowney Lower, Co. Cork, suggests that this pottery type was current during the period 1600–1100 BC (Grogan & Roche 2010c, fig. 1).

Late Bronze Age pottery was only recorded at a single site, Ballynamona 2. By this stage plain, coarse, domestic vessels had replaced the occasionally decorated forms of the Middle Bronze Age (Grogan & Roche 2010a; 2010c). The reduced number of sites with Late Bronze Age pottery on




*Illus. 3.9.4—Design detail of an Early Bronze Age food vessel (Vessel 3; biconical vase) recovered from a pit (2158) at Ballynacarriga 3 (John Sunderland).*




*Illus. 3.9.5—The distribution of Middle to Late Bronze Age sites with ceramic evidence from the area of the M8 Fermoy–Mitchelstown motorway.*

the present road project reflects the evidence throughout the region with only occasional sites, such as Mondaniel 2 (Cotter 2013d), containing this pottery (Illus. 3.9.5). A slightly higher incidence is recorded for the complex around Cahir, Co. Tipperary, with coarse domestic vessels occurring at Ballydrehid, Ballylegan, Kilemly and Suttonrath (Grogan & Roche 2009). Pottery from this period was recorded at a single site in the Cashel complex, Hughes' lot East (25iii) (Grogan & Roche 2006). However, these assemblages comprised small numbers of vessels.

Only at Lough Gur, where continuing settlement is associated with the construction of a series of enclosed domestic sites at Circles J, K and L, and sites 10–12 (contra Grogan & Eogan 1987; Cleary 2003), and the ceremonial enclosures at the Grange Stone Circle (Roche 2004) and Circle O (Grogan & Eogan 1987), is large-scale pottery production still in evidence. There are also a number of burials and cemeteries, as at Mitchelstowndown and Shanaclogh, Co. Limerick, where pottery was

recovered: these simple pit cremations, often with very small (token) bone deposits, are characteristic of the final stages of the Bronze Age (Gowen 1988, 68–72, 98–102; Grogan 2004b).

The evidence for the region indicates continuing intense settlement—sometimes on the same sites—since early prehistory. Indeed, the wider distribution patterns, including those of barrows and burnt mounds, demonstrate an intensification of settlement, and an attendant population increase, in the more low-lying terrain along the River Blackwater and its tributaries, especially the River Funshion. This landscape is dominated by the Caherdrinny hillfort, a site that may symbolise a complex, formally organised society in the region (Grogan 2005a, 124). The reduced number of sites with pottery from the M8 Fermoy–Mitchelstown motorway, even allowing for others without ceramic evidence that are also dated to this period, may be a reflection of the decrease in the importance of pottery during the Middle and Late Bronze Age; it is, however, much more likely to be a reflection of the upland route of the road, and the shift in focus during the Middle to Late Bronze Age onto the heavier, more productive, and now more accessible soils on the valley floors.

## The end of the Bronze Age

Current research indicates that the production of pottery in Ireland ceased at the end of the Bronze Age (c. 800 BC) or possibly by the end of the earliest, Hallstatt C, phase of the Iron Age (c. 750–725 BC; Grogan & Roche 2010a, 43). While the reasons behind this are obscure, ceramic manufacture was replaced, in terms of native production, by lathe-turned and stave-built wooden vessels, leather containers and metal vessels (Raftery 1995). What is clear is that the demise of the potter's craft occurred at a time of other dramatic changes and this is demonstrated, at a local level, by the significant reduction in archaeological activity of any identifiable type in this previously rich landscape. Only two sites, Ballinglanna North 1 and Kilshanny 1, provided Early Iron Age evidence, and significant evidence for a renewal of settlement patterns in Ireland only occurs after c. 350 BC, when iron smelting and smithing comes into widespread use.

## Conclusions

A very rich ceramic assemblage that represents most of the prehistoric period—from the earliest Neolithic to the end of the Bronze Age (3900–800 BC)—was recovered from sites on the route of the M8 Fermoy–Mitchelstown motorway. While modest, compared with the quantity of pottery from the Lough Gur complex, which is measured in the tens of thousands of sherds (Grogan 2005b, table 1; Grogan & Eogan 1987, table 3), the wealth of material is demonstrated by comparison with that recovered from other national road schemes in the region (Table 3.9.2).

The discoveries along the M8 Fermoy–Mitchelstown motorway have highlighted a remarkable, and previously unidentified, early prehistoric settlement cluster along the western upland fringes of the Kilworth Mountains. On the southern side the sites in Ballinglanna North, Ballynacarriga and Gortore are located along the narrow valley of the Glencorra Stream and the River Funshion. The early dates for the activity at Ballinglanna North 3 and Caherdrinny 3 suggest occupation at the very beginning of the Neolithic, soon after 3900 BC. The regional distribution of Early Neolithic sites indicates the spread of settlement along the major river valleys—the Blackwater, Suir, Barrow, Nore and Lee—and, thence, via their tributaries, such as the rivers Bride, Funshion and Awbeg on the

River Blackwater system. These communication networks remained vital throughout history, while the initial settlement clusters, such as those on the rivers Blackwater/Funshion and Suir, demonstrate long-term continuity, with evidence for Middle and Late Neolithic, Chalcolithic and Bronze Age activity. This continuity is further emphasised by the revelation of multi-period activity at several sites, such as Ballynacarriga 3, Ballynamona sites 1 and 2, Caherdrinny 3, Gortnahown sites 2 and 3, and Gortore 1b (Table 3.9.1), although the longevity of any particular phase is unknown and activity may have been episodic. At Gortnahown, however, the remarkable cluster of sites, on gently sloping terraces, overlooking the Gradoge Stream, represents what appears to be continuous activity from the Early Neolithic to at least the end of the Bronze Age (Illus. 2.16.1).

While Bronze Age settlement was well attested in the area, through the burials, burnt mounds and barrows for example (Grogan 2005a; Doody 2008), the excavations on the route of the M8 Fermoy–Mitchelstown motorway have revealed a rich settlement landscape in early prehistory. Among the most significant discoveries are the Grooved Ware ceremonial site at Ballynacarriga 3—the first identification of this pottery from south-west Ireland—and the extent of Chalcolithic activity. The overall distribution of the prehistoric evidence suggests initial occupation of the upland areas, on the fringes of the rivers Funshion and Blackwater, with an expansion onto the richer lowlands to the west within the great bend in the River Funshion.

## 3.10 Stone tool use

*Farina Sternke*

Tool use is one of the fundamental aspects of human evolution that has enabled us to manage and exploit our natural environment. Essential to our very survival, the use of tools has, since earliest prehistoric times, provided us with food to eat and with shelter from the elements and from predators. By their very nature, stone tools survive in the archaeological record better than tools made from organic materials (such as wood or bone). The study of stone tools from archaeological excavations can tell us much, not only about the age of sites and various activities that took place within them, but also about the changes in society over time and about interactions between different communities. In this regard, the excavations on the route of the M8 Fermoy–Mitchelstown motorway have made an important contribution to our understanding of the prehistory of North Cork and the south-west of Ireland.

Until relatively recently, only a small amount of Mesolithic material had been uncovered in County Cork (Woodman 2013), in the form of lithic scatters uncovered during field surveys carried out during the 1980s and 1990s in the Blackwater Valley, e.g. at Castleblagh (Woodman 1989), Kilcummer Lower (Woodman 1984; Anderson 1993; Woodman 1989), and in coastal areas, such as around the Cork Harbour area—specifically Gyleen and Inch (Power et al. 1994)—and at Dunpower Head (Woodman 1989).

More recently, excavations on several road schemes in County Cork, i.e. N8 Glanmire–Watergrasshill, M8 Rathcormac–Fermoy, N8/N73 Mitchelstown Relief Road, N22 Ballincollig Bypass and N25 Youghal Bypass, uncovered some 40 new prehistoric sites (Hanley & Hurley 2013).

The vast majority date to the Late Neolithic, Chalcolithic and the Early Bronze Age and only a handful to the Mesolithic period.

A total of 1,182 chipped stone tools and waste from 13 sites, and one find-spot, were recovered from excavations on the route of the M8 Fermoy–Mitchelstown motorway (Tables 3.10.1–4). These finds ranged in date from the Early Mesolithic to the early medieval period, thereby contributing significantly to our understanding of the prehistoric and early historic settlement of the south-west of Ireland. (Note that only two sites were not classed as settlement sites; however, it is likely that they were directly associated with settlements nearby.)

*Table 3.10.1—Lithic-bearing sites excavated on the route of the M8 Fermoy–Mitchelstown motorway*

| Site name | Primary site type | No. of chipped stone tools/waste (includes other stone objects) |
|---|---|---|
| Gortore 1b & testing | Settlement | 649 |
| Caherdrinny 3 | Settlement | 202 |
| Ballynacarriga 1 | Non-archaeological (palaeochannel) | 1 |
| Ballynacarriga 2 | Settlement, souterrain | 20 |
| Ballynacarriga 3 | Settlement, burials, ring-ditches | 149 |
| Ballinglanna North 1 | Burnt mound | 7 |
| Ballinglanna North 2 | Settlement | 5 |
| Ballinglanna North 3 | Settlement, burnt mound | 20 |
| Ballinaglanna North 5 | Settlement | 1 |
| Ballinglanna North 6 | Burnt mound, settlement | 3 |
| Gortnahown 2 | Settlement , metal-working site | 73 |
| Gortnahown 3 | Settlement | 2 |
| Ballynamona 2 | Settlement, burnt mound, cremation | 47 |
| Glentalucky 1 | Cremation pits | 3 |

## The advantages and constraints of the study

The M8 Fermoy–Mitchelstown motorway crosses the River Funshion at Gortore and stretches around the foot of the Kilworth Mountains, just above the small valleys carved out by the Glencorra Stream and the River Gradoge, crossing several of the small tributaries of the latter (Illus. 1.1.1). Many new road corridors tend to cut across river valleys, and their associated watersheds, rather than run alongside larger rivers through the valleys. This is also the case with the route of the M8 Fermoy–Mitchelstown motorway, which cuts across the River Funshion, but runs parallel to the Glencorra Stream. Routes that cross major rivers are of particular importance, as they increase the chances of uncovering early prehistoric sites.

*Table 3.10.2—Dating and lithic raw material use at the sites on route of the M8 Fermoy–Mitchelstown motorway*

| Site name | Primary date | Secondary date | Flint | Chert | Quartz & crystal | Diagnostic/ retouched artefacts (%) |
|---|---|---|---|---|---|---|
| Gortore 1b & testing | MN/LN | EM, LM, EN, Chalcolithic | 581 | 5 | 2 | 9 |
| Caherdrinny 3 | EN | EM, LM, MN, Chalcolithic | 148 | 1 | 38 | 7 |
| Ballynacarriga 1 | MN/LN | | 1 | 0 | 0 | 0 |
| Ballynacarriga 2 | EMED | MN/LN | 13 | 1 | 2 | 31 |
| Ballynacarriga 3 | MN/LN | Chalcolithic | 142 | 1 | 1 | 15 |
| Ballinglanna North 1 | EMED | EM, EBA | 6 | 0 | 0 | 67 |
| Ballinglanna North 2 | LN/EBA | EMED | 5 | 0 | 0 | 0 |
| Ballinglanna North 3 | EN, EBA | | 17 | 0 | 2 | 16 |
| Ballinglanna North 5 | EBA | | 1 | 0 | 0 | 100 |
| Ballinglanna North 6 | EBA | EM, MN/ LN | 2 | 0 | 0 | 0 |
| Gortnahown 2 | EMED | Chalcolithic | 59 | 0 | 1 | 12 |
| Gortnahown 3 | | Chalcolithic | 2 | 0 | 2 | 0 |
| Ballynamona 2 | | EN, Chalcolithic | 43 | 0 | 0 | 16 |
| Glentalucky 1 | EBA | | 3 | 0 | 0 | 67 |

*Key: EM=Early Mesolithic, LM=Late Neolithic, EN=Early Neolithic, MN=Middle Neolithic, LN=Late Neolithic, EBA=Early Bronze Age, EMED=early medieval*

Judging by the abundance of later prehistoric sites in the area, it is highly likely that the watershed associated with the Kilworth Mountains formed a densely populated territory, or perhaps a zone between territories, perhaps from early prehistory.

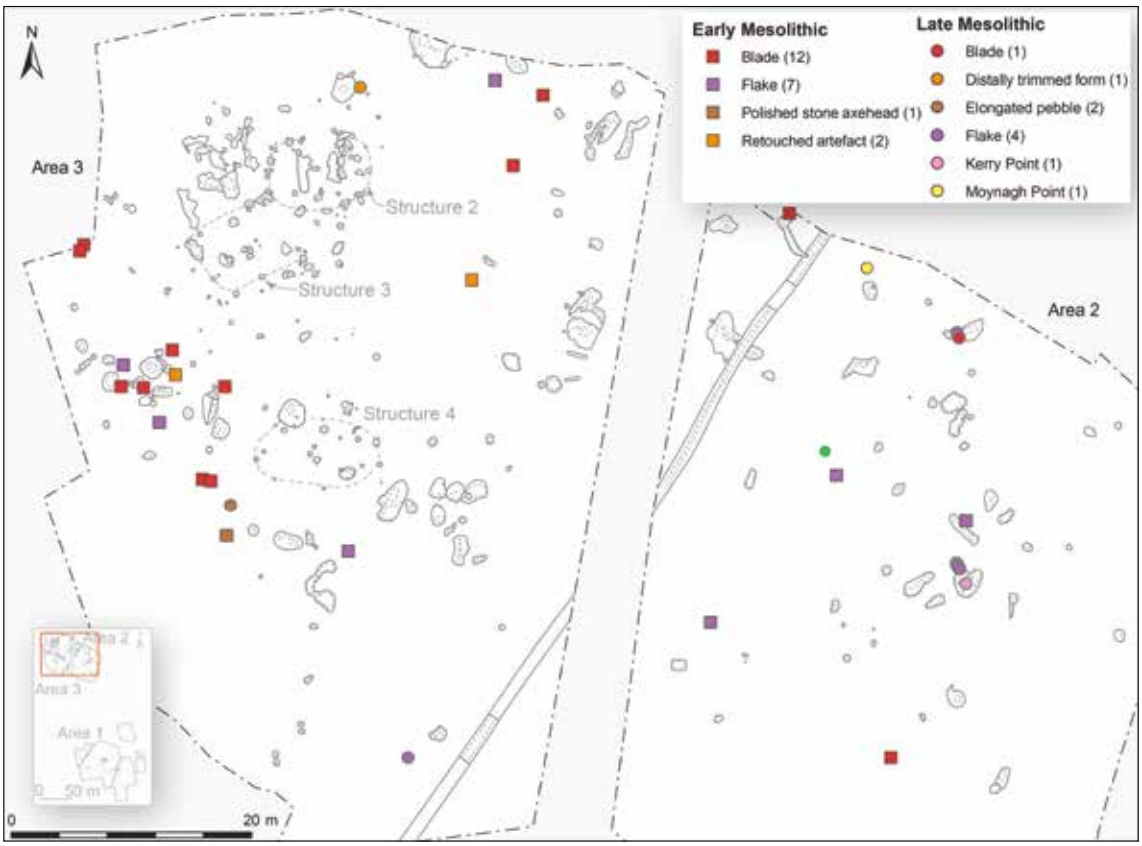
The almost total absence of local indigenous flint in North Cork (with the exception of very small amounts of *remanié* flint, available from glacial till) would likely have been perceived as a major constraint upon lithic production in prehistoric times, particularly during the Mesolithic and Neolithic periods. Flint had to be transported inland in the form of nodules or pebbles, or as preformed cores and/or blanks and finished products. It is not surprising, therefore, that the Neolithic assemblages, in particular, also contain artefacts made from flaked chert, quartz and quartz crystals, albeit in relatively low numbers. (Note the exception of Caherdrinny 3, Table 3.10.2.) The number of retouched artefacts and potential diagnostic tools recovered during the excavations is rather high (5–10% would be regarded as the norm for settlement sites). This finding indicates that

the use of lithics at these sites was primarily focused on consumption (tool use) rather than primary manufacture, as would be the case on coastal sites (cf. Zvelebil et al. 1996; Woodman 2006).

A date, or multiple dates, could be ascribed to all sites (Table 3.10.4). Most of the 14 assemblages contained a sufficient number of typologically and technologically diagnostic artefacts to attribute individual artefact groups within a single assemblage to particular periods (e.g. Early Neolithic, Late Neolithic).

