– GARRANES –

AN EARLY MEDIEVAL ROYAL SITE IN SOUTH-WEST IRELAND

WILLIAM O'BRIEN
NICK HOGAN



ARCHAEOPRESS

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William O'Brien
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with contributions from

Michelle Comber, Ian Doyle, Lenore Fischer, Kevin Kearney, Susan Lyons, Tim Mighall and Douglas Borthwick, Margaret Mannion, Ignacio Montero-Ruiz and Mercedes Murillo-Barroso, Róisín Nic Cnáimhín, Cian Ó Cionnfhaolaidh, James O'Driscoll, Edward O'Riordain, and Orla-Peach Power

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Front cover: The Garranes ridge from north-east. *(faded)* Extract from Bernard Scale's 1775 map depciting Lisnacaheragh and Lisnamanroe as 'Danes Forts'.
Rear cover: *(photographs top–bottom)* The Garranes excavation team photographed in 1937; excavation underway at Lisnamanroe in 2013 with students from University College Cork; aerial view of 2017 trench at Lisnacaheragh. *(faded)* Ó Ríordáin's plan of Lisnacaheragh (source: Ó Ríordáin 1942, Plate XII).

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Dedicated to the memory of Seán P. Ó Ríordáin, the first excavator of Garranes
and Professor of Archaeology, University College Cork (1936–1943)

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William O'Brien & Nick Hogan,
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-1-
GARRANES: AN INTRODUCTION

This publication is a study of an early settlement landscape in south-west Ireland, long regarded as a minor royal site of the early medieval period (AD 400–1200). The focus is a cluster of earthen enclosures ('ringforts') in the townland of Garranes, parish of Templemartin, some 15km west of Cork City (Figure 1.1). The central monument, Lisnacaheragh, is a large circular enclosure of 110m diameter, surrounded by three closely spaced bank-and-ditch combinations with a single entrance (Figure 1.2). Approximately 100m to the west is another enclosure, Lisnamanroe, 80m in diameter, visible today as a low-relief earthwork. To the north is a large sub-triangular earthwork called Shanawillen Caherkean, considered by some to be a formal entrance to the royal site. There are two small ringforts to the immediate east of Lisnacaheragh and other examples within one kilometre. Several of these are extant today, while others were levelled in the early modern era. One such site is Lisheenagreine to the south of Lisnacaheragh, where an ogam stone was discovered in an underground tunnel (souterrain) in the nineteenth century.

The significance of Garranes lies partly in the date of Lisnacaheragh, believed to have been built in the fifth century AD. That is early in the history of the Irish ringfort, the origins of which remain unclear. The evidence of specialist craftworking in metal, glass and enamel from Lisnacaheragh testifies to the importance of the site. The discovery of imported pottery there sheds light on connections between Ireland and the late Roman world at a time when Christianity was also introduced to Ireland. These developments at Garranes coincided with the emergence of the ringfort as the major settlement form of the early medieval period.

Though not directly comparable, Garranes brings that interesting alignment of archaeology, history and legend that is more often associated with Tara and other provincial royal sites in protohistoric Ireland. Over the past century this site has been regarded as a significant place in the political history of early medieval Munster, identified as the seat of an early tribal group known as the Uí Echach Muman. The latter are generally interpreted as a southern branch of the Eóganacht, a loose federation of dynastic groups who dominated political life in the Munster region from the fifth to the twelfth centuries. The Uí Echach are also recorded in medieval sources as the Eóganacht Raithleann/Raithlind, a name taken from Raithliu their royal seat and place of assembly. Lisnacaheragh ringfort at Garranes has been identified as Raithliu/Rath Raithleann based on its impressive size and defences, and the evidence of high status occupation found in excavation.

This monograph presents the results of archaeological fieldwork conducted in 2011–18 in the Garranes landscape. That included a survey of the individual monuments and the use of geophysical methods to investigate sub-surface archaeology in the wider landscape. Five earthworks were also excavated, the results of which are presented along with specialist studies connected to those investigations.

1.1 THE RINGFORT IN EARLY MEDIEVAL IRELAND

Ringforts are small settlement enclosures of the early medieval period. They are the most numerous archaeological monuments in Ireland, with the original number estimated at around 50,000, of which perhaps only half are now extant. Ringforts are found in every part of Ireland, with the greatest concentrations in western areas (Figure 1.3). This is reflected in the prevalence of modern place-names with elements relating to ringforts, such as *ráth*, *lios*, *cathair*, *caiseal*, and *dún*. A distinction is generally made between ringforts built predominantly of earth and timber, often termed raths, and those built of stone called cashels (Figure 1.4).

Most ringforts are small circular enclosures, with oval, D-shaped or sub-rectangular variants also known. The great majority are univallate enclosures, 30–60m in overall diameter, defined by a single bank with external ditch (fosse), or else a stone wall. In the case of earthen ringforts, a bank of dump construction was built using earth and stone extracted from the accompanying ditch. Early text sources contain references to this enclosing element as a *rath*, with the living area inside called a *les* or *lios*. The enclosing banks and ditches can be 2m or more in height and depth, with the banks in many cases reinforced by post palisades or lighter fencing. The univallate arrangement is typical of 80–90% of ringforts in most parts of Ireland. Multivallate examples are fewer in number, where two or three (rarely four) bank-and-ditch combinations are spaced together concentrically to create an enclosure with an overall diameter that can exceed 100m.

The majority of ringforts have a single entrance. In the case of earthen ringforts this is usually a causeway across one or more ditches leading to a gap in the inner bank(s). Most excavated sites have posthole evidence for a wooden gate at the bank opening, with several gates recorded in multivallate sites. Cashels also had

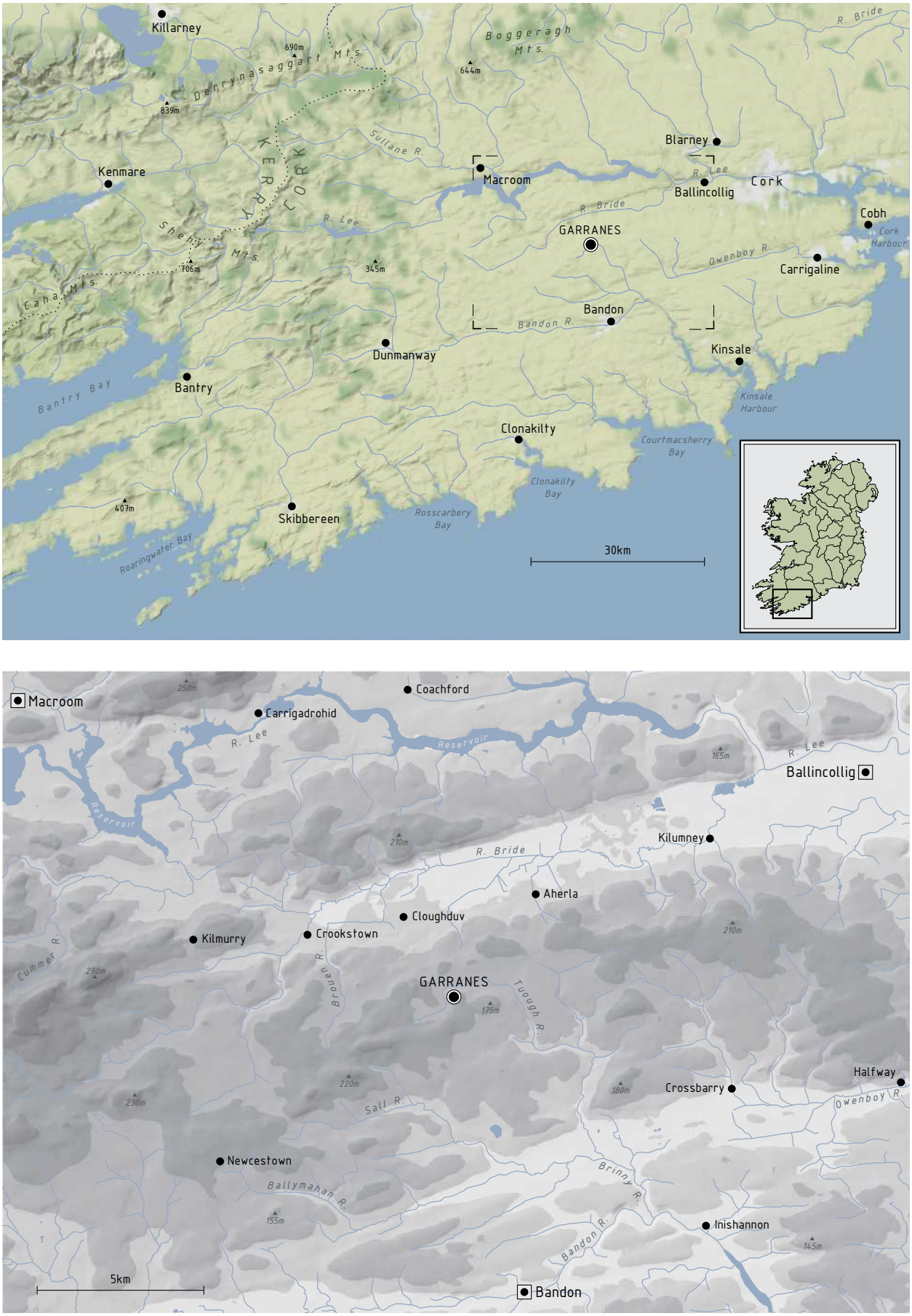


Figure 1.1 General location and topographic setting of Garranes.



Figure 1.2 Aerial view of Garranes (Lisnacaheragh) ringfort from the west, with Garranes House in the background.

a single entrance, often a narrow passageway roofed with stone lintels, with a wooden door. The internal width of most ringforts is 20–44m, extending up to 75m in larger sites (Stout 1997, 15–19). The interiors are generally flat, though examples with artificially raised interiors (platform ringforts) are known in some parts of Ireland (e.g. McCormack 2018). Most do not have visible internal features, though foundation traces of stone-built structures can be exposed. Excavation confirms that many cashels had circular or rectangular houses of stone wall construction, while roundhouses built of wood, mud and thatch were usual in raths. Underground tunnels known as souterrains used for storage and hiding are commonly found in ringforts.

The majority of artifact finds from excavated ringforts date to the later first millennium AD. This is supported by radiocarbon results that indicate most ringforts were occupied c.AD 600–900 (Stout 1997, fig. 2). The earliest secure dates for ringforts are from the fifth and sixth centuries, with later examples up to the twelfth century. There has been much debate on the origin of this settlement form, in respect of possible Bronze Age or Iron Age antecedents, or influences from the Roman world (Caulfield 1981; Lynn 1983). The later history of ringforts is also uncertain in respect of continued use and possibly construction in the later medieval period (Lynn 1975a; 1975b).

Several regional studies have examined the landscape setting of ringforts and the environmental factors that influenced their location. There is a tendency for ringforts to be built on hill slopes with a southerly aspect below 200–300m OD. That depended to a great extent on local topography, with regional studies demonstrating considerable variation across Ireland (reviewed by Stout 1997, 48–109). This lowland setting and a general correlation with good agricultural land is consistent with the importance of farming in the economy of the Irish ringfort.

While the term ‘ringfort’ has military connotations, this is misleading in respect of their primary function, which was to protect the occupants, their livestock and possessions. That was particularly important in a society where cattle raiding was prevalent (Lucas 1989, 125). Excavation of ringforts confirms they were residential sites, with houses, domestic areas and storage facilities located within and outside the enclosure. The majority of small univallate ringforts are generally interpreted as single family farmsteads, while larger sites with multivallation are associated with higher status residence (Figure 1.5). That applies more to earthen ringforts than their stone equivalents, which are generally distinguished by a single imposing wall than by multiple enclosing elements. Some excavated sites have little evidence of occupation, raising the possibility they were used as animal enclosures. This is often suggested where two ringforts are in close proximity, however such functional relationships can never be established without comprehensive excavation.



Figure 1.3 General distribution of ringforts in Ireland. Monuments recorded as 'rath', 'cashel' and 'ringfort-unclassified' are shown. (source: National Monuments Service, Sites and Monuments Record; Historic Environment Division, Northern Ireland Sites and Monuments Record; accessed 01/02/2020).

It is obvious from excavated finds, including tools, animal bone and plant remains, that farming was central to the economy of ringfort inhabitants (Proudfoot 1961, Stout 1997, Comber 2008, O'Sullivan *et al.* 2013). This is supported by early text sources, in particular those legal tracts dealing with regulation of property, inheritance, tribute and contracts (see Lucas 1989). In some instances there are indications of specialization, but mostly this agriculture was a mix of animal pastoralism and cereal cultivation. The latter included wheat and barley, with new crops such as oats and rye, flax and legumes. The importance of arable farming is indicated by the many grain drying kilns from the early medieval period (Monk and Power 2012), and by the development of the water mill (Rynne 2000). While cereals were important in many parts of Ireland, early text sources and archaeozoological evidence indicate that cattle pastoralism dominated farming in those centuries (Lucas 1989; McCormick 1983; 1992). McCormick regards the development of dairying as particularly significant, providing an '...opportunity to increase agricultural productivity with the accompanying increase of agricultural capital, i.e. land, which ultimately gave rise to an increase in population, general agricultural expansion and the development of a new settlement type, the ringfort' (McCormick 1995, 36). Sheep and pigs were also important farm animals, in terms of meat supply and secondary products. The importance of farming meant most ringforts were surrounded by field patterns, enclosures and trackways. Those fields do not generally survive in the modern agricultural landscape, though examples associated with cashels have been identified in the Burren, Co. Clare and other parts of western Ireland (e.g. Stout 1997, plates 12 and 13). The clustering of ringforts in areas of high agricultural potential is common, with a well-known complex of conjoined raths and small fields recorded at Cush, Co. Limerick (see below).

In a landscape of dispersed rural settlement, ringforts were important centres of economic activity and trade. Artifact finds confirm that most ringforts had some level of craft working, be it ironworking, woodworking or textile production (Comber 2008; O'Sullivan *et al.* 2013). Sites of higher status often have evidence for specialized crafts such as bronze and glass production. They also provide information on long-distance trade in raw materials and finished goods. That includes the exchange of raw materials and finished objects, and the importation of luxury goods from within and outside of Ireland.

Ringforts of higher status were significant as places of assembly, where over time they acquired a symbolic role in terms of group identity and political power. In some cases they were the location of the tribal *óenach*, a periodic assembly convened on royal land (*mruig ríg*) (Gleeson 2015). Though often presented as fairs or markets, sporting events and 'an occasion for general jollification' (Byrne 1973), these assemblies were central to the exercise of political and legal power. They had important ceremonial functions that included the inauguration of kings and the honouring of the dead. Some ringforts that ceased to be used for permanent residence may have acquired a special significance as *óenach* locations by virtue of their historical and legendary associations.

To summarize, the majority of ringforts in Ireland are likely to have been protected family farmsteads connected to dispersed landholdings in a rural agricultural landscape. The relative size and wealth of those settlements reflected the social standing of their occupants, with some ringforts acquiring greater significance as centres of political and economic power. For this reason, and on sheer numbers alone, they have been regarded as the most significant form of rural settlement in early medieval Ireland. This has been questioned by Fitzpatrick (2009) and Kinsella (2010), who emphasize the morphological variability within this class of monuments, and the uncertainty surrounding their significance in the later medieval



Figure 1.4 Aerial views of *(left)* Cusduff rath (CO082-042) and *(right)* Knockdrum cashel (CO142-070001), Co. Cork.



Figure 1.5 Aerial view of Cahirvagliair ringfort, Cappeen West, Co. Cork (CO094-060001).

period. The typical ringfort, so recognizable in the Irish landscape, can be viewed as a distinct settlement form within a broader range of medieval enclosure types. While some ringforts were occupied in later periods, this should not take from their significance in early medieval Ireland, when they were part of a complex and evolving settlement landscape (see O'Sullivan and McCormick 2017 for recent discoveries of other components of that landscape).

Ringforts and society

One approach to understanding the variability of form and wealth represented in ringforts has been to link these to the underlying social structure of early medieval Ireland. The *tuath* was the basic political unit in society, a term that literally means a 'people'. This had geographical expression as a form of petty or tribal kingdom. The latter must be qualified in that

a *tuath* was only tribal in the sense of a population group that formed a distinct political reality, and not an ethnic group with its own language, customs and religion (Byrne 1973, 8). Each *tuath* had its own sacred site where their king was inaugurated, a place often associated with a sacred tree (*bile*), stone or mound. Beyond these local kingdoms were larger *tuatha* and regional kingdoms, and provincial kingdoms known as *cóiceda*.

The basic social unit within the tuath was the family, defined as a *fine* or kin-group, of which there were immediate and extended forms. Each free man belonged to a *fine*, which was an agnatic kindred group in which were vested property rights and which partly determined legal standing (Byrne 1973, 28). Historical sources provide a picture of early medieval society in Ireland as aristocratic and hierarchical (Corráin 1972; Kelly 1988). A fundamental distinction was between people who were *nemed* (sacred), and non-*nemed*. Society was also divided into free (*sóer)* and unfree (*dóer) people* on economic and social grounds. These distinctions created four broad classes in society, namely *nemed* and non-*nemed* freeman, dóer or unfree, and slaves. Each person belonged to a particular grouping in society with different rights and privileges. Their social position was defined by legal status and by an honour price determined in units of cattle or female slaves (*cumals*). This reflected their position in the hierarchy, with each class in turn sub-divided on the basis of rank.

The noble *nemed* class comprised an aristocracy of lords and kings, as well as noble professions, learned castes and ecclesiastical figures. Their privileged position arose from their landholdings and the number of clients they held, which together were the basis of their wealth. The *Uraicecht Becc* text defined seven grades of *nemed* in order of status, each defined by the term *aire*, as follows: 1) *aire déso,* 2) *aire échto,* 3) *aire tuíseo,* 4) *aire ard,* 5) *aire forgill,* 6) *rí túaithe,* and 7) *rí ruirech* (see O'Kelly 1988). Clientship was central to the exercise of political power, creating reciprocal obligations that underpinned the upper classes, aristrocracy and kings, providing the lower classes with a certain measure of protection against military violence (MacNiocaill 1972, 60).

The central figure in political life was the king, of which there were three principal grades. The most important at a local level was the *rí túaithe* '('king of a *túath*') with an honour price of seven cumals (Kelly 1988, 17). Where these grew in power to control other *túatha* they are described as a *rí túath (*'king of *túatha')* or *ruiri* ('great king') with an honour price of eight cumals. The highest grade of king is the *rí cóicid* or provincial king, sometimes referred to as a *rí ruirech*, 'king of great kings', with an honour price of 14 cumals. In this hierarchy the standing of a king was defined by his relationship to other kings, by the number of subordinate *tuaths* he controlled and the level of that control (MacNiocaill 1972, 42). Byrne (1973) estimates there were as many as 150 kings in Ireland at any given time between the fifth and twelfth centuries. Each king ruled over his own tuath, while many were overlords of other tuatha.

The king was bound to the *tuath* in a type of wedlock often expressed as a form of sacral kingship (Byrne 1973, 14–22; Bhreathnach 2014, 48–56). The main role of the king was to serve as a leader in war and to represent the *tuath* in its external relations, including dealings with other kings. Within the *tuath* the king neither made or enforced law, neither was he the allodial landowner of the tribal territories. These were owned by the free families, (*fine* or *cenél*), who had a major influence in the internal workings of the *tuath* (Ó Corráin 1972, 28). On that basis the aristocracy of a *tuath* was divided between members of the ruling family and the nobles of other kin groups.

The second social class, non-*nemed* freemen, constituted a significant proportion of the population, who were either strong or small farmers. These were the *bóaire* and *ócaire* respectively, who probably occupied the majority of ringforts in early medieval Ireland. Beneath them was an unfree class of tenants, including the *fuidir* or *bothach* whose families occupied the same land for three generations and the *senchléithe*, a class bound to a lord who could not renounce their tenancy. Although not a slave, the *senchléithe* is sold with the land, which would make this group the equivalent of a serf class. It is not clear whether this tenant class lived in ringforts, though this is likely in many instances. Finally, there was a slave class with no legal rights or defined status, who were essentially the property of ringfort dwellers of various grades.

These divisions in social class are often related to differences in the size and design of ringforts in terms of the status and wealth of their occupants. Stout (1997) has argued for a close correlation of social and settlement hierarchy across Ireland in the early medieval period. These distinctions are supported by early law texts that idealize the size and layout of a royal residence, as in the oft-quoted extract from an eighth-century text, *Críth Gablach*:

> 'What is the due of a king who is always in residence at the head of his túath? Seven score feet of perfect feet are the measure of his stockade on every side. Seven feet are the thickness of its earthwork, and twelve feet its depth. It is then that he is king when ramparts of vassalage (*drécht giallnai*) surround him.' (MacNeill 1923, 305).

There is a suggestion here that the number of enclosing banks in a ringfort reflects the status of the occupants, with trivallate sites equating to high status (royal) residences.

This interpretation is taken a step further by Comber (2008a) in a review of excavated material culture from Irish ringforts. She identified a broad correlation between site morphology and economic activity, noting also that 'increasing size was not an exact correlation of increasing wealth' (*ibid*., 227). This is particularly true in the case of cashels, while the occupants of some univallate ringforts were wealthy. There is much variation at regional level, but most researchers agree that large multivallate ringforts were of considerable importance in their respective societies.

1.2 GARRANES: AN HISTORICAL CONTEXT

The following is a brief outline of the political landscape of Munster during the early medieval period, based entirely on a review of published secondary sources. This begins with the traditional narrative of Eóganacht supremacy in the province, and introduces the complex and shifting structure of its many kingdoms and sub-kingdoms. The absence of reliable historical sources before the eighth century makes it difficult to unravel the political relations of earlier periods. That uncertainty has important implications for an understanding of high-status settlement at Garranes in the fifth and sixth centuries.

A political geography of Munster, AD 400–1100

The later synthetic historians record that the Eóganacht were the leading political and military power in Munster during the early medieval period. This was a loose federation of genealogically related dynasties, reputedly founded by Corc the founder of Cashel c.AD 400, otherwise known as Corc mac Luigthig, Conall Corc or Mac Láire (Ó Buachalla 1952, 67–8). They were named after his ancestor Eógan Már, the son of Ailill Ólum, a mythological king of Munster in the third century AD (Ó Corráin 1972). The latter was the son of the legendary Mug Nuadat (also named Eógan), which connects Eóganacht origins in legend to the Milesian conquest

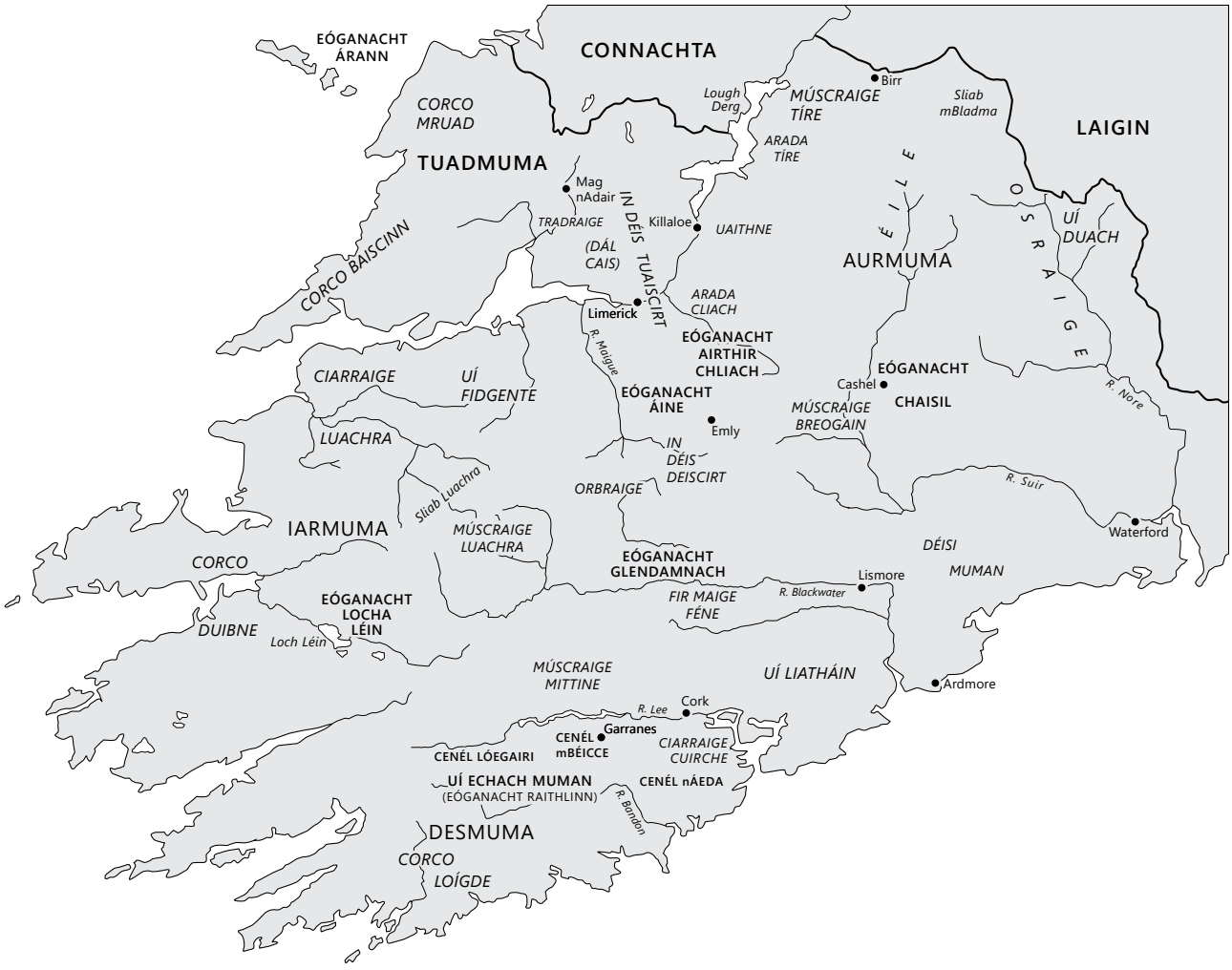


Figure 1.6 Political geography of Munster, *c.*AD 900 (re-drawn from Byrne 1973, 172).

of Ireland. Notwithstanding those associations, it has been suggested the Eóganacht name was in practice confined to those septs who claimed descent from Corc/Conall Corc, who established the Cashel kingship (Byrne 1973, 177). The earliest Eóganacht groups are sometimes named the Dergtine in early sources, which recall their early struggles with the older Érainn or Dáirine peoples during the fifth and sixth centuries. In the official genealogies, the Eóganacht are descended from Éber, son of Míl, while their Dáirine/Corcu Lóegde rivals are descended from Ith mac Breogain, and so of inferior status to the direct line from Míl (Ó Buachalla 1952, 71).

Ó Corráin (1972) observes that the early history of the Eóganacht is uncertain due to a lack of annalistic sources for the early history of Munster (see Byrne 1973, 184–9 for discussion of origin legends). Their origin legend states that the Cashel kingship was founded in the early fifth century by Corc on his return from exile in Britain. MacNiocaill (1972, 5) suggested this was connected to the expulsion in that period of some Irish kingdoms established in north Wales. While emphasizing indigenous roots, Byrne (1973, 182) links their rise to successful forays in Roman Britain, and possibly also to the early adoption of Christianity. Corc was the first of the Eóganacht kings to make Cashel his royal residence, though his power was limited mostly to that part of north Munster. MacNiocaill identified Oengus the grandson of Corc, as a key figure in the expansion of the Eóganacht from Cashel across east Limerick and south Tipperary. Farther expansion into south Munster occurred at the expense of the Érainn, with the assistance of a number of allies, including the Corco Baiscind, Corco Óche, Fír Maige Féne, Deisi, and various branches of the Muscraige. This helped to extend Eóganacht authority across the southern region, separating their various branches from Érainn and other non- Eóganacht peoples through strategic settlement and political alliances (Mac Niocaill 1972, 34). Ó Buachalla notes that while the Eóganacht and Dáirine had equal rights to the provincial kingship, the claim of the latter seems to have lapsed in later prehistory. This may also have been suppressed by linking important Dáirine septs, such as the Uí Fidgeinte, Uí Liatháin and Uí Duach, to the Eóganacht stem (Ó Buachalla 1952, 70), a later genealogical fiction designed to consolidate their power (Ó Cróinín 1995, 58). The time-scale of Eóganacht expansion is uncertain, with MacNiocaill emphasizing developments in the fifth century, while others have suggested a turning point as early as the third century 'when the Munster sceptre passed from the Érainn to the Eóganachta' (Ryan 1942, 145).

Most scholars agree that by the eighth century the province was divided into two broad political areas, Iarmumu (west Munster) and Aurmumu (east Munster), with the king of Cashel as nominal king of the entire province. During that period six dynastic groups enjoys free status, including the Eóganachta, Dáirine/ Corco Lóegde, Éle, Osraige, Deis Tuaiscert (early Dál Cais), and the Déisi (Ó Buachalla 1952, 85). For the first of those, Byrne (1973, 178) refers to a standard list of 'Seven Eóganachta' in the early genealogical tracts, namely the regional branches of Caisil, Áine, Loch Léin, Raithlind, Glennamain, Árann, and Ruis Argait. The dominance of the federation is indicated by their control of the kingship of Munster in that period. Their internal politics, however, was complicated by a division between two great and often hostile groups, namely the western Eóganacht who comprised the kingdoms of Loch Léin and Raithlind, and the eastern Eóganacht that included the kingdoms of Caisil, Aine Cliach, Airthir Chliach, and Glennamain/ Glendamnach (Figure 1.6).

The Eóganacht Loch Léin, also known as Uí Cairpre Lúachra, controlled the kingdom of west Munster (Iarmumu) from the fifth to eighth centuries, ruling over small groups such as the Ciarraige Luachra, Corcu Duibne, Corcu Baiscinn, among others. Ó Corráin (1972, 1) speculated that the Killarney base of the Eóganacht Loch Léin may have been the original homeland of these peoples, from where they spread east into the richer lands in north and eastern Munster, driving back the Corcu Lóegde, Osraige and the Leinstermen. Their dominance prevailed until the eighth century or so when the axis of political power shifted to their eastern cousins in the political territory of east Munster (Aurmumu). The Eóganacht Caisil in Tipperary was the most prominent of those groups, providing many of the kings of Munster, though with no prerogative claim to that title (Byrne 1973, 177). The Eóganacht Caisil were also known as the Ui Maic Láire, the latter being another name for Corc/Conall Corc (Ó Buachalla 1952, 68). Their close relations were the Eóganacht Glennamain/ Glendamnach based in the Fermoy/Glanworth area of north Cork, from where several kings of Munster came during the seventh century (*ibid*., 3). They were also connected to the Eóganacht Airthir Chliach and the Eóganacht Áine in east Limerick. Those branches of the eastern Eóganacht all claimed descent from Óengus king of Cashel (ob. 490 AD), son of Nad Fraich, son of Corc. In contrast, the two main branches of western Eóganacht (Loch Léin and Raithlind/Raithleann) claim direct descent from two other sons of Corc, namely Cairpre Luachra and Mac Cass respectively (Figure 1.7).

The Eóganacht kingship was unusual in its devolved structure, certainly compared to the consolidated rule of the northern and midland Uí Néill kings in the same period. While they controlled the provincial kingship over long periods, the Eóganacht Caisil exercised a loose hegemony over a complex and shifting geography

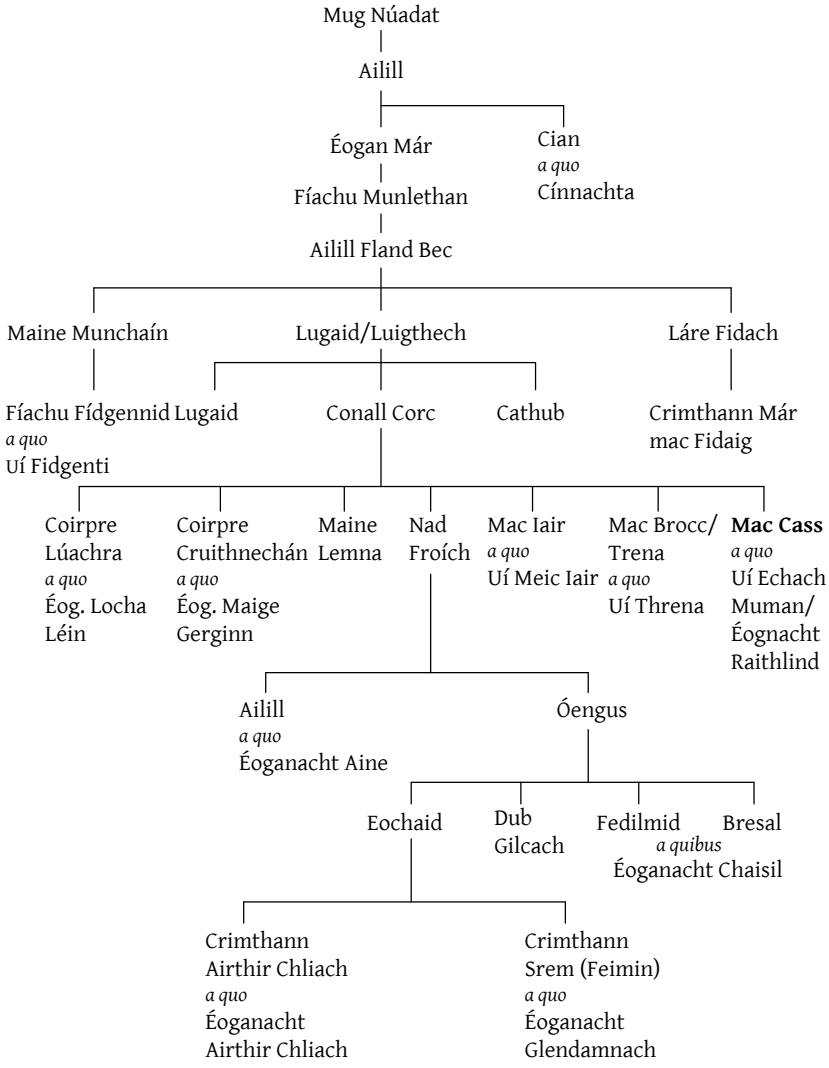


Figure 1.7 Early genealogy of the Eóganacht in early medieval Munster (after Charles-Edwards 2000, 610).

of sub-kingdoms comprising other Eóganacht groups, allies and subject peoples across Munster. Their power was based in part on military subjugation, but more often on political and economic connections. Ó Corráin observed that beneath the Eóganacht federation was '...a patchwork quilt of sub-kingdoms and minor local kingdoms in various degrees of subordination to each other and to the Eóganacht' (1972, 6). Many of these were ruled by dynastic stocks with different origins to the Eóganacht overlords. They included related and separate dynastic groups, as well as residual groups of the earlier Érainn peoples. Some of these claimed Eóganacht ancestry, such as the Uí Liatháin of east Cork, the Uí Fidgeinte of Limerick, the Uí Duach Airgetrois of north Kilkenny, the Uí Dedaid of north-east Tipperary, among others. This was a complex and shifting political landscape; for example, the Uí Fidgente controlled many smaller groups across much of what is today county Limerick. During the later ninth century their unified kingdom broke apart into the separate kingdoms of Uí Chonaill and Uí Chairbre, before fragmenting further into small petty kingdoms. The Múscraige were another group of related peoples, with sub-kingdoms in Tipperary (Múscraige Tíre), Limerick, and mid Cork (Múscraige Mittíne).

Other sub-kingdoms in Munster had an Érainn ancestry, including the Corcu Lóegde in west Cork, the Uí Liathain in the area of Cork harbour, and the Corcu Duibne in west Kerry, the Ciarraige Luachra in north Kerry, the Ciarraige Cuirche south and east of Cork harbour, and the Corcu Baiscind and Corcu Modruad in what is today county Clare. There were numerous other petty kingdoms along the northern and eastern borders of Munster (Ó Corráin 1972, 8). There is much uncertainty as to the historical origins of these groups, with Ó Buachalla (1952) suggesting many were of the Dáirine or Corcu Lóegde, one of the main branches of the Érainn or Erna who shared the kingship of Munster with the Eóganacht in earlier times. Ó Buachalla goes

on to speculate that the origins of the Eóganacht may be different to those presented by later synthetic historians. There may have been closer connections to their Érainn rivals, such as the fact that their divine ancestor, Eógan Már, is linked to ancestor deities of the Érainn in some early genealogies (1952, 72).

This is a theme taken up by Patrick Gleeson (2014) in a recent study of kingship and the early political history of Munster. He questions the existence of the Eóganacht as a federation of genealogically related dynasties, suggesting they were originally two distinct and rival polities, the Uí Maic Láire and Corcu Loígde who together ruled Munster in the period 500–800 AD. The Uí Maic Láire originally occupied a core territory from east Limerick to Cashel to south Tipperary, divided between a western branch (Uí Enna), based around Knockainy, and descended from Ailill mac Nad Froích, and an eastern branch (Cineol nÓengusso mac Nad Froích), based around Cashel prior to their move south into Cork. Gleeson believes the Uí Maic Láire considered themselves as descendants of the mythological Ailill Ólum who ruled Munster from Knockainy in east Limerick.

While Eóganacht origin myths proclaim they conquered Munster from the Érainn in late prehistory, Gleeson argues that the Corcu Loígde remained a powerful force into the seventh and eighth centuries. Their leading groups were the Uí Cairpre Luachra (later known as the Eoganacht Loch Léin) based around Killarney, and the Uí Echach Muman (Eóganacht Raithleann) in mid Cork. He suggests the Eóganacht conquest narrative reflects a struggle for supremacy that took place between Uí Maic Láire and the Corcu Loígde from the fifth to seventh centuries. He presents the Eóganacht origin myth as a late fiction designed to bolster the prestige of that federation. This was previously raised by Sproule (1984, 36) who suggests the Uí Echach Muman entered the new Eóganacht federation by artificially joining their genealogies to Corc mac Luigthig, founder of Cashel, while also retaining their original sept name.

While the traditional narrative suggests the Eóganacht had control of the provincial kingship by the fifth century, there was ongoing conflict in that period with their old rivals, the Érainn, that is with the Dáirine (Corcu Lóegde and Uí Fidgeinte) and the Osraige (Ó Buachalla 1954, 111–3). The Eóganacht established political alliances with Érainn groups such as the Muscraige, and others such as the Déisi, to consolidate their authority across the province. Through their various branches, but principally the Eóganacht Caisil, they controlled Munster until their eventual overthrow by the Dál Cais in the late tenth century. The latter were derived from the Déisi, a major kingdom stretching from the coast of Waterford through southern Tipperary into Limerick. This group subsequently divided into eastern and western branches, leading to the emergence of the Déis Tuaiscirt in Limerick, who by the eighth century had become the Dál Cais based in east Clare. The latter emerged as a major political and military power by the late tenth century, leading to conflict with the Eóganacht in the early eleventh century (see below).

In conclusion, the political landscape of Munster during the early medieval period was highly complex and dynamic. Ó Corráin connects the proliferation of petty kingdoms during the sixth and seventh centuries to widespread political upheavals across the province (1972, 8). He suggests that by the eighth century, if not earlier, the independent legal position of the tuath was being steadily eroded by the regional over-kingdoms (*ibid.,* 29). However, even when the emerging Eóganacht federation consolidated their power the indeterminate nature of royal succession, and the limited authority the king of Munster had over his sub-kingdoms, meant no settled power centre could develop within the dynasty. Ó Corráin concludes, 'Munster appears to me more a confederation of dominant dynasties rather than a kingdom in which one dynasty was paramount' (*ibid.*, 111–112). The possibility that the Eóganacht federation was not a political reality prior to the eighth century has important implications for the present study.

Eóganacht Raithleann

While the Eóganacht Locha Léin (Uí Cairpre Lúachra) were the dominant political power in Iarmumu, historical sources indicate that the southern kingdom of Desmumu in the Cork region was controlled by another branch of the western Eóganacht. As already stated, they were the Uí Echach Muman, otherwise known as Eóganacht Uí Eacac or Eóganacht Raithlenn (also Eóganacht Ua Néit; Ó Buachalla 1952, fn.5), a name derived from Eochu, grandson of Corc/Conall Corc, a king of Munster in the fourth/early fifth centuries AD (Figure 1.8). Corc's role in the foundation of Eóganacht Raithleann is emphasized by the medieval poem *Ráith Raithleann, ráith Chuirc is Chéin*, reputedly written by an eleventh-century bard, Mac Giolla Caomh (see below). Ryan interpreted this as referring to a southern expansion by Corc as King of Cashel, encouraged by his foster mother Raithleann, after whom a new fort in the southern territory was named (Ryan 1942, 146). He did question whether Corc was the direct founder of this new polity, noting the Uí Echach Muman traced their origin back to his grandson Eochu. Ryan suggests that this Eochu was probably the pioneer settler in this new southern territory, with the most prominent place in his small kingdom being a fort named Raithliu/Raith Raithleann.

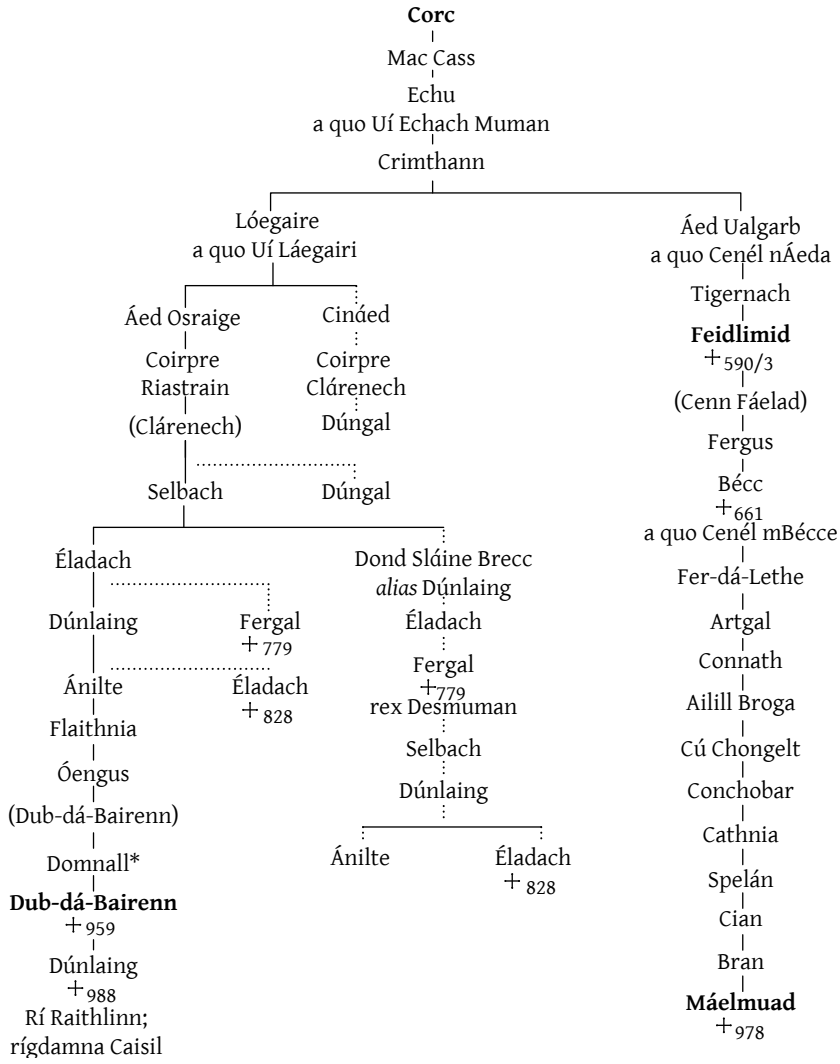


Figure 1.8 Genealogy of the Eóganacht Raithlind (after Byrne 1973, appendix II, 14)

The extent of the Uí Echach territory must have been considerable, representing one of the largest sept lands in the Eóganacht federation (O'Mahony 1906). The territory may have extended from Mizen Head as far as Cork harbour, centred on the baronies of Kinalea and Kinelmeaky in mid and south Cork, which are named after the two leading branches of the dynasty. Their lands extended to the southern coastline of Cork, where it is likely the Uí Echach were involved in maritime activity. O'Mahony (1906, 193) cites historical references to the involvement of the Uí Echach in a naval expedition led by Brian Bóruma in AD 979, and again in AD 1002.

By the sixth century, the Uí Echach/ Eóganacht Raithleann had divided into two distinct branches, the Cenél nÁeda and Cenél Láegairi, named after two sons of Criomthan, son of Eochu, with another branch, the Cenél mBéice, emerging out of the Cenél nÁeda at a later stage. The Cenél nÁeda, named after Aodh Uargarbh, was the stronger branch during that period, giving their name to the later barony of Kinalea, while the Cenél mBéice gave their name to the adjacent barony of Kinelmeaky. Aodh's son Tighernach was also Rí Raithleann, and his chief metalworker (*priomh gobha*) is reputed to have been Amargein/Amergin, the father of St Finbarr. Amergin is supposed to have married a woman in the royal household at Ráth Raithleann (Stanton 1893; O'Mahony 1907, 75; Ó Buachalla 1963). Popular tradition holds that the saint was born there in 570 AD, but that is not likely (see Ó Riain 1977).

Tighernach's son, Feidlimidh, rose to become the king of Munster in 580 AD. His death in 590/593 AD is recorded in the *Annals of Inisfallen* ('*mors Fedlimthe meicc Thigernaig, ríg Caissil*'; Mac Airt 1951, 78). He was the only *Rí Raithleann* to hold the kingship of Munster until Dubdaboirend mac Domnaill who died in AD 958 ('*mors Domnaill m. Oengusa, ríg Hua nEchach*; *ibid.,* 156). While the Eóganacht Raithleann had equal rights to the

kingship of Munster, the east Munster branches of the federation sought to exclude them from an early date (Ó Buachalla 1954, 119; Byrne 1973, 193). This is evident in the Laud genealogy text dating to the eighth or ninth centuries, which states that the Uí Echach did not take a share of the inheritance land of the Eóganachta, as their ancestor Mac Cass, son of Corc, did not claim it during the life-time of Corc. The latter reared Mac Cass' son, Eochu (ancestor of the Uí Echach) on his own lands and gave him the lands in mid Cork where the Uí Echach settled. This explains the old saying 'though each man of the Uí Eachach was king of Munster, none of them would rule from Cashel' (Ó Buachalla 1954, 120). It is notable that when Feidlimid mac Tighernach became king of Munster, he did not go to Cashel, but instead built a fortress at Bodumbir, thought to be near Cahir, Co. Tipperary (*ibid*.)

The early text *Frithfolaid ríg Caisil fri túatha Muman* outlines the mutual obligations of the King of Cashel to the sub-kingdoms of Munster, including that of the Eóganacht Raithleann. This lists the military services required of the kings of the western Eóganacht, while also asserting their free status within the federation (see Byrne 1973, 197–8). O'Mahony (1906) records that 'mighty Raithlenn' was exempt from tribute to the Cashel over-king, citing the following entry in *Lebor na Cert* ('Book of Rights'):

> There are three kings in spacious Munster
> who pay no tribute to Cashel,
> the king of Gabrán whose hostages are not taken,
> the king of Raithlenn and the king of Loch Léin.

The same text records the division of those stipends from the king of Cashel to the kings of tribes and territories according to their size and wealth, their ancestry, rank and nobility, with this reference to 'red Raithlinn':

> 'The prosperous king of Raithlinn is entitled
> To a very great stipend;
> Ten swords and ten drinking-horns,
> Ten red cloaks, ten blue cloaks.'
>
> (O'Donovan 1847, 67, 83).

In 957 AD Dubdaboirend mac Domnaill of the Eóganacht Raithleann was king of Munster, the first time since the sixth century that the Uí Echach had enjoyed such power (Ó Corrain 1972, 116–120). His death in 959 AD led to competing claims for the provincial kingship, between Maelmuad mac Brain of the Uí Echach/ Eóganacht Raithleann and Mathgamain mac Cennetíg, king of the Dál Cais, a rising power in north Munster. In 964 AD Mathgamain seized the Cashel kingship, occupying the lands of the Eóganacht Caisil. This lead to a regional conflict where the Uí Echach king, Maelmaud allied with the Norse of Limerick and the Ui Fidgeinte to revolt against Maghgaman's rule in Cashel. The latter was captured and killed by Maelmuad in 976 AD. That success was short-lived as Mathgamain's brother Brian Bóruma moved against Maelmuad in 978 AD, defeating him at the battle of Belach Leachta.

Brian subsequently made peace with Maolmuadh's son Cían, allowing him to succeed as Rí Raithleann and Lord of Desmumu, a political alliance strengthened though marriage to Brian's daughter Sadb/Saidhb. Cían was an important Eóganacht ally of Brian at Clontarf, before falling out with the Dál Cais in the succession stakes that followed the latter's death in that battle. The death of Cían later that year (1014 AD) led to infighting among the Uí Echach, which resulted in defeat of the Cenél Láegairi (O'Mahony 1907, 189). This left the Cenél nÁeda under Cían's son, Mahon or Mathghamhan, in control of sept lands that extended from Cork harbour to Mizen Head, and from the River Blackwater to the southern coast. The O'Mahony/Uí Mathghamhna clan of the later medieval period in Cork claim illustrious descent from this Mahon (obit. 1038 AD), the son of Cían mac Maol Muadh, one of the heroes of Clontarf, and Sadb, the daughter of Brian Bóruma.

Garranes and Raithliu

> 'On the northern limit of Templemartin may be seen the plan of an ancient tribal city. The chief's stronghold is in the centre, surrounded by a triple rampart, and probably once by a double. At present about a dozen garths lie around it. There were more formerly, but, as I learned from the workmen, they were levelled with the fields. The place is honeycombed with caves.' (Lyons 1893, 146).

This reference to a trivallate ringfort surrounded by smaller forts in the parish of Templemartin comes from a local historian, Rev. John Lyons. He identified this location in the townland of Gurrane (Garranes) as the chief stronghold of the O'Mahonys, lords of Kinelmeky, before they moved to the Bandon area in the later medieval period. He noted the central fort is known locally as *Caitir Céin na mbeann* óir ('the seat [or fort] of Cían of the golden [drinking] cups'), a legendary king whose hospitality is praised in the following unattributed verse:

> 'The fort of Cian of the golden horns,
> Whose store outlasted his life;
> Who never drove anyone (poor) from his house,
> And who was not driven from God's house.'
>
> (*translation by* Lyons 1893, 146)

In a subsequent paper Rev. Lyons reiterated that Cian was still honoured in the tradition of the district, mentioning a local man of 91 years who relayed his legend and that of the royal seat, *Rát Raitliu* (Lyons 1896, 449). Lyons went on to suggest the epithet 'of the golden [drinking] cups' refered to part of the annual tribute the King of Cashel was required to pay the king of Raithlenn (see above). He identified a large rath in the north-east corner of Gurranes townland as 'known by the old people as *Rát Raitliu*' (*ibid*., 451).

There are references in medieval sources to a royal residence of the Uí Echach variously known as Ráth Raithleann, Ráth Chuirc and Ráth Chein. The first two names are associated with the legendary foundation of the Eóganacht Raithleann by Corc, king of Cashel, in the late fourth/early fifth centuries AD (see above). The Ráth Chein association is later, connected to political developments in the later tenth century when Cían as Rí Raithleann, married Sadb, daughter of Brian Bóruma, in a forced political alliance. Cian and Sadb are central figures in poems written by two medieval bards, Giolla Caomh and Mac Liag, supposedly in the eleventh century but probably later (see Chapter 7.1). These are examples of onomastic texts known as *dindsenchas* ('lore of places'), a body of toponymic lore that connects place-names to some legendary or mythological figure or tradition.

The poems were published by Eoin MacNeill in the 1896 issue of the *Gaelic Journal*, with the following commentary:

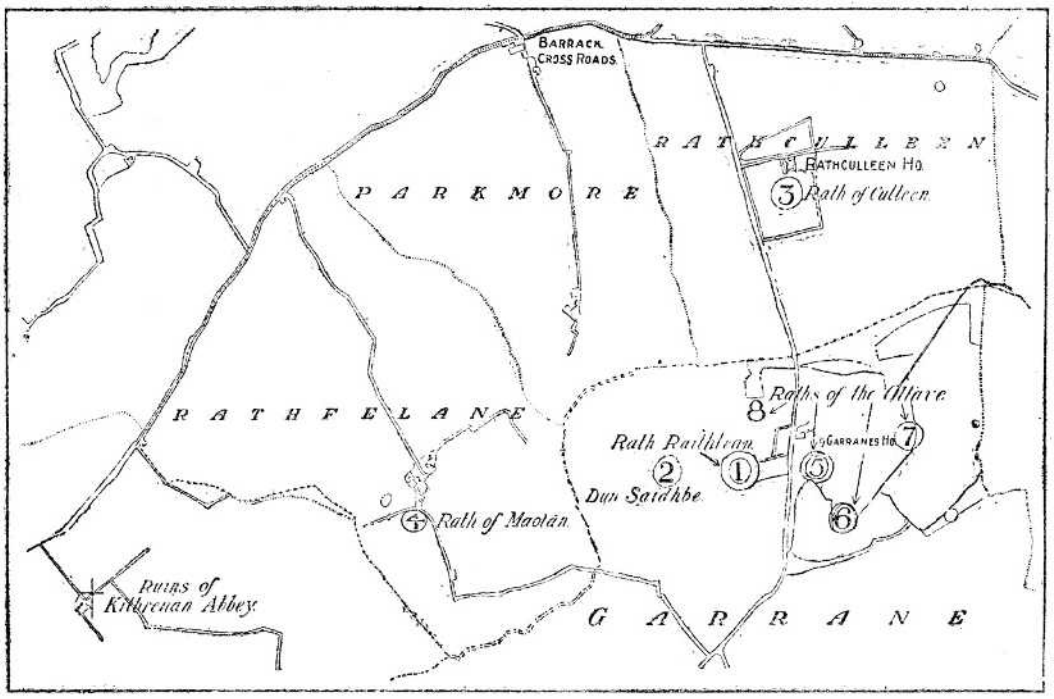
> 'O'Donovan does not identify the site of Raithleann, but there are surely remains sufficient to indicate its place. It must have been once of great importance. In Giolla Caomh's poem are enumerated among its features — the Road of the Chariots on the north, the Fort of Sadhbh on the west, the Ford of Spoils on the east, the Road of the Mules "below". Mac Liag further mentions the "cashels of the raths", the Rath of the Poets, the Rath of the Women, Ráith Chuain (i.e. of Cuan O'Locháin, the ollamh), Dun Draighnean (i.e. of Draighneán Ó Seicinn, the trumpeter), Raith Chuilcinn (i.e. of Cuilceann, the harper), the Rath of the Doirseoir (janitor or gatekeeper, Dubhthach): in all seven forts, in addition to the fort of Raithleann itself, also called Ráith Chuirc and Ráith Chéin' (MacNeill 1896).

Soon after MacNeill published the translation of these poems, Rev. John Lyons located these legendary places in relation to a large fort west of Garranes House in the northeastern part of Templemartin parish (Lyons 1896). Lyons identified this large earthwork as the principal fort of Rát-Raitliu, adding:

> 'Probably the small rath on its western side is the one called after Brian's daughter, Sadhbh, *Dun Saibh an dun ro tiar*, "Sadhbh's court is this western court". Rat Cuilcinn was called after Cuilcenn, Cian's harper; it still exists and gives its name to the townland lying north of Raithlenn. Dun Draigneáin, "Draighnean's Fort", was called after Cian's trumpeter; it stood on the limestone rock where Castlemore was afterwards built. The site of Dun Drinane church is still pointed out adjacent to the castle on the east side. A portion of the cemetery was lately discovered at the foot of the rock in clearing a farm yard. This place lies two and a half miles in a straight line north-west of Raithlenn. The Ford of the Spoils on the east must have been near where the public road now crosses the stream, north-east of the great rath. The Rath of the Poets, the Rath of the Women, the Rath of Cuan O Lochain (the ollamh), the Rath of the doorkeeper (Dubhthach), stood inside the grounds of Gurranes House, east of high road, and were levelled, and their underground chambers filled with clay within the recollection of the labourers I met there some thirty years ago' (Lyons 1896, 451).

Lyons went on to mention a large number of raths to the south and east of the main fort, speculating that they 'must have been the residences of the guards and military followers of the king' (*ibid*.). A note he published in the October 1896 issue of *The Gaelic Journal* observed that 'the district south and east of the Cathair is dotted with lisses. Some four or five of them were razed in laying out the grounds of Gurranes House'. He also mentioned a local memory of Rát-Raitliu, a name he first heard 50 years previously from the old Irish-speaking people of the area. Lyons placed this fort within a large territory centred on, but extending beyond, the barony of Kinelmeaky. He also made a connection to the patron saint of Cork, Finbarr, whose father, Amergin, was reputedly the chief smith to Tighernach King of Raithleann in the fifth century (Lyons 1896).

Some years later, another local historian, Canon John O'Mahony, compared those legendary places to place-names in the Ordnance Survey maps (O'Mahony 1907). Following Lyons' interpretation, he located the 'Rath of Culleen, the harper of the hill' in the townland of Rathculleen on the northern side of Garranes townland where there is a record of a levelled ringfort (CO084-52; Hartnett 1939, 249). He placed the Rath of Maolan, named in the poems as one of Cian's attendants, to the west of the principal fort in the adjacent townland of Rathfelane (marked as Rathnaglanne on Scalé's map of 1775), where there is also a levelled rath (CO084-050; Hartnett 1939, 250). O'Mahony also identified Dún Sadbh as the Lisnamanroe enclosure on the 1845 Ordnance Survey, considering this to be a corruption



(1) Rath Raithlean, called *Caherkean* at time of Ordnance Survey. Lisnacaheragh put down by the Ordnance Survey through mistake. "Caherkean," site of smaller fort lower down.
(2) Dun Saidhbe or Rath Saidhbe in the old poems. Called "Lisnamanroe" (a corruption of Lisnabanree), in Ordnance Map.
(3) Rath of Culleen, the harper (destroyed). In townland of Rathculleen.
(4) Rath of Maolán. (Rathphelane, Rathvolane, in Parish Register) [destroyed].
(5), (6), (7), (8) Raths of "the Ollave," "the Poets," "the Women," "the Doorkeeper" (these destroyed).
Dun Draighneán, too distant to appear in this map.

Figure 1.9 Identification of places mentioned in medieval poems in Garranes townland (from O'Mahony 1907, 29).

of Lisbanree ('queen's fort'), while noting a similarly named townland five miles away (O'Mahony 1907, 30). In an accompanying map, he identified the location of the Rath of the Ollave as the large earthwork named Shanawillen Caherkean on the Ordnance Survey maps (Figure 1.9). O'Mahony observed that 'these topographical poems have done for Raithleann, what other *dindsenchas* sources enabled O'Donovan and Petrie to do for the Raths of Tara' (O'Mahony, 1907, fn.25).

To conclude this review of historical sources, the foundation of Rath Raithleann is often associated with the legendary king Corc mac Luigthig, who established a new Eóganacht kingdom in mid Cork from his royal residence in Cashel. O'Mahony (1906) records that he bestowed the title Rí Raithleann on his second son, Cas, whose son Eochu is regarded by many as the true founder of the dynasty (Uí Echach Muman). O'Mahony went on to suggest Eochu may have been the first Christian king of that dynastic line in the fifth century. Ryan (1942) is of the opinion that Raithliu was a Uí Echach capital in its early history, but was abandoned as a royal residence by the seventh century. That may have been connected to division of the Eóganacht Raithlenn into several dynastic septs, including the emergence of the Cenél mBéice in the later seventh century. It is likely that Raithliu continued to be used as a meeting place of the Uí Echach and a symbol of their authority. Though abandoned for residence, the great forts at Garranes retained their significance into later periods, particularly for the O'Mahony clan of the later medieval period, for whom this location is regarded as the 'cradle of the race' (Lyons 1893; see Chapter 7.2).

The tribal connection to Garranes has been considered in relation to the discovery *c.*1851 of an ogam stone at the nearby ringfort of Lisheenagreine. The inscription, C[A]SSITT[A]S MAQI MUCOI CALLITI (Cassis, son of one bearing the tribal name of Calitos), is generally interpreted as a memorial stone of a local tribal group named the Calliti, dating to around the sixth century (Figure 1.10). The genealogies of the Eóganachta list one of their kindred as the Cenél Caíllaide, descended from Caíllaide mac Conaill, reputed grandson of Natfróech, son of Corc/Conall Corc (Bhreathnach 2014, 163). Gleeson links the Calliti name to a group known as the Caltraige living in the Garranes area (see Mac Niocaill 1972, 3 for discussion of such archaic population names). He suggests that the later Uí Echach either emerged out of the Caltraige or else attached



Figure 1.10 Ogam stone from Lisheenagreine, Garranes, Co. Cork. (UCC Collection)

themselves to an early kingship in that area (Gleeson 2014, 208). All this remains speculation in the absence of contemporary written sources.

1.3 INVESTIGATING THE GARRANES LANDSCAPE

This section examines the mapping of ancient monuments and the history of antiquarian and archaeological investigation in the Garranes landscape.

Historic mapping

The earliest record of ancient enclosures in the Garranes landscape comes from private mapping of the Devonshire estate, produced in 1775 by the cartographer Bernard Scalé at a scale of 20 perches to an inch (1:3960, assuming the contemporary English perch measuring 16½ feet). This survey shows a cluster of small and large enclosures, all labelled 'Danes Fort', in the northern part of the townland (Figure 1.11). These are depicted in a stylized manner, though their relative size is broadly conveyed. Some are no longer extant, with one site, Lisheenagreine, depicted by Scalé as an already levelled monument.

The Scalé mapping was followed by the first edition of the Ordnance Survey (Cork sheet 84), which was surveyed in 1841–2 and published in 1845 at a scale of six inches to one mile (1:10,560). The main ringfort at Garranes is depicted in hachures as a multivallate sub-circular earthwork named 'Lisnacaheragh' (Figure 1.12). This is recorded as site CO084-084 in the *Record of Monuments and Places* (RMP) produced by the Archaeological Survey of Ireland (available at www.archaeology.ie). A univallate oval enclosure named 'Lisnamanroe' (RMP CO084-83) on the western side of Lisnacaheragh is also marked on the Scalé map. The Ordnance Survey map also shows 'Shanawillen Caherkean' (RMP CO084-082) to the immediate north of Lisnacaheragh, which is not depicted on the Scalé map. That monument is different to the ringfort enclosures, being sub-rectangular in form, with a narrow extension on the northern side connecting it to a stream. The enclosure is shown partly covered in trees, adjacent to a larger sub-rectangular copse of trees extending out of woodland bordering the townland boundary to the north (Figure 1.12).

The 1845 Ordnance Survey map depicts two smaller enclosures in the grounds of Garranes house on the eastern side of the road east of Lisnacaheragh (Figure 1.12). These are shown as small circular hachured enclosures (RMP CO084-085 and CO084-088), but not named on the six-inch map. Both are depicted as 'Danes Forts' on the Scalé estate map of 1775. The same map depicts a circular feature in the wooded grounds of Garranes House (RMP CO084-086), which cannot be verified as a ringfort (see Lyons 1896b comment above on four or five lisses 'razed in laying out the grounds of Garranes House').

Most of the monuments at Garranes are depicted on revisions of the Ordnance Survey mapping, published in 1900 and 1943 respectively. The 1900 twenty-five inch edition (1:2500) shows Lisnacaheragh as a hachured trivallate enclosure, with an entrance on the eastern side (Figure 1.13). The monument is depicted in similar fashion on the 1943 six-inch map (Figure 1.14). The 1900 edition records the 'site of' the nearby Lisnamanroe enclosure, the extent of which is represented by a dashed line on the 1943 map. There are also changes to the depiction of Shanawillen Caherkean, shown with hachures on both the 1900 and 1943 editions as a sub-triangular enclosure ('Caherkean') with an entrance on the south-west side. The small unnamed enclosure (CO084-085), adjacent to the road to the south east of Lisnacaheragh, is represented as a single hachured enclosure on the 1900 edition, while the 1943 map depicts a 'souterain (site of)' in the interior. The other two enclosures in the grounds of Garranes House (C0084-086 and CO084-088) are not marked on these maps. To the east a circular enclosure (RMP CO084-97) is not marked on the 1845 Ordnance Survey map, but



Figure 1.11 Northern part of Garranes townland on map of Devonshire estate produced in 1775 by Bernard Scalé at a scale of 20 perches to an inch. Four circular enclosures marked as 'Danes Forts', the large central example being the trivallate ringfort of Lisnacaheragh. (The map was originally draughted on an east–west axis, but has been reproduced here aligned and scaled to approximately reflect Figures 1.12–1.14).



Figure 1.12 Garranes monuments on first edition of the 6-inch Ordnance Survey map published in 1845.

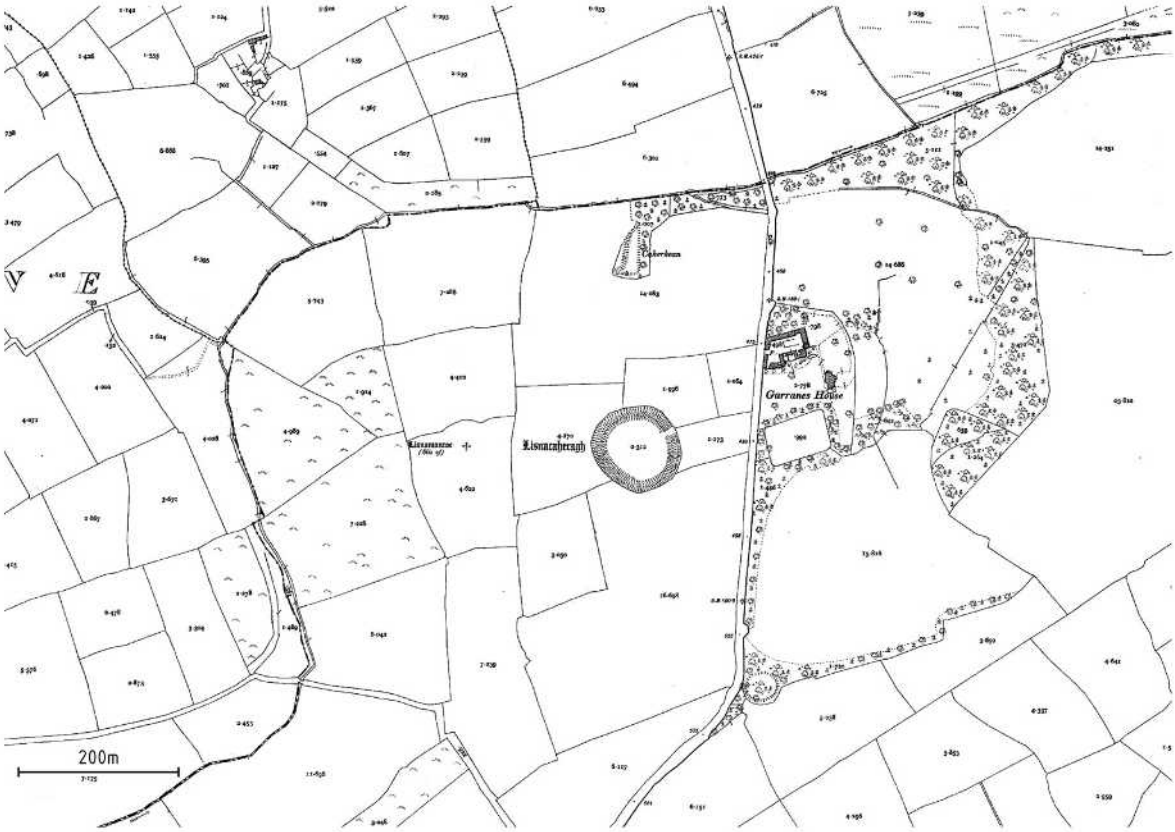


Figure 1.13 Garranes monuments on 25-inch Ordnance Survey map published in 1900.

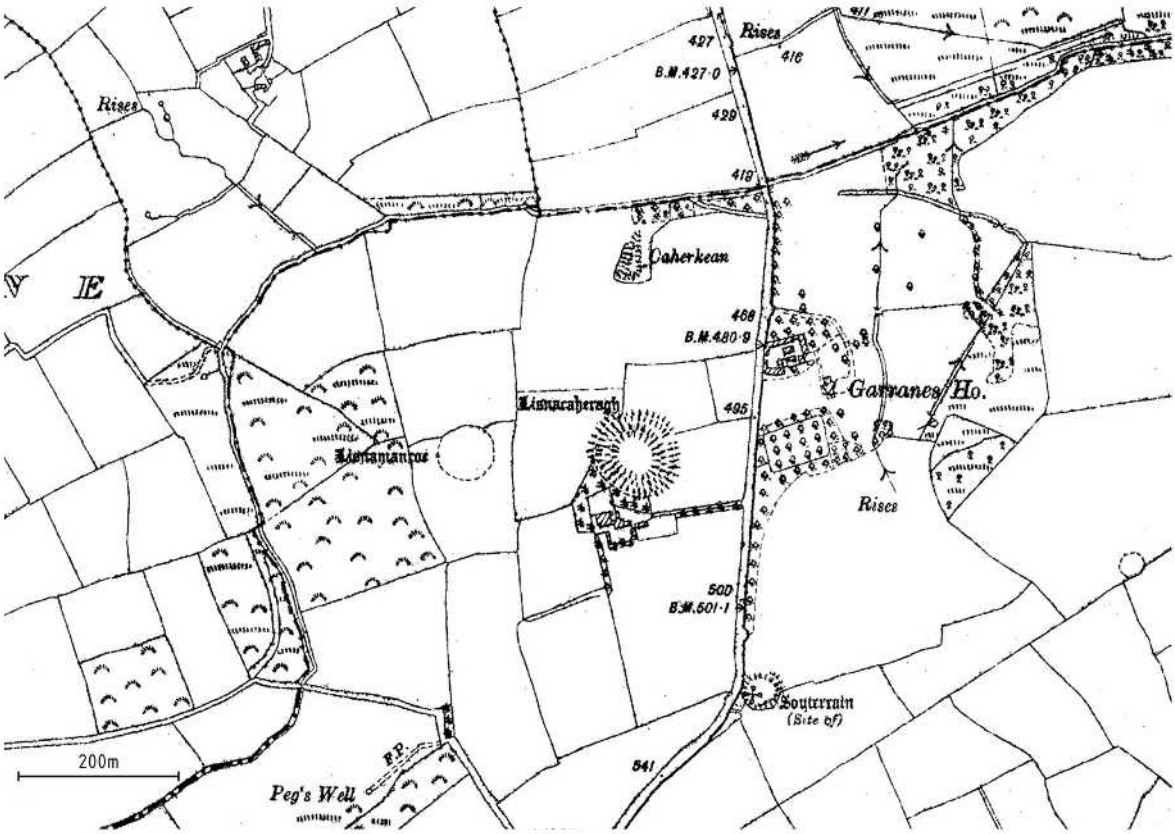


Figure 1.14 Garranes monuments on third edition of the 6-inch Ordnance Survey map published in 1943.

is shown on subsequent editions. Another enclosure (RMP CO084-136) to the south is not marked on any Ordnance Survey map, but is shown as a 'Danes Fort' on the 1775 estate map.

The naming of ringforts as 'Danes Forts' in the Scalé estate map of 1775 was common in Irish antiquarian tradition in the early modern era (Waddell 2005; see Chapter 9.2). This also influenced the early work of the Ordnance Survey whose Name Books make brief mention of the Garranes monuments. The focal enclosure is named as Lisnacaheragh, translated as 'the Fort of the Town'. The Name Books record a local tradition that 'the chief of the Danes lived there' and that 'the Danes had a town inside and about it'. The same entry states that 'the best ale in Ireland was made in Rathroroan (?) called on that account Victorious Ale', going on to mention that 'the chief's attendants stood in a line along the road that was from one fort to the other one handed them ale from one to the other till it was placed on the chief's table'. The entry mentions that part of this road is still traceable, before dismissing the entire story as 'a fine lie'. The Name Book entry also mentions a local tradition of a red-haired woman seen at 'Lisnamanrua'. It refers to 'Shanawillan Cahircain' as '..belonging to a Irish *táin* or chieftain called Cainanoughnu or Cainaroghnow (in the times of the Danes) his house was Cain Mahony'.

It is difficult to assess the currency of these folk traditions in the early modern era. There are few references to Garranes in the Schools Folklore Collection undertaken in the 1930s by the Irish Folklore Commission. A teacher in the local primary school, Nora O'Halloran, made the following observations in 1938:

> 'I regret I cannot get any folklore of this locality from the pupils. The greater number belong to parents who have lived here only a short time. The children of the migratory labourers say their parents cannot tell them any of these old stories, nor have they got them from their grandparents. The few farmer's children we have belong to parents who have settled here recently. With the exception of the Collins family all the landowners have come to live here in the locality within 20 or 30 years... Another child told us that she asked at home her people said "long enough we were believing in these old superstitions the people have more sense now and its time they were forgotten' (Schools Folklore collection S315, 61).

The same teacher added that 'Gurranes fort in the locality has been opened by Professor O Riordan and the children visited the place during the time it was opened'. The Schools Collection contains an essay titled *An Raitliú*, possibly written in 1937 by Domhnall Ó Cochláin, a teacher in Castlenalact primary school (Schools Folklore collection S315, 94a–g). Based largely on published sources, such as O'Mahony (1906–7), this essay illustrates local informed opinion about Garranes at the time the site was being excavated.

Antiquarians and archaeologists

There are surprisingly few references to the Garranes monuments in antiquarian literature of the eighteenth and nineteenth centuries. Samuel Lewis in his *Topographical Dictionary of Ireland* noted 'there are many Danish raths in the parish, one on the lands of Gurrane, including three acres, and surrounded by three ramparts and a fosse' (1837, 605). In a visit to Garranes in July 1856, the Cork antiquarian, John Windele, described the large enclosures of Lisnacaheragh and Lisnamanroe, as 'royal lioses' (RIA MS12I10, 584-594; information Joan Rockley). While confusing their names, Windele records the dimensions of both enclosures, also providing a sketch profile of the Lisnacaheragh defences. Rolt Brash (1868) recorded that about a half a mile to the north of Lisheenagreine there is 'an immense caher with subterraneous passages yet unexplored'. In a brief comment on that site, Canon Lyons (1893) noted that:

> 'On the south side of the inner rampart of the central fort [Lisnacaheragh] are several sepulchral mounds; these enclosed cinerary urns with bones, but they have been all broken, doubtless by people in search of treasure. The fragments lie mixed with the clay' (1893, 146)

He added that 'human bones and portions of arms have been found in the adjoining field, showing, probably, where fighting took place'. He also refers to the discovery of a 'cave', presumably a souterrain, in the same field, then visible on the surface as a cropmark (*ibid*.).

Seán P. Ó Ríordáin

Garranes ringfort is closely associated with Seán P. Ó Ríordáin (1905–57), an important figure in modern Irish archaeology and an early exponent of scientific excavation (Figure 1.15; Daniel 1960; Waddell 2005). A native of Monkstown, Co. Cork, he studied archaeology in 1928–30 in University College Cork under Professor (Canon) Patrick Power. The recipient of a travelling studentship in 1931, over the following two years he travelled extensively in Europe, visiting museums and excavations mainly in Britain, Germany and Switzerland (Wallace 2004). In 1936 Ó Ríordáin was appointed Professor of Archaeology in UCC, having previously worked in the National Musum of Ireland. That same year he conducted his first excavation at Lough Gur, Co. Limerick, where he continued to dig different sites until



Figure 1.15 Sean P. Ó Ríordáin (O'Kelly 1957)

1954 (Cleary 2018; see also Carew 2018, 150–4). During those years he investigated other important sites (see below), including significant excavations on the Hill of Tara that continued until his premature death in 1957.

Ó Ríordáin acquired considerable excavation experience in 1931–3 during the tenure of his travelling studentship. He visited or worked on several excavations in England and Scotland, including a hillfort dig in Scotland directed by Gordon Childe. During that period he was in contact with leading excavators in England, working for Mortimer Wheeler at Roman Verulamium, and meeting other leading excavators, such as W.J. Hemp and G.C. Dunning (Wallace 2004). His travels in Holland in late 1932 led to experience with A.E. Van Giffen, another pioneer of modern excavation technique. In 1933 he visited museums and excavations in Germany, meeting many leading archaeologists, including Gerhard Bersu in Frankfurt who would go on to excavate in Ireland. Ó Ríordáin conducted his first excavation during that period, digging a prehistoric cairn at Curraghbinny, Co. Cork (Ó Ríordáin 1933). This was followed in 1934 by excavations at the Cush ringfort complex, Co. Limerick (Ó Ríordáin 1940; see also Carew 2018, 147–150).

His trips abroad in 1932–3 exposed Ó Ríordáin to some of the best excavation practice in Europe (see Wallace 2004). Another important influence on his training was the work of the Harvard Archaeological Expedition in Ireland during the period 1932–6. This team of American archaeologist, led by Hugh O'Neill Hencken, excavated 18 sites over five years (O'Neill Hencken 1941). Included were important early medieval settlements such as Lagore crannog, Co. Meath, the Ballinderry crannógs in Co. Offaly, and Cahercommaun stone fort, Co. Clare (Carew 2018, appendix 1). The work of the Harvard programme played a role in establishing the Unemployment Scheme, an initiative by the Free State government to alleviate rural unemployment (Waddell 2005). A total of 26 sites were excavated in 1934–7 under that scheme (Carew 2018, appendix 2), including Lisnacaheragh ringfort at Garranes. The Harvard programme did not excavate earthen ringforts (raths), which may have influenced Ó Ríordáin to dig at Cush in 1934–5 and at Garranes in 1937.

In 1940–2 Ó Ríordáin excavated another trivallate ringfort, located at Ballycatteen near Ballinspittle, Co. Cork (Ó Ríordáin and Hartnett 1943). This impressive earthwork is similar in size and design to Garranes, which lies 21km to the north-west. The defences are larger, but of similar construction, with rock-cut ditches and banks of dump construction with probable stone facing. The entrance passage was protected by at least two gates, the innermost of which was connected to a strong post-palisade on the inside of the inner bank, a feature not recorded at Garranes. As with the latter, no discernible house plans were identified, though the discovery of post-holes and hearths indicates built structures in the interior. Unlike Garranes, three separate stone-built souterrains were found inside the ringfort. The number of finds was considerably less than from Garranes, but enough to indicate occupation at Ballycatteen in the later sixth and seventh centuries AD, if not later. Ó Ríordáin connected the site to the Eóganacht expansion into south Cork at the expense of the Corcu Loígde, where it served as a fortified outpost in that conquered territory (*ibid*., 43).

In 1948 Ó Ríordáin excavated an earthen ringfort in Grange townland to the north of Lough Gur (Ó Ríordáin 1949a). He also excavated several stone-built ringforts (cashels) in the same period. These include two examples excavated in 1937–8 at Carraig Aille, Lough Gur, Co. Limerick, (Ó Ríordáin 1949b; see also Cleary 2018, 228–257), the same year he was digging at Garranes. This was followed by excavation in the summers of 1939 and 1940 of Leacanabuaile stone fort near Caherciveen, Co. Kerry (Ó Ríordáin and Foy 1941). Overall, he conducted an impressive number of ringfort excavations in the period 1934–42, all exemplary by the standards of the day and published to a high standard. The results of these and other excavations informed an overview of ancient forts in his influential book *Antiquities of the Irish Countryside*, first published in 1942.

Ó Ríordáin at Garranes

This may have first occurred in 1930, during fieldwork undertaken for a MA study on the place-names and antiquities of Kinalmeaky barony. In 1931 this thesis was submitted successfully for the Travelling Studentship in Archaeology offered by the National University of Ireland (Ó Ríordáin 1931a). The research was published in 1930–35 as a series of articles in the *Journal of the Cork Historical and Archaeological Society*. These include a study of Templemartin (Ó Ríordáin 1931), in which he examined the ancient monuments, place-names and historical associations of that parish.

This survey records that the 'most remarkable of these monuments is the very large triple-ramparted lios in Crowley's land', recorded on the Ordnance Survey maps as *Lisnacaheragh (Lios na Catrac)*, translated as the *Fort of the Catair* (*or stone enclosure*). Ó Ríordáin interpreted this name as equivalent to *Catair Lios* meaning a mansion, seat, a chief city (*ibid*., 65). He records that the name *Lios na Catrac* is still in use locally, whereas the name *Rath Raitleann* is not. The latter he linked to a thirteenth-century poem '*Rat Raitleann [rat] Cuirc is Céin'*, explaining how the fort was linked to those three individuals over time (see above). Ó Ríordáin went on to describe the fort, giving its dimensions and overall state of preservation, with a photograph of the defences included. He also discussed Canon Lyons' (1893) reference to the discovery of sepulchral mounds inside the forts, and of human remains, arms and a 'cave' in an adjoining field (*ibid*., 66).

Ó Ríordáin mentions an earthwork to the north of *Lisnacaheragh* named *Shanawillen Caherkean* (*Sean-Muileann Catair-Céin*; *Old Mill of Cian's Fort*) by the Ordnance Survey. He described this as 'a large irregular pit very overgrown on the sides and having what seems to have been a cart-passage leading from it to the west' (*ibid*.). He records that 'it is known locally as the *Sean-Mulleann* and was connected by tradition at the time of the Ordnance Survey with Cian' (*ibid*.). He added that 'it is not possible to be sure of its original use now—locally it is said that wine was made here!'. The latter is curious as some years later he would excavate imported wine vessels at nearby Lisnacaheragh. He also recorded a local story that St Finbarr was born at *Sean-Mulleann* and not in Lisnacaheragh.

The next monument recorded by Ó Ríordáin is *Lisnamanroe* (*Lios na mBan Ruad*; *Fort of the Red-haired Women*), citing a mention in the Ordnance Survey Name Books of 'red-haired women having been seen in it' (*ibid*.). He also questioned Canon O'Mahony's (1906) opinion that this name is a corruption of *Lios na Bainriogna* (*Fort of the Queen*), which he believed was motivated by the latter's wish to connect this site to *Dún Saidbe* mentioned in the medieval poems. Ó Ríordáin stated that local pronunciation still holds to *Lios na mBan Ruad*, and favoured the explanation given by the



Figure 1.16 Excavation team at Garranes, 1937 (Ó Ríordáin centre front row; O'Kelly third from right, front row).

Ordnance Survey (see above). He records that this lios is now levelled, but is visible as a low-relief enclosure, 68 yards (62m) in diameter (*ibid*., 67).

Ó Ríordáin also made reference to two or possibly three lioses in the grounds of Garranes House, to the east of *Lisnacaheragh*. One of these near the road has a fairly well preserved rampart and is 33 yards (30m) in diameter. The other to the east of that site is levelled, but is visible in a bend in a boundary fence. Finally, he added that 'it is said that Garranes House is built on the site of a lios' (*ibid*.). Ó Ríordáin also recorded a single-ramparted lios named *Liosnaboul* (*Lios na Buaile*; *Fort of the Cattle-place*) in the south-east part of the townland. The final ringfort recorded in this survey is *Lisìn na Gréine* (Little Fort of the Sun), a levelled enclosure to the south of Lisnacaheragh where the aforementioned ogam stone was recovered. His record of that site is essentially a reiteration of Canon Lyons' investigation (*ibid*.).

Finally, in relation to O'Mahony's (1906) identification of places mentioned in the medieval poems, Ó Ríordáin observed that 'one cannot commend his identification in some cases because its exactitude and fulness are not warranted by the scant information given in the poems' (*ibid.,* fn 6). He cited the examples of '*Rát na bFilead, Rát na mBan',* which O'Mahony attributed to two raths in the grounds of Garranes House for no obvious reason.

Excavation at Garranes

In March 1937 Ó Ríordáin proposed to excavate a 'very large earthen ring-fort with triple ramparts' at Garranes, which he considered to be of great historical importance:

> 'This is the site which has been identified at Rath Raithleann [...], the central site of the Ui Echach a branch of the Eoghanacht. It is said to have been founded in the 5th century [...] and still in occupation as late as the 11th century because Cian Mac Maolmuadh who fought at Clontarf was ruler of Raithleann' (letter to Inspector of National Monuments, H.G. Leask, 10 March, 1937; OPW F94/157/1).

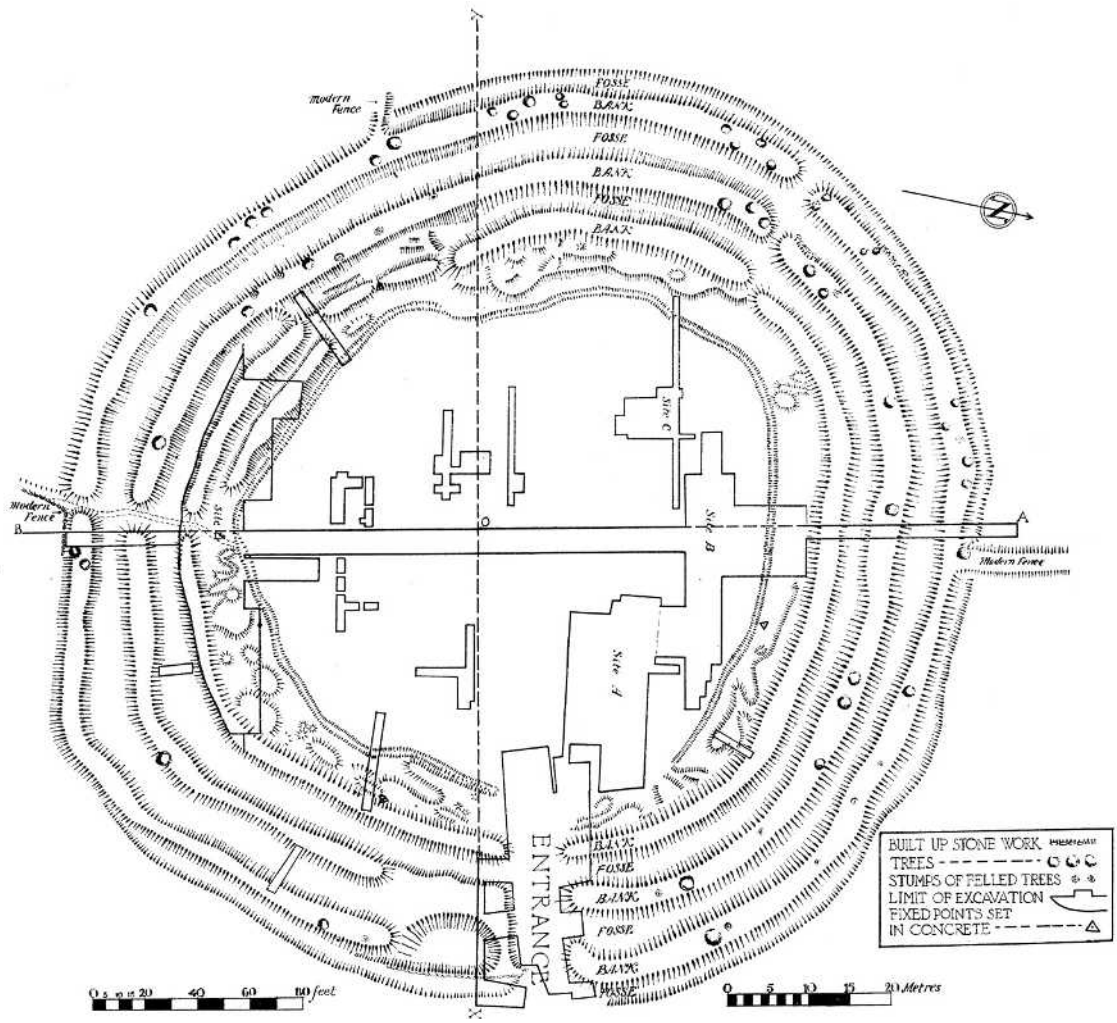


Figure 1.17 Plan of Garranes ringfort (Lisnacaheragh) with 1937 excavation trenches (Ó Ríordáin 1942, Plate XII).

The decision to dig at Garranes came two years after Ó Ríordáin's excavation of the Cush ringfort complex in east Limerick (Ó Ríordáin 1940). He was involved in multiple projects in those years, having comenced his programme of excavation at at Lough Gur, Co. Limerick, working there in 1936 at Circles O and P, and in 1937–8 at the Carraig Aille stone forts (Cleary 2018, 38; Carew 2018, 150–4). The results at Cush raised several questions about ringforts, not least because of the chronological problem created by the discovery there of Bronze Age archaeology (see Carew 2018, 147–150). Arising from this, Ó Ríordáin regarded ringforts 'as presenting one of the biggest problems in Irish archaeology and the excavation of a number of prime examples as a matter of prime necessity that we might know something of the everyday background of life in early times in Ireland' (National Archives file OPW 9/F94/157/1).

In deciding to excavate at Garranes, Ó Ríordáin considered that 'the excavation of a site such as this may have valuable results in giving information regarding the material conditions of life during the period of its occupation, particularly with regard to houses etc' (Letter of 10th March 1937 to Harold Leask, Inspector of National Monuments; National Archives file OPW 9/F94/157/1). He applied to the Office of Public Works for funding under the unemployment relief scheme, requesting a grant of £165 (eventually receiving £215) to hire 20 workmen and miscellaneous costs (*ibid.*). He hired O.J. O'Sullivan of Annascaul, Co. Kerry as foreman, two UCC engineering students to survey the monument, and an architectural student from Limerick, Michael J. O'Kelly, to work as charge-hand (Figure 1.16). The latter would succeed Ó Ríordáin in 1946 as Professor of Archaeology in UCC, and became well known as the excavator of Newgrange.

Having secured funding and approval from the Office of Public Works, the excavation at Garranes commenced on 5th April, and continued for eight weeks to 29th May, 1937 (*ibid.*). The following year a summary of the results was published in the journal *Antiquity* and the *Journal of the Cork Historical and Archaeological Society* (Ó Ríordáin 1938a; 1938b). The full report was published in the *Proceedings of the Royal Irish Academy* (1942), a paper that is still an important source for ringfort studies in Ireland.

Prior to excavation Ó Ríordáin surveyed the ringfort, producing a detailed hachured plan of the earthwork, its enclosing elements, entrance and interior (Figure 1.17). This is an important record as the survey was undertaken when there were relatively few trees along the enclosing elements in comparison to the present day (see photograph in Ó Ríordáin 1942, plate 9). There have been numerous tree-falls in the intervening years, along with rabbit damage and other erosion. The accuracy of the 1937 survey has been confirmed by recent fieldwork.

The conduct of the 1937 excavation is apparent from the 1942 publication, and from brief reports sent by Ó Ríordáin to the Office of Public Works. None of the original site notebooks or drawings are extant, which makes it difficult to review the published information. Ó Ríordáin excavated approximately half of the interior of the ringfort, as well as the entrance passage, and small sections across the defences. The interior was sampled by digging narrow trenches, which were extended into wider cuttings where evidence of occupation was found. The individual trenches are marked but not numbered on the site plan (Figure 1.17). This began with a ten feet (3m) wide trench across the interior in a north–south direction. That extended across the enclosing elements at both ends as a five feet (1.5m) wide cutting. This provided stratigraphic sections across the defences (Figure 1.18), with additional information provided by five small cuttings across selected parts of those banks and ditches. The entrance passage on the eastern side of the ringfort was excavated in its entirety, along with the ditch terminals on both sides.

There are no details in the 1942 publication as to how the excavation was conducted. The accompanying photographs suggest a combination of heavy spade



Figure 1.18 Excavation of defences, Garranes ringfort (Ó Ríordáin 1942, Plate XIII, Fig. 2).

digging and coarse troweling with finer investigation of features. While the work team was inexperienced, Ó Ríordáin had considerable experience from the Cush and Lough Gur projects, and from his many visits in 1932–3 to excavations in Europe. He was part of a new generation of excavators who stressed the importance of recording features in the ground and not just the recovery of artifacts (see above). While the Garranes dig was undertaken to lower standards than the best excavations today, Ó Ríordáin only had limited support available in terms of scientific methods and specialist analysis.

Summary of results

Lisnacaheragh ringfort is enclosed by three concentric and closely spaced earthworks, each consisting of a bank-and-ditch combination. The stratigraphic section published by Ó Ríordáin (Figure 1.19) shows the ditches as flat-bottomed and near-vertical to steep sided, *c.*2–3m width with a central depth of 1–1.5m. The inner and middle ditches were rock-cut, while the outer ditch was apparently dug into subsoil. The latter was largely infilled with a slight depression visible on some sides of the enclosure. The inner and middle ditches are substantially infilled, with their position defined by the extant banks on both sides. The ditch stratification indicates a long period of primary silting followed by significant inward collapse of bank. Excavation revealed significant collapse on the inside of the inner back around the perimeter of the enclosure. Ó Ríordáin considered some of this interference to be connected to cultivation of the ringfort interior during the nineteenth century.

The construction of the Garranes defences is typical of earthen ringforts in Ireland, where 'the stratification of the banks gives evidence of their having been built directly by piling up the material dug from the fosses (ditches)' (Ó Ríordáin 1942, 88). This required careful planning due to the close spacing of the multivallation. The size of the earthwork helps to explain why it is not perfectly circular, which the excavator also attributed to separate gangs of workers in its construction. The sharp profiles of the banks today suggest they were originally faced with stone walling. A small ledge excavated on the upper inner side of the inner ditch was possibly a footing for one such revetment, stones from which were found in the adjacent ditch (Figure 1.19). No evidence of a bank palisade was discovered, though that may be explained by the narrow sections excavated across the enclosing elements.

The original entrance to the ringfort is located on the eastern side where excavation revealed a 4–5m wide causeway protected originally by up to four gates (Figure 1.20). These were defined by four pairs of rock-cut postholes, extending from the inner sides of the outer bank to inner back terminals. The excavator considered it to be 'the most elaborate fort

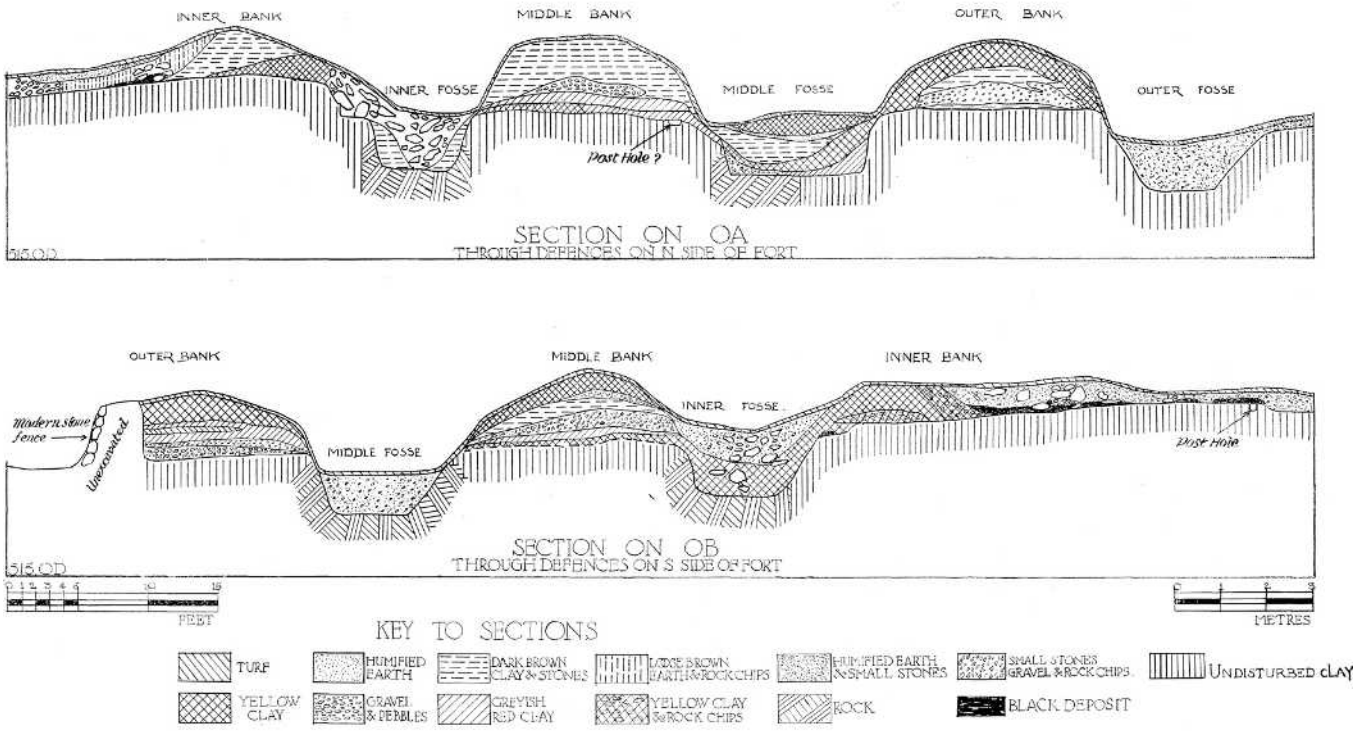


Figure 1.19 Stratigraphic section across defences of Garranes ringfort (Ó Ríordáin 1942, Plate XIII).



Figure 1.20 Excavation of entrance to Garranes ringfort (Ó Ríordáin 1942, Plate XX, Fig. 2).

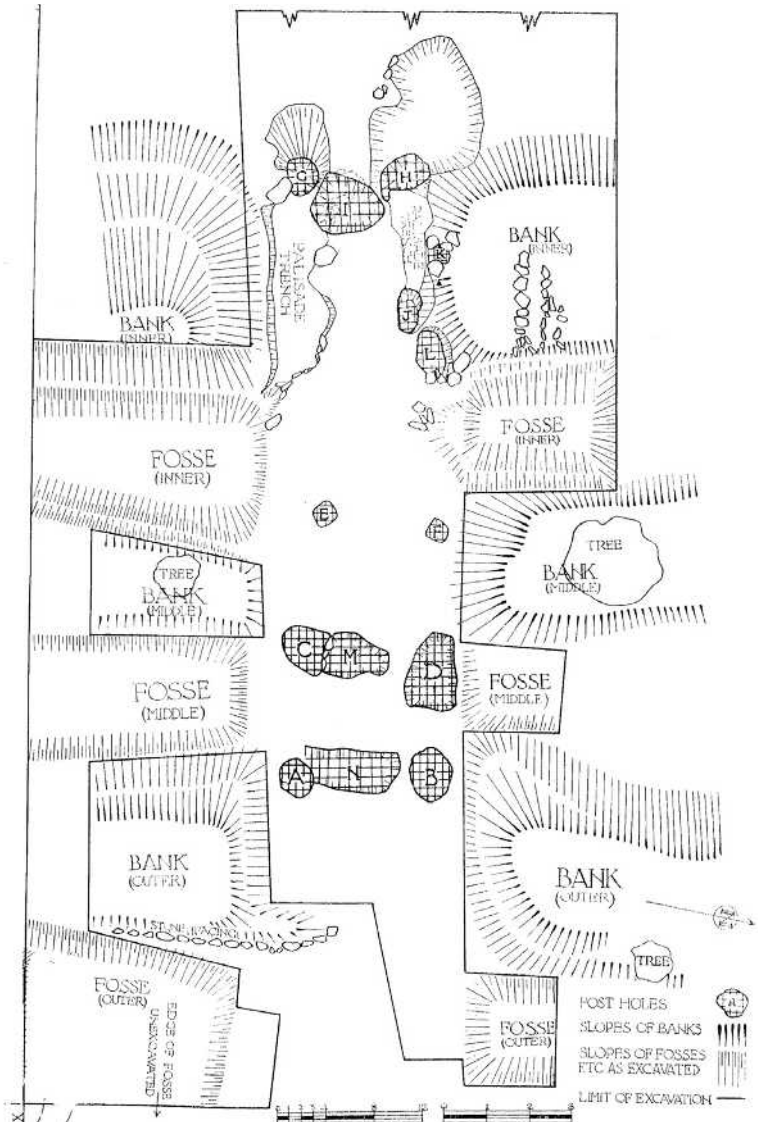


Figure 1.21 Plan of entrance to Garranes ringfort (Ó Ríordáin 1942, Plate XIV).

entrance yet excavated in Ireland' (*ibid.*, 82). Three of the posthole pairs had shallow intervening slots or pits, believed to have been used for central stops in a two-part wooden gate. The inner gate was connected to two short trenches that served to line the inner entrance with wooden fencing. There is no evidence this was connected to a palisade on the adjacent banks. Two lines of stones under the end of the inner bank on the northern side, and two postholes (K and L; Figure 1.21), were interpreted as part of a short rectangular structure that either pre-dated the ringfort or were part of the original entrance. Whether those gates were used at the same time cannot be inferred from the excavation record.

Excavation revealed the archaeological stratification inside the ringfort has been very disturbed by cultivation, with a local source informing Ó Ríordáin that 'the fort had been tilled sometime in the last century' (*ibid.*, 85). The full extent of this disturbance was obvious, with the excavator struggling to understand the significance of large trenches crossing the interior of the fort in an east-west direction, now known to be related to lazy-bed spade cultivation. Where evidence of occupation was uncovered, the narrow excavation trenches were extended to investigate larger areas, labelled A to D in the final report (Figure 1.22). The most important of these were Site A, inside the ringfort entrance on the northern side, and Site D inside the inner bank on the southern side of the ringfort. A spread of charcoal-rich sediment ('black layer') was found in both trenches. Numerous stake-holes and post-holes were excavated in these trenches, 'but in no case was it possible to recover a plan of the houses which these post-holes represented' (*ibid.*, 84).

Ó Ríordáin uncovered important evidence of craft activities in Site D, where the 'black layer' was 15–40cm in thickness over an area of 34m by 7m (Figure 1.23). This was sealed by collapse from the inner bank. The 'black layer' contained numerous

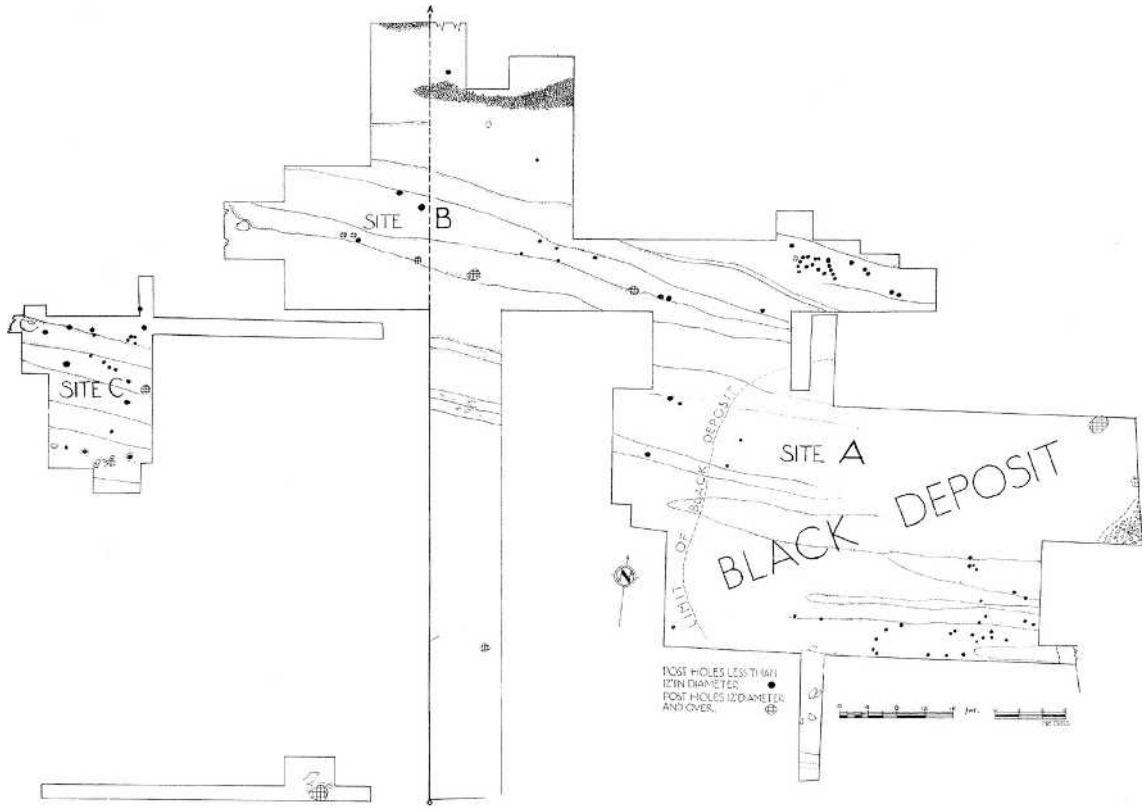


Figure 1.22 Excavation of Areas A, B and C, Garranes ringfort (Ó Ríordáin 1942, Plate XV).

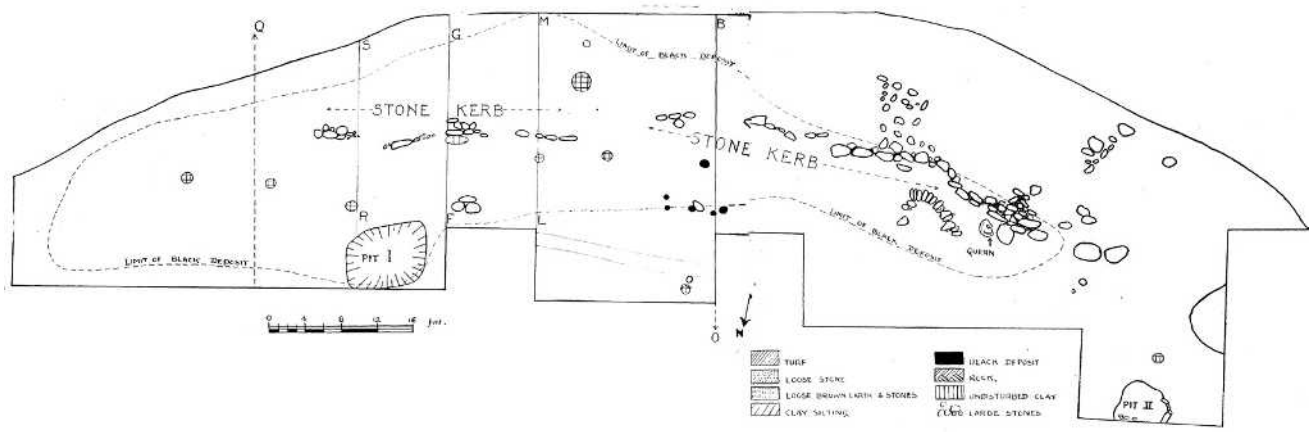


Figure 1.23 Excavation of Area D, Garranes ringfort (Ó Ríordáin 1942, Plate XVI).

artifacts connected to the production of metalworking and other specialist crafts. These included 39 complete clay crucibles, some 2500 fragments of pyramidal and flat-bottomed crucibles, a clay tuyère, vitrified furnace clay fragments, 30 complete or broken clay moulds for rings and pins, at least six stone ingot moulds, and a possible stone crucible (Figure 1.24). Some 60 items of bronze were discovered, including a freshly cast bronze pin, unfinished bronze pin-head, unfinished rectangular bronze object, fragment of a bronze casting, a bronze casting jet, a length of bronze wire, a bronze ingot, and other items of waste bronze, as well as a lead ring and three pieces of tin. Iron implements were also used, including two pincers possibly used to handle crucibles of molten bronze, along with a shears and three awls. The discovery of some iron slag suggests that ironworking was also undertaken at this site.

Evidence of other specialized crafts was found, including rods of millefiori glass and fragments of red and green enamel. Based on these finds, Site D was interpreted as the location of an 'early metal and glass manufacturing workshop' (*ibid*., 86). The 'black layer' was considered to represent 'the debris left from such early workshop activities'. Several postholes and two large pits were excavated there, but there no obvious built structures, apart from an irregular arc of stones that Ó Ríordáin argued may have been part of a workshop.