*Table 3.10.3—Assemblage sizes of chipped stone stools and waste recovered on route of the M8 Fermoy–Mitchelstown motorway. (*Note: Ballynacarriga 1 is not an archaeological site, but a find-spot)*

| Artefact numbers | Number of assemblages |
|---|---|
| 1–5 | 5(6*) |
| 6–15 | 1 |
| 16–25 | 2 |
| 26–50 | 1 |
| 50+ | 4 |




*Illus. 3.10.1—Reassessed distribution of Early and Late Mesolthic chipped stone tools from Gortore 1b, Areas 2 and 3.*

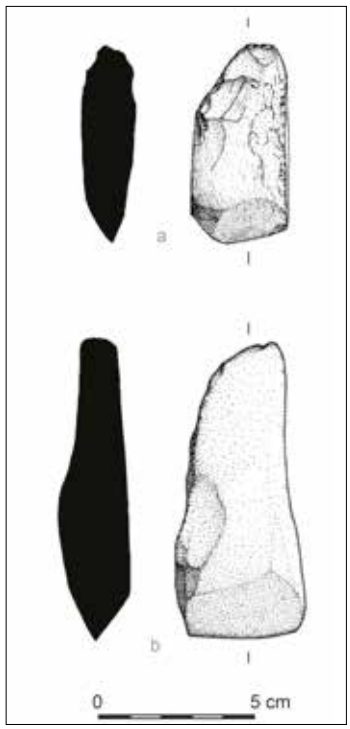
*Table 3.10.4—Dating of the chipped stone tool/waste assemblages on the M8 Fermoy–Mitchelstown motorway. Note that some sites contained assemblages from different periods*

| Period | Number of sites with corresponding assemblages |
|---|---|
| Early Mesolithic | 4 |
| Late Mesolithic | 2 |
| Early Neolithic | 4 |
| Middle/Late Neolithic | 6 |
| Chalcolithic | 8 |
| Bronze Age | 4 |
| Early medieval | 2 |

## The chronology of the chipped stone tool assemblages from the M8 Fermoy–Mitchelstown motorway

### Early Mesolithic (c. 8000–7000 BC)

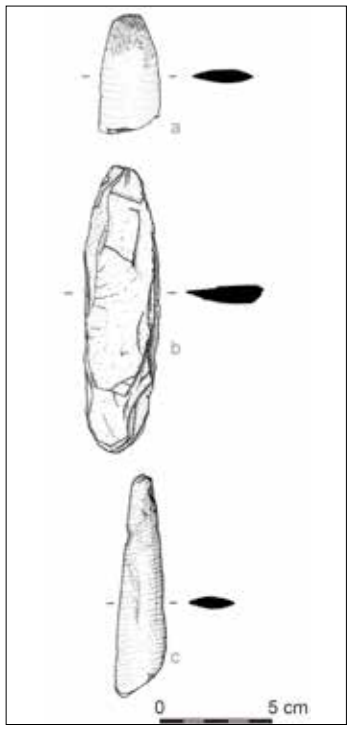
The lithic assemblages from Gortore 1b (Illus. 3.10.1), Caherdrinny 3, Ballinglanna North 1 and Ballinglanna North 6 contain flint blades and flakes whose technology places them firmly within an Early Mesolithic context (Table 3.10.4). A ground stone axehead (Illus.3.10.2[a]), made of mudstone, from Caherdrinny 3 closely resembles other known Early Mesolithic examples, but appears to have been reworked in later prehistory, specifically in the Middle–Late Neolithic or Early Bronze Age. The Early Mesolithic component in the assemblage from Gortore 1b is more sizable, comprising 15 blades, seven flakes, what is considered (Woodman pers. comm.) to be one of the earliest examples of a polished stone axehead in Ireland (Illus. 3.10.2[b]) and possibly also four retouched artefacts, among them an awl. Unfortunately, all of these Early Mesolithic finds were recovered from the topsoil. The small Early Mesolithic assemblage components from these four sites are best regarded as residual, especially since the primary dating for the sites indicate main occupations during the Middle–Late Neolithic (Gortore 1b), Early Neolithic (Caherdrinny 3) and Early Bronze Age (Ballinglanna North 1 and 6). These tools would have been put to a variety of uses, such as cutting and shaping wood, making hunting weapons, traps, huts and shelters.




*Illus. 3.10.2—Early Mesolithic axeheads: (a) a ground mudstone example from Caherdrinny 3 and (b) a polished mudstone axehead from Gortore 1b (Fiachra Dunne).*

### Late Mesolithic (c. 7000–4000 BC)

The fact that the route of the M8 Fermoy–Mitchelstown motorway is predominantly located on slightly higher ground, away from major river valleys, and that Irish Late Mesolithic assemblages typically comprise single or very small scatters of artefacts, contribute to a general lack of Late Mesolithic material in the excavated assemblages from this road project. It is fortunate, therefore, that the lithic assemblage from Gortore 1b yielded 10 Late Mesolithic artefacts (Illus. 3.10.1). The site is located on higher ground overlooking the River Funshion, at what may have been a fording point. The importance of this location is evident from the successive long-term settlements that were established there from the Early Mesolithic onwards (Table 3.10.2). Among the seven Late Mesolithic artefacts are a distally trimmed blade (Illus. 2.18.2[b]), an important Moynagh point fragment (Illus. 2.18.3[c] and Illus. 3.10.3[c]) and a rare Kerry point (Illus. 2.18.3[a] and Illus. 3.10.3[b]). A second Moynagh point fragment was recovered at Caherdrinny 3 (Illus. 3.10.3[a]). Unfortunately, as with the Early Mesolithic artefacts, the Late Mesolithic artefacts from these sites also derive from the topsoil or secondary contexts.



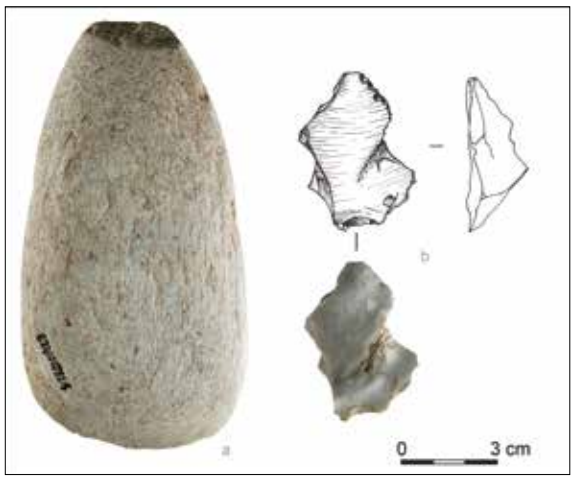

*Illus. 3.10.3—Late Mesolithic fishing implements: from Caherdrinny 3 (a) a broken fragment of a Moynagh point and from Gortore 1b (b) a rare Kerry point (E2410:548:1) and (c) a fragment of a Moynagh point (E2410:1:58) (Fiachra Dunne).*

Although the numbers are limited, the occurrence of two more locations with Late Mesolithic material corroborates existing evidence for Late Mesolithic presence in County Cork. Together with recent finds from the valleys of the River Barrow and River Blackwater (Sternke 2008a; 2013; Woodman 2006) these sites are evidence of a significant use of the Munster river valleys and perhaps are indicative of the existence of what has been described as more 'persistent places' somewhere upstream during that period (Barton et al. 1995; Woodman 2006; 2011).

### Neolithic (c. 4000–2500 BC)

During the excavations on the M8 Fermoy–Mitchelstown motorway, seven Neolithic sites and a Neolithic find-spot (Ballynacarriga 1) were identified. It has to be noted that Early Neolithic houses, i.e. permanent, sedentary settlement, were identified at three sites, Gortore 1b, Caherdrinny 3 and Ballinglanna North 3. The chipped stone tool/waste assemblages from the remaining four sites (Ballynamona 2, Ballynacarriga 2, Ballynacarriga 3 and Ballinglanna North 6) contain mixed material dating to the Neolithic period, the Bronze Age and, in one case (Ballynacarriga 2), also to the early medieval period. A split pebble flake from the palaeochannel at Ballynacarriga 1, while clearly Later Neolithic in date, is an isolated find. While it is impossible to precisely date non-diagnostic macro tools, such as rubbers, 'manos' and hammerstones, it is suggested that the examples recovered at these sites are predominantly Neolithic in date.

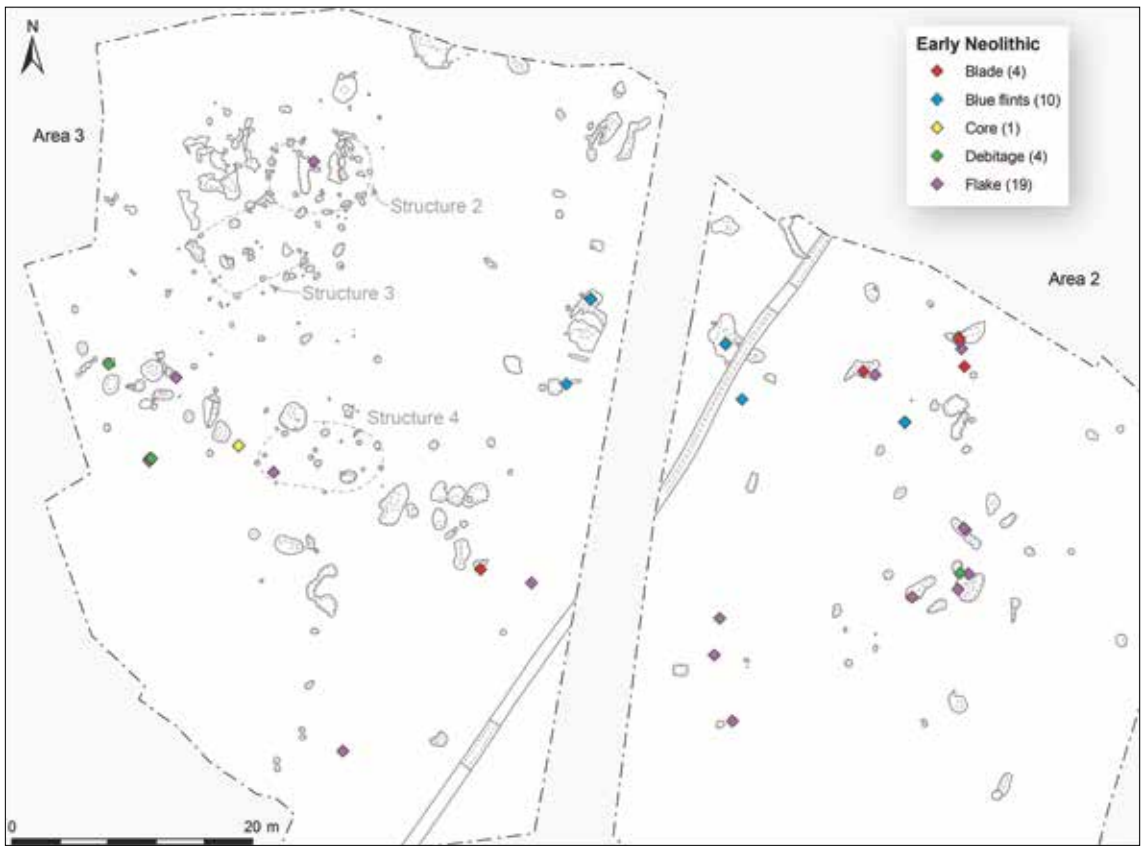
Arguably, the most important archaeological discoveries on the route of the motorway are the rectangular Early Neolithic houses at Caherdrinny 3 and Ballinglanna North 3 and the settlement




*Illus. 3.10.4—Some functional tools of some of Cork's first farmers: (a) an Early Neolithc polished stone axehead from Gortore 1b and (b) a rare strike-a-light from Caherdrinny 3 (images by John Sunderland; illustrations by Fiachra Dunne).*

site at Gortore 1b.The settlement sites at Gortore 1b and Caherdrinny 3, in particular, reveal a pattern of long-term, but episodic settlement and site use, not only in the Early Neolithic, but throughout the entire Neolithic period and well into the Bronze Age, albeit perhaps less so at Gortore.

Among the noteworthy diagnostic Early Neolithic finds uncovered in association with these Early Neolithic settlements are several platform cores, blades and flakes and a polished stone axehead (Illus. 3.10.4[a]) (although this axehead may also date to the Middle Neolithic period) from Gortore 1b (see Illus. 3.10.5 for distribution), a rare strike-a-light (Illus. 3.10.4[b] and Illus. 2.12.8[b]), a re-used polished mudstone axehead and several blades and flakes at Caherdrinny 3, and a large rhyolite knife or




*Illus. 3.10.5—Reassessed distribution of Early Neolithic lithics from Gortore 1b.*

scraper from Ballinglanna North 3. It is highly likely that a specific nodule of blue beach flint, which was used for the production of large flakes and blades (Illus. 3.10.6) at both Gortore 1b and Caherdrinny 3, provides a direct link between these two settlement sites. This link seems to indicate contact and trade in raw materials between the inhabitants of the two sites and with coastal communities.


*Illus. 3.10.6—Images of very distinctive blue flint from Gortore 1b: (a) E2410:1:66, (b) E2410:1:67, (c) E2410:1:69, (d) E2410:1:59 (e) E2410:1:64, (f) E2410:1:82, (g) E2410:1108:4 and (h) E2410:1:61 (John Sunderland).*

Middle and Late Neolithic chipped stone tools/waste was recovered at five sites, at least two of which, Gortore 1b and Caherdrinny 3, were associated with long-term settlements. Two leaf-shaped arrowhead fragments, four hollow scrapers (e.g. Illus. 3.10.7[d] and Illus. 3.10.7[c]), three concave scrapers (e.g. Illus. 3.10.7[b]), two invasively retouched forms, two scrapers (e.g. Illus. 3.10.7[e]), two side and end scrapers (e.g. Illus. 3.10.7[a]), a sandstone bead and at least 14 controlled bipolar cores, found at Gortore 1b (Illus. 3.10.8 [a] and [b]), and a concave scraper, an invasively retouched form and several controlled bipolar cores, found at Caherdrinny 3, are all diagnostic Middle–Late Neolithic artefacts.

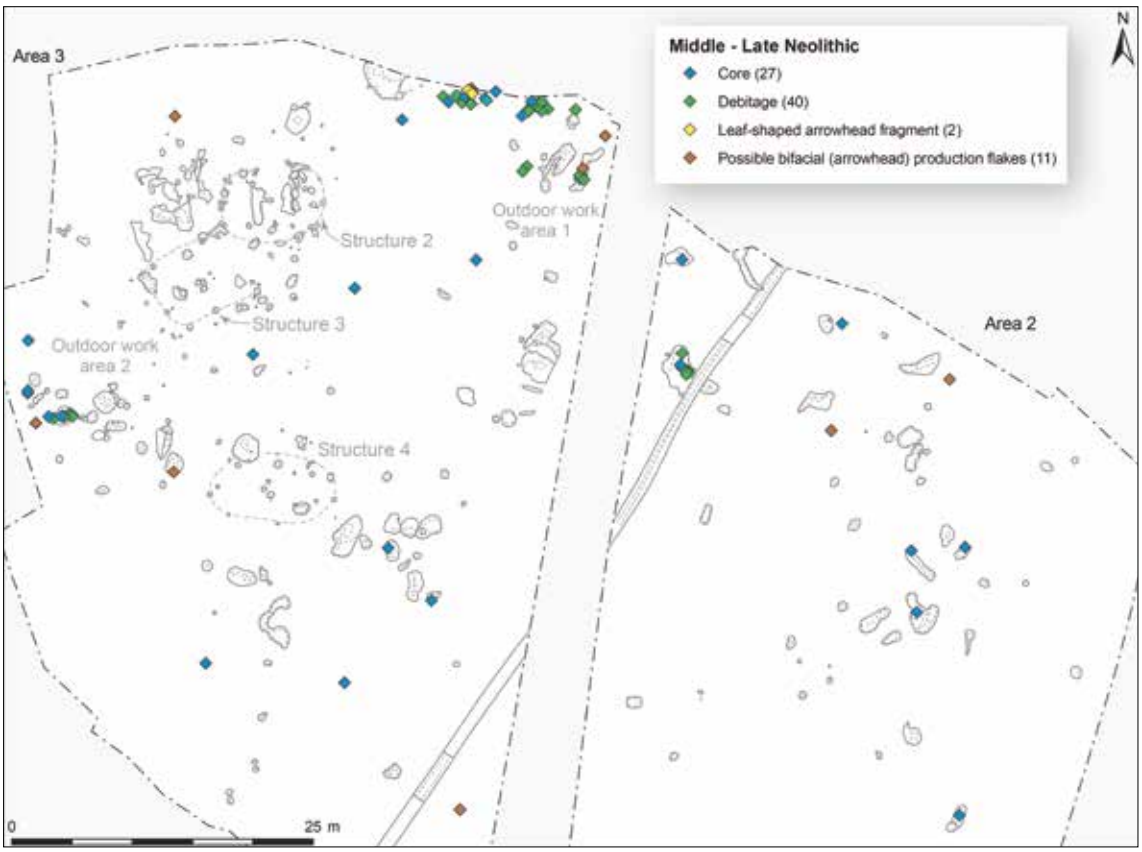
The cluster of Middle–Late Neolithic chipped stone tools/waste recovered from Ballynacarriga 3—among them at least eight controlled bipolar cores—are contemporary with the Late Neolithic occupation at the site (Illus. 2.8.2). Many of the other lithics from Ballynacarriga 3, though difficult to date, are also likely to be contemporary, given their close on-site association with Late Neolithic Grooved Ware pottery. A hollow scraper and a classic hollow scraper blank from Ballynacarriga 2 suggest the likelihood of nearby settlement in the second half of the Neolithic period.


*Illus. 3.10.7—Middle–Late Neolithic scrapers from Gortore 1b: (a) end scaper (E2410:78:1), (b) concave scraper (E2410:1:172), hollow scrapers (c) E2410:1:87 and (d) E2410:1:23, and (e) a scraper E2410:2:3 (John Sunderland).*

The assemblage from Ballinglanna North 6 contains a quern-stone fragment and a flake that are residual and are not directly associated with the Early Bronze Age burnt mound.

The Middle–Late Neolithic assemblages recovered from the M8 Fermoy–Mitchelstown motorway are typologically and technologically comparable to those derived from the large Neolithic settlements at Tullahedy, Co. Tipperary

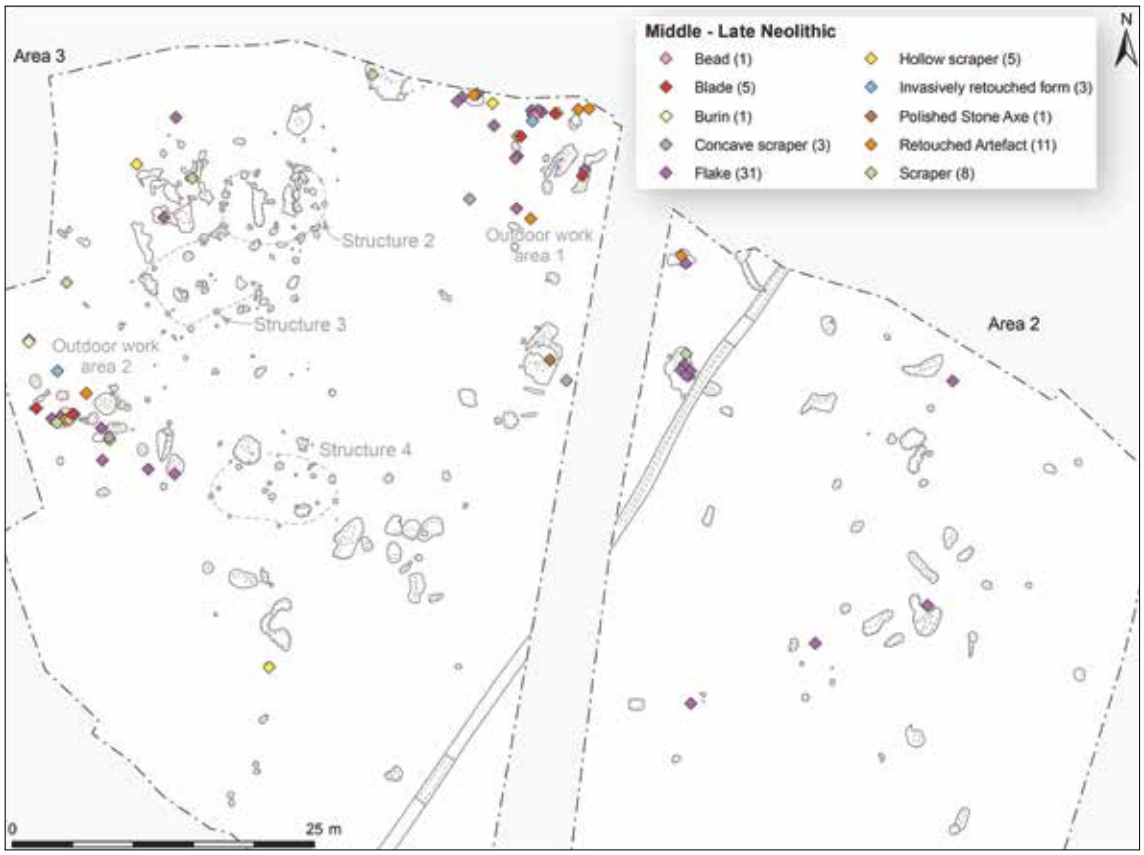
(Sternke 2011), Blundelstown 1, Co. Meath (Sternke 2008b) and Dowdstown 2, Co. Meath (Sternke 2008c).




*Illus. 3.10.8a—Reassessed distribution of some of the Middle–Late Neolithic lithics (cores, debitage, leaf-shaped arrowheads and arrowhead production flakes) from Gortore 1b.*

The paucity of material from most of the identified Neolithic sites is primarily related to their function, i.e. as settlement sites, and not to a potential lack of access to suitable raw materials. (The importation and *in situ* reduction[5] of a complete nodule of blue flint from the coastal region at Gortore 1b is an exception rather than the rule.) Overall, the Early Neolithic lithic assemblages from the route of the M8 Fermoy–Mitchelstown motorway support the proposal that the southern coastal sites were more significant as primary reduction sites than as places of settlement (Zvelebil et al. 1996; Woodman 2006). This pattern appears to have changed in the Middle–Late Neolithic, when small beach pebbles began to be imported, through trade or exchange, to the inland sites, for *in situ* reduction.

[5] The term 'reduction' is a generic term that refers to the removal of flakes from a stone, typically made of flint or chert. (The volume of the original stone reduces as a result.) Reduction is usually carried out in two main phases. The first phase, described above, is often referred to as primary reduction. A follow-on process, referred to as secondary reduction, is where the removed flakes are further modified to make sharpened edges for use as specific tools, such as arrowheads, scrapers or blades.



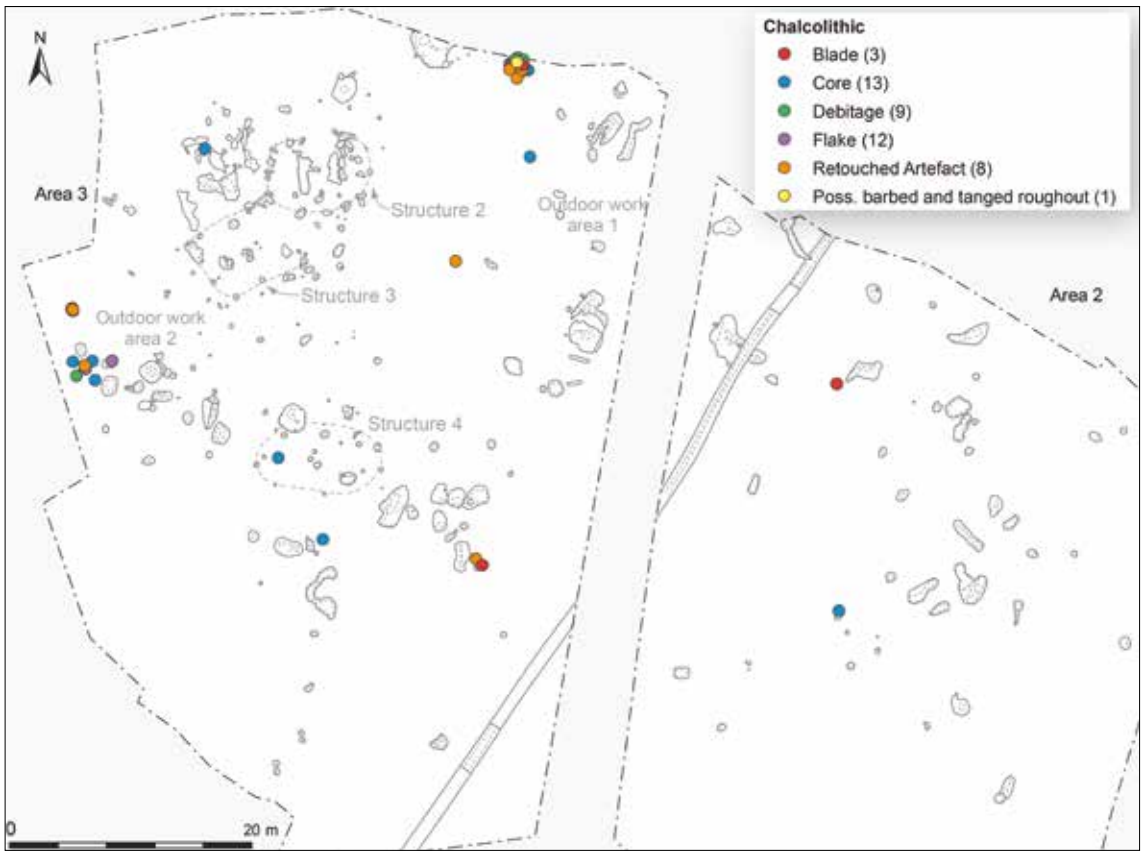

*Illus. 3.10.8b—Reassessed distribution of other Middle–Late Neolithic lithics from Gortore 1b.*

## Chalcolithic (c. 2500–2200 BC)

Eight excavated chipped stone tool/waste assemblages from the M8 Fermoy–Mitchelstown can be dated to the Chalcolithic period. All eight sites are located in river valleys or beside a larger stream, as would be expected from previously observed patterns (Woodman 2006). Chalcolithic assemblages are generally identifiable due to their technological and/or typological character. The use of bipolar technology, principally the smash-it-and-see technique, on small flint pebbles or nodules is dominant during this period (O'Hare 2005). Many sites of this date are associated with very small stone tool assemblages, often derived from *fulachtaí fia*/burnt mounds (e.g. Woodman 2006; Sternke 2013, 331). The chipped stone tool/waste assemblages from the M8 Fermoy–Mitchelstown motorway are almost exclusively associated with settlement sites, including four larger settlements at Gortore 1b (Illus. 3.10.9), Ballynacarriga 3 (principally a ceremonial site, with some domestic elements), Gortnahown 2 and possibly also Caherdrinny 3. Smaller Chalcolithic assemblages were recovered at Ballinglanna North 2, Gortnahown 3, Ballynamona 2 and Ballinglanna North 5.

Retouched tools, while present in some numbers in the larger assemblages, particularly in the form of scrapers, are rare in the smaller assemblages. A hollow-based arrowhead (Illus. 2.16.4[a]) and a small convex end scraper (Illus. 2.16.4[b]) from Gortnahown 2; a classic domed micro disc scraper (Illus. 2.12.8[i]) and two small convex end scrapers (e.g. Illus. 2.12.8[h]) from Caherdrinny 3; a micro

disc scraper (from topsoil) and two small convex end scrapers from Ballynacarriga 3; and a micro disc scraper from Ballinglanna North 5 are among the diagnostic artefacts from these sites. Common types of Chalcolithic artefacts, such as barbed-and-tanged arrowheads and slug-knives, are notably absent from the assemblages.




*Illus. 3.10.9—Reassessed distribution of Chalcolithic lithics from Gortore 1b.*

It is noticeable that flint remains the dominant raw material in the Chalcolithic. This contrasts with the Neolithic assemblages, in which chert and quartz crystal were often used as secondary raw materials. The practice of importing small, complete, beach-flint pebbles from the coast for *in situ* reduction, which started in the second half of the Neolithic period, was maintained in the Chalcolithic period, as well as in the Early Bronze Age.

## Bronze Age (c. 2200–800 BC)

Four small assemblages from the M8 Fermoy–Mitchelstown motorway can tentatively be dated typologically and/or technologically to the Bronze Age. Three assemblages, Ballinglanna North 1, Ballinglanna North 3 and Ballynamona 2, are associated with *fulachtaí fia*. The fourth assemblage derives from an Early Bronze Age cremation pit at Glenatlucky 1 and is a typical funerary assemblage, comprising two retouched artefacts—one of them is a small symmetrical slug knife—and associated pottery. The other three assemblages contain diagnostic bipolar elements that suggest use of these

sites during the Early Bronze Age and, in the case of Ballynamona 2, there is a spindle whorl that dates to the Late Bronze Age. Some of the macro tools recovered from the latter site may also date to the Bronze Age, but overall the dating of these remains uncertain.

### Early medieval period (c. AD 400–1169)

Only two assemblages, Ballynacarriga 2 and Gortnahown 2, contain rubbing stones and possible hone stones that would appear to date to the early medieval period, based on their association with other archaeological finds and dating evidence.

## 3.11 Iron-working

*Tim Young*

Archaeological investigations in advance of the M8 Fermoy–Mitchelstown motorway identified a range of sites with evidence for iron production or iron-working, ranging in age from the Early Iron Age through to the late medieval period (Table 3.11.1). The four principal sites with archaeometallurgical residue assemblages of greater than 10 kg are described here and their significance discussed. These sites, in conjunction with emerging data from other, nearby areas, help illuminate a history starting with local small-scale smelting in the Iron Age, developing into a large-scale activity focused on particular specialised sites in the early medieval period, before the development of wider trading networks in the later medieval period saw finished bar iron brought in from outside the area.

*Table 3.11.1—Sites yielding archaeometallurgical residues*

| Site | Period of metal-working | Type of metal-working | Weight of residues (kg) |
|---|---|---|---|
| Ballinglanna North 1 | Early medieval | Bloom smithing | 262 |
| Ballynacarriga 2 | Early medieval | Iron smelting, smithing | 9 |
| Ballynacarriga 3 | Iron Age | Iron smelting, smithing | 2.5 |
| Ballynamona 2 | Iron Age | Iron smelting, smithing | 47 |
| Garryleagh 1 | Late medieval | Blacksmithing | 18 |
| Gortnahown 2 | Early medieval | Iron smelting, smithing, brazing | 157 |
| Gortore 1 | Unknown | Smithing | 0.2 |

Iron-making in this area of North Cork was based on the exploitation of bog iron ores and possibly also of some rock ores, although the latter has yet to be proven analytically. The location of the main smelting sites identified in this study (at Ballynamona and Gortnahown) suggests that bog ores may have been present in the low ground around the Gradoge (a tributary of the River

Funshion (Illus. 2.1)). To the south of Gortnahown the higher topography is less favourable for the development of bog iron ores, but bog ores may have been developed on low-lying ground close to Ballynacarriga. Place-names in the vicinity (such as Ballynamona, meaning 'homestead of the bog' and Whitebog) also attest to the likelihood of bog ore having been available locally during the early medieval period.

The earliest part of this story begins with the Iron Age iron smelting at Ballynacarriga 3 and Ballynamona 2 (c. 100 BC–AD 100). In the early medieval period (c. AD 500–700) iron production was undertaken at Gortnahown 2, with the product apparently being worked on the same site through to the production of small brazed iron bells. This site is without parallel and its context, whether secular or ecclesiastical, remains uncertain. Slightly later, iron-working at Ballinglanna North 1 appears to have been conducted on an almost industrial scale (seventh to eighth centuries AD) and on a much lesser scale of Ballynacarriga 2. Later in the middle ages a small-scale smithing operation was located at Garryleagh (13th–14th centuries), in the north of the study area, but this showed no indication of any direct association with local iron production.

## The technology of iron production

In Ireland, the technology of iron production remained remarkably stable over the time period considered here. The most common ore sources were the bog iron ores found in and around wetlands over much of the country. These would have been smelted in small furnaces in what is sometimes called the bloomery or direct process. In this process, the ore was reduced in a reaction with carbon monoxide, produced by burning charcoal. Most bloomery furnaces were shaft furnaces—that is to say, furnaces that employed gravity to allow the charge (containing the iron ore) to descend past the rising gasses. The iron generated in the reaction accumulated as a solid mass (the bloom) just below the level at which air was blown into the furnace. The most common style of furnace employed for early iron smelting in Ireland was the slag-pit furnace, in which the waste materials (the gangue—i.e. the non-metallic component—from the ore plus melt generated from the wall of the furnace) descended past the bloom and solidified in a pit, initially packed with wood, below the structure (i.e. they were non-slag-tapping furnaces). These basal pits preserve a characteristic assemblage of slag, mainly in the form of small prills and sometimes large flows on the side below the blowhole. These prills and flows are known as 'flow slag' and often surround voids corresponding to the original blocks of wood in the pit packing. The upper part of the pit, immediately below the bloom, may be partly filled with a more coherent block of slag formed of coalesced prills and entrained charcoal fragments. It is such pits that were formerly interpreted as 'bowl furnaces'.