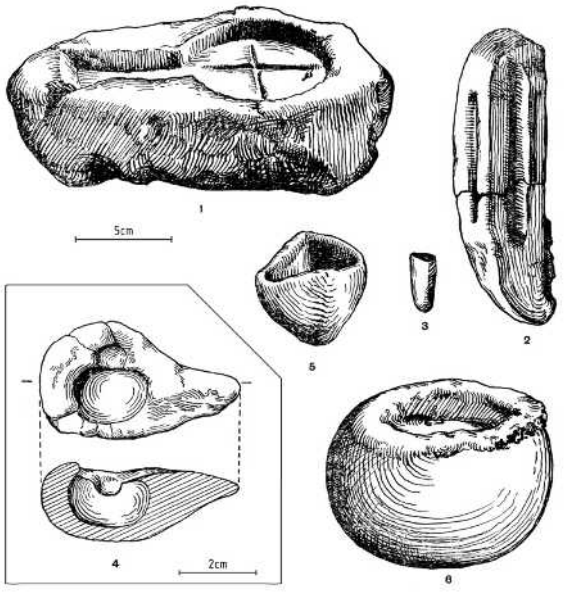


Figure 1.24 Selection of finds from 1937 excavation of Garranes ringfort (Ó Ríordáin 1938b).



Ancient Metal Objects Found

COUNTY CORK DISCOVERY AMONG MOST IMPORTANT ON RECORD

YIELDING crucibles, moulds, blades, and brooches, a Co. Cork ring-fort just investigated by archaeologists shows traces of "intense" metal-working early in Irish Christian days, according to an official report.

The rath, at Garranes, Templemartin, is about 350 feet in diameter. St. Finbarr, a metal-worker's son, was born at Rath Raithleann, as the fort is called in early history.

"Taking as a whole the evidence for the art and metal-working carried on in the fort," the account declares, "it points to the discovery of one of the most important of such sites yet brought to light in Irish archaeology."

The site, it is reported, has yielded "more crucibles than were known from the whole country previously."

Metal finds include a small bronze button, an unfinished bronze brooch, a bronze pin, a pair of iron shears, small knife-blades, and a pair of pincers "that might have belonged to the stock of a blacksmith."

Pottery sherds found include "one or two . . . almost certainly Roman manufacture," and some "copies of Roman types."

The excavation has been notable, according to the report, chiefly in that it proves "an intense metal-working tradition on a site dateable to the early centuries of Christianity in Ireland."

It has been made by Dr. Seán P. Ó Ríordáin, Professor of Archæology at University College, Cork, assisted by Mr. M. J. O'Kelly.

Figure 1.25 Article on Garranes excavation, *Irish Press*, 11th October, 1937.

There were also finds connected to occupation in this ringfort. These include a range of imported pottery and glass used as tableware, stone mortars and whetstones, spindle whorls and loom weights, part of a rotary quern, and a small collection of animal bone, including those of cattle, pig, sheep and horse. The discovery of personal ornaments is a further indication of high status occupation. These include a bronze button with triskele design in champlevé enamel, an unfinished penannular bronze brooch, bronze pins, studs and decorated strips (*ibid.,* figs 3–6). A small collection of glass beads of different types was also found, as well as items of millefiori glass, enamel and amber (*ibid*., figs 14–15).

The results from Garranes attracted considerable attention in academic and media circles at that time (Figure 1.25). This was the first ringfort to be securely dated in Ireland (Ó Ríordáin 1942). This was based primarily on the discovery of wine amphorae and tableware that originated in the Mediterranean region and France, pottery that is securely dated from the fifth to seventh centuries AD (Doyle 2009). The excavator suggested the occupation itself lasted for a century or so, possibly during the later fifth and early sixth centuries (*ibid*., 141). Ó Ríordáin regarded the trade in luxury goods with the late Roman world as further evidence of high-status occupation. He argued this, together with the size and impressive defences of the ringfort, are consistent with its identification as the royal seat of Rath Raithleann. He did not initially regard this as a place of royal residence, citing the absence of house structures and evidence of permanent occupation. He suggested that 'the fort would serve as a refuge for the inhabitants of the surrounding area in time of danger and also would act as a meeting place on special occasions' (*ibid*., 141). The discoveries in Site D were explained by a specialist community of craftsmen engaged in bronze working and related crafts, '...who had trade relations and interchange of artistic motives with Gaul and Britain. (*ibid*., 143). Ó Ríordáin subsequently amended this view, agreeing with Christopher Hawkes' that the Garranes metalworkers may '...have been attached to the local Eoganacht kings...and therefore placed by them in their "capital" stronghold in the security and eminences of its defences and prestige' (Ó Ríordáin 1943, 42, fn. 61).

Further excavation

A second archaeological excavation was conducted at Lisnacaheragh in the summers of 1990–92, by Mary O'Donnell, an archaeology graduate of University College Cork. That project excavated four trenches in the interior of the ringfort over sixteen weeks (Figure 1.26). The excavation was not complete when work ended in 1992 and remains unpublished, though

stratigraphic reports (O'Donnell 1991; 1992; 1997) and a collation of post-excavation studies (Cleary 2009) are available. Compared to the 1937 excavation, there were few finds in this project. The most significant were two sherds of B-ware amphora, two glass beads and some 47 sherds of metallurgical crucibles and furnace refractory and a small amount of slag.

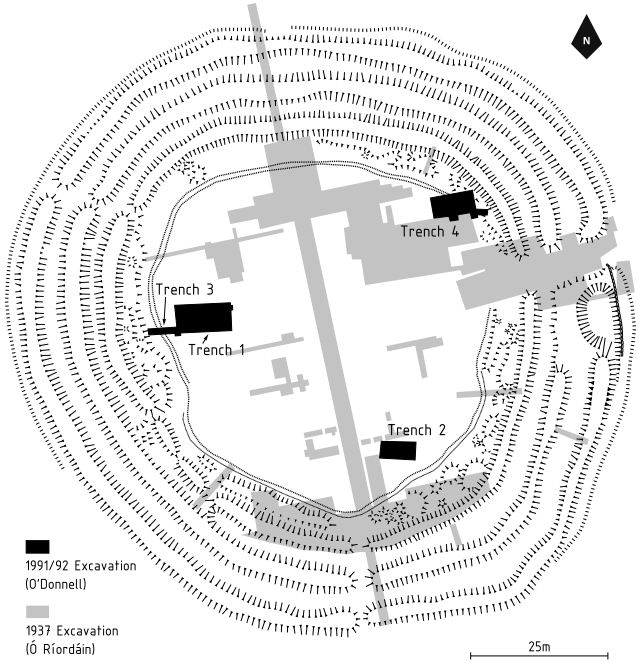


Figure 1.26 Location of O'Donnell excavation trenches in Lisnacaheragh.

One of the aims of the O'Donnell excavation was to investigate the apparent absence of residential buildings in the interior of the ringfort. This was successful as evidence of a built structure was discovered in Trench 1 on the western side of the interior. This comprised the northern arc of what was interpreted as a double-walled roundhouse with slot trench foundations, 9m in diameter (Figure 1.27). The structure was apparently burnt down, with evidence of charcoal deposits, charred wattle and burnt soils. The full extent of the building had not been investigated by the time the excavation ended in 1992.

The O'Donnell excavation provided the first radiocarbon results for Lisnacaheragh ringfort. This includes four dates from the roundhouse slot trench, with a range of AD 410–615 (see Chapter 3.4). Excavation on the western side of Trench 1 was extended to investigate the inside of the inner ringfort bank (Trench 3). This revealed several pits and charcoal deposits beneath bank slip, which contained fragments of crucibles, slag and other finds connected to metalworking. One of those contexts returned a radiocarbon date of 382–539 AD (*ibid.*).

O'Donnell's excavation of Trench 4 near the ringfort entrance revealed occupation that is broadly contemporary with that in Trenches 1 and 3. However, Trench 4 was not fully excavated and few conclusions can be drawn about the activity there. The earliest level of ringfort activity was represented by a metalled surface overlain by a series of occupation deposits.



Figure 1.27 Archaeological excavation at Lisnacaheragh, Garranes, 1990 (courtesy Mary O'Donnell).

These are dated by three radiocarbon results to the fifth and sixth centuries, consistent with the discovery of a sherd of B-ware in that area. More controversial is the age of charcoal found in an 'introduced clay layer' underneath the metalled surface, which is radiocarbon dated to the Middle Bronze Age *c.*1495–1425 BC (GrN-32680; 3180±30 BP). This has been interpreted as evidence of pre-ringfort occupation (Cleary 2009, 44). There are no other finds or features of prehistoric date recorded from the Ó Ríordáin or O'Donnell excavations.

1.4 THE STATE OF KNOWLEDGE

The Ó Ríordáin and O'Donnell excavations provide a wealth of information on the central ringfort (Lisnacaheragh) in the Garranes complex. This includes details of the design and construction of its defences and entrance, and the location of craftworking areas in the interior. The size and multivallate design of this ringfort, together with the range and quality of finds, and the evidence of specialist crafts, is consistent with Ó Ríordáin's interpretation of a high-status settlement. In the era before radiocarbon dating, excavators were very reliant on datable finds to understand the chronology of site occupation. In this regard the Garranes pottery is particularly important, coming as it does from historically dated contexts in the Mediterranean lands and western France. The A-ware and B-ware points to a fifth/sixth century horizon at Lisnacaheragh, while the presence of E-ware may indicate continued residence from the sixth to the seventh centuries. This is consistent with radiocarbon dates obtained by O'Donnell for activity in the interior. The pottery is also evidence of trade with Roman merchants, probably along the southern coastline of Cork. That trade may have been connected to specialist production of bronze, glass and enamelled ornaments at Garranes. Such contacts with the late Roman world may also have contributed to the rapid Christianization of this part of Ireland during the fifth century, which may be relevant to adoption of Latinate literacy in the form of ogam writing in this region during the same period.

Following those excavations, several questions remain in relation to Lisnacaheragh, connected to the history of occupation and the use of this ringfort as a royal residence in different periods. There are no secure dates for its construction, while the possibility of prehistoric activity and the significance of the site by the eighth century remained to be resolved. The latter is important to understand how Lisnacaheragh relates to the legendary Rath Raithleann of medieval bardic poetry. While the 1937 and 1990–2 excavations provide strong evidence of high-status occupation, the absence of built structures in the interior of Lisnacaheragh has raised questions on the nature of that settlement. O'Donnell's discovery of part of a roundhouse is significant, even if only a portion of that structure was excavated. Several questions remain concerning the organization of habitation space and activity areas over time inside the ringfort.

There has been little archaeological research on the wider settlement landscape at Garranes. The central ringfort has been studied in isolation, and not in relation to adjacent monuments and other elements of cultural landscape. The agricultural setting of this ringfort settlement has not been considered, nor has there been any examination of the environmental context of that farming. The wider connections of Garranes remain to be explored, in respect of political and economic connections across the wider Munster region, and long-distance trade with the late Roman world. Give its early date, the significance of Garranes for the origins of the Irish ringfort has not been fully explored.

This project

The current study was established in 2011 in University College Cork, to address these and other research questions concerning the Garranes ringfort landscape. The main aim was to investigate the cultural landscape setting of Lisnacaheragh ringfort over time. All relevant archaeological sites were visited and recorded within the core survey area. This involved library research, fieldwalking, descriptive site recording, aerial survey, with some digital mapping of archaeological sites on the ground. These site-specific investigations were expanded to a broader investigation of the Garranes landscape, through extensive geophysical survey carried out for this project by James O'Driscoll as part of a research masters in University College Cork (O'Driscoll 2010). A local bog was sampled for pollen analysis by Dr Tim Mighall (University of Aberdeen), to obtain a record of human activity and environmental change in this landscape.

The focus in terms of fieldwork was the excavation of five earthwork monuments over a seven-year period (2011-2018), with an average of five weeks of excavation each summer. The sites excavated include Lisnacaheragh (RMP CO084-084), Lisnamanroe (CO084-085), Shanawillen Caherkean (CO084-082), Lisheenagreine (CO084-090), and an unnamed ringfort (CO084-085). Those excavations sought to date the construction, occupation and abandonment of the individual monuments. They also investigated the form and function of their enclosing elements, including any entrance features. The history of occupation was examined in respect of built structures, artifacts and environmental material relating to activity areas in the interior. By establishing the temporal and functional

relationship of these different sites it was hoped to build a greater understanding of how the cultural landscape at Garranes evolved in the early medieval period.

The project was funded entirely by University College Cork, mostly through the training budget of the *MA in Archaeological Excavation*. The excavations were designed to provide experience for student trainees in that course. The work was directed by William O'Brien and Nick Hogan under excavation licences granted by the National Monuments Service and National Museum of Ireland.

This book

Following this general introduction, the next chapter presents the field archaeology of Garranes in its local landscape setting. This includes records of the extant and levelled monuments produced by conventional survey and remote sensing. The results of an extensive geophysical survey provide some insight into the sub-surface archaeology of this landscape. The next four chapters present the results of archaeological excavations conducted in 2011–18, beginning with Lisnacaheragh (Chapter 3), followed by Lisnamanroe (Chapter 4), Lisheenagreine (Chapter 5), Shanawillen Caherkean and an unnamed ringfort (Chapter 6). This is followed by a series of specialist studies in Chapter 7, variously dealing with medieval bardic poetry and its political context (Cian Kenneally and Lenore Fischer); Bayesian analysis of radiocarbon dates (Kevin Kearney); the imported Roman pottery from Garranes (Ian Doyle); scientific analysis of early medieval metalworking at Lisnacaheragh (Ignacio Montero and Mercedes Murillo-Barroso), and palynological investigations (Tim Mighall).

Chapter 8 discusses different aspects of settlement and economy at Garranes, looking at residential life, agricultural economy and specialist crafts. The wider landscape context of ringforts in Mid Cork is considered by Michelle Comber in Chapter 9, along with an examination by Edward O'Riordan of site destruction and popular perceptions in the early modern era. The final chapter brings these results together to consider Garranes as a ringfort settlement zone and its significance as a potential royal site with far-flung connections during the early medieval period.

– 2 –
THE ARCHAEOLOGICAL LANDSCAPE

This chapter examines the archaeology of the Garranes ringfort complex, focusing on a square kilometre or so around the central monument of Lisnacaheragh. The physical landscape is presented to illustrate environmental factors that influenced the location of these settlement enclosures. The history of the modern landscape is considered to understand the preservation of archaeological sites in the area. This is followed by details of historic monuments recorded in the Garranes landscape, with a focus on settlement enclosures ('ringforts') of the medieval period. The chapter concludes with an assessment of the sub-surface archaeology of Garranes, based on a geophysical survey undertaken for this project.

2.1 PHYSICAL SETTING

The townland of Garranes is located in the north-east corner of Templemartin parish, 2.5km south-east of the village of Cloughduv in mid Cork (Figure 1.1). This is a large townland of 1215 acres (4.92 square kilometres), bounded to the north by the townlands of Parkmore, and Rathculleen; to the east by Moneen townland, the south by Castlenalact and Scartnamuck townlands, and the west by Moskeagh, Kilbrenan and Rathfelane townlands (Figure 2.1). This landscape is part of the Cork ridge-and-valley system, a band of Armorican folds that crosses the county in an east–west direction. Garranes lies on the northern side of a broad ridge that extends west from Cork harbour, some 28km away. The ridge is 7.5km wide (north–south) at Garranes, and is bordered to the north by a 2km wide valley of the Bride river, and to the south by a 0.5–1km wide valley in the area of Crossbarry. This is a landscape of rolling topography, created by minor fold structures superimposed on the major ridge in the same general east–west direction.

Many of the ringforts in this area are located in relatively prominent positions, on either low ridges or often the south-facing slopes of larger ridges. The two largest monuments at Garranes, Lisnacaheragh and Lisnamanroe, are on a low east–west ridge (166m OD), visible from approximately one kilometre distance to the north and south (Figures 2.2 and 2.3). From this Garranes ridge there are broad views across the Bride valley to the north, as far as the Boggeragh Mountains in mid Cork. The latter extend west to the Paps, and to other mountains in the Killarney area, some of which are visible from Garranes on a clear day. There is a more restricted aspect to the south and north-east of the Garranes ridge, with higher ground within one kilometre or less. To the immediate south-west of the Garranes ridge is a valley with the remnants of a bog, 0.8km^2 in area, at the junction of Garranes, Kilbrenan and Rathfelane townlands (Figure 2.4).

The Garranes ridge is bounded by a stream on the northern side, named on Ordnance Survey maps as the Tuough. That stream forms a boundary with the townlands of Parkmore, and Rathculleen on its northern side, which is also a boundary between the civil parish of Templemartin and those of Kilbonane to the north-east and Moviddy to the north-west, also separating the church parishes of Templemartin and Kilmurry. It also marks a boundary between the barony of Kinalmeaky where Garranes is located and the barony of East Muskerry to the north. Garranes is 23km north of the Cork coastline, but only 11km north-east of the farthest navigable reaches of the river Bandon as it extends from Kinsale harbour to Innishannon.

The bedrock geology at Garranes is the Ballytrasna Formation, a 5km wide (north–south) band of Upper Devonian (Famennian) rock forming the main anticlinal ridge extending west from Cork harbour (Figure 2.5). This is comprised of red to purple mudstones with subordinate pale red fine to medium sandstones (MacCarthy 1974). That large anticline is bordered by synclinal structures, floored by limestone formations of Carboniferous (Dinantian) age on the northern side, and mudstone and sandstone formations of Carboniferous (Courceyan) age to the south. In general, there is little bedrock exposure in the area, and none on the Garranes ridge itself.

The soils in Garranes townland are mainly brown podzols of the Rosscarbery Soil Association (see gis.teagasc.ie/soils/map.php). These are coarse, compact, sandy loam soils of low acidity, containing siliceous stones (Figure 2.5). In terms of modern land use, this is an agricultural landscape of managed grassland, largely used for beef cattle and dairying (Figure 2.4). While this reflects land improvements in the modern era, soil fertility was a significant factor in the density of ringfort agricultural settlement in the area. That farming was concentrated along the better drained ridges, with the intervening valleys more likely to have been boggy and heavily wooded. There is limited tree cover in this area today, largely confined to deciduous species along hedgerows. There are some small tracts of commercial forestry, including a conifer plantation in the valley west of Garranes townland, and a large garden nursery to the north/north-east in Rathculleen townland.

Modern land-use practices have impacted on archaeological preservation, with agricultural clearance and cultivation causing significant damage

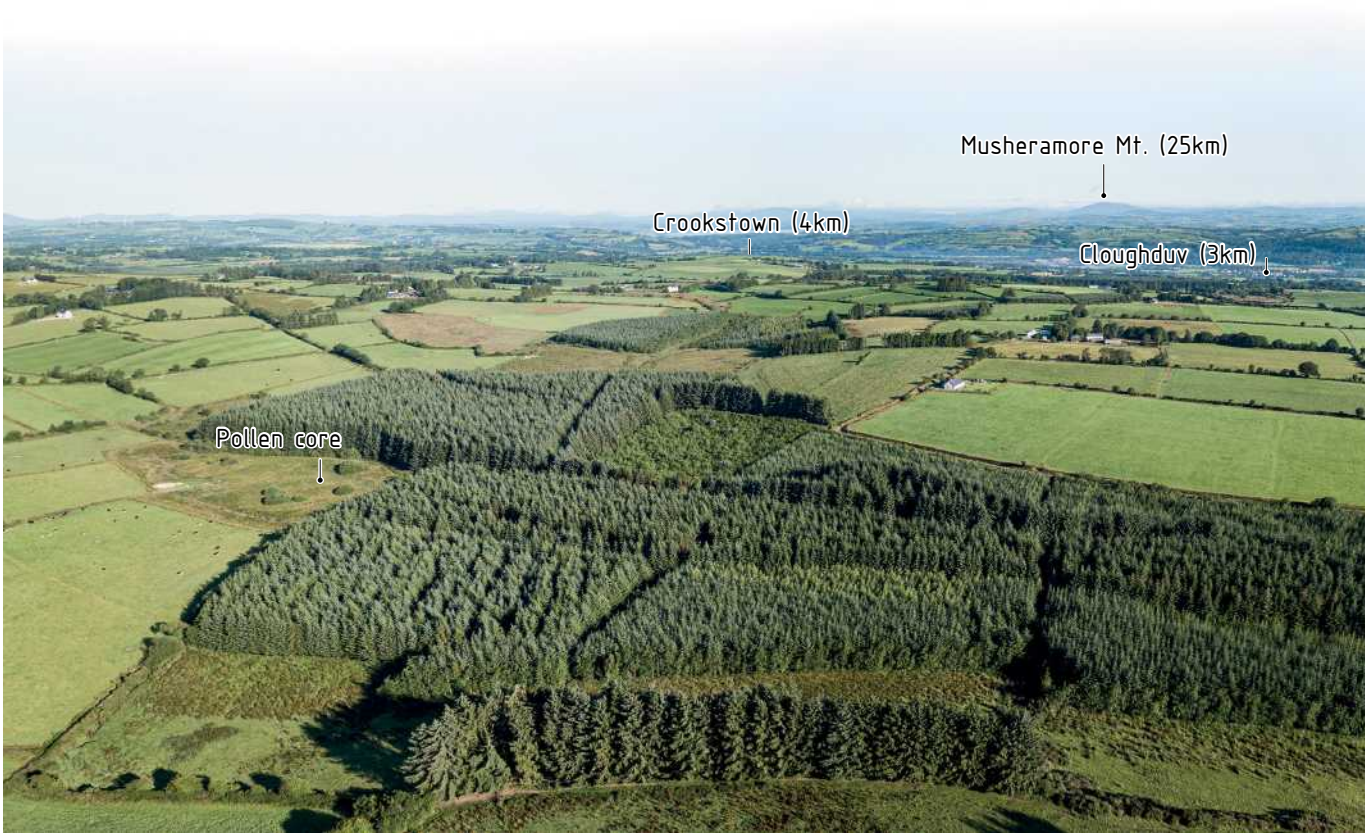


Figure 2.1 Surface model derived from photogrammetric data showing the topography of Garranes and adjacent townlands.



Figure 2.2 Terrain-shaded aerial photograph showing location of principal monuments in Garranes townland. (aerial photograph: Google, Maxar Technologies)


Clashanimud hillfort (5.5km)
Lisheenagreine (1km)
CO084-088
CO084-085
Lisnacaheragh
Garranes House
Caherkean
Shanawillen
(site of)


Musheramore Mt. (25km)
Crookstown (4km)
Cloughduv (3km)
Pollen core

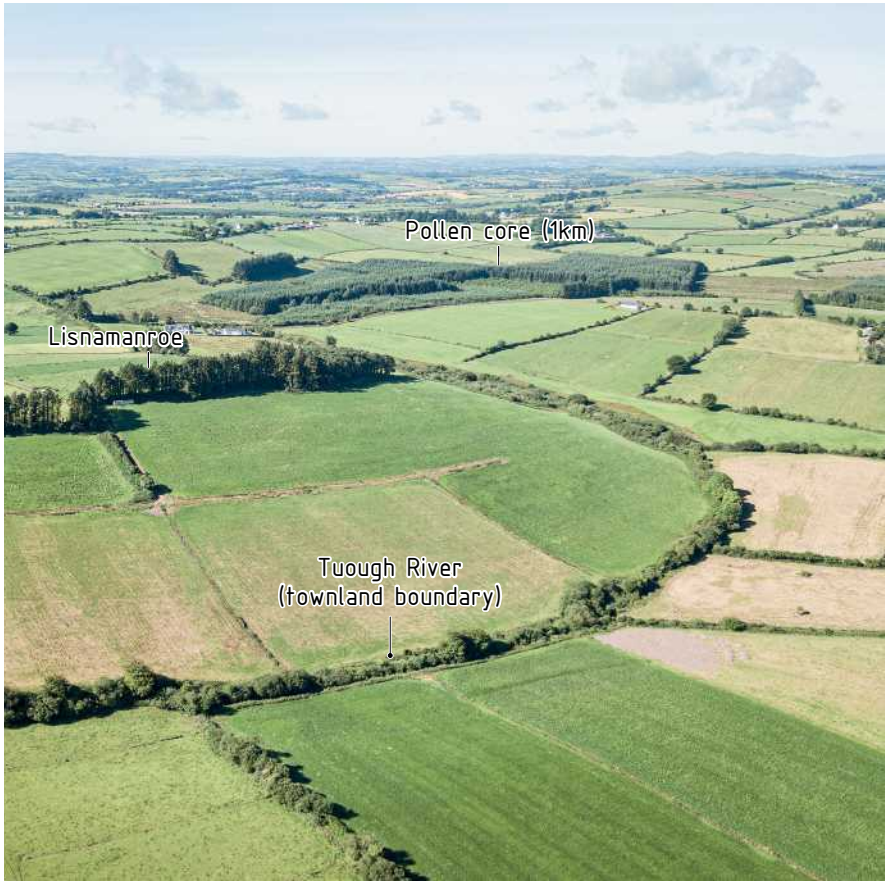


Figure 2.3 Panoramic view of the Garranes ridge from the north, with locations of some of the principal monuments referred to in the text.



Figure 2.4 Panoramic view of the Garranes environs from the south, showing large bog with conifer plantation in valley to west (pollen sampling site is marked).

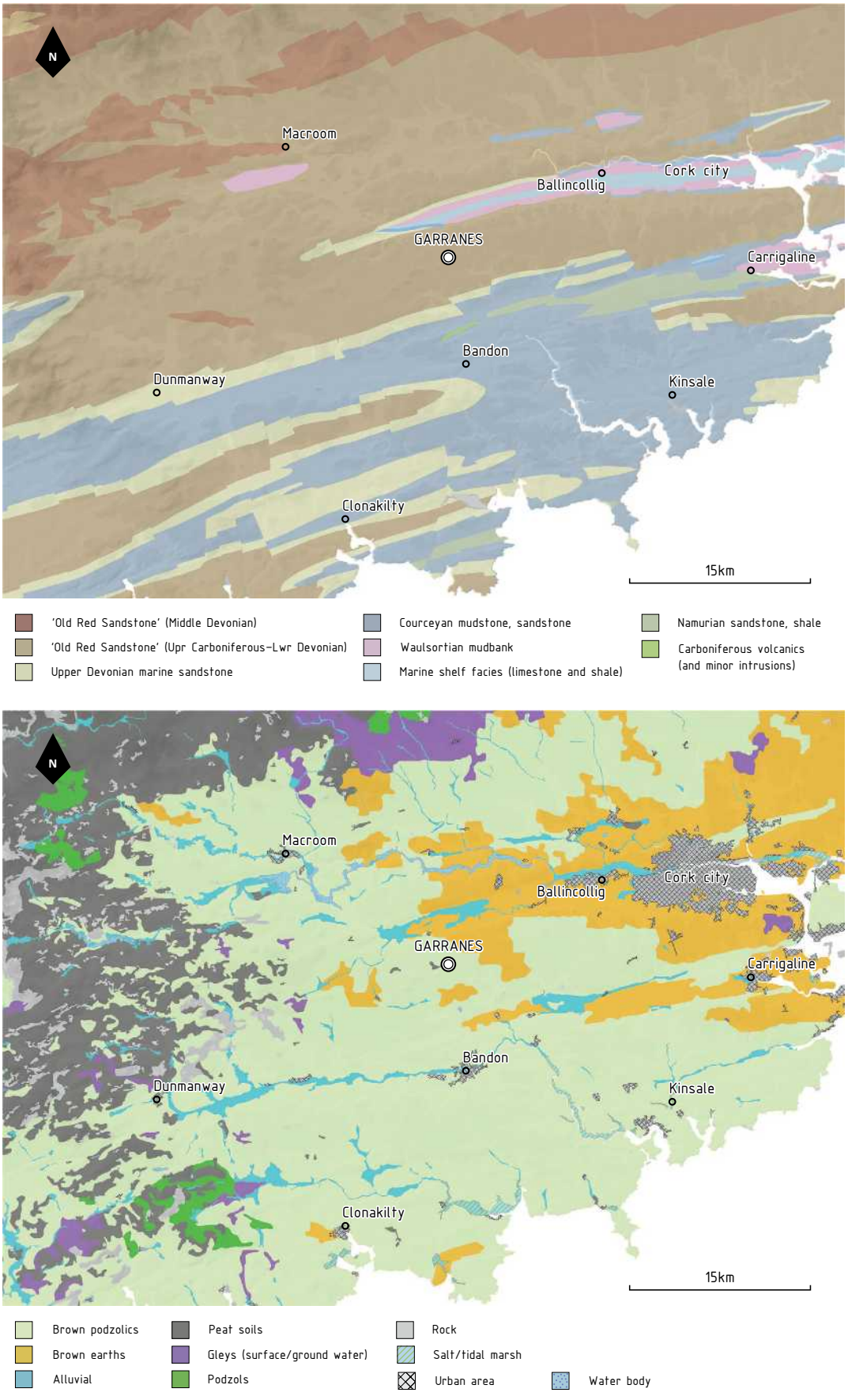


Figure 2.5 Bedrock geology *(top)* and soils *(bottom)* of Mid Cork.
(adapted from Geological Survey of Ireland 1:500,000 bedrock data; Irish Soil Information System, Teagasc and Cranfield University)

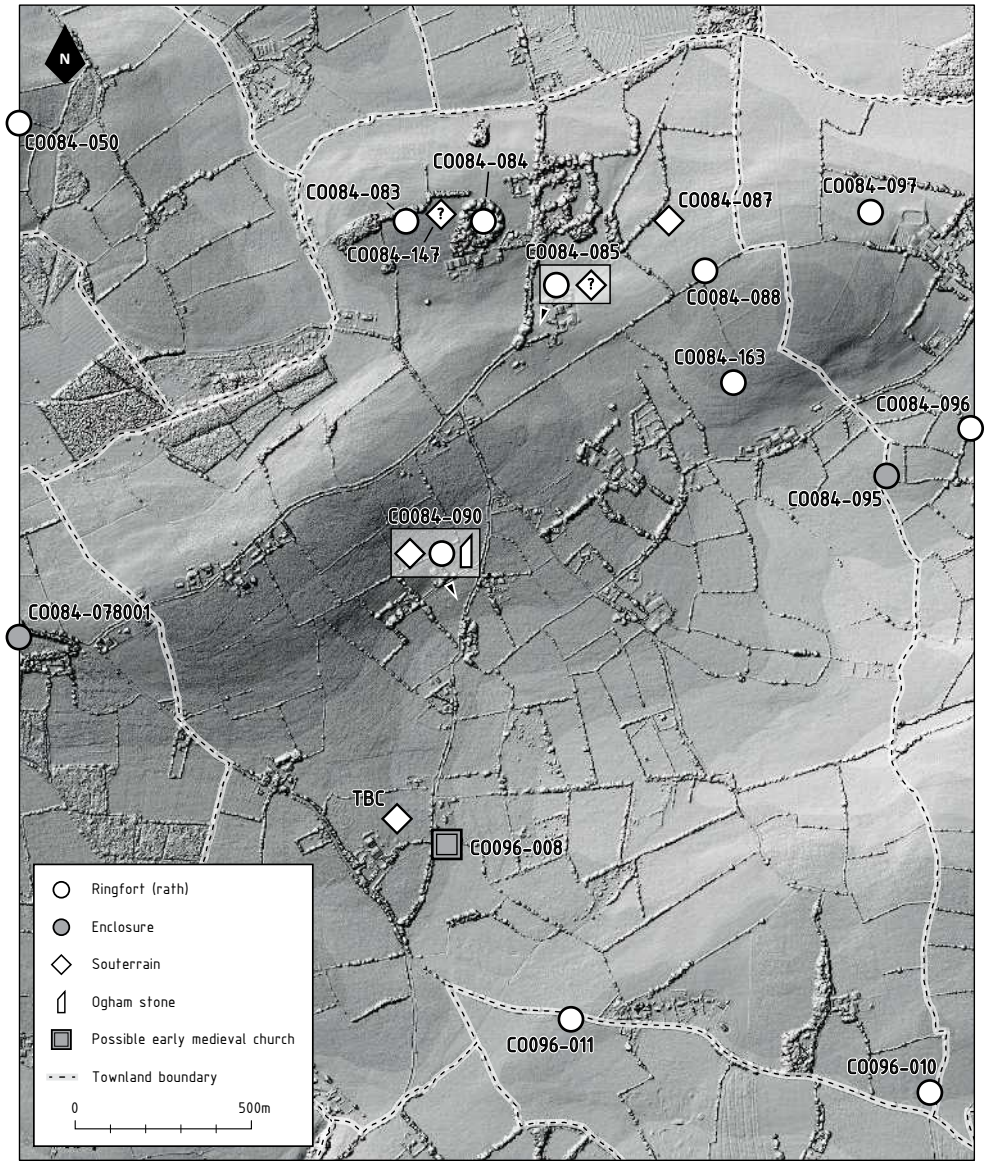


Figure 2.6 Map of Garranes townland with select monuments listed in the *Record of Monuments and Places* (source: National Monuments Service, Sites and Monuments Record; accessed 01/02/2020)

RMP No.	Townland	Description	Extant?
C0084-082	Garranes	Unclassified earthwork enclosure (Caherkean')	Yes
CO084-083	Garranes	Circular univallate enclosure ('Lisnamanroe')	Low relief
CO084-084	Garranes	Circular trivallate enclosure ('Lisnacaheragh')	Yes
CO084-085	Garranes	Circular univallate enclosure	Low relief
CO084-086	Garranes	Circular univallate enclosure (not confirmed)	No
CO084-088	Garranes	Circular univallate enclosure	No
CO084-090	Garranes	Circular univallate enclosure ('Lisheenagreine')	Low relief
CO084-136	Garranes	Circular univallate enclosure	No
CO084-050	Rathfelane	Earthwork enclosure	Partial
C0084-052	Rathculleen	Earthwork enclosure (not confirmed)	No
CO084-095	Moneen	Rectangular earthwork (not classified)	Yes
CO084-096	Moneen	Circular enclosure	Yes
CO084-097	Moneen	Circular univallate enclosure	No
CO084-098	Moneen	Oval univallate enclosure	No

Figure 2.7 Ringforts and other earthwork enclosures listed in the *Record of Monuments and Places* within a 1.5km radius of Lisnacaheragh ringfort (source: National Monuments Service, Sites and Monuments Record; accessed 01/02/2020)

to monuments and sub-surface remains in recent centuries. A comparison of historic maps illustrates the widespread enlargement of fields in this area in recent centuries (Figures 1.11–1.14). This, together with drainage and other land improvements, led to the partial or complete removal of many ringforts, as well as burnt mounds (*fulachtaí fia*) and other monuments. Where ringforts are not destroyed they are often damaged by trees, and by cultivation of their interiors in the early modern era.

In the eighteenth century Garranes townland (also spelt 'Gurranes') was part of the Cork estate of the Duke of Devonshire, and before that part of the Boyle estate. By the early nineteenth century this land was leased to the Splaine family (also spelt Spillane). Eighteen landowners are listed for Gurranes townland in the *Tithe Composition Roll* of 1833 and in *Griffith's Valuation* of 1851. The principal landowner with a holding of 390 acres was James Splaine, a Grand Jury magistrate, who in 1832 built the present large house at Garranes near the old family mansion (Lewis 1837, 605). In 1884 Garranes House was sold by the Splaine family to Alexander Gash, with the bill of sale listing stables, coach-houses, cow-houses, dairy houses, barns, hay lofts, a steward's house and numerous other farm buildings, a large walled garden and vinery, together with 399 acres in grass, except for 11 acres manured for potatoes and the same under corn (Crowley n.d., 61). By the 1920s the estate was divided into smaller farm holdings, creating the pattern of dispersed rural settlement visible today.

The development of Garranes House with its out-buildings, gardens and ponds during the eighteenth and nineteenth centuries significantly altered the landscape directly east of Lisnacaheragh ringfort (Figure 2.2). This probably resulted in the destruction of archaeological sites, including one or more ringforts and associated souterrains. Lyons (1896b) observed that 'some four or five [lisses] were razed in laying out the grounds of Gurranes House'. In another publication the same year he speculated that 'the Rath of the Poets, the Rath of the Women, the Rath of Cuan Ó Lochain (the ollamh), the Rath of the Doorkeeper (Dubhthach), stood inside the grounds of Gurranes House, east of high road, and were levelled, and their underground chambers filled with clay within the recollection of the labourers I met there some thirty years ago' (Lyons 1896a, 451). Ó Ríordáin also recorded a local tradition 'that Garranes House is built on the site of a lios' (Ó Ríordáin 1931b, 67). The location of those levelled ringforts is not known. Scále's map of 1775 depicts two sharp bends in field boundaries close to the site of the later house, which may mark the site of earlier enclosures. The 1845 edition of the Ordnance Survey 6-inch mapping shows a small circular feature in woodland, 200m to the south-east of Garranes House. The site is no longer extant and is now listed by the Archaeological Survey of Ireland as a possible pond (C0084-086).

2.2 ARCHAEOLOGICAL MONUMENTS

The visible archaeology of the Garranes landscape comprises monuments of different periods, all located in private farm holdings. These are listed in the *Record of Monuments and Places* (RMP), compiled in the early 1980s by the Cork Archaeological Survey based in University College Cork (Power *et al.* 1992, 173–4). Some are extant today, while others are significantly eroded or levelled, in most cases as a result of farming in recent centuries. The RMP lists 13 burnt mounds (*fulachtaí fia*) of probable late prehistoric date in the townland, as well as a boulder-burial of likely Bronze Age date. There are a significant number of earthwork enclosures,



Figure 2.8 Aerial view of Garranes ridge from south showing location of Lisnacaheragh, Lisnamanroe and Caherkean.

with seven of these listed as 'ringforts', two of which have recorded souterrains (Figure 2.6). Other field monuments in the townland include an historic church (CO096-008), a holy well (CO084-081), and a killeen or children's burial ground (CO084-089).

Lisnacaheragh (CO084-084)

This large trivallate ringfort is the best known monument in the Garranes ringfort complex (Figures 2.3 and 2.8; ITM grid ref: 547309, 564079). It is a sub-circular enclosure surrounded by three concentric earthen banks, each with an external ditch, spaced close together with a single entrance on the eastern side (Figure 2.9; see also Figure 1.17). The enclosure has an overall diameter of approximately 110m and an internal diameter of 66–69m. The banks average 1.5m in height to a maximum of 3.4m, while the partly silted ditches on the outside of each bank are 2.7–4m in width and 1.3–1.8m in depth (the outer ditch is substantially infilled). The ditches are partly infilled, whereas the banks mostly retain a sharp profile (Figure 2.10). That might indicate the use of stone revetment, though no such walling is visible around the perimeter. The closely spaced enclosing elements are overgrown with mature trees and shrubbery (see Ó Ríordáin 1941, plate 9 for comparison with site today).

The entrance on the eastern side comprises an approximately 20m long by 6m wide causeway across the enclosing elements (Figure 2.11; see also Figure 1.21). There are smaller openings of more recent date at various points along the perimeter. The interior of the ringfort has a slightly dome-shaped profile, with grass growth in the central area and tree and shrub growth confined to the edges. There are no visible archaeological features, nor any obvious traces of cultivation. The earthwork is largely intact, though there has been significant damage from roots and tree falls in modern times (Figure 2.10). Ó Ríordáin (1942) recorded some interference to the southern side of the entrance. He also identified significant collapse on the inside of the inner bank, and what may be dumps of field stones from cultivation inside the ringfort during the early modern era (Figure 1.17).

The history of research at Lisnacaheragh was outlined in Chapter 1. This includes antiquarian interest prior to Ó Ríordáin's important excavation of 1937, and subsequent investigations by O'Donnell (1990–2) and the present project (2017). Various historical associations with the site were discussed with reference to its many names, including those of the legendary founders, Corc and Cian.

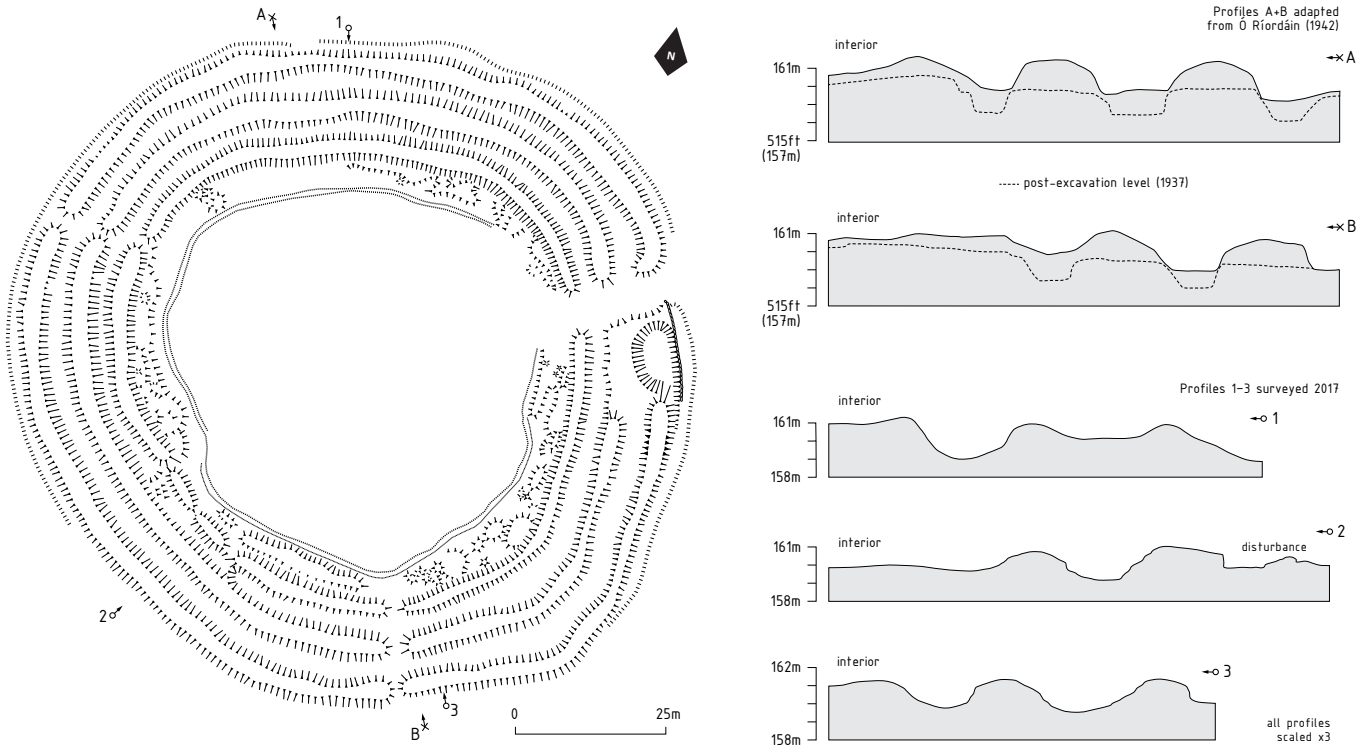


Figure 2.9 Schematic plan and profiles of Lisnacaheragh ringfort.



Figure 2.10 Enclosing banks and ditches at Lisnacaheragh, ringfort Garranes. *(top)* inner, central and outer banks (right to left), with inner and middle ditches (right and left). (*bottom)* northern side of defences looking to interior of ringfort. Scale: 2 metres.



Figure 2.11 Entrance to Lisnacaheragh (from interior of ringfort). Scale: 2 metres.

Lisnamanroe (CO084-083)

This circular enclosure is located on the highest point (166m OD) of the same east–west ridge in Garranes townland (ITM grid ref: 547087, 564068). The site partially overlooks Lisnacaheragh, approximately 100m to the east (Figures 2.3 and 2.8). Lisnamanroe survives as a low-relief earthwork, where the outline of a circular enclosure is visible on the northern boundary of the modern field (Figure 2.12). The field bank curves northwards to incorporate that side of the enclosure, where a 2m high stone-faced bank was re-built along the line of the original bank. Elsewhere, the enclosing elements are visible as a low rise (<1m high) in the adjacent field, with no indication of a ditch. There are no visible features in the interior, which is mostly level pasture today (Figure 2.13).

Geophysical survey reveals the enclosure has an overall diameter of approximately 84m and a total area of 5500 square metres, with an internal diameter of approximately 68m and internal area of 3650 square metres. The magnetic gradiometry survey identified an enclosing ditch, but no clear indication of an accompanying bank (Figure 2.36 below). The geophysics confirms surface indications of an entrance on the eastern side of the enclosure facing Lisnacaheragh ringfort. There are numerous magnetic disturbances in the interior, with indications of cultivation in the form of closely spaced furrows in a north–south direction.

The earliest map record of Lisnamanroe was produced in 1775 by the cartographer Bernard Scalé for the Devonshire estate. The site is shown as a circular earthwork enclosure, labelled 'Danes Fort' (Figure 1.11). It is recorded on the 1845 edition of the 6-inch Ordnance Survey map as a sub-circular, single hachure, enclosure named 'Lisnamanroe' (Figure 1.12). The name is repeated on the 25-inch scale revision of that map published in 1900, which marks the 'site of' this monument (Figure 1.13), while the 1943 edition shows the enclosure as a dashed outline (Figure 1.14). The name itself can be translated as 'Fort of the red-haired women' (Ó Ríordáin 1931, 66–7), but may also be a corruption of *Lios na mBanríon* ('the Queen's fort') (Lyons 1896). This may allude to references in early bardic poetry to a royal fort named *Dún Saidhbe* or *Raith Shaidhbhe* in the Raithliu landscape. That legendary association refers to a daughter of Brian Borumha, who married a king of the Eoganacht Raithleann, Cían mac Máelmuaid, in the late tenth century AD (O'Mahony 1907).

The earliest description of Lisnamanroe comes from a visit made in July 1856 by the noted Cork antiquarian, John Windele. His notebooks record an earthen enclosure, 245 feet in diameter, surrounded by 'a single enclosing vallum without any fosse', with an entrance on the southern side, but no visible souterrain ('cave'). He interpreted this monument 'of unusual magnitude' as one of two Riogh-Raths (Royal Lioses) at Garranes (Royal Irish Academy MS 12 I 10, p.593). The enclosure



Figure 2.12 Lisnamanroe on the summit of the Garranes ridge from the west.
The low-relief earthwork is visible here as a shadow mark cast by early morning light.

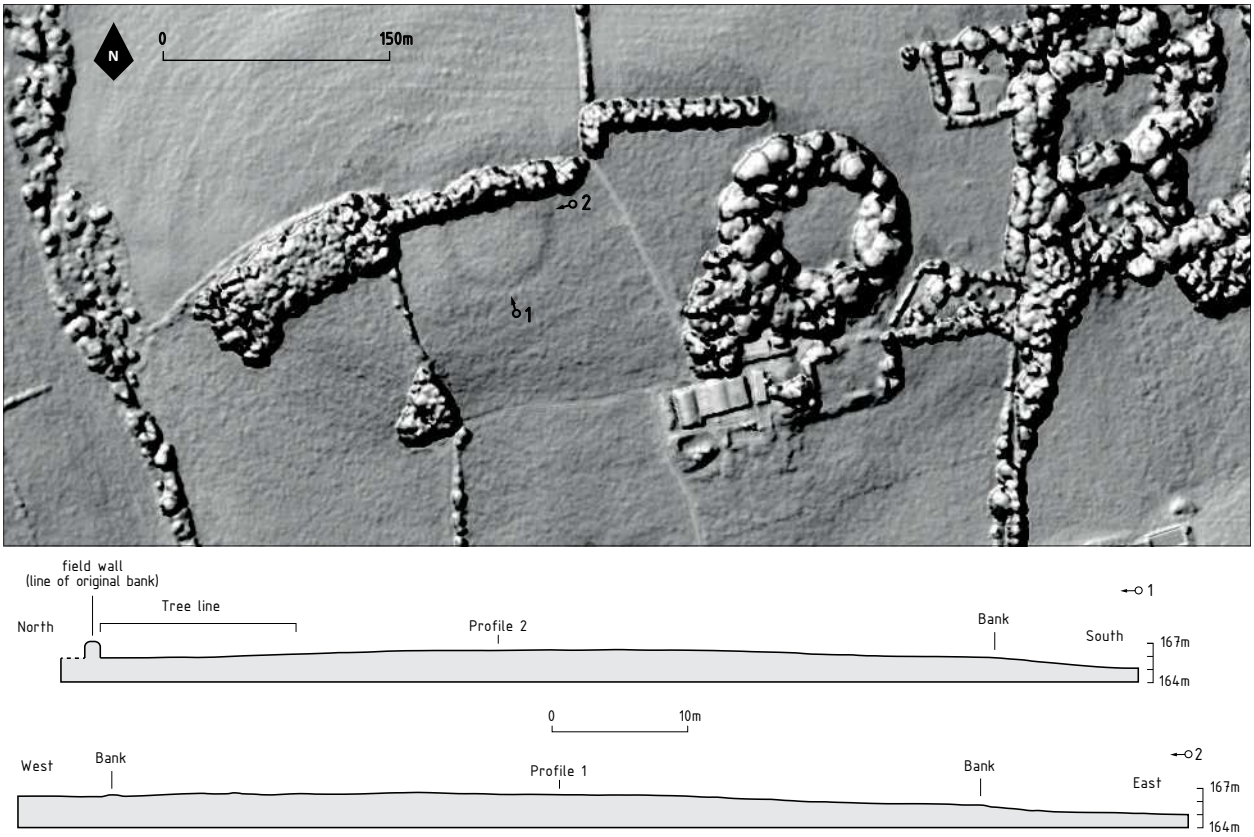


Figure 2.13 Surface model derived from photogrammetry (1m resolution) captures the low-relief earthwork at Lisnamanroe located on the summit of the Garranes ridge (167m OD). The accompanying profiles were surveyed in 2017.

is mentioned briefly in Ó Ríordáin's (1931, 15) survey of the place-names and antiquities of the barony of Kinalmeaky. His excavation report on Lisnacaheragh records Lisnamanroe as a 'single-ramparted fort now cleared away but marks of defences still visible' (Ó Ríordáin 1942, fig. 2). It was recorded by the Cork Archaeological Survey in June 1983 as a 'circular enclosure (diam. c.60m) defined by earthen bank surviving in field fence system to north (H 2m), with shallow fosse (D 0.15m) to north/north-west; slight rise elsewhere, levelled defences clearly visible in aerial photographs' (Power *et al.* 1992, 174, site no. 1528). The site was subsequently listed in the *Record of Monuments and Places* (CO084-083).

Shanawillen Caherkean (CO084-082)

This large earthwork is located 200m downslope to the north of Lisnacaheragh (Figures 2.3 and 2.8; ITM grid ref: 547300, 564311). It comprises two sub-parallel earthen banks that widen from the northern end southwards to create a sub-triangular enclosure approximately 2330 square metres in size (Figure 2.14). This has external dimensions of 65m (N–S) by 24m (E–W) wide at the northern end and 44m (E–W) wide at the southern end, with internal measurements of 54m (N–S) by 2m (E–W) at northern end and 8m (E–W) at southern end (Figure 2.15). It was built on moderately sloping ground, that levels out to the Tuough stream at the valley bottom. Both banks have a low external height, averaging 1m or less above the level of the surrounding field. They are highest at the southern end of the earthwork, where the western bank has an internal height of 4.4m and external height of 2.3m, with the eastern bank measuring 4.7m and 1.7m respectively. At the northern end the banks reduce in internal height to approximately 2m. Both banks turn sharply at the southern end to create a 1.8m wide entrance passage at the south-west corner, from where a track formerly extended west (landowner information). There are indications of this track in a geophysical survey of the adjacent field (see below 2.3). At the northern end both banks come together to within 2m; however, the original features in that area have been removed by recent tree-falls and farm clearance.

There is no record of any archaeological investigation of the Caherkean earthwork. Ó Ríordáin (1931, 66) did note the existence of a cart-track leading west from this earthwork. He subsequently recorded a local tradition that wine was made there, possibly some confusion with a 'vinery' in the adjacent Garranes House (see above). In the Lisnacaheragh report Ó Ríordáin (1942, 81) speculated the Caherkean earthwork may have been a



Figure 2.14 Aerial view of Caherkean from the east. The Tuough River (flowing east) is visible here as a line of vegetation immediately north of the tree-covered earthwork.

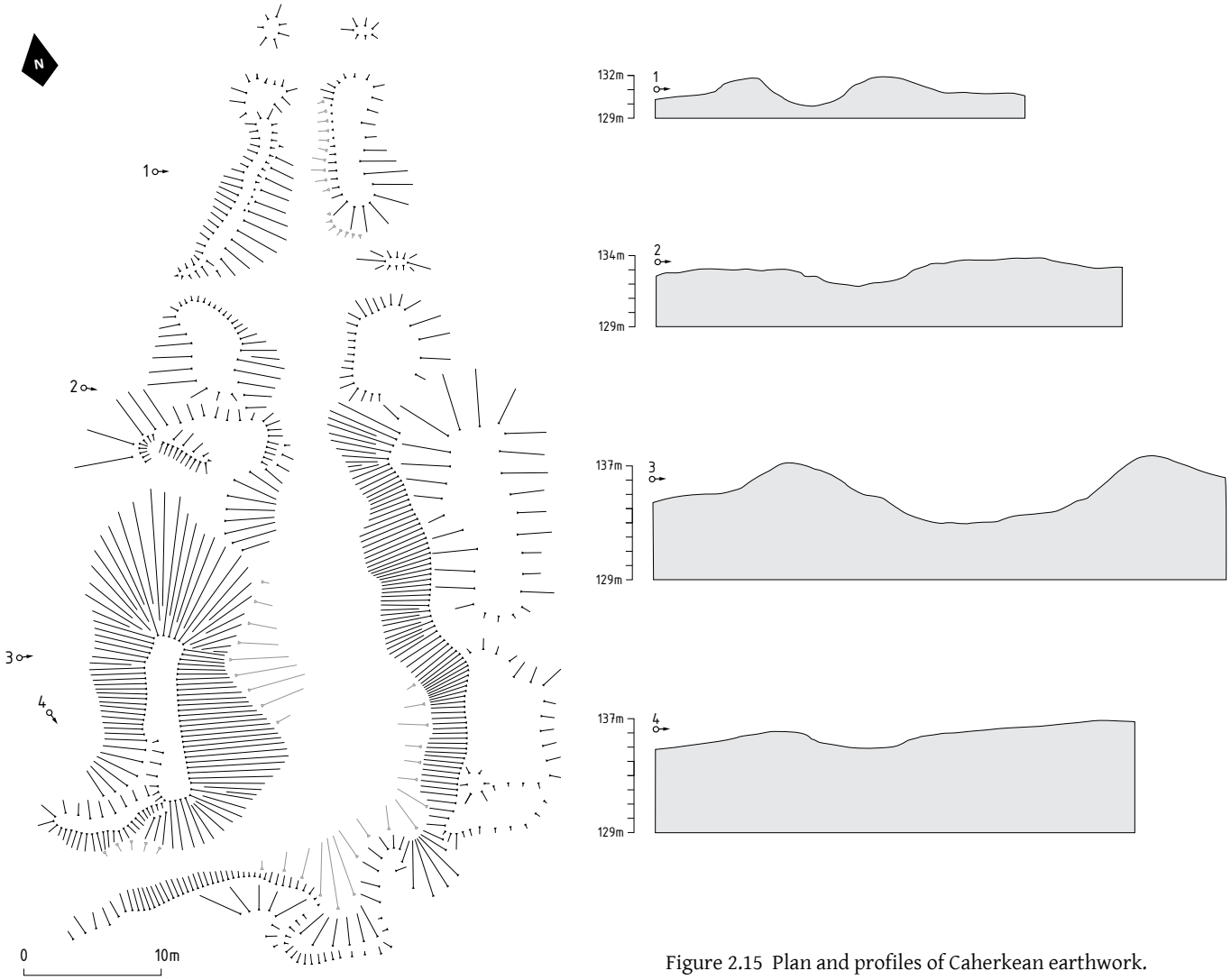


Figure 2.15 Plan and profiles of Caherkean earthwork.



Figure 2.16 Interior of Caherkean at the lower northern end showing the extent of tree growth.

sand quarry. That is not supported by local information or by the drift geology of this ridge. There are no other records for the site, apart from a brief mention in the *Archaeological Survey of County Cork* (Power *et al.* 1992, 117, site 975), and its listing in the *Record of Monuments and Places* (CO084-082).

Today, this earthwork is overgrown by mature conifer trees that were planted in the 1970s (Figure 2.14). Several of these were blown down in recent storms, disturbing large areas of the western bank, as well as parts of the interior and the northern end of the earthwork. Further damage to the enclosing banks has been caused in recent times by burrowing animals. The interior is now overgrown (Figure 2.16), but depicted as free of trees on the Ordnance Survey mapping of 1900 (Figure 1.13), with some marked along its eastern side.

The extant earthwork has the same dimensions, shape and location as a hachured feature labeled 'Caherkean' on the 25-inch Ordnance Survey map published in 1900 (Figure 1.13). The 1845 edition of their 6-inch survey shows a different structure at the same location, where a dashed line delimits a quadrangular area, measuring 30m (E–W) by 35m (N–S), with a 36m long by 9m wide entrance track on the northern side (Figure 1.12). The 1845 map depicts another enclosed area on the eastern side of the quadrangular enclosure. This is irregularly rectangular in plan, measuring 38m (E–W) by 70m (N–S), and is covered by trees and labeled 'Shanawillen Caherkean' ('the old mill of Cian's Fort'). This second enclosure is not depicted on later editions of the Ordnance Survey maps. There are no surface indications of the site today, nor were any traces uncovered by recent geophysical survey in that area (see below 2.3).

The significance of Caherkean was not known prior to excavation. It is not a classified monument type, and there is no record of archaeological discoveries at the site to shed light on its age or function. The earthwork has been variously interpreted as an early mill ('Shanawillen': 'Sean Mhulleann'), a defended settlement ('the Fort of Cian'), or as a formal entrance to the minor royal landscape at Garranes ('the Rath of the Doorkeeper'; O'Mahony 1907). Its form and size invites some comparison with short linear earthworks of ceremonial significance at other 'royal sites', such as the Mucklaghs at Rathcroghan, Co. Roscommon, or the Knockauns at Teltown, Co. Meath. While Caherkean is unlikely to be a quarry, other interpretations, such as an animal enclosure or a burial ground, could not be excluded prior to excavation.

Unnamed (CO084-085)

This site is listed as a ringfort in the *Record of Monuments and Places* (CO084-085001), which also records the site of a souterrain (CO084-085002) in the interior. Those features are located in a small sub-triangular field, 300m south/south-east of Lisnacaheragh (Figure 2.2; ITM grid ref: 547455, 563772). That field is bordered on the western side by a minor road, with a house driveway on the southern side, and a large farmyard on the eastern side (Figure 2.17). The site is depicted on three editions of the Ordnance Survey 6-inch map as a circular enclosure of approximately 40m diameter, defined by a single line of hachures (Figures 1.12–1.14). The size, circular shape, and the hachured depiction of an enclosing bank (with traces of a ditch on the north-east side shown on the 1943 Ordnance Survey map) points to an earthen ringfort of the early medieval period. This is one of two recorded ringforts in the grounds of Garranes House, mentioned by Ó Ríordáin

as 33 yards (30.2m) in diameter with a well-preserved single rampart (Ó Ríordáin 1931, 67).

The enclosure is not extant today, nor was it when inspected in June 1983 by the Cork Archaeological Survey (Power *et al.* 1992, sites 1530 and 2304). It is not known when the enclosure was levelled, but that probably occurred in the mid to late twentieth century. There are traces of a low enclosing bank along the northern and southern sides, less than 0.3m in external height. This is less visible on the eastern side, while the road and field bank have obscured the western side. There are no clear indications of an accompanying ditch. The internal area appears as a shallow depression, with no surface features or any evidence for a souterrain.

There is no recorded history of the site, nor any folklore or place-name associations. The third edition of the 6-inch OS mapping, published in 1943, depicts a 'souterrain (site of)' on the south-west side of the enclosure (Figure 1.14). There is no surface evidence of this underground tunnel system today. The only record is provided by Ó Ríordáin, who observed that 'collapse of the clay in which it is cut reveals the souterrain but the passages are partly blocked so that entry is impossible' (1942, 81).



Figure 2.17 Site of CO084-085 ringfort from the south-east (centre foreground). looking to Lisnacaheragh and Lisnamanroe on the summit of the Garranes ridge (background).

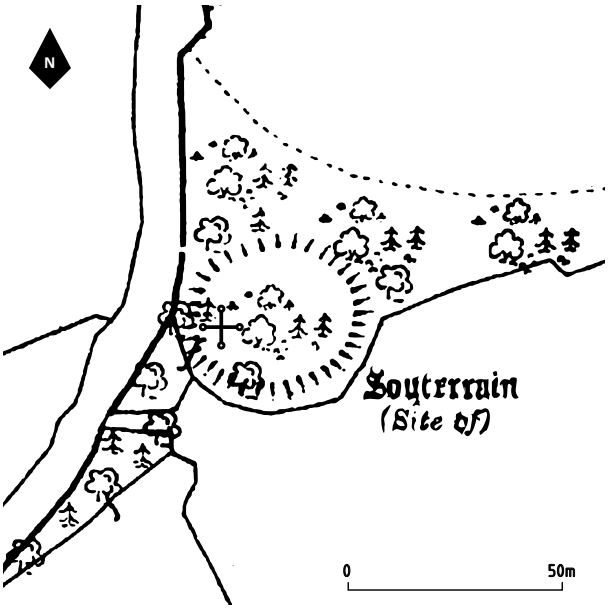




Figure 2.18 *(left)* Detail of CO084-085 ringfort adapted from Ordnance Survey 1900 and 1943 map editions. *(right)* Results of magnetic gradiometer survey. (background image: Google, Maxar Technologies)

This enclosure is barely visible on aerial photographs, but is discernible in a magnetometer survey. This was undertaken to map the sub-surface extent of this enclosure, and provide targets for excavation. The method employed was magnetic gradiometry, using a Bartington Grad601-01 instrument to survey an area of 2900 square metres in this sub-triangular field. Approximately 47,000 readings were taken, at 0.125m spacing along 0.5m traverse lines, over the entire area of the levelled enclosure (Figure 2.18). This revealed the outline of a sub-circular enclosure measuring 52m (east–west) by 46m (north–south), represented by magnetic responses from a levelled bank-and-ditch arrangement. The responses are most clear on the southern side, where a band of low magnetic readings correspond to the bank area, with higher readings on the immediate outside indicating the position of a ditch. There is no indication of any entrance(s) to the enclosure. There are signs of cultivation in the interior, with a strong set of north-west/south-east furrows, as well as considerable magnetic disturbance connected to ferrous litter. The location of a souterrain marked on the 1943 Ordnance Survey map is not apparent, though some magnetic anomalies inside the enclosure may be related to that feature.

Unnamed (CO084-088)

This levelled enclosure is located on the southern side of a large pasture field, 0.5km east/north-east of the CO084-085 ringfort, in the north-east corner of Garranes townland (Figure 2.2; ITM grid ref: 547929, 563933). The site is listed as a ringfort in the *Record of Monuments and Places* CO084-088). It is located on a break of north-facing slope on the upper side of a prominent east–west ridge. There is a gentle rise of ground to the immediate south, while the northern side slopes more steeply to the valley floor to the east of Garranes House (Figure 2.19). The enclosure is recorded on Scalé's estate map of 1775 as a univallate bank and ditch enclosure marked 'Danes Fort' (Figure 1.11). It is shown on the first edition (1845) of the Ordnance Survey 6-inch mapping as a single circle of hachures, bordered by a trackway on the northern side, all located within a strip of woodland along the southern field boundary (Figure 1.12). The enclosure is not marked on the 25-inch revision (1900) of the Ordnance Survey map, but is shown as a dashed outline on a later edition (1943) of the 6-inch survey (Figure 1.14).

The ringfort is visible today as a low-relief earthwork of circular plan, approximately 42–44m in diameter (Figure 2.19). The southern side is incorporated into a 1–1.5m high field bank, built along the line of the original ringfort bank. Elsewhere, the latter survives as a 10–12m wide rise (<0.6m high), most distinct on the western and northern sides of the circular enclosure. There is no surface indication of a ditch accompanying this levelled bank, nor any breaks in the latter to indicate where the original entrance(s) were located. There are no surface features in the interior of the enclosure, which is visible as a slight depression 20m or so in diameter.

A geophysical survey was undertaken to map the sub-surface extent of this enclosure. The method employed was magnetic gradiometry, using a Bartington Grad601-01 instrument to survey an area of 2800 square metres centred on the low-relief outline of the enclosure. Approximately 22,500 readings were taken over the visible extent of the monument. The survey revealed the outline of a circular enclosure, defined by a consistent

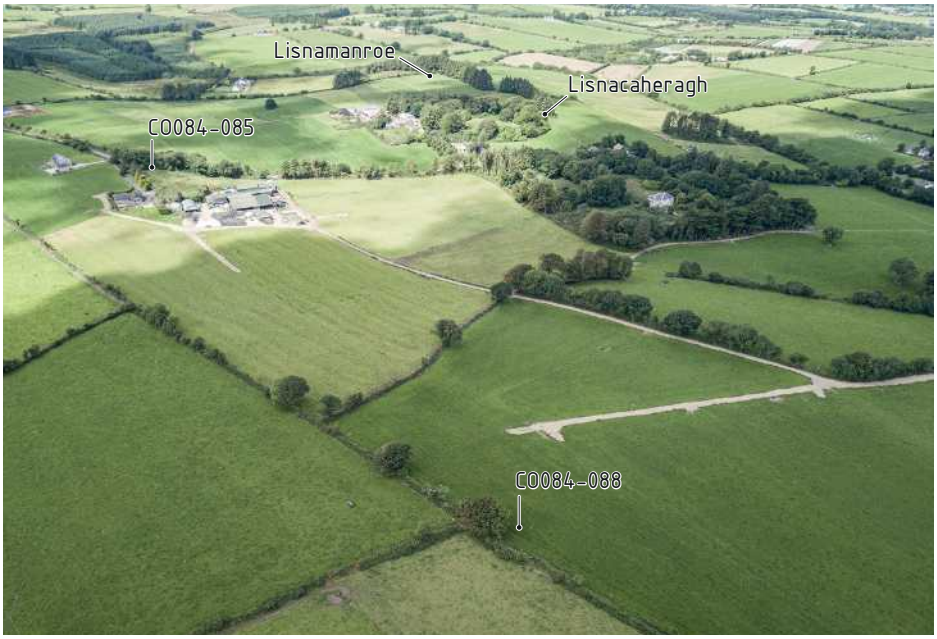


Figure 2.19 Aerial view of CO084-088 ringfort from the east/south-east, looking to Lisnacaheragh and Lisnamanroe on the summit of the Garranes ridge (background). The location of CO084-085 ringfort is also marked.

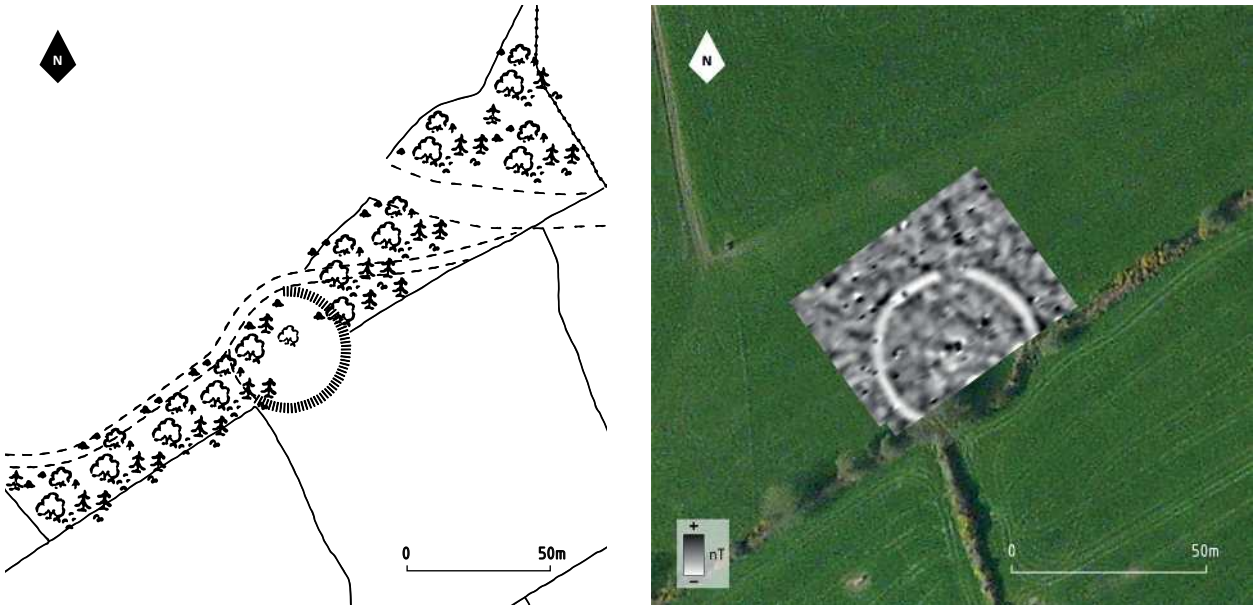


Figure 2.20 *(left)* Detail of CO084-088 ringfort adapted from Ordnance Survey 1845 map edition. *(right)* Results of magnetic gradiometer survey. (background image: Google, Maxar Technologies)

band of lower magnetic responses, approximately 4m in width (Figure 2.20). This would appear to represent a truncated ditch below the aforementioned spread of levelled bank material. Based on the results, the enclosure had an overall diameter of approximately 45m (north-east/south-west), with an internal diameter of approximately 29m (assuming the original bank had a similar width to the ditch). There are clear indications of an original entrance on the northern side, where there is a 5m wide causeway across the enclosing ditch. Two parallel linear anomalies abutting the enclosure on the south-west are consistent with the remains of a track recorded on the 1845 Ordnance Survey map.

The survey revealed the faint outline of a sub-circular feature, approximately 14m in diameter, in the centre of the enclosure. There is an area of magnetic enhancement at the centre of this feature. While pointing to a possible structure, this remains to be confirmed by excavation. There is no clear indication of a souterrain, though this type of shallow earth geophysical survey would be unlikely to image underground tunnels. There are no signs of cultivation in the interior. Overall, the surface survey and geophysical results indicate a univallate ringfort similar to others in the Garranes landscape, such as the nearby CO084-085 site.

Lisheenagreine (CO084-090)

This levelled earthwork enclosure is located in Garranes townland, approximately 1km south of Lisnacaheragh ringfort (Figure 2.2; ITM grid ref: 547232, 563006). The site was inspected in 1983 by the Cork Archaeological Survey, who recorded a circular raised area on a south-facing slope (Power *et al.* 1992, sites 1037, 1532 and 2144). It is now listed as a ringfort in the *Record of Monuments*



Figure 2.21 Ground view of Lisheenagreine ringfort from the north. Archaeologists standing at western and southern sides of low relief bank.



Figure 2.22 Surface model derived from GNSS survey data shows the low-relief remains of Lisheenagreine ringfort. Detail adapted from the Ordnance Survey 1943 map edition is overlain and depicts the reported location of the ogam stone find and the former line of an early modern field boundary running across the monument. (background image: Google, Maxar Technologies)

and Places (CO084-09001), with a souterrain (CO084-090002) and an ogam stone (CO084-090003) recorded in the interior. The location is a large triangular field with a gentle southerly slope, currently under pasture. The enclosure was built on this slope rather than on the crest of a ridge to the immediate north. The field is bordered on the eastern side by a minor road, and by a farm track on the northern side.

The outline of a circular earthwork enclosure is visible as a low relief feature on the eastern side of the field (Figure 2.21). This is 48–50m in overall diameter, with internal dimensions of approximately 38–40m. There are indications of a low bank, which is less than 1m in height and 4–6m wide along the perimeter. There are slight indications of an external ditch on the northern side of the enclosure, but none elsewhere. The only surface features visible inside the enclosure are low-relief remains of two levelled field banks of early modern date, which cross the enclosure in a north/north-east to south/south-west and a north-east/south-west direction respectively (Figure 2.22). The latter example may relate to a field bank shown on the 1900 Ordnance Survey map (Figure 1.13). There is no surface indication of a souterrain nor of any entrance(s) to the enclosure. The original entrance may have been on the south-east side of the earthwork where the extant bank is less prominent.

The Lisheenagreine enclosure is depicted as a watermark feature on a map of 1775 produced by a cartographer, Bernard Scále, for the Devonshire estate (Figure 1.11). The convention used suggests the earthwork was substantially levelled by that date. The monument is not shown on the first edition (1845) of the Ordnance Survey 6-inch map (Figure 1.12), though it is recorded on subsequent revisions as a single arc of hachures bordering the southern side of a now-removed field bank (Figures 1.13 and 1.14). This confirms the enclosure was visible as a low-relief feature from the late nineteenth century, probably similar to its appearance today. Measurements from the hachured feature on the 1900 map indicate a circular enclosure 40–50m in diameter. The same map records the name 'Lisheenagreine' ('fort of the sun'), and also the position of an 'Ogham Stone' in the interior, close to a field bank that cuts across the enclosure in a north-east/south-west direction.

The ringfort came to attention in the nineteenth century when its ogam stone was visited by a number of antiquarians. The most important account is provided by Richard Rolt Brash (1868) who on receiving details from a local historian, Rev John Lyons, visited the site in December 1868 to record the inscription. Rolt Brash records that the ogam stone was unearthed at this 'rath' around 1851 in the course of potato cultivation. The farmer, a man named Crowley, moved it to the adjacent field bank. Rolt Brash noted the rath was levelled a few years prior to his 1868 visit by a tenant farmer named Doyle.

On Rolt Brash's suggestion, Rev. Lyons conducted a 'series of excavations on the site of the erased rath' in the hope of uncovering a souterrain (Rolt Brash 1968, 263). Rev Lyons sent the following report on his digging:

> 'I commenced excavations adjoining the stone. We first came on a passage about 8 feet in length, which was half closed with earth; we did not clear it out at the south end, but finding a narrow passage, or channel, at the north end, I crept into it, and found a chamber 16 feet long, 5 feet wide and 4 feet high, quite empty; it was excavated like a gravel pit, without any masonry excepting at the narrow end, which ran in an eastern direction, but was built with stone and roofed over with large flags, which I examined, but found no traces of Oghams on the *under side* (his emphasis) of them: we did not clear the surface to the top. We cleared the passage inside to within 6 or 8 feet of where the stone (Ogham) was

found, as it ran in that direction, so the inscribed stone must have been connected with the cave. We suspended our operations about five o'clock, and propose to renew them on Monday or Tuesday' (Rolt Brash 1868, 263).

The report goes on to record that 'in a subsequent communication, Mr Lyons informed me that he continued his examination, and removed the earth from the upper surface of the roofing stones, but made no discovery of inscriptions.' (*ibid.*). The Rolt Brash account of Rev. Lyons' excavation is reiterated in descriptions by Henebry (1911) and Ó Ríordáin (1931). The latter names the site as Lisín na Gréine ('the little fort of the sun') in his survey of the antiquities of Kinalmeaky. He also records that Rev. Lyons, with the cooperation of Canon O'Mahony, and presumably Professor Bertram Windle, arranged to have the ogam stone moved to the collection in University College Cork (Ó Ríordáin 1931, 67), where it is now on display (Figure 1.10).

This ogam inscription was recorded by Rolt Brash (1868, 260) as 'CASSITT AS MAQI MUCOI CALLITI, which he translated as 'Cassit here, the son of the Swineherd Calliti'. Henebry (1911) records the inscription as CASITTAS MAQI MUCOI CALLITI, and provides a detailed analysis of the inscription, which he reads as '(the memorial inscription) of Cassis, one of the McCaletii' (Henebry 1911, 81). Macalister subsequently recorded (with drawing) the inscription as C[A]SSITT[A]S MAQI MUCOI CALLITI (1945, 83, no. 81). McManus (2004, 15, no. 4) supports this translation, but notes that the first name could end in -AS or -OS. Ó Ríordáin (1931) records the inscription as CASITTAS MAQI MUCOI CALLITI, which he translates as 'Cassis, Son of one bearing the tribal name of Calitos' (Ó Ríordáin (1931, 67).

Recent archaeological survey

A topographic survey of the site in October 2017 provided a dense coverage of elevation data, supplemented by surface reconstruction generated from a series of drone aerial photographs (Figure 2.22). A geophysical survey using magnetic gradiometry and electrical resistance methods was undertaken in November 2017 to map the extent of this enclosure and its internal features. A Bartington Grad 601-2 fluxgate gradiometer was used to record some 120,000 readings over a 0.75ha area. This revealed the outline of the enclosure as a low magnetic response, probably explained by the presence of subsoil from the levelled bank (Figure 2.23). The survey identified areas of high magnetic response inside the enclosure, including a possible line of bank on the inside of the ditch.

For the electrical resistance survey a Geoscan RM15 configured as 0.5m twin probe array was used to take 8000 readings over a 0.4ha area. Again, the survey identified the extent of the enclosure, as well as some resistance anomalies within the enclosure (Figure 2.24). Finally, an electrical resistivity tomography survey (ERT) was also undertaken by Dr Richard Unitt, Department of Geology, UCC. This method was employed to identify souterrain features at greater depths, but the results did not provide any clear evidence of such underground structures.



Figure 2.23 Results of magnetic gradiometer survey at Lisheenagreine ringfort. (background image: Google, Maxar Technologies)



Figure 2.24 Results of electrical resistance survey at Lisheenagreine ringfort. (background image: Google, Maxar Technologies)

2.3 THE HIDDEN LANDSCAPE

James O'Driscoll

In 2009–10 the author carried out a remote sensing survey of the western side of the Garranes ridge as part of a programme of postgraduate research. While previous investigations focused on the excavation of Lisnacaheragh ringfort, the geophysical survey sought to integrate the results from that site with other elements of the cultural landscape, including the nearby Lisnamanroe enclosure. A number of unrecorded sites of potential archaeological significance were discovered, including possible built structures, ring ditches or levelled barrows, burnt mound spreads (*fulachtaí fia*), and relict field patterns, as well as features of the early modern settlement landscape. The mapping of this sub-surface archaeology provides a more comprehensive picture of the archaeological complex at Garranes. This section outlines summary results of this study with further detail and discussion available in O'Driscoll, 2010.

The survey area

The study area is arbitrarily divided into 28 fields by a network of earthen field banks sub-divided by post and wire electrical fencing and covers an area of some 25 hectares. It has been divided into five survey areas that are centred on extant monuments or sub-surface sites identified during fieldwork (Figure 2.25):

Area 1: eastern slopes of the central ridge, including the interior of Lisnacaheragh ringfort and its environs.

Area 2: crest of central ridge, covering the low-relief Lisnamanroe enclosure and its southern environs.

Area 3: northeastern slopes of central ridge, including the environs of the Shanawillen Caherkean earthworks.

Area 4: north and northwestern slopes of central ridge.

Area 5: southern slopes of central ridge and the crest and northern slopes of another ridge to the south.

Methodology

Prior to fieldwork, an extensive desk-based study of existing publications, aerial and satellite imagery and cartographic sources was undertaken. This assisted the interpretation of potential archaeological features with no visible expression in the geophysical or topographical data. Central to this process were the historic maps available for this area, including Bernard Scalé's 1775 map of the Devonshire Estate and the Ordnance Survey's editions of 1845, 1900 and 1943 (see Figures 1.11–1.15).

Prior to geophysical survey, surface recording was carried out by employing GNSS and Total Station technologies to map topographic features and establish survey grids. Discrete spot height data was collected over the entire landscape and was used to create a coarse topographic model. This was later supplemented by a Digital Surface Model (DSM) generated from aerial photographs (see Figure 2.2).

The geophysical survey itself comprised magnetic susceptibility, electrical resistance, and magnetic fluxgate gradiometry techniques. A preliminary

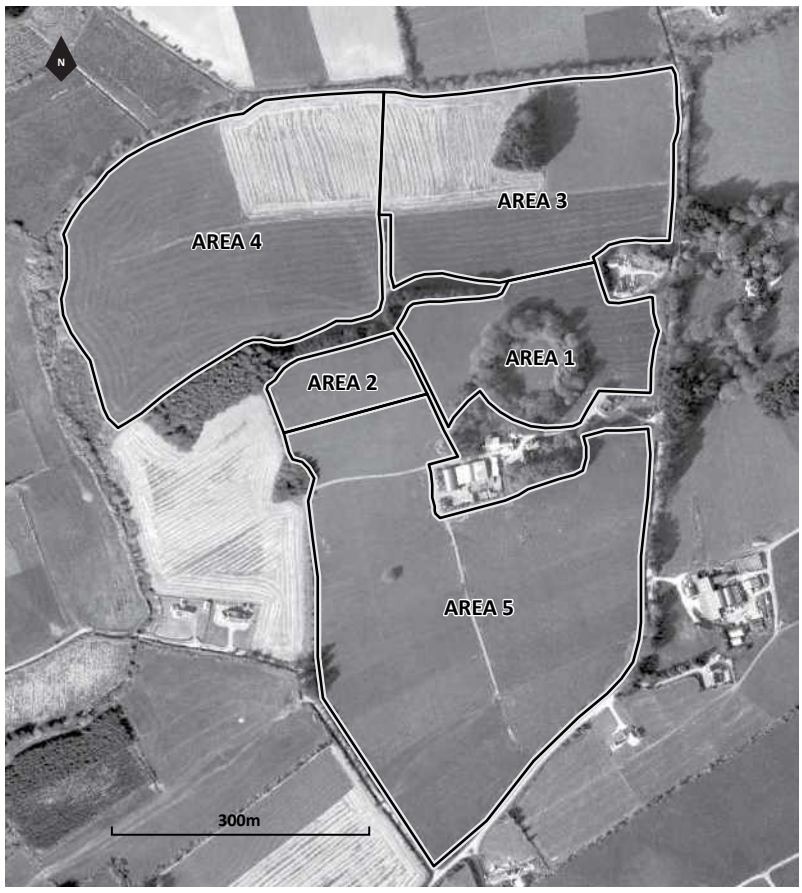


Figure 2.25 Geophysical survey areas in the Garranes landscape. (background image: Google, Maxar Technologies)



Figure 2.26 Interpolated surface showing results of the magentic susceptibility survey. (background image: Google, Maxar Technologies)

magnetic susceptibility survey was undertaken across the entire study area as a means of assessing local magnetic characteristics and to identify targets for more detailed investigation. A Bartington MS2 logger and MS2D search loop (18cm diameter) were employed for this survey. Susceptibility readings were collected alongside a hand-help Mobile Mapper GNSS system that recorded positional information. The survey resolution was dependant on a number of variables, including ground conditions and expected archaeological anomalies, which resulted in a mean sample spacing of 6m across 4800 observations. The dataset was collated and analysed using GIS software and results are presented as an interpolated surface in Figure 2.26. A subsequent, higher resolution magnetic susceptibility survey was undertaken at Lisnamanroe prior to archaeological excavation at the site. The results of this are presented below.

A full coverage magnetometer survey was undertaken over the study area primarily using a Bartington Grad 601-01 fluxgate gradiometer. This was supplemented by a Geoscan FM256 in Area 2. Recording was carried out over a conventional 20x20m grid system at a standard resolution of 1m traverse and 0.25m sample spacing. Considerable areas were resurveyed at a finer resolution of 0.5m/0.25m traverse and 0.25m/0.125m sample spacing to achieve enhanced feature definition. Electrical resistance survey employed a Geoscan RM15 system with 0.5m twin-probe array. Full area coverage was undertaken in Areas 1 and 2, with targeted recording in Areas 3–5. Data were collected at 1m resolution, with some areas resurveyed at a finer 0.5m resolution.

Area 1: Lisnacaheragh ringfort and environs

Area 1 covers approximately 2 hectares and comprises Lisnacaheragh ringfort and two adjacent fields to the east and west. The fort's interior slopes gently from its centre in all directions and is noticeably raised above surrounding ground level. Scrub and pockets of dense grass growth were removed by the landowner prior to survey. Two pasture fields adjacent to the fort slope are enclosed by earthen banks and sub-divided by electrical fencing. The Ordnance Survey's historic maps indicate the former presence of a number of field boundaries within Area 1, all of which adjoin the fort's outer bank. While no other archaeological monuments are recorded

in these fields, Lyons (1893) did note the presence of a 'cave' in fields adjacent to the fort. Similarly, Brash (1879, 158) described the site as an 'immense cahair, with extensive subterraneous passages'. The current landowner recalls farm machinery falling into a void in the field north-west of Lisnacaheragh, all of which hints at the possibly of unrecorded souterrains in the area.

Area 1: Magnetic gradiometry (Figures 2.27 and 2.28)

The results of the magnetic gradiometry survey suggest the interior of Lisnacaheragh is largely free from ferrous material of recent or archaeological origin. Disturbance from trenches dug during previous archaeological investigations by Ó Ríordáin (1937) and O'Donnell (1990–2) has had an obvious impact on the survey data (e.g. G1 and G2).

The absence of strong magnetic responses, normally indicative of industrial practice, suggests that craft-working was not widespread within the site. Archaeological excavation has shown that recent cultivation significantly disturbed archaeological deposits in the site's interior. It also revealed the majority of evidence for craftworking survives beneath the slippage of the inner bank, but due to extensive overgrowth in these areas it was not possible to undertake detailed survey here.

The presence of structures within the fort suggest that certain areas were kept free from industrial activity to accommodate habitation. While Ó Ríordáin (1942) was unable to recognise any structural plans, the partial remains of a large roundhouse were identified during excavations by O'Donnell (1992). Charcoal deposits, charred wattle and burnt soil indicates that this structure was burnt, a process that would substantially enhance its magnetic signature against the background subsoil. The remainder of this structure may be visible in the geophysical results as a weak anomaly (G4). The lack of clarity in the results may be due to intensive cultivation of the ringfort's interior in later times,

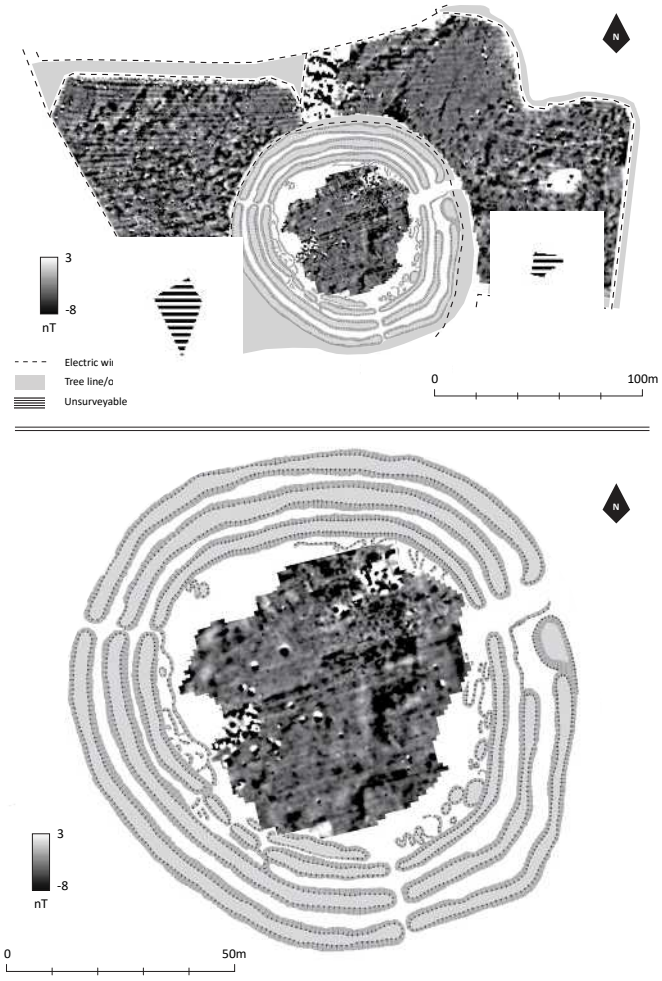


Figure 2.27 Results of magnetic gradiometry survey in Area 1.

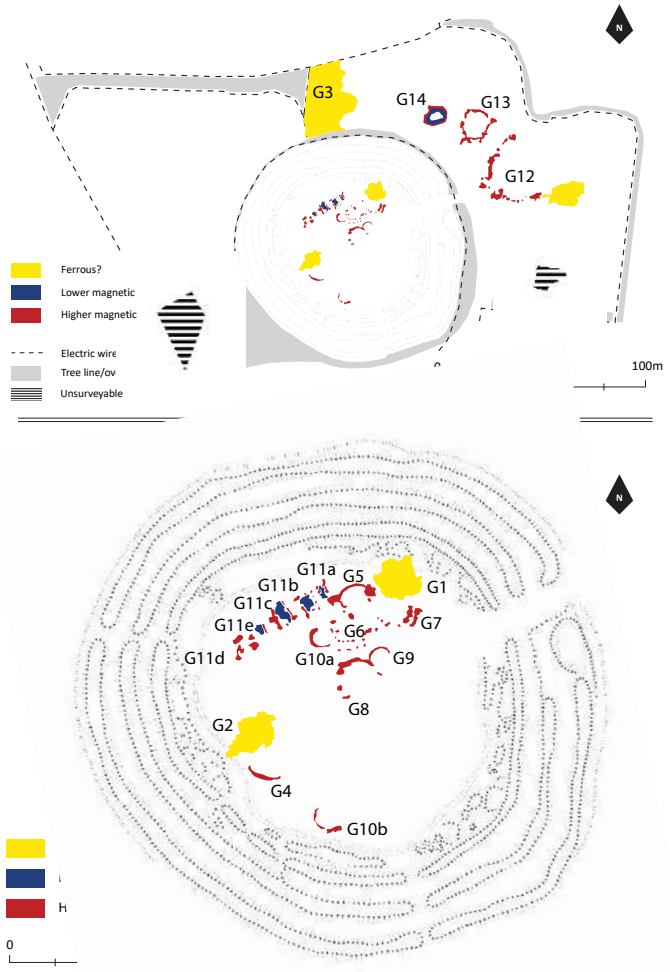


Figure 2.28 Interpretative plot of magnetic gradiometry results in Area 1.

which the O'Donnell (*ibid.*) recognised had damaged the partially excavated structure.

Despite the disturbance caused by cultivation in the early modern era, magnetic gradiometry revealed traces of the possible foundations a number of structures. G5 is the most discernible of these, visible as a thin curve of enhanced magnetism in the north of the interior. When projected, this extends over an area approximately 8m in diameter. G6 and G7 are located in an area excavated in 1937 and extend over diameters of 9m and 7m respectively. Ó Ríordáin's site plan reveals a concentration of post-holes in that area, the back-fill of which may be responsible for anomalies in the magnetic data. G8 and G9 are visible as faintly enhanced responses, obscured to their south by modern farming activity. These features, when projected, enclose respective areas approximately 7m and 8m in diameter. Comparable features are clustered at the centre of the ringfort (for example G10a–b), suggesting that settlement was concentrated here.

Rectangular features located to the north of the fort's interior, outside the areas excavated by Ó Ríordáin, may also represent structures of some form (G11a–e), but could also reflect spade cultivation from the early modern era. These vary in size from 1.5m by 3m to 4m by 5m. Despite their proximity, the anomalies do not overlap and are orientated on a similar axis, possibly an indication that they are contemporary.

In areas immediately adjacent to Lisnacaheragh, magnetic gradiometry has revealed numerous anomalies of potential significance. On the northern side a large area of magnetic disturbance (G3) probably represents noise associated with a levelled field boundary visible on the Ordnance Survey's historic maps. There is also an indication of a funnel-shaped approach aligned on the entrance of the ringfort (G12). This is visible as an enhanced, sub-hemispherical feature that narrows as it approaches the fort. Such a feature would complement the elaborate series of gates forming the entrance to Lisnacaheragh uncovered during Ó Ríordáin's excavations. There is no obvious defensive purpose to this funnel-shaped feature, which Warner (1988, 58) suggests may instead reflect the necessity for a royal dwelling to have an elaborate entrance. It should be noted that a tree-lined way leading from Garranes House to Lisnacheragh is recorded on the Ordnance Survey's 1845 map and may also account for magnetic disturbance in this area.

Immediately to the north of this, two circular anomalies (G13 and G14) measure 17m and 12m in diameter. These features have likely been damaged by later agricultural activity as reflected by the widespread evidence of cultivation marks in the results. The smaller example (G14) also comprises an internal spread of markedly lower magnetism, which may suggest that an internal bank was once present. Given the size of these features this may point to the remains of a built structure, or perhaps a levelled ring-ditch/barrow. Similar examples found elsewhere in the Garranes survey area are discussed below.

Area 1: Electrical resistance (Figures 2.29 and 2.30)

The results of the electrical resistance survey reveal a number of responses (R1) surrounding Lisnacaheragh. Overall, this anomaly comprises a series of higher resistance returns broken by areas of lower resistance. The survey was unable to reach within *c.*5–8m of the outer bank due to overgrowth and fencing here, so it is unlikely that these anomalies directly reflect the outermost ditch fill (Ó Ríordáin's excavation of the fort entrance revealed the width of the outer ditch to be 2.7m on the northern side). They may be linked to a counterscarp bank, or the construction/removal of radial field banks associated with the fort or in later times. The anomalies may also be the result of the accumulation of material owing to more recent agricultural activity. Directly outside of R1, and respecting the curve of the enclosure, is an arc of lower resistance (R2). When projected this feature would enclose an area approximately 150m in diameter. While no magnetic response can be correlated with these results, the lower resistance response may be interpreted as a cut feature of sorts, possibly a shallow ditch that may be altered by later agricultural activity. There is no apparent break in R2 that would indicate an entrance respecting that of the ringfort. While this would infer that the feature in not directly linked to the construction or use of Lisnacaheragh, it is also possible that the remnants of such an opening are obscured by later cultivation.

General background resistance within Lisnacaheragh was relatively high and with significant noise. This would be expected given the nature of more recent agricultural activity within the enclosure and also the large area unearthed during two programmes of archaeological excavation. There are two features here that warrant note: R3 and R4 present as higher resistance anomalies of circular form and may indicate traces of structures. However, interpretation of this data must be considered as tentative given the levels of disturbance across the interior.

The earth resistance also revealed evidence for activity in the field north-west of Lisnacaheragh. Two sub-circular areas of lower resistance (R5 and R6) may indicate the remains of structural features here. However, cattle activity surrounding a circular feeder that is occasionally repositioned in this field may also

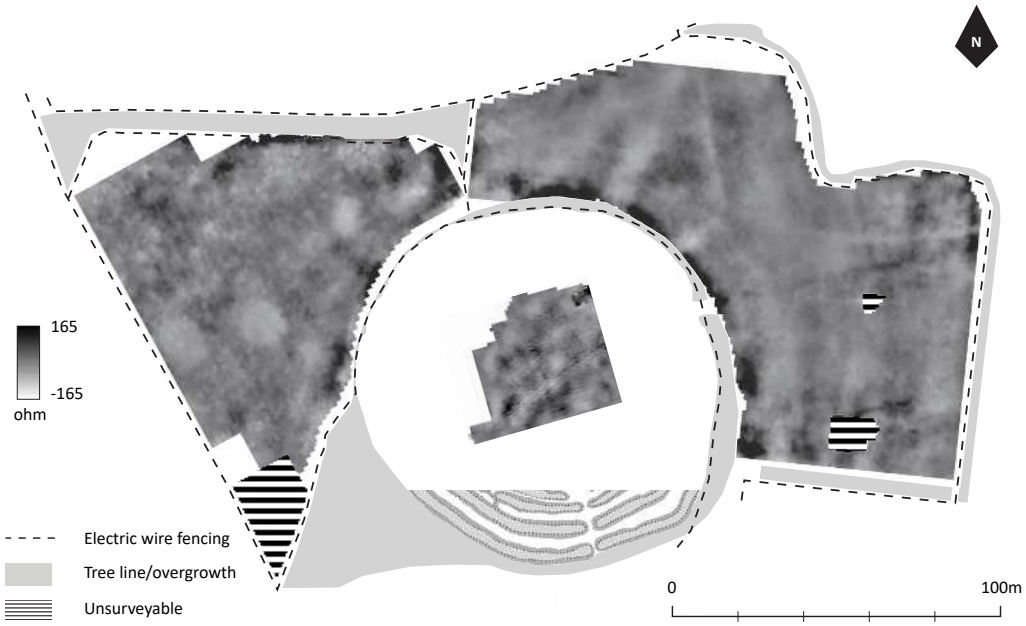


Figure 2.29 Results of electrical resistance survey in Area 1 (high-pass filtered).

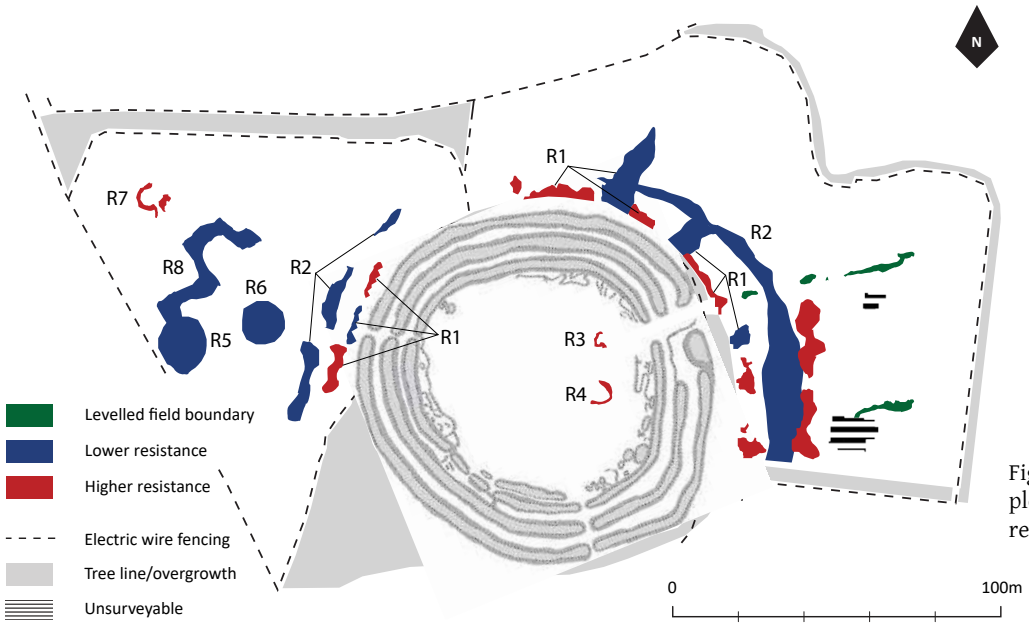


Figure 2.30 Interpretative plot of electrical resistance results in Area 1.

explain these anomalies. A further feature (R7) marked by a higher resistance response suggests further structural evidence, while a curvilinear anomaly (R8) located in an area where local knowledge recounts the presence of voids could hint at the remains of a souterrain.

Area 2: Lisnamanroe and environs

Area 2 comprises two fields and is located on the crest of a low ridge overlooking Lisnacaheragh ringfort located some 100m to the east. This area contains the enclosure referred to as Lisnamanroe. The northern field is mostly level with the ground falling gently east and west at the edges, while the southern field slopes to the south. The area is defined by an earthen bank on the north and west and by electrical fencing on the east and south. The two fields are divided by electrical wire fencing running east–west. An area of trees extends along the northern boundary and impeded survey here. The line of the northern bank of Lisnamanroe is preserved in the curve of the northern boundary, but this bank seems to have been substantially re-built in more recent times. The Ordnance Survey's 1845 map records the enclosure as being approximately 60–70m in diameter. Today the site is visible in parts as a low-relief earthwork.

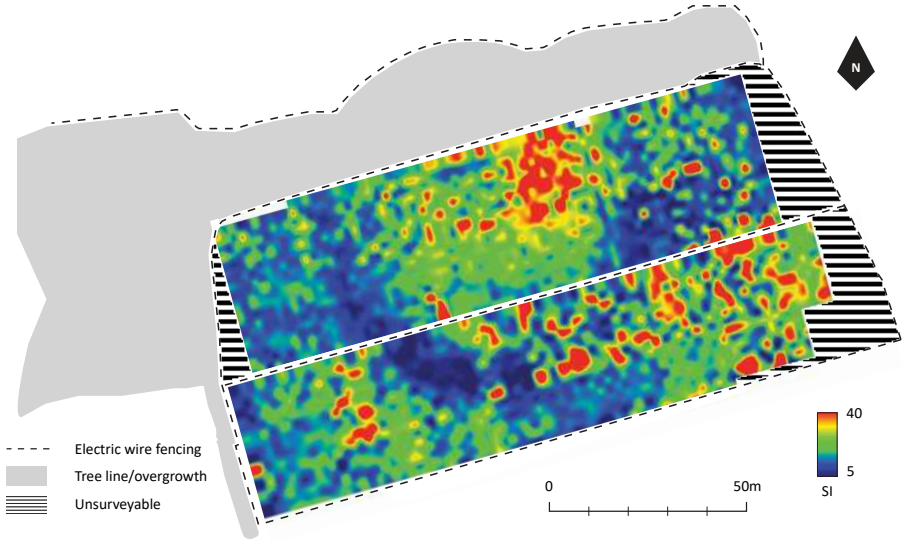


Figure 2.31 Results of magnetic susceptibility survey in Area 2.

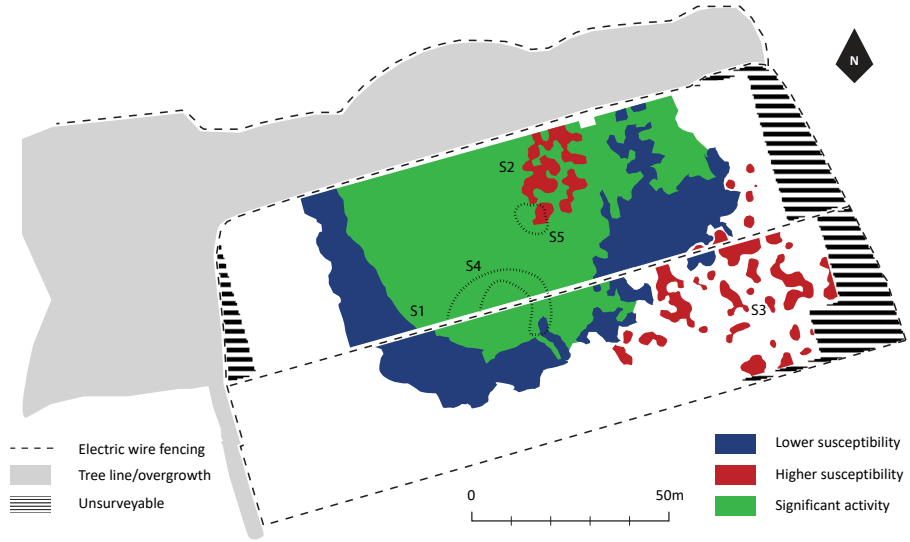


Figure 2.32 Interpretative plot of magnetic susceptibility results in Area 2.

Area 2 was targeted for a high-resolution geophysical investigation ahead of a comprehensive programme of excavation at Lisnamanroe (see Chapter 4 for further details). An area of 1.05 hectares was surveyed using magnetic susceptibility, magnetic gradiometry and electrical resistance techniques. Susceptibility data was collected over a 2m sample grid. This was followed by a magnetic gradiometer survey, the first phase of which was undertaken at 0.5m traverse and 0.25m sample resolution and supported by a finer resolution survey (0.25m traverse, 0.125m sample) that focused on the northern field. Similarly, electrical resistance survey at 1m sampling was repeated at 0.5m resolution in order to better define anomalies of interest.

Area 2: Magnetic susceptibility (Figures 2.31 and 2.32)

The magnetic susceptibility results outline the extent of Lisnamanroe where the enclosing ditch (S1) is defined by a lower susceptibility response. This probably reflects the composition of the in-filled ditch, which the magnetic gradiometry and electrical resistance results indicate is largely composed of bank material. The interior of Lisnamanroe has a considerably enhanced magnetic signature, generally to be expected in areas of sustained habitation. To the east of the interior the results display considerable spreads of raised susceptibility levels (S2) that appear to reflect areas of focused settlement activity. Outside of the enclosure an anomaly to the east (S3) may indicate disturbance resulting from the levelling of a field boundary recorded in this area on the Ordnance Survey's historic maps. The survey also revealed anomalies that might mark the possible truncated remains of internal structures (S4 and S5).

Area 2: Magnetic gradiometry (Figures 2.33 and 2.34)

Results of the magnetic gradiometer survey in Area 2 are dominated by linear anomalies typically indicating cultivation marks from post-medieval and early modern times. These are aligned north–south for the most part,

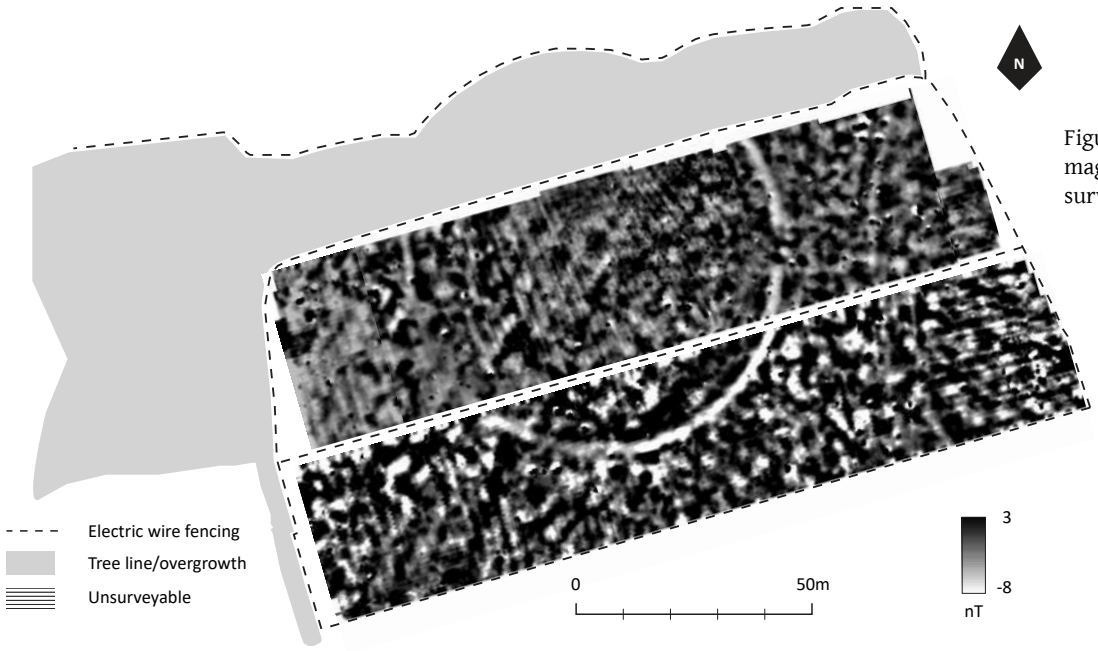


Figure 2.33 Results of magnetic gradiometry survey in Area 2.

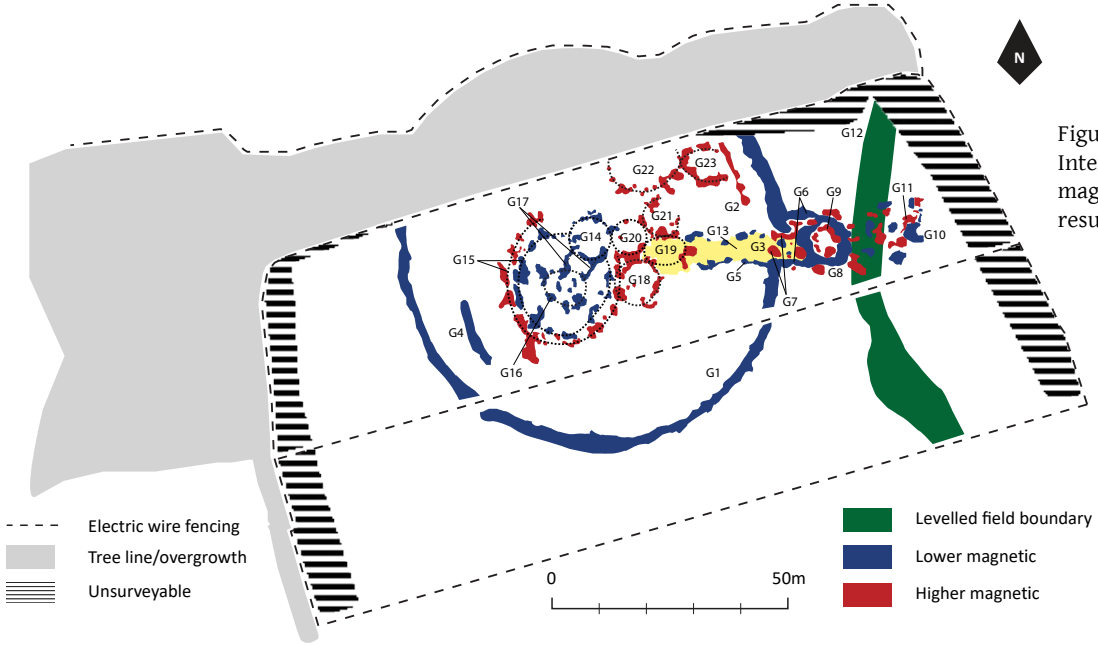


Figure 2.34 Interpretative plot of magnetic gradiometry results in Area 2.

with an area to the east that was once a separate field aligned east–west. The process of spade cultivation will cause significant destruction to buried archaeological horizons and will thus obscure anomalies of potential interest in geophysical data. The most prominent feature in Area 2 is G1, an annular shaped anomaly measuring 85m (east–west) in maximum extent. This response suggests the enclosure's original ditch, now filled with material from the original bank. G2 comprises an 18m long enhanced magnetic anomaly running just to the inside of G1 and might represent the remains of a burnt wooden palisade. This feature respects a break in the ditch's response (G3) that appears to mark the original entrance to Lisnamanroe. While G2 is not readily apparent elsewhere along the perimeter, the extent of the cultivation disturbance across the site would likely mask this in the results.

A zone of disturbance extending for most of the perimeter, just to the inside of the ditch (G1), may result from the truncated remains of an inner bank. The cultivation marks do not appear to extend into this zone suggesting a bank may have been of sufficient height to deter spade digging here. Another anomaly (G4) on the western side of the interior may delimit the western edge of cultivation within the enclosure and mark the inner edge of a levelled bank. The case for an original bank is further supported by the results of the earth resistance survey (outlined below).

The linear anomalies G5, G6, G13 appear to delimit an area of activity possibly associated with a route through the entrance (G3) to the enclosure's interior. Further anomalies G8/G9, G10/G11 are sub-circular in form and may represent structures related to the original entrance, or settlement activity immediately outside of the enclosure. However, it should be noted that magnetic disturbance in this area might also result from a levelled field boundary (G12) depicted on all the historic maps. Two significant anomalies either side of the possible entrance (G3) suggest dug features, perhaps the location of post pits/trenches associated with an entrance gate.

Considerable magnetic enhancement at the centre of the enclosure suggests the presence of internal structures (G14–G23). These are mostly sub-circular in form and will have been truncated by later cultivation. Most range in diameter from 9–12m, though there may be larger examples. Discrete anomalies associated with these possible structures may relate to areas of burning or dug pits.

Area 2: Electrical resistance (Figures 2.35 and 2.36)

The electrical resistance survey revealed a linear anomaly in the east of Area 2 (corresponding with G12) that can be interpreted as the remains of a field boundary indicated on the historic maps. The enclosure itself is visible an an annular low resistance anomaly that represents the in-filled ditch. A break in the anomaly on the east (R3) correlates with the probable original

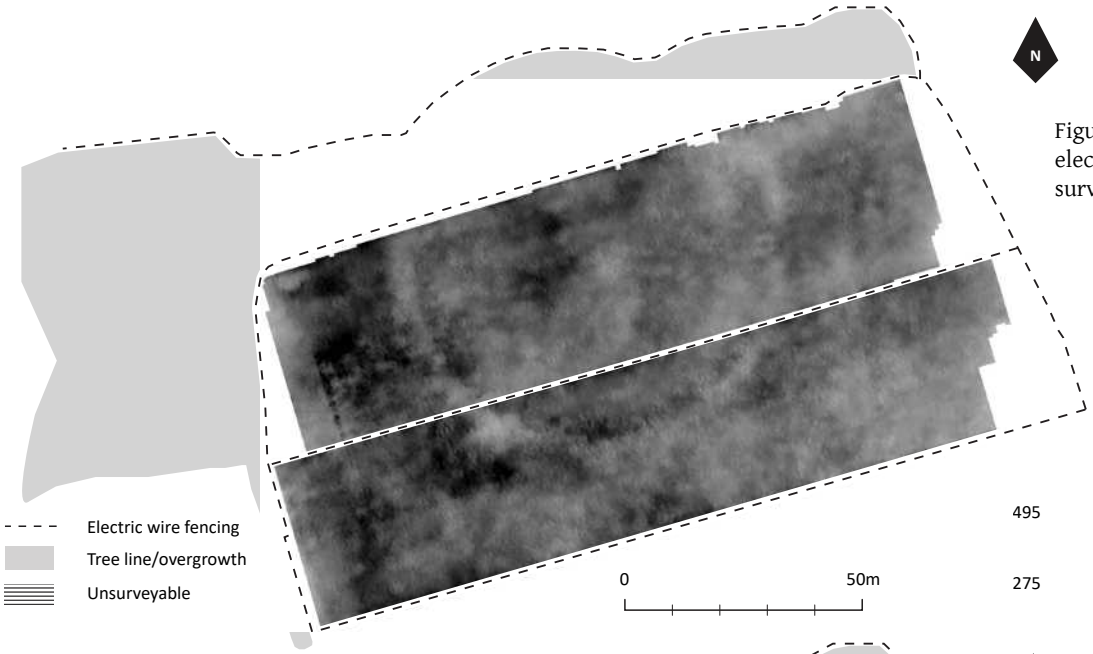


Figure 2.35 Results of electrical resistance survey in Area 2.

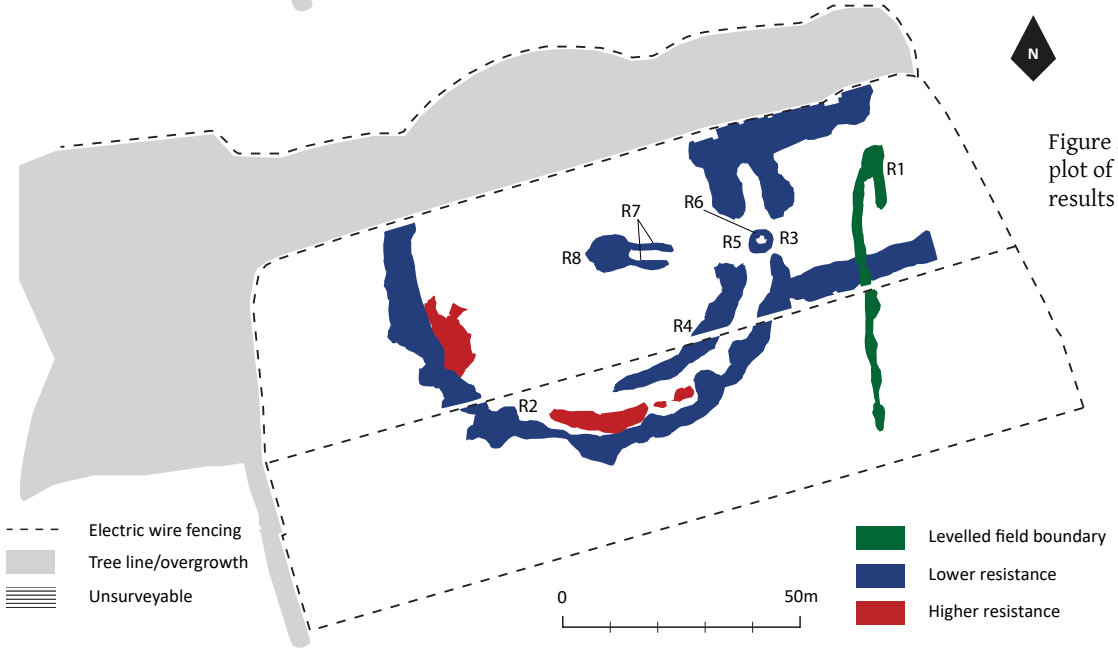


Figure 2.36 Interpretative plot of electrical resistance results in Area 2.

entrance also identified in the magnetic gradiometry results (G3). To the west (interior) of R3, a lower resistance response extends along the southeastern perimeter of the enclosure becoming less defined to the south and west. This also respects a break (R5) at the possible entrance, suggesting it reflects a spread of material from a truncated inner bank. Of further note is the resistance anomaly (R6) which correlates closely with magnetic anomalies in this area and offers further evidence of structural features associated with the possible entrance. This is also the case within the enclosure where resistance anomalies R7 and R8 broadly correspond with the gradiometer results to suggest the presence of internal structures.

Area 3: Shanawillen Caherkean and environs

Area 3 comprises four fields adjacent to a large earthwork recorded by the Ordnance Survey as 'Shanawillen Caherkean' in 1845 and as 'Caherkean' in subsequent map editions. The ground here slopes to the north and is drained at the valley bottom by the east-flowing Tuough River, a narrow waterway that forms the norther boundary of the study area. The area immediately adjacent to the river is considerably flat and subject to repeated flooding. (this appears to be represented in the magnetic data as a broad area of relatively homogenous response). The fields are enclosed by substantial earthen banks and sub-divided by electrical wire fencing. The landowner recalls a track extending from the southwestern side of the Shanawillen Caherkean earthwork, though this is not recorded on the historic maps suggesting it may have been a relatively modern and short-lived feature. This track was identified in the magnetic gradiometer and electrical resistance data as a linear anomaly extending west from the monument.

A full area coverage of some 5.6 hectares was undertaken in Area 3 with magnetic gradiometry and was followed by targeted electrical resistance survey. The Shanawillen Caherkean earthwork was not accessible for data collection due to the dense tree growth that covers the monument. Similarly, a fence-lined track excluded data collection along a narrow east–west corridor that divides the survey area.

Area 3: Magnetic gradiometry (Figures 2.37 and 2.38)

The survey revealed a number of linear anomalies with possible association to the Shanawillen Caherkean. These features permit further consideration of the earthworks identified by Ó Ríordáin (1942, 81) who suggested a link to sand extraction. G1 represents the eastern edge of these anomalies and presents as a curved feature, partially obscured by magnetic disturbance that may be associated with modern construction activity. A similar response (G2) is visible to the north of this. Extending to the west, further linear anomalies (G3, G4, G7, G8, G9) respect a similar north-east/south-west alignment. Notable are the well-defined breaks in G4 at G5a and G5b, with localised responses G6a and G6b at the terminals of G5a. G10a–c may represent a continuation of this pattern of linear anomalies to the west, though these show a significantly weaker magnetic response. Associated with these are annular anomalies G11a–c that might represent the remains of small enclosures.

To the east of Shanawillen Caherkean there is an area of considerable magnetic disturbance. Much of this may be related to a planted enclosure marked on the Ordnance Survey's historic map of 1845 that had disappeared by the subsequent edition of 1900. Of particular note here are pair of adjoining sub-circular anomalies (G12) that may be evidence of a structure. Internally, there are discrete spreads of enhanced magnetism that would suggest dug features like pits, or areas of burning (hearths). The strength and extent of the overall magnetic response might even suggest the possibility of a structure destroyed by fire.

The survey also identified a significant area of magnetic disturbance along the southern boundary of Area 3. This disturbance is adjacent to a levelled field boundary recorded on the Ordnance Survey's historic maps and confirmed by the electrical resistance results (see below). However, it should be noted that localised responses within this area (particularly G14) are of a magnetic strength that suggests ferrous items or activity connected to high temperature processes. This disturbance can be traced into the northern edge of Area 1 where it extends southwards to Lisnacaheragh.

At the western edge of Area 3, a cluster of sub-circular anomalies were detected during the initial magnetic gradiometer survey, which prompted a higher resolution resurvey to further define these features. The largest (G15) is visible as an arc of enhanced magnetism truncated by a linear anomaly that may indicate a levelled field boundary. This feature has a projected diameter of some 25m and may be the remains of a substantial enclosure. East of here is another such anomaly (G16) with a projected diameter of 16m. Further examples G17a–d, G18, G19, G20 and G21 suggest similar features, albeit smaller in size. While they might be interpreted as enclosures of some form, owing to the steep nature of the terrain here it is not very likely they were intended for habitation. This leaves the possibility of a cluster of ring-ditch/barrow monuments here, especially given the size and proximity of the anomalies.

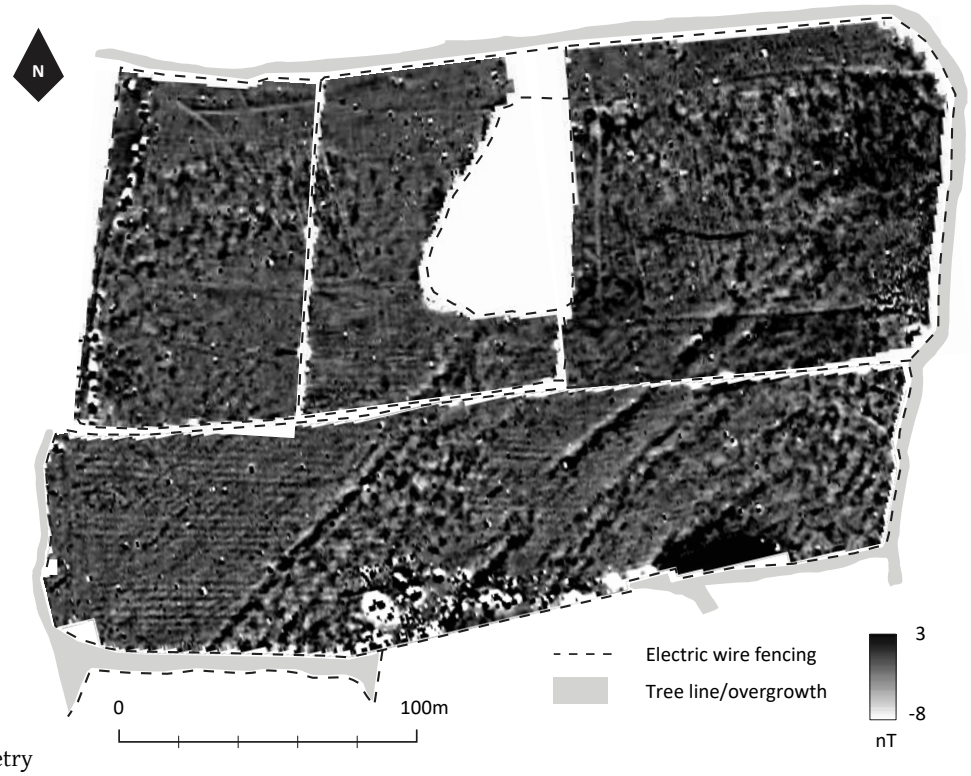


Figure 2.37 Results of magnetic gradiometry survey in Area 3.

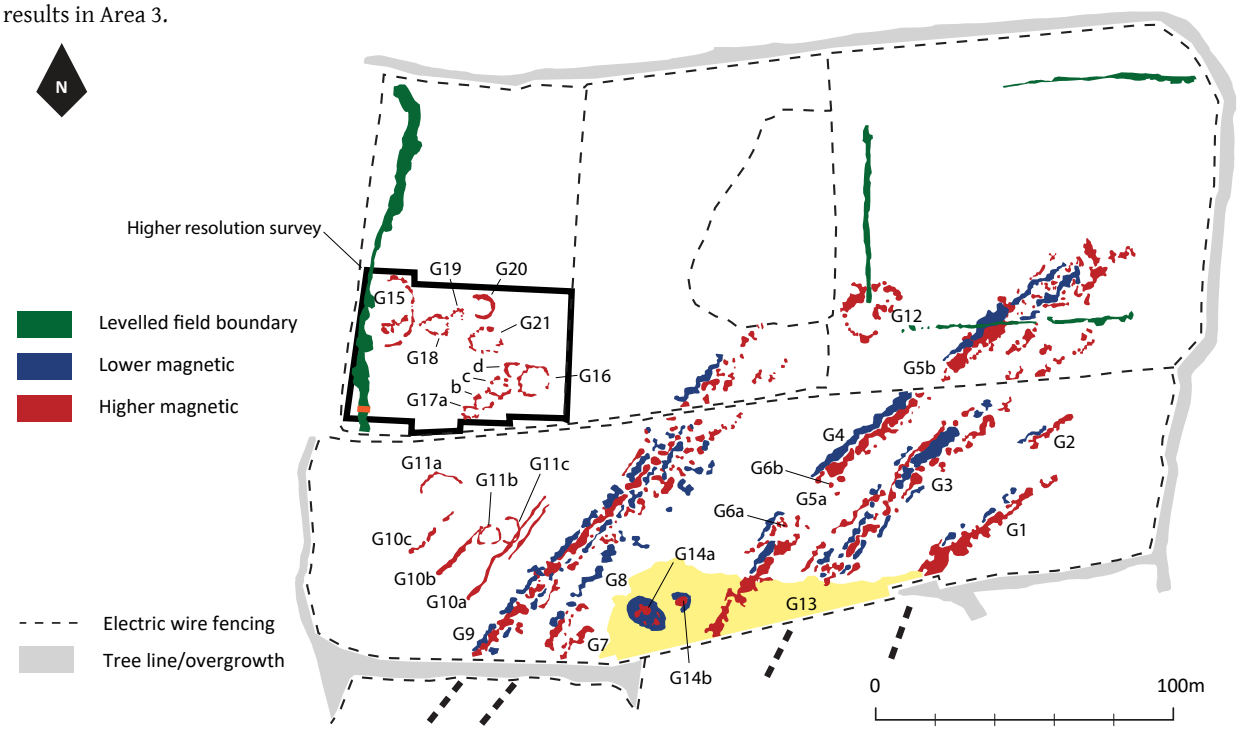


Figure 2.38 Interpretative plot of magnetic gradiometry results in Area 3.

Area 3: Electrical resistance (Figures 2.39 and 2.40)

The electrical resistance results from Area 3 broadly correspond with features identified by the magnetic surveys. Two anomalies (R1 and R2) are aligned north–east/south–west and appear to correlate with the combined magnetic responses G3/G4 and G8/G9 respectively. These resistance readings are likely to reflect shallow or insubstantial spreads of material, possibly originating from the levelling and dispersion of material from field banks.

Further correlation with the gradiometry results occurs, such as the apparent break in R1 and other north–east/south–west aligned responses (R3a–b). At the southern end of these linear features, a low resistance anomaly (R4) measures 7m by 3m and is enclosed by a sub-

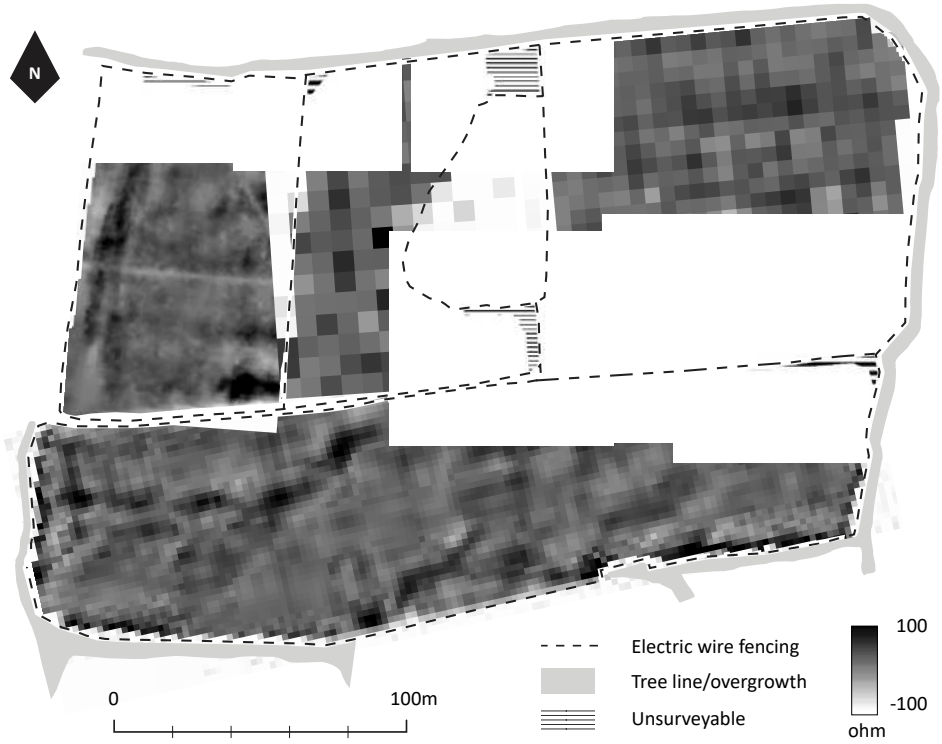


Figure 2.39 Results of electrical resistance survey in Area 3 (high-pass filtered).

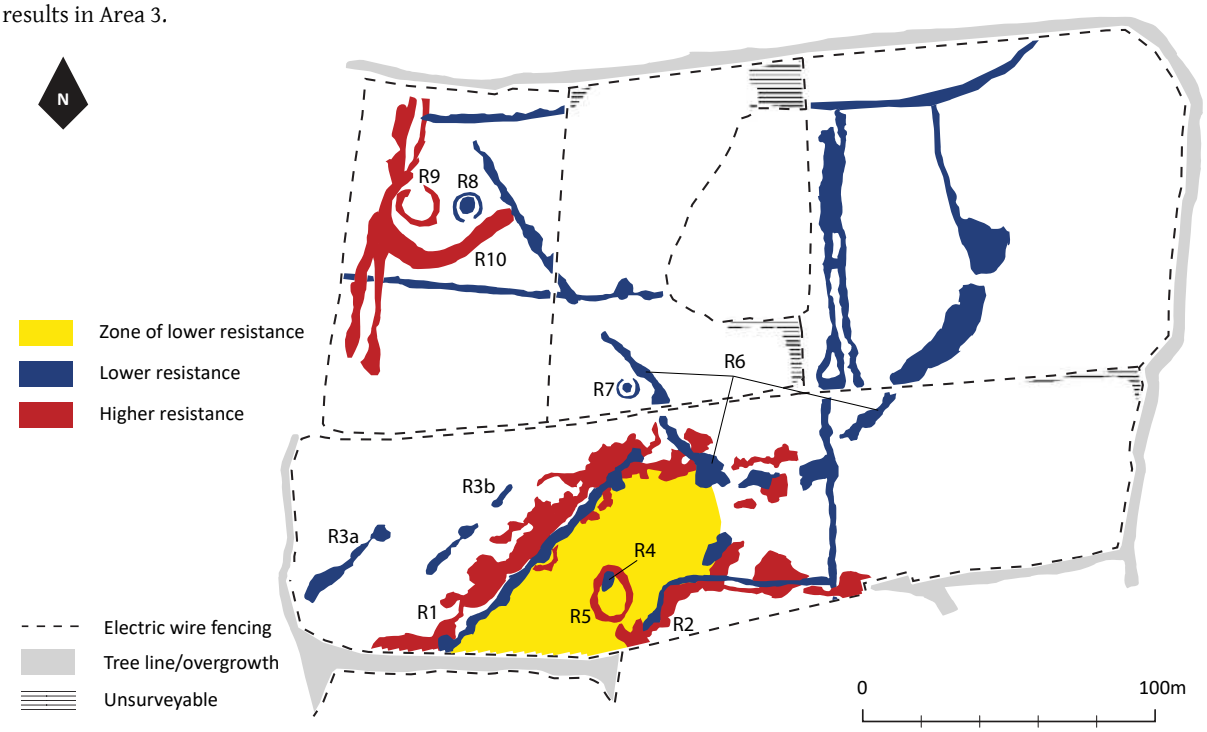


Figure 2.40 Interpretative plot of electrical resistance results in Area 3.

circular response of slightly higher resistance (R5) measuring 18m by 12m. This feature corresponds with a significant anomaly in the magnetic gradiometer data (G14) thought to possibly reflect ferrous material or activity connected to considerable heating/burning. R6 is a discontiguous anomaly that appears to surround Shanawillen Caherkean to the south and west. It may continue to the east, though this is not entirely clear due to an extensive area of disturbance here. Its lower resistance response would suggest that it was originally a dug feature and it appears to cut through R1 and R2 indicating a later date. It is possibly the remains of an access route to the earthworks and lower fields, or perhaps some means of broadly enclosing Shanawillen Caherkean.

R7, R8 and R9 are subcircular anomalies that may represent enclosures, or possible ring-ditches/barrows. R7 encloses an area of 8m in maximum diameter and is defined by a ring of lower resistance responses that would suggest a dug feature, like a ditch. Some 80m to the northwest R8 has a similar morphology, albeit a slightly larger diameter of 11m. Both R7 and R8 have obvious breaks in their outer elements, with R7 open to the north and R8 to the south. Immediately west of R8, the anomaly R9 comprises a similar sub-circular form with a diameter of 11m. This feature is defined by a ring of a slightly raised resistance. There are no apparent internal features, but a break in the enclosing element opens to the north. R8 and R9 are enclosed to the south by an arcing higher resistance anomaly (R10) that may be the remains of a large enclosure, but might also be associated with a levelled field boundary known to be directly adjacent to the west.

Area 4: Northwestern survey

Area 4 covers an area of 6.05ha and comprises the four fields to the west of Area 3. The terrain here slopes northwards to the Tuough River, with the lower ground prone to flooding as in Area 3. Lisnamanroe is on the crest of the ridge at the southern edge of this area, where part of the enclosure survives in the curve of the field boundary. The Ordnance Survey's historic maps record a number of levelled field boundaries in Area 4, all of which are visible in the geophysical results.

Area 4: Magnetic gradiometry (Figures 2.41 and 2.42)

The magnetic gradiometer survey recorded the remains of cultivation marks spread throughout Area 4. The majority of these marks are aligned east–west, with some evidence of north–south alignment to the west in what was recorded as a separate field on the historic maps. As with elsewhere this cultivation will have had a considerable impact on the early archaeology and this it is detected by geophysical survey.

The gradiometer survey revealed a continuation of the north–east/south–west series of linear responses (G1a–G1g) that were observed in Area 3. These are visible as enhanced linear anomalies that become less defined as they extend to the northwest. They are delimited by a spread of diffuse magnetic disturbance orientated on a similar axis (G1h) and may represent drainage channels as has been postulated for similar features in Area 3.

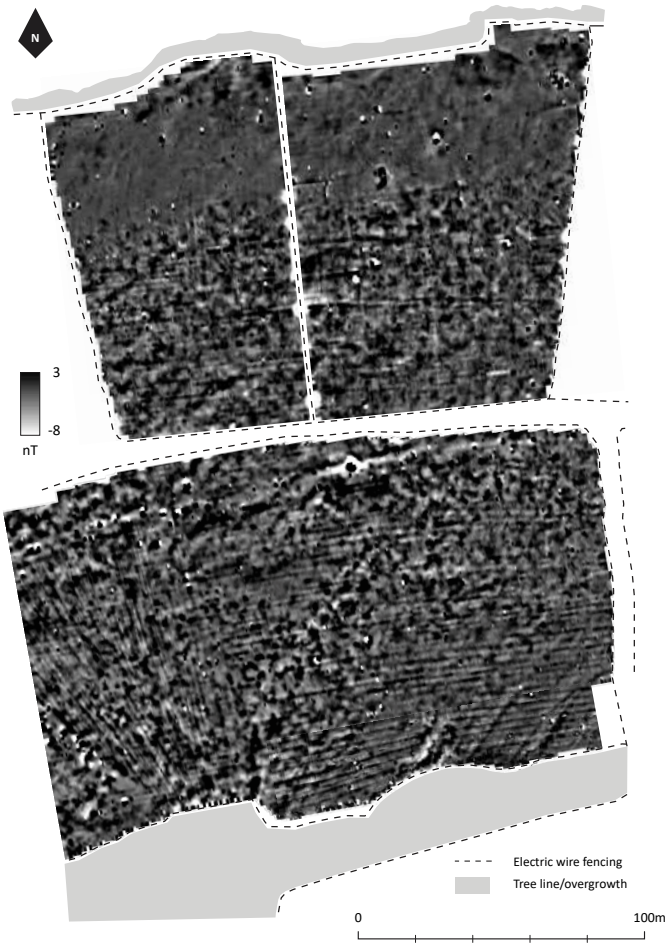


Figure 2.41 Results of magnetic gradiometry survey in Area 4.

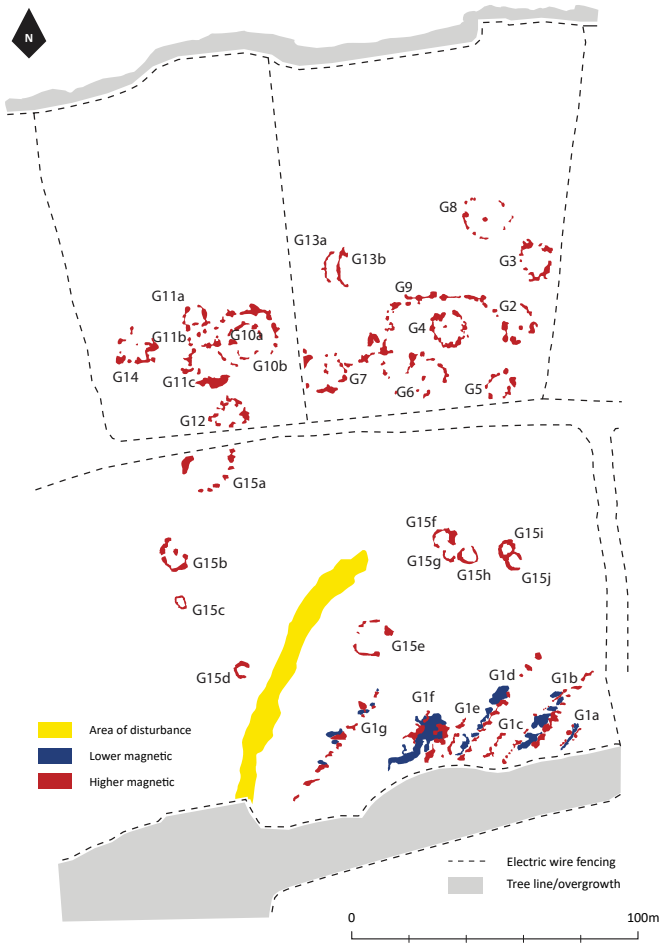


Figure 2.42 Interpretative plot of magnetic gradiometry results in Area 4.

In the northern fields of Area 4, where the survey appears to have been impeded to a lesser degree by cultivation, a number of small circular features were noted. The majority are sub-circular in shape with diameters ranging from 12–15m. Some of these features have further discrete anomalies at their centre. For the most part these responses do not overlap, though a limited number do adjoin. The better defined examples include G2, G3, G4, each with diameters of 12m, and G5 with a diameter of 9m. They were resurveyed at increased resolution which revealed possible gaps in the northern perimeters of G2, G3 and G4. These features were also targeted with high-resolution electrical resistance survey, but no corresponding features are apparent.

Further examples of possible sub-circular features with internal anomalies were revealed in the northern half of Area 4. G6, G7, G8 present as curvilinear anomalies surrounding discrete spreads of enhanced magnetism. A larger feature (G9) with a projected diameter of some 45m appears to enclose G4 and G6, with G2 and G5 adjoining it to the exterior. In the field to the west, two concentric circular responses are visible. The smaller of these (10a) measures 9m in diameter and is enclosed by the larger (10b) with a diameter of 21m. Adjoining this feature to the west are three further sub-circular anomalies (G11a–c). Further anomalies of note are to the west (G14) and the south (G12), the latter truncated by a fence-lined track. A feature similar with 10a–b is visible some 25m to the northwest (G14a–b). While appearing to be considerably denuded as the result of later cultivation, two concentric anomalies are visible. Further sub-circular features of potential archaeological interest are recorded in the southern half of Area 4 (examples G15a–j). Again, this area has been impacted by cultivation so feature definition is difficult.

When considering many of the broadly circular anomalies in Area 4, their size and proximity to one another might suggest a cluster of ring-ditches or barrows similar with Area 3 to the east. The internal anomalies within many of these could be the remains of central pits, perhaps containing cremated burials. Newman (1997, 52; 111-112; 130; 133) did note similar features revealed by magnetic survey on the Hill of Tara. However, in the case of Garranes this would need to be confirmed by scientific excavation.

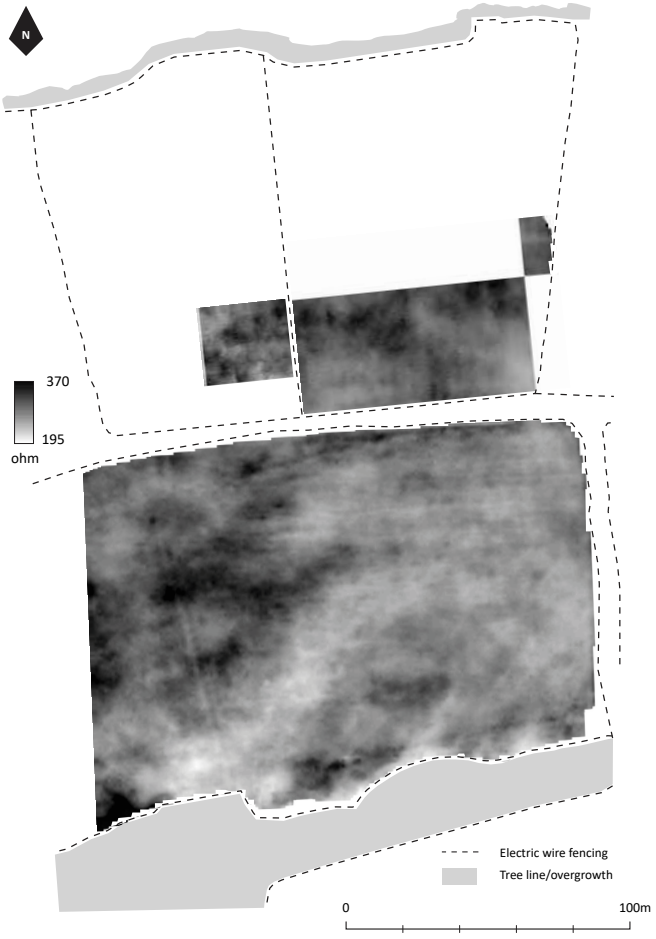


Figure 2.43 Results of electrical resistance survey in Area 4.

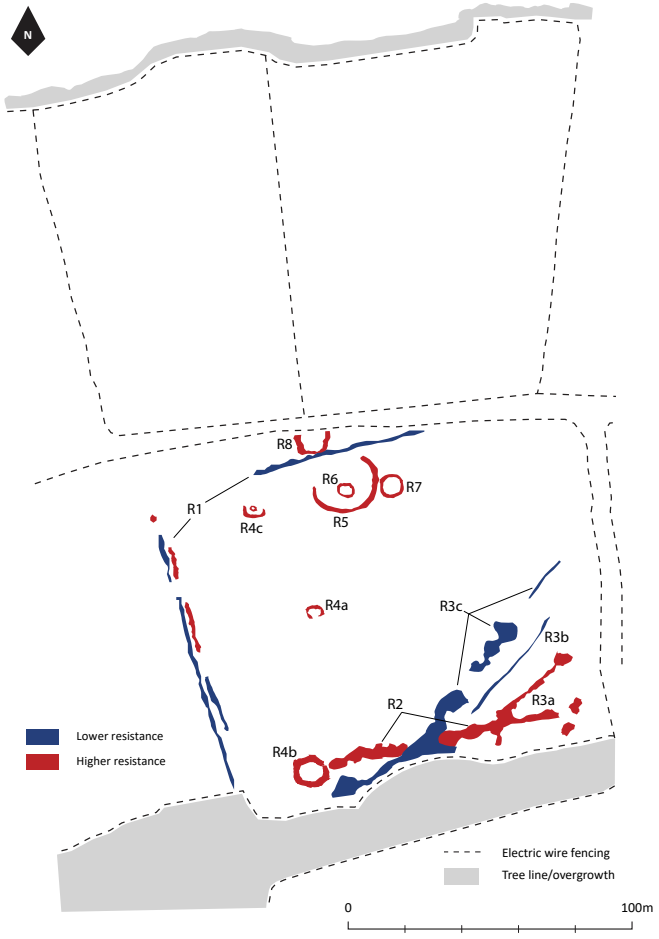


Figure 2.44 Interpretative plot of electrical resistance results in Area 4.

Area 4: Electrical resistance (Figures 2.43 and 2.44)

Electrical resistance survey was limited to the southern section of Area 4, with targeted measurement over possible ring-ditch/levelled barrow features further north. This targeted survey produced no anomalies of archaeological significance. The more extensive survey of the southern part of Area 4 produced few significant responses. A low resistance linear anomaly (R1) turns through a right angle following the line of field boundaries depicted on the Ordnance Survey's historic maps. A similar linear response (R2) runs perpendicular and to the east of R1. While this feature cannot be definitively tied to the historic maps, the alignment and proximity to R1 suggests it may have been a broadly contemporary boundary. Further linear trends (R3a–c) extend to the northeast from the southern boundary from Area 3 and correlate with a spread of magnetic responses (G1a–G1g). These extend beyond R2, suggesting they may predate this feature.

There are a number of circular features also visible in the resistance results including the smaller examples R4a–c. R4b is noteworthy due to its proximity to Lisnamanroe and may be evidence for extra-mural settlement. However, this feature is also located on the line of R2 and could even mark its western terminal, so a direct association and later date is also possible. Further to the south, a larger circular anomaly (R5) measures 23m in diameter and appears to be truncated on its north by a levelled field boundary (R1). It encloses a smaller sub-circular feature (R6) located slightly off-centre to the south. Adjoining to the east is a circular anomaly measuring 10m in diameter (R7). Just north of here a further circular anomaly (R8), measuring approximately 12m in diameter, is truncated by a fence-lined track and abuts the northern side of a levelled field boundary (R1).

Area 5: Southern survey

Survey Area 5 is currently divided into 15 fields and covers an area of 10.3 hectares. It comprises the northern and southern slopes of two ridges that are separated by a narrow east–west valley that runs south of a modern farmyard. The perimeter is defined by an earthen bank with the interior sub-divided into smaller fields by electrical wire fencing. A farm track runs on a north–south axis through the centre of the area. The Scalé map of 1775 shows a cluster of settlement and associated fields in the western half of the area. Some of these field boundaries remained extant during the Ordnance Survey's recording in 1845, 1900 and 1943, but all have since been removed.

Area 5: Magnetic gradiometry (Figures 2.45 and 2.46)

Geophysical evidence for relict field patterns is most visible in this survey area. Field divisions can mostly be correlated with boundaries depicted on Scalé's map and the subsequent Ordnance Survey's editions. G1a–d comprise a series of linear anomalies that reflect a regular co-axial field system aligned on an approximate north–south/east–west axis. A further anomaly (G1e) aligned on a similar axis appears to mark the line of a field boundary recorded in 1775 that had disappeared by the Ordnance Survey's edition of 1845. G2 and G3 are examples of other linear anomalies that may indicate the remains of levelled boundaries. These do not reflect features recorded on any of the historic map sources and so may be evidence of earlier field division. They may also represent later boundaries of a more temporary nature that were established and removed between map records.

Throughout Area 5 magnetic gradiometry has revealed closely-spaced linear anomalies aligned on varying axes representing cultivation marks normally associated with post-medieval and early modern agriculture (examples G4a–i). The alternating alignment of these features can help further identify field divisions where primary boundaries do not survive in the results.

Prominent in the data is an area of activity (G5) centred on two rectilinear anomalies along the line of G1a in the western half of Area 5. These features, and the considerable magnetic disturbance surrounding them, correlate with a cluster of (possibly four) structures and small enclosed fields marked on the 1775 map that were probably occupied by tenants of the Devonshire Estate. This settlement activity would also explain further anomalous features recorded by geophysical survey in this area. This area of settlement had disappeared by the time of the Ordnance Survey's recording in 1845, but partially survives in the irregular layout of field boundaries.

Extending toward G5 from the northeast edge of Area 5 is a substantial curvilinear anomaly. It is somewhat diffuse at its eastern and western ends, with a marked kink clearly visible around its mid-point (G8). This can be directly linked to the 1775 map which depicts this feature as a track flanked by field banks that gives access to the settlement from the road to the east (still in use today). There is a single structure marked on the map here, and it is at this point the magnetic anomaly bifurcates with the northern extension following the line of the track and the southern extension (G7) appearing to mark the line of a field boundary that continues to the south of the settlement.

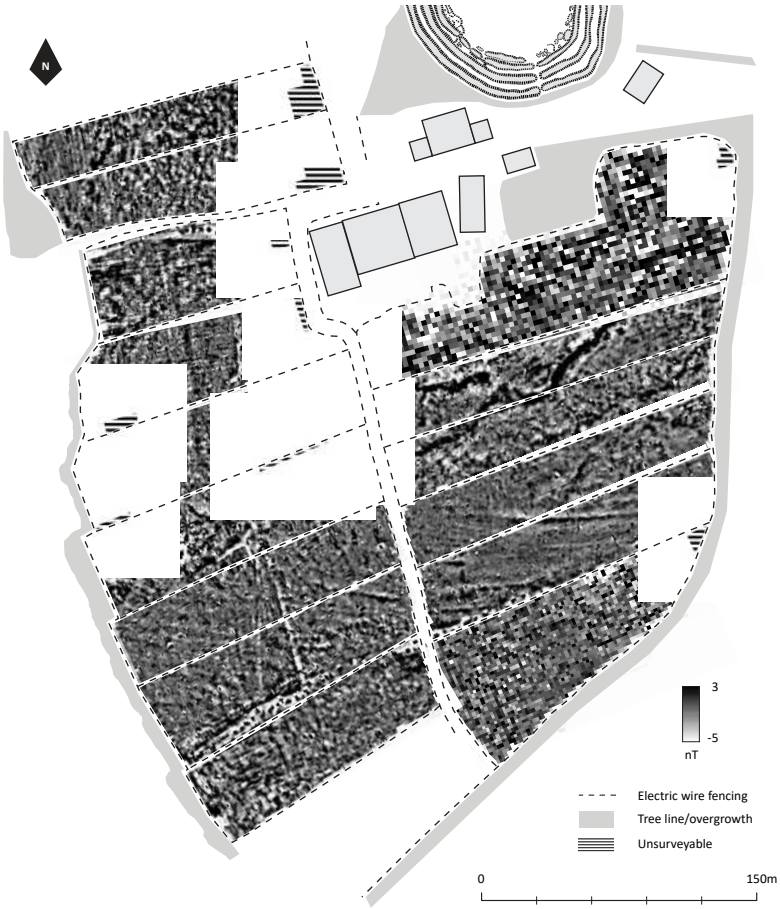


Figure 2.45 Results of magnetic gradiometry survey in Area 5.

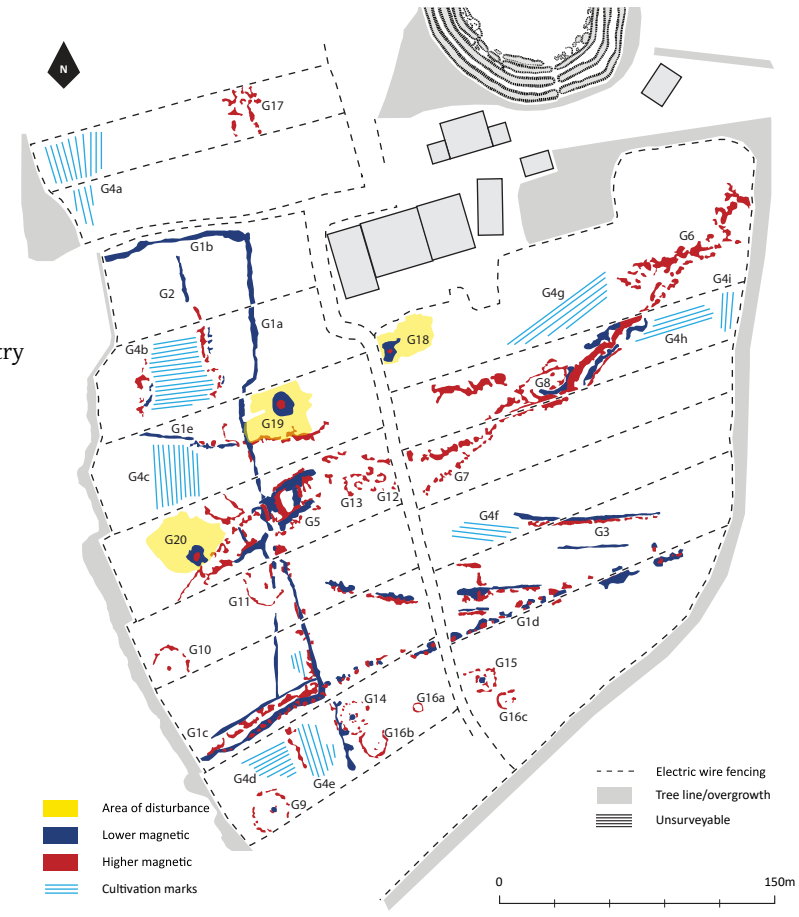


Figure 2.46 Interpretative plot of magnetic gradiometry results in Area 5.

There are anomalies of circular form visible throughout the magnetic data for Area 5. Of note are some larger examples such as G9 (24m in diameter), G10 (20m), G11 (23m), G12 (16m), G13 (12m), G14 (16m) and G15 (11m). These features all share the similar characteristics of an enclosing element with discrete anomalies on the interior, many of which are centrally located. This evidence points to the possible remains of enclosures, or perhaps even ring-ditches/barrows. Further circular anomalies were recorded in Area 5 (for example, G16a–c), but these are considerably smaller in size.

At the northern edge of Area 5, G17 is located some 20m south of the largely levelled Lisnamanroe enclosure (Area 2). This anomaly comprises an annular spread of enhanced magnetism, some 13m in diameter, that surrounds a central response. A break opens to the south where two slightly diverging linear anomalies form a funnel-like 'entrance'. A series of spoke-like linear anomalies extend outward for some 5m from the perimeter of this feature. It must be noted that this anomaly largely coincides with the line of a levelled field boundary recorded on the Ordnance Survey's historic map editions (the continuation of which is visible further south as G1a), and so may also derive wholly, or partly, from the construction/levelling of this.

Three areas of considerably strong magnetic response occur toward the centre of Area 5. The easternmost of these (G18) comprise a series of dipolar anomalies that are typical of ferrous material and it seems likely the adjacent modern farmyard is the cause of this. Further west, G19 presents as a strong central dipolar response surrounded by a circular spread of enhanced magnetism that measures some 25m in diameter. This location is where a spread of 'black earth' was encountered by the landowner during farm works. It also coincides with an area prone to localised waterlogging, and taken together this evidence might support the possible remains of a *fulacht fiadh* here. However, this anomaly is as likely to have more recent origins, particularly given depictions on the 1775 map showing the intersection of field boundaries and a track at this location, as well as the remains of a substantial settlement immediately to the south. It is probable that this is also the case with G20, another strong magnetic response directly west of the settlement.

Area 5: Electrical resistance (Figures 2.47 and 2.48)

A targeted electrical resistance survey was undertaken in Area 5 over zones of potential archaeological significance identified by magnetic gradiometry.

In the northeast of the survey area, a complex of resistance anomalies broadly corresponds with a track and associated field enclosure leading to a settlement cluster as recorded on Scalé's 1775 map. The generally lower resistance responses here might be partly



Figure 2.47 Results of electrical resistance survey in Area 5.

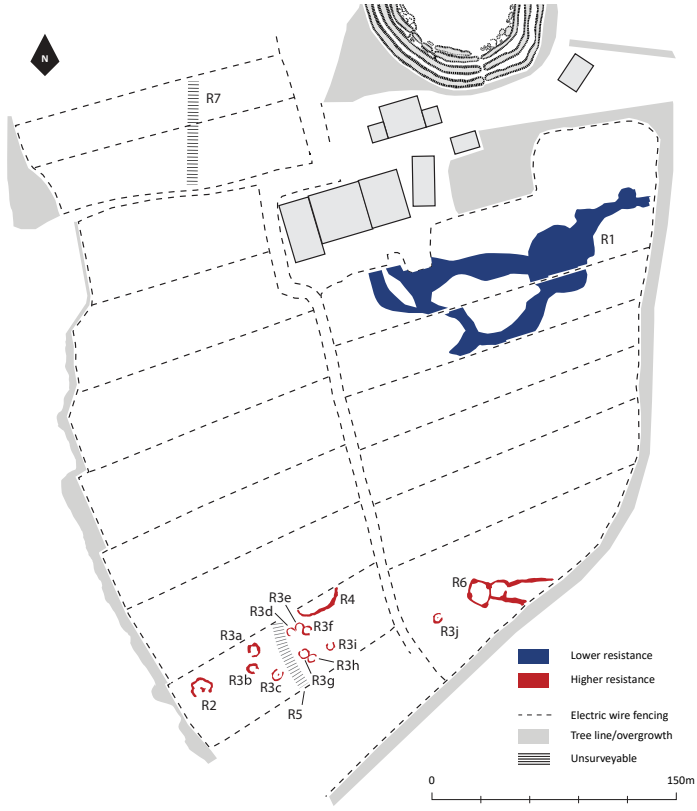


Figure 2.48 Interpretative plot of electrical resistance results in Area 5.

explained by the persistent wet nature of the ground encountered during fieldwork.

The southernmost fields in Area 5 were also targeted for investigation with electrical resistance. They show a number of sub-circular anomalies ranging in size from a maximum diameter of 11m (R2) to smaller examples of 5–8m (R3a-j). A further anomaly (R4) was revealed at the northern edge of the southwestern field and appears to represent the southern half of a possible larger enclosure. The magnetic gradiometer results do not show evidence to support this, however strong interference from a levelled field bank and contemporary electrical fencing will likely have obscured any potential trace. The magnetic results also recorded circular features in this southwestern field, and while there is no direct spatial correlation between anomalies, it does support the potential for this area having a concentration of enclosures, or perhaps ring-ditches/barrows. A linear response (R5) bisecting this field north–south aligns with a field boundary recorded on the 1775 map. This is also visible on the magnetic results as a continuation of G1a to the south.

In the southeastern field, a sub-square anomaly of relative higher resistance (R6) measuring 13m by 14m is visible in the survey results. It appears that there are discrete higher resistance anomalies at each of the corners of this feature. Adjoining to the east is a smaller, sub-circular anomaly that is less clearly defined and extending from it are two diverging linear responses that form a funnel-like approach opening to the east. The nature of the resistance responses might indicate the foundations of a structure built with substantial stone content.

The final zone in Area 5 targeted for electrical resistance investigation were two strip fields in the northwestern corner. The main feature revealed here was linear anomaly extending approximately north–south in the eastern half of this zone (R7). This closely corresponds with a field boundary recorded on Scalé's 1775 map and the subsequent Ordnance Survey's historic editions.

Discussion

The results of geophysical survey at Garranes provide a greater understanding of the local settlement landscape surrounding Lisnacaheragh ringfort. Among the features recorded are relict field patterns, some of which pre-date the early maps of this area. Drainage channels and the extensive remains of cultivation further attest to prolonged and intensive agricultural activity in this landscape. In many instances this activity had a significant impact on the earlier archaeological horizons, evidenced by the current survey and previous excavation campaigns.

To the west of Lisnacaheragh, the size and topographical setting of Lisnamanroe suggests it was an important focal point in this landscape. Geophysical survey has recorded a large enclosure with a single bank and external ditch, along with more tentative evidence for a small wooden palisade/fence immediately inside the bank. A break in the enclosing elements suggest an entrance opening to the east and orientated on Lisnacaheragh. The survey also revealed anomalies that suggest an elaboration of this entrance with a wooden gate, and a range of possible enclosures on the interior that would indicate settlement. Subsequent to this survey, a programme of excavation was undertaken at Lisnamanroe, the results of which are discussed in Chapter 4.

Within the wider survey area are numerous examples of possible ring-ditches/barrows. Although Warner (1988, 55) noted 'some small ring-ditches' at Garranes, no physical or documentary trace of these existed prior to the present study. Barrows and ring-ditches were in widespread use from the Neolithic to the Early medieval periods, with the majority of excavated examples dating to the Bronze and Iron Ages (O'Brien 2010, 137). These monuments were constructed in a wide variety of topographic locations, such as on hilltops and in low-lying wetland areas (Cooney 2009, 286). Field (1999, 6–7) notes that Bronze Age barrows tend to be built on sloping ground, usually on the middle or lower slopes of a hill and located close to a source of water. This fits particularly well with a possible cluster of barrows in the northwest of the Garranes landscape on the lower slopes of a ridge and close to a bend in the Tuough River (Areas 3 and 4). The location has extensive views to the northwest, particularly of the Paps of Anu, a topographical feature linked with a mother goddess figure (Coyne and Connolly 2002, 12) some 40km away on the Cork/Kerry border. In some instances these possible ring-ditches/barrows adjoin, a pattern Cooney (2009, 386) suggests would have helped to create a physical form of social and ancestral history. In later contexts, this would have provided a sense of authority and legitimacy to a ruler where the sovereignty of a king was retained in the physical burial monuments of their ancestors. The identification of possible ring-ditches/barrows suggests that Garranes was an important focus of considerable and prolonged settlement which likely developed in late prehistory.

While it is likely that a measure of regional diversity existed at the identified royal sites (Waddell *et al.* 2009, 1), it is possible to recognise a number of features that are somewhat analogous within these complexes. A protracted period of activity and large amounts of prehistoric burial monuments may tentatively suggest Garranes bore some sort of resemblance to other royal centres. Wailes (1982, 22) has speculated that 'minor'

royal sites may exhibit morphological features similar with those at the larger provincial capitals. Many of the latter complexes date to the Iron Age and, as such, comparisons with minor royal sites of the early medieval period may not be valid.

In conclusion, the results of this geophysical survey support a belief that Garranes was a minor royal site of the early medieval period, possibly associated with the *Uí Echach Muman*. This may be an indication of the importance of this area during late prehistory, as it is improbable that a small, poorly established tribe would exert such pressures in attaining provincial authority at the beginning of the Early Medieval period. Historical evidence also suggests that activity at this royal centre continued until at least the beginning of the eleventh century AD. This assertation is tentatively supported by the geophysical and archaeological evidence that indicate the possible presence of souterrains, which are considered a feature dating from the late ninth century AD onward (Clinton 2001, 3).

– 3 –
LISNACAHERAGH

Having introduced the archaeology of Garranes, the study now proceeds to a detailed investigation of five earthwork monuments in that landscape. This chapter examines the central ringfort, Lisnacaheragh, which was excavated during four weeks in May 2017 (excavation licence 17E0164). The focus was to record a possible house structure and any evidence for occupation and craft activities, to better understand the history of occupation in this enclosure.

3.1 EXCAVATION

A 12m by 8m trench was excavated on the southern side of O'Donnell's Trench 1 (Figures 3.1 and 3.2). This was designed to examine the full extent of a possible roundhouse foundation in that area. The northern arc of a curvilinear structure had been exposed in the 1990–2 trench, with partial excavation of a slot trench foundation dated to the fifth/sixth centuries AD. It was decided to re-open O'Donnell's trench to examine those features, using the new trench to reveal the full extent of that structure (Figure 3.3).

The organic soil was removed in 10cm thick levels using mattocks and large shovels, down to an interface with the B-horizon subsoil. Excavation of archaeological features proceeded using small trowels, mason's leafs and brushes (Figures 3.4 and 3.5). This was accompanied by context-based recording of archaeological features, with written descriptions, photography, scale and sketch drawings. Those conventional methods were supported by digital recording in the form of total station mapping, photogrammetry, drone and time lapse photography. Magnetic gradiometry and susceptibility methods were used to record responses from archaeological features exposed at different levels of excavation, the results of which are discussed elsewhere (Hurley 2017).

O'Donnell's Trench 1 and the 2017 trench were back-filled on completion of excavation and the ground surface restored. Artifacts were washed, labelled and bagged for museum storage, and a final database prepared for the National Museum of Ireland. Artifacts were sent to specialists for further analysis, and one metal object (17E0164:63) was sent for conservation (see archive report, O'Brien 2018a). Wet-sieving and flotation of soil samples was undertaken to extract environmental remains and small finds. Charcoal and bone were submitted for identification, with four samples sent for radiocarbon dating.

3.2 STRATIFICATION

Excavation of the 2017 trench revealed two broad horizons of human activity (Figure 3.6 below):

1. Early occupation of the ringfort in fifth and sixth centuries AD (Period 1)
2. Cultivation of the ringfort interior in the early modern era (Period 2)

Excavation began with the removal of a thin O-horizon, represented by a compact sod across the eastern half of the trench, and a loose organic mulch on the western side under a tree canopy. That mulch overlay a thin spread of rain-washed silt deposited on the western side of the trench. Excavation at the eastern side also revealed part of a trial trench excavated in 1937 by Ó Ríordáin.

The organic soil (A-horizon) across the trench area contained artifacts from the early modern era (Period 2). That topsoil was removed to expose a series of parallel linear features extending in an east–west direction across the trench. These were excavated to reveal well-defined furrows in the upper subsoil connected to lazy-bed cultivation, probably for potatoes. Artifact finds date this cultivation to the nineteenth or early twentieth centuries.



Figure 3.1 Aerial view of May 2017 excavation at Lisnacaheragh, Garranes. (photograph: Sean Sharpe)

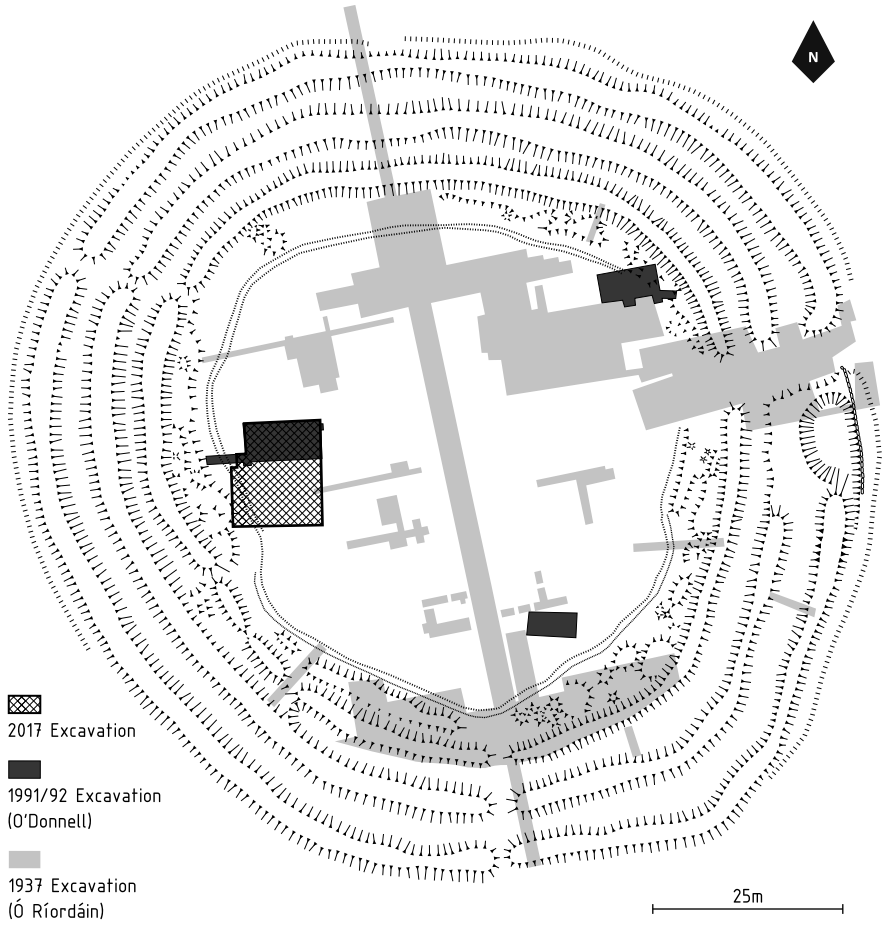


Figure 3.2 Plan of Lisnacaheragh ringfort, showing location of excavation trenches.



Figure 3.3 Aerial view of May 2017 excavation trench (left), with re-opened O'Donnell Trench 1 (right), Lisnacaheragh.



Figure 3.4 Trowel cleaning of E-horizon surface after removal of topsoil.
Note exposure of bank slip in south-west corner of trench (centre right), 2017 trench, Lisnacaheragh.



Figure 3.5 Excavation of Period 1 and 2 features, Lisnacaheragh.

The Period 2 cultivation was preceded by a long period of apparent inactivity in the ringfort, during which time there was a gradual inward collapse of the inner bank. The 1937 excavation showed how significant this bank slip was in terms of protecting archaeology from the later cultivation. Excavation in 2017 of the same bank slip exposed a continuation of Ó Ríordáin's 'black layer' with similar crucible sherds and metallurgical finds of early medieval date. The 2017 trench also uncovered a significant number of stakeholes, postholes and small pits, along with some charcoal deposits. These were truncated to varying degrees by the later cultivation activity. The excavation of those Period 1 features exposed unaltered subsoil, either Bs-horizon (C.132), C-horizon (C.133) or C-horizon with eroded bedrock (C.134).

Natural soil

The natural soil in this site is a brown podzol, where the topsoil (A-horizon) was significantly altered by cultivation in the early modern era. There is a well-defined zone of eluviation (E-horizon), with an underlying zone of illuviation coloured orange by iron oxide precipitation (B_S-horizon). This overlay a grey-brown, stony, C-horizon, which in places was mixed with broken bedrock. The B/C horizon subsoil is of fluvio-glacial origin, derived mostly from acid rocks of the Old Red Sandstone geology in this area.

Excavation began with the removal of a compact grassy sod (Context 01), 0.06–0.12m in thickness, across the eastern half of the excavation trench (Figure 3.7). This O-horizon was lifted intact, but became a soft organic mulch, 0.05–0.11m in thickness, under tree cover on the western side. The removal of this organic material exposed a compact layer of stony organic soil (C.04) over the entire extent of the trench, with the exception of the south-west corner. That A-horizon topsoil was 0.17–0.2m in thickness, thinning to 0.13–0.16m on western side of trench. It was grey to dark brown in colour, with a sandy silt texture containing frequent pebbles and small to large stones, with occasional stones up to 0.2m in length. The presence of lazy-bed furrows at the base of this undifferentiated organic soil confirms the latter was cultivated in early modern times. As a result, the topsoil contained a range of early modern finds (pottery, glass, iron etc), as well as some residual finds from earlier (Period 1) activity (details in O'Brien 2018a).

The removal of the A-horizon exposed a leached stony subsoil (C.131) across the trench, except where the latter was removed by cultivation furrows (Figure 3.4). This E-horizon was very compact, purple-grey in surface colour (grey brown when rubbed), with a sandy silt texture, frequent pebbles and occasional small to large stones, rarely up to cobble size. It was best preserved on ridges between the cultivation furrows,

Natural organic soil C.01 (O-horizon);
Rain-washed silt from bank C.02

Ó Ríordáin excavation (1937)
C.19 fill in C.116 trench

========== PERIOD 2 (EARLY MODERN) ==========

Cultivated organic soil
C.04 (A-horizon)

Cultivation furrows (fill/cut)
C.06/07, C.08/09, C.10/11, C.12/13, C.14/15, C.16/17, C.127/128

========== 'ABANDONMENT' ==========

Erosion/collapse of inner bank of ringfort
C.03 and C.05

========== PERIOD 1 (5TH AND 6TH CENTURIES AD) ==========

'Black Layer' with metallurgical finds under bank slip
C.18

Pits, postholes and slots (fills/cuts)
C.27/28, C.36/37/38, C.43/44, C.62/63/64, C.68/69, C.70/71, C.80/111/114, C.83/84, C.85/86/87, C.92/93, C.94/95/96, C.97/98/99, C.117/118, C.124/125/126

Definite stakeholes
contexts 21, 22, 24, 25, 29, 31, 33, 35, 39, 40, 41, 42, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, 61, 65, 67, 73, 75, 76, 77, 78, 81, 82, 89, 90, 91, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 113, 115, 120, 121, 122, 129, 130

Possible stakeholes
contexts 20, 26, 30, 32, 34, 48, 66, 72, 74, 79, 112, 119, 123

Small charcoal concentrations
C.23 and C.58

==========
Natural subsoil
C.131 (E-horizon); C.132 (Bs-horizon); C.133 and C.134 (C-horizon)

Figure 3.6 Stratigraphic sequence of 2017 excavation contexts, Lisnacaheragh.

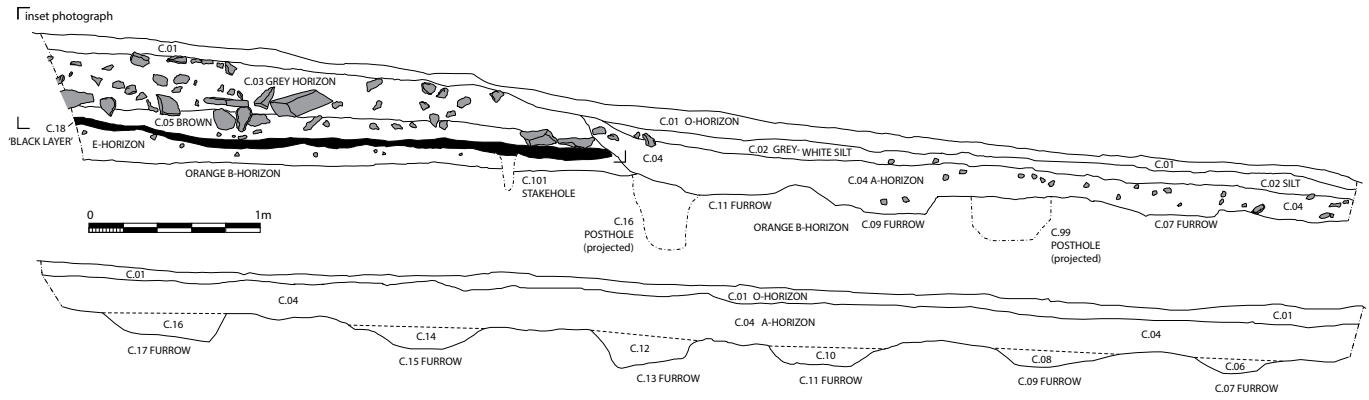




Figure 3.7 Stratigraphic north–south sections of 2017 excavation trench. Inset photograph shows 'black layer' in south-west corner of trench.

and also in the south-west corner of trench under slip from the ringfort bank. This leached layer overlay a Bs-horizon subsoil (C.132) across the entire trench. This was a firm to soft layer of sandy silt, bright orange to orange brown in colour, containing frequent pebbles, small stones and occasional larger stones up to cobble grade. That iron oxide-enriched surface was initially exposed at the base of the cultivation furrows, but also under the intervening ridges when the E-horizon (C.131) was removed.

The lowest part of the natural soil profile (C-horizon) was exposed in a few places (Figure 3.7). These included the 1937 excavation trench (C.116), and also the base of two large postholes (C.38 and C.87), where it occurred between ribs of eroded bedrock. The C-horizon (C.133) was very compact, grey to light brown in colour, with a sandy silt texture containing frequent pebbles, occasional small to medium stones and rare larger stones. It was significantly more stony across the south-east corner of the trench, where an east–west alignment of small to large stones indicated eroded bedrock. There was a grey-brown silt between the angular stones of this altered C-horizon (C.134), which in that part of the trench was directly below the A-horizon (C.04), with no intervening E-horizon (C.131) or Bs-horizon (C.132).

The only other natural sediment was a layer of rain-wash silt (C.02) deposited along the lower slope of the inner ringfort bank (Figure 3.7). That 0.07–0.12m thick spread of compact, grey-brown, stone-free silt extended 2–3m into the western side of the trench.

1937 excavation

Excavation on the eastern side of the 2017 trench identified the western end of a trench dug in 1937 by Ó Ríordáin (Figure 3.8), and shown on his published site plan (Figure 1.17). He unknowingly dug that trench (C.116) along the line of an older cultivation furrow (C.13), but at a slight angle (the trench was aligned 247–067°, whereas the furrows were mostly 260–080°). The removal of a dark brown organic silt (C.19) revealed a steep-sided sub-rectangular cut, 3.2m long by 0.6–0.8m wide, by 0.2–0.35m deep. A large sherd of dark green glass (17E0164:57), probably the base of a bottle, was found in the lower fill.

Period 2 (modern cultivation)

The A-horizon (C.04) in this trench is a well-sorted organic soil that was cultivated in the early modern era, probably for potatoes. There is no local memory of this today, but Ó Ríordáin did note the ringfort interior was cultivated in the nineteenth or early twentieth centuries (Ó Ríordáin 1942, 85). This explains why that topsoil contains numerous sherds of clear and coloured glass, plain white and patterned china tableware, plain



Figure 3.8 Period 2 cultivation furrows, with archaeological trench (C.116) excavated in 1937 by Ó Ríordáin (centre foreground), 2017 trench, Lisnacaheragh.

or glazed red earthenware, as well as fragments of red brick or tile, corroded iron nails, vitrified stone, pieces of coal or cinder. A small number of ceramic crucible sherds are residual from earlier activity (Period 1) in the site.

The removal of this topsoil exposed linear bands of dark brown organic soil on the underlying C.131 E-horizon surface. Excavation of these fills (contexts 127, 06, 08, 10, 12, 14 and 16) revealed seven parallel furrows, spaced 0.4–1.1m apart, crossing the excavation area in an east–west direction (Figure 3.9). Four of these furrows (C.128, C.07, C.09 and C.11) extended across the entire trench, with the southerly examples (C.13, C. 15 and C.17) turning as they approached the inner ringfort bank. Similar furrows were excavated by O'Donnell on the northern side of this trench.

The cultivation furrows were created by spade. They were 0.39–1.17m wide and 0.02–0.2m deep, with gentle to steeply sloping sides to an irregularly flat to gently rounded base (Figure 3.10). They contained a small number of early modern finds, including glass, pottery and a clay pipe stem, as well as some metallurgical finds from earlier (Period 1) activity in the site. The furrow fills contained occasional flecks of charcoal and tiny fragments of burnt bone, which again may also be residual finds. The furrows were originally dug through the overlying organic soil (C.04) into the surface of the C.132 B_S-horizon (C.132).



Figure 3.9 Post-excavation view of Period 2 furrows, 2017 trench, Lisnacaheragh.

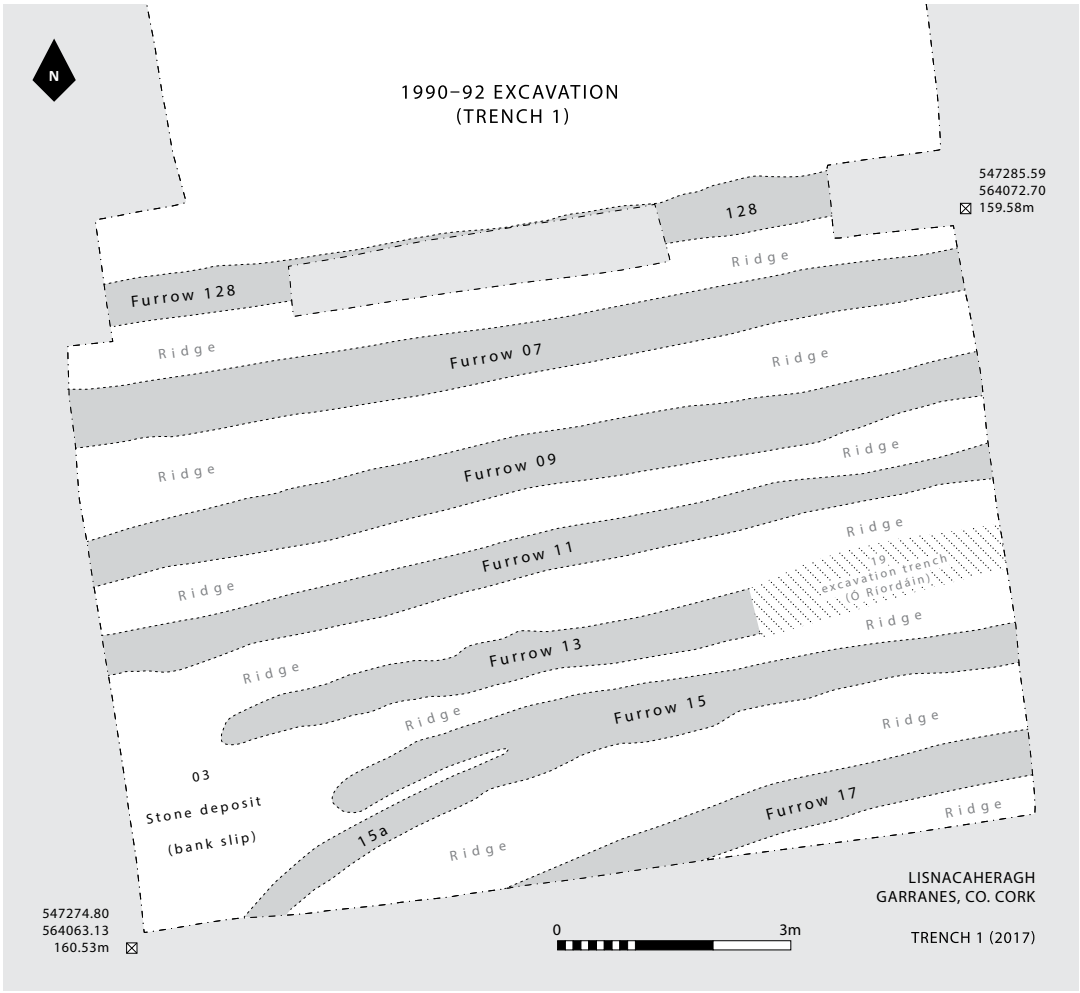


Figure 3.10 Post-excavation plan of Period 2 cultivation furrows, 2017 excavation, Lisnacaheragh.

Abandonment

Deturfing exposed a deposit of small-to-large stones in the south-west corner of the 2017 trench (Figure 3.10). This represents a partial collapse of the inner bank of the ringfort, which must pre-date the Period 2 cultivation furrows as the latter did not extend under those stones. There were two distinct layers in what was the lower slope of the bank (Figure 3.7). The upper layer (C.03) was a 0.15–0.27m thick spread of stones and loose organic silt over a 4.1m (N–S) by 2.4m (E–W) area. This overlay a 0.06–0.2m thick deposit of large stones and light brown silt (C.05) across a similar area.

Period 1 (early medieval)

The excavation of Period 2 cultivation furrows in the 2017 trench uncovered features connected to the early occupation of this ringfort (Figure 3.11). These include a charcoal-rich layer with metallurgical finds (crucibles, slag, waste metal) sealed under slip from the inner ringfort bank. The excavation also uncovered a large number of postholes and stakeholes, many of which were part of the same roundhouse foundation excavated in 1990–2. The occupation surface associated with that building was removed by the later cultivation, though some finds and very small deposits of charcoal did survive.

'The Black Layer'

Removal of the lower bank slip (C.05) in the south-west corner of the trench exposed a thin spread of black silt (C.18) over a 3.61m (N–S) by 2.59m (E–W) area (Figures 3.7 and 3.12). This compact sediment had an average thickness of only 0.02m, overlying a hard stony surface of purple-tinged E-horizon (C.131). It contained a large number of finds connected to non-ferrous metallurgy, including sherds of metallurgical crucibles, fragments of slag and furnace wall material, as well as possible tuyère fragments and a few pieces of waste copper/bronze metal. There is a high charcoal content, with as many as nine wood species represented (see below). Laboratory sieving also uncovered tiny fragments of burnt bone and a hazel-nut fragment.



Figure 3.11 Final excavation surface of 2017 trench, Lisnacaheragh.
Note grey, leached, pre-bank slip, surface (C.132) in foreground.



Figure 3.12 Spread of charcoal-rich silt (C.18 'black layer') under bank slip, 2017 trench, Lisnacaheragh.

The C.18 spread is a continuation of the 'black layer' with metallurgical finds discovered by Ó Ríordáin in his Site D excavation in the southern interior of the ringfort. It can also be associated with a large pit and layers excavated in 1990–2 under the same bank slip some 8m to the north in O'Donnell's Trench 3. The pit (O'Donnell's F130) contained crucible fragments, vitrified stone, slag, and a possible clay mould.

Roundhouse

A total of 14 pits and postholes were excavated in the 2017 trench (contexts 28, 38, 44, 64, 69, 71, 84, 87, 93, 96, 99, 114, 118, 126). These were exposed on the surface of the E-horizon (C.131) or B_S-horizon (C.132) subsoil, truncated to varying degrees by the Period 2 cultivation (Figures 3.13 and 3.14). Excavation of the same surface uncovered 56 definite and 13 possible stakeholes (Figure 3.15). These contexts represent a palimpsest of structural features of early medieval date. This is confirmed by radiocarbon dates for three postholes (see below). They provide a record of a large roundhouse, approximately 9m in diameter, identified in excavation by the following elements:

1. Eastern doorway (postholes C.38 and C.87)
2. Slot trench (C.118) on north-east side
3. Northern slot trench (excavated in O'Donnell Trench 1)
4. Posthole C.114, and adjacent stakeholes
5. Western posthole pair (C.96 and C.99),and adjacent stakeholes
6. Postholes C.28 and C.93
7. An irregular band of stakeholes on southern side of roundhouse
8. Postholes C.44 and C.64
9. Internal stake arrangements
10. External stake arrangements.

1. Eastern doorway

Excavation on the eastern side of the 2017 trench revealed two large postholes (C.38 and C.87), spaced 1.2m apart (Figures 3.16 and 3.17). These irregularly oval pits, each approximately 0.9m in length, were dug into subsoil to a truncated depth of 0.4m (Figure 6). They held displaced packing stones (C.37 and C.86) with backfill sediment (C.36 and C.85). The latter contained small amounts of charcoal, but not enough to indicate the original posts burnt *in situ*. These postholes mark the doorway of the roundhouse, which faced the main entrance of the ringfort. A single stakehole (C.29) on the southern outer side of this opening may be part of a door structure (Figure 3.15).

C.36 Fill of pit/posthole (C.38). Loose to firm deposit of light brown sediment, with mottles of dark brown, purple and orange (latter two derived from redeposited subsoil); variable sandy silt to silty sand texture, with mostly fine silt at base of pit. Frequent pebbles and small stones, with larger stones used as post packing (C.37); occasional fragments of burnt bone, as well as flecks and small lumps of charcoal, but not enough to indicate *in situ* burning of post. A sample of <100g was wet-sieved, recovering a tiny amount of charcoal and eight small fragments of burnt bone.

C.37 Packing stones in pit/posthole C.38. Excavation uncovered 25 large stones randomly dispersed through the C.36 fill of this pit. These were 0.1–0.29m in length (average 0.19m), mostly irregular sub-rounded to sub-angular clasts of drift origin (grey sandstone).

C.38 Cut of pit/posthole in north-east corner of trench. Oval pit, 0.93m (E–W) by 0.71m (N–S) with a central depth of 0.41m. The upper sides were near-vertical, with lower sides sloping gently to rounded base to eroded bedrock (C.133). Truncated by cultivation furrow C.07. One of two postholes marking doorway to roundhouse structure.

C.85 Fill of pit/posthole (C.87). Firm deposit of mid brown sandy silt, with pockets of grey-brown and orange. Numerous small to large stones, occasional flecks and lumps of charcoal, rare burnt bone.

C.86 Packing stones in pit/posthole (C.87). These 22 medium-to-large stones in the C.85 fill were arranged loosely around upper sides of pit (C.87). Two wedge-shaped examples were placed upright against north-west and east sides of pit. All of these stones were angular to sub-angular, 0.08–0.2m in length, with some fire-reddened examples.

C.87 Cut of pit/posthole. Sub-oval pit, 0.91m (NE–SW) by 0.57m (NW–SE), with variable depth 0.26–0.4m due to truncation of cut by cultivation furrow (C.09). Near-vertical upper sides with sharp break of slope at top and base, to an irregularly flat base that exposed C-horizon (C133) with ribs of eroded bedrock.

2. Slot trench (C.118) on north-east side of roundhouse

Excavation on the northern side of the C.38 entrance posthole exposed a narrow band of grey-brown silt (C.117). This was removed to reveal a shallow curving cut in the Bs-horizon (Figure 3.14), which extended in the direction of the slot trench excavated in 1990–2 in O'Donnell's Trench 1 (Figure 3.17). There were no stake settings inside this slot, however there were two examples (C.119 and C.120) on the western side and four on the eastern side (C.121–3, C.129; see Figure 3.15).

C.117 Fill of foundation slot C.118. Compact silt with variable grey to dark brown colour (black mottles). A sample of approximately 200g was wet-sieved to recover a small charcoal content (6.5g).

C.118 Cut of foundation slot (Figure 6). Shallow curving cut in B_S-horizon, truncated by cultivation furrow C.128. Continuation of foundation slot (F.80) excavated in 1990–2 by O'Donnell, south to edge of entrance posthole C.38. Shallow feature, 0.06–0.15m wide by 0.04–0.08m deep, with gently sloping sides to irregularly round base.



Figure 3.13 Rectified photograph of post-excavation surface in 2017 trench and O'Donnell's Trench 1, Lisnacaheragh.

Context	Grid	Diameter	Depth	Profile	Fill of stakehole and inclusions
21	107.20; 200.86	10 x 6cm	11cm	Vertical	Dark brown silt, low charcoal
22	104.96; 205.01	10 x 10cm	18cm	Vertical	Dark brown silt, low charcoal
24	107.36; 201.60	6 x 6cm	14cm	Vertical	Dark brown silt, low charcoal
25	102.90; 202.11	10 x 10cm	16cm	Vertical	Dark brown silt, rare charcoal
29	110.20; 206.08	14 x 12cm	20cm	Vertical	Mid brown silt, low charcoal
31	108.26; 201.24	9 x 7cm	14cm	Vertical	Dark brown silt, low charcoal

Figure 3.15 Stakeholes (definite and possible) in 2017 trench, Lisnacaheragh (see Figure 3.14 for location).

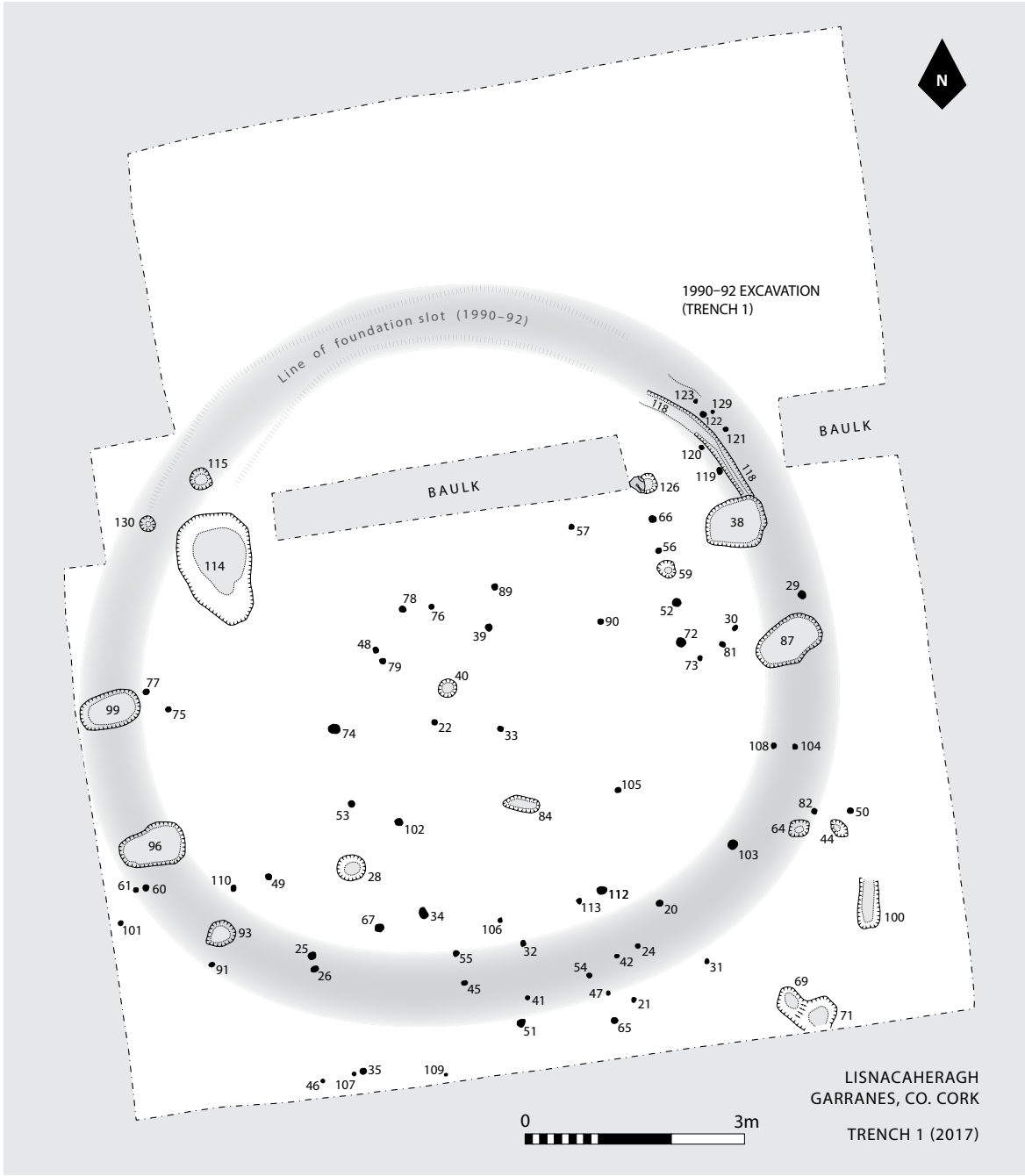


Figure 3.14 Plan of excavated features in 2017 trench and O'Donnell's Trench 1, Lisnacaheragh.

Context	Grid	Diameter	Depth	Profile	Fill of stakehole and inclusions
33	105.87; 204.82	9 x 7cm	16cm	Vertical	Dark brown silt, rare charcoal
35	103.37; 200.41	10 x 10cm	12cm	Vertical	Mid brown silt, low charcoal, low bone
39	105.86; 206.20	10 x 10cm	17cm	Vertical	Mid brown silt, rare charcoal
40	105.20; 205.46	24 x 19cm	23cm	Vertical	Mid brown silt, rare charcoal
41	105.74; 201.10	8 x 5cm	9cm	Vertical	Dark brown-black silt, low charcoal
42	107.06; 201.50	4 x 4cm	16cm	Inclined	Dark brown silt, rare charcoal

Figure 3.15 *contd.*

Context	Grid	Diameter	Depth	Profile	Fill of stakehole and inclusions
45	104.94; 201.40	10 x 9cm	17cm	Vertical	Dark brown silt, rare charcoal and bone
46	102.80; 200.40	6 x 5cm	7cm	Vertical	Dark brown silt, high charcoal
47	106.90; 201.00	9 x 7cm	16cm	Vertical	Mid brown silt, no charcoal
49	102.44; 203.24	10 x 9cm	26cm	Vertical	Dark brown silt, low charcoal
50	110.50; 203.05	8 x 6cm	10cm	Inclined	Light brown, no charcoal
51	105.62; 200.77	13 x 6cm	16cm	Vertical	Dark brown silt, rare charcoal
52	108.53; 206.21	12 x 11cm	16cm	Vertical	Mid brown silt, no charcoal
53	103.68; 204.08	9 x 9cm	8cm	Vertical	Dark brown silt, no charcoal
54	106.66; 201.27	8 x 7cm	11cm	Vertical	Dark brown silt, rare charcoal
55	104.88; 201.84	10 x 10cm	11cm	Vertical	Dark brown silt, rare charcoal, one bone frag.
56	108.39; 206.94	7 x 7cm	7cm	Vertical	Brown silt, no charcoal
57	107.25; 207.50	8 x 8cm	10cm	Vertical	Mid brown silt, no charcoal
59	108.47; 206.70	25 x 21cm	23cm	Vertical	Dark brown silt, rare charcoal
60	100.60; 203.32	10 x 9cm	19cm	Vertical	Dark brown silt, variable charcoal
61	100.70; 203.42	7 x 6cm	16cm	Vertical	Dark brown silt, low charcoal
65	106.90; 200.65	14 x 9cm	14cm	Vertical	Dark brown silt, low charcoal
67	103.85; 202.33	15 x 11cm	31cm	Vertical	Dark brown silt, low charcoal
73	108.70; 205.40	7 x 5cm	8cm	Vertical	Dark brown silt, no charcoal
75	101.33; 205.96	7 x 7cm	8cm	Vertical	Mid brown silt, no charcoal
76	105.18; 206.68	10 x 10cm	6cm	Vertical	Dark brown silt, rare charcoal
77	101.14; 206.01	8 x 7cm	18cm	Vertical	Mid brown silt, low charcoal
78	104.78; 206.70	11 x 11cm	16cm	Vertical	Dark brown silt, rare charcoal
81	109.05; 205.58	10 x 9cm	17cm	Vertical	Light brown silt, no charcoal
82	110.02; 203.09	12 x 8cm	16cm	Vertical	Dark brown silt, low charcoal
89	106.10; 206.79	11 x 8cm	13cm	Vertical	Mid brown silt, no charcoal
90	107.42; 206.10	9 x 9cm	22cm	Vertical	Light brown silt, no charcoal
91	101.57; 202.15	7 x 7cm	17cm	Vertical	Dark brown silt, high charcoal
101	100.34; 202.90	7 x 7cm	24cm	Vertical	Dark brown silt, high charcoal
102	104.30; 203.73	12 x 10cm	14cm	Vertical	Dark brown silt, no charcoal
103	108.80; 202.80	10 x 8cm	25cm	Vertical	Dark brown silt, low charcoal
104	109.84; 204.02	9 x 9cm	12cm	Vertical	Dark brown silt, no charcoal
105	107.34; 203.78	9 x 8cm	17cm	Vertical	Mid brown silt, no charcoal
106	102.18; 205.59	4 x 4cm	7cm	Vertical	Dark brown silt, low charcoal
107	100.39; 203.24	7 x 6cm	9cm	Vertical	Dark brown silt, no charcoal
108	109.53; 204.09	9 x 9cm	19cm	Vertical	Light brown silt, no charcoal
109	104.55; 200.21	4 x 4cm	6cm	Vertical	Dark brown silt, rare charcoal
110	101.90; 203.13	7 x 7cm	10cm	Vertical	Mid brown silt, rare charcoal
113	106.59; 202.33	7 x 6cm	7cm	Vertical	Dark brown silt, no charcoal
115	102.24; 208.79	29 x 28cm	25cm	Vertical	Dark brown silt, low charcoal, low bone

Figure 3.15 *contd.*

Context	Grid	Diameter	Depth	Profile	Fill of stakehole and inclusions
120	109.15; 208.28	9 x 8cm	18cm	Vertical	Dark brown-black silt, high charcoal
121	109.52; 208.47	7 x 7cm	10cm	Vertical	Light brown silt, rare charcoal
122	108.26; 208.76	11 x 8cm	17cm	Vertical	Mid brown silt, high charcoal
129	109.33; 208.78	4 x 3cm	19cm	Vertical	Dark brown silt, no charcoal
130	101.50; 208.27	22 x 20cm	15cm	Vertical	Dark brown silt, rare charcoal, rare bone
Possible stakeholes					
20	107.72; 202.13	8 x 7cm	6cm	Vertical	Dark brown silt, rare charcoal
26	102.90; 201.91	10 x 8cm	7cm	Inclined	Dark brown silt, rare charcoal
30	109.00; 204.78	9 x 7cm	7cm	Vertical	Mid brown silt, no charcoal
32	105.76; 201.86	7 x 7cm	5cm	Vertical	Dark brown silt, rare charcoal, rare bone
34	104.46; 202.48	19 x 15cm	6cm	Vertical	Dark brown silt, no charcoal
48	104.30; 206.13	9 x 8cm	7cm	Vertical	Dark brown silt, no charcoal
66	108.32; 207.38	10 x 10cm	7cm	Vertical	Dark brown silt, high charcoal
72	108.47; 205.60	16 x 16cm	16cm	Vertical	Dark brown silt, rare charcoal
74	103.58; 205.10	14 x 13cm	12cm	Vertical	Dark brown/black silt, rare charcoal
79	104.44; 205.21	10 x 10cm	6cm	Vertical	Dark brown silt, no charcoal
112	106.96; 202.40	15 x 13cm	9cm	Vertical	Dark brown silt, no charcoal
119	109.35; 207.95	10 x 8cm	10cm	Vertical	Light brown silt, rare charcoal
123	109.16; 208.93	5 x 4cm	13cm	Vertical	Dark brown silt, rare charcoal

Figure 3.15 *contd.*



Figure 3.16 Excavation of Period 2 roundhouse features. Postholes (C.38 and C.87) of eastern doorway (lower centre), and two large stakeholes (C.64 and C.84) (left corner), 2017 trench, Lisnacaheragh.



Figure 3.17 Shallow foundation slot (C.118) extending north from door posthole (C.38) to join with foundation slot excavated in 1990-2 by O'Donnell (upper centre), Lisnacaheragh.

3. Northern slot trench (1990–2 excavation)

The excavation of O'Donnell's Trench 1 in 1990–2 recorded two concentric slots on what was believed to be the northern side of a roundhouse (Figure 3.18). This was interpreted as a double slot foundation, averaging 0.6m wide, along which there were some small stakeholes (O'Donnell 1997). The 8m wide excavated arc was truncated by two east–west cultivation furrows, which left the original foundation slots preserved in only three places. The eastern section was interpreted as an inner slot (F80 in O'Donnell's record), outside which there was a concentric shallow slot (F205). This represents a continuation of the C.118 foundation trench excavated in 2017 (Figure 3.17). These were very shallow and narrow features even allowing for a degree of truncation by later cultivation. It is not established if they are deliberately dug foundation trenches, as they may have been created by the weight of the roundhouse wall. The central portion of O'Donnell's foundation does seem to have been deliberately dug, with a greater depth of of both the F80 and F205 slots, along with some packing stones (Figure 3.19). There is evidence of burning along those slots, with the discovery of small stakeholes and charcoal suggesting a wattle wall (*ibid.*). Those features become less distinct on the western side, where there was no clear indication of the F80 inner slot, and only slight expression of the F205 slot. No trace of any foundation slots with burning was found along the line of the roundhouse wall excavated in the 2017 trench. It is not clear why the use of slot foundations should be confined to the northern side of the roundhouse.

4. Posthole C.114 and adjacent stakeholes

Excavation of the baulk separating the 2017 trench from O'Donnell's Trench 1 recorded a large pit (C.114) and two adjacent stakeholes (C.115 and C.130). These were located on the north-west side of the roundhouse (Figures 3.13 and 3.14). Context 114 is a large sub-oval pit with a flat base, measuring 1.6m by 1.04m by 0.65m in depth. It contained a large quantity of displaced packing stones (C.111), and enough charcoal to indicate that some wood was burnt *in situ*. Most of this charcoal was oak, with a small amount of willow (see below), possibly indicative of the burning of a structural post and attached walling material. Two large stakeholes on the northern side of this posthole were probably part of the roundhouse wall. They include a 0.29m wide by 0.25m deep example (C.115), and another (C.130) 0.22m wide by 0.15m deep (Figure 3.15).

C.80 Fill of pit/posthole C.114. Compact deposit of mixed silty sediment, mostly grey-light brown with lenses of darker sediment, with frequent pebbles and occasional small to medium stones. Significant charcoal content, concentrated in lenses throughout this fill. A sample of 2 litres/1.12kg was processed by wet-sieving and flotation, and confirmed a high charcoal content (111g of larger fragments extracted).

C.111 Packing stones in pit/posthole C.114. Around 100 medium to large sized stones were recovered during excavation of the C.80 fill. These were arranged loosely around the upper sides of the pit, with some examples within. Sub-rounded to sub-angular clasts of grey sandstone, 0.1–0.4m in length. There was no obvious arrangement to these stones, but many did occur in an inclined position.

C.114 Cut of pit/posthole. Sub-oval cut (keyhole shape), 1.6m (N–S) by 1.04m (E–W) on top, 0.9m (N–S) by 0.65m (E–W) at base, with a central depth of 0.65m. The northern side is steeply sloping, eastern side vertical, southern side gently sloping, while the western side was steeply sloping. The base was irregularly rounded, with a 0.4m (N–S) by 0.3m (E–W) depression on the southern side.

5. Western posthole pair (C.96 and C.99), and adjacent stakeholes

Two large postholes were excavated on the western side of the roundhouse, directly opposite and similar in size to the two postholes of the eastern doorway (Figures 3.13 and 3.14). These oval-shaped pits (C. 96

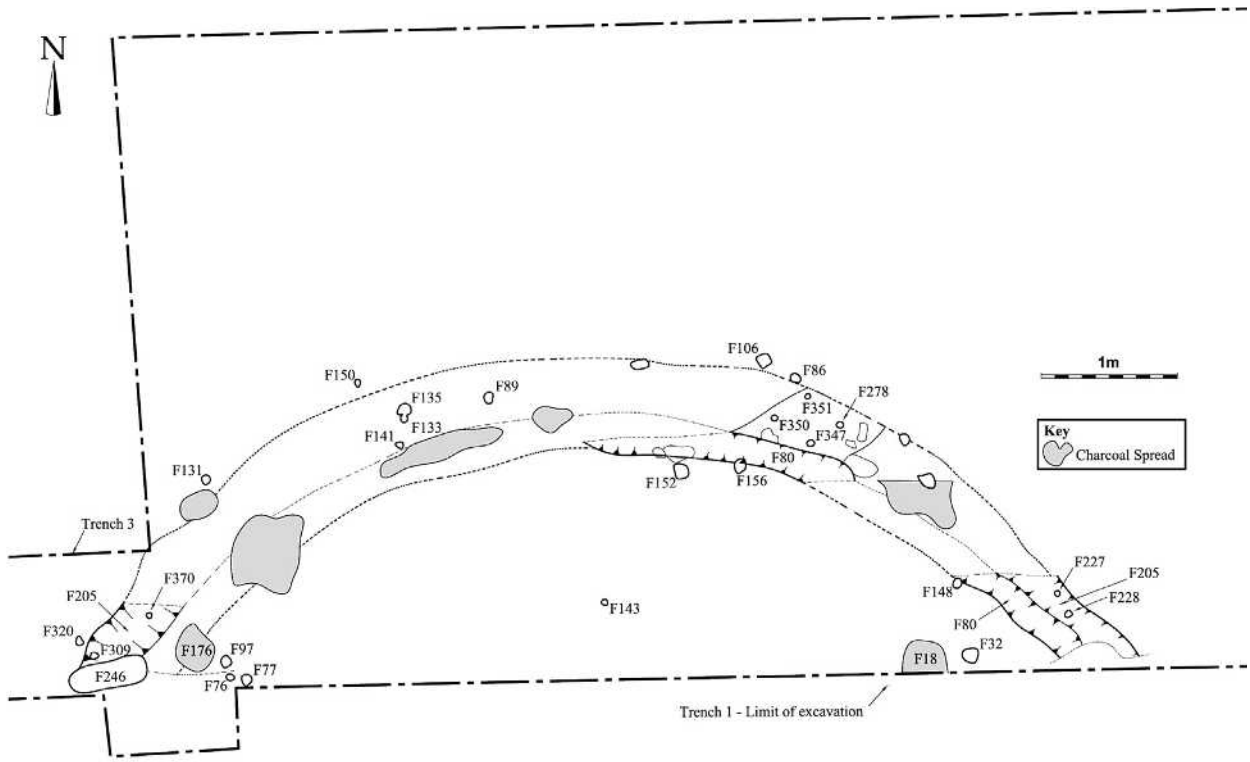


Figure 3.18 Detail of slot trench excavated by O'Donnell, Trench 1 1990–2, Lisnacaheragh (Cleary 2009, Fig. 4).



Figure 3.19 Detail of single foundation slot excavated in 1990-2 in O'Donnell's Trench 1, showing burnt deposits and packing stones, with truncation by later cultivation furrows.

and C.99) were approximately 0.9m in length and 0.34m in depth (Figure 3.20). They contained a large number of displaced packing stones. The southern posthole (C.96) also had a significant amount of charcoal, mostly hazel and willow, with minor ash (see below). There was relatively little charcoal in the northern example (C.99), and in both cases it is unlikely that post uprights had burnt *in situ*. There were two stakeholes (C.75 and C.77) adjacent to the northern posthole (C.99), with two (C.60 and C.61) adjacent to the southern example (C.96).

C.94 Fill of pit/posthole C.96. Loose deposit of light brown silt, truncated by cultivation furrow C.11. Variable composition, with some dark brown and grey silt, occasional charcoal, with numerous pebbles and small to large stones. Contained a sherd of metallurgical crucible (17E0164:117). A sample of 800cc/880g processed by wet-sieving and flotation had a 4% charcoal content (33g of larger pieces).

C.95 Packing stones in pit/posthole C.96. Excavation of C.94 fill uncovered 28 large stones, 0.1–0.42m in length (average 0.19m), mostly sub-angular unbroken drift stones of grey sandstone.

C.96 Cut of pit/posthole. Sub-rectangular pit truncated by cultivation furrow C.11, 0.92m (E–W) by 0.54m (N–S) by 0.34m deep, with rounded corners and near-vertical sides to a flat base.

C.97 Fill of pit/posthole C.99. Firm deposit of mid to dark brown silt, with occasional pebbles and small stones, and charcoal. A sample of <100g was wet-sieved to recover a small amount of charcoal (5g).

C.98 Packing stones in pit/posthole C.99. Excavation of C.97 fill uncovered 26 large stones, 0.07–0.37m in length and 0.05–0.29m in width. They were mostly sub-angular to sub-rounded drift stones of grey sandstone, some with broken surfaces. At least eleven of the stones were found in an upright position within pit fill.

C.99 Cut of pit/posthole. Sub-oval pit on ridge between cultivation furrows C.07 and C.09, Steep-sided cut, 0.86m (E–W) by 0.52m (N–S) by 0.24m deep, with gently rounded base.

6. Postholes C.28 and C.93

Two small postholes were excavated on the south-west side of the roundhouse (Figures 3.13 and 3.14). The C.93 example was probably on the line of the roundhouse wall (Figure 3.20), whereas C.28 may have been located just inside the building. In both cases the upright posts seem to have been removed, as there was not enough charcoal to indicate burning *in situ*. The C.93 post was truncated by a later cultivation furrow (C.13). A depression at the western end of that furrow, 0.25m east of C.93, could be a heavily truncated posthole, but this cannot be confirmed as it did not have a distinctive fill.



Figure 3.20 Three large postholes on western side of roundhouse: C.93 (top left), C.96 (top centre) and C.99 (centre right), 2017 trench, Lisnacaheragh.

C.27 Fill of pit/posthole (C.28). First exposed on northern side of later cultivation furrow (C.13). Loose dark brown to black silt, with small pebbles and occasional flecks of charcoal. A sample of 700cc/960g processed by wet-sieving and flotation recovered a small amount of lump charcoal (1g).

C.28 Cut of pit/posthole. Small pit on northern edge of later cultivation furrow (C.13). Circular in plan, 0.34m in diameter with central depth of 0.26m. Steeply sloping sides, near-vertical in places, to gently rounded base in B_S-horizon (C.132).

C.92 Fill of pit/posthole C.93. Loose deposit of mid brown silt, occasional pebbles and small stones; some flecks and small lumps of charcoal. Truncated by western end of cultivation furrow C.13. A sample of <100g was wet-sieved to recover a small amount of charcoal (5g).

C.93 Cut of pit/posthole. Sub-oval in plan, 0.36m (N–S) by 0.25–0.4m (E–W), with a maximum depth of 0.29m. Near-vertical sides to irregularly flat base; stone, 0.13m long, on south-west side. Partly truncated by furrow C.13.

7. Southern band of stakeholes

The southern line of the roundhouse wall is not well defined. It may be represented by an irregular band of 24 stakeholes that extend west from the C.28 and C.93 postholes as far as the C.44 and C.64 postholes. They include (west to east): contexts 110, 91, 49, 25, 26, 67, 34, 55, 45, 106, 32, 41, 51, 54, 47, 65, 21, 42, 113, 112, 24, 20, 31, and 103 (Figures 3.13 and 3.14). While there are some indications of an inner and outer line of stakes, the spacing of these stakeholes was not regular and so they may not all be the same date.

8. Postholes C.44 and C.64

Two small postholes were excavated on the south-east side of the roundhouse (Figure 6). The larger of these (C.64) had packing stones (C.63) carefully arranged around the sides of a 0.3m wide pit of similar depth. There was a significant amount of charcoal in the fill of this posthole, mostly willow and hazel, with three other species also represented (see below). There was very little charcoal in the adjacent small posthole (C.44), which did have a few packing stones.

C.43 Fill of pit/posthole C.44. Loose dark brown silt, with small to large stones, and rare charcoal and fragments of burnt bone. Contained a wedge-shaped stone, 0.16m by 0.1m by 0.06m, in inclined position on western side of pit, along with three smaller stones. Fill truncated on southern side by cultivation furrow C.15. A sample (<100g) of C.43 was wet-sieved to recover rare charcoal and eight tiny fragments of burnt bone.

C.44 Cut of pit/posthole. Small pit, partly truncated on southern side by cultivation furrow C.15. Sub-oval in plan, 0.28m (N–S) by 0.22m (E–W), with central depth of 0.19m. Vertical profile with steeply sloping sides to irregularly flat base.

C.62 Fill of pit/posthole C.64. Firm deposit of dark brown to black sandy silt, with pebbles and small to medium stones, and larger stones used as packing (C.63). Occasional flecks and small lumps of charcoal, with rare burnt bone. A sample of 5.2 litres/5.8kg processed by wet-sieving and flotation recovered charcoal and burnt bone.

C.63 Packing stones in pit/posthole C.64. Five large stones arranged in an inclined position around edge of pit. These stones were 0.14–0.26m in length, 0.08–0.14m in width, and 0.04–0.07m in thickness, sub-angular in shape with some broken surfaces.

C.64 Cut of pit/posthole on ridge between cultivation furrows C.13 and C.15; slightly truncated by 1937 excavation trench (C.116). Sub-circular in plan, 0.3m (E–W) by 0.26m (N–S), with central depth of 0.29m. Steeply sloping sides to irregularly flat base (Figure 3.14).

9. Internal stake arrangements

Excavation recorded a row of stakeholes directly inside the eastern doorway of the roundhouse (Figure 3.14). These extended south from a small posthole (C.126) to a line of smaller driven stakeholes (contexts 66, 56, 59, 52, 72, 73) spaced approximately 0.25–0.3m apart. This stake row turned sharply at the southern end with two stakeholes (C.81 and C.30) in the direction of the doorway. The stratigraphic position of this stake arrangement is not known, and this could be an earlier or later feature than the roundhouse. It may have formed some kind of wind-break inside the roundhouse door, with stakeholes C.73, C.81 and C.30 part of a movable screen.

A number of small stakeholes were excavated in the central area of the roundhouse. These form no obvious arrangement, though a number of short lines can be proposed (e.g. from stakeholes C.22, to C.40, C.39 and C.89; Figure 3.14). As with the door screen, any reconstruction of stake structures remains speculative, particularly as these stakes may not all be associated with the roundhouse.

The largest of these stakeholes is C.40, measuring 0.24m by 0.19m by 0.23m deep. This was located at the centre of the roundhouse plan (Figures 3.13 and 3.14), and may represent a central roof support. This may be unlikely, however due to the small size of the stake concerned. A sub-oval cut (C.84) in the central area filled with fine silt may be of natural origin.

C.83 Fill of cut (natural?). Loose deposit of grey-light brown silt, occasional pebbles but no large clasts. Homogenous fine silt with no organic content or charcoal. Possible natural sediment as it extends under lower sides of C.84.

C.84 Cut of C.83 sediment (natural?). Sub-oval cut in Bs-horizon, located on ridge between cultivation furrows C.11 and C.13. The pit is 0.47m (E–W) by 0.25m (N–S) by 0.15m deep, steeply sloping or vertical sides to flat base.

C.124 Fill of pit/posthole C.126. Loose deposit of grey-brown silt, with occasional pebbles and charcoal. Large stone (C.125) embedded in fill on west side.