Removal of the bloom and the slag from the furnace, after the smelt, would have been either through the top of the shaft, in a small furnace, or through an arch in the side of the furnace (particularly for larger or bottle-shaped furnaces). The arch might have been either at or above ground level or might have opened into a pit in a rather similar way to the tapping arch of a slag-tapping furnace. The actual height of the shaft is not known in most cases, but must have been sufficient to contain the charge above the level of the blowhole. Bloomery iron smelting was undertaken from at least the fourth century BC and persisted well into the post-medieval period, despite the progressive replacement of bloomery iron by industrial bar iron (produced by refining pig iron from a blast furnace) in post-medieval times.

Once a raw bloom had been produced, it had to be refined to remove any trapped charcoal, to remove most of the entrained slag, to close-up voids and to rework the surviving trapped slag into the elongate inclusions that give the finished iron its slightly fibrous structure. This process typically involved reworking the bloom through repeated reheating and hammering, although it is possible that other techniques were also employed. This stage of the process is known as bloomsmithing, primary smithing or bloom-refining. The finished iron might then be employed for manufacturing artefacts. The manufacturing processes, together with the other activities of the blacksmith, such as repairing artefacts, are known as secondary smithing or blacksmithing.

Both primary and secondary smithing were undertaken using an open hearth, typically built upon a shallow pit or some such cut feature, usually a little longer than it was wide, up to about 1.4 m in length. These hearths are poorly known in the Iron Age of Ireland, but may have been similar to British examples, with the fire contained and separated from the bellows by a clay wall containing a blowhole. By the early medieval period, however, a distinctive form of hearth had been adopted in Ireland, in which air blast from the smith's bellows was blown into the fire through a ceramic tube, referred to as a *tuyère*. The use of such floor-level hearths and ceramic *tuyères* persisted, particularly in rural areas, and were only supplanted by waist-level hearths blown through iron *tuyères* in the 18th or 19th century.

During smithing iron is lost from the workpiece into the hearth. When the iron being worked is particularly hot or fragile, then the rate of loss will be large. For this reason, the loss of iron during bloomsmithing is particularly acute (the total iron loss during primary smithing may amount to 40–50% of the original bloom). The iron oxides or metallic iron lost in this way will react with the melting ceramic of the *tuyère* tip or hearth wall to form slag. The most common form of slag produced in smithing hearths is the smithing hearth cake (sometimes called a hearth bottom, despite not necessarily forming on the bottom of the hearth). These cakes are rounded, often plano-convex cakes, typically with a bowl of iron slag overlain by slag rich in charcoal inclusions and often siliceous slag formed from less modified ceramic-derived melt. The size of smithing hearth cakes produced will depend on various factors, including the length of the session between hearth clearances and the rate of iron loss from the workpiece. In general, larger smithing hearth cakes will be generated during the primary smithing operations and much smaller ones during secondary smithing.

## The iron-working sites

### Ballynamona 2

There were features identified as the basal pits of slag-pit iron-smelting furnaces in two distinct areas of this site (Illus. 2.10.6; Illus. 3.11.1). In Area 2, the basal pit of a slag-pit furnace (457), 0.43 m in diameter and 0.32 m deep, appears to have been abandoned with very little clearance of the waste from its last smelt; there were 10.1 kg of slags remaining in the furnace pit. These slags were dominated by approximately 9.6 kg of flow slags, much as individual prills, but one block of amalgamated flows from the blowing wall weighed 1.8 kg. In addition to these large slag pieces, the pit contained about 0.5 kg of fine-grained slag particles, including some tiny prills, but also many individual droplets of slag frozen as they descended through the pit fill. Many of these droplets are not perfectly rounded, but bear a dimple where they cooled against a wood or charcoal fragment, giving rise to a characteristic 'coffee-bean' shape. There were also tiny rusty particles that

are probably partly reacted ore that fell through the furnace early in the smelt.

In Area 1 of the site (Illus. 2.10.6) there were several pits that probably represent similar furnaces, although none presents such a complete range of residues as the furnace in Area 2, as described in Table 3.11.2. Less certain is a group of associated pits with somewhat larger dimensions and a lack of field evidence for having been furnaces, described in Table 3.11.3.

Thus is seems the furnace pits (Table 3.11.2) were associated with several larger pits (Table 3.11.3), which were eventually backfilled with iron-working waste, but which might have had some different primary function, such as charcoal burning or as quarry pits for the furnace clays. A sample of charcoal (ash) from one of these latter pits gave a radiocarbon date of 87 BC–AD 51 (UBA-14151).

*Table 3.11.2—Iron-working residues from a range of furnace-like pits in Ballynamona 2, Area 1*

| Pit | Dimensions (m) | Weight of residues (kg) | Composition of residues |
|---|---|---|---|
| 010 | L 0.55, W 0.55, D 0.22 | 1.3 | Fine residues and furnace lining |
| 014 | L 0.47, W 0.38, D 0.11 | 0.09 | Flow slag |
| 018 | L 0.47, W 0.46, D 0.22 | 6.5 | Smelting slags |
| 036 | L 0.56, W 0.44, D 0.21 | 1.9 | Smelting slag and three smithing hearth cakes |
| 056 | L 0.48, W 0.46, D 0.18 | 1.6 | Smelting slags |
| 126 | L 0.40, W 0.28, D 0.14 | 0.566 | Smelting slags |
| 135 | L 0.47, W 0.38, D 0.10 | c. 0.9 | Smelting slags |

*Table 3.11.3—Iron-working residues from a range of other pits (possible furnaces?) in Ballynamona 2, Area 1*

| Pit | Dimensions (m) | Weight of residues (kg) | Composition of residues |
|---|---|---|---|
| 006 | L 0.75, W 0.62, D 0.27 | c. 1.8 | Smelting slags |
| 041 | L 0.87, W 0.50, D 0.19 | 0.74 | Smelting slags |
| 051 | L 0.6, W 0.49, D 0.10 | 0.15 | Slag |
| 054 | L 0.51, W 0.6, D 0.17 | — | No slag |

The clustering of furnaces within Area 1 suggests that smelters returned to the site repeatedly, rebuilding furnaces in a similar spot on some occasions, but switching to a nearby location on others. This pattern, particularly given the lack of domestic evidence of this site in the Iron Age, suggests repeated exploitation of the resources (this spot might have been chosen for its proximity to bog iron ores or to woodland suitable for charcoal making), perhaps with some breaks in exploitation (for instance to allow coppice woodland to regenerate), or perhaps because furnace locations became inconveniently surrounded by their own refuse.

It is becoming clear that there was considerable diversity in the forms of iron-smelting furnace employed in the Iron Age, but the Ballynamona examples are of perhaps the most common form until around the first century BC, with a simple basal pit with a diameter between 0.4 m and 0.5 m. It has been suggested (e.g. Young 2009b; Young & Kearns 2010) that these rather large-diameter slag-pit furnaces were characteristic of the period of perhaps the fourth to first centuries BC, with somewhat smaller furnaces characterising the Late Iron Age, but this contention may be a result of a rather small number of smelting furnaces known from the Late Iron Age.

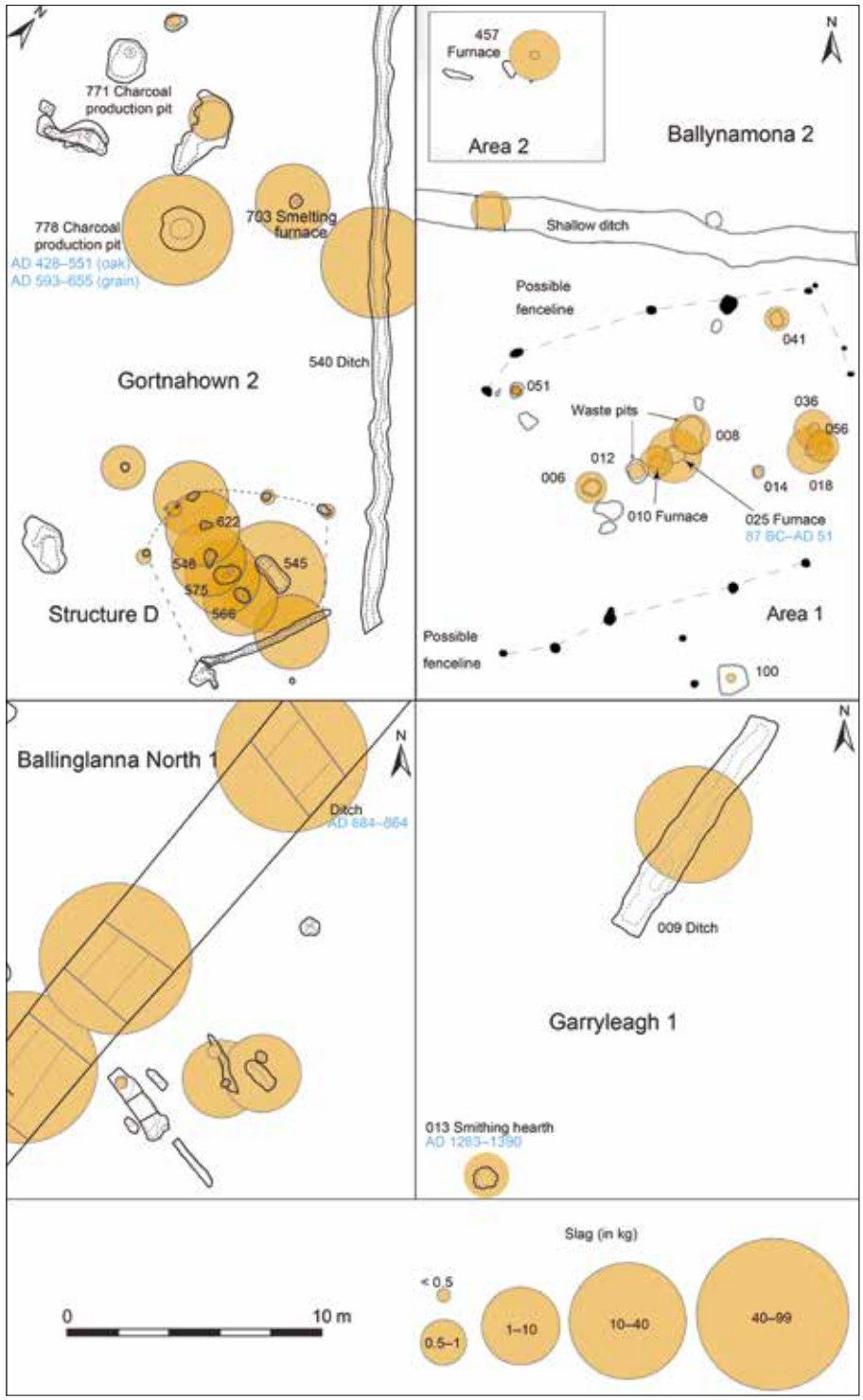
### Gortnahown 2

This site provided evidence for a wide range of metallurgical activities, with approximately 158 kg of residues recovered (Illus. 2.16.8; Illus. 3.11.1). Both primary iron production and the end-use of iron are attested by the residues: there were 37 kg of iron smelting slags, 79 kg of certain smithing slags, plus a further 34 kg of indeterminate iron slags (Young 2011b).

At the core of the site were two round-houses (Structures A and B), dated to the early medieval period. From Structure A there were two early medieval dates, AD 664–771 (UBA-13215) and AD 660–771 (UBA-13256) and from Structure B there was one early medieval date, AD 593–654 (UBA-13216). The round-houses themselves yielded only a minute amount of metal-working residues and the metallurgical activity was concentrated in three areas away from the round-houses: the first about 25 m west of the Structures A and B, one 20 m to their north at Structure D (interpreted as a workshop) and the third about 30 m north of the central round-houses (Illus. 2.16.6).

The western metal-working area appears to have been more severely truncated than the northern two areas, with several features represented by scorched subsoil, rather than surviving pits or hearths. Much of the residues were recovered from a drainage gully (228), including both iron-smelting and smithing slags. Although the residues included a significant proportion of smelting slags, no identification of a smelting furnace could be made. One structure (061; Illus. 2.16.6) appears of an appropriate size to have been a smithing hearth. Given the occurrence of smelting slags in this area, it might be expected that the associated smithing residues would include smithing hearth cakes from primary smithing. There were 26 examples of smithing hearth cakes from the western area, with a maximum weight of 956 g and a mean weight of 381 g; both of these figures are significantly less than for the equivalent assemblage from the northern part of the site. If this assemblage is indeed from primary smithing, then this small size of smithing hearth cake might suggest an Iron Age date for this activity.

The most northerly area of metal-working includes several pits, together with a slag-pit iron-smelting furnace (703; Illus. 2.16.9), comprising a pit of 0.52 m by 0.44 m and 0.19 m deep. The upper fill contained 2.5 kg of, mainly, fairly small-scale flow slags, suggestive of an *in situ* slag-pit assemblage. Two large burnt pits (771 and 778; Illus. 3.11.1) are more problematic to interpret; but both features could possibly have been charcoal-production kilns. Pit 778 has yielded a radiocarbon date, from a sample of oak charcoal, of AD 428–551 (UBA-13218) and, from charred cereal grains, of AD 593–655 (UBA-13255); its upper fills contained a few sherds of brazing shroud—a clay coating applied over an iron object while it was being brazed, a process to apply copper alloy to iron for coating or joining purposes; see below for further details—providing the best evidence for late sixth to early seventh century brazing. These dates are broadly contemporary with the date from the smaller round-house, Structure B.




*Illus. 3.11.1—Composite plans of iron-working features at Gortnahown 2, Ballynamona 2, Ballinglanna North 1 and Garyleagh 1.*

The third area of metal-working (25 m north of the round-houses) comprised at least one iron smelting furnace (548), a possible second smelting furnace (566) and two large smithing hearths (575 and 545), all enclosed in a workshop (Structure D; Illus. 2.16.9; Illus. 3.11.1). Interpretation of none of these features is straightforward, however; they are discussed in more detail below. Significant quantities of residues were also recovered from the adjacent slot-trench (586) and drainage ditch (540). Most of the brazing shroud fragments were recovered in this area.

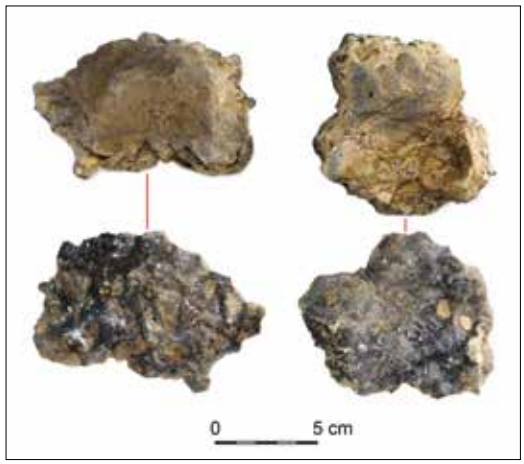
Furnace pit 548 measured 0.75 m by 0.43 m and 0.28 m deep, but its upper fill measured 0.48 m by 0.46 m, which is more likely to have been the working size of the slag-pit. The fill included *in situ* slag, apparently flow slag, but also contained a large smithing hearth cake, presumably dumped into the abandoned furnace pit. A nearby pit (566) may also have been from a smelting furnace and measured 0.65 m by 0.5 m and 0.3 m deep. Its lower fill was 0.52 m by 0.4 m by 0.05 m, which probably provides a better estimation of the working size of the slag-pit, as it indicates a working volume appropriate for a slag-pit furnace. The lower fill yielded only a small quantity of indeterminate slags, the middle fill no slags, but the upper fill was dominated by smelting slags.

Two probable smithing hearths (545 and 575; Illus. 3.11.1) were also located in Structure D. Both pits show complex internal stratigraphy, which makes their interpretation and reconstruction very difficult. The form of neither feature corresponds closely to that of a typical early medieval smithing hearth.

Hearth 545 had an elongate cut, with slight widening at one end, with overall dimensions of 1 m by 0.6 m and 0.3 m deep, and which appears to have been filled, quite distinctly, in its two halves. In the base of the cut, an 'iron oxide layer' lay in the bottom in the south-east half and a dark layer abutted the north-east wall in the same area. This asymmetric distribution resembles that of the slag and alteration produced by the lateral blowing arrangement found in many smelting furnaces, and raises the possibility that this structure started as a smelting furnace. There is, however, no other supporting evidence from residues for this possibility. Indeed, there are actually no firm indicators at this level that this is a metallurgical feature at all. It is only the upper fills that contain metallurgical residues. The rich and diverse nature of these assemblages (which included three sherds of crucible, 15 fragments of brazing shroud, 9.6 kg of smelting slag and 2.1 kg of smithing slag) clearly indicates this is a mixed waste deposit, and represents a microcosm of the metallurgical activities of the site as a whole.