C.125 Single packing stone in pit/posthole C.126. A 0.2m wide by 0.15m high stone placed vertically against west side of C.126 pit.

C.126 Cut of pit/posthole. Sub-oval pit truncated on southern side by cultivation furrow C.07. Steep-sided cut, 0.28m (N–S) by 0.19m (E–W) by 0.18m deep, gently rounded base.

10. External stake/post arrangements

Three small features were excavated in an area of eroded bedrock (C.133) in the south-east corner of the 2017 trench (Figures 3.13 and 3.14). They include a slot-like cut (C.100) truncated on the northern side by the C.15 cultivation furrow. There is no evidence for stake settings or packing stones, and this feature contained very little charcoal. Approximately 1.4m to the south there were two small conjoined pits (C.69 and C.71). The smaller example (C.69) contained a significant amount of oak charcoal, as well as fire-reddened stones that indicate the burning of a post *in situ*. The fill of the C.71 pit was different in character, with only a small charcoal content. The stratigraphic relationship of these two pits is uncertain, but as they were separated by a possible packing stone (C.68a) in the C.69 pit, the C.71 pit may have been an earlier feature.

The C.69/71 pits and C.100 slot lay outside the projected line of the roundhouse structure. If those features were part of the roundhouse wall, the latter would have extended south beyond the area of archaeological excavation, to indicate a much larger oval-shaped house plan. This is considered unlikely due to the absence of structural features in the south-west corner of the trench where the return of that wall would have extended. While it is possible the C.69/71 pits and C.100 slot were part of a smaller roundhouse plan, these features are perhaps more likely to have been part of earlier or later structures in the occupation area. Reference can be made here to the east–west stake fence excavated by O'Donnell on the northern side of the 1990–2 Trench 1.

C.68 Fill of pit C.69 on southern side of trench, truncated by cultivation furrow C.17. Loose deposit of mid to dark brown sandy silt, with pebbles and small stones (<5cm), most of which are fire-reddened. High charcoal content, both finely divided and small lumps. There was a concentration of charcoal around a large stone (C.68a), possible post packing, placed against south-east side of pit. A sample of 35g of lump charcoal hand-picked from this fill consisted entirely of oak (see below) .

C.69 Cut of small pit on southern side of trench. Sub-oval in stony C-horizon (C.134), 0.4m (N–S) by 0.28m (E–W) with central depth of 0.15m, sides steeply sloping to uneven flat base. The south-east side of this pit overlaps with adjacent pit C.71.

C.70 Fill of pit C.71 on southern side of trench, truncated by cultivation furrow C.17. Loose to firm deposit of mid brown (purple tinge) sandy silt over a 0.55m by 0.36m area. Occasional pebbles and small to medium stones (<10cm); small amounts of finely divided charcoal, but very little in comparison to C.68 fill.

C.71 Cut of small pit on southern side of trench. Sub-oval cut in stony C-horizon (C.134), 0.55m (NE–SW) by 0.36m (SE–NW) with central depth of 0.25m, sides steeply sloping to uneven flat base. The sides sloped steeply to a stony irregular base. The north-west side of this pit opens into the adjacent C.69 pit.

C.88 Fill of slot-like feature, C.100. Loose deposit of mid brown sandy silt, with frequent pebbles (but no larger clasts), and occasional flecks of charcoal. A sample of <100g was wet-sieved to recover a tiny amount of charcoal.

C.100 Cut of slot-like feature. Sub-rectangular cut extending north–south across ridge between cultivation furrows C.15 and C.17 (truncated on northern side by former). This feature measured 0.8m (N–S) by 0.3m (E–W), with a maximum depth of 0.24m. The east side was steeply sloping, with west side near-vertical, to a flat base.

Charcoal deposits

There were no obvious hearths inside or adjacent to the roundhouse. This is partly explained by the damage caused to the occupation surface by later cultivation. Two small deposits of charcoal (C.23 and C.58) were identified in the interior, but neither can be linked to the roundhouse occupation. It is also notable that no significant traces of fire were identified along the projected line of the roundhouse wall in the 2017 trench. This contrasts with the discovery of charcoal spreads on both sides of the foundation slot excavated by O'Donnell in 1990–2 on the northern side of this building.

C.23 Charcoal spread. Small deposit of charcoal-rich, dark brown silt on ridge between cultivation furrows C.11 and C.13. This deposit measured 0.3m (N–S) by 0.28m (E–W), with a thickness of 0.04m. It contained occasional pebbles, as well as an unworked flint flake (F.111). A sample of 300cc/360g processed by wet-sieving and flotation recovered a small amount (9g) of lump charcoal, as well as three tiny fragments of burnt bone, and three hazel-nut fragments.

C.58 Charcoal deposit on lower northern side of furrow C.13. An arc of dark brown-black silt, 0.44m (E–W) by 0.1m wide, and only 0.02m in thickness.

3.3 FIND ASSEMBLAGES

There is a small, but important, range of artifact finds from the 2017 excavation at Lisnacaheragh, Garranes. These include sherds of domestic pottery and glass, along with miscellaneous items (clay pipe, iron nails, red tile, whetstone), of early modern date (Period 2). Finds from the early medieval occupation (Period 1) include three sherds of imported Late Roman pottery, as well as a small collection of crucible sherds, slag and metal droplets connected to bronze production at the site.

Early modern (Period 2)

Pottery

A small collection of pottery of nineteenth or early twentieth century date was recovered in the 2017 trench. There are no complete vessels, but rather occasional sherds from a range of white-glazed china tableware, both plain and decorated, as well as glazed and plain red earthenware, and the base of a small stoneware pot, possibly an inkwell. These ceramic finds compare closely to those recovered by O'Donnell in her 1990–2 excavation, which included sherds from a dark brown stoneware inkwell, a creamy yellow stoneware dish, a blue pearlware plate, a small glazed red earthenware bowl, and a creamware plate, as well as five sherds of unglazed red earthenware, probably a flowerpot (McCutcheon in Cleary 2009). Most of this pottery probably derives from the dumping of household refuse from an adjacent farm in the early modern era.

17E0164:01 Plate sherd with white and blue glazing. Smooth, white paste.

17E0164:06 White-glazed tableware sherd. Smooth, white paste. Small chip on either side.

17E0164:07 Stoneware plate or cup sherd. White glaze with some dark staining on interior. Smooth, white paste.

17E0164:09 Rim/ body sherd of china. Smooth, white paste. Much of the glaze has chipped away on either side. Some light blue and dark blue glazing on the rim.

17E0164:10 Five sherds of glazed red earthenware. Smooth red paste with little inclusion. Internal brown glazing. Two rim/body sherds from a large vessel (17E0164:10:1; 17E0164:10:2) refit. An additional rim/body sherd and small body sherd (17E0164:10:3;4) from a different vessel are also included. The clay and glaze are lighter in these examples. The final sherd (17E0164:10:5) has similar fabric with matt glazing.

17E0164:11 Seven sherds of unglazed red earthenware from the same vessel, including one rim and two body/ base sherds. Red paste with minor inclusion. The sherds are quite soft and worn.

17E0164:15 Eleven sherds of modern white-glazed tableware representing two vessels. Three small sherds have bright white glaze and smooth, white paste. The remaining sherds belong to one plate with darker white firing fabric and white glaze. Most of the sherds have dark brown staining.

17E0164:16 Body sherd of red earthenware vessel. Smooth paste with few inclusion. Smooth exterior. Ribbing on internal surface.

17E0164:17 Modern china/ delft plate sherd with blue and white floral decoration. Base is white-glazed.

17E0164:19 Two modern china plate sherds. White, smooth paste with few inclusions. Light and dark blue floral pattern on either side.

17E0164:23 One rim/body sherd and two small sherds/ crumbs of glazed red earthenware, representing one vessel. Orange to red smooth paste with little inclusion. Brown internal glazing with some glazing on rim.

17E0164:24 Three sherds of unglazed red earthenware, representing two vessels. Buff to red in colour with soft, smooth paste.

17E0164:25 Base of a stoneware vessel, possibly an inkwell. Flat base. Smooth, white-grey paste with cream to buff external glazing.

17E0164:26 Nine sherds of modern pottery. Six sherds have a white firing fabric and white glazing. The additional three sherds have a darker beige paste and beige glaze.

17E0164:27 Two modern china sherds from the same plate. Smooth, white paste. White glaze on base with white, light blue and dark blue floral decoration on surface.

17E0164:33 Three body sherds of unglazed red earthenware possibly from the same vessel. Soft buff to red paste.

17E0164:34 Two sherds of china/ delft plate. One large, one smaller sherd. From the same vessel as 17E0164:17. Smooth, white paste. White-glazed base with white and blue-glaze floral pattern on surface.

17E0164:36 Two sherds of unglazed red earthenware. Soft, buff to red paste. One larger sherd and one crumb.

17E0164:37 Three small sherds of white tableware. Smooth, white paste. White glaze. Largest measures:

17E0164:39 Four white-glazed plate sherds. Smooth, white paste. Some glaze has chipped off the surface of two sherds

17E0164:40 Small sherd of modern pottery. Smooth, white paste. Exterior is decorated with brown, white and blue-glazed linear pattern

17E0164:119 Four unglazed earthenware sherds representing the same vessel. Light orange exterior with red fabric. Smooth paste with some minor inclusion. Some dark residue on exterior, perhaps from the firing process. Three body sherds, one body/base sherd.

17E0164:130 Six sherds of glazed red earthenware. Four body sherds from the same vessel. Smooth, buff to red paste with few inclusion. Brown internal glazing.

17E0164:132 Sherd of unglazed red earthenware. Buff, smooth paste with few inclusion.

17E0164:133 Fourteen sherds of modern blue and white-glazed china. All with smooth white paste. Up to two cups and two saucers are represented.

Other ceramic

Several fragments of red ceramic, possibly roofing tile of modern date, were found in the 2017 excavation. A single clay pipe stem was also recovered.

17E0164:12 Possible roof tile/clay lump. Red fabric.

17E0164:13 Fragment of roofing tile. L-shaped, indicating that it is a corner tile. Red fabric.

17E0164:20 Four clay lumps. Red paste, similar to red brick roofing tiles.

17E0164:122 Wedge of red brick material, possibly a fragment of roof tile.

17E0164:131 Four fragments of red brick roofing tile. One possible corner tile.

17E0164:105 Clay pipe stem fragment. White paste. L: 18.9mm; D: 9.04mm; D of perforation: 2.28mm.

Glass

Fourteen sherds of modern glass were recovered in the 2017 trench. Some of these were pieces of window glass, while sherds from two coloured bottles are also represented. There are no finds of early glass from the trench. A single blue glass bead and a number of coloured glass chips were recovered in the 1990–2 excavation of O'Donnell's Trench 1 (McCutcheon in Cleary 2009).

17E0164:05 Small sherd of clear, modern glass.

17E0164:18 Sherd of green glass, possibly from a bottle.

17E0164:22 Four sherds of clear, modern glass. Three body and one shoulder/body sherd.

17E0164:28 Two sherds of clear, modern glass.

17E0164:54 Small sherd of clear, modern glass.

17E0164:55 Sherd of clear, modern glass.

17E0164:57 Large fragment of dark green glass, possibly the base of a wine bottle. Sherd has a concave profile (semi-omphaloid).

17E0164:128 Three sherds of clear, modern glass.

Iron

Five iron nails and two lengths of iron bar found in the 2017 trench are probably grid pegs used in earlier excavations in this part of the site.

17E0164:03 Two iron nails. Generally well-preserved.

17E0164:04 Corroded round-headed iron nail. Bent at mid-point at approximately 80mm. Point is more heavily corroded.

17E0164:08 Two corroded iron bars, probably from O'Donnell's excavation. One is straight and the other is slightly bent at the mid-point. Some red paint on one example.

17E0164:129 Two corroded iron nails of modern date.

Domestic coal/cinders

Some 39 pieces of coal cinder were found in A-horizon topsoil in the 2017 trench (17E0164:14, :29, :32, :127). These were part of household refuse dumped inside the ringfort in the early modern era. A single fragment of vitrified limestone (17E0164:02) may be connected to the spreading of lime on this farmland, which was sourced in local lime kilns during the early modern era.

Miscellaneous stone objects

A single whetstone (17E0164:31) was recovered during removal of the lower A-horizon (C.04) in the 2017 trench. This find cannot be dated as this is a cultivation disturbed context, and the whetstone type is a basic form. A flint flake with some retouch (17E0164:111) was discovered in a small charcoal deposit (C.23). Finally, a small rolled pebble (17E0164:106) from the fill (C.12) of a lazy-bed furrow (C.13) may be natural, but has an unusual polished surface for similarly sized stones in the site.

17E0164:31 Sandstone whetstone. Rectangular with rounded edges. Some damage evident on one side where the surface has chipped on either end. L: 110.87mm; W: 42.4–45.6mm; T: 16.60mm.

17E0164:106 Oval, cream brown rolled pebble. L: 23.7mm; W: 14.3mm; T: 7.5mm.

17E0164:111 Small flake of grey/brown flint. Some evidence of retouching. L: 15mm; W: 11.2mm; T: 3.1mm.

Early medieval (Period 1)

Pottery

Three sherds of early pottery were recovered in the 2017 trench. Doyle has identified one of these as a body sherd (17E0164:53) of Late Roman Amphora 2 pottery

(also known as B1 ware) of Mediterranean origin, dated from fifth to early seventh centuries AD (Figure 3.21). These are large two-handled vessels, with a globular body, conical neck and everted rim. The upper part of the vessel has distinctive band of horizontal grooves. These amphorae originate in the Aegean, and had a wide distribution around the eastern Mediterranean. They are rare in northern Europe, but are recorded in Western Britain and Ireland (See Chapter 7.4).

The other two finds are a body sherd (17E0164:114) and a base sherd (17E0164:35) of E-ware of late Roman origin. This is a range of jars, bowls and jugs made of hard granular grey ceramic. They were probably produced in western or central France, and distributed across western and northern Britain and Ireland during the 6th and 7th centuries AD.

17E0164:35 E-ware base sherd, possibly E2 beaker. White to beige paste with some minor inclusion. Lug-like projection. L: 34.92mm; W: 32.04mm; T: 11.36mm; diameter of lug: 17.38mm.

17E0164:53 Body sherd of LRA2 amphorae. Orange to buff surface with buff to red core. Smooth paste with some minor inclusion. Smooth buff interior while the exterior is decorated with a series of seven closely clustered horizontal ribs. It is likely that the sherd is either from the shoulder or base of a vessel. L: 29mm; W: 33.06mm; T: 7.52mm.

17E0164:114 A weathered body sherd of E-ware. The fabric is buff to reddish-brown with a grey-black core. L: 35mm; W: 29mm; T: 7-11mm.

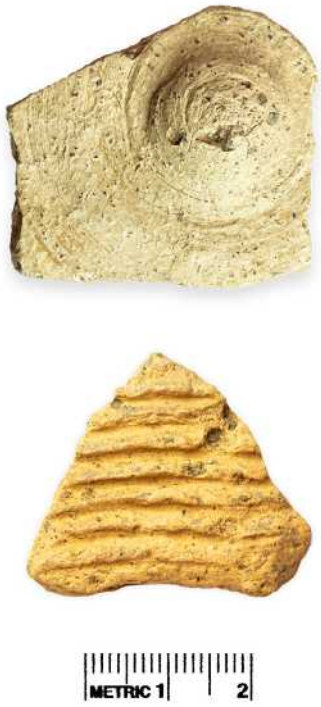


Figure 3.21 Sherds of Late Roman pottery, 2017 excavation, Lisnacaheragh. *(top)* sherd of E-ware (17E0164:35), *(bottom)* B1 amphora (17E0164:53).

Non-ferrous metallurgy

The 2017 excavation uncovered fragments of heat-altered crucibles and slag, and some items of bronze waste, most coming from the 'black layer' (C.18). These derive from metallurgical processes undertaken during the early medieval occupation (Period 1) of this ringfort.

Crucibles

Some 35 sherds of ceramic crucible were found in the 2017 trench (Figure 3.22a). The majority come from the 'black layer' (C.18) sealed under the slip of the inner ringfort bank. This secure context is radiocarbon dated to the fifth century AD (see below). A small number were found in cultivation-disturbed contexts elsewhere in the trench. The 2017 finds are consistent with crucibles found in earlier excavations of the site. The discovery of droplets of copper/bronze waste in the C.18 black layer (see below) suggests these crucibles were used in the casting of that metal (see Chapter 7.5 for results of scientific analysis).

17E0164:21 Crucible sherd. Grey coarse fabric. External surface is vitrified red. Possibly a fragment of pyramidal crucible. L: 39.55mm; W: 34.4mm; T: 9.2mm.

17E0164:30 Crucible sherd. Grey coarse fabric. External surface is vitrified red. Possibly a fragment of pyramidal crucible. L: 25.8mm; W: 17.3mm; T: 12mm.

17E0164:38 Two small crucible fragments. Grey fabric with little inclusion. External surface vitrified red and green. One example measures: L: 23.78mm; W: 18.77mm; T: 4.85mm, and the other: L: 22.73mm; W: 12.81mm; T: 5.91mm.

17E0164:41 Crucible sherd. Grey coarse fabric. External surface is vitrified red. L: 30.53mm; W: 25.36mm; T: 12.45mm.

17E0164:42 Crucible rim fragment. Grey fabric. Rim and external surface are vitrified red. L: 15.96mm; W: 12.99mm; T: 5.11mm.

17E0164:43 Small crucible fragment. Grey to black fabric. Paste is buff to brown on interior while the external surface is vitrified red and green. L: 23.73mm; W: 18.34mm; T: 8.53mm.

17E0164:47 Crucible rim fragment with coarse, grey to black coarse fabric. Both internal and external surfaces are vitrified red. L: 21.92mm; W: 18.21mm; T: 9.13mm.

17E0164:48 Body fragment of a pyramidal crucible. Grey fabric. Some metal residue is attached to its internal surface. External surface is vitrified red and green. L: 25.42mm; W:29.72mm; T: 6.3mm.

17E0164:50 Crucible body fragment. Grey to white fabric. External surface is vitrified red and orange. L: 17.64mm; W: 17.8mm; T: 4.48mm.

17E0164:68 Two crucible fragments. One rim fragment with cream to grey fabric and some small angular

inclusion. Exterior is vitrified red. Second sherd is attached a porous material, possibly metallurgical slag/ waste. The crucible fragment measures 19.92mm long, 15.67mm wide and 9.46mm thick while the waste/slag attached to it measures 24.36mm long, 13.91mm wide and 10.69mm thick.

17E0164:69 Three small crucible fragments, possibly from the same vessel. Grey fabric with some minor quartz inclusion. Grey, coarse interior. Grey exterior with some red vitrification. The fragments are similar in size and range in dimensions from: L: 11.70–12.5mm; W: 7.1–9.81mm; T: 4.61–5.04mm.

17E0164:78 Crucible rim/ body sherd. Grey fabric with some minor inclusion. The interior is worn, soft and cream to grey in colour. The exterior is vitrified green, red and cream. L: 38.26mm; W: 28.37mm; thickness of body: 13.06; thickness of rim: 14.92mm.

17E0164:84 One crucible rim and one body fragment. Grey to white fabric with little inclusion. Buff interior, cream to grey exterior. Minor green vitrification on the rim fragment. L:18.76mm; W: 18.96mm and T: 10.9mm. The body sherd measures 20.08mm long, 11.91mm wide and 8.73mm thick.

17E0164:96 Two crucible fragments. Grey fabric with some inclusion. Buff interior and grey exterior with some red vitrification. L: 19.04–24.47mm; W: 10.8–21.14mm; T: 10.84–13.03mm.

17E0164:97 Crucible rim fragment found in association with a piece of iron slag (17E0164:121). Grey to white fabric with some inclusion. Both internal and external surfaces are grey, with some red and green vitrification on the exterior. L: 19.68mm; W: 22.41mm; T: 7.55mm.

17E0164:100 Small crucible body fragment. Smooth, grey fabric. The interior surface is vitrified red while the exterior is vitrified red and grey. L: 22.53mm; W: 16.91mm; T: 6.47mm.

17E0164:104 Small crucible fragment. Grey to cream fabric with little inclusions. Grey interior. External surface is vitrified red. L: 8.88mm; W:8.05mm; T: 9.04mm.

17E0164:109 Crucible body sherd. Smooth, grey fabric. Grey to brown interior. External surface is vitrified red and green. L: 16.36mm; W: 14.78mm; T: 6.2mm.

17E0164:112 Crucible body sherd. Smooth, grey fabric. Light grey interior. External surface is vitrified red and green. L: 13.95mm; W: 15.47mm; T: 4.32mm.

17E0164:116 Crucible body sherd with grey fabric and some inclusion. Grey interior and grey, red and orange vitrified exterior. L: 19.24mm; W: 21.94mm; T: 10.99mm.

17E0164:117 Crucible body fragment. Grey fabric with some inclusion. Grey to pink interior. Exterior is vitrified red. L: 32.64mm; W: 9.67mm; T: 11.05mm.

17E0164:120 Crucible fragment with grey fabric and some angular inclusion. External surface is vitrified red, green and orange. Small piece of burnt bone attached to the interior of the fragment. The bone may have been used as inclusion. L: 30.23mm; W: 20.89mm; T: 10.55mm. Found in association with 17E0164:91.

17E0164:124 Two crucible fragments. Grey to cream fabric with some inclusion. The smaller fragment is a rim sherd with a grey to white internal and external surface. Some light red vitrification on rim. L: 12.26mm; W: 15.89mm; T: 6.80mm. The second fragment is larger with a grey to white interior. The external surface is vitrified red and green. L: 42.44mm; W: 25.44mm; T: 14.47mm. Both fragments recovered during the processing of bulk soil samples from C.18.

17E0164:126 Three crucible fragments. Grey fabric with few inclusions. Grey to cream interior and vitrified red, green and grey on exterior. L: 14.81mm to 25.52mm; W: 9.27–24.09mm; T: 6.47–12.54mm.

A large number of crucibles were recovered during the 1937 excavations at Lisnacaheragh, Garranes (Ó Ríordáin 1942, figs 24–5). The majority came from Site D on the southern side of the fort interior where a dense black layer contained artifacts associated with fine metalworking. This area produced 39 complete/near-complete crucibles, in addition to some 2,500 crucible sherds. Most are pyramidal vessels of fine-grained grey clay, 2–7cm in height, where exposure to intense heat has left glassy vitrified surfaces (Ó Ríordáin 1942, 138). The other form of crucible recovered during these excavations was termed 'semi-spherical' by Ó Ríordáin. Some examples had slightly rounded bases, others were flat. These are heavier and thicker than the pyramidal crucibles, and all but one (of clay) were made from sandstone. Unlike the pyramidal vessels, these show most evidence of heating around their rims and into their interiors, with all mouths being heavily glazed and/or covered with vitreous material. Ó Ríordáin suggested that heat was directed into them with a blow-pipe and that 'this difference of technique of use implies a difference of purpose, and the appearance of the accretions of material around the mouths of the crucibles suggests that these crucibles were used for glass and enamel manufacture' (*ibid.*).

There are also crucible finds from the 1990–2 excavations at Lisnacaheragh. Forty seven sherds of crucibles were found, the majority coming from a large pit in Trench 3. Most were probably parts of pyramidal vessels, but at least two sherds of Ó Ríordáin's 'semi-spherical' type were found (Comber in Cleary 2009). The glazes and residues on those sherds are the same as those described by Ó Ríordáin, with a small bronze (probably bronze) droplet adhering to the surface of one sherd (91E629:11, Feature 7). The crucible sherds from the 1990–2 excavation have not been scientifically analysed.

Metallurgical slag and residues

Some 50 pieces of metallurgical slag were recovered in the 2017 trench. Most are from the black layer (C.18) radiocarbon dated to the fifth century AD. A small

number were found in cultivation-disturbed contexts elsewhere in the trench. The close stratigraphic association with crucibles and metal waste suggests this slag is derived from bronze production (see Chapter 7.5 for results of scientific analysis).

*17E0164:*44 Piece of metallurgical slag: L: 44.95mm; W: 36.11mm; T: 18.76mm.

17E0164:49 Piece of metallurgical slag. L: 43.26mm; W: 27.3mm; T: 19.28mm.

17E0164:51 Small piece of metallurgical slag. L: 21.71mm; W: 19.49mm; T: 8.29mm.

17E0164:56 Small piece of metallurgical slag. L: 20.4mm; W: 13.44mm; T: 10.95mm.

17E0164:58 Large lump of metallurgical slag/waste. Black, dark orange and cream in colour. L: 79.06mm; W: 57.47mm; 42.39mm.

17E0164:60 Five small pieces of metallurgical slag. One piece of slag appears to have a small crucible fragment attached. Their dimensions range L: 18.81–36.06mm; W: 12.92–31.9mm; T: 9.06mm to 20.2mm.

17E0164:64 One piece of metallurgical slag and a piece sandstone with some copper alloy slag attached. The former is sub-cylindrical in form and measures 45.17mm long, a maximum of 20mm wide and ranges in thickness 11.88–17.31mm.

17E0164:65 Piece of metallurgical waste/slag. Porous in nature and vitrified green, red, black and cream. L: 34.81mm; W: 18.86mm; T: 17.04mm.

17E0164:66 Two pieces of metallurgical waste. Porous in nature. One piece is vitrified black, green, cream and red. The second piece is grey in colour with some orange, green and red vitrification. L: 25.25–26.86mm; W: 15.67–17.7mm; T: 5.23–11.14mm.

17E0164:70 Small piece of metallurgical slag/waste. Orange and black in colour. L: 17.95mm; 13.06mm; T: 10.29mm.

17E0164:71 Small, thin piece of metallurgical slag/waste. Quite porous with a grey/cream surface. Vitrified green and red on one side. L: 40.09mm; W: 29.58mm; T: 9.28mm.

17E0164:73 Nine pieces of metallurgical waste. The fragments are clay-like, soft and fragile. All have a grey/cream exterior. One is broken and has a black, porous interior. They range in length 7.91mm to 28.26mm, in width 7.76–27.34mm and 7–16.72mm thick.

17E0164:74 Two pieces of metallurgical waste. Clay-like in texture, soft and fragile. Buff to grey exterior. L: 15.97–16.83mm; W: 10.54–12.61mm; T: 6.73–11.07mm.

17E0164:76 Four pieces of porous metallurgical waste/slag. Cream/ grey in color with red, orange and green vitrification. One piece appears to be copper-rich with a blue interior. One droplet measures 11.99mm long, 6.27mm wide and 6.2mm thick. The three remaining pieces of waste range in length 16.41–35.25mm, width 9.16–31.2mm and 4.65–12.88mm in thickness.

17E0164:77 Small piece of metallurgical waste. Porous and grey in colour, with red vitrification. L: 26.48mm; W: 21.77mm; T: 16.68mm.

17E0164:83 Two small fragments of metallurgical waste. Cream in colour and porous in nature. Vitrified green and red. L: 14.38–16.86mm; W: 10.52–13.07mm; T: 6.68–6.74mm.

17E0164:85 Five small pieces of metallurgical waste. Grey to cream in colour with some red vitrification. Porous in nature. All measure less than 21mm in length, 16mm wide and 9mm thick. One piece appears to be a fragment of sandstone with metallurgical waste attached.

17E0164:86 Piece of metallurgical waste/slag. L: 29.3mm; W: 22.74 mm; T: 8.46 mm.

17E0164:88 Small piece of metallurgical waste/slag. Buff with red and orange vitrification. L: 16.50mm; W: 15.89mm; T: 8.11mm.

17E0164:92 One piece of metallurgical slag. Orange and black surface. Soft in areas. L: 40.9mm; W: 32.64mm; T: 21.21mm.

17E0164:93 Small piece of metallurgical slag. Orange and black surface. L: 25.69mm; W: 22.6mm; T: 12.09mm.

17E0164:94 Two pieces of metallurgical slag. Black and orange surface, L: 16.58mm to 39.70mm; W: 14.10mm to 32.53mm; T: 7.63mm to 11.11mm.

17E0164:102 Small piece of slag-like material. Porous with grey and cream vitrified surface, L: 22.87mm; W: 20.94mm; T: 11.41mm.

17E0164:103 Metallurgical slag with grey and orange surface. L: 38.97mm; W: 30.55mm; T: 14.34mm.

17E0164:108 Lump of waste material consisting of metallurgical slag and stones. L: 65.79mm; W: 37.59mm; T: 25.11mm.

17E0164:110 Small piece of metallurgical slag. Orange surface. L: 14.8mm; W: 13.41mm; T: 11.58mm.

17E0164:113 Metallurgical slag with grey, black and orange surface. L: 23.13mm; W: 17.88mm; T: 11.21mm.

17E0164:115 Large lump of metallurgical slag. Black and orange surface. L: 81.53mm; W: 48.87mm; T: 36.7mm.

17E0164:118 Small piece of metallurgical slag. Grey to black surface. L: 29.25mm; W: 23.08mm; T: 8.37mm.

17E0164:121 Small piece of metallurgical slag, possibly iron slag. Orange and black in colour. L: 21.93mm; W: 18.21mm; T: 10.97mm. Found in association with a crucible fragment (17E0164:97).

Vitrified furnace wall?

Twenty fragments of what may be vitrified furnace wall were found in the 2017 trench. As with the crucibles and slag, most are from the black layer (C.18) radiocarbon dated to the fifth century AD. These finds are probably connected to furnaces used in bronze casting (see Chapter 7.5 for results of scientific analysis).

17E0164:45 Piece of furnace wall. Possibly sandstone. Heavily glazed/vitrified red, grey, green and yellow. L: 61.45mm; W: 28.79mm; T: 8.54mm.

17E0164:59 Sandstone furnace wall fragment. Vitrified red and green. L: 55.43mm; W: 35.47mm; T: 30.63mm.

17E0164:61 Sandstone furnace wall fragment. Vitrified cream, green and red. L: 74.43mm; W: 38.88m; T: 31.74mm.

17E0164:62 Sandstone furnace wall fragment. Vitrified green and red. L: 31.38mm; W: 25.75mm; T: 17.33mm.

17E0164:67 Three sandstone furnace wall fragments. Vitrified green and red. Two pieces of porous metallurgical waste/slag. Both fragments are vitrified green, red and cream. The furnace wall fragments range in length 26.11–40.94mm; in width 24.2–34.97mm and in thickness 12.92–24.31mm. The two pieces of metallurgical waste measure 23.99–24.41mm long; 20.79–21.53mm wide and 19.45–18.81mm thick.

17E0164:72 Sandstone furnace wall fragment. Vitrified red, green, orange and grey. L: 66.51mm; W: 34.92mm; T: 31.21mm.

17E0164:75 Small piece of sandstone furnace wall fragment. Vitrified red and green. L: 27.20mm; W: 20.32mm; T: 13.34mm.

17E0164:79 Large piece of burnt purple sandstone. L: 104.77mm; W: 64.93mm; T: 31.97mm.

17E0164:80 Small piece of furnace wall fragment. Possibly sandstone. Cracked in places and vitrified red, green and orange. L: 19.3mm; W: 14.61mm; T: 12mm.

17E0164:82 Sandstone furnace wall fragment. Vitrified red, green and orange. L: 31.52mm; W: 28.85mm; T: 14.93mm.

17E0164:87 Two furnace wall fragments. Grey sandstone and vitrified red, orange and green. The larger piece measures 70.58mm in length; 39.27mm wide and 36.35mm thick. The smaller fragment measures 31.94mm in length; 15.48mm wide and 13.13mm thick.

17E0164:89 Furnace wall fragment. Grey sandstone. Vitrified red and green. L: 28.26mm; W: 22.95mm; T: 12.83mm.

17E0164:90 Furnace wall fragment. Grey sandstone. Vitrified red. L: 37.13mm; W: 24.31mm; T: 23.51mm.

17E0164:91 Furnace wall fragment. Grey sandstone. Vitrified red and green. L: 43.82mm; W: 26.44mm; T: 17.26mm. Found in association with 17E0164:120.

17E0164:98 Furnace wall fragment. Grey sandstone. Vitrified orange, red and grey. L: 40.59mm; W: 33.3mm; T: 28.92mm.

17E0164:99 Piece of stone. Surface is vitrified red, green and orange. L: 19.69mm; W: 14.92mm; T: 15.87mm. Possibly a furnace wall fragment.

17E0164:125 Small piece of vitrified stone. Possibly limestone. Vitrified black, red and green. L: 33.56mm; W: 27mm; T: 11.1mm. Recovered during the processing of bulk soil samples from C.18.

Tuyères

Fragments of one or more clay nozzles (tuyères) used to connect a bellows to a metallurgical furnace were also found in the 2017 excavation (Figure 3.22b).

17E0164:46 Four tuyère fragments. Grey to black fabric. Vitrified orange, red and green. The most complete fragment is semi-circular and may represent a tuyere nozzle. The three further fragments are not as distinct. L: 32.16mm; W: 18.89mm; T: 13.43mm. External diameter of nozzle: approximately 28mm; internal diameter: 17.8mm.

Copper/bronze droplets

Seven small pieces of copper/bronze were found in the 2017 trench (Figure 3.22c). These probably represent waste from bronze casting in that part of the site (see Chapter 7.5 for results of scientific analysis).

17E0164:52 Three small copper alloy droplets. The largest measures 14.01mm in length, 10.73mm wide and 7.49mm thick. The two further droplets are smaller with one measuring less than 9mm long, 5mm wide and 4.75mm thick. The third example is best described as a crumb.



Figure 3.22 Metallurgical finds, 2017 excavation, Lisnacaheragh. *(top row)* sherds of vitrified crucible; *(middle row)* tuyère fragments; *(bottom row, 1cm scale)* waste bronze *(left)* 17E0164:123, *(right)* 17E0164:63.

17E0164:63 Oval copper/bronze object. Conservation confirmed this is a lump of waste copper or bronze (Susannah Kelly pers. comm.) L: 26.62mm; W: 13.55–17.2mm; T: 8.90mm.

17E0164:81 Two small pieces of copper alloy waste. Grey to cream exterior and bright blue interior. Somewhat porous in nature. L: 19.25–21.49mm; W: 12.95–14.01mm; T: 10.3–11.98mm.

17E0164:123 Small sub-circular piece of copper or bronze. L: 14.29mm; W: 12.23mm; T: 7.31mm. Found during the processing of bulk soil samples from C18.

Iron objects

Two early iron objects were recovered from the 'black layer' (C.18), in a secure context radiocarbon dated to the fifth century AD.

17E0164:95 Small piece of iron with an orange and black surface. L: 17.18mm; W: 14.93mm; T: 10.82mm.

17E0164:107 Possible iron nail head with small portion of shaft attached. L: 11.05mm; D of head: 14.15mm; D of stem: 4.63mm.

Environmental remains (Period 1)

Charcoal

A study of charcoal samples from five Period 1 (early medieval) contexts in the 2017 trench identified the presence of ten wood species (Lyons in O'Brien 2018a). These include *Quercus sp.* (oak), *Corylus avellana* (hazel), *Salix sp.* (willow), *Alnus glutinosa* (alder), *Fraxinus excelsior* (ash), *Maloideae spp.* (pomaceous wood), *Ulmus sp.* (elm), *Viburnum opulus* (guelder rose), *Pinus sylvestris* (Scots pine), *Prunus sp.* (cherry/blackthorn).

Context 18 ('black layer') Identification of 150 fragments of lump charcoal recorded the following tree species (by frequency): oak (70%), with minor hazel, willow, pomaceous wood and birch, and minor (<5%) alder, elm, Guelder rose, and Scots pine.

C.62 fill of posthole C.64 Identification of 41 fragments of lump charcoal recorded the following tree species (by frequency): Willow (50%) and hazel (30%), oak (10%) and alder 8%), with minor pomaceous wood and cherry/blackthorn.

C.68 fill of pit C.69 Identification of 50 fragments of lump charcoal recorded the following tree species (by frequency): oak (100%).

C.80 fill of pit C.114 Identification of 34 fragments of lump charcoal recorded the following tree species (by frequency): Oak (90%) and willow (10%).

C.94 fill of posthole C.96 Identification of 50 fragments of lump charcoal recorded the following tree species (by frequency): Hazel (60%), willow (30%) and ash (10%).

Burnt bone

Tiny fragments of burnt bone were recovered by sieving from several Period 1 contexts, including the 'black layer' with metallurgical residues (C.18), a charcoal deposit (C.23), four stakeholes (C.32, C.35, C.45 and C.55) and three posthole fills (C.36, C.43 and C.62). None of these can be identified to animal species. One of the bone fragments from C.36 has been radiocarbon dated (see below). A single fragment of burnt bone (17E0164:101) from the fill (C.08) of an early modern cultivation furrow (C.09) has not been dated.

3.4 RADIOCARBON DATING

Four samples (three charcoal and one bone) from the 2017 excavation were submitted for AMS radiocarbon dating to the Centrum voor Isotopen Onderzoek, University of Groningen (charcoal identifications by Susan Lyons, UCC; calibrations 95.4% confidence level after OxCal v.4.4.2). The results are as follows (Figures 3.23 and 3.24):

Sample GR2017-01: Charcoal from C.18 'black layer' containing metallurgical finds. 0.1g sample extracted from sediment sample by wet-sieving. Identification: Hazel (*corylus avellana*) branch wood (5 years minimum).
GrM-10238 1560±25 BP. Calibrated to 424–555 AD.

Sample GR2017-02: Charcoal from C.62 fill of C.64 posthole. 0.3g sample extracted from sediment sample by wet-sieving. Wood identification: Hazel (*corylus avellana*) branch wood (4 years minimum).
GrM-10239 1480±25 BP. Calibrated to 545–637 AD.

Sample GR2017-03: Charcoal from C.94 fill of C.96 posthole. 0.7g sample extracted from sediment sample by wet-sieving. Wood identification: Hazel (*corylus avellana*) branch wood (9 years minimum).
GrM-10240 1530±25 BP. Calibrated to 428–598 AD.

Sample GR2017-04: Bone from C.36 fill of C.38 posthole. 2.49g sample, hand-picked in excavation; not washed. Not identified.
GrM-10190 1485±15 BP. Calibrated to 547–617 AD.

These four results can be added to nine radiocarbon results obtained in the 1990–2 excavation (Figure 3.24). With one exception (GrN-32680), these all lie within the fifth or sixth centuries. The combined results were analysed using Bayesian statistical methods to narrow this age range (see Chapter 7.3).

Sample No	Lab No	C-14 result	Calibration	Context
E629: 180	GrA-32683	1520±25 BP	429–605 AD	Charcoal from roundhouse foundation (F80), Trench 1
E629: 221	GrA-32684	1510±25 BP	431–615 AD	Charcoal, outer wall (F221) roundhouse, Trench 1
E629: 227	GrA-32692	1530±30 BP	428–599 AD	Charcoal stakehole, outer wall roundhouse, Trench 1
E629: 291	GrA-32694	1580±30 BP	410–546 AD	Charcoal spread (F291), stakehole, Trench 1
E629: 337	GrA-32695	1620±30 BP	382–539 AD	Charcoal spread (F354) from pit F.331, Trench 3
GR2017-01	GrM-10238	1560±25 BP	424–555 AD	Charcoal from 'black layer' (C.18), 2017 trench
GR2017-02	GrM-10239	1480±25 BP	545–637 AD	Charcoal from fill of C.64 posthole, 2017 trench
GR2017-03	GrM-10240	1530±25 BP	428–598 AD	Charcoal from fill of C.96 posthole, 2017 trench
GR2017-04	GrM-10190	1485±15 BP	547–617 AD	Bone from fill of C.38 posthole, 2017 trench
Other dates				***Trench 4 inside ringfort entrance (1990–2)***
E629: 52	GrA-32680	3180±30 BP	1495–1425 BC	Charcoal from 'introduced boulder clay (F.52)'
E629: 49	GrA-32679	1590±25 BP	410–540 AD	Charcoal from layer (?) in Trench 4
E629: 54	GrA-32681	1555±25 BP	425–560 AD	Charcoal from occupation layer (F54), Trench 4
E629: 287	GrA-32693	1605±30 BP	396–539 AD	Charcoal from hearth (F189), Trench 4

Figure 3.23 Radiocarbon dates (E629-) from O'Donnell Trench 1, Trench 3 and Trench 4, and from the 2017 excavation (GR2017-). Calibrated to 95.4% probability (OxCal v.4.4.2).

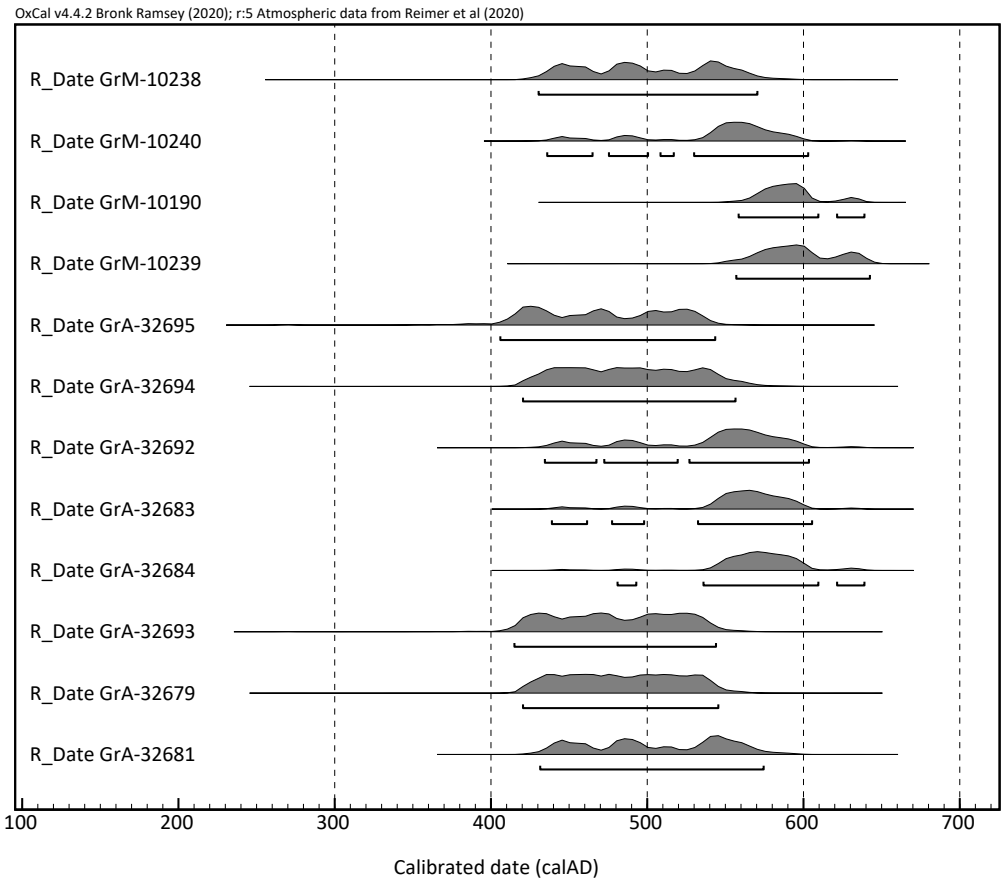


Figure 3.24 Radiocarbon dates from 2017 (GrM-) and 1990–2 excavations, Lisnacaheragh (calibration after OxCal v.4.4.2).

3.5 DISCUSSION

The 2017 excavation at Lisnacaheragh, Garranes, has added considerably to an understanding of this early medieval ringfort. The primary objective was achieved, namely to complete the investigation of a roundhouse structure first identified in the 1990–2 excavation. The surviving ground plan of this building was uncovered, providing some detail on design and construction, use and abandonment, with additional radiocarbon dates to those obtained by O'Donnell. The excavation also provides data on the important 'black layer' excavated by Ó Ríordáin, including a radiocarbon date for this context, as well as samples for metallurgical analysis, and new charcoal data. Other objectives were achieved in respect of student training and the backfilling of a partly open trench from the 1990–2 excavation.

Chronology

A chronology of this ringfort occupation can be established based on finds of pottery and radiocarbon dates. Twelve radiocarbon dates are now available to support Ó Ríordáin's dating of this ringfort to the fifth and sixth centuries AD, which he based largely on the imported pottery. The four radiocarbon dates from the 2017 excavation are consistent with eight results obtained by O'Donnell. Together, these point to intensive occupation of the ringfort centering on the fifth century (AD 390/400–530).

This radiocarbon chronology is consistent with three artifact finds of chronological significance from the 2017 excavation. The first is a body sherd (17E0164:53) of LRA1 (B1) globular amphora of eastern Mediterranean origin. This pottery is recorded from seven Irish sites, and can be connected to the importation of wine and other goods from the late fifth to mid sixth centuries AD (Doyle 2009, table 1). The second find is a body sherd (17E0164:114) and a base sherd (17E0164:35) of E ware (possibly an E2 beaker) imported from western France. This pottery is recorded from 50 sites in Ireland, with a date range of late sixth to early eighth centuries AD (*ibid*.). The radiocarbon evidence suggests the use of E ware at Lisnacaheragh may date to the earlier use of that pottery in Ireland. The B1 amphora and E ware were imported to Lisnacaheragh some time between 450–600 AD, during a period of high status occupation of that ringfort.

Period 1 roundhouse

Excavation exposed the outline of a circular structure on the western side of the ringfort interior (Figures 3.13 and 3.25). This was a large roundhouse, approximately 9m in overall diameter and 64m2 in area, built close to (but not against) the inner bank of the ringfort. Two pairs of substantial posts mark possible entrances openings on the east/north-east and west/south-west sides respectively. The northern side of the building is defined by a narrow slot trench with some stakeholes, while the southern wall was built in part with irregularly placed stakes. There are other postholes with adjacent stakeholes on the north-west, south-west and south-east sides, none of which are arranged in a regular pattern.

There is no evidence for internal roof supports, apart from a large stakehole at the centre of the building that may have held a driven post of 0.2m diameter. Otherwise, the roof was supported by walls of variable construction, built using small and large posts and stakes, in combination with woven wattle and other organic materials. Analysis of charcoal from the 2017 excavation adds to data obtained by O'Donnell from the northern foundation slot. That study indicated a possible use of oak for the main structural posts, with hazel, willow/poplar and birch used for inter-woven wattle walls (McKeown in Cleary 2009). Charcoal in the C.114 pit provides evidence for the burning of a structural post of oak and attached walling material (willow). The variability in structural elements suggests that different material were used to build the roundhouse wall. The type of walling materials used in such roundhouses is indicated by well-preserved examples at Deer Park Farms, Co. Antrim, where the double walls were made of stout hazel uprights around which smaller hazel rods were woven in a spiral fashion. The gap between the wall was filled and insulated with organic material, probably straw, moss and heather (Lynn and McDowell 2011; also Edwards 1996, 23).

Distinctive features of the Lisnacaheragh structure include the opposing pairs of large postholes and the northern foundation trench. It is likely the main door opening to this building was on the east/north-east side, where two large postholes, spaced 1.2m apart, faced the main entrance of the ringfort. There may also have been an opposing entrance through a pair of large postholes on the west/south-west side. The need for this rear entrance is unclear as it would have faced directly on to the inner ringfort bank. The latter would have afforded shelter to the roundhouse from prevailing westerly winds.

The absence of any formal hearth inside or adjacent to the roundhouse may be explained by damage to the original floor surface by later cultivation (Period 2). This is confirmed by the discovery of Period 1 crucible sherds, as well as three sherds of imported Late Roman pottery, in cultivation-disturbed soil.

With some 520 excavated examples, roundhouses were the most common form of building during the early

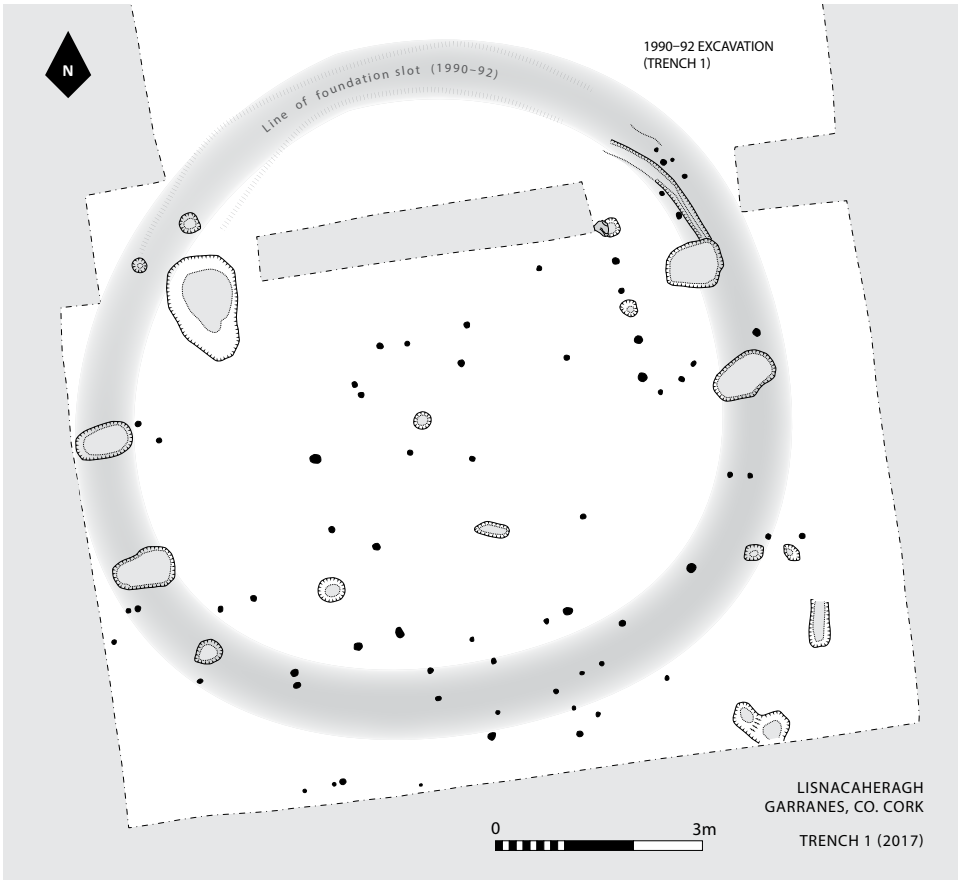


Figure 3.25 Outline of roundhouse foundations excavated in 2017 at Lisnacaheragh.

medieval period in Ireland (O'Sullivan *et al.* 2014). This type of domestic architecture was well developed during the later Bronze Age and Iron Age, and seems to have been dominant until around the tenth century when rectilinear building are recorded (O'Sullivan 2008). Early legal texts confirm that the size of ringforts and the roundhouses therein were prescribed by social rank. The size of a king's house (*dún*) is recorded in the *Crith Gablach* as 37' (11.28m) in diameter (Kelly 1997, 363). In the ranks of the nobility houses ranged from 27' (8.2m) up to 30' (9.1m) for the *aire forgill* or highest grade of lord (*ibid.*, 363).

The excavated roundhouse at Lisnacaheragh is larger than most roundhouses of the period, which average *c.*6m in diameter (O'Sullivan *et al.* 2014). Whether deemed a royal house or not, the size of this structure is consistent with the residence of a high-ranking member of society in early medieval Ireland. The excavated structure must have been one of several examples inside this ringfort, most of which have not survived the later cultivation.

The occupation history and eventual abandonment of this roundhouse is not known. O'Donnell obtained clear evidence for the burning of the northern wall of the building. This is supported by charcoal data from the C.114 posthole in the 2017 excavation. There was little other evidence of burning, with only small amounts of charcoal recovered from the posthole pairs on either side of the structure, or the many smaller postholes and stakes along the wall line. It is possible that the building was partly dismantled when some of the structure burnt down.

Period 1 site economy

The excavation of the black layer (C.18) preserved under bank slip in the south-west corner of the 2017 trench provided an important collection of broken crucibles and metal waste. It is notable that C.18 spread did not contain any moulds or items of finished or unfinished metalwork, which may indicate that this deposit lies on the margin of the main metalworking area (Ó Ríordáin's Site D). Evidence of non-ferrous and precious metalworking is often found in the excavation of high-status sites in early medieval Ireland. Examples include Clogher, Co. Tyrone (Warner 1979) and Lagore, Co. Meath (Hencken 1951), and large ringforts of high status such as Garryduff, Co. Cork (O'Kelly 1946). Such specialist metalworking at these sites was one element of a larger and varied economy. At Lisnacaheragh, Garranes, this included iron-working and the production of enamel, glass, and millefiori ornaments, as well as spindle-whorls and loom weights used to make textiles. The basis of wealth and trade in this ringfort was probably

agriculture, though this is poorly represented in the various investigations at Lisnacaheragh, including the results of the 2017 excavation. The poor preservation of animal bones may be explained by the acidic soil environment and the disturbance caused by later cultivation. Those few animal bones recorded in the 1937 excavation include cattle, pig, horse and sheep, which are the usual domestic species from Irish ringforts. A well-used rotary quern provided the only evidence of crop cultivation, but preservation and recovery of plant remains was not good.

In conclusion, the results from the 2017 excavation support Ó Ríordáin's (1942) view that Lisnacaheragh was an important settlement during the fifth and sixth centuries. The remains of a large roundhouse represent the first building to be conclusively identified inside this ringfort. Radiocarbon dates confirm that structure was contemporary with the 'black layer' and its evidence of specialist metalworking. Whether this supports Ó Ríordáin's interpretation of Lisnacaheragh as a royal site of the Eóganacht Raithlinn, will be considered later. The next chapter examines another large enclosure, some 100m to the west of Lisnacaheragh, named by the nineteenth-century Ordnance Survey as Lisnamanroe.

– 4 –
LISNAMANROE

The next site to be considered at Garranes is Lisnamanroe, a large circular enclosure 100m west of Lisnacaheragh ringfort (Figures 2.12 and 2.13). Archaeological excavation was conducted over five seasons, each of four weeks duration, in May/early June 2011–15. The aim was to establish the chronological and cultural relationship of this enclosure to Lisnacaheragh ringfort, and to other elements of the Garranes landscape. To achieve this it was necessary to secure dating evidence for the construction, occupation and abandonment of the enclosure. The design and purpose of the enclosing elements were considered, including any entrance features. The history of occupation was examined in respect of any built structures, artifacts and environmental material related to activities at the site.

4.1 EXCAVATION

A total of six trenches, three of which had small extensions, were excavated at Lisnamanroe over those five seasons (Figure 4.1). The excavated area of 663 square metres represents 12.05% of a total enclosure area of approximately 5500 square metres. The excavation of 464 square metres in the interior represents 12.7% of an internal enclosure area of approximately 3650 square metres.

The excavation began in 2011 with two trenches. Trench 1 was a 10m by 10m cutting, dug to investigate potential geophysical responses for built structures in the central area of the enclosure (Figure 2.34). Trench 2 was a 15m by 3m cutting across a low-relief exposure of the enclosing elements on the eastern side of the site. The 2012 excavation season sought to investigate a possible original entrance to this enclosure. A magnetic gradiometry survey on the eastern side revealed a short break in the enclosing elements. Trench 3, measuring 16m by 8m, was excavated across this opening. This was subsequently extended with a 5m by 2.5m cutting on the northern side, to create a total excavation area of around 140 square metres.

Two trenches were excavated during the 2013 season. A 3m by 2m cutting (Trench 3A) was opened as an extension to the north-west side of Trench 3 excavated in 2012. The objective was to identify the bank terminus on the northern side of the entrance. It was also hoped to follow the line of a stake fence inside that bank and its connection to the northern gate post. The main excavation was a 13m by 10m cutting (Trench 4) on the immediate western side of Trench 1 excavated in 2011 (Figure 4.2). This was designed to examine the possible continuation of stake structures found in Trench 1.

The objective of the 2014 season was to investigate the western side of the Lisnamanroe enclosure. This involved the excavation of a single 10m (east–west) by 8m cutting (Trench 5), with a 6m by 2m extension (Trench 5A) off the north-west side. The latter investigated the enclosing elements, while the main trench targeted

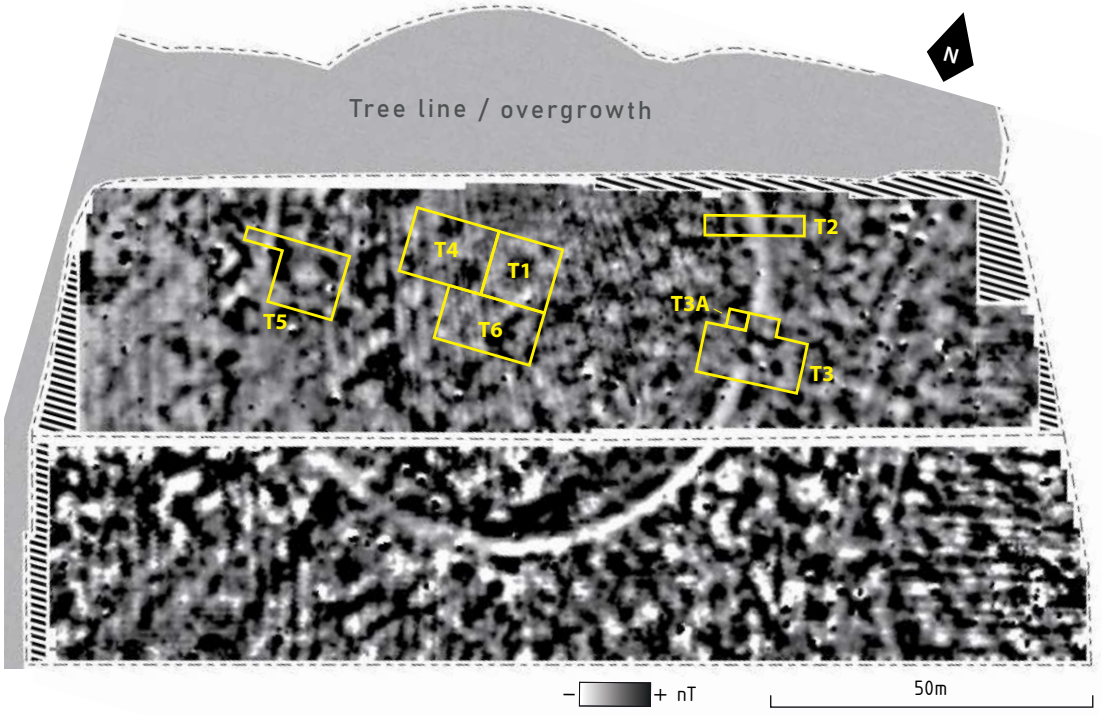


Figure 4.1 Magnetic gradiometer survey results with excavation trenches, Lisnamanroe (see also Figure 2.33).

habitation-related structures and deposits in the interior of the enclosure. Trench 5 was located in a part of the enclosure that geophysical survey indicates may be less damaged by later cultivation. The project concluded with the excavation of Trench 6 during the 2015 season. This 15m by 10m cutting was opened on the southern side of Trench 1 excavated in 2011, and along the south-east side of Trench 4 excavated in 2013. The objective was to investigate the possible continuation of post- and stake-built structures identified in those earlier trenches.

The entire excavation was conducted by hand, commencing with the use of shovels and mattocks to remove topsoil, followed by more careful excavation using trowels and small digging equipment (Figure 4.3). Stratigraphic excavation involved context-based recording, supported by written description, conventional photography and photogrammetry, manual section drawing, and total station plotting of excavated features and finds (Figure 4.4). Artifacts were mostly recovered by fine trowelling, with context-based recording and grid coordinates. It was only possible to



Figure 4.2 General view of Trench 4 excavation in progress (looking south-west), Lisnamanroe.



Figure 4.3 Excavation of Trench 4, Lisnamanroe; first trowel after removal of A-horizon.



Figure 4.4 Excavation in progress in Trench 4, Lisnamanroe.

carry out limited wet-sieving on site due to the absence of a water source. Instead, samples were collected for laboratory wet sieving and flotation (2mm and 500 micron sieves), with hand-sorting of flots and residues to extract charcoal, bone, seeds and other plant matter, as well as metallurgical residues and small artifacts. The total volume processed in that way was 427.5 litres, or approximately half a tonne of sediment (O'Brien 2018c, appendix 3).

Natural soil

The soil profile at Lisnamanroe is a cultivated brown podzol, well aerated with moderate acidity (Figure 4.5). This consists of a thin sod (O-horizon; Context 01) overlying a 0.15–0.2m thick layer of organic silt with frequent pebbles and small stones, but no larger clasts (A-horizon; C.02). That topsoil overlay a compact Bs-horizon subsoil (C.200), coloured orange by light to moderate precipitation of iron oxides in the early stages of soil podsolization (Figure 4.6). This subsoil was heavily truncated by 'lazy-bed' cultivation trenches of early modern date. One area this did not occur was the original entrance to the enclosure, where a thin layer of white-grey sandy silt (C.199) overlay the Bs-horizon. That represents a leached layer (E-horizon) at the base of the organic soil, which had been removed elsewhere by later cultivation. In terms of archaeology, the orange Bs-horizon surface represents the natural in this site, as all early features (stakeholes, postholes, pits etc) were cut into that surface, which itself was truncated by the later cultivation.

The parent material for this soil is a stony sandy silt of fluvio-glacial origin. This hard white-grey sandy silt (C.576) was exposed as a C-horizon at the base of some of the furrows, as well as forming the lower cut of the main enclosure ditch in Trenches 2, 3 and 5. Excavation in Trench 4 exposed eight small spreads of shattered stone on this surface that were natural in origin, possibly a product of periglacial weathering in this subsoil.

To summarise the results of this excavation, the archaeology of Lisnamanroe comprises the enclosing elements, the entrance, and the interior space. The site was enclosed by a shallow ditch with a low internal 'bank', inside which there was a light stake fence. An original entrance was identified on the eastern side of the enclosure, where postholes mark the position of a simple wooden gate inside a ditch causeway. Excavation of the interior revealed stakeholes, postholes, pits, charcoal deposits and artifact finds of early date. There are foundation traces of wooden structures, including the likely remains of a large roundhouse. The physical record of that early occupation was damaged significantly by spade cultivation in the early modern era.



Figure 4.5 Soil profile, south-west corner of Trench 6, Lisnamanroe. Thin sod (C.01) on A-horizon topsoil (C.02), overlying orange Bs-horizon (C.200), with stony grey C-horizon (C.576) at base.

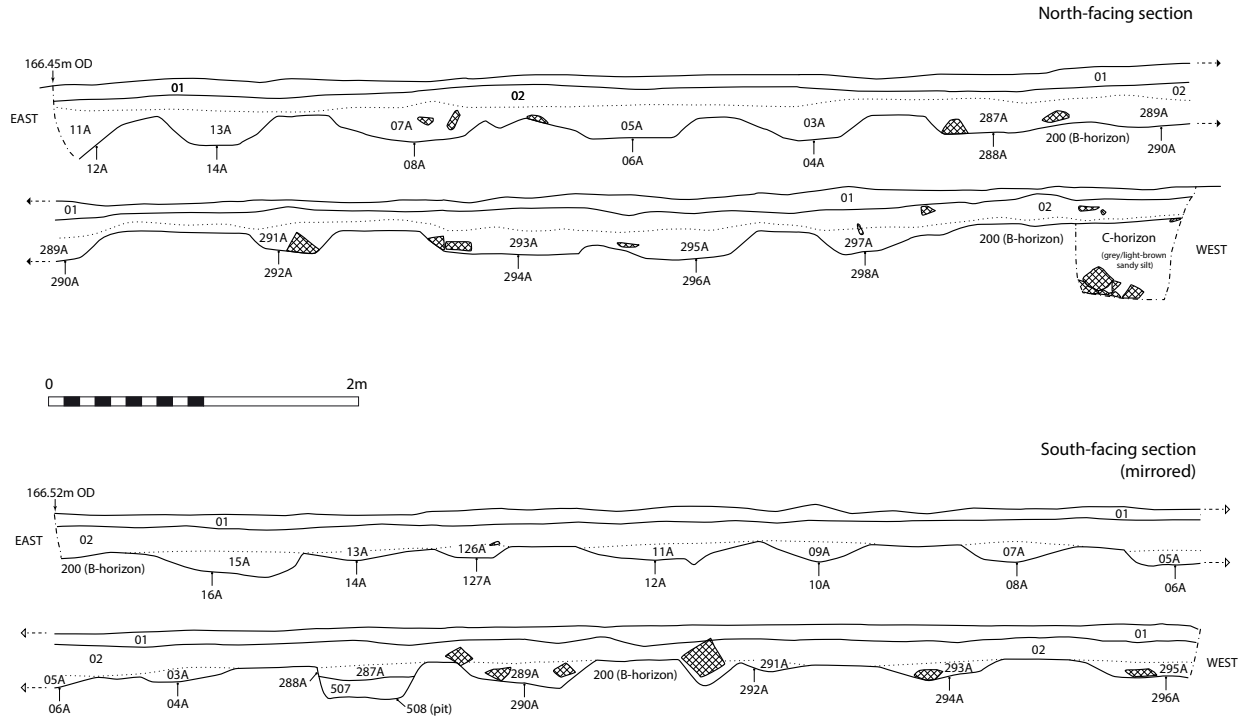


Figure 4.6 Stratification typical of interior of Lisnamanroe enclosure, showing sod (C.01) and A-horizon (C.02) overlying cultivation furrows ('lazy beds') cut into B-horizon subsoil (C.200), Trench 6.

4.2 ENCLOSING ELEMENTS

Excavation revealed that Lisnamanroe was enclosed by a shallow ditch with a low inner bank and a stake fence. These were probably built as an integrated design in a single phase of construction, though the relationship of the stake fence to the adjacent bank and ditch is not entirely certain. The enclosing elements are visible today as a low slope, which is most pronounced on the eastern side of the enclosure, less so on the southern and western sides, but absent on the northern side where incorporated into a modern field bank. They have been excavated on the eastern (Trench 2) and western (Trench 5A) sides of the site. They were also exposed during excavation of an entrance on the eastern side of enclosure (Trench 3).

Trench 2

The line of the eastern side of the enclosure is indicated by a 0.7m high slope over some 11.5m. Magnetic gradiometry survey revealed a possible bank or ditch as a linear low gradiometry anomaly along that slope

(Figure 4.1). A 15m by 3m trench was excavated across this linear anomaly (Figure 4.7). The removal of a thin sod (C.01) exposed a 0.15–0.22m thick layer of well-sorted humic soil (C.02). Artifact finds from this topsoil include fragments of clear glass, an iron horse-shoe and small pieces of vitrified stone from the spreading of burnt lime fertiliser (O'Brien 2018c, appendix 4). A cultivation furrow (C. 177 filled with C.144) was discovered at the western end of the trench, part of a series of such 'lazy-beds' crossing the interior of the enclosure.

The removal of topsoil exposed a darker band of soil in the central trench area. Excavation revealed the fill of a shallow flat-bottomed ditch dug into subsoil (Figure 4.8). The remains of a low bank were discovered directly inside the ditch (Figure 4.9). The line of a stake fence was identified on the inside of this bank, *c.*3m inside the ditch. An occupation layer was discovered inside this fence across the western end of the trench (Figure 4.10). Beneath that layer there were a number of stakeholes connected to structures in the interior of the enclosure.

Ditch

The ditch is 2.55m wide on top (or 3.3m to the edge of the inner step), and 1.8m at the base. It is a shallow feature with a central depth of 1.1m (*c.*0.5m from top of subsoil), cut through iron-enriched B-horizon into C-horizon subsoil (Figure 4.9). The outer (eastern) side is steeply sloping, while the inner side has a stepped profile that slopes gently for a distance of 0.8m before dropping steeply to the base of the ditch. The base itself is irregularly flat, formed by hard white-grey sandy silt (C.154: C-horizon).

Excavation revealed a thin deposit of grey-white sandy silt (C.153) with a small amount of charcoal at the base of the ditch (Figure 4.10). The sides were eroded soon after the ditch was dug, with three thin lenses of orange-brown sandy silt (C.152 overlain by C.151 overlain by C.150) on the lower outer (eastern) side, and similar sediment (C.149) on the lower inner side (Figure 4.11). This was followed by substantial infilling connected to erosion of the adjacent bank on the western side of the



Figure 4.7 Excavation of Trench 2 (western end), Lisnamanroe. Base of bank visible in centre of photograph (edge of ditch in lower right corner), with dark occupation sediment (C.106) on the inside (far left).

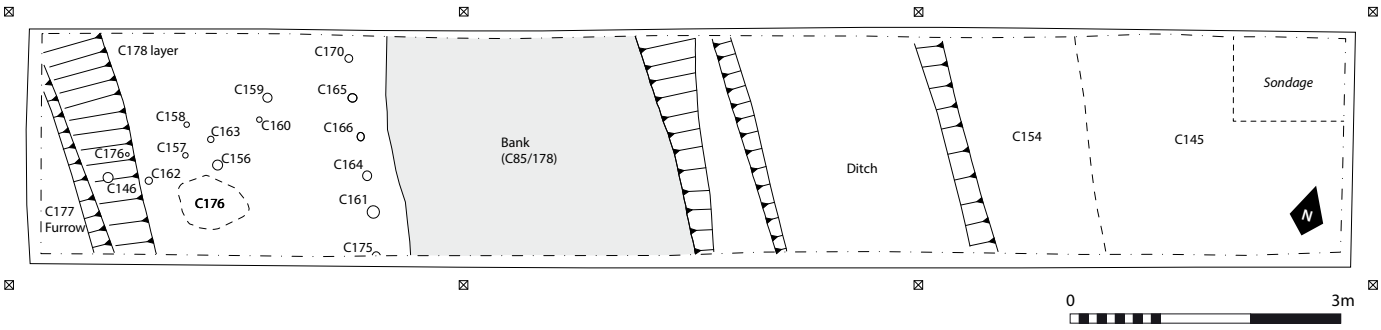


Figure 4.8 Post-excavation plan of Trench 2, Lisnamanroe.

ditch. A 0.3–0.5m thick deposit of mid brown, stony, sandy silt (C.148) with some charcoal was overlain by a 0.05–0.12m thick layer of orange-brown sandy silt (C.101), also with some charcoal. The upper ditch fill was more organic, beginning with a dark brown sandy silt (C.100) containing a significant amount of charcoal, which was deposited as a 0.04–0.19m thick layer across the upper central part of the ditch. This, in turn, was overlain by a 0.2–0.3m thick layer of organic soil (C.99), which was a lower part of the overlying A-horizon.

Bank

The soil originally dug from this ditch was upcast to form a low bank on the western side (Figures 4.7 and 4.8). This bank is now substantially eroded, revealed by excavation as a 0.2–0.25m thick deposit of sediment. This extends over a 7–8m wide area on the inner side of the subsoil step leading to the ditch (Figure 4.10). The lowest part of the surviving bank is a layer of grey-mid brown (purple tinge) silt with occasional charcoal (C.178). The western part of C.178 was overlain by two thin layers, namely a dark brown silt with charcoal (C.106) overlain by a thin band of light brown silt (C.93). The eastern third of the C.178 layer was overlain by a 3.35m wide spread of grey-light brown (purple tinge) silt (C.85) with a high charcoal content. The extent of this C.85 deposit is likely to represent the original width of the bank, estimated at 3m. This low feature, probably under 0.8m in original height, was located between the western edge of the ditch and the line of a stake fence that once existed on the inner side of the C.85 deposit.

Stake fence

This is represented by a line of six stakeholes across the western side of Trench 2 (from north to south: contexts 170, 165, 166, 164, 161 and 175 (Figure 4.8). Those stakeholes were 0.09–0.14m in upper width 0.13–0.26m in depth, and spaced 0.3–0.38m apart (Figures 4.12 and 4.13). They were driven through a spread of sediment (C.178) upcast from the ditch, but that does not mean the fence was much later than that low bank. The stakeholes contained small amounts of charcoal, mostly



Figure 4.9 Trench 2 ditch after excavation, Lisnamanroe. Note stepping on inner side (left).

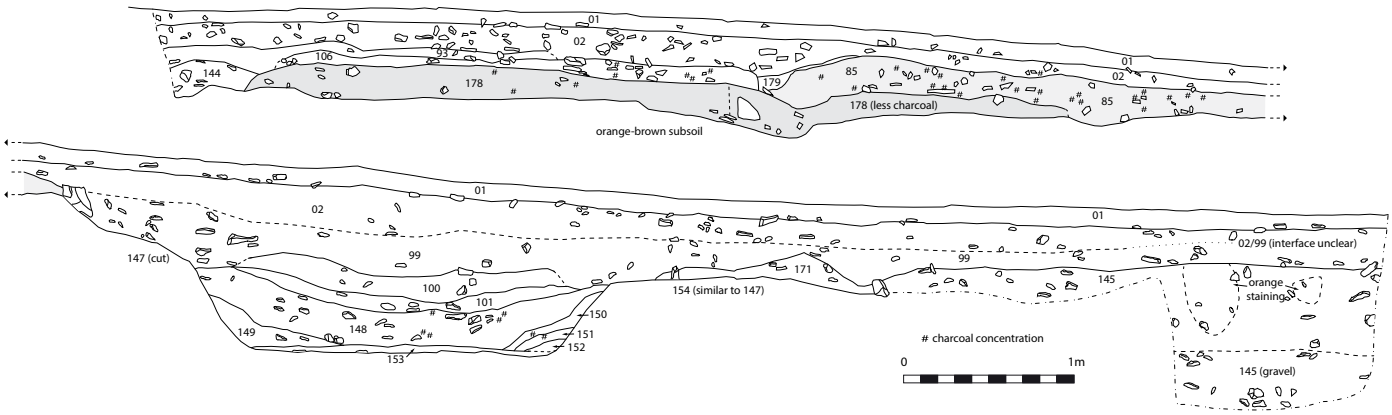


Figure 4.10 Stratification of Trench 2 showing bank deposits and ditch fill, Lisnamanroe.



Figure 4.11 Trench 2 ditch section (south-facing), Lisnamanroe.



Figure 4.12 Trench 2 'bank' area (right), with stake-holes of post fence on the inner side, Lisnamanroe.

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
146	Stakehole	C	V	12cm	31cm	None
156	Stakehole	SC	V	12 x 10cm	32cm	Low
157	Stakehole	C	V	5cm	12cm	Low
158	Stakehole	C	V	6cm	12cm	Low
159	Stakehole	SC	V	10 x 8cm	18cm	None
160	Stakehole	C	V	7cm	14cm	None
161	Stakehole	SC	V	15 x 11cm	23cm	Moderate
162	Stakehole	C	V	8cm	19cm	Low
163	Stakehole	C	V	7cm	12cm	Low
164	Stakehole	C	V	14cm	26cm	Moderate
165	Stakehole	SC	V	11 x 8cm	13cm	None
166	Stakehole	C	V	9cm	26cm	Moderate
167	Stakehole	C	V	9cm	14cm	Low
172	Stakehole	C	V	5cm	8cm	Low
173	Stakehole	C	V	5cm	6cm	Low
174	Stakehole	C	V	4	6	Low
175	Stakehole	C	V	9	16	Low

Figure 4.13 Details of stakeholes, Trench 2.

(SC = sub-circular; C = circular; V = vertical; Incl. = inclined. Charcoal content: low = some flecks; moderate = frequent flecks, some lumps <50% of fill; high = lump/fine charcoal in excess of 50% of fill).

surface in-wash and not connected *in situ* burning of roundwood stakes.

Excavation at the western end of Trench 2 revealed a thin deposit of stony charcoal-rich sediment (C.106). This extended from inside the line of fence stakeholes towards the western end of the trench, where it was truncated by a later cultivation furrow (C.177, filled with C.144). A small concentration of charcoal (C.176) was identified beneath this occupation layer. Cleaning of the underlying B-horizon surface identified a total of 11 stakeholes (contexts 146, 156, 157, 158, 159, 160, 162, 163, 172, 173 and 174), distributed in an irregular north-east/south-west band (Figure 4.8). These stake positions were probably part of one or more structures of unknown type built directly inside the enclosure fence.

Trench 5A

The line of the enclosing elements on the western side of the enclosure is today indicated by a low slope over 4–5m. The excavation of a 6m by 2m extension to the north-west corner of Trench 5 (Figure 4.1) confirmed that the enclosing elements there were similar to those on the eastern side revealed in Trench 2. This included a shallow ditch and low inner bank, on the inside of which there was a stake fence (Figure 4.14).

Ditch

The removal of organic soil exposed the fill of a small ditch (C.466) cut through the B-horizon into grey-white C-horizon (Figures 4.15 and 4.16). The ditch is flat-bottomed with sloping sides. It has an upper width of 3.3m and is 2.05m wide at the base, with a central depth of 1.15m (0.7m below the top of the subsoil cut). As with the Trench 2 ditch, there is a narrow ledge on the upper eastern side of this ditch. This has no obvious purpose, and is unlikely to have been a footing for a stone facing on the adjacent bank, as no such revetment stones were found in the ditch (a large stone in the south-facing section of the ditch is an isolated example). There were indications of rabbit burrowing in the B-horizon surface on the immediate western side of the ditch. That does not seem to have extended into the ditch fill, nor was it recorded inside the enclosure.

Excavation confirmed the ditch infilled over a long period, to the point where it is no longer visible on the modern ground surface. That commenced with a thin deposit of fine grey silt (C.465) that accumulated as soon as the ditch was opened. This silt was overlain by inwash of sediment against the lower ditch sides, which included some primary erosion of the cut. The latter was represented by a small deposit of grey silt (C.463) overlain by purple-orange sandy silt with charcoal flecking (C.461) against the lower inner (eastern) side, with almost identical deposits (C.464 overlain by C.462) against the lower outer side of the ditch.

These primary deposits were overlain by C.460, a 0.15–0.2m thick deposit of sandy silt that formed the lower fill of the ditch. This was a grey-brown (purple tinge) sediment, with numerous small stones, and strong flecking and occasional lumps of charcoal. Excavation revealed some variation within this deposit, but not enough to indicate separate deposits. The sediment

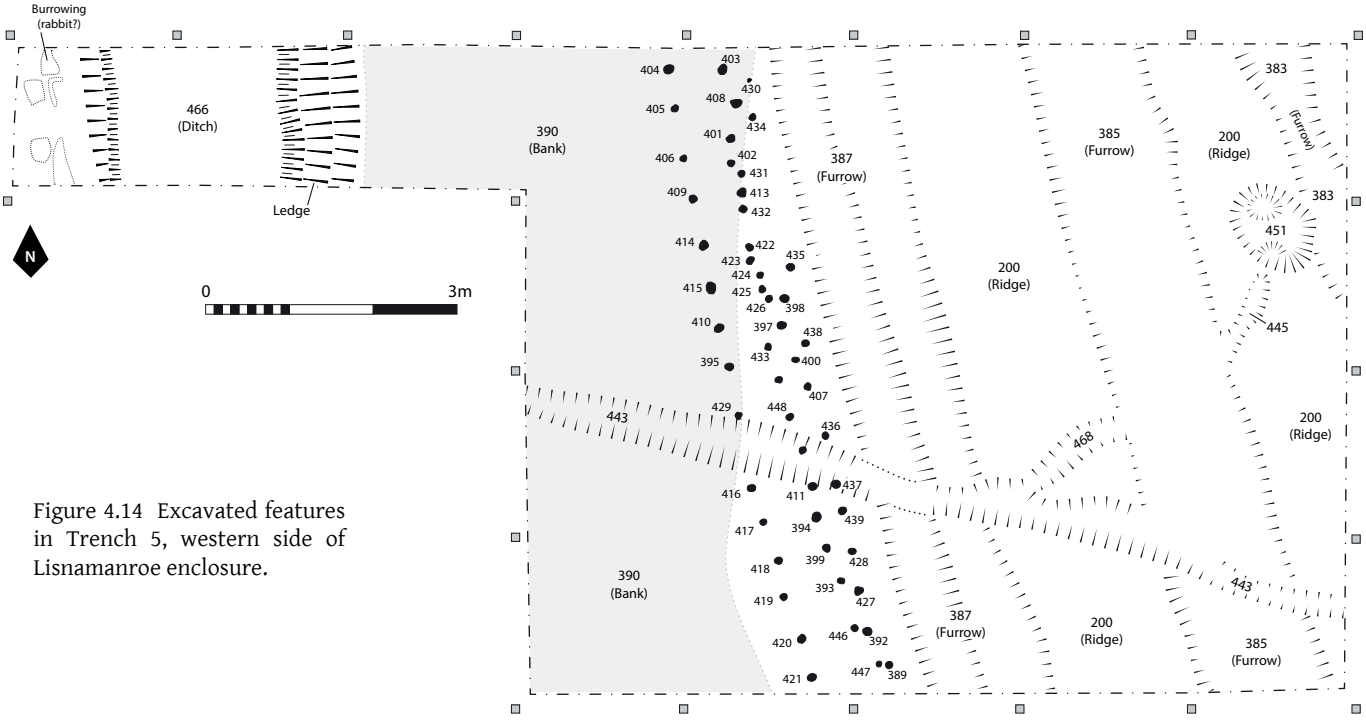


Figure 4.14 Excavated features in Trench 5, western side of Lisnamanroe enclosure.



Figure 4.15 Post-excavation view of enclosure ditch, Trench 5, Lisnamanroe. Note ledge on inner slope of ditch (centre right).

along the lower ditch sides (C.460A) contained numerous small stones, giving it a gravelly texture. The sediment at base of the ditch (C.460C) was slightly lighter in colour and more silty, while the overlying material (C.460B) contained slightly larger stones than the other two. It was difficult to identify clear boundaries between those three fractions of C.460, suggesting that they were part of the same deposition of sediment into the open ditch. That sediment contained charcoal probably derived from occupation inside the enclosure.

The lower ditch sediment was overlain by a thin layer of green/grey-brown, stone-free silt, with some charcoal (C.459). This, in turn, was overlain in the central ditch area by a 0.1–0.12m thick deposit of grey-dark brown organic silt (C.458). Laboratory sieving and flotation of 31 litres of this sediment revealed a small amount of charcoal, but no other plant remains or small finds. The charcoal content suggests this context may be connected to a later phase of occupation of the enclosure, but probably not to its destruction.

The next stage in the ditch infill sequence may be connected to abandonment of the enclosure. The central part of the ditch was filled by a 0.1–0.2m thick deposit of homogenous orange-brown sandy silt (C.457, with C.455 on western side) with charcoal flecking and a high pebble content. This deposit seems to have been cut by a narrow band of darker sediment crossing the ditch in a north north-west/south south-east direction. That was composed of purple-grey-brown sandy silt, with a gravelly texture due to frequent small to medium stones, but almost no charcoal. The significance of this feature, an apparent intrusion into the C.457/455 layer, is not known.

The final stage in the infill sequence is represented by a layer of orange-brown sandy silt (C.454) across the upper part of the ditch (Figure 4.16). This contained numerous small stones and occasional larger examples, with frequent flecks of charcoal. It was similar to the underlying C.457, and so probably part of the same slow infilling of the ditch. There was an obvious break in this process in the form of a compact layer of stone-free silt (C.453) across the eastern side of the ditch. This represents a buried sod layer that pre-dates the early modern phase of agriculture in this field. The latter can be connected to a partial levelling of the enclosure bank, represented by a 0.15–0.25m thick layer of mid-brown sandy silt (C.452) that extended across the entire area of the ditch. That sediment had significant charcoal content, which may be compared to that of the bank spread (C.390, below) inside the ditch. It is suggested that C.452 formed as a result of the levelling of that bank in the early modern era, and subsequent to lazy-bed cultivation in the interior of the enclosure. This most likely occurred during an enlargement of surrounding fields at different times during the twentieth century. Finally, C.452 was overlain by a 0.25–0.3m thickness of organic topsoil (C.02) above the ditch position.

Bank

Excavation on the western side of Trench 5 identified a thin spread of bank material on the immediate inside of the ditch (Figure 4.14). This comprised a 4.74m wide (E–W) spread of grey-brown (purple tinge), stony silt (C.390). It was a compact deposit, 0.12–0.18m in thickness, which thinned on the eastern side due to some levelling of the bank in the modern era (Figure 4.16). Context 390 contained frequent flecks and small lumps of charcoal. In one area, Context 390 overlay a thin deposit of orange/light brown stony silt (C.391) with no charcoal.

Stake fence

Excavation uncovered three lines of closely spaced stakeholes along the inside of the bank (Figure 4.14). The removal of C.390 bank slip revealed a total of 52 stakeholes driven vertically into the underlying B-horizon surface (C.200). These were arranged in three lines running north-north-west/south-south-east across the trench (Figure 4.17). The western line comprised 15 stakeholes (C.404 to C.219, north to south), which were spaced 0.4–0.6m apart. A second fence line was identified 0.5–0.8m to the east, comprising 37 stakeholes (C.403 to C389, north–south). These were less regularly spaced than the outer stake line, with the additional stakeholes indicating re-building over time. That is also likely for a line of stakeholes (C.433 to C.447) along the western side of the inner stake row.

These stakeholes were 0.06–0.16m in diameter (average 0.1m) and 0.07–0.34m in subsoil depth (average 0.19m) (Figure 4.18). A comparison of their size does not indicate any significant difference between the inner and outer stake rows. Charcoal was recorded in a small number of these stakeholes, mostly in small amounts from in-wash of surface sediment. There is no indication that any stakes burnt *in situ*, though this does not exclude the firing of a collapsed fence superstructure. The burning of same might explain the significant charcoal content of the C.390 'bank' surface.

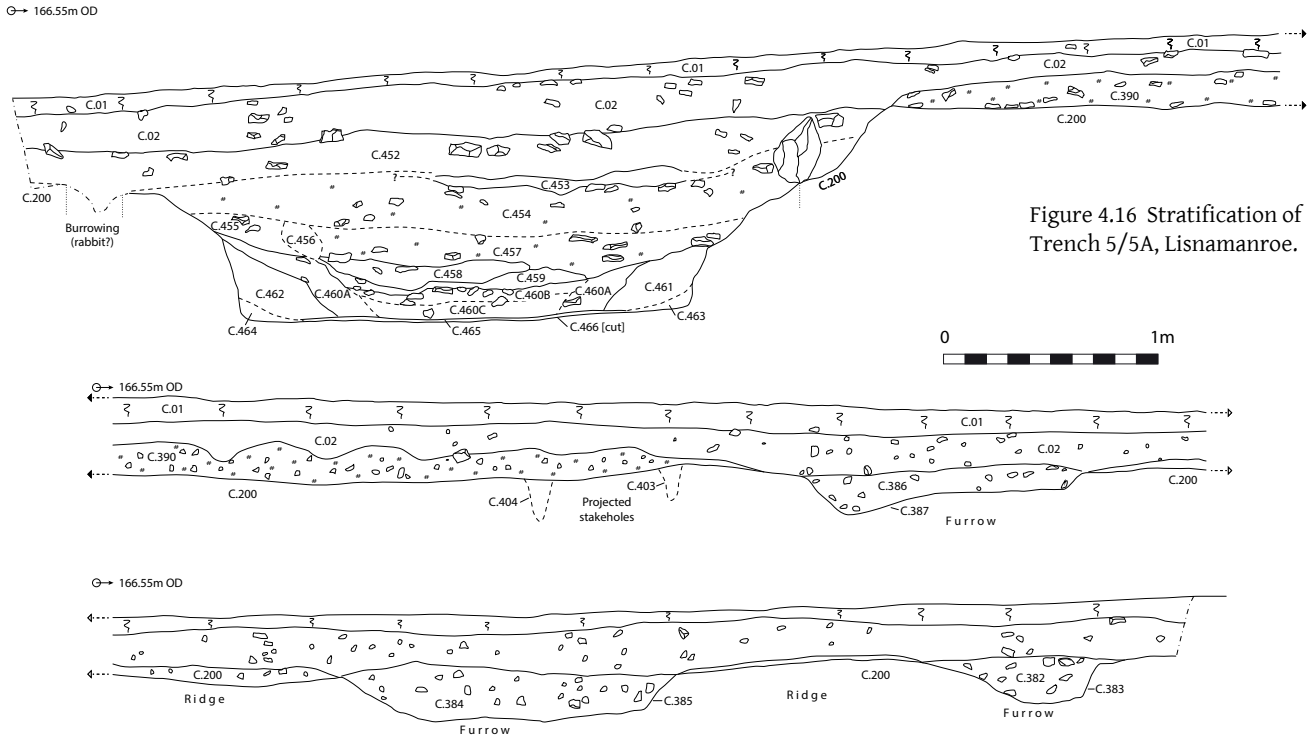


Figure 4.16 Stratification of Trench 5/5A, Lisnamanroe.



Figure 4.17 Post-excavation view of western side of Trench 5, Lisnamanroe, showing three lines of stakeholes on inner side of former bank, west (left) of cultivation furrow (looking north).

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
389	Stakehole	C	V	8cm	24cm	Low
392	Stakehole	C	V	10cm	16cm	None
393	? Stakehole	SC	V	5 x 7cm	7cm	None
394	Stakehole	C	V	10cm	23cm	Low
395	Stakehole	C	V	15cm	32cm	None
397	Stakehole	C	V	10cm	22cm	Low
398	Stakehole	C	V	12cm	19cm	None
399	Stakehole	C	V	9cm	18cm	Low
400	Stakehole	C	V	8cm	26cm	Low
401	Stakehole	C	V	10cm	19cm	Low
402	Stakehole	C	V	9cm	12cm	None
403	Stakehole	C	V	8cm	17cm	None
404	Stakehole	C	V	12cm	23cm	None
405	Stakehole	C	V	10cm	17cm	None
406	Stakehole	C	V	10cm	25cm	None
407	Stakehole	SC	V	10 x 8cm	16cm	Low
408	Stakehole	C	V	16cm	22cm	Moderate
409	Stakehole	C	V	11cm	22cm	None
410	Stakehole	C	V	11cm	26cm	Low
411	Stakehole	C	V	10cm	23cm	None
412	Stakehole	SC	V	10 x 9cm	18cm	None
413	Stakehole	C	V	11cm	18cm	None
414	Stakehole	C	V	12cm	19cm	Low
415	Stakehole	C	V	12cm	34cm	None
416	Stakehole	C	V	15cm	32cm	None
417	Stakehole	C	V	9cm	22cm	None
418	Stakehole	C	V	8cm	20cm	None
419	Stakehole	C	V	8cm	17cm	None
420	Stakehole	C	V	10cm	20cm	None
421	Stakehole	C	V	11cm	28cm	None
422	Stakehole	C	V	8cm	16cm	None
423	Stakehole	C	V	9cm	20cm	Low
424	Stakehole	SC	V	8 x 6cm	19cm	Low
425	Stakehole	C	V	7cm	22cm	Low
426	Stakehole	C	V	6cm	20cm	Low
427	Stakehole	C	V	12cm	16cm	None
428	Stakehole	C	V	7cm	17cm	None
429	Stakehole	C	V	8cm	16cm	None
430	Stakehole	C	V	8cm	13cm	None
431	Stakehole	C	V	10cm	12cm	None
432	Stakehole	C	V	11cm	12cm	None
433	Stakehole	C	V	6cm	21cm	Low
434	Stakehole	C	V	9cm	26cm	None
435	Stakehole	C	V	14cm	10cm	None
436	Stakehole	SC	V	8 x 7cm	14cm	Low
437	Stakehole	C	V	11cm	20cm	Low
438	Stakehole	C	V	7cm	14cm	Low
439	Stakehole	C	V	8cm	17cm	None
440	Stakehole	SC	V	9 x 6cm	14cm	Low
446	Stakehole	C	V	10cm	12cm	None
447	Stakehole	C	V	9cm	14cm	None
448	Stakehole	C	V	9cm	18cm	Low

Figure 4.18 Details of stakeholes, Trench 5.

(? = possible; SC = sub-circular; C = circular; V = vertical. Diameter refers to plan dimensions of cut. Charcoal content: low = occasional flecks; moderate = frequent flecks and some lumps <50% of fill; high = lump/fine charcoal in excess of 50% of fill).

Trench 3/3A (entrance)

Excavation in 2012 on the eastern side of enclosure identified the original entrance to the Lisnamanroe enclosure (Figures 4.1 and 4.19). This is a *c.*6m wide break in the enclosing 'bank', outside which there was a 7.5m wide causeway between two ditch terminals (Figures 4.20 and 4.21). The remains of a stake fence were discovered directly inside the bank, interrupted by two large postholes that were part of a 1.7m wide wooden gate arrangement. A number of other stakeholes and pit features were discovered, including a small arrangement of stakes 1.5m outside that gate position. Judging from the size of the accompanying ditch, the original bank must have been insubstantial. The base of this feature survives on the southern side of the entrance. The most significant archaeological deposits came from the two ditch terminals, where early occupation sediments containing burnt material and possible food residues were discovered. Of particular importance is a deposit of burnt bone in the northern ditch terminal. That seems to have been deposited deliberately in the lower ditch fill, where it was covered by a large stone slab. The same deposit contained a single sherd of E-ware and splinters of decorated late Roman glass. The other significant find from the Period 1 occupation is a broken wire ring of copper alloy, with a lightly faceted design, found in the southern ditch terminal (see 'Finds' below).

Period 2: early modern cultivation and modern farming

Excavation in Trench 3 began with the removal of the A-horizon topsoil. A thin sod (C.01) overlay a layer of well-sorted humic soil (C.02). That contained a small number of early modern artifacts, including fragments of clear glass, sherds of china pottery and brown glazed earthenware, corroded iron nails, an iron horse-shoe, fuel cinder, and vitrified stone probably from a lime kiln (O'Brien 2018, appendix 4). The removal of the A-horizon exposed dark brown linear features extending diagonally across the western and eastern ends of trench, but not the central area. Excavation at the eastern end revealed a series of parallel cultivation furrows extending north north-west/south south-east in direction (Figure 4.22; contexts 180, 182, 184, 186 and 188). These were spade-dug trenches, 0.6–0.8m in width, separated by narrow ridges of B_S-horizon subsoil.

Cultivation trenches were also identified at the western end of this trench (Figure 4.23). A series of narrower furrows in a north-west/south-east direction (Figure 4.20; contexts 198, 202, 208, 210, 218, 244 and 281) were cut by a later and wider north–south furrow (C.204). These furrows are associated with artifacts of early modern date, including vitrified stone, clear glass, sherds of china tableware and brown ware. A small quantity of fuel cinder was found in the fills of these furrows and in the overlying A-horizon.



Figure 4.19 Excavation of enclosure entrance in progress, Trench 3, Lisnamanroe.

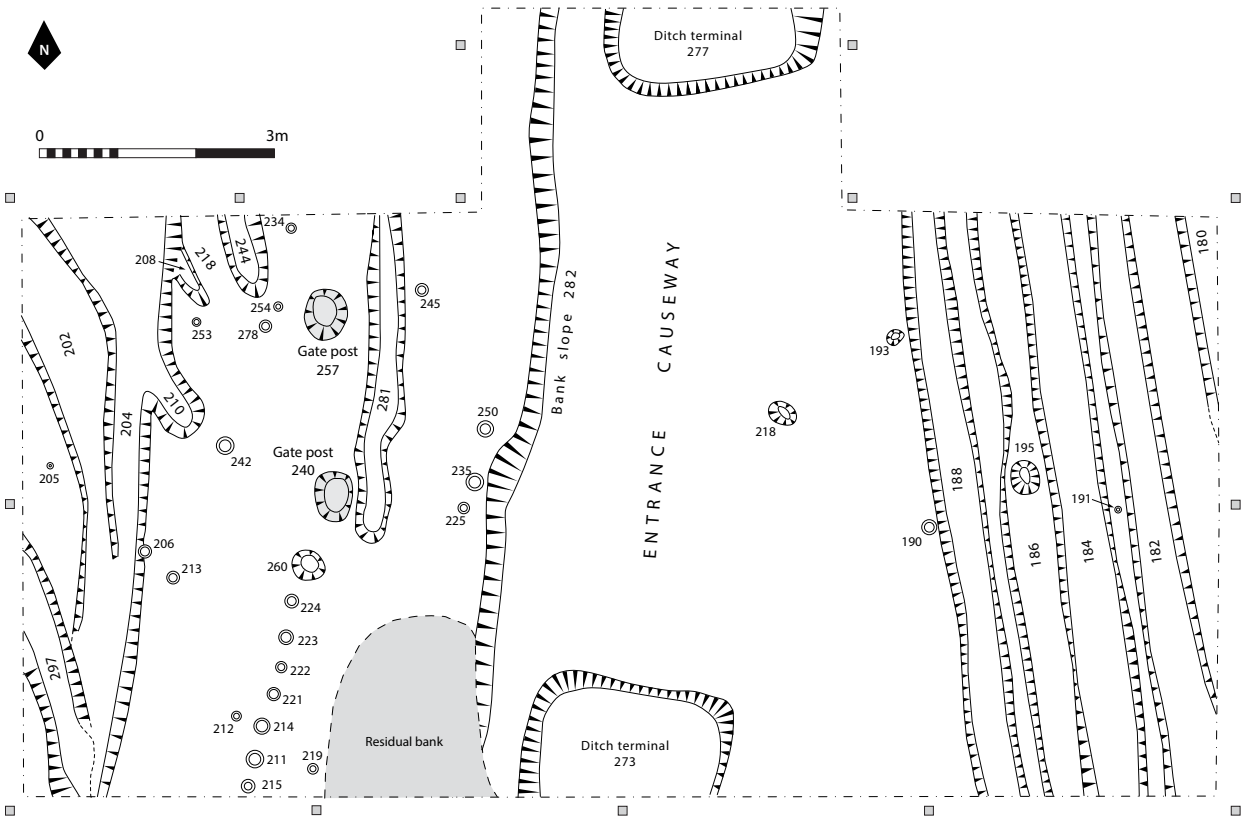


Figure 4.20 Excavated features (early medieval and early modern cultivation) in Trench 3, Lisnamanroe.



Figure 4.21 Trench 3, Lisnamanroe, on completion of excavation. Early modern cultivation furrows visible at east (top) and west (bottom) ends of trench. Period 1 features include ditch terminals (left and right of centre), stake fence and gate post-holes.



Figure 4.22 Early modern cultivation trenches ('lazy-beds') at eastern end of Trench 3, Lisnamanroe.



Figure 4.23 Early modern cultivation ('lazy-beds') at western end of Trench 3, Lisnamanroe.

The central part of Trench 3, on the eastern side of the bank slope, was also cultivated in the early modern era. There are no discernible plough or spade furrows on the B-horizon surface, possibly because of a greater depth of humic soil (C.189) in that area. The likelihood of cultivation is indicated by finds of glazed pottery close to contact with the underlying B-horizon. The absence of lazy-bed features in the central trench area suggests some physical separation of cultivation inside and outside of the enclosure, which is also indicated by the geophysical survey (Figure 2.36). This suggests the enclosing bank and ditch were more effective barriers in the early modern era, but the evidence there is slight.

Trench 3 Period 1 (enclosure construction/early use)

The excavation of Trench 3 identified a number of primary features associated with the original entrance to the Lisnamanroe enclosure, as well as some occupation-related sediments and early artifact finds (Figures 4.21 and 4.24). These may be examined taking the principal elements of the entrance in turn:

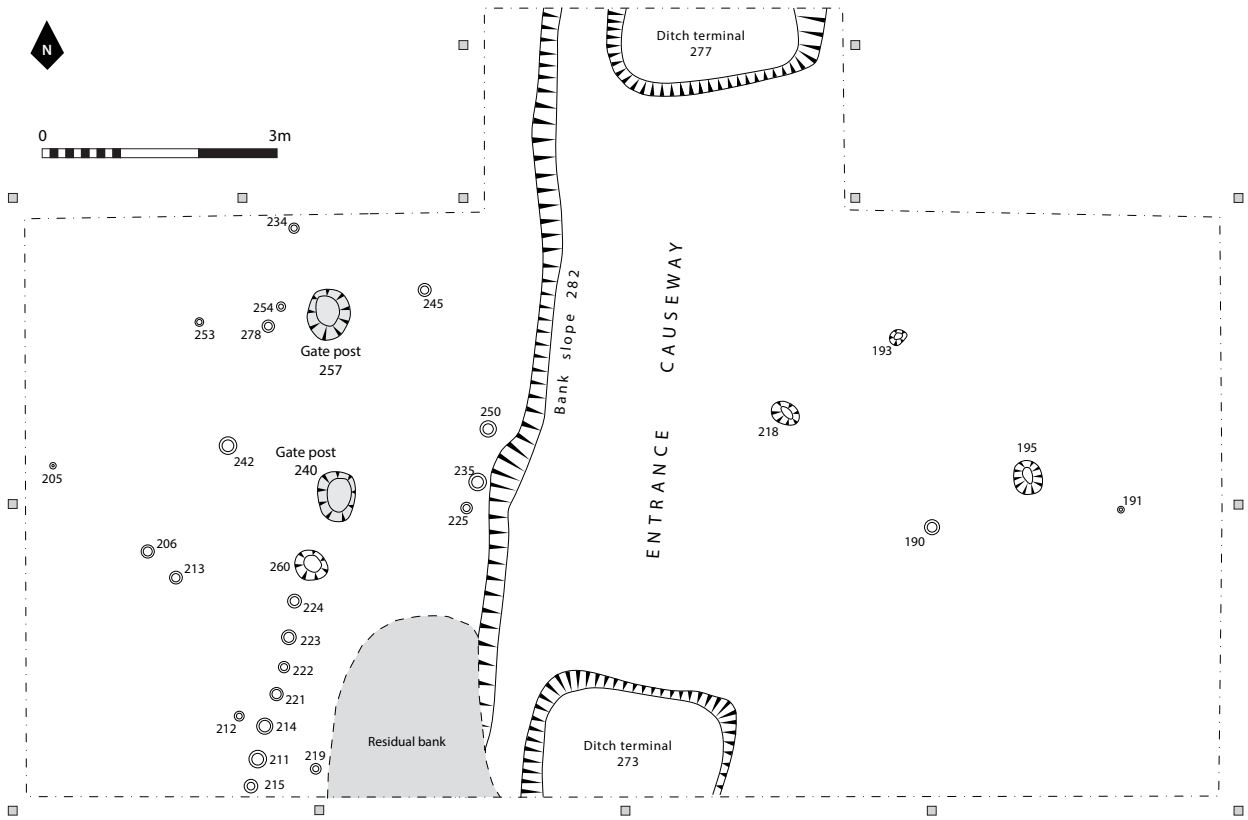


Figure 4.24 Period 1 features in entrance area to enclosure, Trench 3, Lisnamanroe.



Figure 4.25 North-facing section of southern ditch terminal, Trench 3, Lisnamanroe.

Southern ditch terminal

Excavation at the southern side of Trench 3 revealed the terminal of the enclosing ditch (C.273) cut into the leached B-horizon subsoil (C.199). This had a straight end with sharply rounded corners (Figures 4.24 and 4.25). The ditch sides were near vertical, while the base was almost totally smooth and flat. The ditch terminal was exposed for approximately 1m, and measured 2.65m in maximum width and 0.65m deep.

Excavation of this ditch revealed the following fill sequence (Figures 4.26 and 4.27):

1. Basal sediment (C.272) with charcoal flecking.
2. Primary erosion of ditch sides: C.271, overlain by C.268 on western side; C.270 overlain by C.267 on eastern side.
3. Deposition of charcoal-rich sediment (C.269) in central ditch area, containing some burnt bone and fragments of a copper alloy ring (11E110:243).
4. Influx of eroding bank sediment, with C.265 overlain by C.266 overlain by C.264.
5. Further silting on eastern side of ditch (C.263) and in central ditch area (C.262).
6. Accumulation of charcoal-rich sediment (C.261) in upper ditch fill.
7. Natural A-horizon (cultivation zone), comprised of lower humic silt (C.189), upper humic silt (C.02) and sod (C.01).

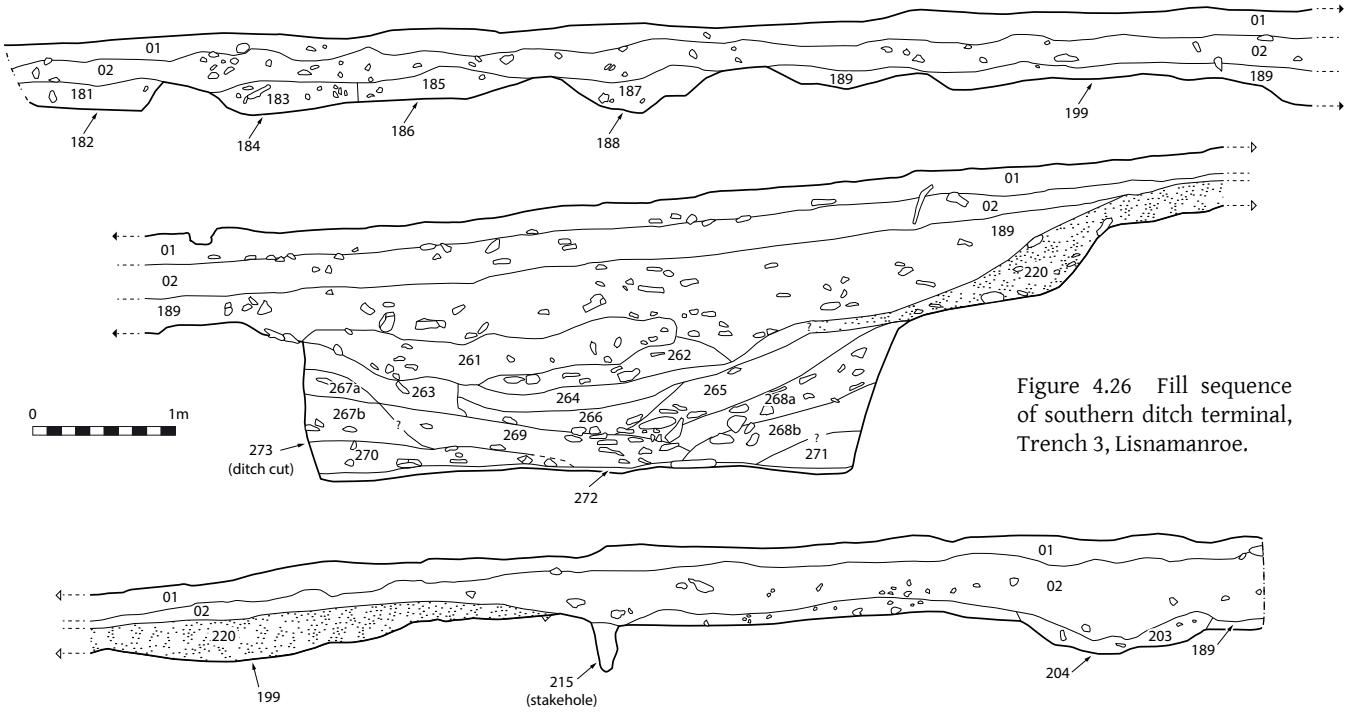


Figure 4.26 Fill sequence of southern ditch terminal, Trench 3, Lisnamanroe.



Figure 4.27 Detail of north-facing section of southern ditch terminal, Trench 3, Lisnamanroe.

In summary, three archaeologically significant deposits can be identified in this ditch sequence: a basal sediment (C.272) with small amounts of charcoal; an early occupation sediment (C.269); and a charcoal-rich deposit (C.261) in the upper fill that possibly marks the abandonment of this enclosure.

Northern ditch terminal

Excavation at the northern side of Trench 3 identified the terminal of the enclosing ditch (C.277; Figure 4.24). This was cut into the leached B-horizon subsoil (C.199), and like the southern terminal had a straight end with sharply rounded corners. The western side was steeply sloping, slightly less so on the eastern side, while the southern end was almost vertical (Figure 4.28). The ditch terminal was exposed in Trench 3 for approximately 1m, and measured 2.8m in width (east–west) and 0.75m deep. The base was almost totally smooth and flat.

Excavation of this ditch revealed the following fill sequence (Figures 4.29 and 4.30):

1. Basal sediment (C.279) with charcoal flecking.
2. Primary erosion of ditch sides: C.276 on western side; C.274 eastern side.
3. Further silting, with C.252 overlain by C251 on eastern side; C.275 on western side.
4. A thin deposition of occupation sediment (C.248) on western side of ditch, contained charcoal, hazel-nut fragments, burnt bone and a small number of cereal seeds.
5. A deposit of stony silt (C.247) in central area of ditch overlain by finer silts (C246 and C.258); natural silting and possible bank erosion.
6. Further silting on eastern side of ditch (C.231)
7. Deposition of burnt sediment (C.233) in central ditch area (Figures 4.31 and 4.32). Contained burnt animal bone, charcoal and fire-reddened stones. Overlain by stone slab (C.232).
8. Build up of natural silt (C.230), around C.232 stone, with further natural silting (C.227 and C.228, overlain by C.229) in upper ditch sequence.
9. A deposit of charcoal-rich sediment (C.226) in upper ditch fill.
10. Natural A-horizon (cultivation zone), comprised of lower humic silt (C.189), upper humic silt (C.02) and sod (C.01).

In summary, four archaeologically significant deposits can be identified in this ditch sequence: a basal sediment (C.279) with charcoal; an early occupation sediment with food residues (C.248); a later occupation deposit of burnt animal bone (C.233) overlain by a stone slab and associated with a sherd of E-ware and splinters of late Roman glass; and finally, a charcoal-rich deposit (C.226) in the upper ditch fill probably marking final abandonment of the enclosure.



Figure 4.28 Northern ditch terminal after excavation, Trench 3, Lisnamanroe.

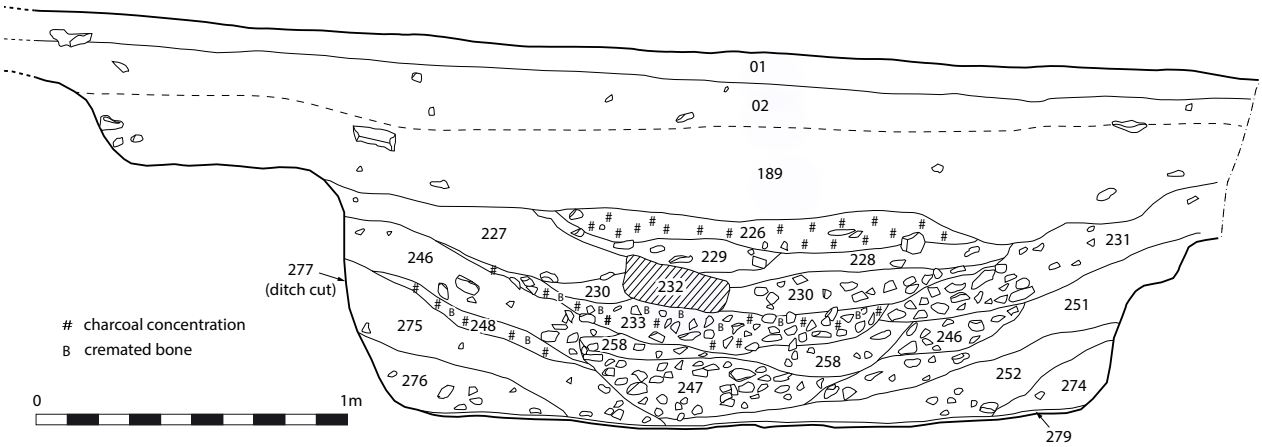


Figure 4.29 Fill sequence of northern ditch terminal, Trench 3, Lisnamanroe.



Figure 4.30 South-facing section of northern ditch terminal, Trench 3, Lisnamanroe.



Figure 4.31 Upper fill of northern ditch terminal, with large stone (C.232) in position over burnt bone deposit (C.233; outer edge visible as arc around stone), Trench 3, Lisnamanroe.



Figure 4.32 Excavation of burnt bone deposit (C.233) in northern ditch terminal, Trench 3, Lisnamanroe.

Ditch causeway

This 7.5m wide gap between the two ditch terminals had an irregularly flat B-horizon (C.199) surface, with some stones but no evidence of stone metalling (Figure 4.24). A small deposit of charcoal (C.218) in that area cannot be connected directly to the enclosure.

Bank terminals

Both bank terminals were substantially levelled on either side of the entrance gap. The southern bank terminal was represented by a thin deposit of charcoal-flecked sandy silt (C.220) (a similar deposit was identified in 2011 on the inner side of the ditch in Trench 2). There were no artifact finds from this residual bank material.

On the northern side of the entrance the excavation of Trench 3A revealed a thin spread of purple-grey stone sediment (C.350). This represents the base of a low bank (C.350) directly inside the ditch from where this redeposited subsoil derived (Figure 4.33). The C.350 sediment was deposited to a maximum thickness of 0.16m. A small deposit of loose cobbles (C.196) was found along the bank slope on the northern side of Trench 3. Those stones were too small and few in number to represent part of an original bank facing.

Stake fence and gate features

Directly inside the southern bank terminal (C.220) a line of seven small stakeholes (contexts 215, 211, 214, 221, 222, 223 and 224) extended north from the southern excavation baulk for a distance of 2.7m (Figures 4.24 and 4.36). These stakeholes were 0.08–0.11m in diameter, and driven vertically to depths of 0.12–0.3m (Figure 4.37). They were spaced *c*.0.3m apart, ending with a larger stakehole (C.260). These features were part of a stake fence, possibly finished with wattle work, and tied to the larger C.260 stake. Two other stake positions (C.212 and C.219) may have provided additional support for this fence.

A large posthole (C.240) was excavated 0.55m north of the C.260 stake position. This pit measured 0.49m by 0.69m by 0.49m in depth, with a discernible post-pipe where the original post had decayed *in situ*, as well as two large packing stones (C.239). A second large posthole (C.257) was excavated 1.8m to the north (Figures 4.24 and 4.36). That measured 0.6m by 0.8m by 0.56m in vertical depth, with three large packing stones (C.256) and a charcoal-rich fill. That suggests the original post may have burnt down. Both postholes formed part of a wooden gate arrangement. Excavation of Trench 3A revealed a row of 23 definite (and one possible) stakeholes extending in a north–south direction from the C.257 posthole (Figures 4.34 and 4.35). These averaged 0.06–0.13m in diameter and were all driven vertically to depths of 0.07–0.37m (Figure 4.37).

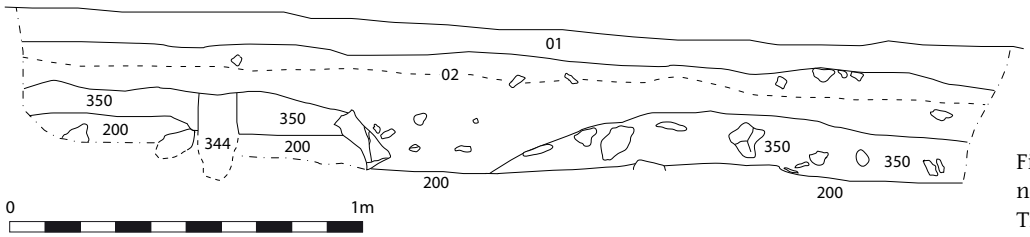


Figure 4.33 Stratification of northern side of entrance, Trench 3A, Lisnamanroe.

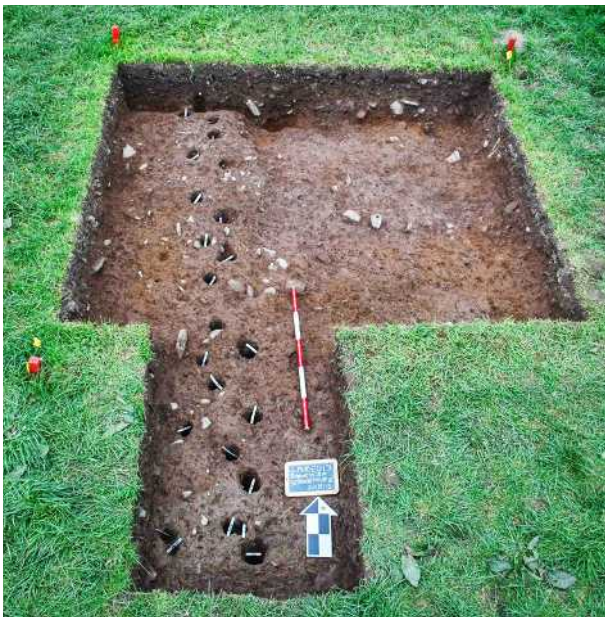


Figure 4.34 Continuation of stake fence in of Trench 3A, showing north–south line of stakeholes on immediate inside of bank (right).

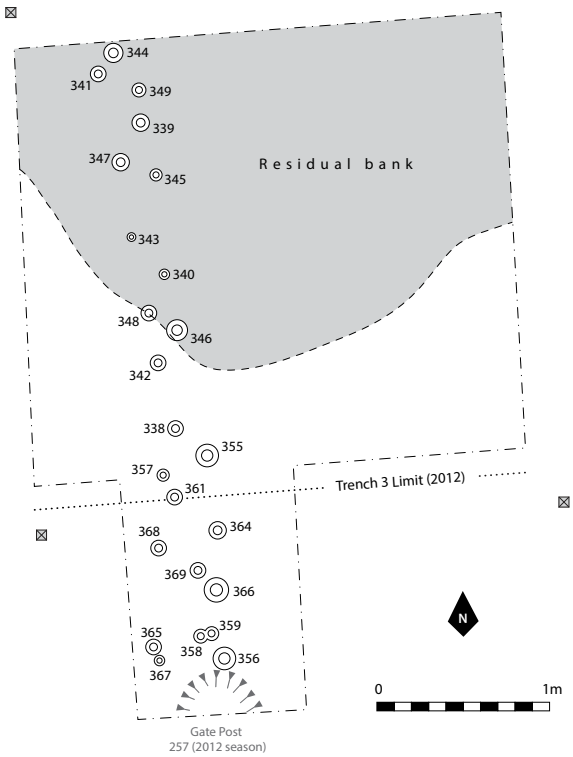


Figure 4.35 Continuation of stake fence on northern side of entrance, Trench 3A, Lisnamanroe. Spread of bank material (C.360) in grey.



Figure 4.36 Line of stakeholes (top) ending at two large postholes of gateway, Trench 3, Lisnamanroe (looking south).

Other Period 1 features in Trench 3 include an irregular line of four stakeholes (contexts 216, 225, 235 and 250) in front of the entrance gateway. These may have formed some kind of blocking of the entrance, however that is perhaps unlikely. A small pit (C.195) truncated by later cultivation furrows was identified at the eastern end of the trench. The fill of that feature contained charcoal, but no other finds. Two possible stakeholes (C.190 and C.193) near this pit are not dated. A number of other stakeholes were identified inside the entrance gateway. These include contexts 205, 206, 213, 234, 242, 253, 254, 278. None of these form part of any discernible structures, nor is their chronological position known.

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
190	Stakehole	C	V	13cm	11cm	Low
191	Stakehole	C	V	8cm	4cm	None
205	Stakehole	C	V	7cm	6cm	Low
206	Stakehole	C	V	11cm	26cm	None
211	Stakehole	SC	V	9 x8 cm	18cm	Low
212	Stakehole	C	V	7cm	11cm	None
213	Stakehole	C	V	7cm	19cm	Low
214	Stakehole	C	V	11cm	30cm	None
215	Stakehole	C	V	9cm	24cm	None
216	Stakehole	SC	V	12 x 8cm	34cm	Low
219	Stakehole	C	V	7cm	16cm	None
221	Stakehole	C	V	9cm	19cm	None
222	Stakehole	C	V	9cm	19cm	None
223	Stakehole	C	V	10cm	23cm	None
224	Stakehole	C	V	9cm	12cm	None
225	Stakehole	C	V	8cm	16cm	None
234	Stakehole	C	V	7cm	13cm	None
235	Stakehole	Oval	V	21 x 9cm	16cm	None
242	Stakehole	SC	V	11 x 10cm	30cm	None
245	Stakehole	C	V	9cm	18cm	None
249	Stakehole	SC	V	7 x 6cm	10cm	High
250	Stakehole	C	V	11cm	21cm	Moderate
253	Stakehole	C	V	8cm	24cm	None
254	Stakehole	C	V	8cm	13cm	Moderate
278	Stakehole	C	V	8cm	12cm	None
338	Stakehole	C	V	9cm	21cm	No
339	Stakehole	C	V	10cm	14cm	Low
340	Stakehole	C	V	6cm	25cm	No
341	Stakehole	C	V	9cm	19cm	No
342	Stakehole	C	V	9cm	19cm	No
343	Stakehole	C	V	4cm	19cm	No
344	Stakehole	C	V	11cm	20cm	Low
345	? Stakehole	SC	V	7 x 6cm	3cm	No
346	Stakehole	C	V	11cm	23cm	No
347	Stakehole	C	V	10cm	17cm	No
348	Stakehole	C	V	9cm	17cm	Low
349	Stakehole	C	V	8cm	22cm	Low
355	Stakehole	SC	V	13 x 12cm	20cm	Low
356	Stakehole	C	V	13cm	29cm	No
357	Stakehole	C	V	7cm	12cm	No
358	Stakehole	C	V	8cm	17cm	No
359	Stakehole	C	V	7cm	11cm	No
361	Stakehole	C	V	9cm	15cm	Low
364	Stakehole	C	V	10cm	16cm	Low
365	Stakehole	C	V	9cm	18cm	Low
366	Stakehole	SC	V	15 x 10cm	37cm	No
367	Stakehole	C	V	6cm	7cm	No
368	Stakehole	SC	V	9 x 5cm	14cm	Moderate
369	Stakehole	C	V	9cm	18cm	Low

Figure 4.37 Details of stakeholes, Trench 3 (contexts 190 to 278) and Trench 3A (contexts 338 to 369).

(? = possible; SC = sub-circular; C = circular; V = vertical. Diameter refers to plan dimensions of cut. Charcoal content: low = occasional flecks; moderate = frequent flecks and some lumps <50% of fill; high = lump/fine charcoal in excess of 50% of fill.)

4.3 INTERIOR OF ENCLOSURE

Four large trenches were excavated in the interior of Lisnamanroe. They include Trenches 1, 4 and 6 in the central area of the enclosure, with Trench 5 inside the enclosing element on the western side.

Central area (Trenches 1, 4 and 6)

The investigation of this area began in 2011 with a 10m square cutting (Trench 1) excavated on level ground. This was positioned on a large circular anomaly in the magnetic gradiometry survey (Figures 2.36 and 4.1). In 2013 that trench was extended to the west by a 13m by 10m cutting (Trench 4), and in 2015 by a 15m by 8m cutting (Trench 6) on the southern side. The total area of the three trenches was 350 square metres, representing approximately 10% of the interior of the enclosure.

The excavation of those three trenches began with the removal of a thin sod (context 01) and an underlying layer of well-sorted organic topsoil (C.02). This A-horizon contained a small number of artifacts of early modern date, including sherds of earthenware and china tableware, fragments of glass, some corroded iron objects, fuel cinders and pieces of vitrified limestone. A small number of artifacts of earlier date were also recovered in this cultivated soil (see *Finds* below).

The removal of A-horizon topsoil exposed a series of large parallel cultivation furrows extending north-north-west/south-south-east across all three trenches (Figures 4.38–4.44). These were spade-dug trenches, 0.25–0.45m in width and 0.04–0.26m in depth, separated by narrow ridges of iron-stained B-horizon. They were irregularly flat, with steep to moderately sloping sides where small depressions represent original spade marks. The size and shape of these furrows indicates they are spade-dug 'lazy-beds', probably connected to potato cultivation in the early modern era. Their fills contained objects of nineteenth/early twentieth century date, similar to those listed above, as well as the occasional object from earlier levels.

This cultivation caused significant damage to Period 1 archaeological levels inside the enclosure. An investigation of the B_S-horizon surface revealed a significant number of cut features connected to the early occupation, including stakeholes, post-holes, pits of unknown purpose, and some small deposits of charcoal. These survived as a palimpsest of early features, from probably more than one phase of occupation. They were best preserved on narrow ridges of B_S-horizon subsoil separating the lazy-bed furrows where they are mostly destroyed (Figure 4.45). There are few stratigraphic relationships, though the arrangement of some stake and post positions does indicate built structures in that area. Radiocarbon dates confirm those features are probably related to Period 1 artifacts in the excavation area, including spindle whorls, stone discs and glass beads.



Figure 4.38 Excavation of cultivation furrows, Trench 1, Lisnamanroe.

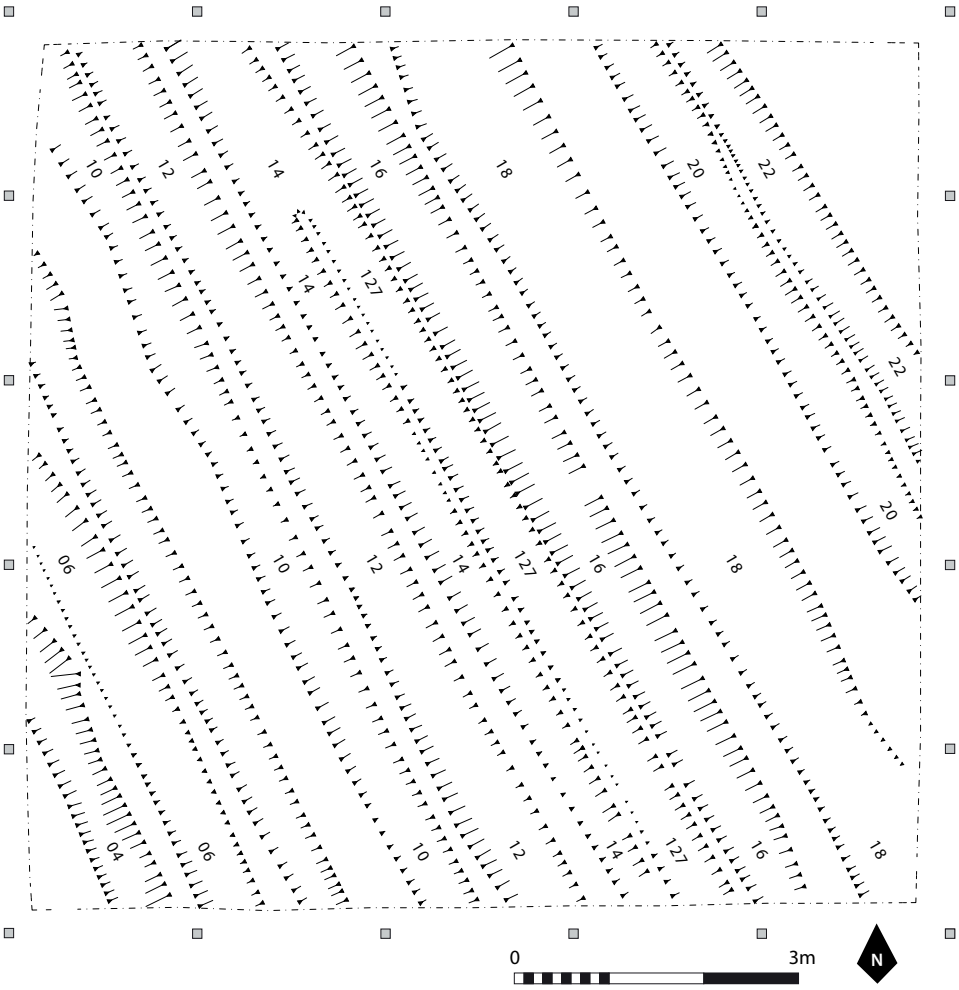


Figure 4.39 Early modern cultivation furrows, Trench 1, Lisnamanroe.



Figure 4.40 Cultivation furrows after excavation, Trench 1, Lisnamanroe (looking north).

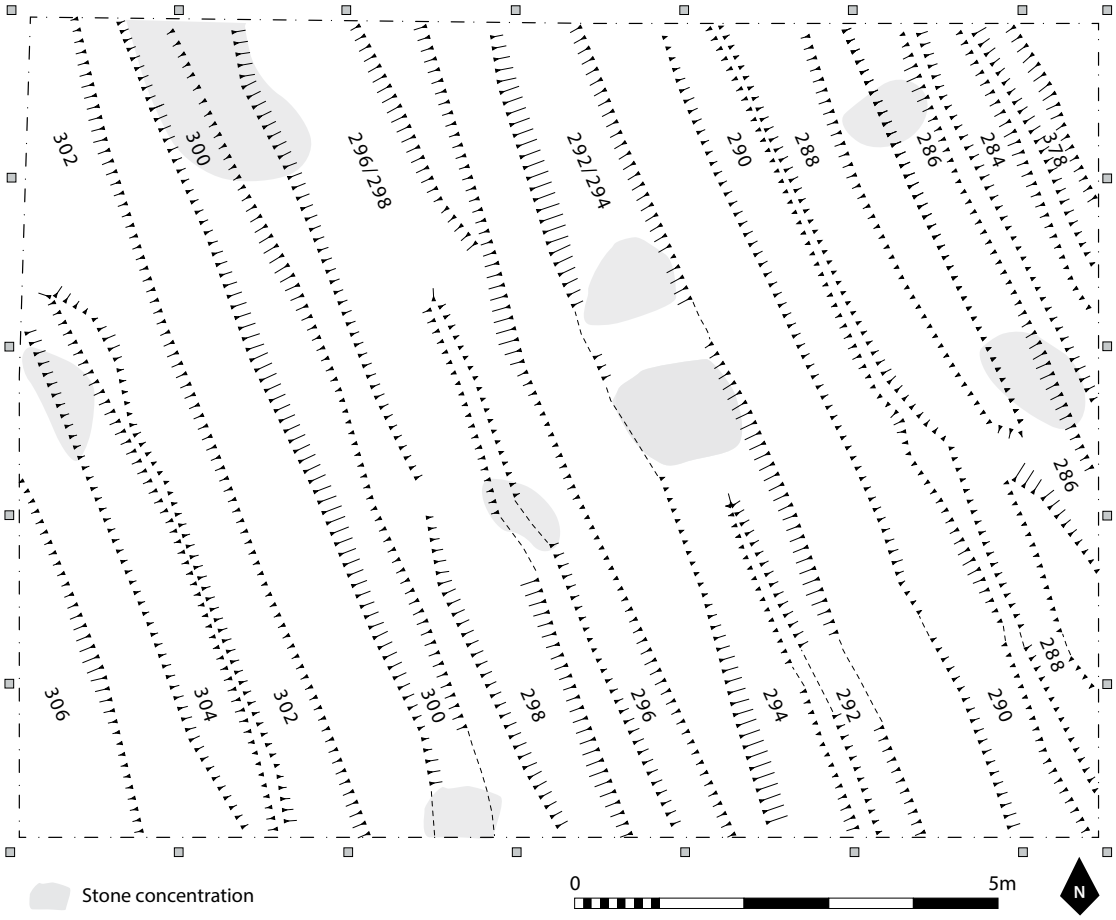


Figure 4.41 Early modern cultivation furrows, Trench 4, Lisnamanroe.



Figure 4.42 Post-excavation view of cultivation furrows and earlier pit features, Trench 4, Lisnamanroe (looking north).

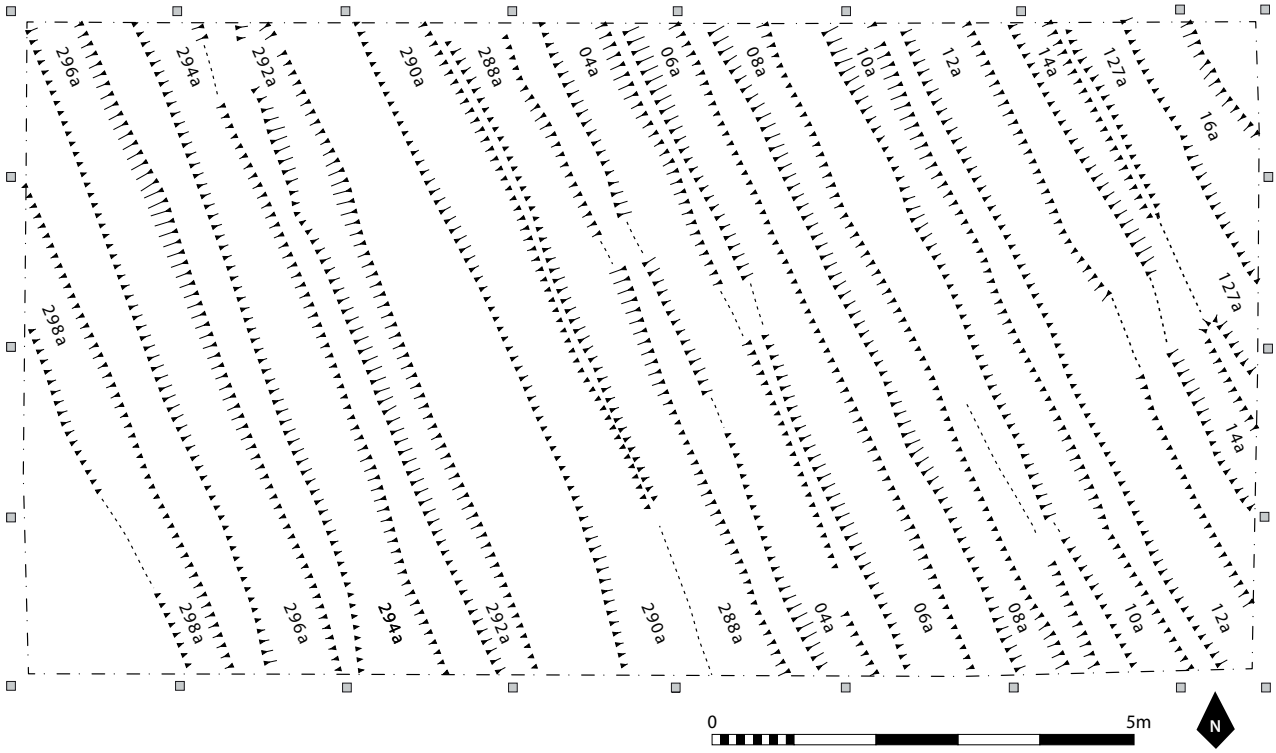


Figure 4.43 Early modern cultivation furrows, Trench 6, Lisnamanroe.



Figure 4.44 Post-excavation view of 'lazy-bed' cultivation features, Trench 6, Lisnamanroe (looking north-west). The small pock marks represent original spade marks at base of furrows.



Figure 4.45 Stakeholes surviving on ridge between cultivation furrows, eastern side of Trench 1. Note early modern cultivation spade-marks at base of lazy-bed furrow (top).

Period 1 occupation

Some 200 features connected to early medieval occupation of the enclosure were discovered in Trenches 1, 4 and 6 (Figures 4.46–4.49). These include 121 definite and 53 possible stakeholes, three definite postholes, and 21 pits, some of which may be small post-holes, along with two slot features and a few small deposits of charcoal. These features were not evenly distributed across the entire excavation area, with comparatively few in the western half of Trench 4. A group of large postholes in the centre of the excavation area seem to represent a four-post structure of some kind. There is a scattered distribution of small pits to the east and south-east, some of which are definitely postholes. There is also a significant concentration of stakeholes in Trench 1 and the eastern half of Trench 6, some forming obvious alignments possibly connected to wall or fence structures. Taken together, the concentration of these features suggests the presence of a large building in the central area of the enclosure. It must be acknowledged, however, that this Period 1 excavation surface may represents a palimpsest of features from more than one phase of early medieval occupation.

'Four-post' structure

Excavation in the south-east corner of Trench 1, the south-west corner of Trench 4 and the north-west side of Trench 6 revealed a rectangular arrangement of large postholes and smaller pits (contexts 351, 71/376, 497 and 508) measuring 3.8m (E–W) by 3.5m (N–S). There was a small slot (C.326) on the northern side. One other large posthole (C.373), three smaller examples (contexts 95, 352 and 531), and 14 stakeholes (contexts 24, 62, 83, 167, 312, 314, 322, 327, 337, 360, 379, 380, 485 and 572) were found within or close to this four-post arrangement.

Posthole (C.351)

The strongest indication of a built structure in that area is provided by a large posthole (C.351). This sub-circular cut measured 1.23m (E–W) by 1.03m (N–S) (0.76m by 0.7m at base), with steeply sloping sides to an irregularly flat base (Figure 4.46). It was dug to a depth of 0.51m through the iron-enriched B-horizon (C.200) into the underlying C-horizon (C.576). The upcast subsoil was spread on the southern (C.353) and northern sides (C.354) of the posthole. The latter was damaged by later cultivation (C.292) along its western side, however most of the cut was intact. Excavation

revealed an arrangement of 19 small-to-large stones along the northern, eastern and southern sides of the pit (Figures 4.50 and 4.51). These packing stones (C.318) were found in a steeply inclined position along the upper and lower sides of the pit. They were packed with a mid-brown silt (C.319) that contained some charcoal and burnt bone.

The central area of the posthole was disturbed, with no indication of a post pipe or any charred remains. It is likely that the original post had been removed, with the resulting cavity filled initially with a thin deposit of dark silt (C.317) containing charcoal and fragments of burnt bone, probably washed into the open pit from surface occupation refuse. This basal sediment was overlain by a deposit of orange brown silt (C.316), with the upper part of the posthole filled by dark brown silt (C.315).

Posthole? (C.376)

Excavation on the eastern side of Trench 4 uncovered a small pit (C.376) adjacent to a short linear slot (C.326; Figure 4.46). This pit was curvilinear in plan, measuring 0.25m (N–S) by 0.11m (E–W exposed width) by 0.2m deep, with near-vertical to steeply sloping sides to an irregularly flat base. The fill (C.375) consisted of dark brown silty sand with pebbles, but no charcoal. The pit was not fully excavated, but may be an extension of a small pit excavated in 2011 in the south-west corner of Trench 1. That feature (C.71) was curvilinear in plan, measuring 0.46m (N–S) by 0.2m (E–W exposed width) by 0.35m deep, with near-vertical to steeply sloping sides to an irregularly flat base. The upper fill (C.69) was a black silt with occasional flecks of charcoal, overlying a lower fill of brown grey silt (C.70) with some flecks of charcoal and burnt bone. The fact that the fills of the C.71 and C.376 pits were very different does question whether they were part of the same pit.

Posthole (C.508)

The southern part of a shallow curvilinear cut was excavated on the northern side of Trench 6 (Figure 4.47). This feature measured 0.66m (E–W) by 0.23m (N–S exposed), with sides sloping steeply to an irregularly flat base, 0.1–0.17m in depth. The fill was composed of dark brown silt (C.507) with frequent pebbles and occasional small stones. There was a significant amount of fine and lump charcoal, as well as some tiny fragments of burnt bone.

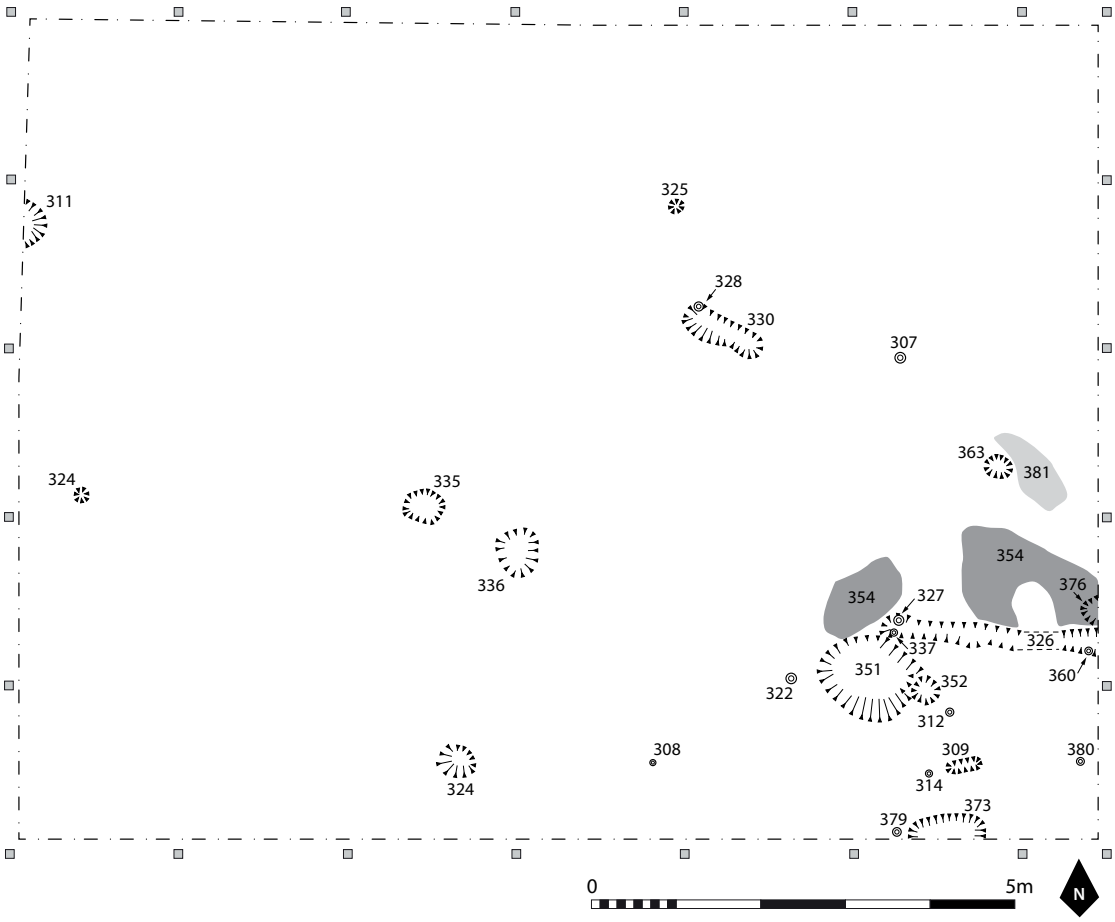


Figure 4.46 Period 1 features (part of 'four-post structure' in south-east corner), Trench 4, Lisnamanroe.

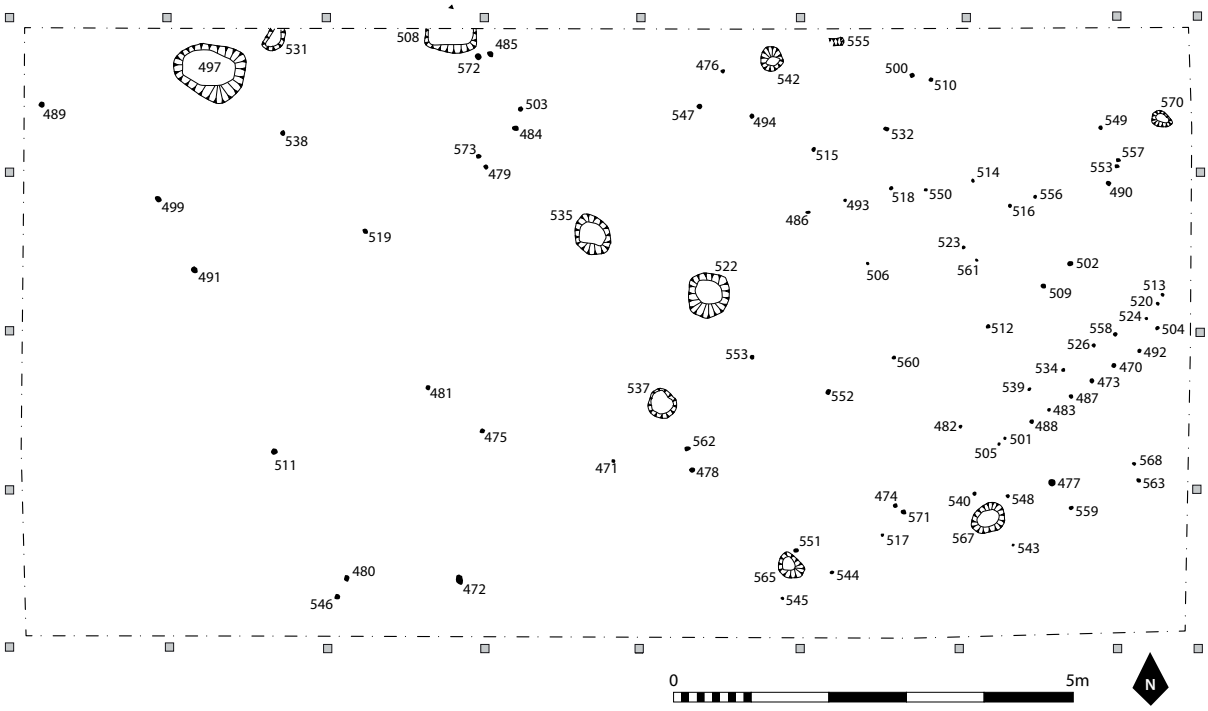


Figure 4.47 Period 1 features excavated in Trench 6, Lisnamanroe.



Figure 4.48 Rectified image of excavated features in Trench 6 (see Figure 4.47 for details).

Posthole (C.497)

This large posthole in the north-west corner of Trench 6 (Figure 4.47) was partly truncated on the eastern and western sides by cultivation furrows C.292A and C.294A respectively. It was a sub-ovoid pit aligned east south-east/west north-west, with a wider, almost straight, eastern side (Figures 4.52 and 4.53). This pit was dug into the B-horizon subsoil (C.200) to a maximum depth of 0.38m. It had an upper width of 0.92m (east–west) by 0.62m (north–south), with a corresponding basal width of 0.6m by 0.51m. The sides were near vertical to steeply sloping, rounding at the base to an irregularly flat surface in grey C-horizon silt, where there was some exposure of eroded bedrock (Figure 4.56 below).

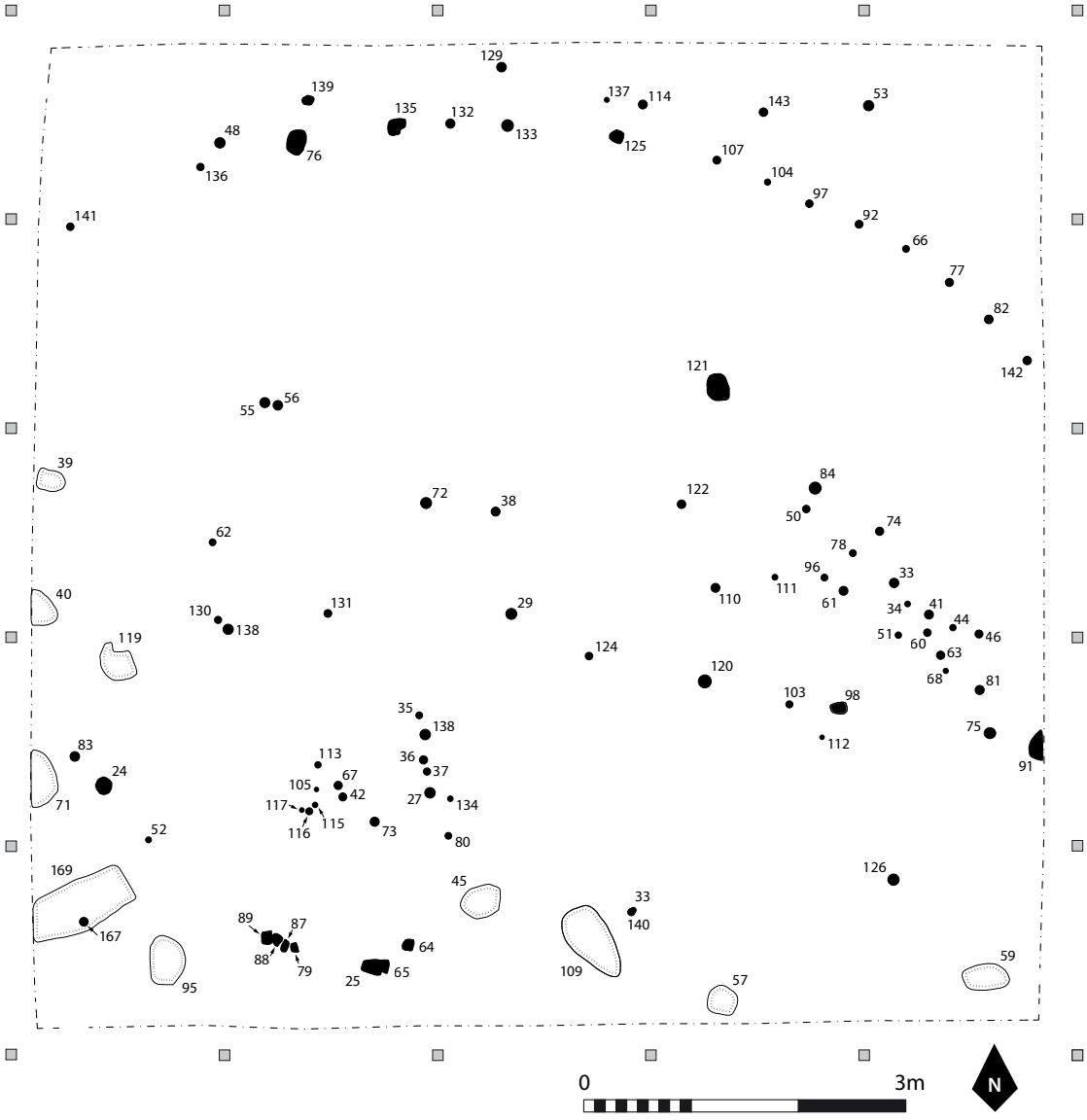


Figure 4.49 Period 1 features excavated in Trench 1, Lisnamanroe.

The C.497 posthole was filled with mid-brown sandy silt (C.495). This loose fill was quite heterogenous, containing lenses of dark brown-black silt with much charcoal, as well as lenses of orange/brown sediment that may represent redeposited B-horizon, and more gravelly sediment near the base. There were frequent sub-rounded pebbles and occasional angular/sub-angular stones, up to 0.1m in length, through the fill. Many of the latter were fire-reddened, and occurred close to concentrations of charcoal. Small fragments of burnt bone were common through the fill, particularly near the pockets of dark brown/black sediment.

The removal of the C.495 fill exposed a number of large stones (C.496) against the upper sides of the pit. These were packing stones used to secure the original post. They included two large stones along the upper southern side, measuring 0.46m by 0.32m by 0.14m and 0.32m by 0.22m by 0.13m respectively. One of these overlay a third stone that measured 0.19m by 0.08m by 0.02m. All three stones had been displaced and were visibly fire-reddened, with pockets of charcoal between this packing and the pit sides. Two stones placed along the upper north-west side of the pit measured 0.25m by 0.12m by 0.05m and 0.25m by 0.15m by 0.1m respectively. Finally, three stones averaging 0.1m in length along the eastern edge of the pit may also represent original post packing.

There are some important finds from this posthole. In addition to a significant amount of burnt bone, the excavation of C.495 uncovered a broken spindle whorl (11E110:405) and a tiny blue/green glass bead (11E110:412).



Figure 4.50 Excavation of C.351 posthole, showing packing stones (C.318) *in situ*, Trench 4.



Figure 4.52 Pre-excavation view of (C.497) posthole, showing charcoal-rich fill (C.495). The west (left) side of posthole is truncated by a later furrow (C.292A), Trench 6.



Figure 4.51 Post-excavation view of C.351 posthole cut in Trench 4, with adjacent slot trench (C.326) on eastern side (top left of centre) and pit (C.352) (top right of centre).



Figure 4.53 Excavation of (C.497) posthole showing packing stones (C.496) in place, Trench 6.

Slot Trench (C.326)

Excavation revealed a narrow slot (C.326) cut into the B-horizon surface that extended from the north-east side of the C.351 posthole to the C.376 pit (Figure 4.46). This slot cut through a spread of upcast C-horizon (C.354) that probably derived from both those cut features. The slot was 0.2m wide at the eastern end, 0.13m in the centre, to 0.3m wide at the western end, with an average depth of 0.14m. It was filled with dark brown silt (C.320) that contained a small amount of charcoal and tiny fragments of burnt bone. The removal of this silt exposed two stakeholes (contexts 327 and 337) inside the western end of the slot, as well as a single example (C.360) at the eastern end close to the excavation baulk.

Other pits/postholes

Four small pits were excavated in proximity to the 'four-post' arrangement described above:

C.95 A sub-oval pit, measuring 0.47m (N–S) by 0.17m (E–W), with a central depth of 0.11–0.2m. Vertical to steeply sloping sides truncated by a later furrow (C.04) (Figure 4.49). This pit was filled with dark brown-black silty sand (C.94) with a high charcoal content and occasional tiny fragments of burnt bone.

C.352 A small pit on the eastern edge of the C.351 posthole (Figure 4.46). This was sub-circular in plan, measuring 0.32m (E–W) by 0.27m (N–S) with a central depth of 0.2m. It was cut through re-deposited subsoil (C.353) that was upcast from the digging of the posthole. The pit was filled with charcoal-flecked silt (C.331).

C.373 The cut of a large pit extending into the southern excavation baulk of Trench 4 (Figure 4.46). This was curvilinear in plan, measuring 0.92m (E–W) by 0.34m (N–S exposed width) with a central depth of 0.27–0.43m. The northern side was near-vertical, with sloping east and west sides to an irregular base. This pit was partly excavated to reveal three separate fills. The upper 0.2m of the pit was filled mid brown silty sand with pebbles (C.370). This overlay a lens of charcoal that extended across the entire width of the pit. The central fill (C.371) was a purple-grey sandy silt, up to 0.1m in thickness. The lower fill (C.372) was a grey-brown silt with numerous pebbles and occasional flecks of charcoal. Regrettably, the southern side of this pit was not excavated as it was left within a narrow baulk separating Trench 4 from Trench 6. The interpretation of this feature is uncertain. It may represent a posthole similar to C.351, but unlike the latter did not contain packing stones.

C.531 A small pit adjacent to C.497 posthole in north-west corner of Trench 6 (Figures 4.47 and 4.48). Sub-oval, measuring 0.27m (east–west) by 0.2m (north–south from baulk), with sides sloping steeply to a rounded base, 0.14m in depth. The fill consisted of dark brown silt (C.530) with numerous pebbles and occasional small stones up to 0.05m in length. It contained a large amount of fine charcoal, as well as a small amount of burnt bone.

Stakeholes

A number of stakeholes were found in close proximity to the 'four-post' arrangement. These include four stakeholes (contexts 24, 52, 83 and 167) on the eastern side, and three stakeholes (contexts 312, 314 and 380) were identified south of the slot trench (Figure 4.57 below). These were cut into re-deposited subsoil (C.353) on the southern side of the C.351 posthole. A small slot (C.309) in the same area may have been created by later cultivation. A stakehole (C.379) was also found close to the western edge of the C.373 pit, with another example (C.322) on the western side of the C.351 posthole, and two others (C.485 and C.572) adjacent to the C.508 pit.

Postholes and other pits

A number of small pits were excavated to the east and south-east of the 'four post' structure. Some of these may be small postholes, though this is not certain.

Trench 1 (Figure 4.49)

C.39 Sub-rectangular pit, 0.19m (E–W) by 0.15m (N–S) by 0.16–0.18m deep, with near-vertical sides to an irregular base. Four stones, 0.09–0.14m in length, around upper edge of cut. Fill (C.32) of dark brown-black silt, with frequent flecks of charcoal and rare tiny fragments of burnt bone and hazel-nut shells.

C.40 Sub-circular pit, 0.29m (N–S) by 0.21m (E–W exposed) by 0.22m deep, with near-vertical sides to a flat base. Possible packing stone on southern side. Fill (C.31) of dark brown-black silt, with frequent flecks of charcoal. Not fully excavated.

C.45 Oval pit, 0.38m (E–W) by 0.31m (N–S) exposed) by 0.19m deep, with near-vertical to sloping sides to an irregularly flat base. Some large stones on western side may represent post packing. Fill (C.28) of mid brown sandy silt, with some pebbles, but no charcoal.

C.57 Sub-circular pit, 0.33m (N–S) by 0.3m (E–W) by 0.24m deep, with near-vertical sides. The southern side of the cut is deeper where there was an upright post; a large stone in the fill provided packing for same. Fill (no context number) of dark brown silt, with some pebbles, but no charcoal.

C.59 Sub-oval pit, 0.43m (E–W) by 0.23m (N–S) by 0.1m deep, with concave sloping sides to a gently rounded base. Fill (C.58) of grey-brown sandy silt with some tiny fragments of burnt bone and a small concentration of charcoal on the southern side.

C.109 Sub-oval pit, 0.62m (N–S) by 0.34m (E–W) by 0.21m deep, with steeply sloping sides to a 0.44m (N–S) by 0.18m (E–W) irregularly rounded base. Fill (C.104) of mid to dark brown sandy silt, with frequent small to large stones, and occasional flecks of charcoal and burnt bone. A blocky stone, measuring 0.21m by 0.18m by 0.12m, at the base of this fill may represent post packing.

C.119 Sub-rectangular pit, 0.24–0.36m (N–S) by 0.09–0.24m (E–W) with maximum depth of 0.12m; near-vertical sides to an irregularly flat base. Fill (C.118) of light brown silty sand with frequent small stones, occasional larger stones, and frequent lump charcoal.

C.121 Sub-oval pit, 0.27m (N–S) by 0.15m (E–W) by 0.17m deep, with sloping sides to a rounded base. Fill of mid to dark brown sandy silt (C.121a), with frequent flecks of charcoal.

Trench 4 (Figure 4.46)

C.363 Small circular pit, 0.26m in diameter, dug into B-horizon to a depth of 0.14m. Filled with dark brown silty sand (C.362) containing charcoal flecks. Significance unknown. There was a spread of charcoal-rich silt (C.381) over an area of 0.7m by 0.4m on the eastern side of the C.363 pit. This deposit was truncated by cultivation furrow (C.284). The significance of that charcoal spread is uncertain, but it did seem to be part of the Period 1 occupation surface.

Trench 6 (Figures 4.47 and 4.48)

C.522 Shallow pit in the central area of Trench 6. Circular cut 0.59m in diameter and 0.23m in depth, with gently sloping sides to a rounded base (Figure 4.56). Filled with dark brown sandy silt (C.521) with frequent pebbles and occasional small stones. High charcoal content, as well as a few small pieces of burnt bone. One small fragment of possible slag (11E110:411) was found in this fill.

C.535 Circular pit measuring 0.21m (north–south) by 0.19m (east–west), with a central depth of 0.12m and vertical to steeply sloping sides to a flat base cut into B-horizon subsoil (Figures 4.54 and 4.56). This small pit was filled by loose dark brown silt (C.527), with a slightly gritty texture. The fill contained a large amount of charcoal, as well as frequent fragments of burnt bone and occasional small pebbles. The removal of this fill exposed three *in situ* packing stones (C.528). The largest



Figure 4.54 Excavation of small posthole (C.535), with packing stone (C.528) in place, Trench 6, Lisnamanroe.



Figure 4.55 Excavation of small posthole (C.537), with packing stone (C.536) in place, Trench 6, Lisnamanroe.

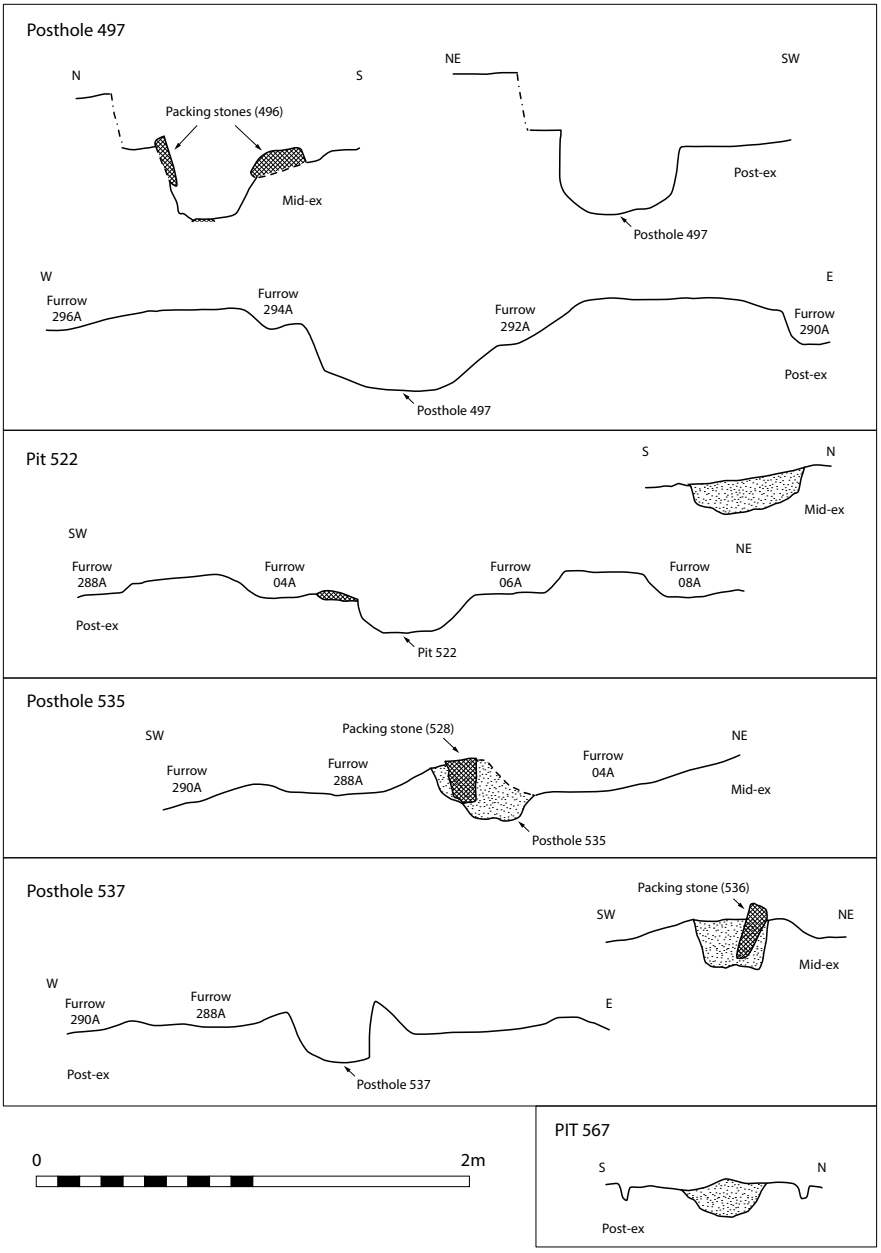


Figure 4.56 Profiles of pit features in Trench 6, Lisnamanroe.

was on the western side, where a 0.29m wide by 0.15m thick stone was placed vertically against the western side of the pit to a height of 0.17m. A stone measuring 0.15m high by 0.10m wide was found against the northern side of the pit, with a 0.16m high by 0.10m wide examples against the southern side. The only find from this posthole is a tiny fragment of burnt bone with an incised line (11E110:410).

C.537 Sub-circular pit measuring 0.4m (north–south) by 0.33m (east–west) on top, narrowing to 0.36m by 0.27m at the base, with a central depth of 0.25m. Vertical sides to an irregularly flat base in B-horizon subsoil (Figures 4.55 and 4.56). Filled with loose, dark brown silt (C.469), the upper part of which was blacker in colour due to increased charcoal content. Sieving confirmed a large amount of lump and finely divided charcoal. The removal of this fill exposed a single large packing stone (C.536), placed vertically against the northern side of the pit. This sub-rectangular stone measured 0.27m in length, 0.27m wide on top, 0.1m wide at the base, with a thickness of 0.05–0.08m. The lower end of the stone had a rough point, suggesting the stone had been rammed into position between the edge of the pit and the standing post.

C.542 Small pit on northern side of Trench 6. Circular pit, 0.29m in diameter and 0.13m in depth, with steeply sloping sides to a flat base. Truncated on eastern side by cultivation furrow (C.10A). The fill consisted of dark brown silty sand (C.541) with numerous pebbles and small stones. There was a high charcoal content and a small amount of burnt bone.

C.555 Small slot-like feature on eastern side of C.542 pit, northern side of Trench 6. Truncated on western side by cultivation furrow (C.10A). This slot measured 0.2m (east–west) by 0.13m (north–south), with near-vertical sides to a flattish base at a depth of 0.09m. Filled with purple/brown silt (C.554) with lenses of dark brown silt. This contained occasional pebbles and small stones, and numerous small lumps of charcoal.

C.565 Small pit on southern side of Trench 6. This oval feature measured 0.4m (north–south) by 0.3m (east–west), with a maximum depth of 0.12m. The eastern side sloped steeply, whereas the western side was more gently sloping to a slightly rounded base. The western side was truncated by a cultivation furrow (C.04A). The pit was filled with compact grey silt (C.564) with a reddish tinge containing occasional pebbles and flecks of charcoal. This may represent re-deposited subsoil from the digging of the pit.

C.567 Small pit in south-east corner of Trench 6. Sub-oval pit, measuring 0.45m (east–west) by 0.33m (north–south), with sides sloping to a rounded base, 0.14m in depth. Truncated on western side by cultivation furrow (C.08A). Filled with loose dark brown silt (C.566), with frequent pebbles and small to large stones, and numerous small lumps of charcoal.

C.570 Small pit in north-east corner of Trench 6. Sub-oval depression, measuring 0.31m (east–west) by 0.19m (north–south), with a maximum depth of 0.14m. The eastern side is near-vertical; western side is truncated by cultivation furrow (C.16A) to create a steeply sloping profile to a rounded base. Filled with loose grey/brown silt, containing frequent pebbles and some small stones and flecks of charcoal. One larger stone found in an upright position in this fill may represent post packing.

Northern stake rows

Two concentrations of stakeholes were identified on the northern side of Trench 1 (Figures 4.49 and 4.57):

Group 1

A short arc of stakes, comprising C.129 (west) to C.137, C.114, C.143 and C.53 (east).

Group 2

There was a large curving arc crossing northern part of Trench 1. Extending from C.141 (west side) to C.136, C.048, C.076, C.135, C.132, C.133, C.125, C.107, C.104, C.97, C.92, C.66, C.77, C.82 and C.142 (east). Possibly part of a fenced enclosure or built structure, at least 20m in diameter.

Eastern stake concentrations

Three concentrations of stakeholes were identified on the eastern side of Trench 1:

Group 3

Short arc of stakeholes on eastern side of trench, comprising C.74 (north) to C.33, C.34, C.41, C.44 and C.46 (south).

Short arc of stakeholes on eastern side of trench, comprising C.60 (north) to C.63, C.68, C.68, C.81, C.75 and C.91 (south).

Short arc of stakeholes on eastern side of trench, comprising C.110 (west) to C.111, C.96, C.61 and C.51 (east).

Group 4

Curving line of stakeholes across central trench area, comprising C.132 (west) to C.62, C.72, C.38, C.122, C.50 and C.84 (east).

Curving line of stakeholes across central trench area, comprising C.32 (west) to C.55, C.56, C.30, C.121 and C.84 (east).

Curving arc of stakeholes in central trench area, comprising C.72 (north-west) to C.29, C.124, C.120, C.103, C.98 and C.102 (south-east).

Short arc of stakeholes in central trench area, comprising C.118 (west) to C.130, C.138, C.131 and C.29 (east).

Group 5

Short line of stakes comprising C.35 (north) to C.138, C.36, C.37, C.27, C.134 and C.80 (south).

Cluster of stakes in area of burnt deposits, comprising stakeholes C.26, C.42, C.67, C.73, C.105, C.113, C.115, C.116 and C.117.

Short line of stakeholes, comprising C.89 (west) to C.88, C.87 to C.79 (east).

Short line of stakeholes and a pot/post-hole, comprising C.25 (west) to C.65, C.64 and C.28 (east).

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
Trench 1						
24	Stakehole	C	V	18cm	43cm	Low
27	Stakehole	C	V	11cm	12cm	Low
29	Stakehole	C	V	8cm	14cm	Low
33	? Stakehole	SC	V	9 x 8cm	15cm	Low
34	? Stakehole	SC	V	4 x 3cm	8cm	Low
35	Stakehole	SC	V	6 x 5cm	3cm	None
36	Stakehole	SC	V	8 x 6cm	8cm	None
37	Stakehole	C	V	6cm	6cm	Low
38	Stakehole	SC	V	13 x 10cm	24cm	None
41	? Stakehole	S	V	9cm	11cm	Low
42	? Stakehole	SC	V	9 x 7cm	9cm	Low
44	? Stakehole	C	V	6cm	9cm	Low
46	Stakehole	C	V	9cm	12cm	Low
48	Stakehole	SC	V	12 x 10cm	11cm	None
50	Stakehole	C	V	8cm	11cm	Low
51	Stakehole	C	V	8cm	8cm	None
52	Stakehole	C	V	6cm	11cm	Low
53	? Stakehole	SC	V	10 x 9cm	8cm	None
54	? Stakehole	SC	V	14 x 12cm	6cm	Low
55	? Stakehole	SC	V	8 x 6cm	6cm	None
56	? Stakehole	SC	V	12 x 8cm	8cm	None
60	Stakehole	C	V	8cm	6cm	Low
61	Stakehole	C	V	9cm	12cm	Low
62	Stakehole	C	V	6cm	12cm	Low
63	Stakehole	C	V	8cm	14cm	Low
64	? Stakehole	C	V	6cm	12cm	None
65	Stakehole	SC	V	15 x 10cm	16cm	None
66	Stakehole	SC	V	8 x 6cm	14cm	None
67	Stakehole	SC	V	8 x 6cm	12cm	None
68	Stakehole	C	V	7cm	8cm	Low
72	Stakehole	C	V	15cm	19cm	None
73	? Stakehole	SC	V	8 x 7cm	7cm	None
74	Stakehole	C	V	8cm	7cm	Low
75	Stakehole	C	V	10cm	11cm	Moderate
76	Stakehole	C	V	20cm	37cm	None
77	Stakehole	SC	V	10 x 7cm	16cm	None
78	Stakehole	C	V	6cm	13cm	Low
79	? Stakehole	SC	V	13 x 11cm	14cm	None
80	? Stakehole	C	V	6cm	7cm	Low
81	Stakehole	SC	V	8 x 6cm	10cm	Low
82	Stakehole	SC	V	8 x 7cm	11cm	None
83	? Stakehole	C	V	9cm	29cm	Moderate
84	Stakehole	C	V	10cm	33cm	Low
87	Stakehole	SC	V	10 x 8cm	18cm	None
88	Stakehole	C	V	11cm	20cm	None
89	Stakehole	SC	V	12 x 11cm	19cm	None
92	Stakehole	C	V	8cm	21cm	None
96	Stakehole	SC	V	7 x 5cm	8cm	Low

Figure 4.57 Details of stakeholes in central excavation area.

(? = possible; SC = sub-circular; C = circular; V = vertical; Incl. = inconclusive. Diameter refers to plan dimensions of cut. Charcoal content: low = occasional flecks; moderate = frequent flecks and some lumps <50% of fill; high = lump/fine charcoal in excess of 50% of fill).

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
97	? Stakehole	SC	V	7 x 6cm	8cm	None
98	Stakehole	SC	V	16 x 14cm	12cm	Low
102	? Stakehole	SC	V	6 x 5cm	7cm	None
103	Stakehole	C	V	6cm	11cm	Low
105	Stakehole	C	V	4cm	6cm	Low
107	Stakehole	C	V	8cm	24cm	Low
110	Stakehole	SC	V	8 x 6cm	7cm	Low
111	Stakehole	SC	V	7 x 6cm	7cm	Low
112	Stakehole	C	V	6cm	10cm	Low
113	Stakehole	SC	V	7 x 6cm	10cm	Moderate
114	? Stakehole	SC	V	7 x 6cm	11cm	None
115	? Stakehole	C	V	5cm	6cm	None
116	? Stakehole	SC	V	5 x 4cm	6cm	None
117	? Stakehole	SC	V	5 x 4cm	6cm	Low
120	Stakehole	C	V	12cm	16cm	Moderate
122	Stakehole	C	V	7cm	6cm	Low
124	Stakehole	SC	V	7 x 5cm	7cm	Low
125	Stakehole	C	V	9cm	19cm	None
126	Stakehole	C	V	11cm	38cm	Low
128	? Stakehole	SC	V	12 x 10cm	10cm	Low
129	? Stakehole	SC	V	9 x 8cm	11cm	None
130	? Stakehole	SC	V	7 x 6cm	15cm	Low
131	? Stakehole	SC	V	10 x 8cm	20cm	?
132	Stakehole	SC	V	11 x 9cm	14cm	Low
133	Stakehole	SC	V	11 x 10cm	31cm	Low
134	? Stakehole	SC	V	7 x 4cm	8cm	Low
135	Stakehole	SC	V	20 x 12cm	10cm	Low
136	Stakehole	SC	V	9 x 7cm	14cm	None
137	Stakehole	SC	V	7 x 6cm	11cm	None
138	Stakehole	SC	V	10 x 9cm	17cm	Low
139	Stakehole	SC	V	9 x 6cm	8cm	Low
140	Stakehole	SC	V	10 x 9cm	15cm	Low
141	Stakehole	C	V	7cm	8cm	Low
142	Stakehole	C	V	8cm	9cm	Low
143	Stakehole	C	V	8cm	22cm	None
167	Stakehole	SC	V	9 x 8cm	18cm	Low
Trench 4						
307	? Stakehole	SC	V	12 x 11cm	8cm	Low
308	? Stakehole	C	V	9cm	7cm	Low
312	? Stakehole	SC	V	6 x 5cm	5cm	Low
314	Stakehole	C	V	7cm	10cm	None
322	? Stakehole	SC	V	13 x 10cm	12cm	Low
325	? Stakehole	SC	V	27 x 23cm	23cm	Low
327	Stakehole	SC	V	16 x 14cm	28cm	Moderate
328	Stakehole	SC	V	9 x 7cm	23cm	Moderate
337	Stakehole	C	V	6cm	16cm	Low
360	Stakehole	C	V	8cm	21cm	Low
379	? Stakehole	SC	V	8 x 6cm	11cm	None
380	Stakehole	C	V	5cm	7cm	None

Figure 4.57 (*contd.*)

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
Trench 6						
470	Stakehole	SC	V	6 x 4cm	14cm	None
471	? Stakehole	SC	V	8 x 6cm	9cm	None
472	Stakehole	C	Incl.	8cm	12cm	Low
473	Stakehole	C	V	8cm	9cm	None
474	Stakehole	C	V	7cm	15cm	Low
475	Stakehole	C	V	7cm	12cm	Low
476	Stakehole	SC	V	7 x 5cm	9cm	None
477	Stakehole	SC	V	11 x 8cm	23cm	Low
478	Stakehole	SC	V	9 x 7cm	12cm	None
479	? Stakehole	C	V	9cm	9cm	Low
480	? Stakehole	C	V	8cm	10cm	None
481	Stakehole	SC	V	8 x 5cm	12cm	None
482	Stakehole	C	V	6cm	10cm	None
483	Stakehole	SC	V	7 x 6cm	12cm	None
484	Stakehole	SC	V	12 x 11cm	14cm	Low
485	? Stakehole	SC	V	13 x 10cm	12cm	High
486	Stakehole	C	V	6cm	11cm	None
487	Stakehole	C	V	6cm	7cm	None
488	Stakehole	C	Incl.	5cm	6cm	None
489	Stakehole	C	V	5cm	10cm	None
490	Stakehole	SC	V	7 x 6cm	8cm	Low
491	Stakehole	SC	V	11 x 10cm	15cm	None
492	Stakehole	SC	V	6 x 5cm	9cm	None
493	Stakehole	SC	V	6 x 4cm	8cm	Low
494	Stakehole	SC	V	9 x 7cm	7cm	Moderate
499	? Stakehole	C	V	10cm	8cm	None
500	Stakehole	SC	V	7 x 6cm	12cm	Low
501	Stakehole	C	V	5cm	6cm	None
502	Stakehole	C	V	8cm	12cm	Low
503	? Stakehole	SC	Incl.	15 x 12cm	12cm	Moderate
504	Stakehole	SC	V	8 x 6cm	14cm	None
505	Stakehole	C	V	4cm	5cm	None
506	Stakehole	SC	V	4 x 3cm	4cm	None
509	? Stakehole	SC	Incl.	9 x 8cm	10cm	Low
510	Stakehole	C	V	7cm	17cm	None
511	Stakehole	SC	V	12 x 10cm	12cm	None
512	Stakehole	C	V	7cm	19cm	Low
513	? Stakehole	C	V	5cm	7cm	Low
514	Stakehole	C	V	6cm	13cm	None
515	Stakehole	SC	V	17 x 9cm	17cm	None
516	Stakehole	C	V	5cm	10cm	None
517	Stakehole	C	V	6cm	10cm	None
518	Stakehole	SC	V	7 x 6cm	12cm	Low
519	Stakehole	SC	V	10 x 9cm	8cm	None
520	? Stakehole	SC	V	5 x 4cm	5cm	None
523	? Stakehole	SC	V	7 x 6cm	8cm	None
524	? Stakehole	SC	V	5 x 4cm	7cm	None
525	? Stakehole	SC	V	17 x 13cm	11cm	None

Figure 4.57 (*contd.*)

Context	Type	Plan	Profile	Diameter	Depth	Charcoal
526	Stakehole	SC	V	6 x 4cm	13cm	None
532	Stakehole	SC	V	8 x 7cm	11cm	None
533	Stakehole	SC	V	5 x 3cm	7cm	None
534	Stakehole	SC	V	6 x 4cm	8cm	None
538	Stakehole	SC	V	9 x 8cm	9cm	Low
539	Stakehole	SC	V	6 x 4cm	14cm	None
540	? Stakehole	SC	V	8 x 7cm	5cm	None
543	Stakehole	C	V	4cm	4cm	Low
544	Stakehole	C	V	6cm	9cm	None
545	? Stakehole	C	V	10cm	8cm	Low
546	? Stakehole	SC	V	8 x 6cm	8cm	None
547	Stakehole	SC	V	10 x 7cm	10cm	Low
548	Stakehole	C	V	5cm	5cm	None
549	Stakehole	C	V	4cm	10cm	None
550	Stakehole	C	V	5cm	8cm	None
551	Stakehole	C	V	7cm	9cm	None
552	Stakehole	SC	V	8 x 6cm	10cm	Low
553	Stakehole	SC	V	10 x 9cm	15cm	None
556	? Stakehole	SC	V	8 x 6cm	3cm	None
557	Stakehole	SC	V	5 x 4cm	8cm	None
558	? Stakehole	SC	V	9 x 8cm	8cm	None
559	Stakehole	SC	V	6 x 5cm	10cm	None
560	Stakehole	SC	V	6 x 5cm	16cm	Low
561	Stakehole	C	V	4cm	17cm	Low
562	? Stakehole	SC	V	13 x 8cm	12cm	Low
563	Stakehole	SC	V	7 x 5cm	11cm	None
568	? Stakehole	SC	V	4 x 3cm	6cm	None
571	? Stakehole	C	V	9cm	8cm	None
572	? Stakehole	SC	V	15 x 9cm	12cm	Low
573	? Stakehole	SC	V	10 x 6cm	7cm	Low

Figure 4.57 (*contd.*)

Southern stake rows

A total of 78 stakeholes were excavated in Trench 6, including 56 definite examples and 22 possible examples (Figures 4.47 and 4.57). These were 0.04–0.17m in diameter (average 7.1cm) and most were driven vertically to a depth of 0.03–0.23m (average 10.1cm). The majority were filled with in-washed silt, suggesting that the original stakes had been removed. Charcoal is recorded in 27 examples (35%), mostly as small flecks that were probably washed into an open stakehole from the occupation surface. Of the 78 stakeholes excavated, there is only one example (C.485) where the charcoal content was sufficient to indicate the burning of a stake *in situ*.

The majority of stakeholes in Trench 6 cannot be directly connected with each other, except where there are obvious spatial patterns. This occurs in the south-east corner of Trench 6 where there are several concentric lines of stakeholes, extending east to west as follows:

Line 1: Contexts 563, 559 to C.543

Line 2: Contexts 568, 477, 548 to 567

Line 3: Contexts 504, 492, 470, 473, 487, 483, 488, 501, 505 (all spaced close together, possibly continuing to stakeholes 571, 517, 544 and 545.

Line 4: Contexts 513, 520, 524, 558, 526, 534, 539, 482, possibly continuing to stakeholes 474, 551 and pit 565.

Line 5: Contexts 502, 509, 512, 560, 552, 562, 461, 475 to 481

Line 6: Contexts 570, 557, 553, 556, 516, 523 to C.506

Line 7: Contexts 570, 549, 514, 550, 518, 493 to C.486

Line 8: Contexts 510 to C.547.

There is another possible line of stakes on the western side of Trench 6, represented by contexts (south to north) 546, 480, 511, 491, 499 to C.489.

Other Period 1 features in central excavation area

A number of small pits were discovered in the western half of Trench 4. These include:

C.311 The side of a small pit extending into the western baulk of Trench 4. This measured 0.53m (N–S) by 0.19m (E–W exposed), with a maximum depth of 0.2m; steeply sloping sides to a gently rounded base. Fill of mid to dark brown silt (C.310), with a high charcoal content.

C.324 Oval pit, 0.21m by 0.12m by 0.08–12m deep, with steeply sloping sides to a flat base. There was a small deposit of upcast subsoil (not numbered) on the north-west side of this feature. Fill of mid brown sandy silt (C.323), with a significant amount of fine and lump charcoal.

C.333 Sub-oval pit, 0.61m (E–W) by 0.45m (N–S) by 0.3m deep, with steeply sloping sides to an irregularly flat base. Fill (C.332) of mid brown silty sand, with occasional flecks of charcoal. Some small to medium sized stones found in an upright position in this fill may represent post packing.

C.335 Sub-oval pit, 0.58m (E–W) by 0.36m (N–S) with a maximum depth of 0.33m. Near-vertical sides to an irregularly flat base (Figure 4.46). Fill of mid brown sandy silt (C.334) containing numerous pebbles and small stones, a large amount of fine and lump charcoal, and one fragment of burnt bone. There was a small deposit of charcoal (not numbered) close to the south-west edge of this pit.

C.336 Sub-oval pit, 0.6m (N–S) by 0.53m (E–W) to a maximum depth of 0.25m. sloping stony sides to an irregularly flat base. A fill of dark sandy silt (C.321) over an area of 0.7m (N–S) by 0.5m (E–W) contained much charcoal. C.336 was bordered on the north-east side by a small concentration of shattered stone, believed to be natural in origin. The 'pit' may be a natural depression formed within that stony spread (Figure 4.46).

C.330 Sub-rectangular cut, 0.97m (NW–SE) by 0.28m (NE–SW), with a depth of 0.21–26m. Near-vertical sides to an irregular stony base (possibly eroded bedock). Fill of loose dark brown silt (C.329), with frequent pebbles and small stones, and a significant amount of charcoal. There was a small vertical stakehole (C.328), 0.15m in diameter and 0.28m deep, at the north-west end of this slot.

Finally, three isolated stakeholes (contexts 307, 308 and 325) in Trench 4 have no obvious association with other features or built structures in that area.

Pre-enclosure activity?

The only feature in the central excavation area that may pre-date the enclosure is a short irregular slot (C.575) in the north-west corner of Trench 6. This was exposed as a narrow band of charcoal-flecked silt (C.574) at the base of a later furrow (C.290A). Excavation revealed a loose deposit of grey/brown sandy silt with a fine gritty texture, containing small rounded pebbles and numerous flecks of charcoal. The removal of that sediment revealed an irregular slot, 0.7m (north-west/south-east) long by 0.1–0.26m wide, and 0.1–0.18m in depth. The southern side was near-vertical with some undercutting at the base, while the northern side was steeply sloping. There are indications the feature continued under the subsoil ridge on western side of C.290A, possibly as far as the base of the C.497 posthole where sediment similar to C.574 was exposed. The interpretation of C.575 is uncertain; it was first believed to be a rodent burrow or a root feature, but that does not explain the presence of fine charcoal in the fill. It does seem to pre-date both the Period 2 cultivation features and the large Period 1 posthole (C.497).

Summary of Central Excavation Area

The excavation of Trenches 1, 4 and 6 revealed the extent of damage caused by early modern cultivation to the archaeological deposits at Lisnamanroe. The depth of those spade-dug furrows removed much of the early occupation surface, destroying or disturbing many features and finds of early medieval date (Figure 4.58). Fortunately, enough structural evidence did survive on the intervening ridges, together with *ex situ* artifact finds, to provide an insight into the use of this enclosure. Some 200 early contexts are recorded, consisting of stakeholes, postholes, slots, pits of various sizes, and a few small deposits of charcoal. They survive as a palimpsest on the B_S-horizon surface, lacking direct stratigraphic relationships, with dating evidence provide by radiocarbon analysis of charcoal or bone from individual features.

The large number of recorded stakeholes and postholes, together with their general distribution and radiocarbon dates (see below), confirms the presence of built structures of early medieval date in the interior of the enclosure. There is a significant concentration of stakeholes in the eastern half of Trench 1 and Trench 6, some of which form arcs and short lines that suggest screens or fence-like structures. While those stakeholes may relate to more than one phase of occupation, the possibility of a larger structure should be considered. This is supported by the discovery of a post-built structure in the south-east corner of Trench 4 extending into the Trench 1 and Trench 6 excavation area. This may be an entrance to a large roundhouse, possible up to 15m (Figure 4.59). The concentration of stakeholes and postholes/pits in that area contrasts with their general absence in the western half of Trench 5 and the western one-third of Trench 6.

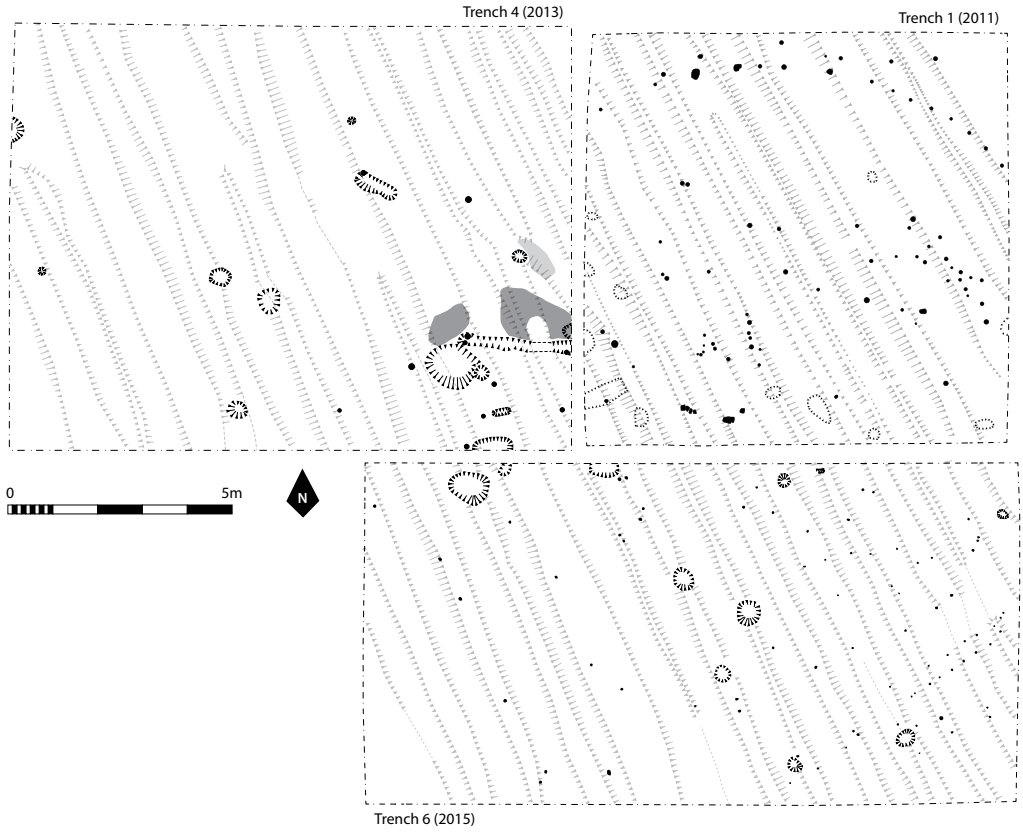


Figure 4.58 All excavated features in central excavation area (Trenches 1, 4 and 6), Lisnamanroe.

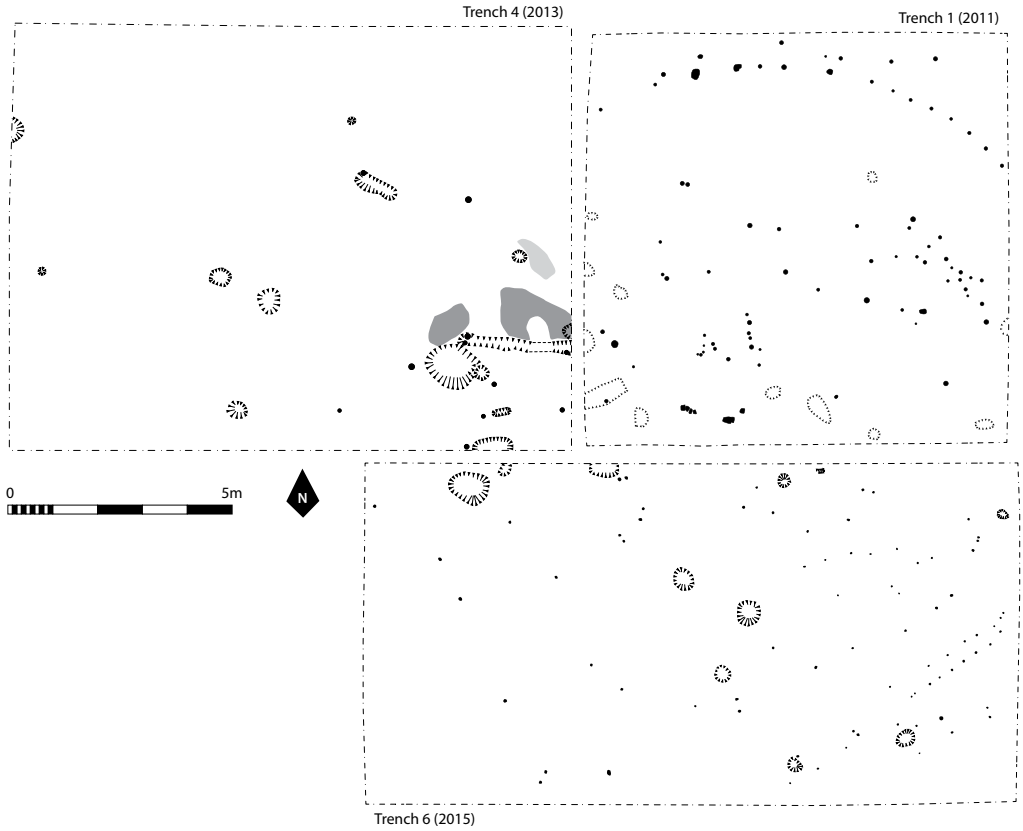


Figure 4.59 Period 1 features in central excavation area (Trenches 1, 4 and 6), Lisnamanroe.

Western Area

A 10m (east–west) by 8m cutting (Trench 5) was excavated just inside the enclosing elements on the western side of the enclosure (Figure 4.14). The removal of A-horizon topsoil uncovered artifacts dated to the early modern era. These include a small amount of glazed and unglazed domestic pottery, as well as fragments of vitrified limestone and fuel cinder, also likely to be early modern. Similar artifacts were recovered in the fills of three parallel cultivation furrows (contexts 383, 385 and 387) extending across the eastern half of Trench 5 in a north-north-west/south-south-east direction (Figures 4.60 and 4.61). These are lazy-bed furrows, part of the same series found in Trenches 1 and 4. The Trench 5 examples were also were spade-dug trenches, 0.56–1.4m in width, separated by narrow ridges of iron-stained B-horizon subsoil.

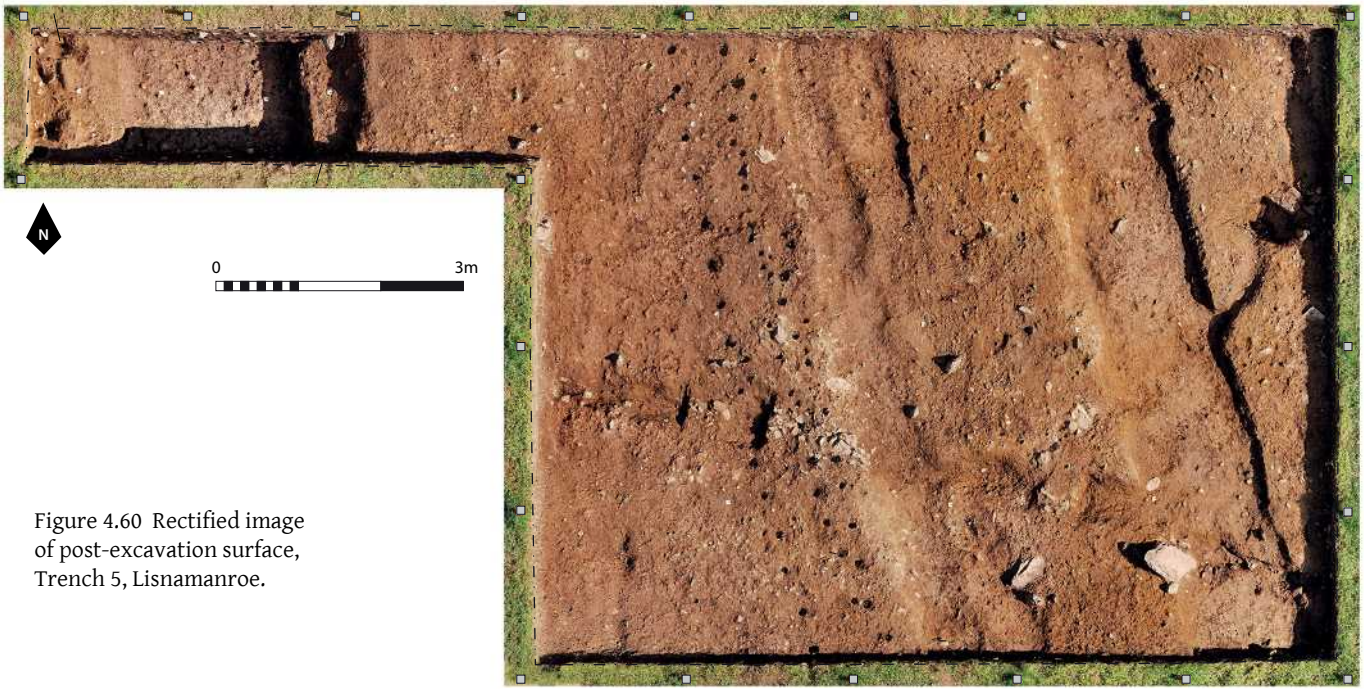


Figure 4.60 Rectified image of post-excavation surface, Trench 5, Lisnamanroe.

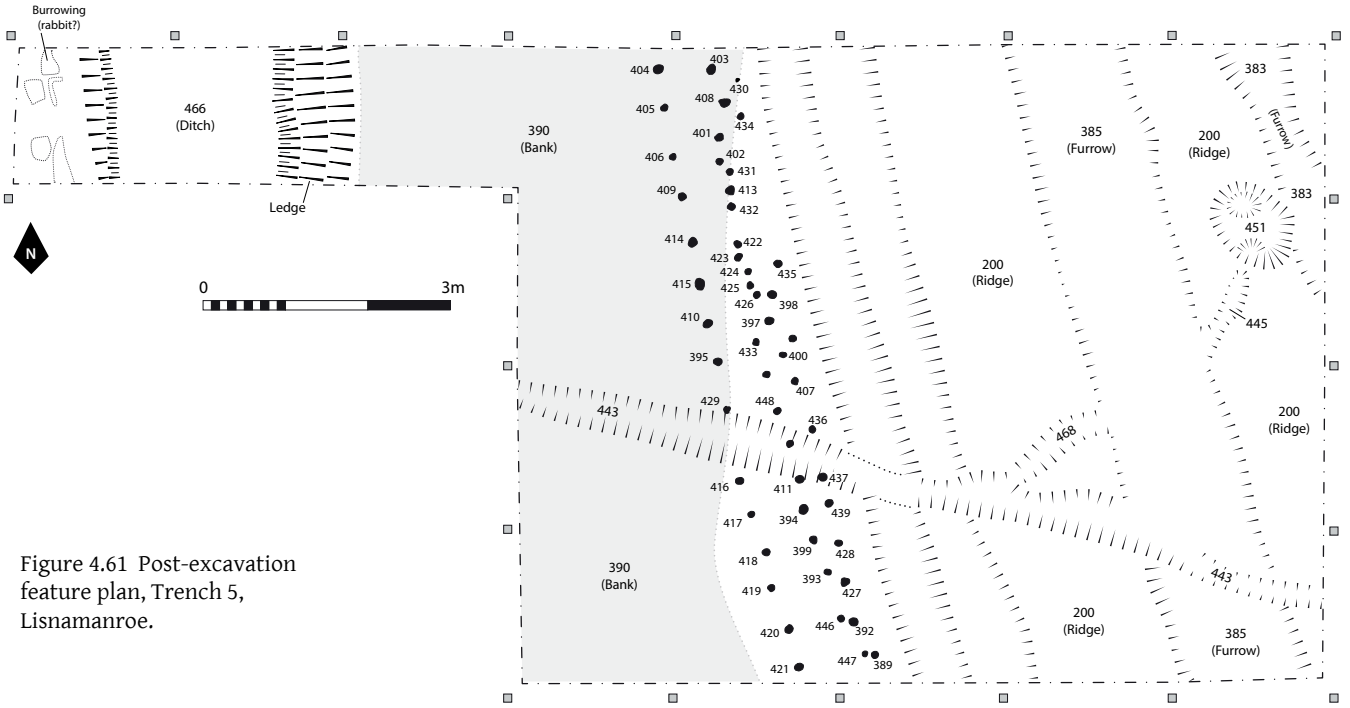


Figure 4.61 Post-excavation feature plan, Trench 5, Lisnamanroe.

Period 1 occupation (Trench 5)

Excavation close to the eastern side of Trench 5 uncovered a large posthole (C.451) connected to a short length of slot trench (C.445), both of which were truncated by later cultivation (Figure 4.62). The posthole was a large oval pit cut through the B-horizon (C.200) into C-horizon subsoil. It measured 0.98m (N–S) by 0.8m (E–W) on top, and 0.88m (N–S) by 0.63m (E–W) at the base, varying in depth from 0.67m on the northern side to 0.49m on the southern side. The sides were near vertical, with two small depressions at the base. These measured 0.26m (N–S) by 0.2m (E–W) and 0.44m (N–S) by 0.49m (E–W) respectively. The eastern side of the pit was truncated slightly by the C.383 cultivation furrow.

This feature was filled with loose mid/dark brown organic silt (C.449), which contained frequent pebbles and small to large stones, but no charcoal. The removal of this sediment exposed 14 large stones (C.450) loosely arranged around the sides of the pit. These irregular field stones were 0.14–0.26m in length, with one larger example (0.52m by 0.28m by 0.15m) placed in a horizontal position on the eastern side of the pit. They served as packing stones for an upright post that seems to have been removed from the posthole.

A narrow slot (C.445) extended out from the south-west side of the C.451 posthole (Figure 4.60). The surviving portion measured 1.05m in length to the position where it was truncated by the C.385 cultivation furrow. The



Figure 4.62 Posthole (C.451) and slot (C.445) to left, cut by cultivation furrow (centre), Trench 5, Lisnamanroe (looking south-west).



Figure 4.63 Post-excavation view of C.443 slot across Trench 5, Lisnamanroe (looking west).

slot was 0.2–0.25m in width at the top (0.09–0.13m at base), with steeply sloping sides to a rounded base that had no obvious stake settings. It was filled with purple silty sand (C.444) similar to the leached subsoil (C.199 E-horizon) in this site. There was no charcoal or finds, and so the date of this slot cannot be established.

The base of the C.385 cultivation furrow was examined to establish whether the C.445 slot continued further west. This could not be confirmed, possibly because the deep furrow had truncated the slot entirely. There are indications of a shallow trench (C.468) filled with stones and sandy sediment (C.467) on the western side of the C.385 furrow; however, that feature does not seem to be a continuation of the C.445 slot in terms of its shape, orientation or fill.

In conclusion, the C.451 posthole and C.445 slot are likely to have been part of a built structure in this part of the enclosure. The overall form or date of that structure is unknown.

Pre-enclosure activity

Excavation in 2014 uncovered a narrow irregular trench (C.443) extending east–west across the southern side of Trench 5 (Figures 4.60 and 4.61). The removal of A-horizon soil exposed a 0.2–0.5m wide band of stones (C.442) on the B-horizon surface (Figure 4.63). This was truncated in two places by later cultivation furrows (contexts 385 and 387). Excavation of C.442 removed a compact deposit of small to large stones, 0.09–0.17m in size, packed tightly together with a matrix of grey-brown humic silt. There was no charcoal in this stony fill, nor any associated small finds or dating evidence.

The removal of C.442 revealed an irregular trench (C.443) extending across the entire length of Trench 5. This shallow feature measured 0.2–0.25m wide by 0.05–0.14m deep at the eastern end, 0.3–0.53m wide by 0.04–0.17m deep in the centre, and 0.49–0.55m wide by 0.08–0.12m deep at western end. It had steep to gently sloping sides and a flat to slightly rounded base, with no obvious post or stake settings.

This trench is stratigraphically earlier than the enclosure bank as it was shown to extend under the C.390 deposit. The trench fill (C.442) was also cut by up to four stakeholes (contexts 411, 412, 436 and 437) that form part of the enclosure fence. This confirms that C.443 is a pre-enclosure feature, but no date or purpose can be attributed. One possibility is that it represents the line of an earlier field fence.

4.4 FIND ASSEMBLAGES

A significant number of artifacts were recovered over five seasons of excavation at Lisnamanroe, either by coarse digging of A-horizon topsoil or finer excavation of underlying contexts. Some 600 artifacts are recorded in the excavation database (National Museum of Ireland registration prefix 11E110-), but that includes 137 pieces of vitrified limestone and 264 fragments of fuel cinder (O'Brien 2018c, appendix 4). The finds were all washed, and in most cases numbered, prior to transfer to the National Museum of Ireland.

The artifacts were mostly recovered by trowelling. Very little sieving was conducted on site, due to the absence of a water source to process those heavy silt sediments. A copper alloy ring and five sherds of early glass were recovered by laboratory sieving of sediment samples.

The finds from Lisnamanroe may be divided into four categories:

Group 1: Objects of early medieval date (Period 1), mostly fifth and sixth century AD.

Group 2: Objects of early modern to modern date (Period 2), mostly 19th and 20th centuries.

Group 3: Objects of unknown date.

Group 4: Objects of possible natural origin.

Group 1: Objects of early medieval date (Period 1)

The discovery of a small number of diagnostic artifacts, notably glass beads, stone discs and spindle whorls, and items of bone and bronze, indicates site was occupied during the first millennium AD.

Bone

Two tiny fragments of bone with incised decoration were recovered.

11E110:49 Tiny fragment of bone with incised decoration (Figure 4.64). 10.68mm by 6.4mm by <0.1mm in thickness; 0.11g in weight. Decoration includes one horizontal incised line intersecting with another incised line at oblique angle, above which there is a dot and circle motif. Some faint indentations on one side may indicate it was part of a bone comb, though this is not certain. Found in fill (C.21) of early modern furrow (C.22) in Trench 1.

11E110:410 One tiny fragment of bone with a 1.3mm wide incised line. 12.13mm by 6.36mm by 2.4mm in thickness; 0.2g in weight. Found in fill (C.27) in posthole (C.535) in Trench 6.

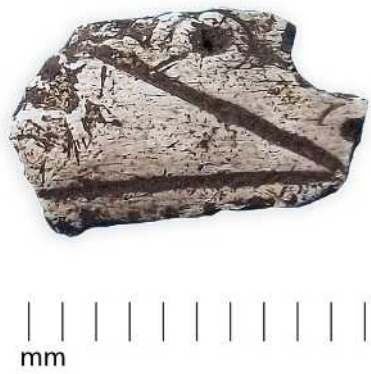


Figure 4.64 Decorated bone fragment (11E110:49), Trench 1, Lisnamanroe.

Non-ferrous metal objects

11E110:243 Two tiny fragments from the same wire ring were found by sieving of the lower fill (Context 269) of the southern ditch terminal in enclosure entrance (Trench 3). The ring was circular with an overall diameter of 12.75mm, and a thickness of 1.5mm. The ring is decorated with a light facetting (Figure 4.65). While it could be a finger-ring, the thinness of the wire may indicate an earring.



Figure 4.65 Copper alloy ring (11E110:243), from ditch terminal on southern side of enclosure entrance, Lisnamanroe.

The metal was analysed by Paul Mullarkey (National Museum of Ireland) using a *Spectro Midex* energy dispersive XRF spectrometer with molybdenum anode (Figure 4.66). The diameter of the tube collimator and the measurement spot size is 0.7 mm., and the distance from the sample surface varies from 2-5mm. The operating conditions for the X-ray tube were 45kV and 0.6mA at normal air pressure. Sample counting time was 180 seconds live time. Results are also affected by the surface conditions of the object, such as curvature, indentations, pitting and the presence of contaminants and corrosion products. Surface depletion and enrichment of certain elements (copper, tin, lead, silver, gold) are also a factor. The high reading for iron is due to soil accretions on the artifact.

The ring was initially identified as 'tin-alloy' but subsequent examination under high magnification has determined that it is likely to be a highly mineralised bronze. This alloy has been converted to a tin oxide through archaeological burial conditions where the copper content is only *c.*3%. There is a distinct applied tin layer to the exterior surface.

Element	%	Std Dev	No. Analyses
Tin	75.55	1.9	3
Lead	15.23	1.6	3
Copper	3.08	2.1	3
Silver	1.45	0.2	3
Gold	0.05	0.03	3
Zinc	0.06	.01	3
Iron	3.04	0.6	3
Arsenic	0.31	.06	3
Antimony	0.21	.02	3

Figure 4.66 Analysis of bronze ring (11E110:243) from Lisnamanroe (courtesy National Museum of Ireland).

11E110:256 Small bent-over strip of smooth copper/bronze sheet (broke across bend during lifting); from a cultivation furrow (C.297) in Trench 4. The overall length is 52.5mm, 9.28-14.3mm wide, with a thickness of 1–2.5mm (Figure 4.67).



Figure 4.67 Two joining fragments of copper/bronze sheet (11E110:256), Lisnamanroe.

11E110:370 Copper alloy chain. Small mass of highly corroded copper alloy chain, found on ridge between two cultivation furrows in north-east part of Trench 6 (Figure 4.68). Conservation undertaken by Susannah Kelly revealed 47 fragments of copper alloy chain, made up of individual circular links approximately 9–10mm in diameter (Figures 4.69 and 4.70). Before conservation, the highly fragmented and fragile chain fragments were encased in soil. The removal of this matrix showed the chain fragments to be fully corroded with no metal remaining. The conservation treatment consisted of manual cleaning with IMS swabs, followed by degreasing in acetone, after which the individual links were stabilized in 3% BTA in IMS, and then rinsed in IMS. They were dessicated to <35% RH, before being sealed in Incralac in Xylene, and finally re-adhered with HMG cellulose nitrate. This process confirmed that the original chain was made up of double (and possibly single) links.

A small, highly polished, stone ball (11E110:369) was found within 0.1m of this bronze chain, within the fill (C.09A) of an early modern furrow (C.10A). This is a black fine-grained stone, sub-spherical in shape measuring 19.3mm by 17.5mm by 16.3mm (Figure 4.69). Though found in close proximity, the two finds may not be connected as the stone is from a later cultivation context. It should be noted that polished stones of this type are not common in the natural soil of the site.

Also included here are six small irregular lumps of cupreous material, either oxidised copper mineral or metal (Figure 4.71). These come from cultivation-disturbed contexts, and so cannot be dated. They include:

11E110:09 Small fragment (15.9mm by 14.1mm) of mineralized rock/cuprous material. C.02 A-horizon, Trench 1.



Figure 4.68 Photograph of bronze chain (11E110:370) *in situ*, Trench 6, Lisnamanroe.



Figure 4.70 Detail of bronze chain (11E110:370).



Figure 4.69 Bronze chain (11E110:370) and stone ball (11E110:369), Trench 6, Lisnamanroe.



Figure 4.71 Four fragments of copper-rich mineral (*clockwise from top left:* 11E110:09, 11E110:10, 11E110:302, 11E110:306).

11E110:10 Small fragment (21.4mm by 11.7mm) of mineralized rock/cuprous material. C.02 A-horizon, Trench 1.

11E110:302 Two fragments (16.6mm by 14.7mm; 15.4mm by 11.6mm) of mineralized rock/cuprous material. C.02 A-horizon, Trench 4.

11E110:306 Two fragments (17.6mm by 13.1mm; 17.8mm by 12.6mm) of mineralized rock/cuprous material, C.02 A-horizon, Trench 4.

Iron objects

Three fragments of corroded iron from ditch in Trench 5A (Figure 4.72). Three heavily corroded objects (11E110:359–61) were found during laboratory processing of sediment samples from lower fill (C.460) of ditch. These seem to be tubular in form.

11E110:359 A broken and corroded iron tube, measuring 23.8mm by 9.4mm by 8.7mm, with a sub-circular bore 6.4mm by 5.8mm.

11E110:360 A corroded lump of iron, measuring 30.3mm by 26.1mm by 17.4mm with a projecting broken tube, measuring 8.7mm by 7.9mm with a corroded sub-circular bore 4.6mm in internal width.

11E110:361 A broken and corroded iron tube, measuring 25.6mm by 12.3mm by 9.9mm, with a circular bore 5mm in diameter.

These fragments all seem to be part of the same object. It is also possible these are fragments of corroded iron nails, where the hollow core is due to corrosion removing the original metal, leaving a magnetite shell.



Figure 4.72 Three fragments of iron from ditch, Trench 5A. (*left to right:* 11E110:359–61)

Early pottery

Four sherds of imported Late Roman pottery were found in the Lisnamanroe excavation. These include three sherds of Late Roman C ware, previously known as Phocaean Red Slipware (PRSW), and one sherd of E ware, identified by Ian Doyle as follows:

11E0110:60 A weathered Late Roman C form 3 rim sherd. Faint traces of maroon slip on rim underside. Possible weathered, but very faint, roulette lines on rim exterior face. Undulations on rim underside may be remains of an offset. Ex situ find from fill (C.11) of early modern cultivation furrow (C.12), Trench 1.

11E0110:93 A small heavily weathered Late Roman C basal sherd with portion of footring. One small patch of maroon coloured slip is present on the underside of the base. From sediment spread (C.93) at western end of Trench 2.

11E0110:100 A small weathered Late Roman C basal sherd with portion of footring. Patches of maroon coloured slip are present on the underside of the base. From sediment spread (C.93) at western end of Trench 2.

11E110:232 One body sherd (two pieces joining) from a thin-walled vessel of E ware. From a deposit (C.233) in the northern ditch terminal at entrance to enclosure (Trench 3).

This pottery is considered in detail by Ian Doyle in Chapter 7.4.



Figure 4.73 Sherd of E-ware (11E110:232) from upper fill of ditch, north side of entrance, Trench 3.

Early Glass

Five small sherds of early glass were discovered at Lisnamanroe, as follows:

11E110:231, :234 and :239 Three tiny slivers of decorated glass (Figure 4.74). 11E110-231 (15mm by 5.2mm), 11E110-234 (13.2mm by 2.5mm) and 11E110-239 (4.8mm by 4.6mm). All probably from the same thin-walled vessel of clear light green glass, decorated with closely spaced, horizontal, white lines of variable thickness on one side. Found in upper fill (C.233) of northern ditch terminal at entrance to enclosure (Trench 3), in same context as sherd of E-ware of sixth/seventh century AD date.



Figure 4.74 Three splinters of early glass from ditch at northern side of entrance, Trench 3, Lisnamanroe. (*left to right:* 11E110:231, 11E110:234, 11E110:239)

11E110:381 Rim sherd of light green glass similar to :231, :234 and :239; from cultivation furrow (C.07A) in Trench 6. Rim sherd, 16.7mm by 13.8mm, slightly opaque, rounded rim, with decoration of horizontal. closely spaced white lines of variable thickness (not illustrated).

11E110:399 Rim sherd of glass similar to above; from same cultivation furrow (C.07A) in Trench 6. Rim sherd, 15.3mm by 8.1mm, rounded rim, no decoration (not illustrated).

This glass has been identified as imported imported from the Bordeaux region of France during the sixth century (information: Ewan Campbell). The association with E ware at Lisnamanroe is known from other sites (Campbell 2000; 2007). A sherd of identical glass was discovered at nearby Lisnacaheragh (Ó Ríordáin 1942, fig. 14, no. 339), where E-ware is also recorded.

Glass beads

Margaret Mannion

Five beads from the Lisnamanroe excavation were analysed. These include:

11E110:24 Three small fragments of amber found in topsoil (C.02) in Trench 1. One of these has a possible perforation, suggesting the fragments may form part of a bead (Figure 4.75). The dimensions of the three fragments are 7mm by 5mm, 5mm by 5mm and 3mm by 3mm respectively.

Amber beads are found on a number of early medieval sites in Ireland. Sixteen amber beads were found in Period 1a at Lagore crannóg (Hencken 1950, 150–1, figure 74, 1496). Two amber beads were also found at Lisnacaheragh, Garranes (O Ríordaín 1942, 121, figure 14, 210). Two amber beads were recovered during excavations at Glaspatrick, Croagh Patrick, Co. Mayo (Walsh, 1995, 69–70). Given the number of amber beads found on early medieval sites it is likely there was some importation of amber into Ireland before A.D. 800, possibly via the Anglo-Saxon world (Kerr *et al.* 2013, 33).



Figure 4.75 Perforated fragment of amber bead (11E110:24). (photograph: Margaret Mannion)

11E110:61 Roughly half of an original glass bead with a central columnar perforation (Figure 4.76). The dimensions are as follows: diameter 12.5mm, length 9.5mm and the perforation is approximately 5mm. Found in a cultivation furrow (C.11) in Trench 1. This is an example of a mottled bead, or a crumb bead as they are also called. The bead appears to have a black body but under magnification it can be seen the core is composed of translucent glass of a dark red shade. In comparison with other examples, this bead is of globular form and decorated with randomly placed irregular dots of coloured glass. The colours of the 11E110:61 bead are

opaque red and semi-translucent white, with a speckling of brown, shades typical of the bead type.



Figure 4.76 Mottled bead (11E110:61). (photograph: Margaret Mannion)

Guido classifies mottled beads according to colour, separating those with a black body (Schedule 2 xi beads) from those with a blue body (Schedule 6xi) and those with a red body (Schedule 8 xii beads; Guido 1999 27, 53–54, 63–64). They are a popular and long-lived type. The bead from Lisnamanroe is an example of Guido's Schedule 8 xii beads (Guido and Welch 1999, 63–64, plate 6). Guido considers Schedule 8xii beads to date from the fifth to seventh centuries.

In Britain examples are found in graves 34 and 105 in the Anglo-Saxon cemetery of Mill Hill, Deal, Kent (Brugmann 2004, 80, fig. 149). A mottled bead was also found attached to a silver scourge from the Trewhiddle hoard dated to the ninth century (Webster and Blackhouse 1991, 246b). Examples are also known from the sixth-century Frankish-Visigoth cemetery at Herpes, Charente (Hencken 1942, 51). Mottled beads of various colours have been found on a number of Irish sites, including Ballinderry crannóg No. 2, Co. Offaly (Hencken 1942, figure 21, 440 and 12). Lagore crannóg, Co. Meath (Hencken 1950, 145, figure 68 D) and Lisnacaheragh, Garranes (Ó Ríordaín 1942, 116–118, figure 14, 321, 283 and figure 15, 337a). One of the mottled beads from Lisnacaheragh (*ibid*., 118, fig. 14, 321) is composed of red glass, and like the Lisnamanroe example is of Guido's Schedule 8 xii type (Guido 1999, 63-64 and plate 6). Guido's Schedule 8 vii bead from Garranes can be compared to the bead from Lisnamanroe in terms of its size, the colour of the core bead and the colour of the decorative inserts.

11E110:90 A small sherd of semi-translucent blue glass, with an irregular white dot and a trace of opaque red on its surface (Figure 4.77). The fragment measures 7mm by 3mm, and was found in the occupation surface (C.93) in Trench 2. It may be from a bead, but is too small to be certain. While the core of this fragment is composed of translucent blue glass, the inclusions of semi-translucent white and opaque red on the fragment are similar to the inclusions on the mottled bead 11E110:61 discussed above.