Hearth 575 lay between the two possible smelting furnaces (548 and 566; Illus. 3.11.1). The feature shows a much stronger degree of alteration of the clay around the hearth than either of the adjacent features. Like Hearth 545, described above, this example was an elongate structure, with complex fills and the latest activity concentrated in one end (the north-east). The latest phase of the structure comprised a sub-circular pit-hearth, with a stone forming its floor (the stone having been emplaced during an earlier phase of the feature). The *in situ* slag was attached to the stone and the north-west pit wall. These deposits overlay what appears to have been material from an earlier phase of use. These two phases appear to have employed a rather similar hearth morphology, with the later sub-circular pit of c. 0.5 m by 0.55 m, being a smaller version of the earlier, more elongate pit, c. 0.7 m by 0.55 m, with both using the same stone as the base. The south-west side of the later hearth was formed by a deposit of white clay, bearing large stones. The overall original cut (575) was therefore 1.02 m by 0.72 m by 0.25 m, with the basal stone towards the north-east end, and it had a neatly rounded form.

Hearth 575 yielded few residues, apart from the slag attached to the walls and basal stone. Identification of such basal crusts is very difficult, but the occurrence of some highly haematised slag fragments suggests use as a very strongly blown smithing hearth, for the later phases. The purpose of the earliest form of the hearth and the reason for its partial in-fill with the white clay and stone layer remain unclear. Although it is possible that the hearth was a simple smithing hearth from the outset, the presence of the stone in the base is unusual. The best parallel for such a stone is the basal stones within the two smelting furnaces at Knockbrack, Co. Kerry (Hull & Taylor 2006). However, the size of Hearth 575 only approaches that of the Knockbrack furnaces (0.37 m diameter) in its final phase; the earlier phases are much larger and more open. It is possible that the unusual nature of the two smithing hearths within Structure D is a reflection of their use for brazing.




*Illus. 3.11.2—A selection of some of the brazing shrouds, both sides illustrated, from Gortnahown 2 (John Sunderland).*

The most interesting facet of the iron-working at Gortnahown 2 was the occurrence of a substantial quantity (166 fragments, 4.8 kg) of fragments of brazing shroud (Illus. 3.11.2–3), all apparently from brazing iron bells. This process has recently been investigated in detail at Clonfad, Co. Westmeath (Young 2009c; 2012), where, among other brazing debris, an almost complete shroud from a large ecclesiastical handbell was recovered from a late seventh- to eighth-century pit. Fabricating an iron bell involved folding a thin sheet of wrought iron to form the carcass of the bell (Bourke 1980; 1986; 2008). The sides of the folded sheet were overlapped and, in large bells, were usually secured with rivets. A loop of iron formed the external handle and the internal clapper suspension loop; the loop passed through two holes punched or drilled in the top of the bell. The purpose of the brazing is threefold: firstly to secure the joints with the handle, secondly to join and fill the lateral seams to allow the bell to ring, and thirdly to provide a corrosion-resistant coating. The brazing process involved coating the bell (along with copper-alloy brazing metal, positioned against the surface of the iron bell) in clay, forming a sealed package. The ironwork was, in some cases, wrapped in cloth before the clay shroud was applied. The whole package was then fired at high temperature, enabling the copper alloy to melt and flow over the surface of the iron. The process of brazing within a clay coat was mentioned by Theophilus (c. 1120) and similar processes have been employed in various areas for the manufacture of animal bells until very recently (Björklund 1982; Jouffray 1993; Laurence 1991).

The fabric of the shroud from Gortnahown (Illus. 3.11.2) is very similar in appearance to that from Clonfad, with a pale grey-to-cream sandy fabric, usually with a grey internal surface, occasionally showing a thin vitrified or slaggy veneer, passing outwards into paler, vesicular and vitrified material, with a vitrified outer surface showing dimples where fuel particles have dented the soft ceramic. The outer surfaces show a varying degree of vitrification, with the shroud covering the upper part of the bell typically more deeply and darkly vitrified than that at the lip (where there may just be a thin transparent green wood-ash glaze), suggesting the bells were fired in an inverted position (as

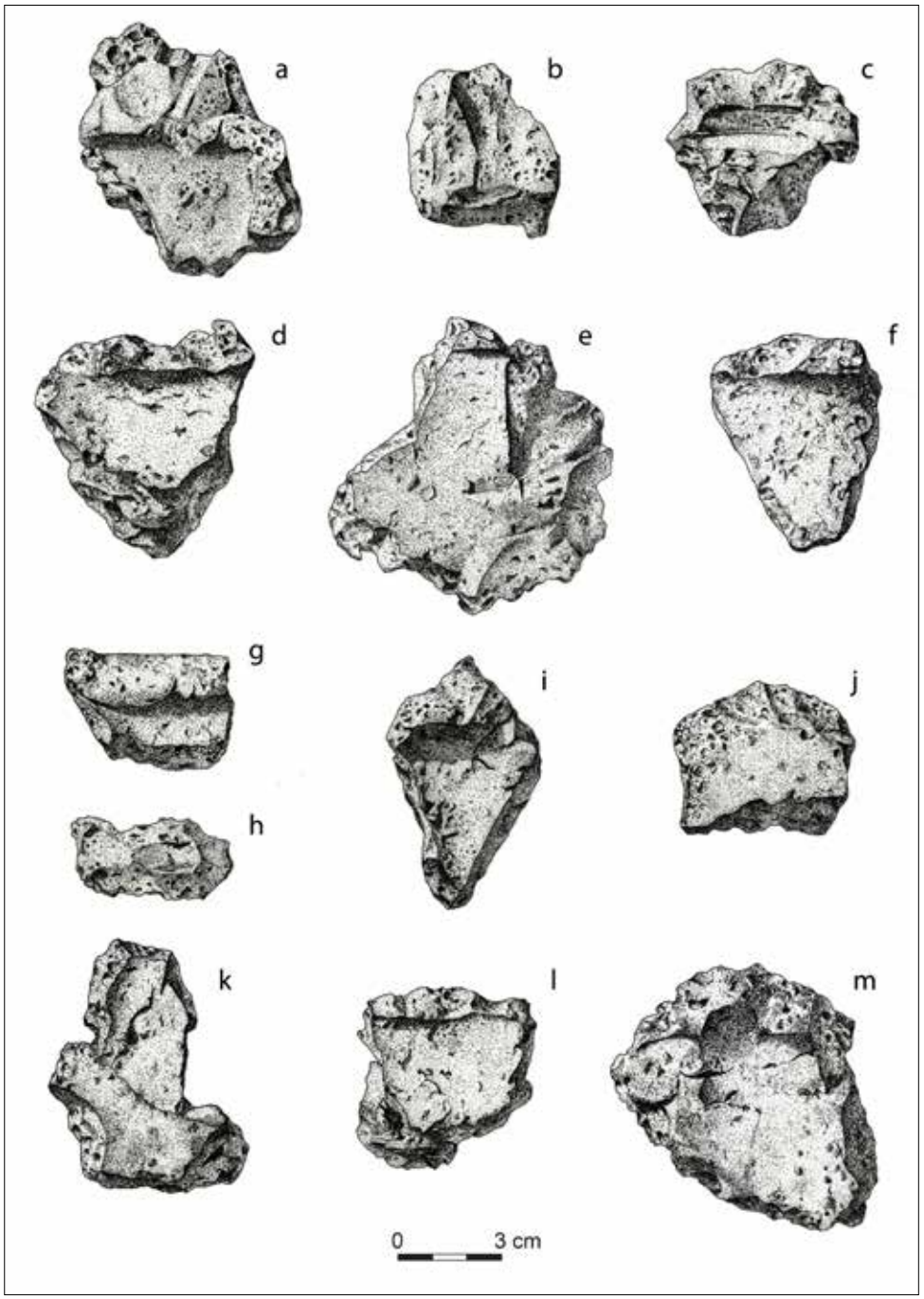
at Clonfad). One detail, not preserved in the material from Clonfad, is that the shroud curves over the lip of the bell, before terminating around 5 mm up the inside of the bell—showing that the open-end of the bell was not covered by a shroud during brazing. The vitrification decreases rapidly around the lip of the bell, with the shroud on the inner surface apparently not vitrified. Although much of the shroud is of a similar thickness to that from Clonfad (where it ranged from c.15 mm at the lip of the bell, 20 mm over much of the sides, increasing to 30 mm where the shoulders of the bell curve inwards), the smaller size of the Gortnahown bells means that there are more rapid lateral thickness changes, and parts of some shrouds, particularly near the lip, are much thinner than the Clonfad examples. The smaller size of the Gortnahown bells also means that the clay shroud did not require building by coiling as at Clonfad, but appears to have been applied as a single mass.

The sherds from Gortnahown mostly indicate the manufacture of small bells of a size similar to modern goat or sheep bells (although debris from the brazing of larger bells is also present, albeit frequently with indications of over-firing and failure, suggesting that the smiths may have encountered difficulty in scaling up their process to larger bells). No complete profiles are preserved, but we can estimate from the sherds that the typical small bells were 80–100 mm high at the shoulder, and about 65 mm wide and perhaps little more than 18 mm wide at the shoulder. They appear to have been roundedly quadrilateral in plan, with probably only a rather slight widening towards the lip, where most examples may have been 60–80 mm by 30–40 mm. The long sides are relatively planar, with one lip 80 mm wide showing a maximum bowing out of the side of about 10 mm compared with a chord between the angles.

The handles of the small bells appear to have been mainly 10 mm in width and 4–6 mm thick, with a rectangular cross section with only a very slightly (if at all) concave outer face. Where the relationship of the handle to the bell was seen, the insertion of the handle appears at 4–20 mm from the shoulder, a surprisingly large degree of variation. The handle either rises vertically for 5 mm before in-curving, or is slightly inwardly inclined from the top of the bell. One sherd (fragment no. 75, not illustrated) shows part of a handle with an approximately 40 mm radius of curvature.

Rivets, which are so prominent on ecclesiastical bells, were not observed on the Gortnahown 2 material, with one possible exception. The overlap of the side seam was observed on many pieces, and the absence of evidence for rivets may mean that they were of reduced size, or finished to be more flush with the surface of the sheet iron in comparison with those on ecclesiastical bells, or even that no rivets were used. The step seen on the narrow sides (fragment no. 64, not illustrated) is rarely more than 1 mm, and the bell lips range between 1 mm and 2.5 mm in thickness. The shoulder flap of one well-preserved sherd (fragment no. 53, Illus. 3.11.3[m]) appears to extend to 15 mm below the shoulder and protrudes about 3 mm.

Six sherds showed good evidence for the use of a fabric wrapping for the workpiece inside the clay shroud (Illus. 2.16.8) and a further six sherds possibly showed this. Of the six examples of certain fabric impressions, five were from large bells and/or internally vitrified samples. It is not clear whether the use of fabric was preferentially employed in brazing large bells, or whether the degree of vitrification in the large examples has preferentially preserved the evidence for fabric use. Wrapping the workpiece in fabric before coating in clay was only observed on a few sherds at Clonfad, but is a feature commonly seen in Viking-period brazing in Scandinavia (Söderberg & Holmquist Olausson 1997), and also in some material from Armagh (Gaskell Brown & Harper 1984, 147–9) and Dublin (Bayley 2013; forthcoming).




*Illus. 3.11.3—Group of brazing shrouds fragments showing detail of the shape of the bells from Gortnahown 2: (a) fragment no. 26, top, handle and possible horned shoulder, (b) no. 30, handle and top of flap, (c) no. 86, side of handle, (d–e) no. 6, side and part of handle, (f–g) no.34, base, (h) no.46, handle and part of shoulder, (i) no.33, shoulder, (j–k) no.60, base,, (l) no. 17, rim/ side and (m) no. 53 top with part of shoulder and handle (illustrations by Malgorzata Kryczka).*

The assemblage also included a very small quantity of other residues associated with the use of copper alloy, including a small quantity of blebs (spherical nodules) of copper-alloy metal. Three sherds of crucibles were recovered, two of which were from large triangular crucibles (possibly from the same vessel), the third an indeterminate body sherd. All three had colouration suggesting contact with copper alloy. Triangular crucibles have been found in contexts ranging in date from the Iron Age to the early medieval period.

There were no certain examples of *tuyères* at Gortnahown, despite the large quantity of smithing debris, which is unusual for an early medieval site. Smithing hearth cakes included many of a size indicative of blacksmithing (end-use of iron), but a few ranged up into sizes more commonly associated with bloomsmithing. Even these were, however, rather moderately sized (up to approximately 3.5 kg), compared with typical early medieval examples. The size of iron sheet required for forging the typical small bells at Gortnahown would have been substantially less than for the large bells at Clonfad. The relatively low maximum smithing hearth cake size may reflect this need for much smaller blooms at Gortnahown compared to Clonfad, where the smithing hearth cakes ranged up to 11 kg.

Gortnahown 2 has thus provided a unique body of evidence for iron production and working at the very beginning of the early medieval period. The lack of *tuyères* and the relatively small smithing hearth cakes, particularly from the western metallurgical area, are features that would currently be interpreted as typical of Iron Age iron-working, although there is currently a high degree of uncertainty about when the use of ceramic *tuyères* spread through Ireland. The presence of both smelting slags and brazing debris (indicating the end-use of iron for artefact production) allows the smithing hearth cake assemblage from the site to be understood in a way not possible at most other sites.

### Ballinglanna North 1

This site also yielded a remarkable suite of slag and other residues, mainly from the fills of a large ditch (Illus. 2.1.3; Illus. 3.11.1). Charcoal from the ditch was dated to AD 684–864 (UBA-12968) and a hazelnut from a nearby pit gave a date of AD 664–854 (UBA-12970).

The slags can mainly be interpreted as large smithing hearth cakes (235 kg out of a total assemblage of 262 kg), with a narrower range of morphology and size than is usual for such assemblages. The 64 smithing hearth cakes, for which the original weight could be estimated, had a mean weight of 2.85 kg (range 0.086–9.27 kg). Just 17% of the smithing hearth cakes weighed less than 0.5 kg, with 78% greater than 1 kg and 42% heavier than 3 kg. The proportion of smithing hearth cakes of over 3 kg is far larger than for any other assemblage yet investigated in Ireland (with the possible exception of the assemblage from Lisleagh 1, Co. Cork, which is currently being studied). The maximum weight of the slag cakes (9.3 kg) is comparable with the largest examples from early medieval sites such as Borris, Co. Tipperary (7.4 kg; Young 2009d), Lisleagh, Co. Cork (8.8 kg: author's unpublished data) and Clonfad, Co. Westmeath (11 kg; Young 2009c, 2012). Although the large slag cakes from Ballinglanna, Borris and Lisleagh have yet to be analysed in detail, analytical evidence from specimens from Clonfad (Young 2009c; 2012) and Woodstown (Young 2009a; 2014) has been used to support the suggestion that smithing hearth cakes of over 2 kg were associated with refining raw iron blooms.

The assemblage of smithing hearth cakes from Ballinglanna North has a very low proportion (17%) below 0.5 kg in weight and only 20% below 0.85 kg. These small cakes are the typical

residues from the end-use of iron (blacksmithing), so their low abundance at Ballinglanna North, compared with larger examples, indicates that little of the iron being processed at the site was being worked into finished items. The primary activity seems, therefore, to have been primary-bloom iron smithing to produce near fully finished blooms, to supply the increasing raw material needs of early medieval society in the area of North Cork, and perhaps beyond.

### Garryleagh 1

This final site comprised an apparently isolated smithing hearth (013), dated to the late 13th to 14th centuries (AD 1283–1390, UBA-12977), and an associated short length of ditch (009) containing a moderate amount of residue from iron-working (blacksmithing) (Illus. 3.11.1). The sub-circular hearth was 0.9 m by 0.87 m and 0.15 m in depth. The hearth produced a small quantity of slag and hammerscale, but most of the 18 kg of residues derived from the ditch. The site showed heavy truncation by cultivation furrows.

The slag assemblage was dominated by small smithing hearth cakes, of which 25 were sufficiently complete to allow an estimation of their original weight. They varied from 0.084 kg to 0.802 kg with a mean of 0.331 kg; 76% of them weighed less than 0.5 kg. The assemblage is, therefore, of very small size, but can be compared with others with a similar pattern of smithing hearth cake weight from Mucklagh, Co. Offaly, of post-medieval date (Young 2008a) and an unpublished assemblage (but probably medieval or post-medieval) from Clonmacnoise Co. Offaly (pers. obs.). The assemblage differs from many of earlier medieval age—e.g. those from Coolamurry, Co. Wexford (Young 2008b; McCullough & Young forthcoming), Carrigoran, Co. Clare (Young 2006) and Navan, Co. Meath (Young 2007)—which show a similar range of smithing hearth cakes of below 0.8 kg, but which, in addition, contain a small number of much heavier weight (typically greater than 2 kg). These larger smithing hearth cakes have been attributed to refining blooms (as discussed above). This attribution suggests that at these earlier sites at least some iron reached the smith in the form of raw blooms (or part blooms) requiring refining before use; the reverse of this is that it implies that the later medieval and post-medieval sites, such as Garryleagh 1, without the larger smithing hearth cakes, were receiving iron that had already been refined.