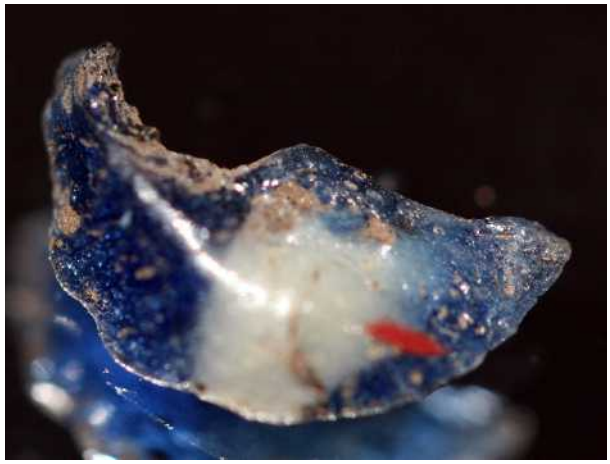


Figure 4.77 Fragment of blue glass (11E110:90). (photograph: Margaret Mannion)

A number of mottled beads with a blue body feature in the Knowles Collection of the National Museum of Ireland (Mannion 2015, 131–3). Mottled beads with a blue body as mentioned above are included in Guido's Schedule 6xi beads and in the Anglo-Saxon world date to the fifth and sixth centuries (Guido 1999, 53–4). Ó Ríordaín lists a fragment of a blue bead found in Site D, Lisnacaheragh, describing it as having 'a mottled design of red' (Ó Ríordaín 1942, 116, figure 14, 283). The fragment (now missing) may be an example of Guido's Schedule 6xi, a type found in fifth and sixth century contexts in Anglo-Saxon Britain (Guido 1999, 53–4, plate 5).

11E110:390 A large bead composed of semi-translucent glass in a caramel or honey shade (Figure 4.78). Under magnification, a faint dark line encircling one side of the bead is visible. The bead is of annular form with a centrally placed perforation. The bead has a diameter of 17.5mm, length 9.8mm and perforation 7mm. It was found in the fill of cultivation furrow (C.15a), in Trench 6.

This bead can be compared in form, dimensions and colour to Class 17 beads (Mannion 2015, 29) from excavated assemblages at Lagore crannóg (Hencken 1950, 135, fig. 65, 1261) and Garryduff ringfort, Co. Cork (O'Kelly 1962, 75, fig. 13, 488). The bead from Lagore was assigned to the Period Ib horizon a habitation level that also produced evidence for a glass-stud manufacturing workshop (Hencken 1950, 135, 129–132). The bead from Garryduff was assigned to the Period II occupation of that site (O'Kelly 1962, 75, fig. 13, 488).

A bead of similar form, colour and dimensions was recovered during the more recent excavations at Knockawaddra West 2 Co. Kerry (Clarke, 2011, 8). The bead from Knockawaddra West 2 differs from the other examples in that it is decorated with six fairly regularly spaced dots of opaque glass in an off-white shade (Mannion 2011). However, similar to the bead from Lisnamanroe when examined under magnification a faint black line is also visible encircling one side of the bead from Knockawaddra West 2; a similar line is also visible on bead number 488 from Garryduff (Mannion 2015, 74). This bead type is believed to date to the sixth and seventh centuries (*ibid*., 89). O'Kelly suggested the black line on the Garryduff example to be accidental during production when the bead was being wound on the rod (O'Kelly, 1962, 75). It is interesting that a third bead of comparable colour, form and dimensions with a similar dark line spiralling one side of the bead has been found in the Cork region, posing the question where the workshop(s) using those techniques was located.



Figure 4.78 Glass bead (11E110:390). (photograph: Margaret Mannion)

11E110:412 A small bead composed of a bright semi-translucent glass in a blue/green shade (Figure 4.79). The bead is annular in form with a central perforation that is large in proportion to the bead size. The bead is slightly asymmetrical in shape in that the wall of the bead is thicker in some parts than others. The dimensions of the bead are diameter 4mm, length 1.5mm, perforation *c*.1.6mm. The bead was found in the fill (C.495) of a large posthole (C.497) in Trench 6.

In conclusion, glass beads have an ancient and global history, and their continuing appeal is as much a reflection of their symbolic associations as their aesthetic charm. They are a numerous find on archaeological excavations in Ireland from at least the later Bronze Age (Warner and Meighan 1981, 52). While having their own characteristics as one might expect of hand-crafted objects, the Lisnamanroe examples share traits and manufacturing techniques with beads of similar type. They can be compared to examples from established bead classifications, and those in assemblages from comparably dated sites in Ireland and abroad. Beads are readily portable artifacts, usually worn and carried by individuals. They are highly individualised items, each one crafted as a unique piece using methods determined by available resources and technical skills. They can provide information on the interaction between communities, both locally and further afield, and the different ways that people chose to affirm their cultural affinities. social status and traditional beliefs.



Figure 4.79 Blue/green glass bead (11E110:412) from C.497 posthole, Trench 6, Lisnamanroe.

Spindle whorls

Six of these stone objects (three broken and three complete) were found in the Lisnamanroe excavation (Figure 4.80). These perforated stone discs were probably used as weights for a wooden or bone rod (spindle) used in the hand-spinning of fibre (probably wool, but possibly flax and other plant fibres, and animal hair) to make yarn for cloth (O'Brien 1993; 2010). These cannot be connected to any activity areas in the site, nor to other artifact or environmental finds. Five were found in cultivation-disturbed contexts, and so cannot be dated securely. One example (11E110:405) was found in a closed context, a posthole (C.497) that contained burnt bone radiocarbon dated to AD 418–542 (GrM-16484).

11E110:32 Broken half of perforated circular stone disc. 39.4mm in diameter, 8.5–9.5mm in thickness, 11.6g in weight. Central cylindrical perforation broken in half, 10.4mm in diameter and 8.6mm deep. Very



Figure 4.80 Three complete and three broken spindle whorls, Lisnamanroe. (*clockwise from top left:* 11E110:82, 11E110:32, 11E110:53, 11E110:35, 11E110:405, 11E110:371)

smooth surfaces, with minor flake scars. Fine-grained sedimentary rock. Found in fill (C.07) of cultivation furrow in Trench 1.

11E110:35 Circular stone disc with perforation. 38mm in diameter, 10.4–11.6mm in thickness, 26.7g in weight. Central cylindrical perforation, 9.8mm in diameter and 11mm deep. Smooth worn surfaces and sides. Simple decoration in form of a single 1.18mm wide central groove around sides, which expands into a double line in one area. Micaceous grey fine-grained sedimentary rock with iron oxide reddening. Found in fill (C.19) of cultivation furrow in Trench 1.

11E110:53 Circular stone disc with perforation. 42.6–42.9mm in diameter, 9.96–13.5mm in thickness, 43g in weight. Irregular cylindrical perforation slightly off centre, 9.8–10.4mm in diameter and 12.9mm deep. Smooth worn surfaces and sides. Grey-blue limestone. Found in fill (C.17) of cultivation furrow in Trench 1.

11E110:82 Broken half of perforated circular stone disc. 40.4mm in diameter, 9.6mm in thickness, 12.1g in weight. Central cylindrical perforation broken (60% left), 10.3mm in diameter and 8.7mm deep. Very smooth worn surfaces and sides. Micaceous yellow fine-grained sedimentary rock. Found in fill (C.05) of cultivation furrow, Trench 1.

11E110:371 Circular stone disc with perforation. 41–42.3mm in diameter, 6.2–9mm in thickness, 26g in weight. Slightly hourglass perforation, off centre, 10.6–11.1mm in diameter and 9.1mm deep. Smooth worn surfaces and sides. Grey (?) fine-grained sandstone. Found in fill (C.5A) of cultivation furrow in Trench 6.

11E110:405 Broken portion (possibly 20%) of perforated circular stone disc. 27.5mm in diameter (no original thickness), 4.6g in weight. Broken across and lengthways, the original object would have been 37–40mm in diameter with a central circular perforation. Very smooth surface and side. Micaceous reddish fine-grained sedimentary rock. Found in fill (C.495) of posthole (C.497) in Trench 6.

The perforated stone discs from Lisnamanroe are typical of spindle whorls from early medieval ringfort settlements in Ireland. This includes three examples excavated at the adjacent Lisnacaheragh enclosure at Garranes (Ó Ríordáin 1942, fig. 13, no. 339), and a collection of 18 examples from Garryduff 1 ringfort, also in Cork (O'Kelly, 1962, 89).

Stone discs

Four stone discs with no perforations were recovered at Lisnamanroe, all from cultivation-disturbed topsoil in the interior of the enclosure (Figure 4.81). These cannot be connected to any structures or activity areas in the site, and so have no secure dating.

11E110:03 Stone disc, irregularly circular with variable thickness. 59.7–59.9mm in diameter, 8.1–13.8mm in thickness, 75.5g in weight. Smooth upper and lower surfaces, with roughly smooth sides, chipped in one place. Green fine sandstone. Found in A-horizon topsoil (C.02) in Trench 1.

11E110:11 Stone disc, approximately circular. 39.1–40.1mm in diameter, 8–9.1mm in thickness, 23.9g in weight. Roughly smooth surfaces and sides, with minor chipping. Micaceous grey medium sandstone. Found in A-horizon topsoil (C.02) in Trench 1.

11E110:50 Stone disc, flattened oval in shape and asymmetrical in cross section. 57.6–62.8mm in diameter, 21.1–27.1mm in thickness, 165.8g in weight. Roughly smooth surfaces and sides, with minor chipping. Grey fine to medium sandstone, with a quartz veinlet. Found in A-horizon topsoil (C.02) in Trench 1.

11E110:246 Stone disc, sub-circular. 29.6–31.4mm in diameter, 8.1–10mm in thickness, 15.9g in weight. Very smooth surfaces and sides. Reddish fine sandstone. Found in A-horizon topsoil (C.02) in Trench 4.

The purpose of these stone discs is uncertain. Three examples (11E110:03, :11 and :246) are likely to be rough-outs for spindle whorls of the finished type found at Lisnamanroe. The larger disc (11E110:50) may be an unfinished loom weight, but cannot be associated directly with the spindle whorls. Stone discs



Figure 4.81 Four ground stone discs, Lisnamanroe. (*clockwise from top left:* 11E110:03, 11E110:11, 11E110:246, 10E110:50)

are commonly found in Irish ringfort excavations, with three examples from the Lisnacaheragh enclosure at Garranes (Ó Ríordáin 1942, fig. 13), and 98 examples from Garryduff 1 ringfort, also in Cork (O'Kelly, 1962, 90).

Coarse stone objects

A number of coarse stone tools were discovered at Lisnamanroe, including a stone hammer (11E110:79), a mortar (11E110:102), and a number of whetstones. While the latter could be of early or modern date (see below), the hammerstone and mortar are likely to be early.

11E110:79 Stone hammer (Figure 4.82). Natural water-rolled cobble, oval in shape (flattened oval in cross section), with very smooth surface that has some natural pitting and quartz veinlets. 98mm by 68.5mm by 49mm; 510g in weight. Evidence of light use-wear abrasion at both ends, with one small spall detached. No haft modification. Grey medium sandstone of local Devonian (Old Red Sandstone) geology. Found in topsoil (C.02) in Trench 1.

11E110:102 Stone mortar (Figure 4.83). Broken half of an approximately circular object with rounded sides. 151.2mm in maximum diameter, 89.1mm in maximum thickness and 1173.6g in weight. Central depression in upper surface, 99.8mm in diameter at top, reducing to 58mm wide at base, with a maximum central depth of 27mm. The depression is roughly smooth with flattened base and sloping sides. Exterior of mortar has a rough surface rounded to a flattened base. Micaceous grey-brown coarse conglomeratic rock. Found in lower ditch fill (C.148) in Trench 2, where radiocarbon dates above and below that context confirm an early medieval date.

Similar objects are commonly found in ringforts and other medieval sites in Ireland, with examples also from the prehistoric period. Where charcoal accretions are present they can be interpreted as stone lamps, as in an example from Garryduff 1 ringfort in Cork (O'Kelly 1962, fig. 18). There are two such objects from Lisnacaheragh ringfort at Garranes, both of which have smooth internal surfaces suggesting to the excavator their use as mortars (Ó Ríordáin 1942, fig. 11, no. 83 and 392). There is no charcoal accretion or heat alteration on the Lisnamanroe example, which is unlikely to have been used as a lamp, or indeed an ingot mould. It has a roughly pecked internal surface, which might question prolonged use as a mortar. One possibility is that the stone broke in the course of making such an implement.



Figure 4.82 Stone hammer (11E110:79) from topsoil (C.02) in Trench 1, Lisnamanroe.



Figure 4.83 Broken stone mortar (11E110:102) from ditch fill (C.148) in Trench 2, Lisnamanroe.

Flaked stone

Two small flakes of flint were recovered from cultivation-disturbed topsoil on the eastern side of the enclosure (Figure 4.84).



Figure 4.84 Two struck flakes of flint. (*left to right:* 11E110:75, 11E110:115)

11E110:75 Retouched flint flake; side scraper. Dark grey fresh flint (no cortex); 23.9mm by 15.1mm by 5.6mm. Found in topsoil (C.02) in Trench 2.

11E110:115 A small flint blade with a striking platform and bulb, but no retouch. Light brown fresh flint (no cortex); 16.3mm by 10.4mm by 4.3mm. Found in topsoil (C.02) in Trench 2.

While the scraper may be of prehistoric date, this is not certain as worked flint is recorded from several early medieval ringforts in Ireland. Three flakes of worked flint are recorded from Lisnacaheragh ringfort at Garranes (Ó Ríordáin 1942, fig. 14), with a much larger collection for Garryduff 1 ringfort in the same county (O'Kelly 1962, fig. 20). The latter includes some small irregular scrapers (*ibid.*, nos 10 and 257) that bear comparison with the 11E110:75 example from Lisnamanroe.

Group 2: Objects of early modern/modern date (Period 2)

A significant number of artifacts were recovered from A-horizon topsoil and cultivation furrows in the various excavation trenches at Lisnamanroe. Those finds include sherds of glazed and glazed earthenware pottery, sherds of plain and decorated china tableware, clay-pipe stems, fragments of window and vessel glass, and items of corroded iron (for illustrations see O'Brien 2018c, plates 91–98). Other find categories include residues from high-temperature process, notably coal cinder, vitrified stone, and a few pieces of metallurgical slag. Many of these are early modern in date, such as the sherds of china and earthenware pottery, clay-pipe stems and glass. This is probably part of domestic refuse from nearby farmhouses that was deposited during the manuring of this field during the nineteenth and early twentieth centuries. The intense cultivation at that time explains the presence of vitrified stone in the topsoil, which is derived from the spreading of lime in the early modern era. These modern/early modern finds include:

Earthenware pottery

An estimated 35 sherds of unglazed and glazed earthenware pottery were found, mostly from the A-horizon or cultivation furrows. This pottery is broadly dated to the nineteenth and early twentieth centuries.

China tableware

Nine sherds of plain and decorated white china tableware, mostly from A-horizon topsoil (not illustrated).

Ceramic tile

Two sherds of unglazed tile (11E110:362-09 and -10) were found in topsoil in Trench 6.

Clay-pipes

Four clay-pipe stems (11E110:02-03, :19, 135 and 310) and one bowl fragment (11E110:345) were recovered in topsoil and early modern cultivation contexts across the excavation area (not illustrated).

Glass

A small amount of glass was found in Period 2 contexts (mostly topsoil) across the site (Trenches 1, 2, 3/3A, 4 and 6). The estimated 44 fragments include clear window glass, and clear or green vessel glass, from either bottles or drinking glasses (not illustrated).

Iron objects

Some 17 items of corroded iron were found in Period 2 contexts (mostly topsoil), with examples from all excavation trenches. They include 12 short or long nails, and five small fragments that may have come from farm tools. The latter cannot be dated, while most of the nails are of early modern type (not illustrated).

Vitrified stone

An estimated 137 small fragments of vitrified limestone or sandstone were found in cultivation-disturbed contexts across all excavation trenches in this site. A further twelve unidentified fragments may be vitrified stone or fuel cinder. These heat-glazed stones are likely to be a residue from the spreading of burnt lime on farmland in the early modern era. They cannot be connected to any high-temperature furnace, hearth or kiln structures in the site. The identified finds include 83 fragments from cultivated topsoil (mainly C.02 A-horizon, as well as lower organic soil spreads C.93 and C.189), and 53 fragments from the fills of 16 different 'lazy-bed' furrows. The latter include contexts 05A, 07/07A, 09, 11/11A, 13, 15/15A, 17, 144, 187, 201, 203, 283, 295A, 297, 301 and 303. Only one fragment (11E110:105-02) was found in an early context, coming from an occupation layer (C.016) inside the enclosure bank in Trench 2, which also contained charcoal radiocarbon dated to AD 382-539 (GrA-51596).

Fuel cinder

Some 264 lumps of cinder were found across all of the excavation trenches at Lisnamanroe. Most of this is from the burning of coal, either in domestic fires or possibly a fuel residue connecting to the spreading of burnt lime in the modern/early modern era (see above). A further twelve unidentified fragments may be vitrified stone or iron slag. The identified material includes 83 fragments from cultivated topsoil (mainly C.02 A-horizon, as well as lower organic soil spreads C.93 and C.189), and 178 fragments from the fills of 28 different 'lazy-bed' furrows. The latter include contexts 05, 07A, 11, 12A, 13, 17, 144, 181, 183, 187, 197, 201, 203, 209, 283, 287/287A, 289/289A, 290, 291, 293/293A, 295/295A, 297, 301, 303, 305, 382, 384 and 386. This material was initially collected as potential metallurgical slag, but was identified as coal cinder by Dr Paul Rondelez, a specialist in early iron metalworking.

Only two of these cinder fragments were found in early contexts. One of these (11E110:105-01) was found in an occupation layer (C.106) inside the enclosure bank in Trench 2, which also contained charcoal radiocarbon dated 1620±30 BP (GrA-51596). The other (11E110:411) is from the fill (C.521) of a pit (C.52) in Trench 6, from where there is a radiocarbon result of AD 399–539 for burnt bone (see below).

Group 3: Objects of unknown date

The following is a list of small finds that cannot be dated by form, context of associations. The majority come from cultivation disturbed contexts across the excavation area. They include:

Fired clay

Nine pieces of what may be heat-altered clay were found in topsoil and furrow fills in trenches 1, 2 and 6. One of these (11E110:104) was found in a charcoal-rich deposit (C.106) likely to be of early date (not illustrated).

Iron slag

Two small lumps of probable iron slag were found in the excavation, both coming from cultivation-disturbed contexts. The technology and date of this slag has not been established, but it has been identified as metallurgical in origin (pers. comm. Paul Rondelez).

Coarse stone objects

These include six small stones with traces of light abrasion or flaking (11E110:5, :116, :126, :158, :197 and :408); five possible complete or broken whetstones (11E110:84, :87, :277, :362-26 and :362-27; Figure 4.85); two polished stones (11E110:91 and :373) that may not be natural; one possible stone ard tip (11E110:266) and a possible anvil stone (11E110:406). Some 12 fragments of either vitrified stone or metallurgical slag (11E110:12 (three pieces), :13, :14, :17, :18, :22, :54, :72, :77 and :96) of unknown date were also recovered.



Figure 4.85 Selection of possible whetstones from cultivation-disturbed contexts across site, Lisnamanroe. (*top to bottom:* 11E110:84, 11E110:87, 11E110:27)

Group 4 objects of probable natural origin

This category includes nine fragments of iron-rich material (11E110:128, :130, :132, :133, :134, :141, :142, :168 and :179). This material was identified in the field as metallurgical slag, but on washing was found to be natural iron oxide. A number of polished pebbles and rounded stones (11E110:26, :29, :31, :36, :39, :40, :41, :63, :92, :111-07, :297, :303 and :308, may also be natural, derived from the glacial drift subsoil.

Environmental remains

A limited range of plant and animal remains was recovered during the excavation. This includes burnt bone deposits, charcoal and cereal grains, mostly extracted from sediment samples processed in the laboratory (for details, O'Brien 2018, appendix 3). The overall preservation of environmental evidence was poor due to the acidic nature of the aerobic soils and sediments in the site. The preservation of ecofacts depended largely on exposure to heat, resulting in the carbonisation of seeds and wood, and the burning of bone.

Charcoal

There was a general incidence of charcoal across the site, largely confined to the fills of stakeholes, postholes and pits. Most of that charcoal is probably in-wash from domestic hearths, and not connected to the burning of built structures. There were no charcoal spreads or occupation layers in the interior, probably because they were removed by lazy-bed cultivation in the modern era. There were small amounts of charcoal in the enclosing ditch, including a significant deposit (C.233) in the northern ditch terminal on the northern side of the entrance.

Hazel nuts

A burnt spread (C.32) in Trench 1 contained a few hazel-nut shells. The only other find is a small quantity of charred hazel-nut shells from the northern ditch terminal at the enclosure entrance (Trench 3). These include:

11E110:236 one hazel-nut fragment from Context 236.

11E110:237 19g of charred hazel-nut fragments from Context 248.

11E110:238 four hazel-nut fragments from Context 233.

Plant Remains from Context 248, Lisnamanroe

Orla Peach Power

Macrobotanical analysis was carried out on a sample (no. 48) from a lower fill (C.248) of the northern ditch terminal at the entrance to the Lisnamanroe enclosure (Trench 3). This sample contained plant remains preserved through carbonization. These were extracted from a bulk sediment sample by flotation and wet-sieving. The sorting and identification of charred botanical remains took place under a low magnification microscope. Where possible, extracted botanical remains were identified to species and quantified numerically (Table 4.86). The identification of cereal types was based on morphological characteristics such as shape, length, seed coat, attachments and scars, using a comparative reference collection and based on published keys (Pearsall 2000; Cappers *et. al.* 2006; with nomenclature after Stace 1999).

Results

A low incidence of indeterminate cultivated remains was identified in C.248, accounting for 13% of the total assemblage. This meant that the grain was too distorted, eroded or fragmented to make even a tentative identification. The dominant cereal type identified in C.248 was hulled barley (*Hordeum vulgare L.*). In this species, lemmas have fused to the grains themselves. A low incidence of twisted barley grains was identified in the assemblage which would typically indicate the presence of six-rowed barley. Theoretically the ratio of twisted grains to straight is 2:1, however this is not the case in sample 38 from C.248. Grains may appear longitudinally asymmetrical but this twist may have occurred during the charring process and hence this feature cannot be used to make definitive identifications.

A sample of this hulled barley was submitted for radiocarbon dating, with a result of 1595±30 BP (GrA-54281), calibrated to AD 401–540.

Wheat was identified in relatively low frequencies and has been identified to generic level (*Triticum sp.*) due to the extent of distortion and the absence of diagnostic chaff fragments.

Summary

Hulled barley (*Hordeum sp.*) is the dominant cereal taxa identified in C.248, though the frequency of remains is relatively low. While it can be assumed that hulled barley, and to a lesser extent wheat (*Triticum sp.*) was processed and/or consumed at the site, this may not be entirely representative of the arable economy

at Garranes during the period of the Lisnamanoe occupation.

Latin name	Common name	Element	No.
Hordeum sp.	Barley	Caryopsis	5
Hordeum vulgare	Hulled barley	Caryopsis	24
Triticum sp.	Wheat	Caryopsis	4
cf. *Triticum sp.*	Wheat	Caryopsis	2
Indeterminate		Caryopsis	5

Figure 4.86 Plant macrofossils, C.248, Lisnamanroe (sample 48; total volume >5ml; 100% identified)

Faunal Remains

Róisín Nic Cnáimhín

Animal bone was recovered from 42 contexts in six trenches excavated in 2011–2015 at Lisnamanroe (Table 4.87). A total of 3,539 fragments of burnt bone from 39 contexts was analysed, with the results presented in this report. The volume of material is very small, weighing 175.56g in total. There is a high level of fragmentation with individual fragments measuring under 30mm in length. No unburnt bone was recovered, probably due to the acidity of the soil environment. Due to the high level of fragmentation the majority of the assemblage was unidentifiable to animal species or skeletal element.

Methodology

This animal bone was identified using the UCC Archaeology comparative collection and reference manuals (Schmid 1972; Hillson 2005). Due to its burnt nature and the high rate of fragmentation, measurements were not carried out on the identifiable material. As burning causes bones to shrink, the resulting fragments are not generally measured for size, sex, and other metric analyses (Greenfield and Beattie 2017, 73). The length of bone fragments was recorded in this analysis to display the high level of fragmentation. The burnt bone was analysed and described using osteological conventions developed by Greenfield and Beattie (2017) and Beisaw (2013).

Results

The material ranges from charred to partly and fully calcined bone. The charred bone is black in colour where it has been carbonized completely. Bone with blue/grey colouring is partly calcined and partly carbonized (Greenfield and Beattie 2017, 46). The majority of the material is white and calcined completely. Calcined bone is regularly associated with clean bone disposed of in a fire (Beisaw 2013, 109). Calcined mammal bones produce a fine powder when scratched, a technique used in this analysis (*ibid.* 110).

Six fragments of bone were identified to species and element, and one fragment was tentatively identified to element. Sample 240 from Trench 3 (C.233) produced nine fragments of teeth, five of which are identifiable to cattle (*Bos taurus*). These are fragments of cattle molar teeth, however it is unsure whether they are mandibular or maxillary molars. These are burnt and fragmented with no measurements available. Sample 240 from Trench 3 (C.233) produced a mandible fragment unidentifiable to species, but possibly cattle due to its size. This bone is calcined and fragmented with no measurements available. Sample 95 from Trench 6 (C.527) produced a fragment of a sheep/goat (*Ovis/Capra*) phalanx. The fragment is the distal end of a first phalanx. This bone is calcined and fragmented with no measurements available.

Finally, there are possible cutmarks of two bone fragments from trench 6, found in Sample 93 (C.530) and Sample 98.2 (C.495) respectively.

Unidentified bone

Trench 1 produced 488 fragments with a total weight of 18.66g from 20 contexts, which include posthole, stakeholes, postholes, pits, burnt spreads, and a later cultivation furrow. This material displayed a high level of fragmentation with the largest fragment measuring 15.2mm in length. The majority of these fragments are white and fully calcined with the others blue/grey where partly calcined and partially carbonized or dark brown/black where charred. One fragment has staining from contact with copper alloy metal.

Trench 2 produced 14 fragments with a total weight of 1.4g from two contexts, including an occupation layer and basal sediment of ditch. This material displayed a high level of fragmentation with the largest fragment 11.5mm in length. All fragments are white and fully calcined.

Trench 3 produced 804 fragments with a total weight of 45.72g from six contexts in the ditch terminals of the enclosure entrance. This material displayed a high level of fragmentation with the largest fragment 29.9mm in length. Most fragments are white and fully calcined with other fragments having a blue/grey colour where partly calcined and partly carbonized. A small number of fragments display copper alloy staining.

Trench 4 produced 457 fragments with a total weight of 32.54g from five contexts, including stakeholes, postholes, pits, and burnt spreads. This material

Trench 1 (20 Contexts)

11E110: 80 Upper fill of possible stakehole C.33

11E110: 81 Fill of furrow C.10

11E110: 83 Fills of posthole C.71

Burnt bone extracted from soil samples:

Stakeholes: C.27, C.49, C.68, C.94, C.98, C.110, C.120, C.124

Postholes and pits: C.58, C.86 and C.104

Burnt spreads: Burnt spreads: C.32, C.43, C.47 and C.90

Trench 2 (2 Contexts)

11E110: 103 Occupation layer C.106

11E110: 106 Basal sediment of ditch C.153

11E110: 109 Occupation layer C.106

Burnt bone extracted from soil samples:

Burnt spread: C.106

Trench 3 (4 Contexts)

11E110: 230 Ditch sediment C.268

11E110: 233 Ditch sediment C.233

11E110: 240 Ditch sediment C.233

11E110: 241 Ditch sediment C.248

11E110: 242 Ditch sediment C.269

11E110: 244 Ditch sediment C.269

Burnt bone extracted from soil samples:

Ditch sediments: C.233, C.248, C.269

Trench 4 (5 Contexts)

This was identified in eight samples, with the most significant amount coming from posthole (C.351) and from stakeholes (contexts 317, 320 and 327) in the adjacent slot trench (C.326).

Burnt bone extracted from soil samples:

Stakeholes: C.327

Postholes and pits: C.317, C.320

Burnt spreads: C.331 and C.381

Trench 5 (2 Contexts)

11E110: 358 Burnt bone fragment from primary erosion of the western side of the ditch (C.461). This is not a secure context and the bone may be residual from pre-enclosure activity.

Burnt bone extracted from soil samples:

Ditch sediment: C.460a. Not analysed.

Trench 6 (6 Contexts)

Small samples of burnt bone from pits that probably date to the Period 1 occupation:

Sample 93-1 from C.530 fill of pit

Sample 94-1 from C.507 fill of pit

Sample 95-1 from C.527 fill of posthole

Sample 97-1 C.521 fill of pit

Samples 98-1, 98-2, 98-5, 98-6 from C.495 posthole, 99-1 from C.497 posthole

Burnt bone extracted from soil samples:

Postholes and pits: C.495, C.507, C.521, C.527, C.530, and C.541

Figure 4.87 Occurrence of burnt bone in excavation contexts, Trenches 1–6, Lisnamanroe.

Identification of Species and Element

Species	*Element*	*Side*	*Sample*	*Context*	*Trench*	*Notes*
Cattle	Molar	-	240	233	3	Five fragments of cattle molar. Unsure whether mandibular or maxillary. Burnt and fragmented with no measurements. Context: ditch sediment.
Sheep/Goat	1st Phalanx	-	95	527	6	Fragment of sheep/goat 1st phalanx. Distal end. Calcined and fragmented with no measurements. Context: closed pit.
Cattle ?	Mandible	-	240	233	3	Fragment of mandible, possibly cattle due to size. Calcined and fragmented with no measurements. Context: ditch sediment.

Identification of Bone Working

Sample	*Context*	*Trench*	*Notes*
93	530	6	On fragment of calcined bone with two possible cutmarks
98.2	495	6	One fragment of calcined bone which possibly displays evidence of bone working. Perforation through bone?

Unidentified Material

Trench	*Context*	*Fragments*	*Weight*	*Largest Fragment*	*Level of Burning*			*Copper Alloy Staining*
					Charred	*Calcined/ Carbonized*	*Calcined*	
1	20	488	18.66g	15.2mm	X	X	X	X
2	2	14	1.4g	11.5mm	-	-	X	-
3	6	804	45.72g	29.9mm	-	X	X	X
4	5	457	32.54g	24.6mm	-	X	X	X
6	6	1776	77.24g	19.7mm	-	X	X	X

Figure 4.88 Summary of animal bone analysis, Lisnamanroe.

displayed a high level of fragmentation with the largest fragment measuring 24.6mm in length. Most fragments are white and fully calcined with other fragments having a blue/grey colour which are partly calcined and partly carbonized. A small number of fragments have copper alloy staining.

Trench 6 produced 1,776 fragments with a total weight of 77.24g from six contexts, including postholes and pits. This material displayed a high level of fragmentation with the largest fragment measuring 19.7mm in length. Most fragments are white and fully calcined with others having a blue/grey colour where partly calcined and partly carbonized. A small number of fragments are stained by contact with copper alloy metal.

Summary

This small assemblage from Lisnamanroe has a high rate of fragmentation and consists entirely of burnt animal bone. The level of fragmentation is possibly due to the degree of burning as bone gets broken down into progressively small fragments during calcination (Greenfield and Beattie 2017, 83). The identified bones and teeth came from cattle and sheep/goat. No measurements, ageing or sexing could be undertaken on these bones due to the nature of this assemblage.

4.5 RADIOCARBON DATING

A total of 15 radiocarbon dates are available from the Lisnamanroe excavation, all supplied by the Centre for Isotope Research (CIO) in the University of Groningen, The Netherlands. These include three results from Trench 1, four from Trench 2, five from Trench 3, and three from Trench 6. Eight of these relate to the enclosing elements and entrance, with seven other results coming from occupation contexts inside the enclosure. Ten dates are for charcoal samples (oak sapwood or short-lived tree species; identifications: Susan Lyons, University College Cork). Three single fragment charcoal samples were not identified.

There are four results for burnt bone (unidentified, but probably animal) and one for cereal grain. The sample details and results area as follows (Figure 4.89; calibrations after OxCal 4.1; 95.4% confidence level; 14C ages have been calibrated to calendar years with software program: OxCal, version 4.4.2 (Bronk Ramsey, 2020).

Enclosing elements

Sample 2011-16: Charcoal from main bank deposit (C.85), Trench 2. Identification: alder (*alnus glutinosa*).
GrA-51566; 1595±30 BP. Calibrated to AD 401–540.

Sample 2011-17: Charcoal from organic layer (C.100) in mid ditch, Trench 2. Identification: alder (*alnus glutinosa*).
GrA-51567; 1100±30 BP. Calibrated to AD 887–1013.

Sample 2011-28: Charcoal from basal ditch sediment (C.153), Trench 2. Identification: alder (*alnus glutinosa*).
GrA-51595; 1625±30 BP. Calibrated to AD 353–537.

Enclosure entrance

Sample 2012-01: Charcoal from silt (C.279), base of northern ditch terminal, Trench 3. Not identified.
GrA-54261; 1620±30. Calibrated to AD 382 – 539.

Sample 2012-02: Carbonized grain from lower fill (C.248) of northern ditch terminal, Trench 3. Identification: four-hulled barley.
GrA-54281; 1595±30. Calibrated to AD 401 – 540.

Sample 2012-03: Burnt bone (not identified) from lower ditch fill (C.233) of northern ditch terminal, Trench 3 (excavation find 11E110:240).
GrA-54893; 1585±30 BP. Calibrated to AD 406 – 544.

Sample 2012-04: Charcoal from upper fill (C.226) of northern ditch terminal, Trench 3. Not identified.
GrA-54283; 635±25. Calibrated to AD 1286 – 1396.

Sample 2012-05: Charcoal from fill (C.255) of northern gate post-hole, Trench 3. Not identified.
GrA-54285; 1560±25 BP. Calibrated to AD 424 – 555.

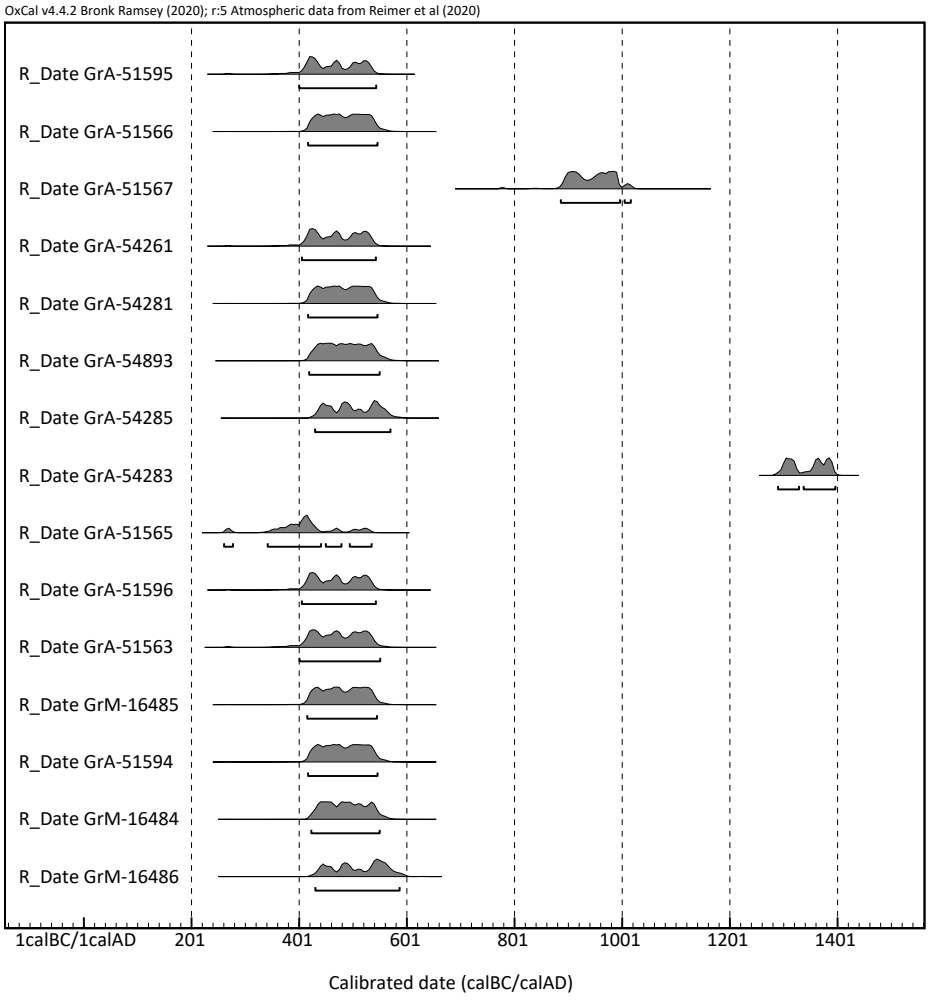


Figure 4.89 Calibration of Lisnamanroe radiocarbon dates (95.4% confidence, after Oxcal v.4.4.2). Upper three dates relate to the bank and ditch in Trench 2; next five dates are from the entrance area (Trench 3); bottom seven dates from the central excavation area. Note: dates GrA-51567 and GrA-54283 are from upper ditch fills when the enclosure was already abandoned for occupation.

Interior of enclosure

Sample 2011-06: Charcoal from stakehole (C.49), Trench 1. Identification: hazel (*corylus avellana*).
GrA-51563; 1615±35 BP. Calibrated to AD 356–542.

Sample 2011-11: Charcoal from stakehole (C.75), Trench 1. oak sapwood (*quercus* sp).
GrA-51565; 1655±30 BP. Calibrated to AD 262–530.

Sample 2011-21: Charcoal from stakehole (C.120), Trench 1. Identification: holly (*ilex aquifolium*).
GrA-51594; 1595±30 BP. Calibrated to AD 401–540.

Sample 2011-30: Charcoal from occupation layer (C.106) inside fence, Trench 2. Identification: hazel (*corylus avellana*).
GrA-51596; 1620±30 BP. Calibrated to AD 382–539.

Sample 2015-01: Burnt bone (not identified) from C.495 fill (C.495) of large posthole (C.497), Trench 6.
GrM-16484; 1580±25 BP. Calibrated to AD 418–542.

Sample 2015-02: Burnt bone (not identified) from fill (C.521) of pit (C.522), Trench 6.
GrM-16485; 1600±30 BP. Calibrated to AD 399–539.

Sample 2015-03: Burnt bone (not identified) from fill (C.527) of posthole (C.535), Trench 6.
GrM-16486; 1550±30 BP. Calibrated to AD 423–574.

4.6 DISCUSSION

The results of the Lisnamanroe excavation provide a valuable insight into the history of this early medieval enclosure. This is important as the intensive nature of cultivation during the early modern era resulted in a significant loss of site information. The recovery of data on the enclosing elements and entrance, and occupation of the interior, adds to our understanding of this settlement in the Garranes landscape. The chronological and functional relationship of Lisnamanroe to the nearby Lisnacaheragh enclosure has been clarified to a considerable extent.

Pre-enclosure activity

There is little evidence to indicate this site was occupied prior to construction of the enclosure. The discovery of a flint scraper (11E0110:75) in A-horizon topsoil in Trench 1 might indicate prehistoric activity in the area. The dating of that find, and also a flake of struck flint (11E110:115) from topsoil in Trench 3, are not known. It cannot be assumed these finds are prehistoric as struck flint is not uncommon in Irish ringforts of early medieval date.

While many excavated features (postholes, pits and stakeholes) at Lisnamanroe cannot be directly associated, their general occurrence and radiocarbon dates make it likely they are connected to one or more phases of occupation in the fifth or sixth centuries AD. The exception may be a narrow slot (C.443) that extended across Trench 5 in an east–west direction. That feature is stratigraphically earlier than a deposit (C.350) forming the base of the enclosure bank. It is also earlier than an enclosing fence on the inside of that bank, as several stakeholes from that structure cut through the stony fill of the C.443 slot. The exposed length of C.443 in Trench 5 was completely excavated. The fill (C.442) did not contain dating material, nor are there any features or finds to indicate its significance. The length of this narrow straight trench (>10m), and the absence of stake/post settings, suggests an early field division than a building.

Enclosure construction

Lisnamanroe is likely to be of single-phase construction, enclosed by a shallow flat-bottomed ditch with a low internal bank and inner stake fence. The ditch was 2.4–3m in width and at most one metre in depth. This means that the accompanying bank was similarly slight, probably less than a metre in height. These dimensions are consistent with a description by John Windele in 1856 of an earthen rampart '...6ft high on the outside and 3ft within' (Royal Irish Academy MS 12 I 10, 593). While he mentioned 'a single enclosing vallum without any fosse', his external bank height includes the depth of the shallow ditch revealed by excavation. The bank may have provided some support for a fence of light roundwood stakes, 3m or so inside the ditch. That fence seems to have been re-built in places, with a single line of stakeholes recorded in Trench 2 and the southern side of Trench 3, a double line in Trench 3A, and as many as three rows in Trench 5 on the more exposed western side of the enclosure.

The excavation identified an original entrance on the eastern side of the enclosure. Two large postholes (C.240 and C.257) confirm that a 1.7m wide wooden gate was connected to the aforementioned stake fence. This was located on the inner side of a 7.5m wide causeway across the enclosing elements.

In terms of when the enclosure was built, radiocarbon dating of charcoal from the lower ditch fill and the base of the adjacent bank indicate indicates a broad date range of AD 390–530 for construction. While the date of the stake fence in relation to the bank and ditch cannot be established, those features were probably built together as part of the same enclosure design. Taken together, the enclosing elements were not substantial enough to have a defensive purpose, or to stockade

animals. Instead, the enclosure expresses the status of a high-status residential site to which there was restricted access.

Early medieval occupation (Period 1)

Evidence of early habitation was found inside the enclosure, in both the central excavation area (Trenches 1, 4 and 6), as well as inside the enclosure fence on the eastern (Trench 2) and western (Trench 5) sides of the site. This survived as a truncated occupation surface with a large number of stake-holes, as well as post-holes, other pits, some slots, and small deposits of charcoal. These were mostly damaged by later cultivation, and so do not have secure stratigraphic relationships, though in some cases have obvious spatial associations. The B-horizon surface presents a palimpsest of these structural features, which may date from more than one phase of early occupation.

In some cases, these stake-holes form several arcs and short lines that indicate fence-like structures. The possibility of a larger structure must be considered, given the concentration of stakeholes, postholes and pits in Trench 1, the south-east corner of Trench 4 and the eastern side of Trench 6. These may be part of a large roundhouse with an estimated diameter of 15m (Figure 4.90). That building possibly had a *c.*2m wide entrance on the western side, defined by two large postholes, with internal features that were part of either a porch structure or door arrangement. A comparison can be made with the large roundhouse excavated in the nearby Lisnacaheragh ringfort (Figure 3.25).

A small number of artifact finds can be linked to the early medieval (Period 1) occupation inside Lisnamanroe. They include spindle whorls and stone discs connected to weaving, personal ornaments in the form of glass beads, a copper alloy ring and a chain, a possible bone comb fragment, as well items of corroded iron and possible whetstones. Most of the early finds from the central excavation area are from cultivation-disturbed contexts, but have a general spatial association with the putative roundhouse. Apart from weaving, there is no evidence of specialist craftworking at Lisnamanroe, unlike the adjacent Lisnacaheragh settlement where evidence of specialised metal and glass production was found in the 1937 excavation.

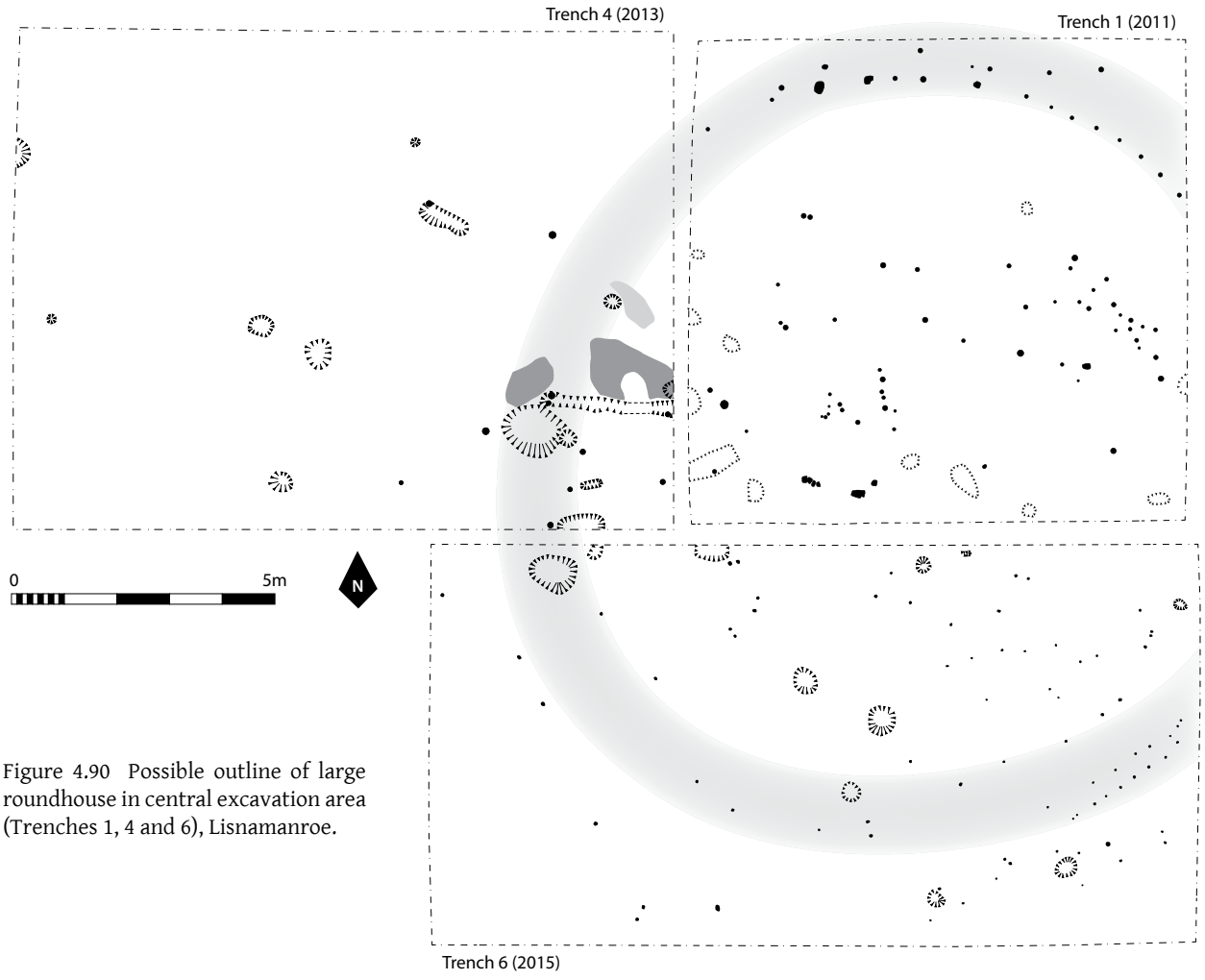


Figure 4.90 Possible outline of large roundhouse in central excavation area (Trenches 1, 4 and 6), Lisnamanroe.

There is also evidence of occupation from the fills of the ditch surrounding this enclosure. This includes both ditch terminals at the enclosure entrance (Trench 3). The northern ditch terminal has a deposit of early occupation sediment (C.248), which contained food residues in the form of charred barley grain, burnt animal bone and hazel-nuts. The lower fill (C.269) of the southern ditch terminal also contained charcoal and some burnt bone, as well as two fragments of a tiny decorated ring of copper alloy. The enclosure ditch on the western side of the site (Trench 5) had small amounts of charcoal and burnt bone, and fragments of iron (possibly nails). These ditch finds are unlikely to be deliberate deposits with symbolic meaning, as the amount and fragmentation of material concerned is more consistent with occupation refuse.

Abandonment

It is not certain when the Lisnamanroe enclosure was finally abandoned for occupation. Understanding the later history of this site is limited by the severe truncation of the archaeological levels by later cultivation. That said, there are no *ex situ* artifact finds of demonstrably later medieval date (post-eighth century AD) in the site. The excavation of the ditch terminals in the entrance area provides some indication as to the final use of the enclosure. The presence of charcoal-rich sediments in the upper fill sequences (C.226 in the northern terminal and C.261 in the southern terminal) is the final indication of human activity in the site prior to the early modern era. Charcoal from the C.226 ditch fill is radiocarbon dated AD 1286 – 1396, while that from the upper fill (C.100) of enclosure ditch in Trench 2 (C.100) is dated AD 887–1014. Those burning events occurred after a long period of natural erosion of the enclosure bank, to the point where both ditches were substantially infilled.

On the western side the abandonment of this settlement is indicated by substantial infilling of the enclosure ditch (C.454 in Trench 5A). There is no indication from the interior of the enclosure as to the date or circumstances of abandonment. The significance of two small concentrations of charcoal (contexts 388 and 396) on the immediate inside of the stake rows is unknown. There is no evidence those stakes were burnt, but some explanation is required for the high concentration of charcoal within an adjacent spread of bank material (C.390).

Later activity (Period 2)

Excavation confirmed the results of a magnetic gradiometry survey that show cultivation furrows crossing the interior of the enclosure in a north-west/south-east direction (Figure 2.36). These are spade-dug furrows or 'lazy-beds', probably connected to cultivation of potatoes in the eighteenth or nineteenth centuries. This is confirmed by the presence of early modern artifacts in the fill of these furrows and in the overlying cultivation soil, including sherds of earthenware pottery, china tableware, clear and coloured glass, clay pipe fragments, and some corroded iron. Some of this material may represent domestic waste dumped on these fields at that time. Numerous fragments of vitrified limestone from the same contexts are probably connected to the spreading of burnt lime as fertiliser in recent centuries.

The geophysical survey indicates that lazy-bed cultivation was confined to the interior of the enclosure, suggesting it was used as a cultivation plot separate from surrounding fields. This may indicate the extant bank and ditch were effective barriers, keeping animals out of the enclosure. It is not certain when those enclosing elements were levelled, as the bank itself was never substantial. This may be indicated in the ditch sequence in Trench 5, where a large deposit of orange-brown sandy silt with frequent charcoal (C.452) was found on top of an old sod layer (C.453) in the already infilled ditch. Any levelling of the already eroded bank may have occurred during the enlargement of fields in this area in the early twentieth century, a process that may be recorded in depictions of the site in historic mapping (Figures 1.11–1.14).

Conclusions

Excavation confirmed that Lisnamanroe is a circular enclosed settlement of single-period construction. The site was protected by a stake fence on the inside of a low earthen bank, outside which there was a shallow flat-bottomed ditch. The scale of the enclosing elements in relation to the overall size of the enclosure is not typical of an early medieval ringfort. This indicates a site of different character and purpose to the average farmstead, which was defined by its relationship to the adjacent trivallate ringfort of Lisnacaheragh, Garranes.

Radiocarbon dating confirms that the Lisnamanroe enclosure was built in fifth century AD, and occupied into the sixth century, but probably not much later. This is supported by a small number of significant finds that broadly date to the early medieval period, namely the glass beads, a decorated bone fragment and spindle whorls, as well as some that date specifically to the fifth or sixth centuries, notably LRC and E-ware pottery and glass from the Late Roman world.

Some of the finds represent personal ornaments worn by the inhabitants, including the glass beads, copper alloy earring and short length of bronze chain. While those finds are few, they do reflect the status of those

living in an elite residence closely connected with Lisnacaheragh ringfort. Apart from weaving, there is no evidence of specialist craftworking at Lisnamanroe, suggesting that it was primarily a residential site. The foundation traces of numerous stake- and post-built structures, as well as domestic artifacts, in the interior, indicate that the site was occupied at different times by humans. This is supported by the small, but widespread occurrence of burnt bone in excavated contexts.

Overall, the results of this excavation raise interesting questions regarding the relationship of Lisnamanroe to Lisnacaheragh ringfort, in terms of chronology, function and status. The excavated features and finds at Lisnamanroe confirm it was not used as an animal enclosure for the residents of Lisnacaheragh. Confirmation that the occupation of these two large enclosures was contemporary points to a centre of considerable size and importance during the fifth and sixth centuries AD.

Finally, excavation confirmed that Lisnamanroe was not a large ringfort as previously thought, but was originally a low-relief enclosure. The low 'earthen rampart' recorded by John Windele in 1856 was subsequently levelled, probably during agricultural improvements in the modern era. While the archaeology of the enclosing fence and ditch survives relatively intact, the occupation surface in the interior was impacted by spade cultivation in the early modern era. That damage is considerable, but it has been possible through careful excavation to reconstruct part of the story of an important settlement dating to the Iron Age/early medieval transition in southern Ireland. The broader significance of Lisnamanroe within the Garranes landscape will be examined in a later chapter.

– 5 –
LISHEENAGREINE

The investigation of this levelled earthwork was designed to examine one of several possible ringforts in the wider Garranes landscape. The project was conducted over five weeks in May/early June 2018. The enclosing elements were excavated to understand their design and construction. Part of the interior was also excavated to assess the occupation history of this site, through a stratigraphic record of structures and activity areas, artifacts and environmental evidence.

Lisheenagreine survives today as a low-relief, circular, enclosure (Figure 5.1; see Chapter 2.2 for survey details). The representation of this site in historic mapping suggests an earthen ringfort (rath) of the early medieval period (Figure 5.2). This is indicated by its size and circular shape, and the depiction in some maps of an enclosing bank. There is also a historical record of a souterrain and an ogam stone in the site (Rolt Brash 1868). The association of ogam stones and souterrains in ringforts was an important research question for this excavation.



Figure 5.1 Surface model of Lisheenagreine ringfort showing excavation trenches (1900 Ordnance Survey map detail).

5.1 EXCAVATION

An area of 102m^2 was excavated on the northern side of the Lisheenagreine enclosure (Figure 5.1). A 10m by 8m cutting (Trench 1) was dug on the inner side of the original ringfort bank. That trench was extended on the north-east side with a 10m by 2m cutting (Trench 1A) across the levelled enclosing elements (Figure 5.3). The discovery of a souterrain made it necessary to extend the main trench with a 1.5m^2 cutting (Trench 1B) on the western side. Together, those trenches provide a stratigraphic record of the enclosing element in relation to activity in the interior of the enclosure. Their position was determined in part by the imaging of the enclosure in geophysical survey undertaken for this project (Figures 5.4 and 5.5).

The trenches were de-turfed and excavated by hand, using small digging equipment (Figures 5.6–5.8). On completion of excavation they were back-filled by hand and the ground surface restored. The excavation involved standard stratigraphic excavation and context-based recording, with full written descriptions, digital photography and photogrammetry, scale drawing, artifact recovery and environmental sampling. This included fine-resolution digging with small trowels and manual recovery of artifacts. There was no wet-sieving on site due to the absence of a water source. Bulk samples of sediment were taken for lab wet-sieving and flotation, to assist in the recovery of small finds, charcoal and other bio-environmental remains (details in O'Brien 2018b, appendix 3).

Natural soil

The soil development in this field is a brown podzol, consisting of a friable, well-sorted, organic silt of moderate acidity (Figures 5.9–5.10). Prolonged cultivation over recent centuries has removed most large stones, though the organic soil does contain numerous pebbles and small to medium stones. This topsoil has a thin stone-free sod (C.01; O-horizon) over an organic silty soil (C.02; A-horizon). The subsoil varies from a bright orange, iron-enriched compact silt (C.67; Bs-horizon) across the northern side of the excavation area, to a grey stony silt (C.68 B-horizon) on the southern side of the inner ditch. The reason for this variation in the B-horizon is unclear, as C.68 does not seem to be a leached surface (E-horizon). The underlying C-horizon is a fluvio-glacial till, consisting of a hard stony layer of purple and yellow banded silt/sandy silt (C.69), over a compact horizon of alternating thin bands of purple, yellow, orange and green sandy silt (C.70), over a thin layer of compact coarse sand (C.71), over eroded bedrock (C.72).

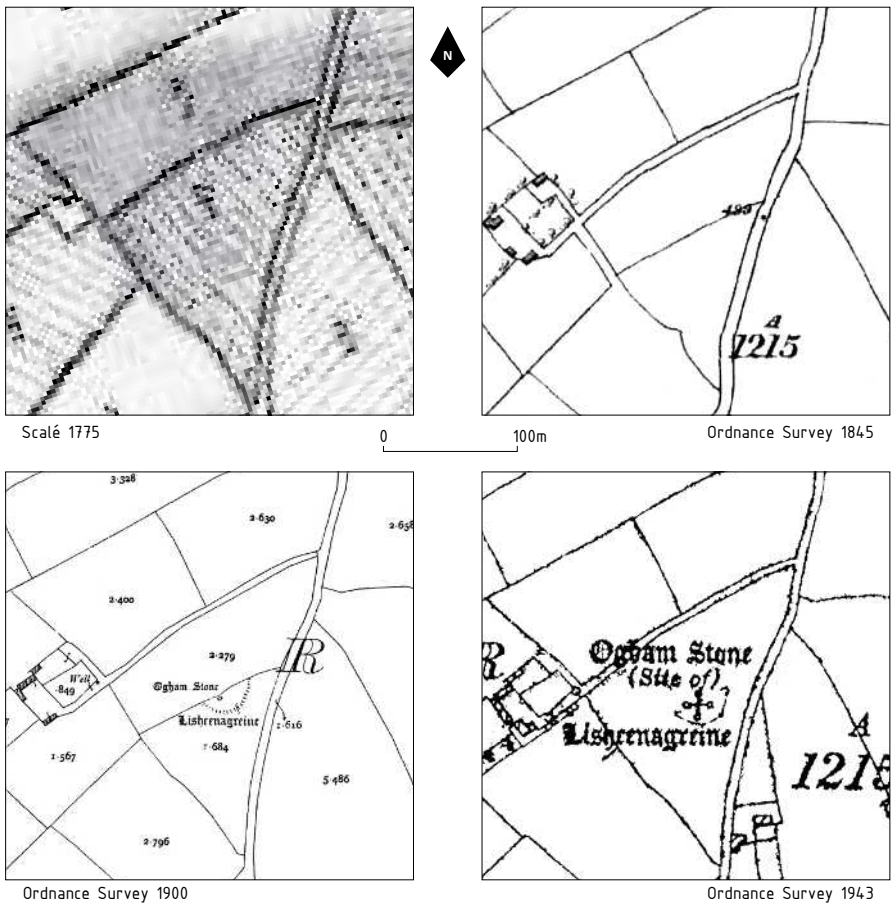


Figure 5.2 Representation of Lisheenagreine in historic mapping (Scalé map has been rotated and approximately scaled to align with Ordnance Survey detail).



Figure 5.3 Aerial view of Lisheenagreine showing excavation area from south/south-west.



Figure 5.4 Results of magnetic gradiometry survey at Lisheenagreine with location of excavation trenches.



Figure 5.5 Results of electrical resistance survey at Lisheenagreine with location of excavation trenches.



Figure 5.6 Trowelling of lower A-horizon (C.02) in Trench 1, Lisheenagreine.

Organic topsoil (cultivated)

C.01 O-horizon sod layer. Compact mid brown humic silt, root matted with no stones. 0.08–0.1m in thickness across trench.

C.02 A-horizon organic topsoil. Mid brown silt with friable loamy texture, frequent pebbles and small stones, occasional larger clasts. Varies in thickness from 0.22m at northern end of Trench 1A, to 0.15m at northern end of Trench 1, increasing to 0.4m at southern end of Trench 1. Finds of early modern pottery, glass and iron (18E0215: 01–07), and a spindle whorl (18E0215:11) of early medieval date.

Natural subsoil

C.05 Pre-bank surface. Hard smooth surface of purple/ grey to light brown silty sand exposed under C.04 bank material. Leached appearance, with occasional pebbles and small stones, but few larger clasts. Occasional flecks of charcoal (sampled).

C.67 B_S-horizon subsoil. Compact bright orange silt with occasional pebbles and small to medium stones. Best exposed on both sides of main ditch extending into northern part of Trench 1 (not present over rest of that trench).

C.68 B-horizon subsoil (low iron). Very hard layer of grey sandy soil with low iron content, frequent pebbles and small to medium stones, occasional larger stones. Under C.68 orange in northern part of Trench 1 and across Trench 1A.

C.69 Upper C-horizon. Very hard layer of purple and yellow banded subsoil, mainly silt or sandy silt, with frequent pebbles and small to medium stones, occasional large stones. This subsoil forms the centre/lower sides of the main ditch (C.56) and the large pit (C.61).

C.70 Lower C-horizon. Compact horizon of alternating thin bands of purple, yellow, orange and green sandy silt. Very stony with high content of small to medium stones. Forms lower sides of C.61 pit, as well as base of main ditch (C.56).

C.71 Sand layer in lower C-horizon. Thin layer of compact coarse sand forming base of large pit (C.61). Variable brown colour with yellow, orange and green tinges. This 0.1–0.15m thick layer overlay eroded bedrock (C.72).

C.72 Eroded bedrock. Green sandstone with east–west cleavage. Possibly shattered by periglacial weathering. Only exposed below the base (C.71) of large pit (C.61).



Figure 5.7 Excavation of outer ditch in extension Trench 1A, Lisheenagreine.



Figure 5.8 Investigation of archaeological features, Trench 1, Lisheenagreine.

Lower organic soil

The removal of A-horizon topsoil (C.02) exposed some deeper deposits of similar organic soil on the southern side of the bank (Figure 5.10). These include C.06, C.07, C.16 and C.36, which contained variable amount of charcoal indicating some interface with the archaeological deposits. One of those deposits (C.36) overlay the fill (C.60) of a large souterrain pit (C.61). In addition, there was a thicker deposit of organic soil in the south-east part of Trench 1, represented by spreads C.17 over C.19 and C.20.

C.06 Linear 0.8–1.2m wide band of organic silt on southern side of C.04 bank spread. Soft deposit of mid brown silt with occasional pebbles and small stones, and flecks of charcoal.

C.07 Spread of compact grey/brown organic silt on lower slope of bank, north-west side of Trench 1. Frequent pebbles and small stones, rare larger stones; occasional flecks of charcoal.

C.08 Natural silt at lower southern side of Trench 1. Compact grey/brown silt with occasional pebbles but few larger clasts; some flecks of charcoal on surface. This sediment is deposited in a 0.8–0.9m wide band (east–west) from the excavation baulk, to a thickness of 0.09–0.11m on the B-horizon surface (C.68).

C.16 A thin band of sediment on southern side of bank area, Trench 1. Purple/brown organic silt with frequent pebbles and rare larger stones; frequent flecks of charcoal. Overlies fills of inner ditch.

C.17 Lower A-horizon on eastern side of Trench 1. Compact mid to dark brown organic silt with frequent pebbles and occasional small to medium stones; occasional flecks of charcoal. This deposit extended over an area of approximately 5.8m (east–west) by 4.8m (north–south). Possible a deeper deposit of the similar C.02 topsoil.

C.19 Spread of organic soil on eastern side of Trench 1. Compact deposit of mid brown organic silt with occasional pebbles and small to medium stones. May be part of lower A-horizon in that area, overlying C.20 soil.

C.20 Spread of organic soil on south-east side of Trench 1. Compact deposit of grey/light brown organic silt with frequent pebbles and small to medium stones, and occasional larger stones. Rare flecks of charcoal. May be part of lower A-horizon in that area.

C.36 Deposit of organic silt in north-central area of Trench 1. Firm deposit of grey/light brown silt with occasional pebbles and small stones. There are occasional flecks of charcoal, and one large concentration of lump charcoal that may be a single burnt branch. This context overlay the fill (C.60) of the large pit (C.61).

5.2 PERIOD 1 (EARLY MEDIEVAL)

The earliest features uncovered by this excavation relate to the construction and occupation of an earthwork enclosure. These include three enclosing elements (outer ditch, bank, inner ditch), inside which an earth-cut souterrain and a separate souterrain construction shaft were found. There is evidence of occupation in the form of charcoal deposits, two shallow slots, three stakeholes and a single posthole. Radiocarbon dates confirm those features date to the early medieval period, and that there were two separate phases in the construction and occupation of the enclosure.

Enclosing elements: outer ditch

Prior to excavation there were indications of a shallow depression on the outside of the enclosure bank. Excavation confirmed the presence of a large ditch, which was the main quarry source for the original bank (Figures 5.11–5.13). This is a large U-shaped cut (C.56) in the subsoil, measuring 3.4m in upper width, narrowing to *c.*0.7m wide at the base, with a central depth of 1.65m from modern ground level (1.4m deep from top of subsoil cut). The sides are steeply sloping to a gently rounded base; the southern (inner) side is slightly steeper (Figures 5.14 and 5.15). Both sides are irregular with a slight ledge midway on both slopes. The ditch is cut through subsoil in the following sequence: orange B_S-horizon (C. 67), over grey B-horizon (C.68), over yellow stony silt C-horizon (C.69), over mottled grey/brown purple lower C-horizon (C.70).

Excavation revealed a thin deposit of silt (C.55) at the base of the ditch (Figure 5.9). This, together with C.52 and C.53 silty sediments on the southern and northern sides of the lower cut respectively, represents minor erosion of the ditch cut. There followed an inwash of silty sediment (C.54 and overlying C.51) that contained a small amount of charcoal, possibly from the ringfort occupation. A radiocarbon date of AD 774–887 for that charcoal provides a *terminus ante quem* for the digging of the ditch. The deposition of C.51 was followed by an influx of stony silt, namely C.49 and C.50 on the southern and northern sides of the ditch respectively. That sediment probably represents erosion of the adjacent bank, which continued with an overlying deposit of sandy silt (C.48). The position of an old turf line (C.48A) in that layer indicates the level of infill in the ditch by the early modern period.

A small drain (C.47) was discovered dug into the partly filled ditch, which probably extended across the adjacent field (Figure 5.9). That feature was subsequently filled with silty sediment (C.46). The final stage in the infilling of the ditch involved an influx of redeposited subsoil (C.45) from levelling of the adjacent bank in the early modern era. This was covered by topsoil (C.02), leaving only the slightest surface indication of the ditch.

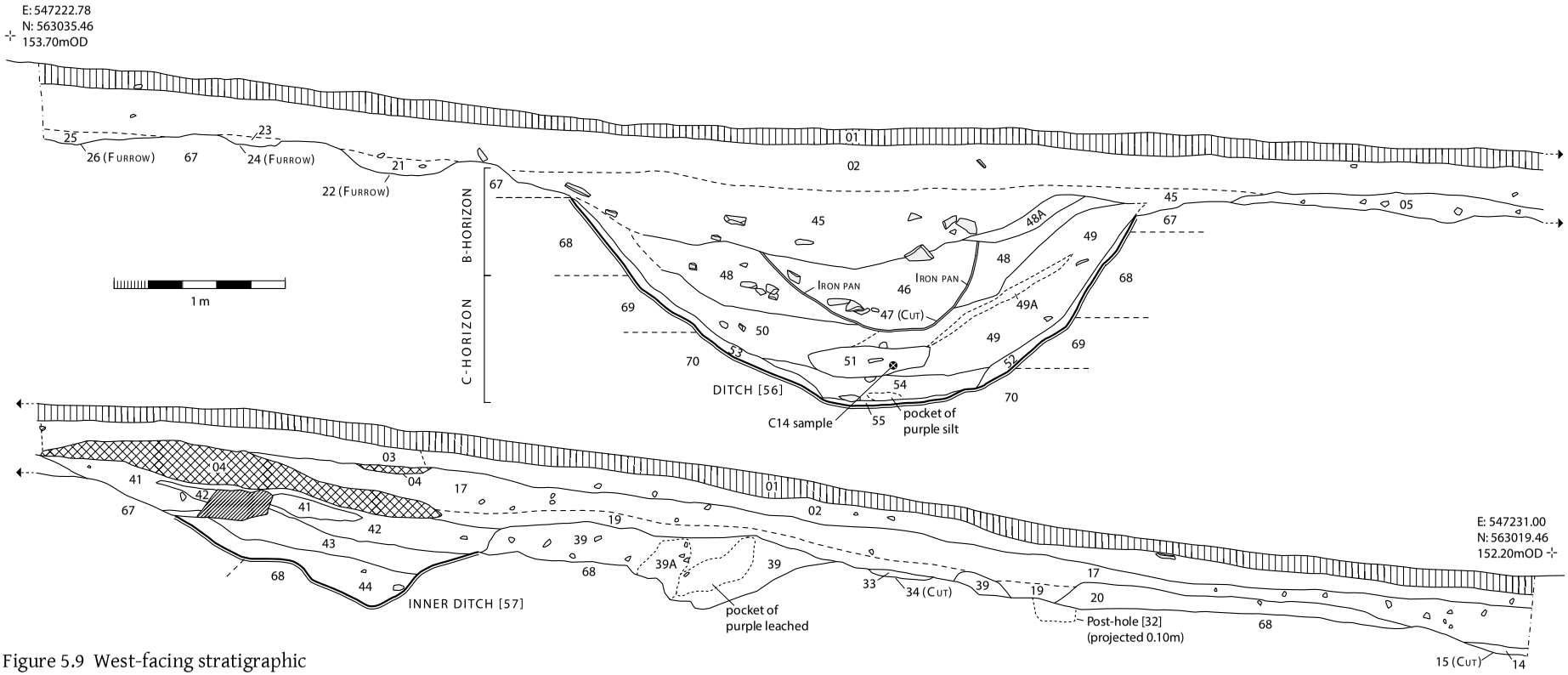


Figure 5.9 West-facing stratigraphic section, Trench 1/1A, Lisheenagreine.

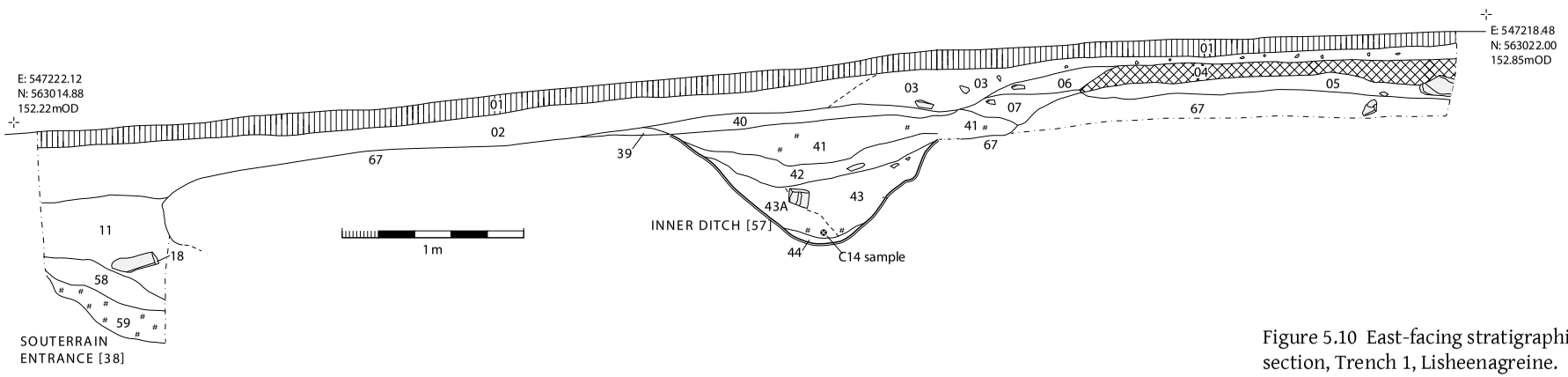


Figure 5.10 East-facing stratigraphic section, Trench 1, Lisheenagreine.

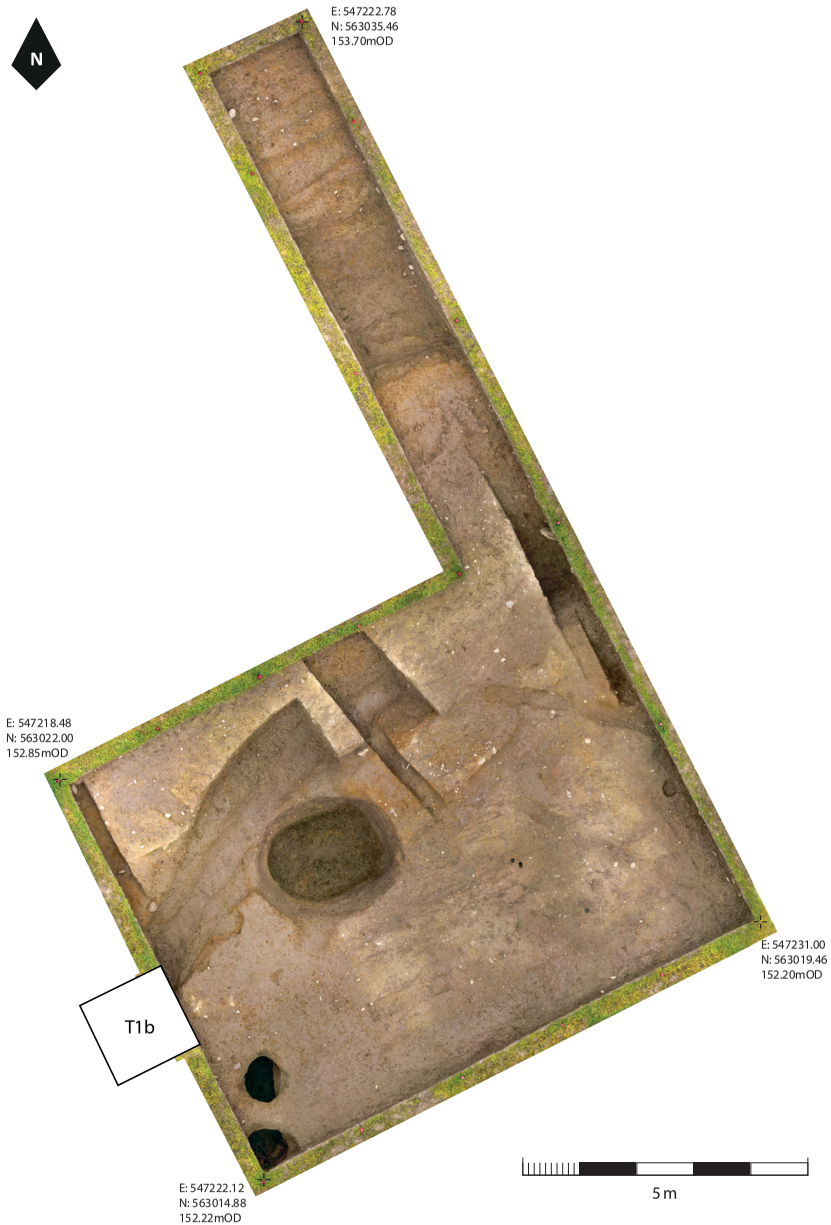


Figure 5.11 Rectified image of post-excavation surface, Lisheenagreine.

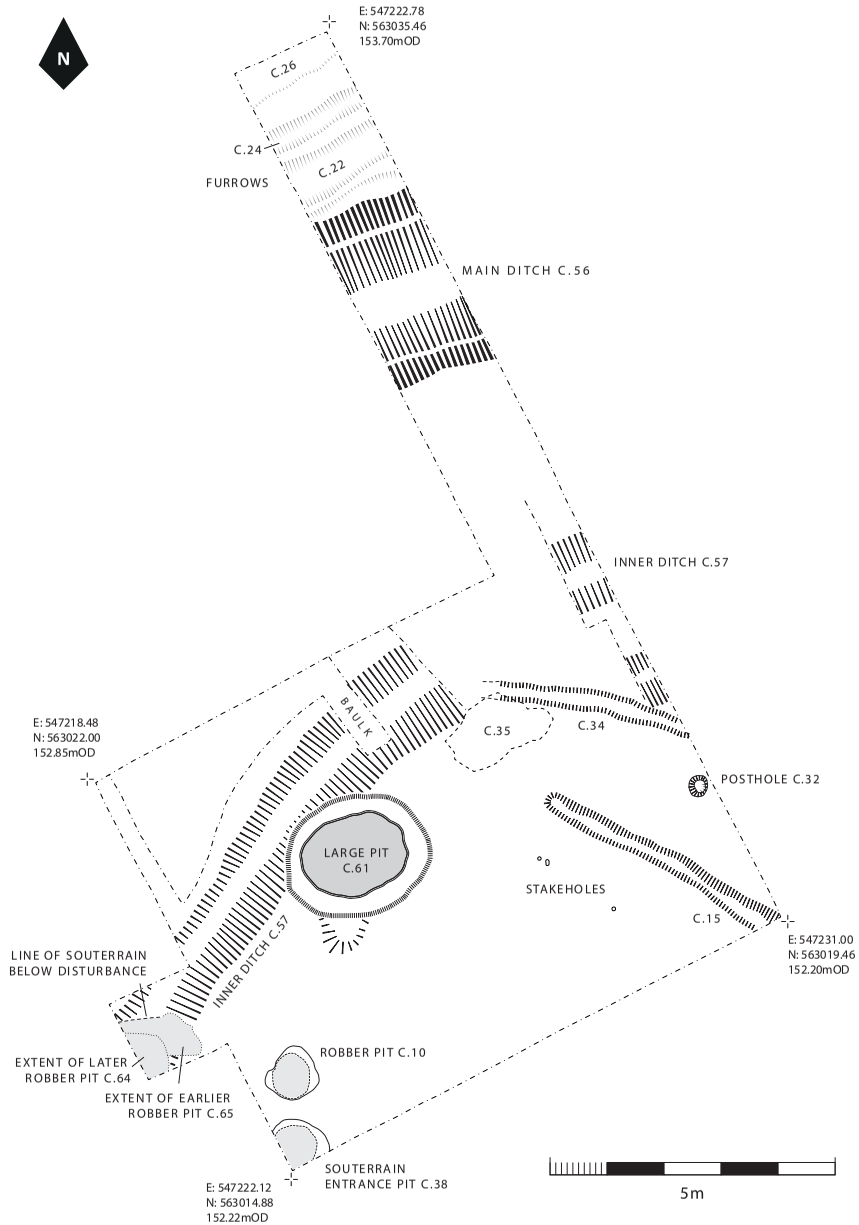


Figure 5.12 Post-excavation feature plan, Lisheenagreine.



Figure 5.13 Post-excavation view of outer ditch from south-west, Trench 1A, Lisheenagreine.



Figure 5.14 West-facing section of outer ditch, Trench 1A, Lisheenagreine.



Figure 5.15 East-facing section of outer ditch, Trench 1A, Lisheenagreine.

Main ditch contexts

C.45 Upper fill of main ditch (C.56), Trench 1A. Loose deposit of mid brown sandy silt with an orange tinge, and pockets of purple-grey silt. Flecks of charcoal through this sediment, but no concentrations. Frequent pebbles and small-to-medium stones, with a few larger stones towards the base. This context represents a deliberate infilling of the upper ditch in the early modern period.

C.46 Fill of drain (C.47) in upper part of main ditch (C.56). Soft deposit of purple/grey saturated silt, with frequent angular pebbles and small stones, and occasional larger stones. Pockets of stone-free silt, particularly in upper part of fill; occasional flecks of charcoal. This deposit was 1.05m wide with a maximum thickness of 0.4m. A confined lens of pebbles and coarse sand (C.46A) within C.46 represents natural in-wash of gravelly sediment.

C.47 Soil-cut drain in upper fill of main ditch (C.56). Rounded asymmetrical cut (steeper southern side), 0.9m wide by 0.4m deep, into C.48 upper fill of ditch. Base of ditch defined by thin lens of iron pan. This narrow channel extended across the ditch in an east-north-east/west-south-west direction.

C.48 Layer in upper fill of main ditch (C.56). A 2.1m wide by 0.35–0.4m thick deposit of loose grey/brown sandy silt, with frequent angular pebbles and small stones. Occasional flecks of charcoal. Remains of an old sod line (C.48A) on the southern surface of this layer, indicating a break in the ditch sedimentation.

C.49 Lower fill on southern side of main ditch (C.56). Loose to compact deposit of orange/mid brown silt with frequent angular pebbles and small stones, and occasional larger clasts and flecks of charcoal. This deposit was 1.6m wide by 0.4m deep. There was a lens of similar, but lighter colour, sediment (C.49A) in the centre of this deposit. Early infilling of ditch from southern side; probable bank slip.

C.50 Lower fill on northern side of ditch (C.56). Loose deposit of moist, orange/mid brown, sandy silt with frequent pebbles and small stones, and occasional flecks and lumps of charcoal. This deposit was 1.65m wide by 0.3m deep. The stone content was higher towards the lower part of the deposit near centre of ditch.

C.51 Deposit in lower fill of main ditch (C.56). Loose deposit of moist, mid brown, sandy silt, quite stony with frequent pebbles and small to medium stones. Occasional flecks of charcoal, including one small concentration at a depth of 1.4m below modern ground level. This deposit was 0.7m wide by 0.1–0.15m thick, extending across entire ditch area. It was a mix of minerogenic material from erosion of the adjacent bank together with organic sediment in the lower ditch.

C.52 Primary slip along southern (inner) side of main ditch (C.56). Loose to compact orange/mid brown silt, 0.1m in thickness, with frequent pebbles but no larger stones or charcoal. Similar in texture to overlying C.49, but less stony.

C.53 Primary slip along northern (outer) side of main ditch (C.56). Compact orange/mid brown silt, 0.1m in thickness, with frequent pebbles and gravelly texture; no charcoal. Looser and wetter towards base. Similar in texture to overlying C.50, but more compacted.

C.54 Lower sediment in main ditch (C.56). Loose deposit of very wet orange/mid brown silt with pockets of grey silt towards centre of ditch; frequent pebbles and small stones. This deposit was 1.05m wide by 0.1–0.15m thick, extending across base of ditch. Flotation and wet-sieving of 45.5 litres/67k of this sediment recovered a tiny amount of charcoal, but no other finds or environmental material. This context represents early silting of ditch, broadly contemporary with C.52 and C.53 on the sides of ditch (the interfaces between those three sediments was not clear).

C.55 Basal sediment in main ditch (C.56). Loose deposit of orange/grey silt with occasional pebbles and a few flecks of charcoal. This 0.4m wide by 0.05–0.08m thick sediment probably represents primary erosion of the ditch cut.

C.56 Cut of main ditch (see main text for details).

Enclosing elements: bank area

The original bank of the ringfort is substantially levelled. This may have occurred during the eighteenth century or earlier, as a map of 1775 shows the enclosure as a low-relief feature (Figure 5.2a). The surviving bank material comprises a spread of yellow/brown stony silt (C.04) exposed beneath the topsoil at the northern end of Trench 1 (Figure 5.9). Some of that sediment was incorporated in the A-horizon (C.03) when the bank was levelled. This *c.*3m wide band of compact stony sediment extended from *c.*1m inside the main ditch as far as the inner ditch (Figure 5.16). There are no other bank deposits *in situ*, with much of the original material from that feature now part of the upper fill of both ditches. The C.04 spread overlay a hard thin surface (C.05) with a leached appearance, which is likely to be a pre-bank ground surface. There were some charcoal flecks on this surface, but not enough to provide a secure *terminus post quem* radiocarbon sample for the former bank.

An estimate of the size and composition of the original bank can be gained from the outer ditch, which was the main source of soil used to build that feature. Based on the size of that ditch, the ringfort bank is likely to have been approximately 3m wide and 2m in height. The ditch evidence indicates it was composed mostly of stony subsoil, with redeposited topsoil probably incorporated in the lower portion. There is no evidence of any revetment, with no collapsed stonework was found in the outer ditch. There is also no evidence the original bank incorporated a palisade or any built structures.

Bank/bank levelling deposits

C.03 Modified A-horizon topsoil. Compact mid brown organic silt with frequent pebbles and small to



Figure 5.16 Spreads of redeposited subsoil (left) from levelling of bank, Lisheenagreine.

medium stones, and occasional larger clasts. Contains mottles and lumps of yellow sandy silt that is probably redeposited subsoil from levelling of the ringfort bank. This modified topsoil is confined to the northern part of Trench 1, where it is 0.1–0.15m in thickness. Some finds of early modern pottery, glass and iron (18E0215-01).

C.04 Bank sediment. Hard spread of yellow/light brown sandy silt with patches of orange sediment, <0.1–0.2m in thickness, with high sand content, with frequent pebbles and small to medium stones. Confined to northern side of Trench 1, extending in an arc along what was the line of the bank.

Enclosing elements: inner ditch

Excavation on the northern side of Trench 1 exposed an infilled ditch extending along the inside of the former enclosure bank (Figures 5.9, 5.10, 5.17 and 5.18). This was a small subsoil cut (*C.57*) with an irregular U-shaped profile, with sides sloping to a rounded base (Figures 5.11–5.12; 5.19–5.20). It had an upper width of 1.3–1.9m along its excavated length, and was 0.37–0.52m in basal width, and 0.97–1.1m in central depth to modern ground (0.74–0.79m depth from subsoil cut).

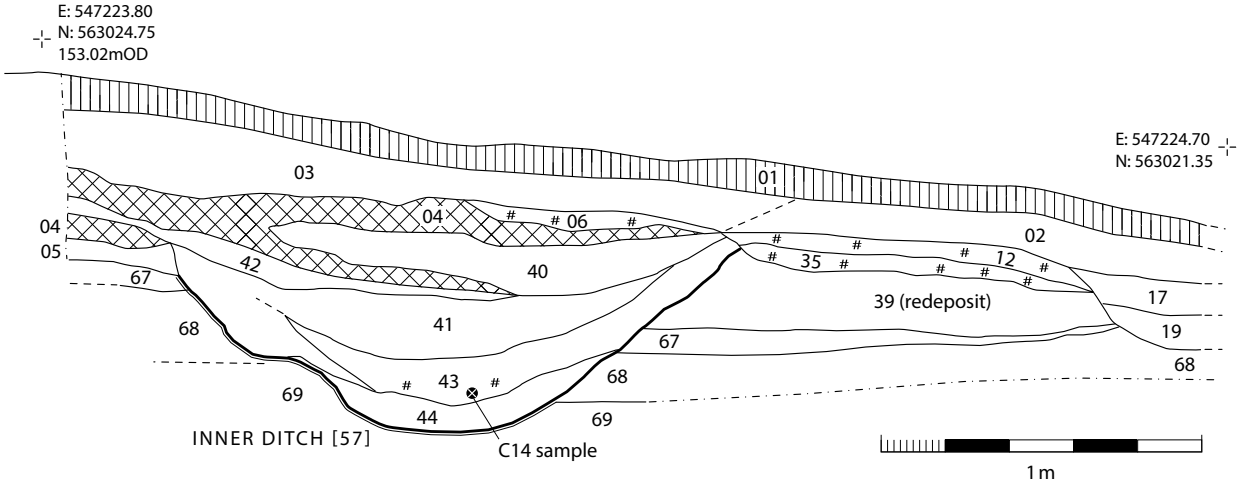


Figure 5.17 Stratigraphic section across inner ditch, northern side of Trench 1, Lisheenagreine.



Figure 5.18 Excavation of inner ditch on southern side of former bank, Lisheenagreine. Outline of large pit (C.61) (centre left).



Figure 5.19 Post-excavation view from west of inner ditch and large pit (C.61) (centre), Lisheenagreine.



Figure 5.20 Post-excavation view from north-east of inner ditch and large pit (C.61) (centre), Lisheenagreine.



Figure 5.21 Fill of inner ditch at eastern side of Trench 1, Lisheenagreine.



Figure 5.22 Fill of inner ditch at western side of Trench 1, Lisheenagreine.

The ditch cut through orange B_S-horizon (C. 67) into grey B-horizon (C.68). The upper part of the southern side of the cut was formed by upcast B_S-horizon (C.39).

The inner ditch had no surface expression prior to excavation as it was infilled along its entire length. It does image as a slight band of enhanced magnetic readings in the geophysical survey (Figure 5.4). The basal sediment (C.44) represents some primary erosion of the sides soon after the ditch was cut. This was followed by an influx of purple/brown silt (C.43) with some charcoal. The latter is radiocarbon dated to the fifth/sixth centuries, significantly older than charcoal from the base of the outer ditch. The upper fill of the inner ditch consists of two deposits of silty sediment (C.41 and C.42), overlain by sediment (C.04 and C.40) that probably derives from levelling from the adjacent bank in the early modern era (Figures 5.9, 5.10, 5.17, 5.21 and 5.22).

Inner ditch sequence

C.39 Re-deposited orange subsoil forming southern side of inner ditch (C.57). Compact deposit of bright orange silt with some fine sand content, occasional pebbles and small to medium stones. Occasional flecks and lumps of charcoal. This sediment is B_S-horizon subsoil dug from the adjacent inner ditch.

C.40 Upper sediment of inner ditch (C.57). Firm deposit of grey/brown sandy silt with frequent pebbles and occasional small to medium stones, and rare flecks of charcoal.

C.41 Upper sediment of inner ditch (C.57). Compact light brown silt with orange iron oxide mottles, some pebbles but mostly free of stones.

C.42 Thin layer of leached sediment in upper fill of inner ditch (C.57), Trench 1. Purple/grey silt, with no clasts and rare flecks of charcoal.

C.43 Lower fill of inner ditch (C.57), Trench 1. Compact deposit of purple/light brown silt with occasional small to medium stones and a small amount of charcoal. A ground stone disc (18E0215-09), probably an unfinished spindle whorl of early medieval date, was found in this context.

C.44 Basal sediment of inner ditch (C.57), Trench 1. Firm layer of grey to grey/light brown silt, with occasional pebbles and small stones, and rare flecks of charcoal.

C.57 Cut of inner ditch (see main text for details).

Souterrain

Excavation in the south-west corner of Trench 1 uncovered an original entrance to an earth-cut souterrain (Figures 5.11–12). The opening of a small pit provided access to a 3.3m long curving length of narrow tunnel (Figure 5.23). This was totally blocked at the north-west end by fill from later disturbance of the souterrain. There was a separate later intrusion ('robber pit') close to the entrance, connected to a search for ogham stones in this site during the mid-nineteenth century (see Chapter 2.2). Excavation of the exposed tunnel uncovered a small number of artifacts, as well as charcoal and food residues in the form of burnt animal bone and carbonised cereal grain. Radiocarbon dating of that material indicates the souterrain was in use between the eighth to tenth centuries AD. Following excavation, the entrance to the souterrain was closed.

Excavation confirmed the souterrain entrance is a sub-circular pit that leads into a narrow sloping tunnel (Figure 5.24–5.25). The entrance pit (C.38) is 0.84m (east–west) by 0.76m (north–south), partly extending into the southern and western sides of the excavation trench. At a depth of 0.3m the pit widens to 1.05m (east–west), with a rounded profile making it easier to enter the souterrain. The depth of the entrance pit from the subsoil cut is 0.45m (1.15m below modern ground). There is a small step, 0.35m wide by 0.16m deep, cut into subsoil at a depth of 0.6m on the south-east side of the pit.

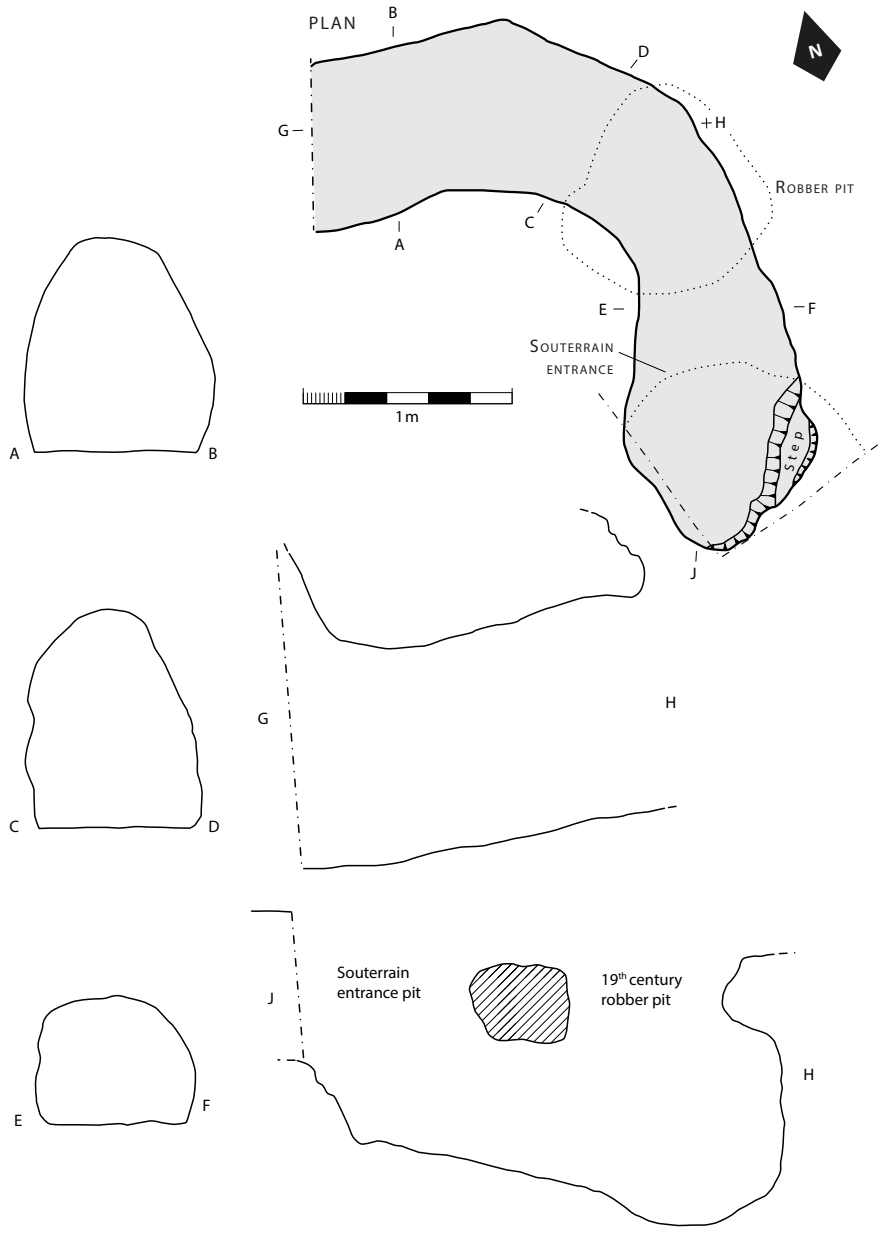


Figure 5.23 Plan and profiles of excavated souterrain (C.66), Lisheenagreine.

Excavation of the C.38 pit revealed a tunnel opening on its lower northern side. This opening measures 0.75m wide at the base by 0.7m high, and was mostly infilled when discovered. The removal of that fill revealed a 1.7m long tunnel (012° magnetic north), the floor of which sloped downwards at approximately 30°. The tunnel widens to 0.8m wide by 1.08m high, before turning sharply to the north-west (290° magnetic north) to continue for a distance of 1.6m, at which point it is fully blocked by later disturbance (Figure 5.26). This inner section of the tunnel is 0.8–0.82m wide by 1.04–1.1m high. The overall curving length of the tunnel is approximately 3.3m. The fill blocking the tunnel was probed to a horizontal distance of at least 2.4m using a metal rod of that length, indicating the souterrain extends beyond that distance.

The width of this tunnel allowed for the passage of one person at a time. The floor is relatively smooth, with slightly concave sides and a low rounded roof. There are no obvious tool-marks or smoke staining on the walls. The floor of the souterrain tunnel at its north-west end (150.072m OD) is 0.48m below the base (150.547m OD) of a large separate souterrain construction shaft (C.61) in Trench 1.

Fill sequence

The souterrain entrance (C.38) was first exposed as a semi-circular spread of dark brown silt in the south-west corner of Trench 1. This was excavated to expose a 0.3m deep deposit of dark brown organic silt (C.11), at the base of which there was a loose pile of large stones



Figure 5.24 Souterrain entrance pit (C.38) with stone fill (C.18), Lisheenagreine.



Figure 5.25 Souterrain entrance pit (C.38), showing black occupation layer (C.59) at base of opening, Lisheenagreine.

(C.18). These seem to have been deliberately thrown into the pit to block the entrance (Figure 5.24).

Further excavation of the entrance and inner tunnel exposed a primary occupation layer (C.59) across the entire floor area (Figure 5.27). This was a soft dark brown/black organic silt (C.59), with a high concentration of charcoal, some tiny fragments of burnt bone, as well as macro plant remains and a small number of artifacts (see below). This sediment had the same texture and colour over the length of the souterrain floor, varying 0.1–0.16m in thickness.

The C.59 occupation layer was overlain by a continuous layer of redeposited subsoil (C.58) across the extent of the souterrain tunnel. This was a compact grey/brown clayey silt, 0.15–0.25m in thickness, with occasional flecks of charcoal. This sediment was probably deposited soon after the souterrain was abandoned, but the possibility it was connected to later disturbance cannot be excluded (see below).

Souterrain discussion

Excavation confirmed the presence of an earth-cut souterrain in the western interior of Lisheenagreine ringfort. This is consistent with nineteenth-century historical sources that indicate the presence of both earth-cut and stone-built souterrain chambers in this site. The excavated souterrain is of a burrow type common in the Cork region (see McCarthy 1983; also Clinton 2001 for general discussion on Irish souterrains). While its full extent was not excavated, the discovery of an original entrance is significant. This is confirmed by the presence of a small step on the side of the C.38 pit, located at the start of the exposed souterrain tunnel, the floor of which rises up to meet that opening. While there may have been other entrances, there is no doubt this souterrain could be accessed from inside the ringfort.

The narrowness of the excavated tunnel, together with its sloping profile, indicates a passage leading to larger underground chambers that are not accessible today. Electrical tomography survey was undertaken to identify the extent of this souterrain, but the results were not positive (pers. comm. Richard Unitt). The fact the souterrain tunnel was dug under the inner ditch of the ringfort suggests the latter was already present when this tunnelling took place. The discovery of an occupation layer inside the souterrain, containing food residues and evidence of fires/lighting, is significant in terms of understanding and radiocarbon dating the use of this structure.

Finally, in regard to the souterrain disturbance, the larger intrusion (C.65; see below) might be connected to agricultural activity at the site in 1858, when the ogam stone was discovered by a farmer named Crowley. The smaller C.10 and C.64 robber pits may be connected to exploration of this site in 1868 undertaken by Rev. Lyons in search of other ogam stones (see above).

Souterrain

C.58 Upper primary layer in souterrain (C.66). Firm deposit of mid brown clayey silt with variable yellow and brown colour, varying 0.1–0.2m in thickness, frequent pebbles and small stones, occasional larger stones and



Figure 5.26 Post-excavation view of inner souterrain tunnel (C.66), Lisheenagreine.



Figure 5.27 Primary occupation layer (C.59) on floor of inner souterrain tunnel, Lisheenagreine.

flecks of charcoal. This redeposited subsoil may have been part of a partial backfill of the souterrain following its abandonment.

C.59 Lower primary layer in souterrain (C.66). Soft layer of charcoal-rich sediment on sloping floor, averaging 0.1–0.16m in thickness, extending from the entrance of the souterrain to the end of the accessible tunnel (Figure 5.27). Grey brown silt with occasional pebbles, but no large clasts. High charcoal content with tiny white fragments of burnt bone. Bulk samples of this sediment were processed by flotation and wet-sieving. A total of 119 litres/148.7kg was processed, representing 90% of all C.59 sediment in the excavated souterrain (the remaining 10% was hand-sorted on site). A large amount of lump and fine charcoal was recovered, along with a small amount of charred seeds, hazel nut fragments and burnt bone. Finds include a broken glass bead (18E0215-10) found inside the souterrain entrance, as well as three items of corroded iron (18E0215: 12–14), and a sliver of flaked flint (18E0215-15).

C.11 Fill of souterrain entrance pit (C.38). Loose deposit of dark brown organic silt within frequent pebbles and small stones; rare larger clasts and flecks of charcoal. The lower part of this fill contained a number of large stones (C.18).

C.18 Loose stones in fill (C.11) of souterrain entrance (C.38). Seven large stones placed randomly into pit at a depth 0.45m. Grey sandstone, irregularly flat in shape, 0.17–0.41m in length, 0.12–0.29m in width and 0.03–0.12m in thickness. Part of deliberate blocking of souterrain entrance.

C.38 Original entrance to souterrain, south-west corner of Trench 1. Sub-circular pit with western and southern sides extending into the excavation section. The cut measured 0.87m (north–south) by 0.84m (east–west), with a central depth of 0.86m to the souterrain floor. At a depth of approximately 0.4m the pit widened to 0.95m (east–west), to allow greater access to the tunnel.

C.66 Cut of souterrain (see below).

Large pit

Excavation of a organic soil deposit (C.36) on the inside of the enclosure bank exposed the fill (C.60) of a very large pit (C.61; Figures 5.11–5.12). This was oval in plan, measuring 2.68m (east–west) by 2.3m (north–south) in upper width, with near-vertical sides to a central depth of 1.63m (Figures 5.28–5.30). Soon after the pit was dug it was backfilled with the same subsoil (C.60) extract. That fill did not contain any archaeological material apart from an occasional fleck of charcoal.

There was no physical connection between the C.61 pit and any souterrain in this site. Excavation exposed eroded bedrock only <0.1m below the base of the pit, close to the floor level of the souterrain tunnel (C.66) *c.*2m to the south-west. The C.61 pit and its fill cut

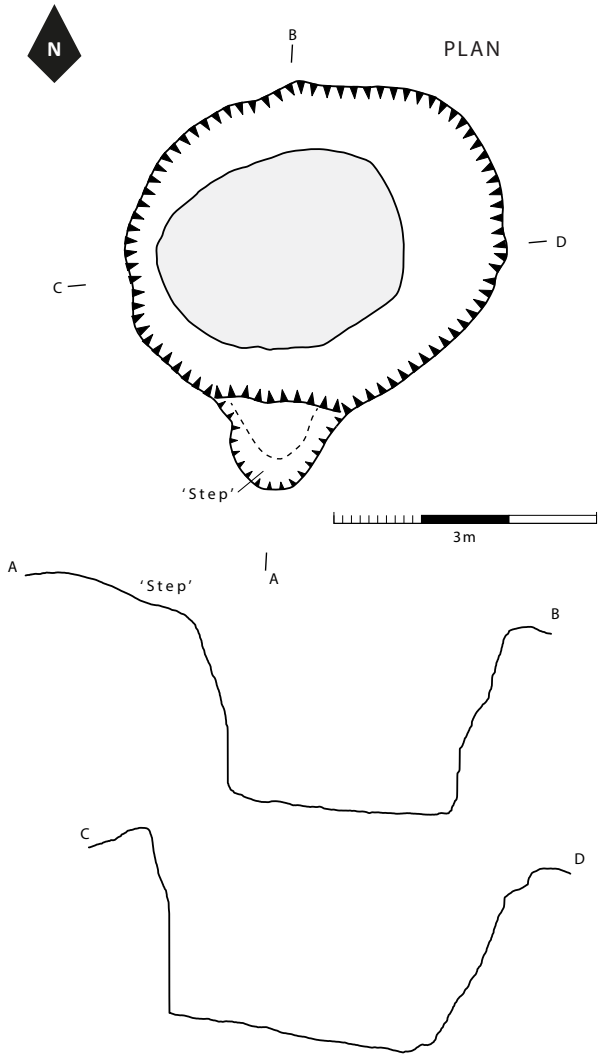


Figure 5.28 Plan and profiles of large pit (C.61), Lisheenagreine.

across the southern side of the partly infilled inner ditch. It also cut across a deposit of subsoil (C.39) upcast from the digging of the same ditch. This confirms the C.61 pit is a later feature.

There was considerable effort involved in the digging by hand of a pit of 4.75 cubic metres in size. This was not connected to antiquarian digging at Lisheenagreine in the mid-nineteenth century. Charcoal from a burnt deposit (C.36/37) directly overlying the C.60 fill of this pit is radiocarbon dated AD 774–886. This provides a *terminus ante quem* for the digging of a souterrain construction shaft, which for some reason was abandoned.

Large pit

C.60 Fill of pit (C.61). Mixed fill of redeposited subsoil, loose in centre and more compact around sides of pit. Variable in colour, grey/brown in upper fill, and increasingly yellow/brown/purple towards base, reflecting the subsoil layers the pit was dug through. Clayey silt texture with a low organic content; some parts were more sandy silt. Flecks of charcoal throughout, with no major concentrations.

C.61 Cut of large pit in north-central part of Trench 1. Oval in plan and lower profile, except for straightening of lower north and east sides. The pit measures 2.68m (east–west) by 2.3m (north–south) in upper width, 2.18m (east–west) by 1.69m (north–south) in central width, and 1.86m (east–west) by 1.4m (north–south) at base, with a central depth of 1.63m to the top of its subsoil cut. The upper sides were near-vertical to steeply sloping, with a continuous steep slope on the eastern side, and near-vertical south, north and west sides. The base was flat and fairly smooth, formed by a sandy layer (C.71). The pit was dug through subsoil layers C.68, C.69, C.70 to its base in C.71, which was 0.1–0.15m above eroded bedrock (C.72).



Figure 5.29 Post-excavation view from north-east of large pit (C.61) truncating inner ditch, Lisheenagreine. Souterrain entrance in corner of trench.



Figure 5.30 Post-excavation view from west of souterrain construction shaft (C.61) and inner ditch (left).

Occupation features

Apart from the souterrain and the separate construction shaft, only a few other features were excavated in the interior of the enclosure. These include a burnt spread (C.35) and two deposits of charcoal (C.12 and C.37), two linear features (C.15 and C.34), three stakeholes (C.27, C. 28 and C.29), and a posthole (C.32).

Excavation exposed a large spread of charcoal (C.35) overlying the fill of the inner ditch (Figures 5.12 and 5.31). This derives from a fire(s) at that location. Some of the charcoal was dispersed by later cultivation into a wider spread (C.12) within the lower A-horizon. A separate deposit of charcoal (C.37 in C.36) was excavated to the immediate west of C.35 (Figure 5.32). Radiocarbon dates suggest that C.35 and C.36 were separate fire events, dated AD 890–977 and AD 774–886 respectively In the geophysical survey these burnt spreads correlate with high magnetic anomalies on the eastern side of the C.61 pit (see Figure 5.44).

Fire(s) inside enclosure

C.12 Charcoal spread on southern side of bank area, Trench 1. Soft deposit of dark brown organic silt (similar to C.02 and C.06), with variable low to high charcoal content. This is the upper part of the C.35 burnt spread, where charcoal from that context was dispersed over a wider area in the overlying topsoil.



Figure 5.31 Burnt spread (C.35) on southern side of inner ditch, Lisheenagreine.



Figure 5.32 Burnt deposit (C.37) in C.36 sediment, overlying fill (C.60) of large pit (C.61), Lisheenagreine.

C.35 Burnt spread on southern side of bank position, northern side of Trench 1. Confined spread of dense charcoal with light brown silt, overlying a bright orange redeposited B_S-horizon (C.39) on inner side of inner ditch (C.57). The main concentration of charcoal extends 1.58m (east–west) by 1.05m (north–south) with a thickness of 0.02–0.05m. The upper surface of this burnt spread is connected to a wider dispersal of charcoal (C.12) in the overlying A-horizon subsoil. Flotation and wet-sieving of 14 litres/14.6kg of C.35 sediment recovered a moderate amount of lump charcoal but no finds or other environmental material.

C.36 Spread of grey-brown organic silt, with occasional pebbles and small stones, overlying fill (C.60) of souterrain construction shaft. Occasional flecks of charcoal throughout, with one significant concentration (C.37).

C.37 Concentration of lump and fine charcoal within lower part of C.36 deposit, Trench 1. A discrete spread of charcoal over area 0.55m (east–west) by 0.4m (north–south). The underlying surface was not fire-reddened, but were traces of reddened B-horizon within a metre of this deposit. This charcoal was found 0.2m below level of nearby C.35 burnt spread.

The removal of organic soil in the south-east part of Trench 1 exposed two shallow and narrow slots (C.15 and C.34) in the underlying B-horizon surface (Figures 5.11, 5.12 and 5.33). These north-west/south-east features were of similar size and located 1.6–2m apart, but not parallel. They are unlikely to be later cultivation features, but neither are they obviously connected to built structures having no stake or post settings in their fills. That does remain a possibility, however, as three stakeholes (C.27, C.28 and C.29) were found a metre or so west of the C.15 slot, with a small posthole (C.32) near the C.34 slot.