The residue assemblage included fragments of ceramic *tuyères*, indicating the usual medieval hearth technology.

## Discussion

The four sites described above (Ballynamona 2, Gortnahown 2, Ballinglanna North 1 and Garryleagh 1) provide 'snapshots' of the manner in which iron was produced and used in the area from the first century BC through to the 14th century AD. They do not, of course, tell the whole story but, taken against the backdrop of a growing understanding of early iron-making across the whole country, they do provide important insights.

Iron-making was well established in Ireland long before the smelting activities at Ballynamona 2. Slightly farther north, in counties Kilkenny and Laois, numerous iron-smelting sites of earlier Iron Age date have been found, particularly in advance of construction of the M7 and M8 motorways, but these are currently unpublished (Young 2005; 2008c; 2008d; 2008e; 2008f; 2009e). The sites excavated along the route of these road schemes reflect the former abundant occurrence of bog iron

ores in these areas. To the south, in County Tipperary, there was less evidence for iron smelting on the route of the M8 Cashel–Mitchelstown motorway (McQuade et al. 2009, 150–3), but in north County Cork the evidence reappears at Ballynamona 2.

The landscape context of the Ballynamona 2 furnaces is unclear and they apparently lack associated domestic activity. Indeed, such an association is typically absent (Ó Drisceoil 2007) and it remains uncertain whether Iron Age smelting was undertaken close to the ore or charcoal sources and, therefore, perhaps away from habitation, or whether houses were simply constructed in a manner that has left no archaeological traces in most cases. (Ballynamona translates to *Baile na Móna,* homestead of the bog, and so it seems likely that the area remained bogland until at least the early historic period.)

It is becoming clear that there was considerable diversity in the forms of iron-smelting furnace employed in the Early Iron Age, but the Ballynamona 2 examples are of perhaps the most common form, with a simple basal pit with a diameter between 0.4 m and 0.5 m. It is interesting, however, that the second of the sites considered here, Gortnahown 2, again shows examples of slag-pit furnaces with basal pits with diameters between 0.4 m and 0.5 m. Does this indicate a persistence of furnace design through the Iron Age and into the early medieval period in this area? It is certainly possible.

The dating of the iron-working at Gortnahown is still not precisely constrained, but it was certainly being undertaken at some point in the late sixth to mid seventh century and may have continued into the eighth century AD. There are several unusual aspects to the iron-working at Gortnahown, including the lack of *tuyères* in the assemblage. The use of a ceramic *tuyère* is apparently ubiquitous in Ireland from the early medieval period until the advent of iron *tuyères*, which in most areas appears not to have been until the 19th century. The date of introduction of the *tuyère* for smithing remains uncertain; they do not appear to have been in use before the sixth century.

The most interesting aspect of the Gortnahown iron-working is the evidence for the production of brazed iron bells. The handbells employed by the Church in the early medieval period have been studied by Bourke, who attributed the wrought iron handbells (Bourke 1980, Class 1) to the seventh to ninth centuries, based on art historical dating—in the absence of radiocarbon dating. The first direct evidence for their dating came from the discovery of brazing shrouds from bell production from early monastic contexts at Clonfad, Co. Westmeath (Young 2012). The Clonfad assemblage included an almost entire shroud from brazing a typical ecclesiastical handbell, 255 mm tall (excluding the handle), recovered from the fill of a pit dated to AD 643–771 (GrA-33802). The evidence from Gortnahown is the earliest for bell making in Ireland and pre-dates that from Clonfad, possibly by as much as a century. There is limited evidence for the manufacture of large bells at Gortnahown; the majority of sherds are indicative of small bells, 80–100 mm tall at the shoulder (Illus. 2.16.10). Indeed, most of the sherds from large shrouds at Gortnahown show varying degrees of over-firing, suggesting that these may not have been successful. In addition to their small size, these bells differ from the known ecclesiastical bells in not showing evidence for riveted side-seams.

The small sizes of many of the Gortnahown bells might be because they were animal bells, but it should be remembered that the smallest known ecclesiastical bell is only 82 mm tall at the shoulder (the Kilmichael Glassary bell from Scotland, the ecclesiastical credentials of which are indicated by its subsequent enshrinement; Bourke 1983). Recent manufacturers of animal bells have usually provided a range of bell sizes , from those suitable for sheep and goats up to those for use on cows

(see Cooney et al. 2008, 36, 44, 46, 53–4, 57 for images of the range of bells produced by 19th- and 20th-century manufacturers in Australia). The Gortnahown bells would correspond in size to modern goat bells.

Small iron bells are known quite widely in the early medieval period in Britain—several from pagan Anglo-Saxon graves, a few examples from settlement sites and one unusual example, having single rivets in each join and bearing an incised eight-armed cross on each face, found as part of a Christian-era tool hoard at Flixborough, Lincolnshire (see Table 3.11.4). One of the few small Irish bells was found in a souterrain in Oldcourt ringfort, Co. Cork (Murphy 1961). This example was about 100 mm tall at the shoulder.

*Table 3.11.4—Examples of small iron bells from Britain*

| Dimensions | Location | Date | References |
|---|---|---|---|
| Small bells from pagan Anglo-Saxon graves | | | |
| One small bell | Kingstown Down, Kent | Seventh century | Boyle et al. 2011, 90 |
| One bell c. 84 mm tall, another c. 60 mm tall | Butler's Field, Lechlade, Gloucestershire | Mid or later seventh century | Boyle et al. 2011, 90 |
| One bell, 92 mm tall (at the shoulder) | Tattershall Thorpe, Lincolnshire (A smith's grave) | Seventh century | Hinton & White 1993; Hinton 2000) |
| Small bells from settlement sites | | | |
| One bell, 60 mm tall | Broch of Burrian, Orkney | Unknown | Bourke 1983; MacGregor 1975, 100–1;113 |
| Two bells, one 30 mm tall, one 36 mm tall | Coppergate, York | Unknown | Ottaway 1992 |
| One bell, 50 mm tall | Ribblehead, North Yorkshire | Ninth century | King 1978 |
| Three bells, better preserved example measured c. 75 mm tall | Sutton Courtenay, Berkshire | Sixth to mid seventh century | Leeds 1923; 1927 |
| Small bells from other contexts | | | |
| One bell, 164 mm tall (at the shoulder). Also, 11 bell carcass fragments and seven clappers, (one of which showed a riveted join and a riveted strengthening strip), suggesting bells 30–84 mm tall. | Tool hoard from Flixborough, Lincolnshire | Possibly early to mid eighth-century Christian ritual deposit | Ottaway 2009a; 2009b |
| One bell (unpublished, probably ecclesiastical), c. 140 mm tall | Repton, Derby | Late ninth century | Ottaway 2009b |

All of these smaller bells diverge, to a greater or lesser extent, from the typical construction of the Class 1 ecclesiastical bells, each seam of which bears three rivets and has the clapper suspension as part of a continuous loop with the handle. Smaller bells did not require such elaborate joins and the standardised form of the Class 1 bells may have arisen with the creation of larger bells. The bells from York, Repton and Ribblehead all appear to have brazed, but not riveted, seams according to Ottaway (1992). Some of the Flixborough bells and the Tattershall bell possess what appear to be narrow reinforcing strips, folded over the lip, across each of the two seams. The state of preservation of the Butler's Field bells made determination of the fastening difficult: one was described as having at least one large rivet; the other possibly had small rivets in a strengthening strap. It is not known if the Oldcourt bell was riveted, but no rivets were illustrated. The Butler's Field and Flixborough hoard bells possess a suspension loop that is in continuity with the handle (as in the Class 1 bells), but the nature of their riveting, if any, is less certain. If the Gortnahown bells also lacked rivets, this would be a significant distinction from the Class 1 ecclesiastical bells that were brazed at Clonfad.

The evidence for brazing on this site is very important, for not only is it only the fourth location in Ireland (after Armagh, Clonfad and Dublin) to have such evidence, but it is also the earliest known occurrence. This places it as contemporary with, or possibly even earlier than, the Early Anglo-Saxon (probably pagan) period bells known from Britain. The early history of iron bells is not well understood, although brazed wrought iron bells were produced in the Roman Empire. Bourke (2008) commented on a lack of indigenous bells in pre-Christian Ireland and speculated on a Roman origin for the use of bells and the technology of making them.

The role of bells in Early Anglo-Saxon Britain remains unclear, although there does seem to be a relationship between the few known examples and high-status sites. The occurrence of bells in the Tattershall Thorpe smith's grave and the Flixborough tool hoard (Table 3.11.4)—and farther afield in the Mästermyr hoard from Gotland in Sweden (Arwidsson & Berg 2000)—has led Hinton & White (1993) and Leahy (2003) to suggest that, in addition to their ecclesiastical and agricultural uses, bells might also have been employed by travelling craftsmen to announce their arrival.

The most common interpretation in the past has been that the wrought iron bell developed its ecclesiastical role from roots as an animal bell, within the Roman Empire, and was transferred, eventually, to Ireland. This new find of small bell manufacture at Gortnahown challenges this view and raises a number of questions. Did the manufacture of brazed iron bells spread to Ireland in the pre-Christian or early Christian period as a secular item, only later developing religious significance? Or, did bell manufacturing spread to Ireland already possessing both secular and ecclesiastical dimensions? Perhaps bell manufacturing spread to Ireland with Christianity, but the earliest Christian bells were very much smaller than the classic Class 1 handbell of the seventh to ninth centuries? Several possible interpretations of the Gortnahown bell products are possible, therefore, ranging from simple animal bells (for which no other contemporary evidence exists in Ireland) through to high-status objects either in the secular or religious realms. Given the foundation myths for Brí Gobhann (Chapter 3.4) an association with early ecclesiastical developments is tempting, but must remain speculative.

In the century after the Gortnahown bells were being made, large-scale iron-working at Ballinglanna North 1 (late seventh to eighth century) had commenced. The remarkable homogeneity of the smithing hearth cake assemblage and the large size of the cakes lead to the interpretation of this site as a specialist bloomsmithing operation. There are few comparable sites, but there are broad similarities with assemblages from Borris, Co. Tipperary (probably seventh to eighth century; Young

2009d), Lisleagh 1, Co. Cork (probably eighth to early ninth century; pers. obs. and Mick Monk pers. comm.) and, to a lesser extent, Lismore-Bushfield 1, Co. Laois (possibly sixth to seventh century; Young 2008c). It is also possible to consider aspects of the iron-working at Clonfad (Phases 1a and 1b, sixth to eighth centuries; Young 2012) as being of somewhat similar character, although also including much more evidence for the end-use of the iron as well as the refining of raw blooms. The rise of these specialist bloom-refining operations in the seventh to eighth centuries is an interesting phenomenon, and may be related to a changing role for metal production with the client-patron system. Whether it is a coincidence that the two sites with the largest average smithing hearth cake weight (Ballinglanna North 1 and Lisleagh 1) are within a few kilometres of each other, or whether there is a feature of the organisation of bloom-refining in the eighth century that is particular to north County Cork, remains to be established.

A further interesting, but unresolved, aspect of the Ballinglanna North site is whether the association of the large slag deposits with a major ditch, which runs parallel to the adjacent stream, is because the site employed water power. One of the problems with the production of iron as large blooms is that they are difficult to forge by hand. One common solution to this problem was to divide the bloom, commonly by splitting the partly compacted bloom into 'fingers'. Individual pieces of the bloom could then be removed and worked into fully finished iron, often by the end-user smith. Pleiner (2000, 241–2) describes split blooms from Denmark, where the low density bloom fragments ('kloder'; apparently comprising up to 50% slag) were traded for use in rural settlements in the medieval period. This meant the receiving smiths completed the refining process as well as producing artefacts. Undated examples of such split blooms have been found in County Fermanagh (Evans 1948). The problem of large blooms was overcome in the later medieval period by harnessing water power to drive hammers (and sometimes the forge bellows too). Use was also made of treadle-operated sprung hammers, using a similar technology to pole-lathes, known in Britain as 'olivers'. The early medieval adoption of water power for this purpose has not been documented, but the field evidence from Ballinglanna North certainly resembles that from later water-powered sites and the widespread adoption of water mills in Ireland during the seventh century means that the knowledge of harnessing water power was well understood. In Britain only a single site has provided evidence, albeit inconclusive, for water power associated with iron-working at this period: Worgret in Dorset, where the timber frame of a probable mill (dated by dendrochronology to AD 664–709) was backfilled with iron-working residues (Hinton 1992).

Sites involved in the processes of iron production in the later medieval period are much less frequent than those from the preceding centuries. Garryleagh, an apparently isolated late medieval smithy, is an example of a site type which, in contrast, is relatively common. The wide distribution of late medieval and early post-medieval smithies suggests these are blacksmiths serving local communities. Through this time period the size of the smithing hearth cakes typically decreases, generally being less than 1.5 kg. It is suggested that this reflects fundamental changes to the basis of iron supply, with a trade in finished iron (probably both produced domestically by specialist centres and imported) replacing the movement of unfinished blooms.

*Illus. 4.—From past to present. An archaeologist holding a c. 8000 year-old Moynagh Point (spear-head?) fragment from Caherdrinny 3. Who was it that carefully shaped this stone and what kind of life did he/she experience?*

# CHAPTER 4
# CONCLUSIONS

*Ken Hanley*

The investigations described in this book have made a considerable contribution to our understanding of the prehistory and early history of Cork. They complement the results of archaeological investigations on other public infrastructure projects in the county presented in a series of recent publications (Hanley & Hurley 2013; Cleary 2015). In effect, the M8 Fermoy–Mitchelstown motorway project provided the opportunity to sample a linear tract of agricultural land (c. 154 ha) in North Cork, at elevations of 40–180 m OD. A diverse range of archaeological sites was discovered, representing the day-to-day life, work and beliefs of the communities who occupied this landscape over the last 10,000 years. Of course, in a sample like this, the resulting picture is incomplete. Some gaps in the record result from local conditions. For instance, bone and metal artefacts do not survive well in naturally acidic soils. Others correlate with the archaeological record for the whole of Ireland and reflect the ebb and flow of populations on the island over time. What have we learned in the end? These conclusions offer a sense of the variety and significance of the newly excavated evidence.

## Hunter gatherers

Our investigations have not pushed back the date of the earliest known settlement in the region. This date remains stubbornly at c. 8100 BC in the Mesolithic ('Middle Stone Age') period (Tierney et al. 2013, 32). Palaeolithic ('Old Stone Age') settlement is attested in other parts of Europe, dating back some 800,000 years, but is still not recognised in Ireland. This is despite the fact that warm intervals in the last Ice Age would have seen big game animals roaming across the land—such as mammoth, reindeer and the Giant Irish Deer—with potential to provide abundant meat for Palaeolithic hunters (O'Brien 2012, 29–31). Tentative evidence for a human presence at c. 10,500 BC has been identified in a cave site in County Clare (Dowd & Carden 2016) so perhaps evidence for a Palaeolithic population in Ireland will emerge in time.

Evidence for Mesolithic hunter-gatherers is found throughout Ireland, mostly in the form of chipped stone tools and associated waste flakes or debitage. In County Cork, most of this material has been recovered from disturbed, reworked contexts—typically topsoil that is regularly ploughed. Finds from dated Mesolithic features (e.g. hearths and pits) are less common in the county, with a few exceptions, such as at Rath-Healy (Quinn 2013, 36–9). Mesolithic houses are very rare in the Irish archaeological record, probably reflective of the short-lived nature of hunter-gatherer settlements; none has yet been identified on any of our national roads projects. (For a recent review of excavated Mesolithic sites on Irish roads projects see Warren 2017.)

## Settled peoples

There is good evidence for the establishment of permanent settlements in County Cork in the early Neolithic period. Most of this has come from national roads projects. Eight Early Neolithic houses have been recorded to date on roads projects in the county, including the six houses discovered on the route of the M8 Fermoy–Mitchelstown motorway. Collectively, these houses—all constructed sometime between c. 3760 and 3660 BC—conform to a broad uniformity in house design, cultural associations and function, comparable to other contemporary houses found throughout Ireland. These stout, timber-built houses, typically found in clusters of one to three, suggest a national pattern of dispersed, family-based, farming settlements, linked by wider networks of kinship and trade. The evidence from the Middle Neolithic period is more elusive. The evidence for a building at Gortore 1b (Structure 2) represents the only possible house of this period in County Cork. This was one of only three sites on the present project with Middle Neolithic pottery. No cereal remains of Middle Neolithic date were found anywhere along the route. Does this reflect a genuine contraction in settlement and agriculture in this period? This is the 'Middle Neolithic conundrum' described by Carlin & Cooney (2017, 35–41), who argue that Middle Neolithic settlement sites may be under-represented in the archaeological record because they are harder to recognise (ibid., 40). Structures 4–6 at Ballynacarriga 3 were dated to the Late Neolithic period but it is not clear that these were domestic buildings. Thus it remains the case that no Late Neolithic houses have been positively identified in County Cork to date. The intermingling of Chalcolithic (Copper Age) artefacts and Late Neolithic Grooved Ware pottery at this site suggests it was used by the same population group throughout the transition between the two periods. This is very significant as it suggests that Ballynacarriga 3 is one of the few sites where we can observe the change from a society that used stone tools exclusively to a society with access to the knowledge of metallurgy—a transformative technology which might be considered comparable to the transition to digital technologies that has occurred in the past few decades—and possibly access to new types of personal ornaments, tools and weapons.