Misc features on B-horizon surface (C.68) inside enclosure

C.14 Fill of linear feature in south-east corner of Trench 1. Compact mid brown organic silt with occasional pebbles and flecks of charcoal. Confined to cut of shallow slot (C.15).

C.15 Slot-like feature in south-east corner of Trench 1. This feature extends 4.7m north-west from eastern side of trench. Sub-parallel sides, varying in width from 0.3m (north-west side), to 0.24m (centre), to 0.4m (south-east side), with a depth of <0.04–0.12. The cut had sloping sides to an irregularly flat base that rises with ground level to north-west. The significance of this feature is not known, but it is unlikely to be a cultivation furrow.

C.33 Fill of linear feature on eastern side of Trench 1. Firm deposit of dark brown organic silt with frequent pebbles and occasional small stones.

C.34 Linear feature in B-horizon (C.68), extending north-west from eastern side of Trench 1. This 'furrow' has sub-parallel sides, varying 0.3–0.5m in upper width, 0.2–0.3m in lower width, with a depth of 0.04–0.13m. The sides slope to flat or slightly rounded base rising to the north-west. Significance not known, but unlikely to be a cultivation feature.

C.27 Stakehole in south-east part of Trench 1 (grid 106.51; 203.0m). Filled with grey/dark brown silt, containing some fine sand, a few pebbles and a few small lumps and flecks of charcoal (not enough to indicate *in situ* burning of stake). Circular cut, 0.07m in diameter, vertical to a depth of 0.12m.

C.28 Stakehole in south-east part of Trench 1 (grid 107.27; 201.57m). Filled with dark brown sandy silt, containing flecks of charcoal (not enough to indicate *in situ* burning



Figure 5.33 Pre-excavation view of shallow slot C.15 (left) and C.34 (right), western side Trench 1, Lisheenagreine. (see Figure 5.12).

of stake). Sub-circular cut, 0.07m by 0.08m in plan, vertical to a depth of 0.11m.

C.29 Stakehole in south-east part of Trench 1 (grid 106.66; 202.8m). Filled with grey/light brown silt, containing a few pebbles. Oval cut, 0.11m by 0.07m in plan, vertical to a depth of 0.11m. Possible small packing stone on upper side of cut.

C.30 Fill of posthole (C.32) on south-east side of Trench 1 (grid 109.66; 202.87). Firm deposit of grey/light brown sandy silt with a few pebbles.

C.31 Packing stones of posthole (C.32) on south-east side of Trench 1. Arrangement of six medium to large stones along western side of posthole cut. Several stones set on edge against upper side of cut. Mostly irregular field stones, 0.05–0.17m in length, 0.07–0.15m in width and 0.02–0.05m in thickness.

C.32 Posthole on south-east side of Trench 1 (grid 109.66; 202.87m). Sub-circular in plan, 0.3m (north–south) by 0.25m (east–west) with a vertical depth of 0.12m to a flat irregular base.

5.3 PERIOD 2 (EARLY MODERN)

Excavation identified a number of features connected to agricultural activity in this field during the early modern era. A series of lazy-bed furrows (C. 22, C.24 and C.26) were recorded outside the main ditch, extending in an east–west direction across the field (Figures 5.11, 5.12 and 5.34). No furrows were found inside the enclosure or crossing the levelled bank area. This suggests the cultivation occurred when the ringfort was still extant, possibly pre-dating Scále's map of 1775. The absence of lazy-bed cultivation inside the ringfort contrasts with Lisnacaheragh and Lisnamanroe, both of which were used as tillage plots in the early modern era.

Finally, no evidence was found of a field bank depicted on the 1845 and 1901 Ordnance Survey crossing the ringfort enclosure (Figure 5.2b–c). A small field drain (C.47) was recorded cut into the upper fill of the main ditch (see above).

Early modern cultivation

C.21 Fill of cultivation furrow (C.22). Firm deposit of mid brown organic silt with frequent pebbles and occasional larger stones; rare flecks of charcoal.

C.22 Cultivation furrow close to outer edge of main ditch. Shallow east–west cut in B_S-horizon (C.67), with sub-parallel sides sloping to irregularly flat base. 0.65–0.9m in upper width, 0.49–0.56m in lower width, with an average depth of 0.12m. Part of lazy-bed spade cultivation in the early modern era.

C.23 Fill of cultivation furrow (C.24). Firm deposit of mid brown organic silt with frequent pebbles and occasional larger stones; rare flecks of charcoal.

C.24 Cultivation furrow close to outer edge of main ditch. Shallow east–west cut in B_S-horizon (C.67), with sub-parallel sides sloping to irregularly flat base. 0.46–0.56m in upper width, 0.25–0.28m in upper width, with an depth of 0.07–0.1m. Part of lazy-bed spade cultivation.

C.25 Fill of cultivation furrow (C.26). Firm deposit of mid brown organic silt with frequent pebbles and occasional larger stones; rare flecks of charcoal.

C.26 Cultivation furrow close to outer edge of main ditch. Shallow east–west cut in B_S-horizon (C.67), with sub-parallel sides sloping to irregularly flat base. 0.5–0.9m in upper width with an depth of 0.05–0.07m. Part of lazy-bed spade cultivation.



Figure 5.34 View from south-east of lazy-bed cultivation furrows (C.22, C.24, C.26) on northern side of outer ditch, Lisheenagreine.

Souterrain disturbance

Three separate intrusions were identified in the excavated souterrain, part of two phases of disturbance that introduced sediment to block the tunnel passage. These are 'robber pits' created during a search for ogam stones in the mid nineteenth century (see Chapter 2.2). They include a small oval pit (C.10) dug through the roof of the souterrain, 0.45m north of the original entrance (C.38). This was filled with a dark brown organic silt (C.09), very similar to A-horizon topsoil in the site (Figures 5.11, 5.12 and 5.35). The removal of that sediment exposed a large void in the outer part of the souterrain tunnel.

A second intrusion was identified at the north-west end of the excavated souterrain tunnel, now blocked with sediment. The presence of a surface cut was first evident from inside the tunnel, where a steep rise in the roof created a 0.4m wide by 0.18m high void. Part of the fill blocking the tunnel was excavated from the surface in Trench 1B. This exposed two separate cuts into the souterrain roof. The first of these is a broad cut (C.65) across the line of the inner ditch (C.57) into the souterrain (Figure 5.12). Levels confirm the roof of the souterrain at that point (151.229m OD) is approximately 0.18m below the base of the ditch directly above (151.415m OD). The full extent of the C.65 intrusion was not determined as this cut extends beyond the limits of the Trench 1B excavation. Excavation confirmed that



Figure 5.35 Nineteenth-century robber pit (C.10) to top right of souterrain entrance, Lisheenagreine.



Figure 5.36 Second phase of nineteenth-century disturbance, Trench 1B, showing small circular pit (C.64) with C.13 fill (bottom right), Lisheenagreine.

it was subsequently backfilled with two subsoil-derived deposits that completely blocked the souterrain passage. The lower fill (C.63) was a loose deposit of grey/brown clayey silt with some voids. This was overlain by a loose deposit of purple/grey sandy silt (C.62). Both of those fills were confined to the north-west end of the excavated tunnel, indicating they were part of the C.65 intrusion.

A second smaller intrusion was identified in the south-west corner of Trench 1B. Part of a small circular (?) pit (C.64), filled with dark brown organic silt (C.13), was cut into the C.62 and C.63 fills of the earlier intrusion (Figure 5.36). The size and fill of this pit was similar to the C.10 robber pit, though they may not be associated.

Second phase

C.09 Fill of souterrain robber pit (C.10). Exposed as a circular spread of grey/light brown sediment that became darker when excavated. Loose deposit of dark brown organic silt with occasional pebbles, but few larger clasts. Occasional flecks of charcoal in this topsoil-like sediment.

C.10 Souterrain robber pit, 0.45m north of souterrain entrance (C.38). Sub-oval cut with rounded corners, 0.96m (north–south) by 0.98m (east–west), narrowing to 0.84m (north–south) by 0.66m (east–west) at a depth of 0.1m. Central depth of 1.17m to souterrain floor (1.28m on northern side; 1.05m on southern side).

C.13 Fill of second phase robber pit (C.64) in souterrain, Trench 1B. Loose deposit of dark brown organic silt, 0.48m in thickness, containing frequent pebbles and small to medium stones, occasional larger stones and flecks of charcoal.

C.64 Souterrain robber pit exposed in south-west corner of Trench 1B. Eastern side of pit exposed, measuring 0.93m (north–south) by 0.47m (east–west) extending into excavation sections. Contained loose fill of organic silt (C.13). This pit cut into an earlier disturbance (C.65) of the souterrain.

First phase

C.62 Secondary fill in souterrain. Upper fill in blocked souterrain tunnel. Loose purple/grey sandy silt with frequent pebbles and occasional small stones. Connected to first phase disturbance of souterrain in nineteenth century.

C.63 Secondary fill in souterrain, underlying C.62 in blocked tunnel. Loose mid brown clayey silt with frequent pebbles and small stones, and occasional flecks of charcoal. Connected to first phase disturbance of souterrain in nineteenth century.

C.65 First phase disturbance of souterrain in Trench 1B. Trench of unknown size cut across inner ditch and penetrating roof of souterrain. Filled with C.62 and C.63 sediment.

5.4 FIND ASSEMBLAGES

A small number of artifact finds were recovered in this excavation (details in O'Brien 2018b, appendix 2).

Period 1 finds (early medieval)

There are seven artifacts that can be securely or probably connected to early medieval occupation at Lisheenagreine. They include two ground stone objects, a broken glass bead, three items of corroded iron, and a flint flake. Five of these were recovered from a primary occupation layer (C.59) in the souterrain, essentially a closed context, with the two stone objects found in other contexts.

Glass bead

Margaret Mannion

A broken glass bead (18E0215:10) was found in the primary souterrain layer (C.59). It measures 17mm by 15mm, is green-blue in colour with a pronounced ridged design (Figure 5.37). This is a well-made example of what is known as a melon bead, sometimes described in the literature as Roman melon beads. The type can be made of true glass or faience paste. Examples of both faience and glass have a broad geographical distribution and chronological range. They are considered to have originated in Egypt and were popular in the Roman world. They are found across Europe, including a number of early medieval sites in Ireland and in Viking Age Scandinavia. Both faience and glass types overlap in Ireland. Three faience and one blue glass examples were found at Lagore (Hencken 1950). There are three from Ballinderry Crannóg no. 2, including one of faience (Hencken 1942, no. 12), and two of blue glass (*ibid.*, nos 544 and 545).

The faience melon beads typically have large perforations, vertical or slightly diagonal ridges, and were produced in various shades from turquoise to bright blue, with a buff, greyish core. On visual examination alone, the Lisheenagreine bead is likely to be made of faience, with the characteristic greyish core. As in many examples, the blue glaze is erased on the ridges, but is preserved in the grooves.

Two faience melon beads were found in the excavation of Lisnacaheragh ringfort at Garranes (Ó Ríordáin 1942, fig. 14, nos 76 and 311e). Both came from the black deposit in Site D, but are now missing. The same Site D produced an example classified by Ursula Koch as a Type 20 yellow bead, which she assigned to her SD 6 (AD 555–580) and SD 7 (AD 580–600) phases. Margaret Guido dates the melon bead type in European contexts from the Roman period up to the sixth century (Guido 1999).



Figure 5.37 Glass bead (18E0215-10) from floor sediment (C.59) in souterrain, Lisheenagreine.

The fact that E Ware, usually dated to the sixth and seventh centuries, has been found on the same sites in Ireland as these bead types, suggesting the possibility of an even later date. Some faience melon beads from later Anglo-Saxon contexts in Britain possibly had an apotropaic function, which may explain their use as 'heirloom' beads, preserved and curated beyond their period of production.



Figure 5.38 *(top)* Stone spindle whorl (18E0215-11) and *(bottom)* stone disc (18E0215-09), Lisheenagreine.

Other finds

The Lisheenagreine excavation also uncovered a complete spindle whorl (18E0215:11) and an unperforated stone disc (18E0215: 09) that is probably an unfinished example (Figure 5.38). The latter was found in the lower fill (C.43) of the inner ditch, while the spindle whorl is from cultivation-disturbed topsoil. Both finds probably indicate some production of textiles in the ringfort, involving the hand-spinning of fibrous material (O'Brien, R. 1993).

A tiny flake of flint (18E0215:15) from the floor sediment (C.59) of the souterrain may be from a strike-a-light. Three corroded iron objects were found in the same context (18E0215:12, :13 and :14; Figure 5.39). Conservation undertaken by Susannah Kelly identified two iron nails encrusted with ferrous oxide corrosion products. 18E215:12 was intact, while 18E215:13 and :14 are two pieces of the same object. The break occurred after excavation and revealed a rectangular cross section and a hollow core. The latter is due to the corrosion process, which left only a thin magnetite shell and no original metal. Hematite deposits on the shank of 18E215:13 and :14 indicates burning of both nails had taken place.

Period 2 finds (early modern)

A small collection of early modern artifacts was recovered from cultivated topsoil in this site. They include small sherds of glazed and unglazed



Figure 5.39 Corroded iron nails (18E0215-12, left) and 18E0215-13/14, right) from floor sediment (C.59) in souterrain. Lisheenagreine.

earthenware vessels; sherds of glazed china tableware (decorated and plain); fragments of bottle and other glass; one clay pipe stem; and a few items of corroded iron, probably broken farm tools (see Figure 5.40; O'Brien 2018b, appendix 2, plates 47–53). Most of these objects are of nineteenth to mid-twentieth century date. The source is probably domestic household waste incorporated in farm manure, which was spread on this field in the early modern era.



Figure 5.40 Selection of early modern finds, Lisheenagreine.

Environmental evidence (Period 1)

Charcoal was recovered from several early contexts in the Lisheenagreine excavation. The processing of 149kg of sediment (C.59) from the floor of the souterrain recovered an estimated 700g of lump and fine charcoal. This may derive from surface fires outside the souterrain entrance and/or the use of torches underground. Charcoal were also recovered for dating and environmental analysis from the lower fill (C.54) of the outer ditch, the lower fill (C.43) of the inner ditch, and from burnt deposits (C.35, C.36 and C.37) on the inner side of the ringfort bank area. Figure 5.41 presents

Context	Type	Flot weight	No IDs charcoal	Sub-sample weight	Species (Frequency)
35	Burnt spread	500g	130	8.2g	Ash (48); Hazel (23); Holly (15); Blackthorn (10); Pomaceous wood (10); Birch (9); Alder (6); Ivy (4); Gorse (3); cf Rowan (2)
36	Burnt spread	345g	50	10.2g	Oak (47); Hazel (3)
37	Burnt spread	89g	50	4.5g	Oak (26); Hazel (10); Blackthorn (7); Holly (5); Birch (2)
59	Souterrain	1000+g	100	7.6g	Oak (51); Hazel (20); Willow (13); Holly (10); Blackthorn (4); Elm (2)

Figure 5.41 Charcoal identifications (n=330) from four contexts at Lisheenagreine; all samples sub-sampled (analyst: Susan Lyons).

Latin name	Common name	Frequency
Cereals: carbonised		
Hordeum vulgare L.	Hulled barley (six-row 75%)	5 (1 sprouted)
Avena sativa	Cultivated oat	512
Avena strigosa	Bristle/black oat	9
Avena spp.	Indeterminate chaff: palae/lemma	20%
Triticum cf aestivum /compactum	Bread/club wheat	1
Secale cereale	Rye	3
Cerealia	Indeterminate cereal grain	26
Cerealia	Indeterminate cereal chaff: internodes	4
	Total cereal count	**559**
Wild taxa: carbonised		
Chenoposium album	Goosefoot/fat hen	2
Persicaria lapathifolium L.	Redshank	3
Fallopia persicaria L.	Pale persicaria	8
Persicaria amphibia L.	Water smartweed	2
Polygonum sp.	Knotgrass	10
Galium sp.	Bedstraw	4
Raphanus raphanistrum	Charlock (siliqua pod)	1
Vicia asp.	Vetch	1
Corylus avellana	Hazelnut shell	3.8g
	Total seed count	**30**
Indeterminate bark fragments		1.5g

Figure 5.42 Composition of charred plant macrofossil remains (n=589) from floor sediment (C59) of souterrain, Lisheenagreine. (analyst: Susan Lyons).

the results of analysis of wood species represented in four of these contexts.

In addition to charcoal, potential food residues were recovered from the C.59 layer in the souterrain. These include a small quantity (12.78g) of burnt bone of unknown animal species; a small amount (4.9g) of carbonised seeds; a few fragments (1.64g) of charred hazel-nut; and 1.61g of unidentified charred plant material. Figure 5.42 presents the results of analysis of macrofossil plant remains from this soutterain context.

5.5 RADIOCARBON DATING

Seven samples (four charcoal, one burnt bone, one charred grain and one charred hazel-nut) from the Lisheenagreine excavation were submitted for AMS radiocarbon dating to the Centrum voor Isotopen Onderzoek, University of Groningen. Sample details, results and calibrations as follows (Figure 5.43; calibrations after OxCal v.4.3.2):

Sample LNG2018-01: Charcoal (not identified) from lower fill (C.51) of main ditch. The dating of this sample provides a *terminus ante quem* for digging of the main ditch.

GrM-15745; 1188±19 BP.
Calibrated to AD 774–887 (95.4% probability)

Sample LNG2018-02: Charcoal (*Corylus avellana*) from lower fill (C.43) of inner ditch. The dating of this sample provides a *terminus ante quem* for digging of the inner ditch.

GrM-15747; 1520±20 BP.
Calibrated to AD 432–490, 532–601 (95.4% probability)
Re-dated: *GrM-16167; 1475±20 BP.*
Calibrated to AD 554–637 (95.4% probability)

Sample LNG2018-03: Charred grain (*Avena sativa*) from primary layer (C.59) in souterrain. To date use of the souterrain.

GrM-15749; 1136±19 BP.
Calibrated to AD 778–789, 869–980 (95.4% probability)

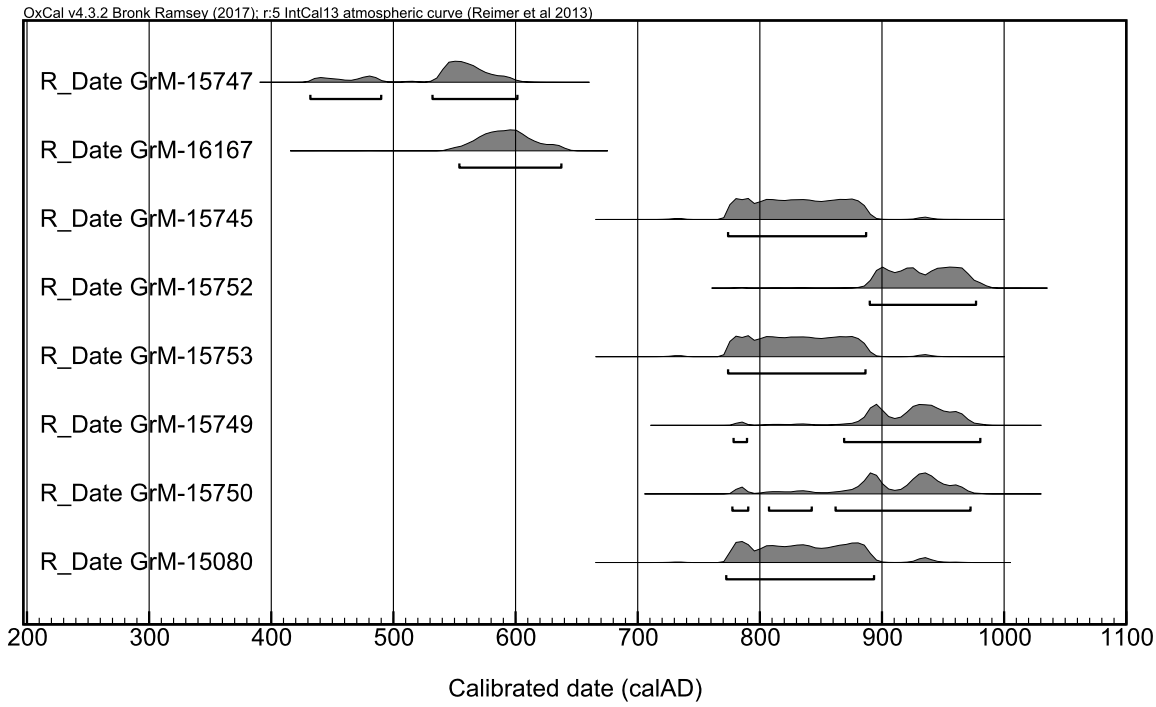


Figure 5.43 Calibration of Lisheenagreine radiocarbon dates (after OxCal v.4.3.2).

Sample LNG2018-04: Charred hazel-nuts from primary layer (C.59) in souterrain. To date use of the souterrain.

GrM-15750; 1145±19 BP.
Calibrated to AD 777–972 (95.4% probability)

Sample LNG2018-05: Burnt bone (not identified) from primary layer (C.59) in souterrain. To date use of the souterrain.

GrM-15080; 1180±20 BP.
Calibrated to AD 772–893 (95.4% probability)

Sample LNG2018-06: Charcoal (*Corylus avellana*) from burnt spread (C.35) inside bank. To date occupation activity inside the enclosure.

GrM-15752; 1119±18 BP.
Calibrated to AD 890–977 (95.4% probability)

Sample LNG2018-07: Charcoal (*Corylus avellana*) from burnt deposit (C.36/37) inside bank. The dating of this sample provides a *terminus ante quem* for the digging and infilling of the souterrain construction shaft (C.61).

GrM-15753; 1189±19 BP.
Calibrated to AD 774–886 (95.4% probability)
Re-dated: *GrM-15955; 1185±25 BP*

These radiocarbon results indicate two separate periods of enclosed occupation at Lisheenagreine. The dating of charcoal from the base of the inner ditch indicates an enclosure of probable fifth/sixth century date (Period 1a occupation). That enclosure was re-built as a small univallate ringfort in the eighth or ninth centuries (Period 1b). The latter can be associated with the building of one or more souterrains dated to the same period. This is supported by the stratigraphic record, with two important relationships established between the excavated souterrain and the inner ditch:

1. The souterrain tunnel (C.66) was designed to pass under the inner ditch, indicating it is a later feature.

2. The large souterrain construction shaft (C.61) cut across the infilled inner ditch, indicating that it also is a later feature.

5.6 DISCUSSION

The excavation results at Lisheenagreine points to two phases of occupation during the early medieval period, with no evidence of prehistoric activity. The earliest occupation involved a ditched enclosure of fifth/sixth century date (Period 1a), visible on the magnetic survey as a sub-circular feature with an internal diameter of approximately 33m (Figure 5.44). There are no details on the history of that sub-circular enclosure, which may have been associated with open-air display of an ogam stone.

The second phase of settlement at Lisheenagreine involved the construction and occupation of a univallate ringfort during the eighth to tenth centuries AD (Period 1b). Again, the excavation evidence correlates closely

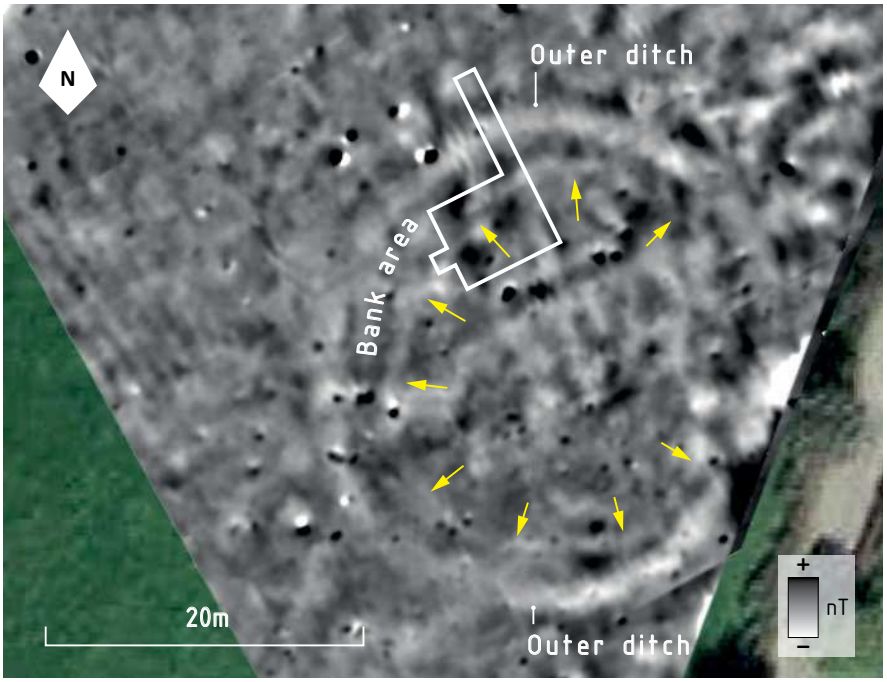


Figure 5.44 Magnetic gradiometer survey results at Lisheenagreine, showing correlation to inner ditch (arrows), bank area and outer ditch. Outline of excavation trenches also shown.

with the magnetic survey, to confirm an univallate enclosure of 38.5m internal diameter (50m overall diameter). That ringfort (rath) was of similar size and design to others in the Garranes landscape and the wider Cork region. The Lisheenagreine example was not strongly defended, as the vertical height of the bank and outer ditch combined was probably under 4m, with no evidence of any protective palisade. The location itself is not naturally defensive, as it is overlooked by higher ground to the north.

That Period 1b ringfort can be associated with the construction of one or more souterrains at that time. The excavated tunnel (C.66) is typical of earth-cut souterrains in many ringforts in Co. Cork (McCarthy 1983). There are no distinctive design features in the Lisheenagreine example, as the excavated portion is a blocked access tunnel leading to larger chambers. The discovery of the original entrance is significant, as it confirms the souterrain could have been accessed from inside the ringfort. The presence of primary floor sediment containing finds and radiocarbon sample material is significant in dating the souterrain to the eighth to tenth centuries AD.

Further evidence of souterrain building is provided by the discovery of a separate construction shaft (C.61) inside the Period 1b ringfort. That large pit was backfilled by the ringfort inhabitants soon after it was dug, using the same subsoil extract. Why this shaft was abandoned is not clear, but that was probably not connected to unstable ground, as its base is similar to that of the nearby souterrain tunnel.

The great majority of souterains in Ireland are drystone structures built in deep trenches to varying degrees of design complexity. The Lisheenagreine example belongs to a separate category of earth-cut tunnelled souterrains, most of which are found in Co. Cork, particularly in the area south of the river Lee (Clinton 2001, fig. 1). Some of those are burrow type, where the soil and stone extract was removed through a single opening in the ground that later became the entrance. Many examples, however, have construction shafts, which are deep pits from which chambers and interconnecting passages could be tunnelled. This allowed the soil extract to be removed with ease from the open shaft, which was eventually closed by blocking the opening to the passage with stone walling or slabs, after which the shaft was backfilled with soil to the surface. The number of construction shafts can vary from one to six or more (Clinton 2001, appendix 3). The large pit (C.61) at Lisheenagreine was a construction shaft for an earth-cut souterrain that was either never built, or not connected to the excavated example (C.66) in this site.

The aforementioned ogam stone was possibly re-used as a roofing slab in one of the Lisheenagreine souterrains. Records indicate the stone was unearthed at this rath around 1851 during potato cultivation (Rolt Brash 1868). No stone-built chambers were discovered during Rev. Lyons' subsequent exploration of the site (*ibid.*), but their existence cannot be ruled out.

The Lisheenagreine excavation uncovered only limited evidence of occupation inside the enclosure. This reflects the size and location of the excavation area,

which focused mainly on the enclosing elements. Some occupation features and finds were recorded in addition to the aforementioned souterrain. These include a spread of burnt material (C.35) containing a significant amount of charcoal from one or more fires on the inside of the inner ditch. The discovery of two shallow slots, three stakeholes and a small posthole in the vicinity is further evidence of habitation. Whether those features were part of a built structure(s) is uncertain.

A small number of artifacts can be connected to the residential use of this site. These include an ornate glass bead that indicates the use of personal ornaments. That melon bead (18E315:10) comes from a primary layer in the souterrain, which is radiocarbon dated AD 777–980. The find context, however, cannot be regarded as secure, as it is possible the broken bead is residual from the earlier phase of occupation (Period 1a ditched enclosure). It may have fallen into the souterrain from surface contexts disturbed by the digging of same, which might explain why the remainder of the bead was not found. The same may be true of the iron nail fragments (18E315:12–14) and flint flake (18E315:15) found on the souterrain floor. Against that possibility, there is no evidence the organic C.59 floor sediment contained any intrusive mineral soil.

A stone disc (18E315:9) found in the lower fill (C.43) of the inner ditch may be associated with the Period 1a occupation. This is not certain in the case of a spindle whorl (18E315:11) from cultivation-disturbed topsoil. Whatever its date, the latter can be taken as evidence of textile production at this site. The stone disc may indicate spindle whorls were also made there.

Burnt bone and charred plant remains from the souterrain floor provide an insight into the food economy of the Period 1b ringfort at Lisheenagreine. The bone cannot be identified to animal species, but there is confirmation of agriculture in the discovery of cultivated oat and hulled barley in this well-dated context. The consumption of hazel-nuts is also confirmed.

The 2018 excavation provides a limited understanding of the later history of Lisheenagreine ringfort. The main ditch remained open for a long period, with some minor silting during the period of ringfort occupation. There was a substantial influx of sediment from the eroding bank in the centuries that followed site abandonment. The circumstances in which the site ceased to be inhabited are not known. The enclosing elements of the ringfort were subsequently reduced in size as the site was incorporated into a larger field. This probably occurred at some stage during the eighteenth century, certainly pre-dating Scále's depiction in 1775 of a levelled enclosure (Figure 5.2a). The cultivation of that field in the nineteenth century led to the discovery of a souterrain, from which an ogam stone was extracted. This sparked an antiquarian investigation in 1868 when several robber pits were dug in a fruitless search for other ogam stones.

Conclusions

The Lisheenagreine excavation uncovered evidence of two separate phases of enclosure in the early medieval period. The earliest occupation can be associated with a ditched enclosure of probable fifth/sixth century date. That enclosure may have been connected with open-air display of an ogam stone of similar date. The Period 1a enclosure was re-built as a small univallate ringfort in the eighth or ninth centuries. The bank and ditch defences of the Period 1b ringfort were built outside and concentric with the earlier ditch enclosure. At least one souterrain was built inside this ringfort in the same period, with secure dates for its use. The earlier ogam stone was buried in one of those tunnels, in what may have been deliberate suppression of genealogical memory.

Though limited in extent, the Lisheenagreine excavation provides important detail on the history of enclosure and occupation at an early medieval settlement. The site provides an important link between the earliest ringfort horizon at Garranes, represented by the fifth to seventh century occupation of Lisnacaheragh and Lisnamanroe, and a later ringfort horizon of eighth century and later date in the same landscape.

– 6 –
OTHER EXCAVATIONS

The investigations at Garranes continued with survey and sample excavation of two further monuments in this landscape. These are a ringfort enclosure that is now levelled, and a linear earthwork named Caherkean on historic mapping. Details of the recent discovery of a souterrain of early medieval date are also presented.

6.1 RINGFORT (CO084-085)

As outlined in Chapter 2, this levelled enclosure is 300m south/south-east of Lisnacaheragh ringfort (Figures 2.2 and 2.17). Sample excavation was undertaken over one week in April 2017 with a view to investigating the enclosing elements. This earthwork was levelled by farming in the modern era, with the site ploughed in recent years for use as pasture. Today, the outline of a large sub-circular enclosure is visible as a low-relief feature in the centre of a small triangular field. This is consistent with the depiction of a hachured enclosure in historic mapping and is confirmed by geophysical imaging of a univallate enclosure (Figure 6.1; details in Chapter 2).

Excavation

The enclosing elements were sampled to obtain stratigraphic and dating evidence (artifacts and radiocarbon samples) connected to the construction, occupation and abandonment of this enclosure. It was hoped to establish a chronological and cultural relationship to Lisnacaheragh in the overall context of the Garranes landscape study. A single trench, measuring 15m by 2m (north-east/south-west), was dug across the levelled bank on the north-east side of the enclosure (Figure 6.1; excavation licence 17E083). The orientation of that trench was informed by geophysical survey, and by the visibility of the surviving bank. The trench was de-turfed and excavated by hand, using small digging equipment, with visual scanning of spoil during excavation, but no sieving. The work involved detailed stratigraphic excavation and context-based recording, with written description, photography and scale drawings. On completion of excavation the trench was back-filled by hand and the ground surface restored (see O'Brien 2017 for archive report).

Excavation began with the removal of a thin sod (O-horizon), averaging 0.03–0.09m in thickness (Figure 6.3). This exposed a shallow depth of organic topsoil (A-horizon), apart from the upper fill of the ditch area. The cleaning of the A-horizon surface revealed four distinct areas across the trench:

1. A 3m wide band of orange subsoil (B_S-horizon) directly under the sod in the northern part of the trench. This was truncated by a modern pipe trench on the northern side, and by modern cultivation furrows across the compact surface.
2. A 5m wide band of dark brown organic soil on the southern side of the orange subsoil. This represents the upper fill of a large ditch.
3. A 3.5m wide band of compact stony sediment across the centre of the trench on the southern side of the ditch fill. This material is all that survives of the original enclosure bank.
4. A 3.5m wide area of cultivation-disturbed organic soil on the inner (southern) side of the bank material.

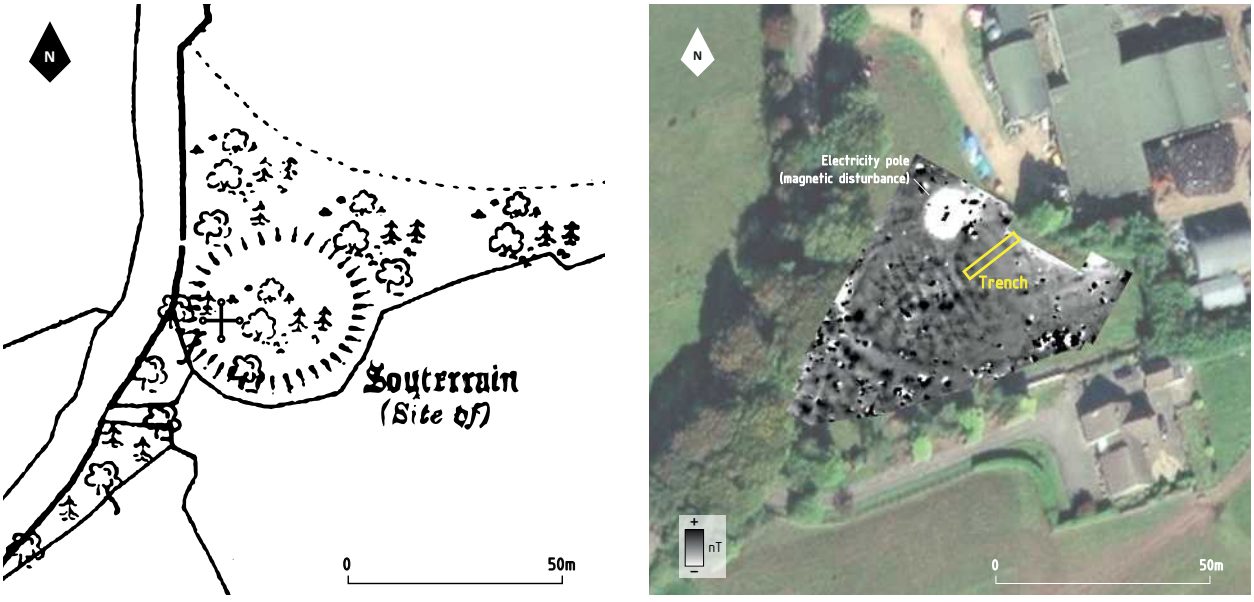


Figure 6.1 *(left)* CO084-085, Garranes, as represented on 1900 and 1943 Ordnance Survey map editions. *(right)* Results of magnetic gradiometry survey showing location of excavation trench.



Figure 6.2 The site of CO084-085, Garranes, from the north. Little surface expression of the monument remains.



Figure 6.3 Removal of topsoil at CO084-085 enclosure, Garranes.

Modern activity

There are several indicators of modern agriculture in the excavation trench, which both pre-date and post-date the levelling of this enclosure. Excavation exposed a series of parallel furrows across the trench, spaced 0.25–0.55m apart in an east–west direction (Figures 6.4–6.7). These are best preserved across the southern half of the trench (contexts 03, 05, 07, 09, 11, 13, 15 and 17), but were also present on the orange subsoil surface at the northern end (contexts 23, 25, 27 and 29). They were not identified over the ditch, possibly because the upper fill of that feature was similar in colour and texture to the furrow fills. These furrows were vertical to steep-sided, averaging 0.15–0.35m in upper width and 0.1–0.2m in depth. The deepest examples marked the surface of the Bs-horizon subsoil, particularly at the northern end of the trench. They also cut through the surviving base of the bank to the underlying surface (C.50).



Figure 6.4 Modern plough furrows, southern end of trench, inside bank area.



Figure 6.5 Modern plough furrows cutting through residual bank material into pre-bank surface.



Figure 6.6 Modern furrows and cable trench (right) at north end of trench.

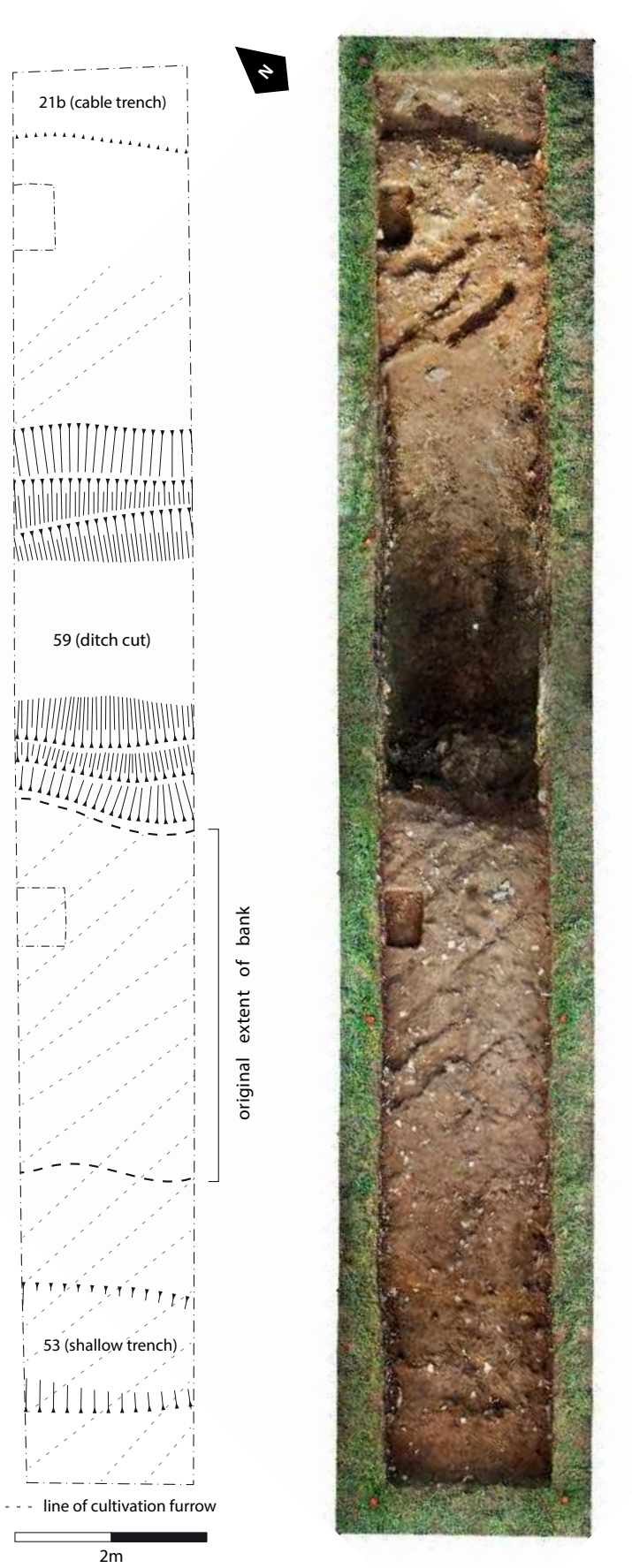


Figure 6.7 Post-excavation plan and rectified image showing excavated features, CO084-085 enclosure, Garranes.

The shape and consistent spacing of these furrows indicates ploughing. This is less certain for the four examples excavated at the northern end of the trench, which may be spade dug. There are no associated finds to date this cultivation, but the fact that it extends across the levelled bank indicates that it is relatively recent. The landowner confirmed the field was ploughed and re-seeded for pasture in recent years, and a large quantity of surface stone was removed in the process. It is not certain this produced the excavated furrows, or whether these date to cultivation in the later twentieth century. The excavation did not uncover traces of large north-west/south-east linear features visible in the interior of the site in the geophysical survey (Figure 6.1). These may represent an earlier phase of cultivation, possibly spade-dug 'lazy-beds' used to grow potatoes, confined to the interior of the extant enclosure. The excavation trench probably did not extend far enough south to identify those furrows.

A small pipe trench was discovered at the northern end of the excavation area (Figures 6.6 and 6.7). This was initially identified as a narrow band of high magnetic gradiometry. The southern side of this east–west trench (C.21) was exposed on removal of the sod layer (C.01), with excavation recording a loose stony fill (C.21a) with modern plastic and construction sand in the upper 0.1m (Figure 6.8). The landowner confirmed the trench was dug some years ago for an electric cable connected to the adjacent farmyard.

Enclosure bank

Excavation of the south-central part of the trench exposed a spread of stony sediment (C.48) directly below the modern sod (Figures 6.7 and 6.9). This deposit was 3.6m in width (north-east/south-west), with a variable thickness 0.1–0.15m. The surface was very compact, with a significant number of small to large stones. As mentioned, this deposit was cut by a number of modern cultivation furrows. The C.48 sediment was removed to expose a small deposit of white-grey silt (C.49) along the inner (southern) side of the bank. Both deposits are interpreted as re-deposited subsoil, upcast from the adjacent ditch to form the base of the now-levelled bank.

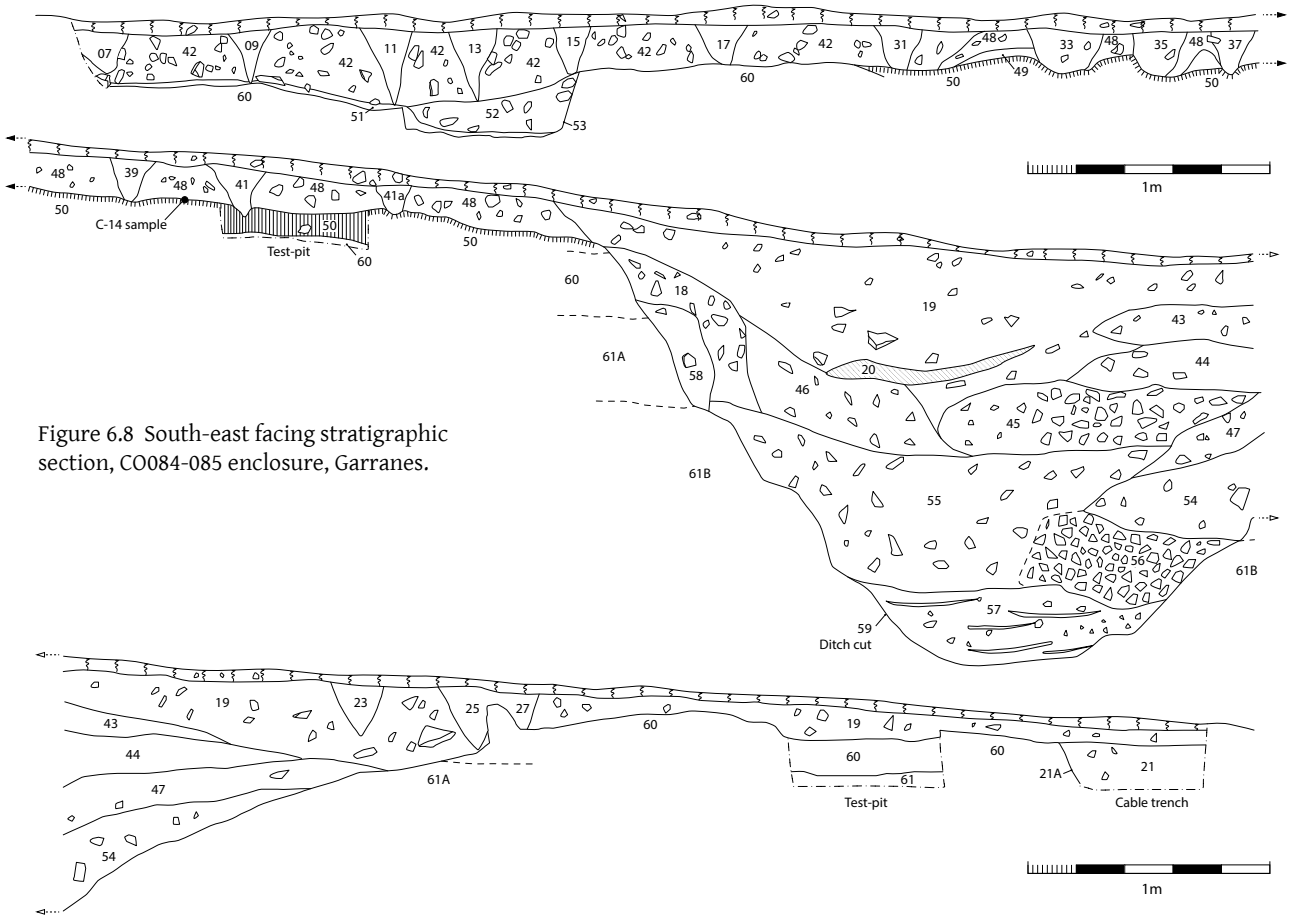


Figure 6.8 South-east facing stratigraphic section, CO084-085 enclosure, Garranes.



Figure 6.9 Excavation of residual bank (C.48) exposing charcoal-flecked old ground surface (C.50), CO084-085 enclosure, Garranes.



Figure 6.10 Stratigraphic section on western side of trench, showing thin sod overlying residual bank material (C.48) on leached subsoil (C.50), CO084-085 enclosure, Garranes.

This bank material was removed to expose a hard surface of white-grey stony silt (C.50). The colour, compaction and uniformity of this material indicates a leached subsoil (E-horizon) preserved under the bank (Figures 6.9 and 6.10). The limits of this leached layer corresponded with the extent of the C.48/49 spread. That surface was scarred by later cultivation furrows, with no other features found. The presence of occasional flecks and small lumps of charcoal trampled into the C.50 surface is significant. That charcoal was sampled for radiocarbon dating, providing a *terminus post quem* of AD 775–940 for construction of the overlying bank.

Enclosure ditch

The ditch (C.59) is located on the outer edge of the former bank. It has a U-shaped profile, with a steep and stepped inner side, moderately sloping on the outer side, with a flat base (Figures 6.7, 6.11 and 6.12). The upper width varies 4.1m (east side of trench), 4.15m (centre) to 3.9m (west side). The central width varies 2.35m (east side of trench), 2.2m (centre) to 2.25m (west side). The base of the ditch varies 1.4m wide (east side of trench), 1.3m (centre) to 1m (west side). The ditch has a central depth of approximately 1.7m below modern ground level.

The inner side is cut through orange Bs-horizon (C.60) under a thin leached layer (C.50) to a depth of 0.2–0.3m. Below that level, the ditch is cut through a very compact, white-grey, C-horizon (C.61a), which contained small amounts of stone. At a depth of 0.7m below the modern ground, the subsoil changed to a very stony C-horizon (C.61b), mostly consisting of shattered bedrock mixed with white-grey silt. There is a similar sequence on the outer side of the ditch, where modern cultivation removed the upper edge of the ditch cut in orange Bs-horizon (C.60).

Fill sequence

The fill of the C.59 ditch was excavated by hand, with use of trowels and hand shovels alternating with careful mattocking (Figure 6.13). The limited time available meant that the fine stratigraphic detail was not recovered, so that the recorded sequence should be regarded as a coarse record of the infilling process. A total of 13 sediments were excavated in the ditch (Figure 6.8). These correspond to seven sedimentary events/processes in the infilling of this feature (described here from base up):

1. Primary ditch sediments (C.57). Deposit of stony silt containing lenses of blue-grey fine silt, 0.3m in maximum thickness, deposited over time by erosion of inner bank and rainwash into the open ditch. Occasional flecks of charcoal, but not enough for radiocarbon dating.
2. Influx of external sediment into lower outer side of ditch (contexts 56, 54 and 47 in that sequence). This began with the accumulation of numerous medium to large stones (C.56), many of which had an angular profile consistent with stones removed for the lower C-horizon (C.61b). That was overlain by a layer of mid brown stony silt (C.54), again with angular stone from the cut, above which there was a layer of loose orange sediment (C.47), probably redeposited Bs-horizon.
3. This was followed by a major influx of bank material (C.55), in the form of a loose deposit of light brown sandy silt with frequent angular stones and occasional flecks of charcoal. Maximum thickness 0.55m.
4. A second influx of bank material (contexts 58, 18, 46 and 45 in that sequence). That began with primary erosion of orange Bs-horizon (C.58) along the upper inner edge of the ditch, overlain by a slip of stony material (C.18) from the bank. This was followed by continued erosion of the bank, beginning with a deposit of light brown stony silt (C.46). This was overlain by dark brown organic silt (C.45) in the central ditch area, which contained numerous large, rounded and sub-angular stones.
5. Influx of silty sediment with some stones into upper outer side of ditch (contexts 44 and 43 in that sequence).
6. Buried sod layer in upper ditch fill (C.20). This 4–6cm thick band of dark brown humic silt represents a buried sod layer, which pre-dates the final infilling of the ditch in modern era.
7. Final infilling of upper ditch with dark brown organic soil (C.19) to a central thickness of 0.5m.

There were no artefact finds from the ditch. Occasional flecks of charcoal were noted at different depths in the fill, but not enough to indicate specific burning events. The amount of charcoal recovered did not provide a secure sample for radiocarbon dating.



Figure 6.11 Post-excavation view from north-east of excavated ditch, CO084-085 enclosure, Garranes.



Figure 6.12 Post-excavation view from south-west of excavated ditch, CO084-085 enclosure, Garranes.



Figure 6.13 Northern side of ditch, showing subsoil overlying broken bed-rock, CO084-085 enclosure, Garranes.

Interior of enclosure

Excavation at the southern end of the trench recorded a stony A-horizon (C.42) with east–west cultivation furrows (contexts 03, 05, 07, 09, 11, 13, 15 and 17) on the inner side of the bank. The removal of that organic soil (C.42) revealed a compact surface of mid brown stony silt (C.51) on an orange B_S-horizon (C.60). Further excavation exposed a vertical cut along the inner side of the bank. This was the northern side of a shallow trench (C.53), filled with dark brown organic silt containing numerous stones (C.52; Figures 6.7 and 6.14). The removal of this sediment exposed a 1.1–1.3m wide by 0.22–0.3m deep cut (C.53) in the orange B_S-horizon (C.60). The northern side was near-vertical, with a gently sloping southern side. The feature is not dated, but is stratigraphically earlier than cultivation furrows in that part of the trench. The shallow cut may be an original drainage feature at the base of the bank, but that cannot be confirmed (Figure 6.15).

Early stratigraphic contexts in enclosure CO084-085. See O'Brien 2017 for details of cultivation furrows and other early modern contexts (contexts 1–17; 21–41).

C.18 Stony slip from bank on upper inner edge of ditch. Grey-brown compact silt with frequent small to large stones.

C.19 Dark brown organic silt (A-horizon) overlying fill of ditch and northern side of ditch. Loose to excavate, with occasional small to medium stones, but few pebbles.

C.20 Thin band of dark brown organic silt overlying centre of infilled ditch. No clasts or charcoal.

C.42 Lower A-horizon on southern (inner) side of bank. Compact dark brown organic silt with frequent small to large stones. Disturbed by cultivation furrows (contexts 03, 05, 07, 09, 11, 13 and 15).

C.43 Loose deposit of mid brown organic silt, upper fill of outer side of upper ditch; occasional small to large sub-rounded stones.

C.44 Compact deposit of grey-brown organic silt, upper fill of outer side of upper ditch; frequent small to large angular stones.

C.45 Deposit of dark brown stony silt in upper central fill of ditch; concentration of large stones up to cobble size, most are angular, with a few sub-rounded examples.

C.46 Deposit of light brown silt on upper inner side of ditch; very loose with occasional pebbles and small to medium stones.

C.47 Deposit of loose orange silt on upper outer side of ditch; occasional small to medium stones and rare flecks of charcoal. Re-deposited B_S-horizon subsoil.

C.48 Surviving base of bank, truncated by modern cultivation furrows (contexts 33, 35, 37, 39 and 41). A compact spread of mid brown sandy silt, with numerous small to large angular to sub-angular stones.

C.49 Compact deposit of white-grey to light brown silty sediment under C.48 on southern (inner) side of bank. Very few stones. Possibly redeposited E-horizon subsoil.

C.50 Pre-bank surface; grey-white, very compact with occasional pebbles and small stones. This is a leached subsoil (E-horizon) layer, averaging 5–10cm in thickness and 3.9m wide under base of bank (C.48/49). Frequent flecks and lumps of charcoal embedded in upper surface.

C.51 Thin compact spread of mid brown silt (dark brown at base), with frequent medium to large stones, under cultivation furrows and C.42 A-horizon inside bank area at southern end of trench. Removed to orange B_S-horizon subsoil.

C.52 Fill of C.53 cut on inner (southern) side of bank. Dark brown organic silt, with few pebbles but occasional small to large sub-rounded stones.

C.53 Cut of shallow trench on inner (southern) side of bank. A shallow trench in the orange B_S-horizon, 1.1–



Figure 6.14 Post-excavation view of C.53 shallow trench inside bank at southern end of trench. Note near-vertical cut on northern side, close to original base of bank.



Figure 6.15 *(left)* Post-excavation view of trench from the south-west and *(right)* from north-east, CO084-085 enclosure, Garranes.

1.3m wide by 0.22–0.3m in depth, with vertical northern side and sloping southern side to irregularly flat base.

C.54 Loose deposit of mid brown organic silt on lower outer edge of ditch; frequent small to large angular stones.

C.55 Main fill of lower ditch. Loose deposit of light brown sandy silt; 0.55m in maximum thickness, with frequent small to medium angular stones, and occasional large stones; rare charcoal flecks.

C.56 Very loose deposit of small to large stones on lower outer side of ditch; mostly angular stones from lower C-horizon (C. 61b).

C.57 Basal sediment of ditch. Loose deposit of grey-light brown stony silt, 0.3m in thickness, with numerous small to medium angular stones. Contains lenses of blue-grey silt; rare charcoal.

C.58 Small deposit of soft orange-dark brown silt on upper inner side of ditch; no clasts.

C.59 Cut of ditch (see main text for description).

C.60 B_S-horizon. Compact orange surface with visible iron enrichment; silty texture with low sand content and occasional small to medium stones.

C.61 C-horizon (see main text for description).

Dating evidence and finds

No artifacts of any type were found in the course of this excavation. The absence of early modern finds, such as glass, pottery, iron, clay pipes etc, is perhaps surprising given the proximity of Garranes House. A few pieces of modern plastic were recovered from topsoil, including several from the upper fill of the cable trench (C.21). A fragment of plastic from a depth of 0.35m in the ditch fill (C.19) was probably introduced there by recent ploughing. The limited extent of excavation partly explains the absence of finds. Recovery may be a factor given that the entire excavation was conducted over six days, with no water sieving of excavated sediment. That said, most of the excavation was carried out by hand using small trowels, with no use of large shovels. The ditch was excavated by hand over four days, with all of the sediment removed checked by hand-sifting on the spoil heap.

The dating of this enclosure depends on a single radiocarbon result for charcoal from the old ground surface beneath the enclosure bank (C.50). This was submitted to the radiocarbon laboratory in the University of Groningen, providing a result of 1170±15 BP (GrM-10365), calibrated to AD 775–940 (95.4%

confidence; OxCal v.4.3.2). This *terminus post quem* for the bank construction is the only dating evidence available for the ringfort.

Discussion

The results of geophysical survey and sample excavation are consistent with the representation of a small circular enclosure in the historic mapping of the Ordnance Survey (Figure 6.1). The site is almost certainly a small ringfort (rath) of the early medieval period. The 1943 edition of the 6-inch Ordnance Survey shows the 'site of souterrain' in the south-west quadrant of the enclosure. That suggests occupation in the later first millennium AD, consistent with the general chronology of souterrains in Ireland (Clinton 2001). This cannot be confirmed as the souterrain in question has not been located, but that date range is supported by the aforementioned radiocarbon date.

Taken together, the geophysical survey and sample excavation confirm the existence of an earthwork enclosure at this site. This is sub-circular in shape, with external measurements of 52m (east–west) by 46m (north–south), and internal measurements of 38m (east–west) by 33m (north–south). The internal area is estimated at 1250 square metres. The sub-circular shape can be explained by the building of this enclosure across a break of slope, albeit a moderate one. The original enclosing element comprised a single bank-and-ditch combination, with no foundation evidence for wooden fencing. There is no indication of a possible entrance(s). The bank was approximately 3.6m wide at the base, and the original height is unlikely to have exceeded 2m. This is based on the size of the adjacent ditch that provided the soil and stone used in the bank construction. Though largely destroyed, the limits of the bank are visible in the geophysical readings as a band of low magnetic gradiometry readings, created by the residual base and an underlying old ground surface of leached subsoil (Figure 6.1).

Excavation uncovered a large U-shaped ditch on the outer side of the bank, with no evidence of an intervening berm. The ditch measured 3.9–4.15m wide on top, narrowing 1–1.4m at the base, with a central depth 2.2–2.35m. This features as a band of high magnetic readings in the geophysical survey, caused by the infilling of the upper ditch with organic topsoil (C.19). The only other features discovered by the geophysical survey and resolved by excavation relate to recent activity in the site. The magnetic gradiometry imaged a series of parallel north-west/south-east lines of high magnetic response possibly confined to the interior of the enclosure. The size of those features suggest they may be spade-dug 'lazy-beds' connected to potato cultivation in the modern era. These were not exposed at the southern end of the excavation trench, possibly because of the limited area excavated. The excavation did uncover a set of narrow east–west furrows crossing the entire trench. These relate to later cultivation, with the landowner confirming the entire field had been ploughed in recent years.

Site history

This enclosure appears to have been built the same as most earthen ringforts in Ireland. A dump rampart was created using soil and stone from an adjacent external ditch. While that bank no longer survives, its composition can be reconstructed by looking at the material taken from the quarry ditch. That began with the removal of some organic soil and underlying leached E-horizon, followed by the digging of a substantial amount of subsoil. The latter initially consisted of orange iron-enriched B_S-horizon to a depth of 0.2–0.3m, mostly silty soil with small amounts of rounded/sub-rounded clasts. The original bank must have been composed mostly of redeposited C-horizon subsoil. This is indicated by the subsoil removed from the accompanying ditch, where hard white-grey silt (C.61a) formed the upper sides of the C.59 cut. The lower part of the ditch cut through a very stony lower C-horizon (C.61b), consisting of small to large angular fragments of broken sandstone in a matrix of fine white-grey silt. That material probably represents periglacial frost-shattered bedrock, with no unaltered bedrock exposed in the ditch. This C-horizon extract was the main material used to build the bank. It also constituted the main lower fill of the ditch as the bank eroded.

While the original bank height is unknown, the size of the ditch suggests the overall protective height of both features combined was probably 3–4m. There is no evidence for a wooden fence or palisade, as no stakeholes or postholes were found in excavation. There is also no evidence of a counterscarp bank, though such a feature could have been removed during the levelling of the enclosure in the modern era. There are no indications as to the methods used in construction of this earthwork, with no obvious tool marks on the sides of the ditch, nor any discarded tools in the same context. The friable nature of the lower C-horizon meant this material could be dug out using simple tools and hands. While a number of large sub-rounded stones were found in the lower central area of the ditch, there were not enough to indicate a collapsed bank revetment.

No evidence of occupation was found in this excavation. This may be explained by the limited extent of investigation, and by severe ground disturbance caused by the levelling of the enclosure and subsequent cultivation in the modern era. As a consequence, it

is not possible to understand the nature or duration of occupation in this enclosure. There is also no information as to the circumstances of its early abandonment. While the excavation did not recover evidence of site occupation, there is important detail on the enclosing elements. Radiocarbon dating of charcoal from a pre-bank surface provides a useful *terminus post quem* for bank construction, confirming this is a small univallate ringfort of the early medieval period.

6.2 CAHERKEAN

This large earthwork (RMP CO084-082) is situated on the lower northern slope of the Garranes ridge, 200m north of Lisnacaheragh ringfort (Figure 6.16). As outlined in Chapter 2, it comprises two sub-parallel earthen banks that widen from the northern end southwards to create a sub-triangular enclosure measuring 65m (north–south) by 24–44m (east–west) (Figure 6.17). Sample excavation was undertaken in 2015 (licence 15E066) to examine the overall morphology of the earthwork, how it was built and used. The aim was to recover dating information and other finds to clarify its chronological and cultural relationship to the nearby Lisnacaheragh and Lisnamanroe enclosures. The condition of the earthwork was also assessed in light of recent tree fall and animal burrow damage, with a view to developing a conservation plan for the site.

The Caherkean earthwork was investigated over one week in March/earlyApril, 2015. A 5m (east–west) by 2.5m trench was excavated across the central area of the earthwork (Figures 6.18 and 6.19). This was dug to a maximum depth of 0.85–0.95m on the western side, 1.23–1.26m in the centre, and 0.94–0.98m at eastern end. The trench was excavated by hand, using trowels and small digging equipment along with mattocks. That involved stratigraphic excavation and context-based recording, with scale drawings and photographs of exposed sections. The recovery of artifacts and ecofacts was accompanied by sampling for dating purposes. On completion of excavation the trench was back-filled by hand and the ground surface restored. The earthwork was surveyed and profiles were recorded across its banks in relation to the excavation trench (see O'Brien 2015b for archive report).

Stratification

A total of eleven contexts were recorded in the excavation of this trench. These represent four distinct horizons in the site stratification, including (1) a thin surface layer of organic soil, overlying (2) a deposit of loose stones, dumped on top of (3) silt sediments, which accumulated on (4) the original cut of the earthwork interior (Figure 6.20):

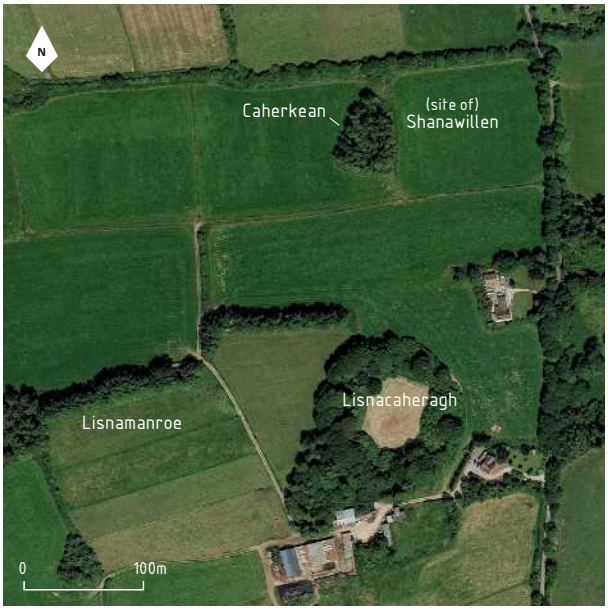


Figure 6.16 Aerial view of Garranes archaeological landscape, showing Caherkean site.

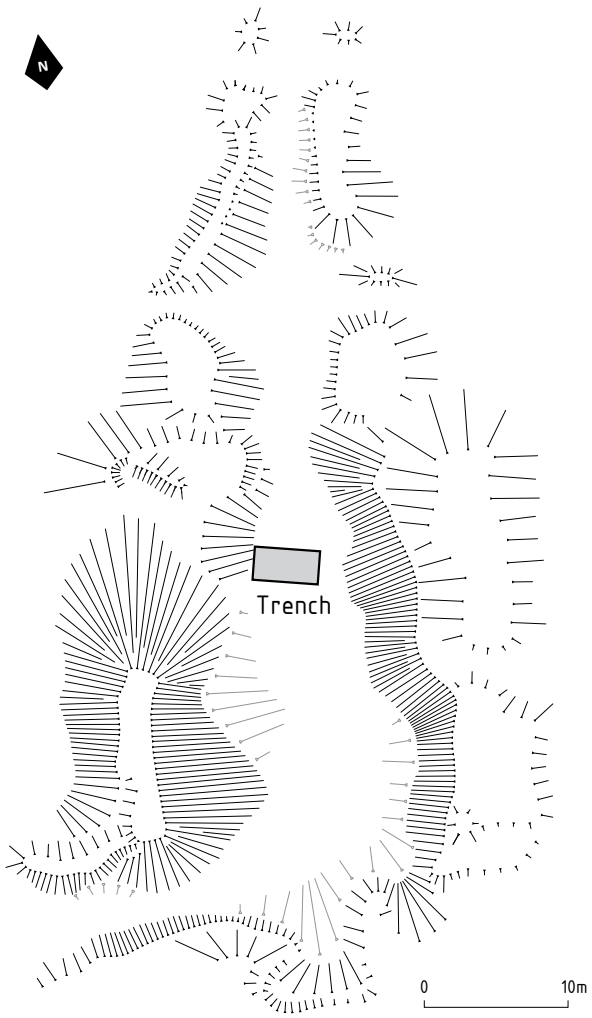


Figure 6.17 Plan of Caherkean earthwork, with location of excavation trench.

C.01 Surface layer of dark bown organic soil (humus and partly decayed plant matter).

C.02 Deposit of large stones in south-west corner of trench.

C.03 Burnt wood and charcoal deposit on C.04 surface, west side of trench.

C.04 Dump layer of stones from field clearance.

C.05 Upper layer of bank slip deposit, north-west corner of trench.

C.06 Lower layer of bank slip deposit, north-west corner of trench.

C.07 Upper layer of silt, eastern side of trench.

C.08 Lower layer of silt, western side of trench.

C.09 Fill of linear cut C.10, western side of trench.

C.10 Linear cut in C.11 surface across western side of trench.

C.11 Primary subsoil cut in earthwork interior.



Figure 6.18 View of excavation in progress from south, Caherkean.

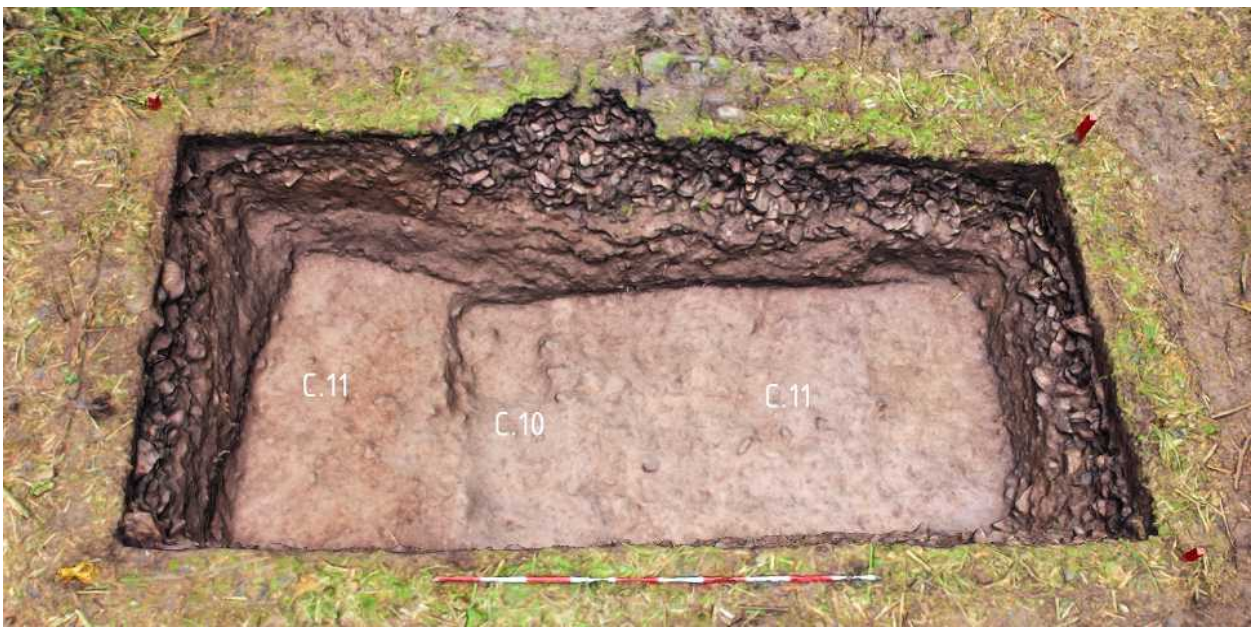


Figure 6.19 Photogrammetric model of trench following excavation, Caherkean. Viewed from south.

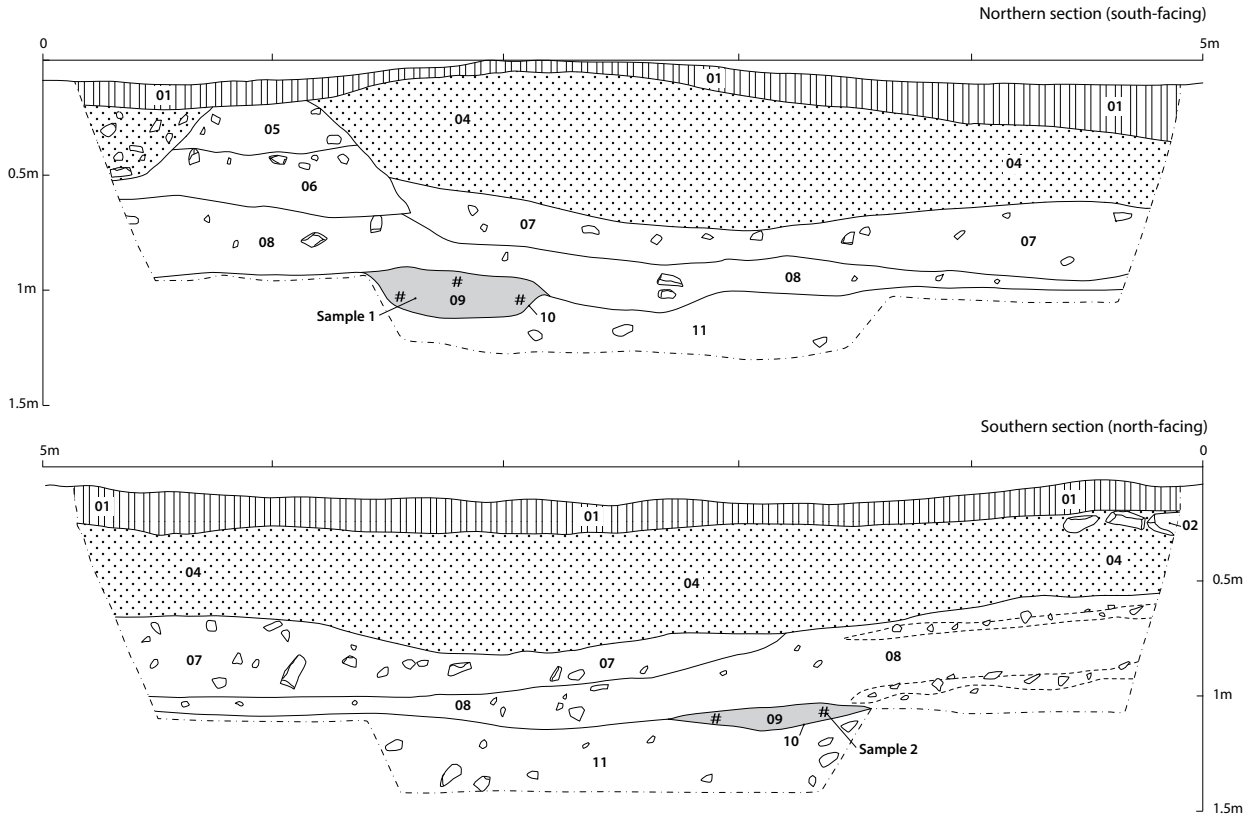


Figure 6.20 Stratigraphic sections, Caherkean.

Organic soil

There is very little surface vegetation in the interior of the earthwork due to a canopy of conifer trees, which explains the absence of a compact sod. Excavation revealed a thin layer of loose organic soil (C.01), with a thickness of 0.1m and 0.23m on the western and eastern sides of the trench respectively, thinning to 0.04–0.1m in the centre. That O-horizon was composed of dark brown humus and partially decomposed plant matter, with no stones or minerogenic component. Finds in the upper part of C.01 included a shot-gun cartridge (F.02), with two broken farm implements of iron (F.03 and 04) found at the base.

Stone dump

The removal of the O-horizon exposed a layer of stones (C.04) across the eastern two-thirds of the trench (Figure 6.21). This was initially interpreted as a deliberately laid metalled surface that formed a track inside the earthwork. Excavation proved otherwise, with the surface compaction giving way to a loose deposit of small to medium stones with almost no soil matrix. This was a homogenous layer across the trench (apart from the north-west corner), with a thickness of 0.35m at both ends, increasing to 0.5m in the centre (Figure 6.22). The stones themselves were of consistant size, 0.08–0.16m in length, with occasional examples 0.2–0.26m. Most were sub-rounded to sub-angular, with very few rounded or angular examples. The shape and size range of the stones suggests these were gathered during cultivation of adjacent fields, and dumped into this earthwork some time after its original use ended.

The dumping of that field stone probably occurred during the early modern era. This is supported by a number of artifact finds of early modern date found at different levels in the C.04 stone layer. These include two broken iron objects (15E066:05 and :08), again probably from farm implements, as well as a sherd of glazed earthenware (15E066:10), two sherds of plain earthenware (15E066:06 and :16), a sherd of clear bottle glass (15E066:09) and a sherd of cream china tableware with blue design (15E066:07). Frequent inclusions of white limestone clasts, 0.08–0.15m in length, with a water-rolled appearance, together with a fragment of vitrified limestone (15E066:01), probably derive from the spreading of lime fertiliser on surrounding fields in recent centuries. This material possibly came from a now-destroyed lime kiln near the modern road, 140m to the east (landowner information).

Excavation in the south-west corner of the trench exposed a small deposit of larger stones (C.02) underneath the O-horizon layer (Figure 6.21). These



Figure 6.21 Context 04 stone surface under O-horizon, with C.02 large stones in south-west corner (top left) and C.03 silt in north-west corner (top right), Caherkean.



Figure 6.22 Southern section of trench showing organic layer (C.01) overlying stone dump (C.04), over silt horizon (C.07 and C.08), over natural subsoil (C.11), Caherkean.

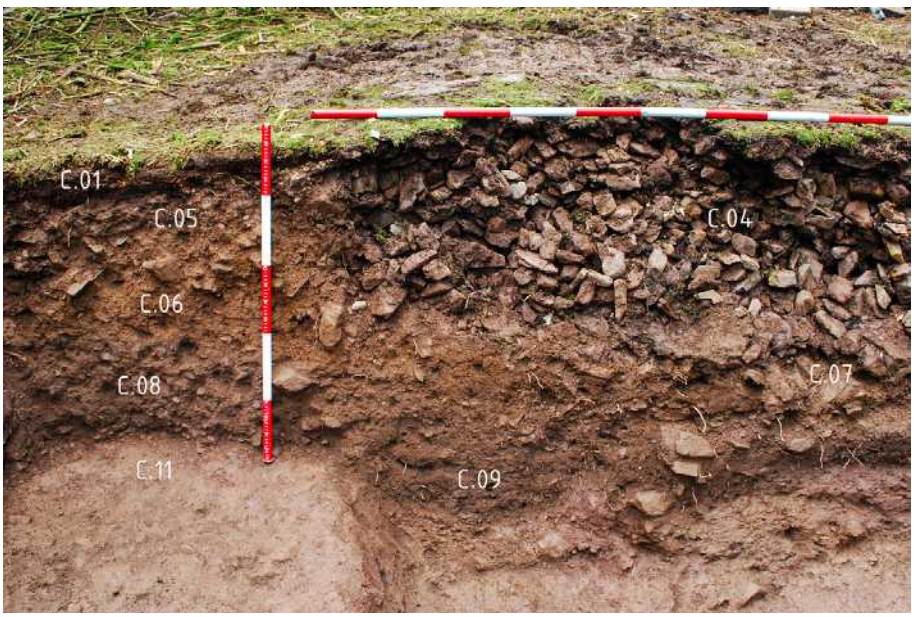


Figure 6.23 Detail of northern section of trench (western end) showing stone dump (C.04) against/over silt deposits (C.05 and C.06), Caherkean.

were 0.15–0.27m in length, with sub-angular to sub-rounded form. They overlay the C.04 stone surface and did not seem to have been arranged in any particular order. Context 02 most likely represents tumble from the western bank, but cannot be connected to any walling or revetment.

Excavation exposed some evidence of burning on the western side of the trench, directly beneath the O-horizon. A piece of decaying wood (C.03), measuring 0.4m by 0.2m, was found in a shallow depression in the underlying C.04 stony surface (Figure 6.21). The underside of this wood was burnt, with a scatter of charcoal in the vicinity. The stratigraphic position and partially decomposed nature of this wood indicates a recent fire event.

Silt deposits

The removal of the O-horizon (C.01) exposed a deposit of subsoil-like sediment in the north-west corner of the trench. This consisted of a 1.1m (east–west) spread of yellow-light brown sandy silt (C.05), which extended 1.2m from the northern side of the trench (Figure 6.23). This compact surface had a slightly leached appearance with occasional small to medium stones. Context 05 had a maximum thickness of 0.2m and was removed to expose a looser deposit of orange-light brown sandy silt (C.06). That contained frequent pebbles and small stones, a gritty texture and iron oxide enrichment. Context 06 averaged 0.2–0.3m in thickness, and graded into a silt layer of similar texture, but different colour (C.07), on the eastern side. The origin of C.05 and C.06 is uncertain, but both sediments may represent subsoil slip from the western bank, or else tree fall disturbance in the interior.

Elsewhere, removal of the C.04 stone layer exposed a layer of silty sediment (C.07) across the eastern two thirds of the trench (Figures 6.22 and 6.23). This was a loosely compacted accumulation of grey-light brown silt with a gritty texture due to numerous fine pebbles, also containing some small to large stones up to cobble size. That layer thinned from 0.35m at the eastern end of the trench to 0.15m in the centre. Finds include six pieces of vitrified limestone (15E066:11, :13, :14, :18, :19 and :20), one of which (15E066:11) measured 0.18m by 0.16m. These pieces of lime kiln waste were found at a depth of 0.1–0.2m within C.07, suggesting that this silt built up in the early modern era. This is supported by the discovery of two sherds of brown glazed fine pottery (15E066:12 and :15) and a small sherd of white china (15E066:17) at a similar depth within C.07.

While C.07 presented as a uniform layer of silt, it did contain lenses with slight colour and texture differences. The same is true of the underlying layer (C.08), which was darker in colour, but with a generally similar texture to C.07 (Figure 6.20 lower). Context 08 was a grey-dark brown silt, 0.34–0.48m in thickness at the western end of the trench, and 0.04–0.06m at the eastern side. It contained numerous pebbles and small stones, and occasional stones up to cobble size, but no charcoal.

Subsoil cut

The C.08 silt was removed to expose a very hard surface of grey-light brown subsoil (C.11), which was tested to a depth of 0.3–0.4m in the central trench area (Figures 6.24 and 6.25). This revealed an undisturbed sandy silt of fluvio-glacial origin, containing frequent pebbles and small stones, with some larger stones up to cobble size. The present C.11 surface represents a



Figure 6.24 Post-excavation view of trench from west, showing subsoil base with C.10 cut, Caherkean.



Figure 6.25 Southern section of Caherkean trench, showing subsoil surface (C.11) after removal of C.07/C.08 silts. A shallow cut (C.10) in this subsoil is also visible across western side of trench.

subsoil (C-horizon) cut, created by the digging out of the earthwork interior to form the adjacent banks. This explains the absence of an overlying B-horizon or an old ground surface, both of which were removed for bank material.

The only feature exposed on the C.11 surface was a shallow linear cut (C.10) across the western side of the trench. This was exposed to a length of 1.52m (north–south), with parallel sides 0.6–0.63m apart, sloping to a basal width of 0.45–0.47m. The base was irregularly flat, ranging in depth from 0.12m on the northern side to less than 0.1m on the south where the sides were less distinct. This linear cut was filled by loose dark brown silt (C.09) containing small stones, as well as frequent flecks of charcoal, but no finds. A sample of this charcoal sent to the University of Groningen is radiocarbon dated 315 ± 30 BP (GrA-63132), calibrated to AD 1520–1640 (95.4% confidence; OxCal v.4.3.2).

Finds

A total of 20 artifacts were recovered in the excavation of Trench 1. These include seven fragments of vitrified limestone; four iron objects; three sherds (one glazed) of red earthenware pottery; two sherds of china tableware and two sherds of brown glazed fine pottery, a sherd of clear bottle glass, and a shot-gun cartridge (Figure 6.26; O'Brien 2015b for additional photographs).

15E066:01 Fragment of vitrified limestone from upper 0.1m of C.04 stone layer, west end of trench.

15E066:02 Shot-gun cartridge from upper 0.1m of C.01 humus, east end of trench.

15E066:03 Head of iron spade, very worn and corroded, found at interface of C.01 humus and C.04 stone layer, west side of trench.

15E066:04 Fragment of iron implement of unknown type, from interface of C.01 humus and C.04 stone layer, west side of trench.

15E066:05 Pointed iron object of unknown type, found at depth of 0.1m in C.04 stone deposit, east end of trench.

15E066:06 Sherd of red earthenware (possible pipe or tile fragment), found at depth of 0.12m in C.04 stone deposit, east end of trench.

15E066:07 Sherd of cream glazed china tableware with blue pattern design, found at depth of 0.1m in C.04 stone deposit, east side of trench.

15E066:08 Iron object of unknown type, found at depth of 0.1m in C.04 stone deposit, east side of trench.

15E066:09 Sherd of clear bottle glass, found at depth of 0.35m in C.04 stone deposit, west side of trench.

15E066:10 Sherd of glazed brown earthenware, found at depth of 0.06m in C.04 stone deposit, east end of trench.

15E066:11 Large piece of vitrified limestone found at depth of 0.15m in C.07 silt, east end of trench.

15E066:12 Sherd of brown speckled glazed fine pottery, found at depth of 0.16m in C.07 silt, east end of trench.

15E066:13 Fragment of vitrified limestone found at depth of 0.2m in C.07 silt, east end of trench.

15E066:14 Fragment of vitrified limestone found at depth of 0.1m in C.07 silt, west side of trench.

15E066:15 Sherd of brown speckled glazed fine pottery (same as :12), found at depth of 0.1m in C.07 silt, west side of trench.

15E066:16 Sherd of brown earthenware (no glaze), found at base of C.04 stone deposit, east side of trench.

15E066:17 Small sherd of white glazed china (no decoration), found at depth of 0.15m in C.08 silt, west end of trench.

15E066:18 Fragment of vitrified limestone found at depth of 0.15m in C.07 silt, west side of trench.

15E066:19 Fragment of vitrified limestone found at depth of 0.15m in C.07 silt, west side of trench.

15E066:20 Fragment of vitrified limestone found at depth of 0.16m in C.07 silt, west side of trench.



Figure 6.26 Glazed pottery and glass of early modern date, Caherkean.

Discussion

Excavation revealed this earthwork was constructed by digging out a 54m (north–south) by 2–8m (east–west) area to an average depth of 2–2.5m. Taking a profile across the centre of the earthwork, the height of the adjacent fields on the east and west sides averages 133.05m OD. The pre-excavation ground level in the interior is 131.65m OD with excavation demonstrating the level of the primary subsoil cut to be 130.7m OD. These measurements indicate that the interior was lowered by 2.35m or so, with the soil removed in this way piled into large earthen banks to form the eastern and western sides of the earthwork. With no evidence of external quarry ditches, all of the bank soil is likely to have come from the interior. The lowering of the interior surface also had the effect of accentuating the internal height of the banks, thus augmenting its use as a enclosure.

With no evidence of internal revetment, it is likely that both banks began to be eroded soon after construction. Excavation revealed a slow accumulation of silt-based sediments inside the earthwork. These partly derive from slopewash of the bank surfaces, as well as organic sedimentation in the interior. The two main layers of silt (C.07 and C.08) had a combined thickness of 0.25–0.5m on top of the primary subsoil cut (C.11). These contained fragments of vitrified stone and a number of artifacts of early modern date. Three of these are of particular significance in respect of their position in the trench. 15E066:12 and :15 are two sherds of brown glazed fine pottery found 0.26m above the C.11 subsoil surface, while a sherd of white china tableware (15E066:17) was 0.21m above that primary earthwork cut. The position of those sherds indicates the earthwork is of relatively recent date. This is supported by radiocarbon dating of charcoal from C.10 in that C.11 surface to AD 1520–1640. Allowing for an 'old age effect' in that wood, and taking into account the pottery finds, Caherkean was probably built some time during the late eighteenth or early nineteenth centuries.

This is supported by historic mapping from those centuries. The hachured earthwork depicted on the 25-inch Ordnance Survey mapping of 1900 (Figure 6.27) is very similar in plan to the extant earthwork. It is different in size and shape to the quadrangular enclosure represented at this location on the 1845 6-inch map. This could suggest the present earthwork was built some time between the two surveys in the later nineteenth century. An earlier date is more likely if the 1845 map shows a stylised representation of the extant earthwork. The latter is not depicted on Scále's detailed map of 1775 (Figure 1.11), which given its size is unlikely to be an omission. This would then place its construction between the date of Scále's survey and the 1845 Ordnance Survey. That is consistent with the artifact finds and with a radiocarbon date from the primary earthwork cut.

What then of the 'Shanawillen Caherkean' marked on 1845 Ordnance Survey map? That edition depicts a second feature on the immediate eastern side of the extant earthwork (Figure 6.27 left). This is marked as a fenced area of trees, sub-rectangular in shape, the northern end of which was crossed by what appears to be a narrow channel connected to a large pond on the opposite side of the nearby road. That long narrow pond, in turn, was connected by a channel to a smaller sub-circular pond, 180m east of Garranes House. On first consideration, that suggests two ponds feeding a headrace channel leading to a mill located at the northern end of the sub-rectangular area marked on the 1845 Ordnance Survey map. That 'Shanawillen' ('Old Mill') site may have been removed some time between the 1845 and 1900 Ordnance Survey editions, which would explain why the latter only retained the name 'Caherkean' ('Fort of Cian') for the extant earthwork.

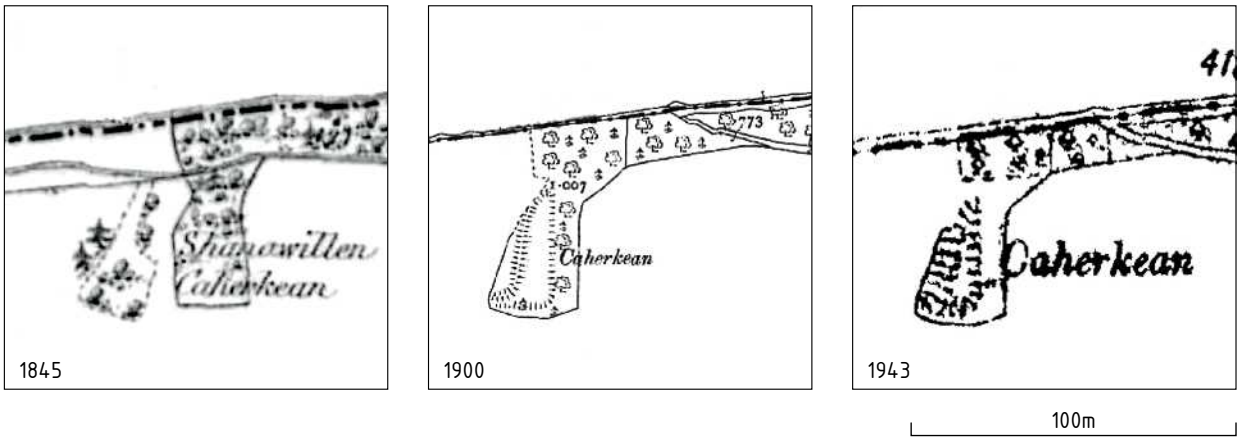


Figure 6.27 Caherkean as represented on the historic editions of Ordnance Survey mapping (1845, 1900, 1943).

While this interpretation would explain the 'Old Mill' association, it is unlikely to be correct. Neither of the 'Shanawillen Caherkean' features on the 1845 Ordnance Survey map are shown on Scále's map of 1775, nor does that estate map depict the aforementioned ponds and channels. Moreover, information from Kenneth Nicholls, historian and current owner of Garranes House, indicates those ponds were created as part of the demesne gardens in the nineteenth century.

In conclusion, it is highly likely that the extant earthwork named Caherkean was built in the late eighteenth or early nineteenth centuries. As to its function, this remains uncertain in the absence of historical records. The site was certainly not a quarry. One possibility is that it was built as an animal pound connected to a now-levelled farm track at the south-west end. What is certain is that it was neither a medieval mill or some type of formal entrance to the ringfort complex at Garranes.

6.3 SOUTERRAIN

This is located on the southern side of a large field in the southern part of Garranes townland (Figure 6.28; ITM grid ref: 547058, 562390). It was discovered on the farm of Mr Humphrey Desmond during ploughing in early May 2017, when a tractor caused the collapse of a possible original entrance to at least two underground chambers (Figure 6.29). The exposed souterrain was visited and recorded by the authors shortly after its discovery.

The removal of the tractor created a large surface cavity, with a small opening on the lower south-west side that exposed the souterrain. That opening led into a small 'outer' chamber, at the back of which there is a narrow creep-hole that allows access to a larger 'inner' chamber (Figure 6.30). Both chambers are of the burrow type. There is a second opening to the inner chamber, now blocked with stone walling. There are no artifact finds from the souterrain, but there was a thin deposit of charcoal on the earthen floor surface of the inner chamber.

The soil profile is a brown podzol, comprised of a thin organic soil overlying a B_S-horizon with light iron precipitation that is the upper part of a glacial till (C-horizon). This subsoil is a very compact, light brown, sandy silt, with a grainy texture due to numerous medium to large pebbles. The upper portions of the souterrain were made by tunnelling into this subsoil, with the lower parts quarried into the underlying bedrock. The latter consisted of a purple fine-grained sandstone with a widely spaced cleavage that is parallel to near-vertical bedding planes.

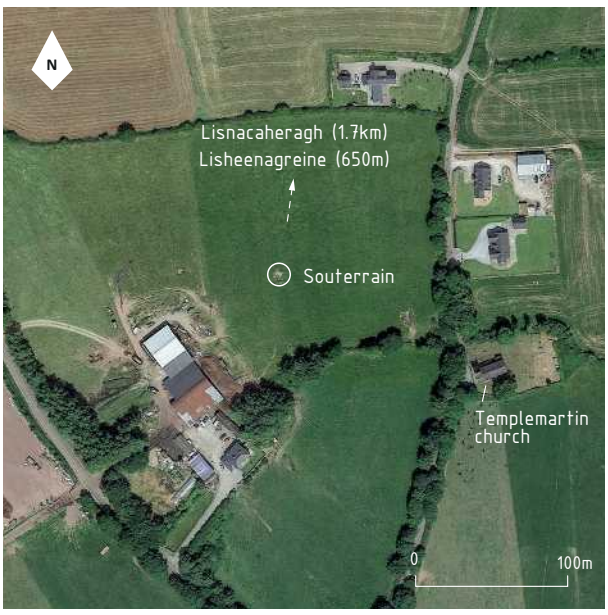


Figure 6.28 Location of souterrain, in the south of Garranes townland. Desmond farm buildings (left) and Templemartin chruch (right).



Figure 6.29 View from north of surface depression created by collapse of tractor into souterrain. Entrance to outer chamber visible. Desmond farm in background.

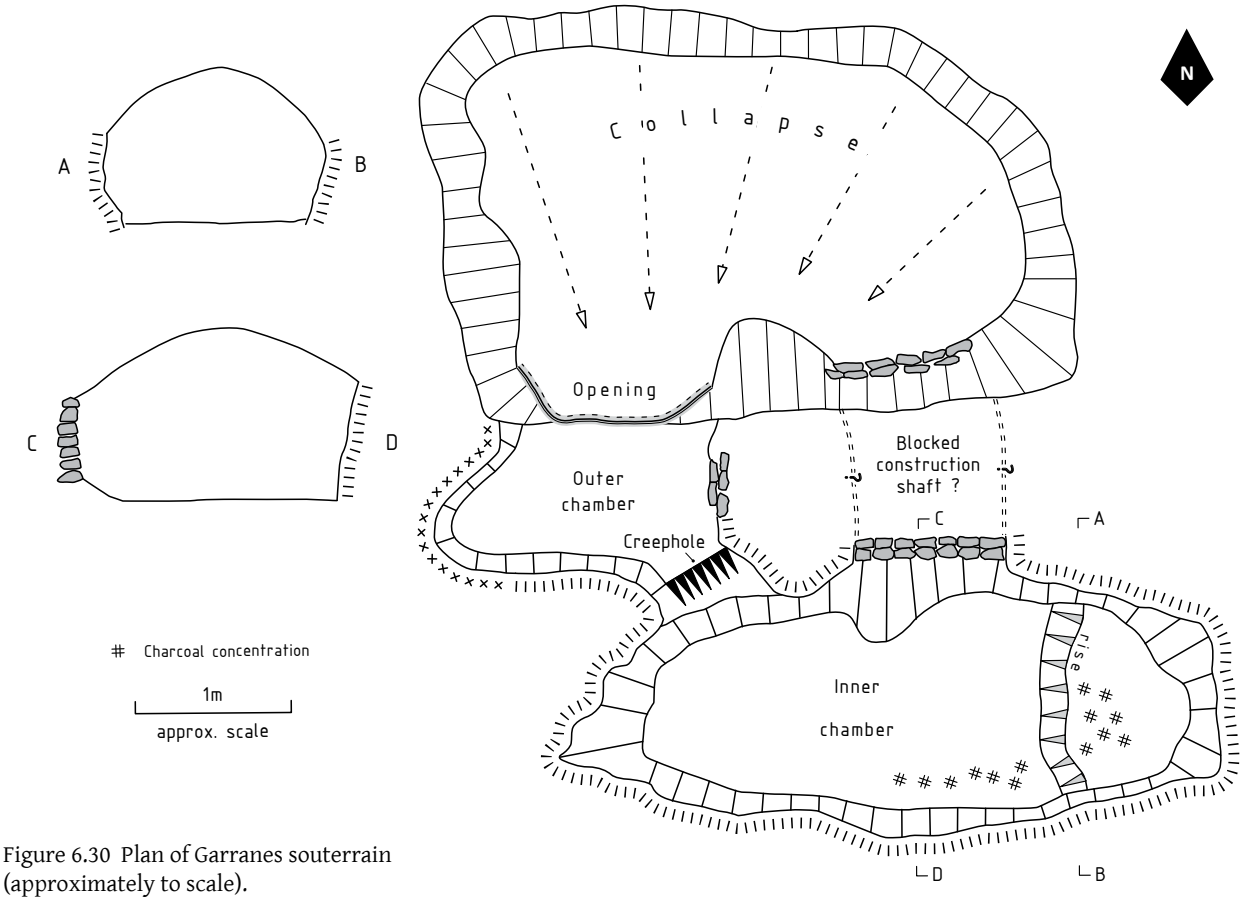


Figure 6.30 Plan of Garranes souterrain (approximately to scale).

Souterrain features

The features of the exposed souterrain include the following:

Surface opening

A sub-oval depression created by the tractor collapse, measuring 4m (east–west) by 2.7m (north–south) on top, narrowing to 3m by 1.4m at the base (Figures 6.29 and 6.30). The northern side of the depression sloped steeply to a depth of 1.2–1.4m on the southern side, where the opening to the inner and outer chambers were exposed. The depth of soil overlying the opening to the outer chamber is 0.7m, and up to 0.6m over the top of the blocked opening to the inner chamber. It is possible the tractor fell into an area where the souterrain was closest to the surface, possibly in the general area of the original entrance.

Outer chamber

This small cavity is accessed through a 1.3m wide by 0.85m high opening on the lower south-west side of the surface depression (Figure 6.31). The chamber measures 1.8m in width (east–west) by 1.1m (north–south), with an internal height of 0.35–0.6m. It has a low rounded roof cut into subsoil, with the lower sides in broken bedrock. There is a short length of stone walling on the eastern side of this chamber, comprised of rough horizontal coursing with stones averaging 0.15–0.2m in length. The original floor surface is not exposed, due to soil slip from the surface depression. The only feature in the outer chamber is a creep-hole in the eastern corner, 2.3m in from the modern 'entrance'. This 0.65m wide by 0.45m high sub-circular opening allows access into the inner chamber of the souterrain.

Inner chamber

A large sub-rectangular cavity, measuring 3.95m (east–west; 092–272°) in maximum length (Figures 6.30 and 6.32). The chamber ranges in width from 1–1.5m at the eastern end, 1.4–1.76m in the centre, to 0.8–1.47m at the western end. The internal height varies from 0.4–1m at the eastern end, 1–1.1m in the centre, to 0.8–1m at the western end. The roof has a rounded profile, cut into hard pebbly subsoil with bedrock on the lower sides. The southern side of the chamber is near-vertical bedrock, with a smooth bedding surface (small quartz vein exposed). This bedrock face increases in height from 0.3m at the eastern end, to 0.9m in the centre, to 0.7m high at the western end. The bedrock exposure at the eastern and western ends of the chamber is more irregular, broken along widely spaced cleavage.

The lower northern side of the chamber is also cut through bedrock, ranging in height from 0.3m at the eastern end, 0.5m in the centre, to 0.4m high at the western end. There is a 1.05m wide by 0.68m high opening west of centre on the northern side of the chamber. This is completely blocked by a stone wall, built with rough horizontal coursing of sub-rectangular stones, 0.18–0.45m in size (Figure 6.33). The outer side of this blocked opening is exposed on the lower southern side of the surface depression. This feature provided a second opening to the inner chamber, from either inside the original souterrain entrance or an internal chamber.

The floor of the inner chamber consists of compacted soil, with no bedrock exposed. It is irregularly flat, with a low ledge at the eastern end. There was a concentration of large fragments of charcoal on the surface of this ledge, extending along the northern side of the chamber. Samples of this charcoal were collected by the landowner prior to this survey, some of which is oak and hazel (identifications: Susan Lyons). A sample of hazel charcoal sent to the University of Groningen is radiocarbon dated 1245±25 BP (GrM-10241), calibrated to AD 680–780 or AD 790–870 (95.4% confidence; OxCal v.4.3.2).

Discussion

Souterrains are underground tunnel systems, consisting of one or more artificial chambers that are connected by narrow passages or creep-ways. Most Irish examples are of drystone construction, constructed in deep trenches where the lower sides are walled to support stone lintels and sometimes corbelled roofs. There are regional preferences, with many examples in Cork burrowed into natural subsoil, and occasionally into bedrock. The majority were built in the Early Medieval period, between the ninth and thirteenth centuries AD, mostly by the inhabitants of ringforts who used these underground cavities as refuges and hiding places (McCarthy 1983; Clinton 2001).

While the full extent of the Garranes souterrain may not be exposed, there is some information as to its construction and general design. The souterrain is of the burrow type, with no indications of a surface construction trench. It was created by underground tunnelling through subsoil and bedrock, possibly using one or more vertical construction shafts that are now blocked. The upper part of both chambers was dug into a hard competent subsoil, with the lower sections cut into bedrock. The general east–west direction of both chambers followed the bedding orientation of the sedimentary rock, with the builders taking advantage of the vertically spaced cleavage planes to extract this rock using simple wedges.



Figure 6.31 Opening to outer chamber, with creep-hole to inner chamber at rear (left of centre).



Figure 6.32 Inner chamber, with curved profile of soil-cut roof, and bedrock on lower sides. Charcoal flecks visible on inner surface.



Figure 6.33 Blocked construction shaft on northern side of inner chamber.

The souterrain comprises at least two low chambers, the roofs of which are approximately one metre below the present ground surface. These are connected by a creep-hole, with both chambers having access openings on their northern sides. It is not known why the opening to the inner chamber is now blocked by stone walling, but that may be a construction passage. The location of the original entrance is unknown, but it may have been where the tractor fell into the souterrain, at a point where the covering soil was thinnest.

The significance of the charcoal deposit on the floor of the inner chamber is uncertain. There was no indication of a hearth. The charcoal may derive from use of tapers for internal illumination, though there was no smoke staining on the ceiling of the chamber. The floor areas of both chambers was covered by compacted soil, which in the case of the inner chamber was deliberately placed to cover the hard broken bedrock surface.

This new find is the sixth possible souterrain recorded in Garranes, with the likelihood of other examples in the townland (see Chapter 2.2). The Lisheenagreine and CO084-085 examples are associated with levelled ringforts, but there is no indication of a ringfort at this new discovery, either from surface evidence of historical mapping. Also, there may also be more than one souterrain at this location. The landowner, Humphrey Desmond, reported that some years ago he entered an underground chamber approximately 60m south of the new discovery (approximate ITM grid ref: 547040, 562330). He recalls it had a rounded roof, and was large enough to stand up in. There are no surface indications today of this feature. Another local landowner, Mr Elliott Woods, reports the discovery of underground chambers in a field adjacent to Templemartin Church (approximate ITM grid ref: 547250, 562350). There are no details of a possible souterrain at that location.

– 7 –
SPECIALIST STUDIES

The archaeological fieldwork at Garranes is supported by a number of specialist studies across several disciplines. These include a new analysis of a medieval bardic poem on the legendary *Ráith Raithleann*, a centre of the kingship of Uí Eachach that has long been associated with Garranes. The political context of that poem is examined in relation to the Uí Mathgamhna (O'Mahony) sept of Eóganacht Raithlinn, for whom Raithliu represented their symbolic seat of kingship. This is followed by an analysis of radiocarbon dates from the recent excavations, using Bayesian methods to identify the occupation period of the Lisnamanroe and Lisnacaheragh enclosures. Finds of imported Roman pottery from both sites are examined in detail, followed by a scientific study of the metalworking evidence from Lisnacaheragh. The chapter ends with an attempt to reconstruct the vegetational history of the Garranes landscape using palynological methods.

7.1 RÁITH RAITHLEANN, RÁITH CHUIRC IS CHÉIN

Cian Ó Cionnfhaolaidh

Ráith Raithleann, Ráith Chuirc is Chéin (*RR*) is an *ógláchas* composition comprising 27 verses in *rannaigheacht mhór*. It is regularly found as one of three poems and two other quatrains often embedded in the text *Cath Maighe Guile / Guilidhe* (*CMG*),[1] which itself appears independently in some manuscripts (Ní Úrdail 2013, 154, 14; 2011, 265-7), but in others as an episode in the text variously entitled *Leabhar Oiris* (*7 Annála ar cogthaibh 7 Cathaibh Éireann*) [*LO*], and (*Tuarasgábhail ar*) *C*(*h*)*ath Cluana Tarbh* [*CCT*] (Ní *Úrdail* 2011, 78-82 257-264).[2] *LO* and *CCT* function as encomia for Brian Bóramha and Dál gCais (Best 1904, 74; Ní Úrdail 2013, 149-50, 159-62; 2011, 78-82); *CMG*, in contrast—whether as an independent text, or as part of *LO*—concerns itself with southern Munster affairs,[3] detailing the internal struggle for supremacy within Uí Eachach Mumhan (or Eoghanacht Raithleann) between the two primary septs, Ceinéal Aodha and Ceinéal Laoghaire. Ultimately, Ceinéal Laoghaire prevails under Domhnall Dubhdábhoireann, while his counterpart Cian mac Maolmhuaidh, along with his two brothers, Cathal and Raghallach, perish in the battle (Best 1904, 94). Despite the Ceinéal Laoghaire victory, *CMG* is heavily biased in favour of Ceinéal Aodha, and particularly of Cian. The favour shown to him is nowhere more apparent than in the prologue to the poem *Fada bheith gan aoibhneas ann*,[4] where Mac Líag relays to Brian Bóramha the extensive riches given to him and his retinue by Cian in contrast to the meagre generosity of Domhnall, who only supplied a 'belt and sparks' (*ibid*., 94-5). Brian subsequently asks Mac Líag to whom he was more grateful, and Mac Líag humorously replies that he was more grateful to Domhnall for 'it was more difficult for [him] to part with the belt and sparks' (*ibid*.).

Content of the poem and its significance

RR purports to relate the founding of Ráith Raithleann and its satellite forts by Corc mac Luighdheach's followers (quatrains 1-7); the naming of the fort after Corc himself, his foster mother Raithleann (quatrains 8 and 9), and Cian mac Maolmhuaidh (quatrains 10 and 11); and the subsequent decline of the forts following the death of Cian (quatrains 12-18), juxtaposed with the prosperity of the sites and the thriving patronage of poets during Cian's *floruit* (quatrains 19-26). As well as the *dinnshenchas* nature of the poem, it also functions as a lament for Cian mac Maolmhuaidh, where fond mention is made of him throughout, particularly in quatrains 27*c-d*, in which Giolla Caomh, one of the supposed composers (see below), relays that his heart 'broke in his chest, without Cian being in the stronghold'.

Cian's association with Ráith Raithleann in the poem, whether it has any basis in reality (Ryan 1942, 150), suggests that this fort was later regarded as the seat of power of Uí Eachach Mumhan. In turn, Canon Lyons (1893, 146; 1896, 450-1) was the first to propose that the site was identical to the large ringfort of Lisnacaheragh in the townland of Garranes, near Bandon, Co. Cork, as 'this portion of the townland was known by the old people as Ráith Raithliu' (1896, 451). These sentiments are further repeated by Canon O'Mahony (1913), and in an account of the district written by the teacher, Domhnall Ó Cochláin, as part of the Schools' Folklore Collection in 1937, entitled *Raithliu* (roll number 8972, 94a-f, 133). However, the authority upon which Ó Cochláin drew his information is unknown; he may have been influenced somewhat by Lyons' and

[1] The *initia* of the other two poems are *Fada bheith gan aoibhneas ann* (Best 1904, 95-6), attributed to Mac Líag, and *Uathmhar an oidhche anocht* (*ibid*., 96-7), by Mac Giolla Chaomh. The first of the stand-alone quatrains (*ibid*., 94), *Mocholmóg ó théige thoir*, is by an anonymous author, and the second quatrain, *Inneósad mo theist ar Chian* (*ibid*.), is said to have been composed by Mac Coise as a testimony to Cian and relayed to Maolsheachlainn, leader of Uí Néill. When *RR* features, it is substantially the longest poem of the three.

[2] *CCT* here is not to be confused with a different early modern Irish text of the same name (Ní Úrdail 2004, 196-8, 200; 2007, 142-4; 2008, 56-57; 2011, 44-5; 2013, 155, 162-3).

[3] Conversely, Fischer (2016, 3-6) would interpret *LO* in its entirety as being primarily interested in Uí Eachach Mumhan.

[4] See note 2 above.

O'Mahony's scholarship, rather than the local folklore. While the association between Ráith Raithleann and Garranes must remain inconclusive (Bhreathnach 2013, 163), the perception that this association was real may have been an integral part of the lore of the area perhaps as early as 1705, where in the prologue to *RR* in TCD MS 1416 (H.6.12)'s account of *CMG* (pg. xv), it states that Ráth Raithleann is located 'near Bandon': *Rath Raithleann a ccomhfhogus do Droichiud na Bandan*. The early eighteenth-century date is provided by a colophon written by Pádruic Ó hÉthir in section 3 of the manuscript (Ní Úrdail 2011, 265; 2013, 162); however, *CMG* features in section 2, which was written by a different scribe, 'Seagan do Róiste', and therefore it is uncertain whether or not this date also pertains to *CMG* and *RR* here.