Although wedge tombs are scattered thinly throughout North Cork (they are more common in West Cork) and finds of Beaker pottery are widely distributed (O'Brien 2012, 69, fig. 63), there are still no recorded house sites of Chalcolithic date in the county. In contrast, over 120 Bronze Age houses/buildings have been excavated in the Munster region (Doody 2007, 87; McQuade et al. 2009, 85; Hanley 2013). We can add four possible examples from the M8 Fermoy–Mitchelstown motorway project. House forms in this period were predominantly round, in contrast to the rectangular houses of the Early Neolithic period. Small, dispersed settlements of two or three houses were the norm, with few exceptions in the region—e.g. Curraghatoor, Co. Tipperary (five houses; Doody 2007, 11), and Ballybrowney Lower 1, near Rathcormac, Co. Cork (three enclosures and four houses; Cotter 2013b; O'Driscoll & Cronin 2013). Corrstown, Co. Derry, is exceptional even in international terms, with a staggering 74 round-houses recorded (Ginn & Rathbone 2011). In the late Middle Bronze Age large hilltop enclosures appear in the landscape, with examples in North Cork at Caherdrinny and Carn Tigherna. These 'hillforts' may have been tribal assembly places, as much as high-status residential and defensive structures. There is no clear evidence from some of the early excavated hillfort examples to indicate permanent occupation by large numbers of

people (Grogan 2005c, 121–8; Mullins 2014, 115). A more recent hillfort research project uncovered evidence for substantial defences at 10 hillfort sites across Munster and south Leinster, but little evidence by way of occupation history (O'Brien 2016; O'Brien & O'Driscoll 2017, 192, 338–9).

Ten sites on the route of the M8 Fermoy–Mitchelstown motorway had features of Iron Age date, mostly pits. Structure 8 at Caherdrinny 3 is likely to have been a house, possibly only the third Iron Age house site excavated in County Cork to date. The others were at Ballinaspig More 5, Structure 1 (Danaher 2013a, 160), and Site D at Barrees on the Beara peninsula (O'Brien 2009, 203–21). There is uncertainty over the date of the Kilshanny 1 house, and it may be Bronze Age rather than Iron Age.

The early medieval houses recorded at Gortnahown 2 add to an already substantial corpus of settlement evidence from this period in County Cork. Most of this comes from excavated ringforts or cashels, which are typically large and readily identifiable site types. In contrast, rural settlement sites of the later medieval period are rare in the archaeological record. This is partly, at least, because the surviving remains are typically less substantial and often harder to identify. In this context, the identification of cob-built and earth-mortared buildings at Gortnahown 2 and Caherdrinny 3 is significant and, hopefully, will lead to the recognition of similar evidence on excavated later medieval and post-medieval sites elsewhere in Ireland.

## Ritual

Ritual in prehistory may have had multiple purposes: to give material expression to religious beliefs, to regulate social relationships, to communicate with ancestors, to attempt to control the environment and to moderate things beyond human control, like the natural elements. The three Neolithic timber circles at Ballynacarriga 3 were probably spaces for ritual performance. The other timber structures at the site may have been domestic buildings. If these identifications are correct, then the proximity of dwelling houses to a ceremonial complex suggests there was little demarcation in the minds of prehistoric people between their day-to-day activities and the performance of their religious rituals. Indeed, all aspects of prehistoric life were probably imbued with ritual to some extent. We can see this clearly in the artefacts and token amounts of cremated human bone that were buried in the foundations or entranceways of Bronze Age domestic buildings. At Gortnahown 1 (Area 2) a token deposit of cremated human bone was deliberately buried in a trench outside the entrance and a saddle quern was incorporated in a wall foundation trench on the opposite side of the building, facing the entrance. Examples of similar practices have been recorded at other contemporary sites in the region—e.g. Ballybrowney Lower 1 and Mitchelstown 1 (Cotter 2013a, 101; Cotter 2013b, 113). Such 'foundation deposits' were probably intended to protect the inhabitants from malign spirits, misfortune or disease.

The Early Bronze Age burial ground at Ballynacarriga 3 shows us an interesting tapestry of funerary practices by a small community or extended family living adjacent to the River Funshion at that time. The cremated remains suggest the site may have been used exclusively for burials of women and children. There were 'blind burials' on the site (i.e. cists and pits that contained no bone), but these may once have contained neonatal or infant remains, which did not survive in the naturally acidic soils. There were 'double burials' of adult females and juveniles together (rather than adult males and juveniles, which is more common) and also two children together (with no adults). There

were 'token' burials of small amounts of cremated bone—which is a relatively common practice in the Middle and Late Bronze Age, observed in the archaeological record, seen also at Gortnahown 1, Caherdrinny 2, Glenatlucky 1 and Ballynamona 2 on the present project.

## Crops

The landscape traversed by the M8 Fermoy–Mitchelstown motorway is a rolling plain interrupted only by the foothills of the Kilworth Mountains. The acid brown earth soils that dominate in this region are very suited both to tillage and pastoral agriculture. We do not yet know a great deal about prehistoric or early historic farming in this landscape. The only fossil pollen data from North Cork are from samples taken at Ballyoran Bog, south of Fermoy (Trainor & Plunkett 2013, 33–6). In this context, the palaeoenvironmental evidence presented in this book, from well-dated, excavated archaeological contexts, assumes a greater importance.

The Late Mesolithic evidence from Gortore 1b included seeds from small legume plants, tubers, berries and large quantities of hazel nutshells. Emmer wheat (a primitive hulled wheat) and other cereals were found at three of the Early Neolithic sites. Following an apparent hiatus in agriculture in the Middle Neolithic period, barley (mostly naked barley) appeared in the Late Neolithic period and was the dominant crop by the Middle Bronze Age, with one comparatively large assemblage of barley grain recovered at Ballynamona 2 (Structure 1). The evidence from Late Bronze Age and Iron Age contexts is slight. This partly reflects the paucity of excavated later prehistoric sites on the present project, but may also reflect a general decline in agricultural activity in these periods. There is good evidence for a strong resurgence in agriculture in the early medieval period, and a greater variety of crops. Oats became the dominant cereal crop. Rye was introduced at this time. Legumes (pea and bean) and bread wheat also appear in the record for this period. No plant remains were found on the later medieval settlement sites at Caherdrinny 3 and Gortnahown 2 (Area 5), which begs questions about the nature of the activities carried out at these settlements and about the way crops were processed, stored and consumed at the time.

## Big data

The archaeological discoveries made along the route of the M8 Fermoy–Mitchelstown motorway project are diverse, significant to varying degrees, and necessarily random. They include site types that are rare or unprecedented in the region. The biggest future advances in our understanding of the past will not come from new discoveries of rare site types, however, but from our growing capacity to combine and analyse data from such large-scale projects, at regional, national and international levels. TII has published all of the primary data from the excavations on the M8 Fermoy–Mitchelstown motorway in the TII Digital Heritage Collections curated by the Digital Repository of Ireland website service (www.dri.ie). All the contributors have worked hard to ensure that this book succeeds as a comprehensive and accessible summary of the results of the excavations and the analysis of the excavated remains. However, we also expect that future researchers will use the book as an introduction to the large volume of primary data from the project that is now

available to them online and in the archives of the National Monuments Service and National Museum of Ireland.

# APPENDIX 1
# RADIOCARBON DATES

Radiocarbon analysis was carried out by the 14 Chrono Centre in Queen's University Belfast. Dates were calibrated using Calib Rev 5.0.2 (Stuiver et al. 2005) and in conjunction with Stuiver & Reimer 1993 and Reimer et al. 2004.

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Ballinglanna North 1** (E2414) | | | | | |
| UBA-12968 | Charcoal *(Corylus avellana*/hazel, *Alnus* sp./alder) from fill (338) of ditch (382) | 1245 ± 21 | -29.7 | AD 693–798 | AD 684–864 |
| UBA-12969 | Charcoal *(Salix/ Populus*/willow/poplar) from fill (232) of post-hole (231) in mai n trough (183) | 2589 ± 21 | -26.1 | 756–546 BC | 766–524 BC |
| UBA-12970 | Hazelnut shell *(Corylus avellana)* from fill (299) of pit (292) | 1270 ± 29 | -23.2 | AD 688–771 | AD 664–854 |
| **Ballinglanna North 2** (E2415) | | | | | |
| UBA-12971 | Charcoal *(Corylus avellana*/hazel, *Alnus* sp./alder) from fill (035) of pit (038) | 1182 ± 20 | -24.3 | AD 782–886 | AD 777–893 |
| **Ballinglanna North 3** (E2416) | | | | | |
| UBA-10499 | Charred hazelnut (*Corylus avellana*) shell from upper fill (106) of eastern foundation trench (109) of Structure 1 | 4936 ± 21 | -23.7 | 3748–3660 BC | 3766–3656 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| UBA-13145 | Charcoal *(Corylus avellana*/hazel) from fill (532) of linear cut (536) forming part of southern foundation trench of Structure 2 | 5010 ± 25 | -23.7 | 3908–3714 BC | 3938–3708 BC |
| UBA-13146 | Charcoal *(Corylus avellana*/hazel) from fill (290) of pit (291) north-east of Structure 1 | 5007 ± 28 | -27.2 | 3905–3713 BC | 3939–3706 BC |
| UBA-13147 | Charcoal (*Quercus* sp./ oak) from fill (079) of trough (078) associated with *Fulacht fiadh* 1 | 3791 ± 26 | -25.1 | 2283–2149 BC | 2293–2140 BC |
| UBA-13148 | Charcoal (*Corylus avellana*/hazel) from fill (475) of trough (494) associated with *Fulacht fiadh* 2 | 3400 ± 25 | -26.3 | 1741–1669 BC | 1750–1628 BC |
| UBA-13149 | Charcoal (*Alnus* sp./ alder) from fill (546) of trough (547) associated with *Fulacht fiadh* 2 | 3385 ± 22 | -24.7 | 1734–1639 BC | 1740–1627 BC |
| UBA-13150 | Charcoal (*Corylus avellana*/hazel) from fill (250) of possible post-hole (249), forming part of Structure 3 | 2067 ± 21 | -24.7 | 143–44 BC | 167–4 BC |
| **Ballinglanna North 4** (E2417) | | | | | |
| UBA-12972 | Charcoal (*Corylus avellana*/hazel, *Alnus* sp./alder) from fill (008) of pit (007) | 2058 ± 29 | -26.4 | 153–4 BC | 167 BC–AD 2 |
| **Ballinglanna North 5** (E2418) | | | | | |
| UBA-13151 | Charcoal (*Corylus avellana*/hazel) from fill (007) of pit (005) | 3824 ± 25 | -26.3 | 2296–2205 BC | 2432–2150 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Ballinglanna North 6** (E3972) | | | | | |
| UBA-12973 | Charcoal (*Corylus avellana*/hazel, *Alnus* sp./alder) from burnt mound (002) | 3490 ± 34 | -25.0 | 1879–1768 BC | 1902–1696 BC |
| UBA-13230 | Charred (*Avena* L. sp., *Hordeum vulgare* L., *Poaceae*/oat, barley, [indeterminate cereal grain] and grass seeds) from fill (009) of pit (022) | 160 ± 22 | -23.1 | AD 1671–1942 | AD 1666–1952 |
| **Ballynacarriga 2** (E2413) | | | | | |
| UBA-10501 | Hazelnut shell (*Corylus avellana/hazel*) from fill (005) of enclosure ditch (Section 008) | 1265 ± 26 | -28.6 | AD 690–772 | AD 668–852 |
| UBA-12974 | Charred cereal grain (*Avena* L. sp./oat) from fill (223) of pit (222) | 297 ± 19 | -22.1 | AD 1524–1646 | AD 1518–1649 |
| UBA-13152 | Charcoal (Pomoideae/ fruitwood) from fill (122) of post-hole (130), part of Structure 1 | 1454 ± 23 | -26.0 | AD 595–639 | AD 567–646 |
| UBA-13153 | Charcoal (*Corylus avellana*/hazel) from fill (221) of pit (218) | 1243 ± 20 | -26.4 | AD 694–801 | AD 686–864 |
| UBA-13154 | Charcoal (Pomoideae/ fruitwood) from fill (303) over floor at junction of souterrain's passage and chamber | 1428 ± 20 | -25.6 | AD 615–645 | AD 596–654 |
| UBA-13155 | Charcoal (*Corylus avellana*/hazel) from fill (136) of pit (138), in Structure 1 | 1204 ± 20 | -27.6 | AD 778–866 | AD 772–888 |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Ballynacarriga 3** (E2412) | | | | | |
| UBA-13157 | Charcoal (*Quercus*/oak) from fill (208) of a pit (209) in Structure 2 | 4060 ± 25 | -24.0 | 2827–2499 BC | 2835–2490 BC |
| UBA-13161 | Charcoal (Pomoideae /fruitwood) from fill (096) in western end of Ditch 2 (097) | 1411 ± 21 | -26.7 | AD 622–653 | AD 605–658 |
| UBA-13162 | Charcoal (*Corylus*/ hazel) from fill (2079) of pit (2086) within Ring-ditch 1 | 2119 ± 21 | -24.7 | 186–111 BC | 202–55 BC |
| UBA-13164 | Charcoal (*Corylus*/ hazel) from fill (365) of pit (364), west of Structure 6 | 1975 ± 21 | -25.0 | AD 4–55 | 38 BC–AD 71 |
| UBA-13165 | Charcoal (Pomoideae/ fruitwood) from fill (2160) of cist-like pit (2161), north-west of Ring-ditch 1 | 3861 ± 23 | -29.3 | 2452–2288 BC | 2461–2211 BC |
| UBA-13167 | Charcoal (*Corylus*/ hazel) from fill (119) of post-hole (120), in Structure 1 | 3972 ± 23 | -26.1 | 2560–2468 BC | 2569–2461 BC |
| UBA-13169 | Sample of diffuse porous wood from fill (506) of hearth (507) | 4969 ± 25 | -23.1 | 3768–3709 BC | 3796–3664 BC |
| UBA-13170 | Charcoal (*Quercus*/ oak) from fill (2105) of possible hearth (2106) at centre of Ring-ditch 2 | 3585 ± 23 | -24.4 | 1959–1895 BC | 2019–1885 BC |
| UBA-13171 | Charcoal (*Corylus*/ hazel) from fill (533) of pit (534) | 1997 ± 26 | -27.0 | 38 BC–AD 47 | 47 BC–AD 63 |
| UBA-13172 | Charcoal (*Prunus* sp./ cherry/sloe) from fill (2157) of cist-like pit (2158), north of Ring-ditch 1 | 3523 ± 33 | -24.2 | 1900–1775 BC | 1937–1752 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| UBA-14776 | Bone (eight fragments from cremated juvenile skull) from pit (2130), enclosed by Ring-ditch 1 | 3397 ± 32 | -26.2 | 1740–1644 BC | 1860–1614 BC |
| UBA-14777 | Bone (six fragments from cremated juvenile long bone [2193]) from cist (2194) | 3852 ± 34 | -25.5 | 2451–2211 BC | 2460–2206 BC |
| UBA-14778 | Bone (two fragments from cremated adult long bone [2114]) from pit (2097), enclosed by Ring-ditch 1 | 3793 ± 34 | -20.8 | 2286–2149 BC | 2344–2060 BC |
| **Ballynamona 1** (E2412) | | | | | |
| UBA-12975 | Charcoal (*Corylus/Alnus*/hazel/alder) from fill (088) of pit (086) | 4912 ± 25 | -27.0 | 3698–3658 BC | 3760–3644 BC |
| UBA-13173 | Charcoal (*Corylus*/hazel) from fill (041) of pit (034) in Area 1) | 3499 ± 24 | -26.2 | 1880–1774 BC | 1889–1750 BC |
| **Ballynamona 2** (E2429) | | | | | |
| UBA-14111 | Charred cereal grain (*Hordeum vulgare* L./barley) from fill (520) of pit (487) in Structure 1 | 3009 ± 27 | -29.9 | 1367–1212 BC | 1380–1131 BC |
| UBA-14112 | Hazelnut shell (*Corylus avellana*)/charred cereal grain (*Hordeum vulgare* L./barley) from fill (448) of post-hole (449), Structure 3 | 2933 ± 25 | -29.4 | 1210–1058 BC | 1259–1046 BC |
| UBA-14113 | Charred cereal grain (*Hordeum vulgare* L./barley) from fill (531) of post-hole (530), Structure 1 | 2929 ± 25 | -30.6 | 1207–1056 BC | 1258–1029 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| UBA-14114 | Hazelnut shell (*Corylus avellana*)/charred cereal grain (*Hordeum vulgare* L./barley) from fill of trough (281) | 3028 ± 28 | -29.8 | 1374–1260 BC | 1393–1135 BC |
| UBA-14115 | Charred cereal grain (*Hordeum vulgare* L./barley) from burnt mound (254) | 3131 ± 28 | -29.9 | 1437–1390 BC | 1492–1316 BC |
| UBA-14151 | Charcoal (*Fraxinus excelsior*/ash) from fill (023) of furnace pit (025) in Area 1 | 2017 ± 21 | -29.9 | 44 BC–AD 4 | 87 BC–AD 51 |
| UBA-14152 | Hazelnut shell (*Corylus avellana*) from fill (618) of post-hole (619), Structure 1 | 3025 ± 24 | -28.0 | 1372–1260 BC | 1386–1212 BC |
| UBA-15101 | Cremated human bone from fill (107) of cremation pit (108) | 3681 ± 28 | -24.0 | 2134–2027 BC | 2191–1976 BC |
| **Caherdrinny 2** (E2421) | | | | | |
| UBA-12976 | Charcoal (*Prunus* sp./cherry/sloe) from deposit of cremated bone | 3153 ± 22 | -27.2 | 1447–1411 BC | 1493–1394 BC |
| **Caherdrinny 3** (E2422) | | | | | |
| UBA-13231 | Charred cereal grain (*Hordeum vulgare* L./barley) from fill (046) of kiln (048) | 3291 ± 29 | -24.5 | 1656–1563 BC | 1657–1498 BC |
| UBA-13284 | Charcoal (*Prunus* sp./cherry/sloe) from fill (957) of pit (hearth?) (973), in interior of Structure 1 | 5138 ± 27 | -28.7 | 3981–3830 BC | 4034–3808 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| UBA-13285 | Charcoal (*Salix/ Populus*/willow/poplar) from fill (901) of post-hole (892), in interior of Structure 1 | 222 ± 21 | -27.1 | AD 1652–1797 | AD 1645–1951 |
| UBA-13286 | Charcoal (*Corylus*/ hazel) from fill (878) of post-hole (877) flanking Structure 1 | 4926 ± 26 | -23.6 | 3708–3658 BC | 3766–3650 BC |
| UBA-13287 | Charcoal (*Corylus*/ hazel) from fill (290) of pit (289) | 5734 ± 32 | -28.2 | 4652–4527 BC | 4685–4498 BC |
| UBA-13288 | Charcoal (*Corylus*/ hazel) from fill (057) of post-hole (055), Structure 4 | 368 ± 24 | -28.1 | AD 1461–1618 | AD 1450–1631 |
| UBA-13289 | Charcoal (*Corylus*/ hazel) from Hearth 288 | 4877 ± 26 | -24.5 | 3693–3641 BC | 3701–3639 BC |
| UBA-13290 | Charcoal (*Salix/ Populus*/willow/poplar) from fill (419) of post-hole (409), Structure 8 | 2027 ± 25 | -25.6 | 52 BC–AD 17 | 106 BC–AD 51 |
| UBA-13291 | Charcoal (*Corylus*/ hazel) from fill (1199) post-hole (1200), Structure 3 | 3420 ± 29 | -26.9 | 1754–1684 BC | 1871–1632 BC |
| UBA-13292 | Charcoal (*Corylus*/ hazel) from fill (637) of post-hole (636), Structure 2 | 5214 ± 27 | -26.9 | 4041–3980 BC | 4144–3963 BC |
| UBA-13293 | Charcoal (Pomoideae/ fruitwood) from fill (511) in post-hole (501) | 3356 ± 24 | -25.5 | 1684–1623 BC | 1736–1536 BC |
| UBA-13294 | Charcoal (*Prunus* sp./ cherry/sloe) from fill (405) of pit (451) | 3287 ± 29 | -27.1 | 1608–1524 BC | 1634–1496 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| UBA-13295 | Charcoal (*Corylus*/hazel) from fill (268) of pit (258) | 2020 ± 22 | -28.0 | 46 BC–AD 4 | 90 BC–AD 51 |
| UBA-13296 | Charcoal (*Salix*/*Populus*/willow/poplar) from fill (3071) of pit (3070) | 926 ± 23 | -26.3 | AD 1044–1155 | AD 1032–1161 |
| UBA-13297 | Charcoal (*Prunus* sp./cherry/sloe) from fill (3061) of trench 3032, Structure 7 | 339 ± 20 | -25.0 | AD 1494–1631 | AD 1475–1635 |
| UBA-13299 | Charcoal (*Salix*/*Populus*/willow/poplar) from fill (2572) of slot-trench (2571), at eastern end of site | 2092 ± 22 | -25.3 | 163–58 BC | 175–48 BC |
| UBA-13300 | Charcoal (*Corylus*/hazel) from fill (2647) of pit (2646) | 3242 ± 23 | -25.5 | 1528–1459 BC | 1606–1444 BC |
| UBA-13302 | Charcoal (Pomoideae/fruitwood) from fill (2695) of post-hole (2696) | 2031 ± 23 | -26.2 | 83 BC–AD 4 | 107 BC–AD 48 |
| UBA-13303 | Charcoal (*Quercus* sp./oak) from fill (2661) of pit (2660) | 2122 ± 29 | -23.6 | 197–108 BC | 344–52 BC |
| **Garryleagh 1** (E2433) | | | | | |
| UBA-12977 | Charcoal (*Corylus*/*Alnus*/hazel/alder) from fill (014) of hearth (013) | 653 ± 22 | -23.1 | AD 1289–1385 | AD 1283–1390 |
| **Glenatlucky 1** (E2427) | | | | | |
| UBA-12978 | Charcoal (*Salix*/*Populus*/willow/poplar) from fill (007) of cremation pit (008) | 131 ± 24 | -25.5 | AD 1682–1952 | AD 1677–1953 |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Glenatlucky 1** (E2427) | | | | | |
| UBA-12979 | Charcoal (*Salix*/*Populus*/willow/poplar) from fill (003) of pit (004) | 3533 ± 25 | -25.2 | 1916–1780 BC | 1940–1771 BC |
| **Gortnahown 1** (E2423) | | | | | |
| UBA-12980 | Charcoal (*Prunus* sp./blackthorn) from fill (061) of pit (062), Area 1 | 3346 ± 23 | -26.8 | 1681–1615 BC | 1728–1533 BC |
| UBA-13174 | Charcoal (*Corylus*/hazel) from fill (003) of pit (004), Area 1. | 2015 ± 24 | -26.0 | 44 BC–AD 17 | 88 BC–AD 54 |
| **Gortnahown 2** (E2426) | | | | | |
| UBA-13215 | Charcoal (*Corylus*/hazel) from fill (731) of slot-trench (527), Structure A, Area 1/2 | 1298 ± 20 | -26.7 | AD 670–765 | AD 664–771 |
| UBA-13216 | Charcoal (Pomoideae/fruitwood) from fill (590) of slot-trench (644), Structure B, Area 1/2 | 1429 ± 21 | -28.5 | AD 614–645 | AD 593–654 |
| UBA-13217 | Charcoal (Pomoideae/fruitwood) from fill (075) of pit (103), Area 1/2 | 3574 ± 23 | -27.1 | 1946–1892 BC | 2016–1831 BC |
| UBA-13218 | Charcoal (*Quercus*/oak) from fill (780) of pit (778), Area 1/2 | 1561 ± 22 | -27.4 | AD 436–541 | AD 428–551 |
| UBA-13219 | Charcoal (*Corylus* /hazel) from fill (060) of pit (062), Area 1/2 | 4100 ± 27 | -27.2 | 2838–2580 BC | 2860–2505 BC |
| UBA-13220 | Charcoal (*Corylus* /hazel) from fill (1014) of post-hole (1017), Area 3 | 3939 ± 27 | -27.0 | 2482–2349 BC | 2564–2310 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Gortnahown 2** (E2426) | | | | | |
| UBA-13221 | Charcoal (*Salix*/*Populus*/willow/poplar) from fill (1257) of post-hole (1258), Structure 1, Area 5 | 860 ± 21 | -26.5 | AD 1170–1212 | AD 1053–1251 |
| UBA-13255 | Charred cereal grain (*Avena* L. sp./oat/indeterminate cereal) from fill (763) of pit (778), Area 1/2 | 1427 ± 22 | -25.0 | AD 614–646 | AD 593–655 |
| UBA-13256 | Charred cereal grain (*Avena*/oat/*Hordeum vulgare* L./barley/indeterminate cereal)/charcoal (*Corylus*/hazel) from fill (504) of hearth (564), Structure A, Area 1/2 | 1303 ± 24 | -25.8 | AD 667–765 | AD 660–771 |
| **Gortnahown 3** (E2477) | | | | | |
| UBA-12981 | Charcoal (*Corylus*/*Alnus*/hazel/alder) from fill (044) of hearth (066) | 2720 ± 24 | -24.2 | 896–833 BC | 910–815 BC |
| UBA-12982 | Charcoal (*Corylus*/*Alnus*/hazel/alder) from fill (064) of hearth (075) | 1921 ± 20 | -27.7 | AD 60–122 | AD 28–128 |
| **Gortore 1b** (E2410) | | | | | |
| UBA-10500 | Hazelnut shell (*Corylus avellana*) from fill (130) of pit (527), Area 2 | 7219 ± 29 | -24.1 | 6094–6026 BC | 6207–6016 BC |
| UBA-12983 | Hazelnut shell (*Corylus avellana*) from fill (341) of pit (479), Area 2 | 7509 ± 29 | -23.4 | 6428–6379 BC | 6441–6262 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Gortore 1b** (E2410) | | | | | |
| UBA-12984 | Charred cereal grain (*Triticum dicoccum*/ emmer wheat) from fill (096) of corn-drying kiln flue (093), Area 1 | 1303 ± 21 | -19.8 | AD 667–765 | AD 661–771 |
| UBA-13222 | Charcoal (Pomoideae/ fruitwood) from fill (539) of pit (622), Area 2 | 6981 ± 31 | -25.4 | 5968–5812 BC | 5979–5770 BC |
| UBA-13223 | Charcoal (*Salix*/ *Populus*/willow/poplar) from fill (538) of pit (548), Area 2 | 5807 ± 29 | -26.6 | 4711–4617 BC | 4724–4553 BC |
| UBA-13224 | Charcoal (*Quercus*/oak) from fill (102) of slot-trench (103), Structure 1, Area 1 | 3962 ± 26 | -26.4 | 2561–2464 BC | 2570–2350 BC |
| UBA-13225 | Charcoal (*Corylus*/ hazel) from fill (474) of post-hole (473), Structure 1, Area 1 | 3896 ± 25 | -26.6 | 2461–2346 BC | 2467–2299 BC |
| UBA-13233 | Charred cereal grain (indeterminate cereal)/ hazelnut shell (*Corylus avellana*) from fill (421) of stake-hole (420), Structure 1, Area 1 | 1873 ± 21 | -21.2 | AD 81–207 | AD 77–215 |
| UBA-13400 | Hazelnut shell (*Corylus avellana*) from fill (1123) of pit (1127), Area 3 | 4576 ± 35 | -25.9 | 3488–3135 BC | 3497–3105 BC |
| UBA-13401 | Hazelnut shell (*Corylus avellana*) from fill (1124) of pit (1154), Area 3 | 7089 ± 29 | -26.6 | 6007–5924 BC | 6021–5901 BC |
| UBA-13402 | Hazelnut shell (*Corylus avellana*) from fill (1120) of pit (1121), Area 3 | 3565 ± 23 | -27.1 | 1940–1888 BC | 2012–1783 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Gortore 1b** (E2410) | | | | | |
| UBA-13403 | Hazelnut shell (*Corylus avellana*) from fill (1331) of pit (1335), Area 3 | 3572 ± 19 | -26.9 | 1941–1894 BC | 2009–1882 BC |
| UBA-13404 | Hazelnut shell (*Corylus avellana*) from fill (1104) of pit (1119), Area 3 | 7141 ± 24 | -26.7 | 6046–5995 BC | 6060–5986 BC |
| **Kildrum 1** (E3971) | | | | | |
| UBA-12985 | Charcoal (*Salix/Populus*/willow/poplar) from fill (018) of trough (013) | 3677 ± 23 | -28.6 | 2132–2026 BC | 2138–1978 BC |
| UBA-12986 | Charcoal (*Corylus/Alnus*/hazel/alder) from fill (042) of trough (009) | 3830 ± 23 | -28.9 | 2334–2206 BC | 2434–2154 BC |
| **Kilshanny 1** (E2430) | | | | | |
| UBA-13226 | Charcoal (*Corylus/Alnus*/hazel/alder) from fill (258) of pit (257) | 3497 ± 25 | -27.5 | 1880–1773 BC | 1889–1748 BC |
| UBA-13227 | Charcoal (*Alnus*/alder) from fill (214) of post-hole (213), Structure 1 | 2058 ± 22 | -26.6 | 110 BC–AD 5 | 163 BC–AD 0 |
| UBA-13228 | Charcoal (*Salix/Populus*/willow/poplar) from fill (183) of pit (182) | 646 ± 22 | -30.2 | AD 1292–1386 | AD 1284–1391 |
| UBA-13229 | Charcoal (indeterminate diffuse porous) from fill (086) of pit (087), Area B | 2491 ± 23 | -23.5 | 757–547 BC | 768–522 BC |

| Lab. code | Material dated; context | Years BP | $\delta^{13}C$ (‰) | Calibrated date range (1 σ) | Calibrated date range (2 σ) |
|---|---|---|---|---|---|
| **Kilshanny 2** (E2431) | | | | | |
| UBA-12987 | Charcoal (*Corylus*/*Alnus*/hazel/alder) from fill (018) of pit (009) | 2872 ± 23 | -26.1 | 1111–1006 BC | 1126–944 BC |
| **Kilshanny 3** (E2432) | | | | | |
| UBA-12988 | Charcoal (*Corylus*/*Alnus*/hazel/alder) from fill (052) of pit (053) | 2822 ± 25 | -27.6 | 1006–931 BC | 1044–911 BC |
| UBA-12989 | Charcoal (Pomoideae/fruitwood) from fill (025) of trough (024) | 2758 ± 29 | -23.6 | 926–843 BC | 978–829 BC |

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# INDEX

***Note:*** *page references in bold denote principal entries, references in italics denote illustrations. Authors and published works cited in parentheses are listed in the bibliography and not in the index.*

Every place has a story to tell but, with the passing of time, not all stories are preserved. The archaeological discoveries presented in this book afford a rare chance to hear from people whose voices would be lost were it not for the opportunities for discovery presented by the construction of the M8 Fermoy–Mitchelstown motorway in north County Cork.

*Hidden Voices* documents a major programme of archaeological investigations at 24 sites on the route of the motorway, which traverses broad plains of rich pastureland and the western foothills of the Kilworth Mountains. A diverse range of archaeological sites was discovered, representing the day-to-day life, work and beliefs of the communities who occupied this landscape over the last 10,000 years.

Readers will learn of Mesolithic nomads fishing the River Funshion and of Neolithic farmsteads excavated at Gortore, Caherdrinny and Ballinglanna North. Bronze Age houses were found at Ballynamona, Gortnahown and Kilshanny, and a rare Iron Age example at Caherdrinny. Life in prehistory was precarious. There were burials at Ballynacarriga of Early Bronze Age women and children, including a young woman and her unborn child. But there was also the comfort of religion. Timber circles uncovered at Ballynacarriga are evidence of ceremonial practices in Later Neolithic times.

The accounts of the excavations of an early medieval cliff-edge fort at Ballynacarriga, and cob-built houses and a blacksmith's dwelling at Gortnahown move the story into the historical era. The iron-working evidence indicates highly specialised bell manufacture and brazing. The early 12th-century manuscript known as *Críchad an Chaoilli* provides a backdrop to these medieval sites, with its evidence for territorial boundary evolution and land ownership in the old kingdom of Fir Maige (Fermoy).


The investigations along the M8 were undertaken by Eachtra Archaeological Projects for Cork County Council, with funding from the National Roads Authority (now Transport Infrastructure Ireland).

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