Rev. Ryan (1942, 146), in his addendum to Ó Ríordáin's (1942) publication on the excavation of Lisnacaheragh, cautiously accepted Lyons' proposal that the site may have been the royal residence of Uí Eachach Mumhan. He would, however, point to Eachach (Eachu) mac Cais,[5] who supposedly flourished in the early sixth century, as the founder of Ráith Raithleann—rather than Corc mac Luighdheach as *RR* relays—on the basis that the finds unearthed during the excavation cumulatively suggested *c.*500 AD as the main period of activity (Ó Ríordáin 1942, 140). As Ryan (1942, 150) goes on to argue, if the ringfort of Lisnacaheragh is the Ráith Raithleann depicted in the poem, then the date of the archaeology undermines *RR*'s description of the site as being the royal residence of Cian mac Maolmhuaidh, who flourished in the late tenth to the early eleventh century—some 500 years after the main period of activity. Ryan (1941, 149-50) does postulate, however, that even if the site fell out of use as a royal residence it may still have retained some politico-symbolic significance as the location for *aonaigh* 'popular assemblies'. Ryan cites the possibly analogous situation of Uí Néill as a precedent for this argument. Traditionally, Tara is regarded as the epicentre of Uí Néill political power; however, as the sept continued to grow and fragment, some members of its ruling dynasties were forced to reside elsewhere, resulting in later rulers opting to remain in their own territory rather than moving to Tara itself (*ibid*.).

Ultimately, it is difficult to determine whether the link between Uí Eachach Mumhan and Lisnacaheragh is historical or a later folk reimagining of the Garranes landscape. Ryan's argument, that Eachach may have been a founder of the site—although Eachach matches the timeframe of the archaeological finds—is a circular one, as it assumes the premise that the site originally belonged to Uí Eachach Mumhan in the first instance. Furthermore, it is also debatable whether Eachach was even a historical figure considering that the early genealogies are shrouded in mystery, mythology, corruption, fabrication and deceit (Dumville 1977), particularly those of Eoghanachta and Dál gCais (Kelleher 1967). If one assumes that Lisnacaheragh is Ráith Raithleann, then much of the detail relayed in the poem is also clearly fanciful: for example, the pronouncement that Cian mac Maolmhuaidh resided there, as discussed above, and the naming of one of the satellite forts in the south of Ireland after Cúán Ó Lothcháin, an Uí Néill poet, who was regarded as *ollamh* of Ireland and killed *c.*1024 (Mac Airt *et al*. 1983, 462; see quatrain 14 and note 14*c*). Despite these difficulties, an *ogham* stone was discovered in one of the forts around Lisnacaheragh, which was mentioned, but not discussed, by Canon Lyons (1896 451); the inscription reads *C[A] SSITTAS MAQI MUCOI CALLITI* (Macalister 1945-9, no. 81). Edel Bhreathnach (2013, 163) identifies the *MACOI CAILLTI* here with Clann Laoghaire, additionally known, according to the Book of Leinster, the Book of Ballymote and the Book of Lecan, as Ceinéal Caollaidhe (O'Brien 1976, 218), a sept of Eoghanachta, who descended from Caoillaidhe mac Conaill. This Caollaidhe mac Conaill is reputed to have been the grandson of Nadfroích, a progenitor of many of Eoghanachta dynasties, and supposed brother of Cas, from whom Uí Eachach Mumhan derive (O'Brien 1976, 195-6).

If Bhreathnach's identification is correct, and assuming the *ogham* stone remained *in situ*, then this serves as early positive evidence, if not for Uí Eachach Mumhan, then for the existence of other branches of Eoghanachta in the area.

Date and authorship

Contradictory information is given as to the supposed author of *RR*: the prologue (Best 1904, 98) and verse 27 attribute it to the aforementioned Mac Giolla Caomh, while Mac Líag is named as the composer in verse 21. The poem, as published by MacNeill in *Irisleabhar na Gaedhilge* (*InaG*), rectifies this inconsistency by presenting quatrains 22-27 as constituting an independent poem attributed to Mac Giolla Caomh, while 1-21 are said to be composed by Mac Líag (MacNeill 1896, 70-1; see note 21*a*). Of the manuscripts surveyed (see below), the *InaG* version is the only text to configure the poem in this way; unfortunately, MacNeill never disclosed the manuscript he utilised, nor did he outline his editorial procedure, and therefore, the degree to which MacNeill faithfully represented the manuscript tradition remains unclear.

While the figure Mac Giolla Caomh is relatively unknown (Ní Úrdail 2014, 158-9), Mac Líag is traditionally reputed to have been the *ollamh* of Brian

[5] Eachach is reportedly the grandson of Corc, and the eponymous ancestor to Uí Eachach Mumhan (Ó Riain *et al*., s.v. Ceineál Laoghaire (2), Ceineál Aodha (1) 1962, 210, 211, 384; see notes 19*a* and 20*a*).

Bóramha (Ó Lochlainn 1942; Ó Lochlainn 1943; Ó Riain 2007, 57-58), who according to the Annals of Ulster died in 1016 (Mac Airt *et al.* 1983, 450). Mac Líag's association with Brian, and the reference to his death in the annals, places his *floruit* firmly in the Middle Irish period. The language of the poem, however, is evidently not Middle Irish, and therefore the claims of Mac Líag's and Giolla Caomh's authorship appear to be anachronistic. Falsely attributing verse to famous poets, historic or otherwise, was common practice in Irish tradition; the cases of Mac Líag and Mac Coise (see footnote 2) appear to be no exception. Ó Lochlainn (1942, 208; 1943, 36) has argued that many of the poems associated with them belong linguistically to periods much later than the eleventh century, which has even led Ó Lochlainn (1942, 208) to question the poets' very existence.[6] Indeed, Ní Úrdail (2013, 7-8) and MacNeill (1896, 69) have also commented on the relatively late nature of the language of *RR*, MacNeill arguing that if the poem is truthfully attributed to Mac Líag, then it has undergone such alteration that no remnant of the original Middle Irish remains, thus rendering the text as a completely new composition. Furthermore, Ó Lochlainn (1943, 36) has questioned the language of *LO* / *CMG* in its entirety, assigning it to the late seventeenth century at its earliest as the language, both 'prose and poetry, is far more modern than Keating'. The fact that *RR*, *LO* and *CMG* are preserved in post-classical sources only, all dating later than 1700 (Ní Úrdail 2011, 257-67), would tend to support Ó Lochlainn's claim.

However, some features of Classical Modern Irish and Early Modern Irish that would be considered somewhat archaic for the late seventeenth century are retained. These include the distinction between *re* and *le* (Williams 1994, 462; e.g. quatrains 4 and 5); possibly, the retention of *uaithibh* as a third plural (quatrain 4) rather than *uatha* (see note 4*c*); the verbal forms *do chinnsat* (verse 4, note 4*a*), and perhaps *mórsvm* (verse 21, note 21*c*); and a singular use of an infixed pronoun, *ro-m-chráidh* in verse 17 (note 17*b*). These are the exception, however, suggesting that the poet sometimes attempted to imitate older language. Ultimately, the linguistic evidence would place *RR* at the cusp of the early modern Irish and Modern Irish periods, *c.*1650-1700, not much older than the extant manuscripts themselves.

Editions and Manuscripts

RR has been edited twice without translation: first by MacNeill (1896, 67-70) in *Irisleabhar na Gaedhilge* (*InaG*), and then by Best (1904, 98-81), as part of his edition of *LO* in the first volume of *Ériu*, where *RR* appears within the *CMG* episode. Unfortunately, as mentioned above, MacNeill never disclosed the manuscript he utilised, nor did he outline his editorial procedure. Although the manuscript MacNeill used is yet to be identified, it is clear from a cursory perusal of the *apparatus criticus* that the *InaG* version is related to TCD MS 1416 (H.6.12) [**F**], and particularly to RIA MS 258 (23 G 25) [**G**]. Conversely, while Best was undertaking his edition, he was aware of ten manuscripts containing *LO* and / or *CMG*. Of these, he utilised RIA MS 756 (23 E 26) [**B**], compiled by Seón Mac Solaidh, as his base text, as he believed it to be written in 1711, making it the earliest witness, and the best version overall (Best 1904, 75). Ní Úrdail has since questioned the date of 1711 assigned by Best to B, arguing that it does not appear in the manuscript itself, and would instead give 1718 as the earliest date of compilation (2011, 258; 2013, 151). Furthermore, Ní Úrdail (2011, 257-64; 2013, 150-2), while examining *LO* and *CMG*'s transmission history, identified a further 26 examples of *LO* / *CGM* (thus 36 in total); of these, ten feature *CMG* as an independent text. All manuscripts were written post 1700 (Ní Úrdail 2013, 6, 14; 2011, 265-7). There was, however, an upsurge in the cultivation of *LO* and *CMG* from *c.*1720 onwards with some scribes being responsible for multiple copies (Ní Úrdail 2011, 257-67), particularly those associated with the Ó Neachtains (2013, 151-2). Not all manuscripts identified contain the poem *RR*.

One of the stand-alone *CMG* accounts identified by Ní Úrdail (2011, 265; 2013, 162), TCD MS 1416 (H.6.12) [**F**], could have been compiled as early as 1705, and would therefore precede any of the texts which are entitled *LO*. The early eighteenth-century date, as mentioned previously, is provided by a colophon written by Pádruic Ó hÉthir in section 3 of the manuscript; however, *CMG* features in section 2, which was written by a different scribe, 'Seagan do Róiste', and therefore it is uncertain if this date also pertains to *CMG* and *RR* here (Ní Úrdail 2013, 162). Given that the *CMG* episode exists as a stand-alone text, coupled with the possibility that **F**'s account of *CMG* may be the earliest witness, Ní Úrdail (2011, 1, 14, 16; 2013, 78-82) argues that *LO*, as we know it from Best's edition, was originally composed of a series of discrete items that were drawn together to create a composite text.

Further support for Ní Úrdail's claim may be found in the categorisation of *LO* in some of the codices themselves. For instance, some manuscript contents pages containing *LO* explicitly refer to the *CMG* episode by that title, e.g. **B** (7a): '*Cath Muighe Guilidhe*'. *LO* is further divided according to the same contents page into '*Leabhar Oiris* ⁊ *Annála*' and '*Cath Chluana Tairbh*'. The contents of *LO* are often differentiated in the title of the work itself in some manuscripts also, for example, RIA MS 485 (23 N 30) (pg. 240) '*An Leabhar Oiris* ⁊ *Tuarasgabháil Chatha Cluana Tarbh agus Analadh …* ⁊ *Imeachtuibh … an Chaithe sin … Mhuighe Guilidhe*'. In

[6] O'Leary (1999, 64, 68-9) has more recently called the existence of Mac Coise into question.

contrast, the *CMG* account in RIA MS 973 (23 M 47) was clearly copied from a version of *LO*, as the title explicitly states: '*Ag so roinn don Leabhar Iris iar ccríochnuaghadh Chatha Chluana Tairbh*' (Ní Úrdail 2011, 261) 'Here is the section of *LO* following the battle of Cluan Tarbh'. Given the complex nature of the textual transmission, the original make-up of *LO*, whether as a single or as a composite text, is uncertain (Ní Úrdail 2013, 14). Fischer (2016), in contrast to Ní Úrdail, would see the contents of *LO* as a single entity.

Given the large number of copies of *LO* / *CMG* (36 in total), it was difficult to decide on the most effective editorial method, as it was not possible to consult all the relevant manuscript witnesses. Therefore, it was decided to select eleven copies from the manuscript corpus, while also including the published version in *InaG* for this edition. The eleven manuscripts were selected based on four criteria:

1. The date of the manuscript. Preference is given to the earliest copies. That is not to say that the earliest manuscripts will contain the best readings since superior versions can often be found in later manuscripts. However, by concentrating on eleven of the earliest witnesses, there should be enough of a sample size to shed light on the exemplar(s) utilised in the earliest known phase of dissemination.

2. Not all manuscripts contain the poem; therefore, naturally, only those including *RR* were consulted.

3. I only had access to those manuscripts that are accessible digitally or on microfilm. Consequently, the copies of *LO* preserved in Cashel MS 22 and NUI Maynooth MS C 98 were not consulted for this study (see below). However, it remains unclear whether or not these manuscripts even contain the poem, since the poem itself is not alluded to in the description of the manuscripts' contents in their respective catalogues.

4. Finally, the base text was chosen on the basis that it contained the more reliable readings and more archaic forms (see below). In the case of the latter, one must be cognisant of the predilection of some scribes to deliberately archaise the texts they copied in order to afford them a higher degree of prestige. Therefore, just because a text appears to preserve archaic forms does not necessarily mean that they are the original readings. However, regarding *RR* itself, a case can be made that the more archaic readings were in the earliest copy of the text because most of the *variae lectiones* appear to be corruptions of these older forms (see notes 4*a*, 21*c*, 17*b*). This indicates that these readings may have appeared in the original exemplar itself, although they may have been archaic even for the period in which the poem was composed.

Of the four earliest examples, all written by Diarmaid Ó Conchubhair (Ní Úrdail 2011, 257-8), RIA MS 549 (23 L 4) omitted *RR*, while Cashel MS 22 and NUI Maynooth MS C 98 are not available on microfilm. Ó Conchubhair's fourth example, TCD MS 1296 (H.2.5), written between 1711-1712, is the earliest definitively dated witness (Ní Úrdail 2011, 257); however, the text has been described by Best (1904, 75) as 'not so good as the preceding [manuscripts mentioned]', and it also corrupts some of the older linguistic forms found in other witnesses: for example, *do chinnseadh* for *do chinnsat* in 4*a*, and *um chrádh* for *ro-m-chráidh* in 17*b*. For these reasons, TCD MS 1296 (H.2.5) has not been chosen as the base text; it has, however, been consulted, and is denoted by the letter **T**. Likewise TCD MS 1416 (H.6.12), which may date to 1705 (Ní Úrdail 2011, 265; 2013, 162), was also not chosen as the base text, on the grounds that the ascribed date is uncertain, and it too corrupts many of the older forms. For instance, *rom chrádh* for *ro-m-chráidh* in 17*b* (see note 17*b*), and *dhíobh* for *uaithibh* in 4*c* (see note 4*c*). It has, however, been consulted and it is referred to by the *siglum* **F**.

This leaves two manuscripts as the next earliest witnesses: RIA MS 756 (23 E 26) [**B**], the same text as that chosen by Best, and RIA MS 757 (24 A 2) [**A**], completed some time between 1718-1723 (Ní Úrdail 2011, 258). Coincidentally, both were written by Seón Mac Solaidh. The order and contents of the manuscripts suggest that one is a copy of the other (Ní Úrdail, 2011, 258-9), Like Best, I have chosen **B** as my base text.

The following is a list of the other manuscripts consulted based on criteria (1) and (2) above:[7] RIA MS 485 (23 N 30) [**M**], written by Tádhg Ó Crónín in 1739 (*ibid*., 259); TCD MS 1287 (H.1.13) [**D**], penned in 1743-6, and TCD MS 1280 (H.1.6) [**E**], written in 1758, both by Aodha Ó Dálaigh (*ibid*., 260); RIA MS 973 (23 M 47) [**Y**] penned in 1775-6 by Seaghan Ó Conuill (*ibid*., 261-2); RIA MS 689 (23 P 13) [**P**], undated, but written by Seón Llyod, whose death in 1786 provides a *terminus ante quem*; BL MS Egerton MS 105 (**C**), by an unnamed scribe, written *c.*1801 (*ibid*., 62); and finally, RIA MS 258 (23 G 25) [**G**], penned in 1809-13 by Mícheál Óg Ó Longáin (*ibid*., 265).

[7] See Ní Úrdail (1911, 257-67) for a more detailed discussion of the manuscripts.

Editorial Method

Given that the language of *RR* appears to be late, and the fact that the text is only found in post-classical manuscripts, it was decided not to emend the text in accordance with the strict rules of *dán díreach*, but to faithfully transcribe it as found in **B**. This approach also extends to unstressed vowels, including retaining *a* for preposition *i* (12*b*), and not differentiating between *do* and *de* (7*d*). Whenever letters or words are added, this is indicated by square brackets, while curved brackets are utilised to denote letters or words that ought to be omitted. Acute accents are used when long vowels are marked in the manuscript itself, macrons when inserted by the editor. Contractions are expanded using italics; there are no instances of silent expansion. Capitalisation and punctuation are, however, editorial.

The same conservative approach is not employed in the *apparatus criticus*. Here, all expansions are silent. Insignificant orthographical variants are not provided in the *apparatus criticus*; instead they are standardised and indicated by the phrase *vel sim*.

Ráith Raithleann, Ráith Chuirc is Chéin

1. Rāith Raithl*eann*, [i][R*áith*][i] Chuirc is Chéin,
t*ru*agh, a Dhé, ma*r* atā ano*cht*,
gēr b'iomdha giolla glan g*a*oth
do bhíodh t*a*obh re t*a*obh sa phort.

2. Cr*ēad* fā sloinn*tear* í ón tria*r*,
Raithleann agus Cian is Corc?
A lomadh mā's feir[r]de libh,
do-dh*ē*anta*r* liom sin g*an* lo*cht*.

3. Do rīoghadh a cCaisiol chorr,
Corc m*a*c Luighdh*ea*ch na ccorn bhfíal,
cíos-cháin Mum*han* dhō dā thigh,
do-bheirthí sin ōn tír thia*r*.

4. Do chin*n*sat Muimhnigh na sluagh,
ar chomha[*i*]rle—fa mōr rath—
a rādh uai[thi]bh re Corc na ngíall,
"druid sia*r* a ccoinn*e* na ccath."

Ráith Raithleann, Ráith Chuirc is Chéin

1. Ráith Raithleann, stronghold of Corc and Cian,
pity, Oh God, how it is tonight;
although, it was many a pure wise lad,
who used to be side by side in the fort.

2. For what reason is it named after the three:
Raithleann (Raithliu) and Cian and Corc?
Its revealing if you wish,
I will do that faultlessly.

3. Inaugurated in round-hill Cashel:
Corc mac Luigheach of the generous drinking-horns,
tax-tribute of Munster for him [and] to his house—
that used to be brought from the western territory.

4. The Munstermen of the hosts decided,
upon advice—it was of great advantage—
to say to Corc of the hostages:
"move westward towards the battles."

1*a* [i-i] *supplied by* MDETPGFH. **1*b*** truagh] is truagh DE; a Dhia. **1*c*** gaoth] grinn DEP gaoith H. **1*d*** do bhíodh] do bhí MDETYH; taobh] *om.* Y.

2*b* is] *om.* PG. **2*c*** a lámhadh MYH a lámha DTP láim E a loma G; má's] mádh YA má TPGF; libh] *om.* F. **2*d*** do-dhéantar] do geabhair F do gheabhthar *InaG*; liom] lem M leam H uaim G*InaG*.

3 *this verse is om. in* Y. **3*a*** ríoghaidh P ríogach G; chorr] cóir MDEPH. **3*b*** ccorn] gcrann (*vel sim.*) MDG*InaG*; bhfíal] fiar MDETPGAFH. **3*c*** dhó] *om.* G*InaG*; dá] ina thigh DETP. **3*d*** do beirthaoi (*vel sim.*) AFMHTGEP do bearthaithe D; shiar GF.

4*a* do chinn sead AP*InaG* do chinnseadh T do chinn siad DEGF do chinn siod Y; muimhneadh P muimhnicc G. **4*b*** ar ccomhairle F. **4*c*** uaithibh] uaidh E dóibh G*InaG* dhíobh F; re] le FG*InaG om.* MDETPYH; ngiall] ccliar FG*InaG*. **4*d*** druidim F; ccath] ccreach G*InaG*.

4*d*-5*a* *om. in* DP, *and recommences with* **5*b***; E, *by the same hand as* D, *continues as normal.*

5. Raithleann, buime Chuirc na ngiall,
b*ea*n Torna, dār gh*i*all g*ach* dá**i**mh,
do ch*uaidh* lais na fuighlibh soir,
do chan sin a ndubh*air*t cāch:

6. "Do-dh*ē*an do chomh*u*[i]*r*le, a bh*ea*n,"
a*r* m*a*c Luighdh*ea*ch na [i]bhfle*adh* bhfua*r*[i],
"dā bhfāg[h]tha*r* longph*o*rt fam' mhian
dhamh thi*ar* a ngoire na sluagh."

7. Do tochladh caisiol is rāith
le Muimhn*ea*chuibh—[i]níor bháigh mhion[i]—
a ccomh*air* Chuirc Chaisil chaoimh,
[ii]do bhain a mhaoith do g*ach* fior[ii].

8. Sul rāinig go Ráth na cCúach

naisgios Raithleann luach ar Chorc:
an rāith d'anmnúgh*adh* dhí f*éin,*
[i][cia tá a*ir* ainm eile ano*cht*][i].

5. Raithleann, foster-mother of Corc of the hostages,
Torna's wife, to whom every company gave homage,
she went eastward with the remnants,
he declared this which everyone said:

6. "I will heed your advice, Oh woman,"
said the son of Lughaidh of the refreshing feasts,
"if one were to find a stronghold to my liking
for me in the west near to the hosts."

7. A fort and a rath were constructed,
by the Munstermen—no small boast—
for Corc of pleasant Cashel,
who removed from every man his weakness.

8. Before she reached Ráith na gCuach (The Fort of the drinking Cups)
Raithleann bound Corc to a reward:
to name the fort after herself,
although it is known by another name tonight.

5*a* buinne MEH buimeadh F; ngiall] ccliar FG*InaG*. **5*b*** daim TGF dámh MH. **5*c*** lais] ris F; soir] sin G*InaG*. **5*d*** sin] soin GF sisi *InaG*; cáich MHGF.

6*a* do dheanadh DE; a] *om.* T. **6*b*** [i-i]bhfear bhfuar M bhfíor bhfuar D bhfleadh mor E. **6*c*** bhfáthadh E bhfathar TP bhfaghtar GH bhfádhthar Y bhfághthaoi *InaG* do bhádhadar D. **6*d*** dam FH dom' *InaG*; thiar] siar MH tsiar E shiar FY; na sluagh] an tsluadh F don tsluagh *InaG*.

7*a* tochlach G; is] na G*InaG*. **7*b*** [i-i] níor bhádh mion B níor bhaidh mion AMDETPYCH níor maoidh(each?) mionn G nár mhuidh mionn *InaG* níor bhiadh mian F. **7*d*** do bhain] do bhean MDTPFHE; mhaoith] mhaoth TG*InaG* mhaoidh P mhuigh D a bheith F; fer D fíor T; [ii-ii] do mhian a mhuighe gach fir E.

8*a* solfa E sull T; do ráinigh FG; go] *om.* G. **8*c*** dhí] dhó D. **8*d*** [i-i] *supplied by* DET gidh ar ainm eile atá anocht ABTC gidh tá air an ainm eile anocht MH gidh atá air ainim eile anocht P gidh ainm oile atá anocht G gidh ainm eile atá uirthi anocht *InaG* gidh iar ainm ata anocht F Giodh ta ar a n-ainim eile annocht Y.

9. Faomh*as* mac Luighdh*ea*ch an*n*sin
don mnaoí do oil é 'na dún,
Rāith Raithleann do bh*eith* dā gha*ir*m
[i]go brāth [m*ar* ainm] ar an múr[i].

10. Ríoghaid Muimhnigh dā ēis sin,
Cian m*ac* mheic B[h]roin—[i]dea*r*bh*a* s[h]éimh[i]—
is uime sin ta(*i*)*r* ēis cháich,
tugadh ar an ráth, Ráth Chēin.

11. Trí hanmonna Rātha Chuirc
do lom*as* duibh—gē bē fāth—
dā ēis as é [i][rug][i] mo shnuadh:
gan [ii]mac Maoilmhuadh[ii] isan ráth.

12. Ráith Shaidhbhe inghine Bhriain,

diaidh a ndiaidh, is Ráith Chéin,
ó do thuit siad [i]l*eath* ar l*eath*[i],
truagh an bh*ea*tha bheith dā n-ēis.

9. The son of Lughaidh conceded then
to the woman who fostered him in her stronghold,
Ráith Raithleann to be called
forever as the name of the dwelling.

10. The Munstermen inaugurated after that
Cian grandson of Bran—gentle certainty—
that is why after him,
the stronghold was called Ráith Chéin (the Fort of Cian).

11. [The] three names of Corc's stronghold,
I have revealed to you—whatever the reason—
it drained my complexion afterwards:
the son of Maolmhaudh not being in the stronghold.

12. Ráith Shaidhbhe (the Fort of Sadhbh), daughter of Brian,
and Ráith Chéin, bit by bit,
once they fell side by side,
pitiful the life to be after them.

9*a*-9*b* *inverted* G*inaG*. **9*a*** faomhas] aomhuis D fhaomhas E faomhas ansin G; annsin] *deleted and inserted following faomhas* G a rún *InaG*. **9*b*** 'na dún] 'na dhún TPYH. **9*c*** dá ghairm] mar ainm DETPYHAG*InaG*. **9*d*** [i-i] mar ainm don dun C go brath da ghairm ar an múr AB mar ainm air an múr M go bráth mar ainim air an múr PYH go bráth air an múir DET go bráith d'á ghairm den dún G*InaG* Go brath da ghairm don muir F.

10*a* ríoghaidh MP ríogadh DT ríoghthe E; Muimhneach D Muimhnicc PG. **10*b*** Cian] Corc *inserted before Cian* Y; mheic] *om.* G; [i-i] dearbha an sgéul E dearbha seann F. **10*c*** chách TYGF

11*a*-12*b* *om. in* Y, *continues instead with* 12*c*.

11*a* hanmnaibh D hanmna E hainiomna F hainmniochadh (*vel sim.*) TPG; Rádh D. **11*b*** liomas D; díbh MPGH daoibh *InaG* dhíbh FDE; cia MDE gidh P. **11*c*** as é] is eadh (*vel sim.*) AHMDETP; [i-i] *supplied by* CFHMDETPG*InaG* thug AB; shnógh MT shnó P [sh]nua E shnuagh FG*InaG*. **11*d*** gan] go M; [ii-ii] Cian mac Maolmhuaidh G; isan] do bheith san G.

12*a* ingean DE. **12*b*** a ndiaidh] ar ndiaidh (*vel sim.*) THPG*InaG*. **12*c*** do thuitsiod B do thuit sead AH do thuiteadar F; [i-i] leith ar leith DE leadh air leadh C. **12*d*** truagh] is truagh G; an] mo DP*InaG*.

13. Rāth na bhFi*leadh*, Rāth na mBan,

an dá ráth do cha*r* ma*c* Mha*o*lmhu*ai*dh,
gan a*cht* a ttaisi dá n-ēis,
as é do-bheir mé *gan* snúadh.

14. Ráth Chūāin, an ráth úd thoir,

ollamh [i][meic][i] mheic Bhroin go mbáig,
Ó Lo[th]chāin, fa maith an ts*aoí*
do thig*eadh* gach l*aoí* [ii]don ráith[ii].

15. Rāth Chuilcīn, crutai*r*e an chnuic,
truagh ma*r* do thuit *ta(i)r* ēis chāich;
[x]dob' aibhs*ea*ch lin*n* bin*n*e a mhéar,
nó go nd*ea*ch*aidh* d'*ēag* san rāith[x].

16. Dún Droighneín, an dún-sa thuaidh,

Ó F(h)ēichīn nár chruaidh re dáimh;
fosgadh a stuic mhūirnigh mhóir,
do chlui[n]dís na slóigh san rāith.

13. Ráith na bhFileadh (the Fort of the Poets), Ráith na mBan (the Fort of the Women),
two strongholds that the son of Maolmhuadh loved,
only their ruins [remain] after them,
it is that that has drained my complexion.

14. Ráith Chúáin (the Fort of Cúán), the fortress in the east yonder,
the Ollamh (chief-poet) of bold Bran's grandson,
Ó Lothcháin, great was the sage,
he used to come every day to the stronghold.

15. Ráith Chuilchín (the Fort of Cuilchín), harper of the hill,
a pity how it fell after him;
we thought his fingers most melodious,
until he died in the stronghold.

16. Dún Droighneín (the Fort of Droighneín), that fort in the north,
Ua Féichín who was not harsh with company,
shelter of his great, dear race,
they used to hear the hosts in the stronghold.

13*a* bhfileadha GYH bhfile E bhfilighe DP bhfilidhe F. **13*b*** an] *om.* FMTG*InaG*; do char] do chuir MDTPYH do thosg E. **13*d*** do-bheir] bheir H.

14*a* ráth úd] ráith seo (*vel sim.*) G*InaG*; thoir] tsoir MDPH shoir FG. **14*b*** ollamh] ó ollamh G; [i-i] *supplied by* MDTP, *om.* in BAECG*InaG*; mbáidh BAC mbiadh MTPH mbiodh E mbuaidh DY FG*InaG*. **14*c*** Ó Lochlán MH Ó Lachan DP Ó Locháin FEG*InaG* Ó Lochán TY; math FT. **14*d*** do thige E thagach TP; laoi] lá DEH; [ii-ii] fá chuaird G*InaG*.

15*a-d* *quatrain 16 follows quatrain 14 in* FG*InaG*. **15*c-d*** [x-x] G*InaG substitutes 15c-d with 17a-b*. **15*a*** Chuilchinn *InaG*. **15*b*** chách MTGHF. **15*c*** do] *om.* F; b'] *om.* YH; aidhbhiseach MTPH; binne F; mhéir P. **15*d*** ndeachadh TH; a d'éag E.

16*a* Droighnáin MH Droighnín DTEP Draighneáin *InaG*. **16*b*** Uí Sheicinn *InaG* Ó Feithín F Ó Druighnéin G; re] le G*InaG* **16*c*** fosgar D fosga FTP; mhuirnighe DE.

17. M*a*olān is [i]Mear*a*gān Mór[i],
[ii]dhá ōinmhid na slógh ro-m-chráidh[ii],
fa meinic iad fare Cian,
fa hanamh Cian 'na dhá ráith.

17. Maolán and Mearagán Mór,
two of the hosts' jesters who tormented me,
it was often they were with Cian,
it was seldom Cian was in their two forts.

18. Ráth an Dóir(i)seóra do-chím,

truagh mar bhīm is mar [a]táim,
[i]níor thig Dubhthach ar thigh mór[i],
[ii]is ní t[h]igim-si don ráith[ii].

18. I see Ráith an Dóirseóra (the Fort of the Doorkeeper),
pity as I am wont to be and as I am,
Dubhthach did not come upon a big house,
and I do not come to the fort.

19. Marthain*n* do chlain*n* Eachach ch*a*oimh
don drui*n*g fa mór *a*oibh is ágh,
fa hiomdha giolla, cr*ea*ch is giall
do bheirdís go Cian don ráth.

19. Those still living of noble Eachach's progeny,
of the race of great beauty and prowess,
it was many a lad, plunder and hostage
that they used to bring to Cian to the stronghold.

20. Cinéil L*a*oghai*r*e mheic Fhloin*n*,
marthain*n* don chlain*n* fa mór ágh,
do bhīdís sin ag díol chliar,
an uair nach bíodh Cian 'san ráth.

20. Ceinéal Laoghaire son of Flann,
those remaining of the progeny whose valour was great,
they used to be remunerating poets,
when Cian used not be in the stronghold.

17*a* Maoilín D; [i-i] Merragán is Mór MH. **17*b*** [ii-ii] agus ní huaigneas don radh (*vel sim.*) DP (cf. **18*d***) tig dúbhach dar dtig mór / is ma do tigims-si don ráth F (cf. **18*c-d***) fa thanamh Cian gan iad do gnáth E (cf. **17*d***); óinbhid FG; ro-m-chráidh] ream chrágh (*vel sim.*) G*InaG* rom chrádh F dom chrádh D um chrádh MTHP mo chrádh E do chrádh Y. **17*c*** fare] re MDETYH le P faradh (vel sim.) FG*InaG*. **17*d*** thanamh ET.

18*a* do-chím] mar do-chím MDE mar chím YTPH. **18*b*** truagh] is trúagh DP*InaG*. **18*c*** [i-i] mór thig dúbhach air thig mór (*vel sim.*) AMTPH mór tig dubhachas air thiog mhór DE níor thug Dubhthach air thig mór C ní thig Dubhthach don tigh G ní thig Dubhthach gusan tigh *InaG*. **18*d*** ní thigim-si] thuigim-si B is thigeamaois (*vel sim.*) MY ní thuaigníos DTE ní thuaighneas P; don] fós don G*InaG*; [ii-ii] Agas ní huaigneas don Rath (cf. **17*b***) E is thigeamaois go Broin don Ráith Y.

19*a-d* M *substitutes 19 with 22*; H, *in the same hand as* M, *continues with 19.* **19*a*** marthaint G marthain *InaG* Mar ataim EDP mar táim TP. **19*b*** ágh] ádh DE áig F. **19*c*** giolla] *om*. FG*InaG* **19*d*** don] san G*InaG*.

20*a-d* *om. in* MH*InaG*. **20*a*** mheic] mac F. **20*b*** marthaint G; ágh] ádh DE áigh G agha F. **20*c*** chliar] a chliar F. **20*d*** nach] do Y; bíodh] bhiodh YF biodhbh D bíog T.

21. Is misi M*a*c Líag na n*Ea*ch,
maith an bhreith mo bh*eith* mar táim;
[i]mórsum taithl*ea*ch na n-each riamh[i],
an fad do bhí Cian san ráth.

22. Ráth Raithleann, an rāth úd thoir,
a mbíodh m*a*c mheic [i]Bhroin go mbuaidh[i],
is iomdha ríoghr*aidh*e dom' rēir
a n-aimsir Chéin mh*i*c Mh*ao*ilmhuaidh.

23. Bōthar na cCarbad so thuaidh,
go ttigdís sluaigh Chlainne Cais,
[i]um Chian m*a*c M*ao*ilmhuaidh m*hi*c B[h]roin[i],
nār f[h]ill [a]ríamh troigh ta*(i)*r ais.

24. D**ú**n Shaidhbhe, an dún-so thiar,
inghean sin do Bhrian U[a] Táil;
trī chēad b*ea*n do dhíoladh baird;
do [i]thig*eadh* le[i] Saidhbh don ráith.

21. I am Mac Liag of the Horses,
good is the judgement my being as I am;
we always praised the pacification of the horses,
while Cian was in the fort.

22. Ráith Raithleann, the fort in the east yonder,
where the grandson of victorious Bran used to dwell,
many a dynasty were under my authority
during the time of Cian son of Maolmhuadh.

23. This Road of the Chariots in the north,
that the hosts of Clann Chais used to travel,
regarding Cian son of Maolmhuadh son of Bran,
who never retreated back a step.

24. Dún Shaidhbhe (the Fort of Sadhbh), this fort in the west,
she was the daughter of Brian Ua Táil;
three hundred women used to pay poets;
they used to come with Sadhbh to the stronghold.

21*a-d* *om.* MH; *21 and 22 are inverted in* DETP; *21 follows 23 in* G; F *follows the same sequence as is presented here.* **21*a*** is] *om. GInaG*; Mac] *om.* DET; n-each] gcreach (*vel sim.*) G*InaG.* **21*b*** math T; bhreath FG*InaG.* **21*c*** [i-i] níor soim taithligheach ré neach ariamh D níor sháimh taithleach re neach ariamh EP mórsamh taithleach re neach riabh T níor / mór samh taithleach re neach riamh P ní rabhas taithleach le neach riamh FG*InaG*; na] re Y. **21*d*** fad] faid T tráth G; Cian] Brian G*InaG.*

22*a-d* *InaG ends with this verse, while quatrains 23-27, as printed here, constitute a separate poem in InaG*; *22 forms verse 21 in* G. **22*a*** thoir] soir MHG tsoir FP. **22*b*** a] mar a F 'na P ionna G; mbíog T; [i-i] bhroin na sluagh G*InaG* mac Maolbhuaidh na sluag F. **22*c*** is] ba F*InaG.*

23*a* thuaidh] ó thúaidh (*vel sim.*) ED. **23*b*** go] do DE. **23*c*** [i-i] um mhac Mhaolmhuadh go dian G a n-aimsir Céin mac Maolbhuadh F. **23*d*** fhill] phill D; [a]riamh] ariamh D riabh T; troigh] troith E; ais] n-ais Y.

24*a* Dún] Dúnadh AMT Dúnad H Dúna Y; thiar] shiar P shoir Y siar F tiar H. **24*b*** ingin BC; sin] í E; Ua] Uí D. **24*c*** baird] bard T. **24*d*** [i-i] thigeadh gach lá le *GInaG*; le] re D; Saidhbh] Saidhbhe DE Sadhabh F.

25. Āth na cCr*ea*ch, an t-āth so thīos,
[i]āth 'na ndēant*aoí* gnīomh n*ea*ch (n-)āigh[i]:

trí ch*ēad ea*ch [ii]le ccurth*aoí*[ii] srían,
do thig*eadh* le Cian don ráith.

26. Bōth*ar* na Muilte [i]so thīos[i],
[ii]thug sgíos ar mhórān do mhnáibh[ii],
c*ea*thrachad [iii]miach go (ma) n*aoī*[iii],
do thig*eadh* gach lao*i* don rāith.

27. Is mé Mac Giolla C*ao*imh cóir,
rach*ad*(*h*) don Róimh [i]dā ttig cách[i],
do cho[i]mhbhris mo chroidhe am' chlíabh,
g*an* Cian do bh*eith* isan ráth.

RÁTH.

25. Ford of the Spoils, this ford below,
[the] ford in which the feat of the person of valour used to be performed:
three hundred horses which used to be bridled,
they used to come with Cian to the fort.

26. This Road of the Mills below,
that exhausted many women,
forty sacks [of meal] accompanied by [each] child
used to come every day to the fort.

27. I am honest Mac Giolla Caoimh,
I will go to Rome to which everyone comes,
my heart broke completely in my chest,
without Cian being in the fort.

RÁITH.

25*a*-*d* *om.* MHDETPY; F *has swapped* **25*b*** *with* **26*b***, *while altering them slightly* (*see below*). **25*a*** thíos] shíos F shoir G*InaG*. **25*b*** [i-i] … gníomh neach (gníomhneach?) náigh BACG … gnímha áigh G*InaG* tug cios ar mhorán do mhnáibh F (cf. **26*b***). **25*c*** le] re G*InaG*; [ii-ii] ar a mbíod F.

26*a* Muilti-si ADY Molt-sa D Muilt-sa E; [i-i] an ród so shíos G an bóthar thíos *InaG*; thíos] tsíos ETP shíos YF. **26*b*** [ii-ii] Bóthar 'na ndéantaoi gníomh do ghnáth F (cf. **25*b***); sgrios DETP; ar mhórán] ar a maireadh G ar ar mhair *InaG*. **26*c*** [iii-iii] miach go ma naoi BACT miach go madh naoi M miach go naoi Y mac go ma naoi DH miach go mo naoi P míach go mab nais E miach go madraoi F mac ba mhaith gnaoi G*InaG*. **26*d*** thigeach TPF; laoi] lá DE.

27*b* rachad DEPGYF; [i-i] do thig cách AMTH dor tiogh cáich E go dtig cách (*vel sim.*) PG d'á dtéid cách *InaG* romhuibh go teach cách F go tiogh cáich DY. **27*c*** am] inmo DE um G. **27*d*** Cian] mac Maolmhuaidh DP; do bheith] bheith DP. RÁTH] *is written as a distinct dúnadh in the middle of the page in B, signifying the closing of the poem, and clearly separating it from the following prose.*

Notes

1*a* *[ráith]*: supplied from other copies to fulfil the syllable count.

1*a* *Ráith Chuirc*: Dún Cuirc is an alternative name for Caiseal (Ó Riain *et al*. 2008, s.n. Caiseal [1]).

1*d* *sa phort*: while *port* does predominantly mean 'place', in the later language it also comes to mean 'a royal residence', and by extension a 'stronghold', or 'fortress' (*eDIL*, s.n. *port*). I have interpreted *port* as meaning the latter here.

2*c* *lomadh*: *Lom(m)adh* has a wide semantic range and can mean 'destroying', 'plundering'. It can also mean 'to reveal, to lay bare' (*eDIL*, s.n. *lommad*). 'Reveal' better fits the context, as the poet subsequently goes on to disclose the answer to the question.

2*d* *do-dhéantar*: < *do-ghéantar*. It is difficult to interpret what *do-dhéantar liom* means as *do-gní* is primarily translated as 'to do (an action)', or 'to make'. *Do-gní* according to *eDIL*, can, however, mean 'to tell', where an example from *Buile Shuibhne* is cited: *dén-sa do slondadh dhamh-sa* 'tell your name'. *Do-ghéantar liom sin* may, therefore, be interpreted as a reflective passive with the prepositional pronoun *liom* denoting the subject, and *sin* 'the object'; hence, 'I will relate that', 'I will do that'; this would certainly fit the context as the poet subsequently reveals the answer to his question. Another possibility is 'believe', where an example from *Duanaire Finn*, albeit with the qualifier *creideamh*, is cited: *déna creidemh gan mhirún* 'believe' (*eDIL*, s.n. *do-gní*). By comparison, the *InaG* version and G have *do ghe(a)bhthar uaim sin gan locht* 'may that be taken from me', i.e. 'may you accept that from me'.

3*c* *InaG* provides a *lectio facilior*: *cíos is cáin Mumhan dá thigh* 'tribute and tax of Munster for his house'.

3*d* *Do-bheirthi*: from *do-beir*, which originally meant 'brings, gives, gets, puts' in Old Irish; however, during the Middle Irish period, it came to mean 'takes' (*eDIL*, s.n. *do-beir*, iv). The conception of the tax and tribute being brought to Caiseal in **3*c*-*d*** has its basis in *Lebor na Cert* 'The Book of Rights', which purports to outline the tax and stipends exacted by the king of Caiseal, as King of Ireland, from the regional kings under his dominion as well as the responsibilities of the said king of Caiseal to the lords of those regional kingdoms: '*Do dligeadaib chirt Chaisil ₇ dia chísaib ₇ dia chánaib ind ₇ ass andso sís, ₇ do thuarastalaib ríg Mumhan ₇ ríg nÉrind archeana ó ríg Caisil in tan da-fallna flaithis ind*', 'Here are the just dues of Cashel and its rents and taxes paid in and paid out, and the stipends of the king of Munster, and the other kings of Ireland from the king of Cashel, when sovereignty reigns there' (Dillon 1962, 2-3). Incidentally, Eoghanacht Raithleann / Uí Eachach Mumhan are mentioned numerous times in the text (*ibid*., 193), and are listed on several occasions together with peoples who were free from paying the king of Caiseal any tribute: '*trí ríg ... i lLeith Moga nach turgnad cís do ríg Caisil .i. rí Osraigi, rí Raithleand ₇ rí Lacha Lén*', 'three kings ... in Leth Moga do not pay tribute, i.e. the king of Osraige and the king of Raithleann and the king of Loch Léin' (*ibid*., 19). Furthermore, *LO* appears alongside *Lebor na Cert* in at least three manuscripts: B and A, albeit A is a copy of B (Mulchrone 1936, 756 [2331], 757 [2338]), and M (Murphy 1933, 485 [1298]).

4*a* *do chinnsat*: here and in the variants *do chinn sead* AP-*InaG*, *do chinnseadh*, we have evidence for the retention of the more conservative Classical Modern Irish 3rd pl. termination in *-sad* / *-sead* (McManus 1994, 408, 410). The introduction of the word break in the variants with *chinn sead* may be due to the copyists not recognising the form, and instead interpreting it as an orthographical variant of the analytic form with independent pronoun *siad* (cf. variants in DEGFY). Furthermore, the lenition of the *-d* in *do chinnseadh* may have been added by the scribe of T, Dermott O'Connor (Abbot 1900, 314; Ní Úrdail 2011, 257), who may have mistaken *-sead* for the passive termination in *-(e)adh*; however, the passive is syntactically irregular here as the subject, i.e. *na Muimhnigh*, is present. The termination *-sad* / *-sead* ultimately derives from the conjunct form of the s-preterite in Old Irish (*ibid*., 410; McCone 1994, 164), which later becomes the generalised form in Middle Irish (Breatnach 1994, 299, 301)—this was used alongside the preterite plural endings in *-ar*, e.g. 3rd pl *-(s)atar* / *-(s)adar*, which were taken over from the obsolete deponent verb (Breatnach 1994, 290, 301). These appropriated deponent endings, e.g. *-(se)adar*, are the commoner, and were also accepted in Classical Modern Irish (McManus 1994, 408). The deponent forms and analytic forms (cf. *thuit siad* **12*c***) are what one would expect here considering how late the language of the text is; *do chinnsat* is possibly an attempt at archaisation.

4*c* *uai[thi]bh*: the text reads *uaibh*, 2nd plural, 'said by you (plural) to Corc'; however, as it seems that the Munstermen are the ones providing the advice, I would consider *uaibh* here to be *ua(i)dhibh* / *ua*(*i*)*thib*, an alternative 3rd plural form of *uatha* (McManus 1994, 436). Emending the text in this way would appear to make the line hypersyllabic (cf. **19*c***); however, the medial *-dh-* / *-th-* may have been devoiced, and not pronounced. Or, given the *óglachas* nature of the poem, the poet may have intended the relative marker *a* to be silent. *Uaibh* is the most prevalent variant, but nonetheless seems semantically corrupt. Other witnesses provide *uaidh*, *dhóibh*, and *dhaoibh* as alternatives for *uaibh*.

5*c* *fuighlibh*: this word derives from Old Irish *fuidel*(*l*), Modern Irish *fuigheall* 'remnant'. *Fuigheall* can also mean 'survivor'; however, given the fact that the battle is yet to take place, which is evident in the anonymous order given in quatrain 4—*druid siar i gcoinne na*

ccath—I have chosen 'remnant'. It makes sense for the non-fighting contingent to go east prior to the battles commencing in the west.

5*d* *do chan sin*: it is difficult to determine the subject of *chan* here, i.e. whether 'he said' or 'she said' is intended, as there is no emphasising pronoun. *InaG* explicitly suggests that 'she (i.e. Raithleann) declared / sang': *Do chan sisi a ndubhairt cách*. However, it is unclear whether *sisi* appeared in MacNeill's exemplar, as he does not specify which manuscript he consulted and he may have emended the text accordingly. Conversely, *sisi* does not appear in G, the copy that is most similar to *InaG*; instead the demonstrative *soin* is found. 'He declared' is preferable, in my opinion, given the fact that Corc seems to be directly addressing Raithleann in the first line of the next verse: i.e. *do-dhéan do chomhairle, a bhean* 'I will heed your advice, Oh woman'.

6*a* *do-dhéan*: (< *do-ghéan*), simple future, 1st sing., Old and Classical Modern Irish form (McManus 1994, 400, 412). Alternatively, *do-ghéan* may be interpreted as the imperative, 2nd sing. 'let you heed your advice, Oh woman'. The future tense seems the likelier in my opinion. The variant *do-dhéanadh* in D and E may be a corrupted form of the more generalised 1st sing future termination in *-fad*, i.e. *déan*[*f*]*ad*(*h*). The ending *-adh* is usually confined to the preterite passive; the imperative, 3rd sing.; the imperfect indicative, 3rd sing.; past subjunctive, 3rd sing.; or the conditional 3rd sing., usually with medial *-f-*, i.e. *do dhéanfadh*. None of these tenses / moods with associated persons fits the context here.

6*b* *mac Luighdheach na bhfleadh bhfuar*: It seems odd that (*f*)*úar* an adj. meaning 'cool', or 'cold', would be used in an epithet for Corc; however, *fúar*, in a figurative sense, can mean 'refreshing', or 'pleasing' (*eDIL*, s.n. úar). This is the sense adopted in the translation. Fúar was probably chosen with the metre in mind, as nasalised *fúar* alliterates with nasalised *fleadh*, and *fúar* also makes perfect rime with *sluagh*.

6*c* *dā bhfāg[h]thar*: lenition has been added to *-g-* in *dá bhfag[h]thar*, in line with variants in GHY, in order to avoid confusion with the verb *fo-ácaib* 'to leave', i.e. *fágthar* This verbal termination is evidently corrupt as one would expect a past subjunctive following the conjunction *dá* 'if', terminating in *-tha*, or later *-thaoi*. Cf. the form *dá maireadh*, from the poem *Fada bheith gan aoibhneas ann*, where the 3rd past subjunctive is retained (Best 1904, 95; verse 2; see footnote 2 above). The fact that the majority of manuscript witnesses have similar forms in *-thar* points to an early corruption in the poem's transmission history. The one exception is *InaG*, where the past subjunctive passive *fágthaoi* is given. Although *fágthaoi* better fits the syntax, it cannot be said for certain that this was the original form in MacNeill's exemplar, as the degree to which he faithfully represented the manuscript is unclear. Furthermore, G, the text which displays the closest affinity with *InaG*, has the corrupt form.

6*d* *dhamh thiar*: *InaG* gives *dom' thiar*: i.e. prep. *do* + poss. adj. *mo* + *thiar*; however, I would see *dhamh* here as the prep. pron. 1st pers. sing. *Damh* is used ubiquitously in the B version of *LO* as a variant of the prep. pron. *dom*.

7*a* *do tochladh*: preterite passive of **to-claid* (> *do-claid* > *tochlaid*) which primarily means 'to dig', but can mean 'destroys', or 'constructs'. 'Constructs' is clearly the meaning here given the fact that the strongholds that were eventually built and their demise are discussed in later quatrains (*eDIL*, s.n. *do-claid*).

7*b* *báigh*: see *eDIL* (s.n. *bág*) for discussion regarding the confusion of *báig* and *báid*; this confusion is unsurprising as palatal *-gh* and *-dh* fall together from the 12th century onwards (Breatnach 1994, 234).

7*d* *maoith*: see *eDIL* (s.n. *maeth*) for instances of *mao(i)th* used as a substantive (see note: **7*d*** *do bhain*).

7*d* *do bhain*: the variant *do bhean* 'woman', MDTPFH, seems secondary: if it were the case that *do bhean* were primary, then *bean* ought to have been rendered in the dative sing. following the preposition *do*, i.e. *mhnaoi*; in this case, the preposition *do* in *do gach fior* should also be omitted. *Do*, in *do bhain*, is evidently the preverbal particle commonly used with the preterite, or in relative clauses, and not the preposition.

8*c* *dhí*: the variant *dó* 'for him', D, is evidently corrupt as Raithleann / Raithliu is female. This corruption is explained by the fact that D omits **4*d*** and **5*a***, where in **5*a*** Raithleann is described as the foster mother of Corc. Contrastingly, P, which also omits **4*d*** and **5*a***, has retained the feminine *dí*.

9*b* *'na dún*: the lenited variant in 'na dhún 'in his stronghold' is incorrect as Raithleann / Raithliu is a female.

9*d* [*mar ainm*]: B, the base text, repeats *dá ghairm* (see **9*c***), for that reason *mar ainm* has been substituted in line with CMPYH.

9*d* *múr*: derives from Latin *murus* 'wall', and usually means 'wall', or 'rampart'; it is used in the later language, however, especially in poetry, to denote a 'castle, mansion, or keep' (*eDIL*, s.n. *múr*). *Dún* is provided as an alternative reading; however, *múr* is more favourable here given the fact that *dún* is also found in **9*b***.

11*c* *rug*: only two manuscripts, B and A, both compiled by Seón Mac Solaidh, have *thug*; the others have *rug*, CFHMDETPG*InaG*. *Thug* originates from *do-uccai*, the preterite of which, *do-ucc*, tends to supplant the preterite forms of *do-beir* during the course the Middle Irish period (*eDIL, s.n. do-beir*). *Thug* predominantly means 'give' (*ibid.*); however, *rug* 'took, removed' is probably the better reading, bearing in mind that the sense of the idiom is that mac Maolmhuaidh's absence has caused the poet to look unkempt and haggard, or has caused his complexion to appear bloodless (see **11*c*** *as é rug mo*

shnuadh). Therefore, I have chosen to emend the text here. Best (1904, 99) also chose to emend *thug* to *rug*.

11*c* *as é rug mo shnuadh*: *snuadh* may be translated as 'colour, hue, complexion, appearance' (*eDIL*, s.n. *snúad*). Here the poet is attempting to express the negative effects Cian mac Mualmhuaidh's death has had on him. In that sense, all translations are possible as the poet may be referring to his haggard appearance, or his drained complexion and loss of colour. The same expression is used in **13*d***, *as é do-bheir mé gan snúadh*, which is attested under *snúad* in *eDIL* and translated 'tis this that leaves me bereft of colour'; but again, the precise sense of *snúad* is unclear. Despite the difficulty regarding the interpretation of *snúad*, *rug* / *do-bheir mo shnuadh* has been translated as 'drained my complexion' in **11*c*** and **13*d***, though 'caused me to have a haggard appearance' is also possible in both cases.

12*c* *leath ar leath*: in his edition of *LO*, Best (1904, 99) transcribes *leath ar leath* as *leith ar leith*. The phrase is abbreviated in B, his main exemplar; however, A, the copy most similar to B, also copied by the same scribe, Seón Mac Solaidh, reads *leath ar leath*. For this reason, I have chosen *leath ar leath* as the likeliest expansion. C, a copy of B (O'Grady, 1926 26), has expanded the abbreviation as *leadh air leadh*.

13*a* *bhFileadh*: T and other manuscripts abbreviate as *na bhfil·*. This abbreviation may have contributed to the form becoming modernised in DPF, as *bhfil·* can be expanded as *bhfilidhe* / *bhfilighe*.

13*d* *as é do-bheir mé gan snúad*: see note **11*c*** *as é rug mo shnuadh*.

14*b* *[meic]*: Best (1904, 99) emends the line to read *mac meic* 'grandson', rather than *mac* 'son'. The line without the emendation is corrupt nonetheless as it only has six syllables. The *InaG* version also omits the extra *meic* but compensates for the lack of syllables by adding *Ó* at the beginning of the sentence: '*Ó ollamh mhic Bhroin go mbuaidh*'. *Mac Meic* seems to be correct as this description for Cian occurs later in the poem: *i mbíodh mac mheic Bhroin go mbuaidh ... um Chian mac Maoilmhuidh mic Bhroin.*

14*c* *Ó Lo[th]cháin*: undoubtedly refering to Cúán Ó Lothcháin (cf. Ráth Chúáin, **14*a*)**, *ollamh* of Ireland, who worked under the patronage of Maolsheachlainn mac Domhnaill of Uí Néill, and who is said to have died *c.*1024 (Mac Airt *et al.* 1983, 462). See Downey (2008 and 2013) for further information regarding this poet.

15*c-d* the scribe of F, in line with G*InaG*, originally wrote **17*a*** 'Maolán is Mearagán' on the bottom of the page, following quatrain 14, as a catchphrase for the opening line on the next page, but later added *puncta* indicating that the catchphrase ought to be deleted, before continuing with 16.

17*b* *ro-m-chráidh*: the relatively archaic Class A infixed pronoun, 1st sing., which is a feature of Old, Middle and Classical Modern Irish and denotes the object of a clause, has been retained in BAFMG*InaG* (Breatnach 1994, 429; McManus 1994, 429-430). The variants in MTHY are evidently corruptions of this construction. *Ro* here is used as a relative marker, a convention of late Middle Irish, which continued into Classical Modern Irish (Breatnach 1994, 267; McManus 1994, 430). In Old Irish, Class C infixed pronouns were used in relative clauses; however, the class system pertaining to infixed pronouns collapsed during the Middle Irish period, resulting in class A forms becoming dominant (*ibid.*). D, conversely, has *do* for *ro*, i.e. *dom chrádh*; however, because of the de-palatisation of *chráidh* / *chráigh*, the scribe may have interpreted *dom crádh* as a verbal-noun construction, whereby the object is expressed by suffixing the adjectival pronoun, 1st sing. *mo* to the preposition *do*, i.e. 'annoying me', rather than '[they] annoyed me'. The rest of the variants seem to be borrowed from **18*c-d***.

18*c* *níor thig Dubhthach*: it is difficult to determine, due to minim confusion, whether B reads *níor* or *mór*. Best (1904, 100) chose *níor*. However, some of the other manuscripts clearly have *mór*, including A; whose readings are more like those of B than any other copy and which was compiled by the same scribe, Seón Mac Solaidh. C, which is a direct copy of B (O'Grady, 1926 26) has *níor thug*. If *níor* were the intended word, then the verb *thig* is in the incorrect tense, as one would expect the preterite following *níor*, i.e. *tháinig*. The reading *mór*, i.e. [*Is*] *mór a thig Dubhthach ar thigh mór* 'it is often that Dubhthach comes upon a big house' is semantically unsatisfactory. The noun *dubhthachas* is possibly a superior reading: *mór thig dúbhthachas ar thigh mór* '[it is] often depression / darkness comes upon a big house'. While the latter may seem the most satisfactory reading semantically, only two of the manuscripts have the form *dubhthachas* (see note **18*c*** *Dubhthach*). Ultimately, none of the readings are without their faults.

18*c* *Dubhthach*: it is probably best to interpret Dubhthach as a name, rather than the adj. 'dark', 'gloomy'. If the sense were 'darkness', 'gloominess', 'depression' then the noun *dubhthachas* would have been expected; however, only two of the manuscripts, D and E (see note **18*c*** *níor thig*), have interpreted it in this way, and they have emended the text accordingly. Clearly, a great deal of confusion has arisen in the transmission of this line.

19*a* *Eachach* : < *Eachu* is said to be the grandson of Corc mac Luighdheach. Eachach gave his name to Uí Eachach Mumhan (O'Brien 1962, 210, 384).

20*a-d* Verse 20 is omitted in *InaG*, but included in GF. This is one of the few occasions were the reading in *InaG* differs significantly from G.

20*a* *Cinéil Laoghaire*: a moiety of Uí Eachach Mumhan, named after their eponymous ancestor Laoghaire,

grandson (sometimes son) of Eachach (Eachu; see note **19*a***). Ceinéal Laoghaire were rivals of Ceinéal Aodha, Aodh, is also said to be a grandson (sometimes son) of Eachach, from whom Cian mac Maolmhuaidh derived (Ó Riain *et al*., s.vv. *Ceineál Aodha* (1) *Ceineál Laoghaire* (2); O'Brien 1962, 210, 211, 384).

20*c* *ag díol*: the sense of *ag díol* is obscure and open to interpretation. *eDIL* (s.n. *díl*) suggests: 'Legal act of discharging, recompense, retribution, sufficiency, act of satisfying (a debt), paying; act of entertaining (poets, mendicants, etc.), treatment, fitting or worthy, lot, fate, end, destruction'. Dinneen's *Foclóir Gaedhilge agus Béarla* (s.n. *díolaim*) also includes 'betray'. Ultimately, 'remunerating' was chosen as the poet is likely praising Uí Eachach's patronage of the poetic arts.

20*c* *clíar*: although mainly used to refer to clergy, *clíar* can also be used to denote 'poets', and 'learned men', who would once have been part of the clerical class (*eDIL*, s.v. *clíar*, *cléir*). 'Poets' is probably the intended meaning here, given the emphasis placed on poets in this part of *LO*.

21*a* *Mac Líag*: the poet here explicitly names himself *Mac Líag*; the poem is attributed to Mac Giolla in the prologue of *LO* (Best 1904 98) and in **27*a***. *InaG* has split the poem in two, whereby verses **1-21** constitute a poem of its own and is attributed to Mac Líag, while **22-27** form a separate text and are attributed to Mac Giolla. While this certainly rectifies the issue of supposed authorship, none of the other manuscripts surveyed has arranged the poem in this manner, including G, and it is therefore unclear whether MacNeill himself is responsible for this particular structure.

21*c* *mórsvm*: line ***c*** is evidently corrupt given the extent of manuscript variation. Best (1904, 100) transcribes *mórsvm* as *níor sum*, which is roughly in line with D and P. However, I am inclined to read it as *mórsvm* (*recte mórsam*), i.e. the Middle and Classical Modern Irish preterite of *móraid* 'praises' (McManus 1994, 408), for two main reasons: first, B clearly reads *mórsvm*, and this reading is also corroborated by AT *mórsamh*, C *mórsum* and Y *mórsaim*. The *-v-*, i.e. *u* in *mórsvm*—*v* for *u* and *vice versa* is common in inscriptions—and may have arisen due to the scribe of B, 'Seón Mac Solaidh', misinterpreting an open *-a-* for a *-u-* as these are often confused during transmission. The readings *mórsámh* (*vel sim.*) 'tranquillity' also seem secondary as the line would no longer be qualified by a verb, and may therefore have originally read *mórsam*, without lenited *-m*. Second, the older verbal ending *-sum* / *-sam* may be compared with *-sat* in *chinnsat* in **4*a*** (see note **4*a*** *chinnsat*). T, the earliest witness that can be dated with certainty, and *InaG* provide a *lectio facilior* in *ní rabhas taithleach le neach riamh* 'I was never peace[ful] with anyone before', but this is further removed from what is found in the other manuscripts. The variants with *re neach riamh* (*vel sim.*) also seem secondary, perhaps attempts at making sense out of the corrupt line.

23*b* *Clainne Cais*: i.e. Clann Chais, is a sobriquet for Dál gCais (*Ó* Riain *et al*., s.n. Dál gCais).

23*d* *[a]riamh*: emended in order to secure the syllable count.

24*b* *Brian U[a] Táil*: a sobriquet for Brian Bóramha.

25*b* *gníomh neach (n-)āigh*: although, *neach* here could be genitive sing. / pl., the line is syntactically corrupt: the palatalisation of *ágh* would suggest that *neach* is sing.; however, the nasalisation of the noun *ágh* contradictorily suggests that *neach* is a plural noun. It is important to be cognisant of the fact that nasalisation and lenition (initial mutations) are ubiquitously misplaced or used ahistorically in Classical Modern Irish poetry (Ó Macháin 1991, 276, 285). With that in mind, another possibility would be to take *neach* as *n-each*: *áth ina ndéantaoi gníomh* (*n-*)*each n-á(i)gh* '[the] ford in which the feat of the horses of valour used to be performed'; cf. **25*c*** where the feat of the bridling of three hundred horses is mentioned. Again, the nasalisation of *each*, in this case, would be erroneous as nasalisation should only follow nouns in the acc. sing., but *gníomh* here should be in the nominative following *ina ndéantaoi*, a passive. Furthermore, if *n-each* were intended, one would also expect *áigh* to be broad, i.e. *ágh*, reflecting the gen. pl. form. Best (1904, 101) emended the line to read *áth in-a ndéantaoi gníomh neach* (*n-*)*áigh*; I have also adopted this reading as it alters the text as little as possible.

26*b* *scíos*: can mean 'tiredness, weariness, fatigue', but also 'rest' (see Ó Dónaill's *Foclóir Gaeilge-Béarla*, Dinneen's *Foclóir Gaedhilge agus Béarla*, s.n. *scíos*, and *eDIL*, s.n. *scís*). 'Tiredness' may be the more appropriate interpretation given that the women mentioned were probably working in the mills of *Bóthar na Muilte*.

26*c* *miach*: D, *InaG* and H have *mac* for *miach*. G has *m* with superscript *c*, which is usually an abbreviation for *mac*, and has been interpreted as such, especially since *InaG*, which seems to bear the closest relationship to G, also has *mac*. I have interpreted *miach* to be the better reading because the prologue to the poem describes 360 sacks of meal entering Ráith Raithleann daily (see **26*c*** *ceathrachad miach go (ma) naoi*).

26*c* *ceathrachad miach go (ma) naoi*: this line presents several syntactic and semantic issues that will probably never be resolved. The fact that the line is similarly represented in the rest of the manuscripts surveyed is an indication that it became corrupt early in the poem's transmission history. The other witnesses, therefore, provide little assistance in rectifying these corruptions. The first issue presented is the meaning of *naoi*, i.e. whether to take it as the numeral 'nine', or the noun *naoi* 'a man, a person', or *naoidhe* 'a young child, a babe, an infant, a young girl' (Dinneen's *Foclóir Gaedhilge*

agus Béarla, s.vv. *naoi*, *naoidhe*). In the initial line of the quatrain, *Bóthar na Muillte* is mentioned, is it possible that children would have been responsible for bringing the produce of the mills of Bóthar na Muillte to the fort daily '*do thigeadh gach laoi don ráith*'. Therefore, 'child' was chosen as the most preferable interpretation; although, 'young girl' is also possible because women, '*do mhnáibh*' are referred to as working in the mills in the previous line. The second issue is the meaning and function of *ma*; it clearly features prominently in the rest of the manuscripts where it fluctuates between *ma* and *madh*. I had considered interpreting *ma* as the adv. prefix *mad*, a weakened form of *maith* ('good'), i.e. *go ma-naoi* 'with every good girl / child'. However, there are clear word breaks between *ma* and *naoi* in the manuscripts surveyed, which is problematic if one wants to take *ma* as a prefix, but more importantly, *mad* is strictly used with verbs only (*eDIL*, s.n. *mad*). This suggestion is therefore syntactically unsatisfactory. I also considered the possibility that *ma naoi* may be a corrupted form of *mnaoi*—the dative sing. of *bean* 'woman', interpreting the medial *a* as an epenthetic vowel (anaptyxis), i.e. *m(a)naoi*—again because 'women' are mentioned in the previous line. However, this too is highly unlikely considering that initial *mn-* is not recognised in any Irish dialect as a context for epenthesis. Another possibility may be to see *ma* as a corrupt form of the copula *mba* following the conjunction *go*. Given the difficulty in interpreting *ma*, I have chosen to omit it in accordance with what is found in Y; admittedly, this emendation does leave the line a syllable short. A third issue arises while interpreting *go*, i.e. whether to read it as the conjunction *go*, or the preposition *go* meaning 'with, (together) with, accompanied by', but also sometimes used as a means of denoting the instrument of a sentence 'by means of, through' (*eDIL*, s.n. *co*). According to the rules of *dán díreach*, the prep. *co* would prevent *miach* alliterating with *ma(dh)* (McManus 1994, 433); however, given the *óglachas* nature of the poem, it is doubtful that the poet would have considered such a restriction an issue. If one takes *go* here to be the preposition, then the line would directly translate 'forty sacks accompanied by a child (or young girl) [/ by means of child (or a young girl)] used to come every day to the fort'. Such an interpretation is also semantically unsatisfactory. Given the corrupt nature of the line and the lack of assistance afforded by the variants, there is little to do but to rely on the context of the quatrain. In the opening line, Bóthar na Muillte is mentioned; the name suggests that mills were located here. The second line suggests that women were hard at work in these mills, while the final line can be unproblematically translated 'that used to come every day to the fort'. Supposedly then, the third line is attempting to enumerate the amount of sacks of produce that used to enter the fort daily and how these sacks were brought there. Cf. also the following description in the prologue to *RR* (Best 1901, 98): '*Ní raibh Ráith Raithleann aon lá riamh gan ocht bhfichit* (*déag*?) *miach mhine do theacht innte*', 'Ráith Raithleann was never a day without 160 (+?) sacks of meal entering it'. I have therefore translated this line as 'forty sacks [of meal] accompanied by [each] child'. 'Meal' has also been inserted into the translation based on the description of *min* in the prologue. Ultimately, the interpretation of this line remains problematic.

27b *dá ttig cách*: some scribes have interpreted *tig* as the verb *tig* 'to come', as in B, while others took it to be the noun *tig*(*h*) / *teach* 'house': e.g. DF *go teach cách* / *cáich* 'to everyone's / his house'. Best (1904, 101) emended *cách* to *cáich*, gen. sing. of *cách*, but it can also be used as a nom., in the singular sense: 'being, person, he/she': *an cáich a chuaigh uaidh*, 'he who went from him' (Ó Dónaill's *Foclóir Gaeilge-Béarla*, s.n. *cách* 2); hence: '... to which he comes'. However, *cách*, as found in the manuscript, is also possible: '... to which everyone comes', for this reason I have retained the manuscript reading.

7.2 THE POLITICAL CONTEXT OF RÁITH RAITHLEANN, RÁITH CHUIRC IS CHÉIN

Lenore Fischer

Political background

Ráith Ráithleann or Rathliu was the royal seat of the Uí Eachach Mumhan, a somewhat junior branch of the Éoganacht federation; this branch also went by the name of Éoganacht Ráithlinn, presumably taking their name from the fort rather than *vice versa*. A sixth-century king of the Uí Eachach is recorded in the annals as ruling Cashel,[1] but the sept seems to have been excluded from the kingship thereafter (Byrne 1973, p. 195). The increasing helplessness of the dominant Éoganacht septs in the face of the tenth-century Viking base at Limerick, however, allowed for a power shift to the peripheries: to Dál Cais to the north and to Uí Eachach to the southwest. Thus Dub dá Bairenn son of Domnall son of Aengus, king of Uí Eachach, succeeded in taking the kingship of Cashel in 957 on the death of the Éoganacht Caisil incumbent. He lasted only two years, however, killed, as the *Annals of Clonmacnoise* say, 'by his own people' (*A Clon* 953.2 [=959])[2]. If Ó Riain's suggestion is correct that 'his own people' refers to Mael Muad mac Brain, king of a separate branch of the Uí Eachach, then we are seeing here the beginnings of a feud that was to escalate in the following century (Ó Riain 1988, pp. 23-4). In 967 Mathgamain of the Dál Cais defeated the Vikings and plundered Limerick; he took hostages from Mael Muad, now king of Uí Eachach, and from all those that had joined the Viking army against him (*AFM* 965.17 [=967] and *Cogad* LVI & LVII)[3]. Two years later the process was reversed, with Mael Muad marching against Mathgamain (*AI* 974.5),[4] and in 976 Mael Muad succeeded in bringing about Mathgamain's assassination (*CS* 976.2,[5] *AT* 976.2,[6] *AU* 976.1,[7] *AI* 976.3). Mael Muad's subsequent career as king of Cashel was cut short, however, by Mathgamain's younger brother Brian, who speedily set about avenging his brother's death. Brian killed Mael Muad in the battle of Belach Lechta in 978 (*AI* 978.2), and according to the *Cogad Gaedel re Gallaib*, a later somewhat fictionalized account of Brian's deeds, took hostages of all of Munster to the sea (*Cogad*, LXVI).

Leabhar Oiris

1. Cian as Brian's ally: §§ 1-22. Brian's rise to power, formula 'Brian and Cian' in §§ 2, 3, 5, 6, 7, 8, 13, 22.

2. The Battle of Clontarf: §§ 23-41. Brian's three battalions led by Murchad, Tadhg Ua Ceallaigh & Cian.

3. *Cath Maigh Guile*: §§ 42-46. After the battle Cian takes Donnchad mac Briain's hostages, but is challenged by Domnall son of Dub dá Bairenn of a rival Uí Eachach segment.

§§ 47-8 Domnall kills Cian and his brothers in the following battle of Maigh Guile.
Inneósad mo theist ar Chian -- elegy of 1 q for Cian by Mac Coisse.

§§ 49-50 Mac Liag compares Cian's generosity with Domnall Dub dá Bairenn's niggardliness.
Fada bheith gan aoibhneas ann -- 5 qq eulogy by Mac Liag praising Cian & other Dál Cais heroes.

§§ 51-3 Mac Giolla Chaomh story, in which Brian's generosity to Cian exceeds that of Aedh Ua Néill to Mac Giolla Chaomh --
Uathmar an oidhche anocht, -- 11 qq by Mac Giolla Chaomh remembering Brian's court.
Ráith Ráithleann Chuirc is *Chéin* -- 27 qq by various poets asserting Cian's right to kingship.

4. Later chronicle: §§54-72. 1014 (death of Brian, Murchad & Cian in the one year); originally to 1064 (abdication of Brian's son Donnchad), now breaking off in 1027. Surviving entries cover:

Cian's descendants: 7 entries

Domnall Dub dá Bairenn's descendants: 4 entries

Uí Briain: 9 entries

other Munster news: 5 entries

other Irish news: 13 entries

Figure 7.1 The structure of *LO*; § divisions following Best 1904.

Mael Muad's son Cian became king of Uí Eachach after him. Cian evidently became a staunch ally of Brian's, later traditions claiming that he married Brian's daughter Sadb. The main source for this story seems to be the work known as the *Leabhar Oiris agus Annála ar Cogthaibh agus Cathaibh Éireann*, or simply *Leabhar Oiris* (*LO*) in which the poem *Ráith Ráithleann Chuirc is Chéin* appears.[8] *LO* has hitherto generally been dismissed as an aberrant form of the seventeenth-century *Cath Cluana Tarbh* (*CCT*),[9] and the language it is written in is of the same period (see Kenneally, this volume). But while *CCT* is basically an account of the battle of Clontarf written as part of a series of battles sketches illustrating the history of Munster (Ní Úrdail 2011, pp. 37-42), *LO*'s structure is more complex.

§54.2 Cian and his two brothers killed in the battle of Maigh Guile by the rival segment. *CS, AU, ALC and AFM report the death of Cian and his brothers in battle against rival Uí Eachach in 1014. AI merely mentions the death of Cian and one brother.*

§54.3 Donnchad mac Briain **supports Mathgamhain** against Domnall mac Dub dá Bairenn. *CS, AU, ALC and AI all agree that Donnchad killed Domnall's son Cathal in 1014, no mention of Mathgamhain.*

§56 Donnchad & his brother Tadhg **support Mathgamhain** again, **Mathgamhain kills Domnall** mac Dub dá Bairenn. *AU, ALC say that Domnall was killed in battle against Donnchad in 1015, again omitting any mention of Mathghamain. CS, AFM & AClon 1008.1 state that Domnall had marched on Limerick and forced the battle in which he lost his life.*

§58.1 Mathgamhain kills the king of Uí Liatháin. *The death of the king of Uí Liaitháin is noted in AI 1015.3, only AFM 1014.11 mentions that he was slain by Mathgamhain.*

§62 Mathgamhain kills Domnall mac Dub dá Bairenn. *This is evidently a mistake as Domnall had already been killed back in §56, A.D.1015; the AI record that 'Mael Muad' (i.e. his grandson Mathgamhain) killed Donnchadh mac Dub dá Bairenn (Domnall's brother) in 1017.*

§65 Domnall Dub dá Bairenn's son blinded by his own people, raising a black cloud. *AI 1023.5 records the blinding of Ua Dub dá Bairenn; AI's next entry, 1023.6, reports 'a solar eclipse ... the spring of the black cloud'.*

§70.2 **d. of Mathgamhain mac Cian.**
(*Not mentioned in any surviving annals.*)

Figure 7.2 Rival Uí Eachach segments in *LO* Part IV. Material from annals in italics. Material unique to *LO* in boldface.

Breakdown of *LO*

The first two parts of *LO* tell a clear story: Cian is represented as Brian's Number One man in Munster, and he leads one of Brian's three battalions in the battle of Clontarf. In the *Cath Maigh Guile* section he puts forward a bid to be Brian's successor as king of the province. Brian's son Donnchad reluctantly yields Cian hostages, having insufficient troops at that point to oppose him. Cian then encounters unexpected hostility from a rival segment within the Éoganacht Ráithlinn, and before the year's end is killed in internecine conflict. This is followed by a seemingly rambling interlude which functions as a framework for poems concerning Cian's role in Brian's court and at home.[10]

Section 4 of *LO* breaks off after Donnchad mac Briain's desultory engagement in Osraige in 1027. Sylvester O'Halloran, however, who used *LO* extensively for portions of his *General History of Ireland*, asserts that it ended with Donnchad's abdication in 1064 (O'Halloran 1778, p. 304). What is clear from the surviving chronicle is that hostilities continued between the rival segments of Uí Eachach and that Cian's son Mathghamhain cultivated an alliance with Donnchad mac Briain.

Political developments 1014–1213

Figure 7.2 demonstrates how much *LO* contributes to our knowledge of Uí Eachach affairs for this period. Were it not for *LO*, we would have no inkling of their involvement in hostilities of 1014 and 1015 between Domnall mac Dub dá Bairenn and Donnchad son of Brian. Mathgamhain is mentioned only once in the *AI*, and not under his own name, while the *AFM*'s entries on Mathgamhain could well be drawn from *LO* in the first place. Once *LO* breaks off, we can expect to swim in colder waters, but in fact the Uí Eachach continue to come in for a fair amount of attention.

The split between the rival branches of Uí Eachach continues, with the Cenél Loegaire, to which Dub dá Bairenn belonged, forming one branch and Cian's line or the Cenél nAedha the other. The Cenél Loegaire branch continues to be the dominant sept: the death of Cathal, 'king of Ráithleann', as the *AI* calls him, in 1063, is sufficiently important to be noted even in the far-off annals of Ulster. He is styled there as over-king of the Uí Eachach, which, as Denis Casey has pointed out, was a term reserved only for the more important figures, and suggests a population group which on the one hand was divided enough to have several kings, but unified enough to be recognised as a unit (Casey 2019, personal communication). The high status of the Uí Eachach is confirmed by a passage in the contemporary *Lebor na Cert* listing the king of Ráithleann as one of the three kings in Munster not required to pay tribute to

Cenél Loegaire		*Uí Mathgamhna*
1042	grandson of Domnall mac Dub dá Bairenn makes pilgrimage to Rome (*AI.*4)	
1062	Uí Eachach kill two nobles of the Corcu Duibne on Beara (*AI.*4)	
1063	Cathal ua Donnchada, K of Raithlenn, overK of Uí Eachach Mumhan killed (*AI.2, AU.*3)	
1066	In Finnshúilech, K of Uí Eachach killed (AI.2); Loingsech Ua Domnaill another K of Uí Eachach killed by Corcu Duibne (*AI.*3)	
		1072 Brodchon mac Mathgamhna raids Decies (*DubAI*)
		1088 Uí Eachach Mumhan repel Hiberno-Viking attack on Cork (*AU.*4)
1091	the son of Dubhdabhoireann ua Domnaill slain by kinsman (*AI.*2)	
		1108 the son of Brotchú Ua Mathgamhna slain at unawares (*AI.*6)
1110	d. of Queen of Uí Eachach, daughter of Ua Conchobuir Chiarraige (*AI.*2)	
1112	Cathal, grandson of Domnhall son of Dubhdabhoireann, slain by his in-law, Ua Ceallacháin (*AI.*3)	

Figure 7.3 Post-*LO* Uí Eachach fortunes up to 1118.

Cashel (Dillon 1962, p. 19).[11] The pilgrimage to Rome of a member of the Cenél Loegaire branch was also considered news worthy of note in the *AI*.

Also clear in the above entries is a gradual population shift westwards: the Cenél Loegaire intermarry with the Ciarraige and fall afoul of the Corcu Duibne in 1062 and 1066. Their pedigree in the genealogies is, alas, hopelessly tangled.[12] The Uí Donnchadha seem to have constituted the main line of this segment, but there was also a collateral line whom Ó Corráin describes as 'the little-known Uí Domhnaill [who were] extremely active as leaders of the Uí Eachach naval forces in the twelfth century' (Ó Corráin, 1974, p. 41). The Uí Donnchadha eventually succeeded in taking over the territory of the Éoganacht Locha Léin, and part of the genealogical confusion arises from the grafting of their pedigree onto the Éoganacht Locha Léin stock. But there are yet more flies in the ointment. The man styled as 'In Finnshúilech', for instance, seems to have belonged to still another lineage, the Uí Muircheartaig, whose connections with the Uí Donnchada, are murky at best (Ó Corráin 1969, pp. 142 & 145); they seem to have intruded themselves in the 1060s. Besides this Paul MacCotter has even suggested that the lordship of Cenél Loegaire may for a time have been usurped by the Éoganacht Caisil during the turmoil resulting from their expulsion from their seat at Cashel (MacCotter 2006, pp. 64 & 66). It seems fairly clear that a domino-effect of population movements was taking place at this time, starting probably even before the granting of Cashel to the Church in 1101. Éoganacht Caisil seem to have moved into the Cork area, squeezing out the Cenél Loegaire, which in turn gave the Cenél nAedha the breathing-space they needed to recover their fortunes while the Cenél Loegaire journeyed westwards to annex the Éoganacht Locha Léin.[13] Just who was involved in repelling the Viking attack on Cork in 1088, whether the Cenél Loegaire, the Cenél nAedha or a perhaps temporarily incumbent Éoganacht Caisil, is anybody's guess.

The report that Domnall mac Dub dá Bairenn marched on Limerick in 1015 (Figure 7.2, §56) suggests that the Cenél Loegaire made an early attempt to wrest the kingship of Munster from Donnchad. This was not entirely unreasonable: Dál Cais propaganda had long claimed that a system of alternating kingship existed between the Éoganacht and the Dál Cais and both *LO* and the *Cogad* agree that Cian had looked to

succeed Brian. The attempt was speedily put down however, and from then on until 1118 the politics of Munster resided firmly in the hands of the Ui Bhriain of Thomond: first under Donnchad as we have seen, then under Donnchad's nephew Toirdhealbhach and finally under Toirdhealbhach's son Muirchertach. All three of these were recognized as kings of Munster, and all three attempted with greater or lesser success to become recognized as kings of Ireland. Munster itself was a quiet back garden in which the population game of tag just described was scarcely heeded by the big players, engrossed as they were elsewhere in chasing the chimera of the kingship of all Ireland.

All changed in 1118. Muirchertach Ua Bhriain had for the last four years been fighting a losing battle with severe illness on the one hand and his brother's attempts to replace him on the other; in 1116 he gave up the struggle and retired to Lismore. He had spent a long reign facing off the king of the Northern Uí Néill in rival bids for the kingship of Ireland. Now the two of them had grown old together, and a new champion, a former protégé of Muirchertach's, arose in the form of Toirdhealbhach son of Ruaidhrí ua Conchobhair of Connacht. In 1118 Toirdhealbhach convened an assembly of the foremost leaders of Ireland at Glanmire in Cork and split Munster in two, giving the north half to the Ua Briain and the south half to Mac Cárthaig. Munster was a quiet back garden no longer. In the new politics that developed, the two halves of Munster became habituated to violence. Toirdhealbhach ua Conchobhair repeatedly raided both halves of Munster to assert his authority, the Ua Briain of Thomond invaded their neighbours on all sides trying to regain their lost status, while in Desmond the MacCarthaigh played favourites with a revolving court of subject septs.

The first entry in Figure 7.4, left column, shows the record which leads MacCotter to posit the temporary infiltration of Uí Eachach by an Éoganacht Caisil sept. We have seen that Uí Eachach had been ruled by the Cenél Loegaire from 1014 on, and it will be shown below from evidence in the contemporary *Caithréim Ceallacháin Chaisil* that in 1132 they were still regarded as kings of Uí Eachach. The puzzling obit of 1121 would therefore seem to bear no relation to the Uí Mathgamhna of Cenél Aedha. The entry for 1132 however shows us that the kingship of Uí Eachach still lay with the true Cenél Loegaire even though they had meantime moved from the Cork area across to Killarney. This spatial dissociation with their central point of reference, their royal seat, bears out the archaeological evidence that Garranes or Ráithliu was in fact not inhabited at this time, nor indeed, at any time throughout the period covered in this article.

Cenél Loegaire (Uí Donnchadha)	
1121	d. in Cork of Ua Ceallacháin, K of the south of Ireland (*AI.*3), K of Uí Eachach Mumhan (*AFM.*5)
1132	Uí Eachach & other fleets support Cormac in attack on Iar Connacht, demolish castle at Bun Gaillmhe (*MCB.*1)
1134	Uí Eachach again support Cormac in an attack on Connacht (*MCB.*5)

Cenél nAedha (Uí Mathgamhna)	
1119	d. of Donnchadh Donn (*MCB.* 1, *AI.*3)
1123	Ua Mathgamhna & other nobles depose the invalid Tadc and proclaim his brother Cormac King of Cashel (*MCB.*2). Cormac replaces his sickly brother (*AI.*6).
1127	Ua Mathgamhna & others depose Cormac (*DubAI*). Cormac deposed by Munstermen (*AI.*2, *MCB.*5)
1127	Desmond nobles (including Uí Mathgamhna: *MCB* 1126.6) forced to submit to Toirrdelbach ua Conchobuir (*AI.*3, *AU.*1, *AT.*1)
1135	Cian ua Mathgamhna killed accompanying Cormac on raid in Thomond (*MCB.*2)

Figure 7.4 The Uí Eachach in the annals, 1118-1135.

The dramatic increase in O'Mahony or Uí Mathgamhna entries visible in Figure 7.4 must in part be attributed to the fact that a new annal, *Mac Carthy's Book* (*MCB*)[14] picks up the thread at this point. This annal was originally considerably longer but has unfortunately lost its opening sections and now begins with folio 69 (Ó hInnse, 1947, p. vii). As will be shown later, it is known to have been an O'Mahony document, hence the relative abundance of Uí Mathgamhna entries. The Mac Cárthaig court was a turbulent one: in 1123 the Uí Mathgamhna, ruled at this stage by Cian mac Donnchadh, were involved with a group of nobles that deposed the terminally ill Tadg mac Cárthaig and installed his brother Cormac as king of Cashel. The O'Donoghues or Uí Donnchadha of the rival Cenél Loegaire branch do not appear as such in the annals at this time, but the fact that Cormac soon banished Ua Murchertaig, the king of Éoganacht Locha Léin, as well as the kings of Ciarraige and of Corcu Duibne (*AI* 1124.4) is highly suggestive. Muirchertach Ua Muirchertaig of Locha Léin lost no time seeking assistance from Toirdhealbhach and in 1125 he arrived with a fleet to wreak havoc in Corcu Duibne (*AI* 1125.3). This must have been the key period when the Cenél Loegaire, with Cormac mac Cárthaigh's help, were finally taking control of the area they had long been infiltrating. We will see below that the Cenél Loegaire were in good favour with Cormac's court, while the banished king of Locha Léin continued to harass the Desmond coast on behalf of Toirdhealbhach of Connacht.

Cormac engaged in unsuccessful campaigns against Toirdhealbhach in 1124 and 1126 (*MCB* 1124.4 and *ATig*, 1126.2). The *AI* state that he took the kingship of Limerick in 1125 (*AI* 1125.8), but we have no confirming evidence of such an event. Perhaps the reverses he had suffered in the field against the king of Connacht led to resentment at home, for in 1127 a group of disaffected Desmond nobles deposed him. According to Canon O'Mahony's reading of the so-called '*Dublin Annals of Inisfallen*' (*DAI*),[15] it was the Uí Mathgamhna who spearheaded this action (O'Mahony, 1913, p. 61), but the O'Mahony annals of *MCB* do not admit culpability. Cormac retreated to seclusion in Lismore, and 'much destruction was wrought in his absence' as the Inisfallen annalist dryly comments (*AI* 1127.2). The insurgents must indeed have soon repented of their action, for Toirdhealbhach with the two Uí Briain brothers of Thomond in tow promptly came down upon Desmond, ravaged by sea and land, plundered Cork and forced submission on the Mac Carthaigh, Ua Mathgamhna, Ua Donnchadha, and others (*AI* 1127.3, *AU* 1127.1, *AT* 1127.1, *MCB* 1126.6). The Uí Briain brothers oddly enough then turned tail, brought Cormac out of his retreat in Lismore and restored him to the kingship of Desmond (*AI* 1127.4, *MCB* 1126.11; slightly different versions are offered by *AT* 1127.2 & *AU* 1127.5). The interloper who had reigned in his absence was banished, as, once again, was Muirchertach king of Locha Léin. And so the wrangling went on. The abbot of Armagh made peace between Connacht and Munster in 1128 (*AU* 1128.9), but this broke down after little more than a year. In 1132 Cormac launched a major land and sea offensive against Connacht in which the Uí Eachach played a major role (*MCB* 1132.1), leading a naval expedition that demolished the castle of Galway (*CS* 1132.3, *AT* 1132.6).

Which branch of the Uí Eachach was it that led Cormac's navy? The annals may not enlighten us, but we shall find our answer in the fictional biography that Cormac commissioned at about this time, *Caithréim Ceallacháin Chaisil* (*CCC*).[16] Ó Corráin has shown how this work, ostensibly depicting the reign of a tenth-century Éoganacht king of Cashel, is more likely a distorted projection of Cormac's own twelfth-century court (Ó Corráin 1974). *CCC*'s structure is quite unusual for its time and reflects the political milieu in which it was produced. The *Cogad*, its great predecessor, took a linear or vertical view, relying on a depth of historical background dredged from the annals to give weight to its hero, Brian, and his essentially single-handed achievements, and hence by projection to his great grandson Muirchertach who inherited his command. *CCC* is devised horizontally, taking cognizance of all the peoples on whom Cormac mac Cárthaigh had to rely upon for support. While a former incumbent served as a figurehead for this work, its weight of authority was not taken from an annals-based accumulation of past events, but from the genealogies: documentation which encoded the social networks of the major families of the day. The storyline is in fact entirely fictitious, a concoction devised purely to demonstrate who Cormac's supporters were and to bring them all together in a glorious rescue mission. The Uí Eachach fare here with mixed fortunes. In Ceallachán's initial circuit of Munster they are completely bypassed, Ceallachán and his army proceeding from Waterford via Uí Liatháin across to the Éoganacht Locha Léin whom they attack and plunder, proceeding on afterwards to Corcu Duibne. Here Ceallachán fights off an attack, ravages the territory and takes hostages (*CCC* §22). He then enters Ciarraige, where again there is battle and Ceallachán succeeds in capturing their king (*CCC* §23). We have seen above how Cormac, shortly after taking office, banished precisely these three kings, and we have seen that the king of Éoganacht Locha Léin in particular returned to harass Cormac's coasts. Thus the activities of the tenth-century king in *CCC* accurately reflect Cormac mac Cárthaigh's 12-century politics. What then of the Uí Donnchadha? Their turn comes when Ceallachán has through a fiendish strategy been captured by Vikings. The rescue mission starts: Dub dá Bairenn of the western Uí Eachach is called upon to lead a levy of ten ships in a fleet which includes most of the

other kings of the western coastlands of Desmond (*CCC* §46). He takes part in a sea battle in which he is paired off against a Viking admiral who had killed his son (*CCC* §63). There is also a land battle, in which a four-pronged attack is launched upon the city of Armagh where Ceallachán is being held prisoner. The make-up of the four attacking phalanxes is, as Ó Corráin points out, entirely genealogical in nature (Ó Corráin 1974, p. 48), and the Éoganachta Ráithlinn figure along with the other Éoganacht groups attacking from the east (*CCC* §55). Which segment was intended here is not made clear, perhaps both were involved, but the leadership certainly did not lie with the Uí Mathgamhna. The Cenél Loegaire had not yet usurped the kingship of Éoganacht Locha Léin: on the contrary, the latter were at this stage fighting tooth and nail to keep sovereignty. The overkingship of Ráithliu and of the Uí Eachach still resided with the Uí Donnchadha of the Cenél Loegaire.

MCB tells us that Cian Ua Mathgamhna died in 1135. He cannot have been succeeded immediately by his son Donnchadh, as Donnchadh died some 78 years later and can have been but newly born at the time of his father's death. Perhaps the Uí Donnchadha were still ruling the Uí Mathgamhna in 1137, but by 1151 Donnchadh was in control at last. His was a troubled, yet long and on the whole successful reign, and he is later called Donnchadh Mór (*MCB* 1237.1). In 1158 Amhlaoibh Uí Dhonnchadha, 'high king of Éoganacht Locha Léin, usurper of the west' is recorded as completing the 'great church at Aghaboe' (*MCB* 1158.6 & 7): the translation of Cenél Loegaire was complete. Was it he who arrogated to himself the title of Locha Léin? His description as 'usurper of the west' would suggest that this might be so, and 'Ua Mathgamhna' (this must be Donnchadh Mór) soon after kills the king of another rival segment, the Cenél mBecce, fighting for the sovereignty of Uí Eachach.

And yet the transition from junior segment to overkingship of Uí Eachach was bumpy enough. Donnchadh spent one or more periods in exile. The *AI* records the death of a son of Amhlaibh Mór, king of Uí Eachach in 1170, in the early stages of the Norman Invasion at Waterford, and eight years later the *AI* describes yet another the son of Amhlaibh Mór, Domhnall, as having been king of both Uí Eachach and

Donnchadh son of Cian		*Other*	
		1137	Cormac mac Cárthaigh, Ua Mathgamhna & other Munster nobles head off a Síol Briain attack on Waterford (*MCB*.1)
1151	Donnchadh shelters Mac Cárthaigh from Síol Briain (*MCB*.3)		
1159	Ua Mathgamhna kills king of Cenél mBecce, contending for leadership of Uí Eachach (*MCB*.3, *AI*.1161.5)		
		1170	Cathal son of Amlaíb Mór, king of Uí Eachach, killed by the English at Waterford (*AI*.3)
1172	Donnchadh king of Uí Eachach (*MCB*.2)		
1172	Domhnall Mór Brian & Donnchadh son of Cían submit to Henry II at R. Suir (*MCB*.3)		
	Donnchadh in exile (in/before 1178) (*MCB*.3)	**1178**	d. of Domhnall son of Amhlaibh, king of Éoganacht & Uí Eachach (*AI*.4) during Donnchadh's exile (*MCB*.1179.3)
1201	peace agreed between Síol Briain, Clann Cárthaigh, Ua Mathgamhna & Wm de Burgo (*MCB*.2)		
1206	Donnchad Uí Mathgamhna & Ua Briain support Diarmuid MacCarthaigh against Fínghen (*AI*.9, *MCB*.2)		
1213	d. of Donnchadh (*AI*.4, *MCB*.1)		

Figure 7.5 The career of Donnchad Ua Mathgamhna, 1135? to 1213.

***MCB* 1172.1.** A.D. 1172. Henry son of the Empress, King of England, Duke of Normandy, Aquitaine and Anjou came to Ireland with five hundred knights and numerous cavalry and infantry, and entered Waterford harbour on the feast of St. Luke the Apostle.

***MCB* 1172.2.** The Pope at that time was Alexander III, the Emperor was Frederick [Barbarossa] and Louis VII was King of France: Ruaidhrí son of Toirdhealbhach son of Ruaidhrí Ó Conchobhair was over Ireland. Aodh Ó Néill over Cinéal Eóghain and the whole province. Donn Sléibhe son of Cú Uladh son of Conchobhar [Mac Duinn Shléibhe] over the Ulaidh. Domhnall Mór son of Toirdhealbhach son of Diarmaid son of Toirdhealbhach son of Tadhg son of Brian Bóroimhe over Thomond and one of the two provinces of Munster. Diarmaid son of Cormac son of Muireadheach mac Cárthaigh over the other province. **Donnchadh son of Cian son of Donnchadh Donn son of Cú Mara son of Brodchú son of Mathghamhain son of Cian son of Maol Muaidh [Ó Mathghamhna] over Uí Eachach**. Lochlainn Ó Mac Thíre over Uí Mac Caille. Maol Seachlainn Ó Faoiláin over Déise. Domhnall Ó Giolla Phádraig over Osraighe. Domhnall Caomhánach son of Mac Murchadha over Leinster. Murchadh son of Donnchadh ... over Oirghialla and the men of Fearnmhagh. Domhnall son of Maol Seachlainn Crosach ... over Oirthear Midhe. Tighearnán Ó Ruairc over Gairbhthrian Connacht, and he was called King of Midhe.

***MCB* 1172.3.** The King of England was not long in Waterford when Diarmaid Mór [Mac Carthaigh] came into his house and gave hostages and made submission to him. Shortly after that, Domhnall Mór Ó Briain and Donnchadh son of Cian Ó Mathgamhna went to meet him on the banks of the Suir, and made submission to him.

Figure 7.6 Mac Cárthaigh's Book entries for the years 1171 and 1172.

the Éoganacht. *MCB* elaborates: Domhnall was king of Uí Eachach while Donnchadh was in exile, banished by Diarmait Mac Cárthaigh, the Cenél Loegaire and the Galls. Still, the O'Mahony chronicle of *MCB* would have us believe that in 1172 the leadership of Uí Eachach resided firmly with the Uí Mathgamhna (see Figure 7.5). It is, however, very likely a retrospective entry inserted by a later O'Mahony, and need not concern us overly much.

Donnchadh is repeatedly referred to in *MCB* as Donnchadh *na hImirce Timchill*, 'of the wandering about' (*MCB* 1206.2; *MCB* 1213.1; *MCB* 1237.1; *MCB* 1259.1). Canon O'Mahony would have it that the epithet came from his 'habit of going the round of his forts and living for some time in each, instead of residing permanently or principally at Ráith Ráithleann' (O'Mahony 1913, p. 62). Ó Corráin takes it to imply that he had lost much of his patrimony (Ó Corráin 1974, p. 67). The epithet's first appearance, however, is in 1206 in a record in which Donnchadh acts as kingmaker, helping Ua Briain depose Finghin mac Cárthaigh and replacing Finghin with Diarmait. This is not the work of a man who has lost his lands. A more likely explanation of the name is that it referred to his wanderings during exile. In 1213, now a venerable ancient of at least 78 years, he was taken prisoner by Cormac Liathánach and died in the same year. He was succeeded by his son Muirchertach, whose three sons were later massacred and his lands occupied (*AI* 1232.2).

Summarizing so far, Éoganacht Ráithlinn briefly held the kingship of Munster twice in the mid-tenth century. The sept became incorporated into Brian Bóroimhe's fighting host, but a split between its two segments erupted upon Brian's death. The victorious segment, the Cenél Loegaire, gradually moved westward, presumably squeezed out of the Cork area by incomers from the Cashel area. They settled in the region around Killarney to such effect that they eventually succeeded in taking over the prestigious sept of Éoganacht Locha Léin. The title to Ráithleann thereupon reverted to the Uí Mathgamhna, the descendants of Cian mac Mael Muad, Brian Bóroimhe's ally and son-in-law. If *MCB* is to be believed, the Uí Mathgamhna played a leading role in the politics of the Mac Cárthaig court.

Evidence for a Proto-*LO*

Where does *LO* fit into all of this? We divided the *LO* above into four parts: Cian's partnership with Brian, the Battle of Clontarf narrative, *Cath Maigh Guile* and the later chronicle up to 1027. Despite the late language in which the text is written, there are several reasons for thinking that much of this material must in essence derive from the period covered so far. That the account of the battle is early is suggested by a fragment preserved in Rawlinson B 486. This fourteenth-century miscellany (Ó Cuív 2001, p. 119) includes a variety of North Munster materials, among which is a piece which corresponds more or less to the *Cogad*'s §XCV, the description of Brian's troops mustered for battle. Ní Mhaonaigh has pointed out, though, that it corresponds even more closely to *LO*'s list of the mustering. The fragment, she sates, 'provides important evidence for the existence already in the fourteenth century of the prototype of what have survived as post-Classical Irish Clontarf texts, and which appears to be represented

most faithfully in *Leabhar Oiris*' (Ní Mhaonaigh 2012, p. 156). Cian is listed there as heading the second Munster battalion. In the *Cogad* §XCV, Brian's Munster battalion is said to be led by Mothla, king of the Deisi and Mangnus, king of Uí Liathain, while the late B version of the *Cogad* even makes the extraordinarily unlikely statement that Conaing, son of Donncuan, i.e. Brian's own nephew, was king of Desmond (Todd 1867, p. 185). That Cian must have been present is obvious even from the *Cogad*'s own account when he claims sovereignty over Brian's successor after the battle. Rawlinson B 486's description, then, offers evidence that an account of the Battle of Clontarf existed in the 14th century in which Cian led the Desmond troops, and in which the remainder of the battle array corresponded more closely to the present-day *LO* than to any surviving version of the *Cogad*.

LO's relationship to *CCT*

Let us now compare the text of *LO* with what Ní Úrdail has termed the 'core narrative' of *CCT*, as well as with the fourteenth-century D witness of the *Cogad*. The three witnesses to the *Cogad* will be discussed below; the core narrative of *CCT* is described by Ní Úrdail as the part common to all surviving transcripts of *CCT*.

Narrative	***CGG***	***LO***	***CCT***
Brian blockades longport	---	§24.3	§1.1
Brian plunders Osraige	LXXXVI.1	§24.3	§1.2
Murchad raiding	LXXXVI.2	§24.4	§1.3
August till Christmas in longport	LXXXVI.3	§24.5	(§1.1)
Brian goes home	LXXXVI.4	§25	---
Spring expedition	LXXXVII.1	---	---
Gall & Laigin gather allies	LXXXVII.2	§25.2	§1.4
Brodor & Asgal (Olaf)	LXXXVII.3	§26.1	§2.1
Sitric & Islesmen	LXXXVII.4	§26.2	§2.2
Miscellaneous men	LXXXVII.5	§27	§2.3
Maelmordha	LXXXVII.6	§28.1	§2.4
Mael Sechnail's defection	LXXXVIII	§28.2	§2.5
Brian takes counsel	LXXXVIII	---	---
Fergal O'Rourke	LXXXIX	---	---
Overseas foreigners consider making terms	XC	---	---
7 battalions. Enemy described	XCI	---	---
Brian's side described	XCII	---	---
Dangers of encounter	XCIII	---	---
Foreign battalions	XCIV	§29.1	§3.1
Murchad's battalion	XCV	§29.2	§3.2
Desmond battalion	XCV.2	§30.1	§3.3
Additions to Cian's	---	§30.2	§3.4
Connacht battalion	XCVI	§31	§3.5
Foreign stewards & Fergal O'Rourke	XCVI.2	---	---
Mael Sechnail defects	XCVI.3	---	---
Murchad's position	XCVII.1	[partly in 29.2)	---
Murchad's hasty attack	XCVII.2	---	---
Battalions attack	---	§32.1	§4.1
Brian withdraws	---	§32.2	§4.2
Murchad sees Mael Sechnaill's defection	---	§32.3	§5.1
Dunlaing Ua hArtagain	**---**	**---**	**§5.2**
Murchad sees Dunlaing	XCVIII	§32.4	§6.1
Aoibheal & Murchad	**---**	**---**	**§6.2**

Narrative	*CGG*	*LO*	*CCT*
Demons	XCIX	---	---
Single combat	C	---	---
Laigin vs. Connacht	CI	---	---
Dál Cais vs. Danmark	CII	---	---
Mael Sechnaill's description	CIII	much later, §41	much later, §15
Dunlaing vs. Cornabliteoc	CIV	---	---
Conaing, K of Desmond & Maelmordha kill each other	CV	---	---
The fight at Dubhgall's Bridge	CVI	---	---
Murchad fights Conmaol & Carolus	---	§32.5	§7
The magic well	**---**	**---**	**§8.1**
Sitric observes	CVIII	---	---
The tide	CIX	---	---
Turlough's death	CX.1	32.6	(later in §12.1)
Sitric's wife comments	CX.2	---	---
Murchad, champion	CVII	----	---
Murchad's feats	CVIII	---	---
Murchad & Orkney	CXI	§33	§8.2
Murchad & macEbric	CXII	§33.2	§8.3
Murchad dies	CXII.2	§33.3	§9.1
Murchad had cleansed Ireland	---	§33.4	§9.2
Brian makes will	CXIII	§34	§10.1
Brodar comes	CXIV	§35	§10.2
The three (four) best	CXV	§36	§11
Brian's reign	CXVI	§37.1	§12.1
Antagonists killed	CXVII	(later: §38)	(later: §13)
Protagonists killed	CXVIII.1	§37.2	§12.2
Search for bodies	CXVIII.2	§39.1	§13
Brian's cortege	CXVIII.4	§39.2	§14.1
Brian's wake	---	§40	§14.2
Mael Sechnaill's description	(see above, CIII)	§41	§15
Donnchad returns	CXVIII.3	§42	§16.1
Donnchad's feast	CXIX.1	---	---
Dead buried	CXIX.2	---	---
Cian wants hostages	CXX.1	§43	§16.2
Domnall & Cian fall out	CXX.2	§44	§17
Donnchad leaves	CXXI.1	§45	§18.1
Problems in Osraige	CXXI.2	§46	§18.2

Figure 7.7 Comparison of the *Cogadh*, *LO* and *CCT*. Passages common to the first two but absent in *CCT* are shaded.

While Version 1 (with the prelude in which Gormflaigh foments trouble) and the various Versions 2A-2D (with added passages from Keating's *Foras Feasa ar Éirinn*) are not uncommon, it is the core narrative on its own which occurs the most frequently and appears to be the original (Ní Úrdail 2011, pp. 1-2). It begins with Brian's opening offensive and ends with *Cath Maigh Guile*, as shown in Figure 7.7.

The close relationship between *LO* and *CCT* is at once evident from Figure 7.7, both of them representing the same abbreviation of the *Cogad*'s account. There are a number of places, however, where the *LO* contains information from the *Cogadh* which is absent in *CCT*. Some of the *Cogad/LO* paragraphs are completely absent from *CCT* (shaded in Figure 7.7), and there are moreover places where details have been dropped out. Compare the following excerpts in which the boldface information of the *Cogad/LO* is missing in *CCT*:

1. *Cogad*h (Todd, p. 152 line 16): '*ocus da barun* ***a Corr Bretnaib, ocus Corndabbliteoc a Bretnaib Cilli Muni.'***

   LO (Best p. 84 §26 line 5): '*7* ***Corrbhreathnaigh Chille Muine****, 7 coir na Liagog go n'a ríoghaib uile*.'

   CCT (Ní Úrdail p. 106 §2 line 6): '*... agus iliomad do* ***Bhreathnachaibh Chille Muine*** *agus sluagh na nOiléan uile gona ríoghaibh.*'

2. *Cogad* (Todd, p. 150 line 7): '*ocus ruc brait mor leis, ocus buar diarmiti, ocus ro socht go Cill Maignend****, co fachi Atha Cliath****.*

   LO (Best p. 83 §24 line 10): '*7 thugadar braighde móra 7 creacha iomdha i gcoinne Bhriain go Cill Mhaighneann 7* ***go faithche Átha Cliath.***'

   CCT (Ní Úrdail p. 106 §1 line 7): '*agus thugadar bráighde agus creacha iomdha leó go Cill Mhaighneann i gcoinne Bhriain*.'

3. *Cogadh* (Todd, p. 152 line 19): *'Ro tochured cucu, dna, Carlus ocus Ebric, da meic rig Franc,* ***ocus Plat****, tren milid Lochland, ocus Conmael tretel*.'

   LO (Best p. 84 §27). *'Tháinig chuca Carolus 7 Aibroc, dhá fhionnrígh Lochlannach, 7 Anradh mac Eibhric****, 7 Plait*** *7 Conmhaol, dá thréan-mhilid Lochlannach.*

   *CCT (*Ní Úrdail p. 106 §2 line 7): *'Tháinig chugtha Carolus agus Henrí mac Eabhrac dá rígh Fionnlochlann, Dolait agus Conmhaol dá thréanmhílidh na talmhan rena linn féin.'*

4. *Cogadh* (Todd, p. 192, line 19): ' ***Is andsein da cuaid Tairdelbach, mac Murchaid, mic Briain, i ndegaid na nGall is in fargi,*** *co tuc in bunni robarta builli fair im carrid Cluana Tarb, ocus is amlaid go bathed e, ocus Gall fae, ocus Gall ina deis, ocus Gall inacle, ocus cualli na carad trit. Ni rabi ina ais sen duni bad ferr eneach no engnam in Erind, ocus ni rabi adbur rig bad ferr. Daig engnum a atar and, ocus ridacht a senatar, ocus nir slan act .v. biadna déc do andsin. Ise fos in tres duni is mo ro marb inla sen e*.'

   LO (Best p. 87 line 10): ***'Do bhí an cath ag a chur mar sin feadh an laoi, nó gur mhuid do na Gallaibh d'iarraidh a long, 7 Toirrdhealbhach mac Murchadha 'n-a ndiaidh;*** *7 is amhlaidh do bhi ar n-a mhárach, 7 Gall foai 7 Gall gacha láimhe dhó, 7 cuaille do choradh Chluana Tarbh thríd, ar n-a bháthadh do'n bhuinne rabhartha i gcionn a chúig mbliadhan ndéag*.'

   CCT (Ní Úrdail p. 123 §12 lines 5-8): *'Agus is amhlaidh do fríoth é arna mhárach agus Lochlannach faoi agus Lochlannach is gach láimh dho agus cuaille do choraidh Cluana Tarbh thríd arna bháthadh don bhuinne rabharta*.'

Example 1 demonstrates progressive stages of jumbling and simplification. The parallel language of *LO* and *CCT* in examples 2-4 shows that one text must derive from the other: as Ní Úrdail points out, 'a comparison between their respective descriptions points ... to the remarkable similarity between the wording of both texts' (Ní Úrdail 2011, p. 79). In each of these cases, however, *LO* contains detail which has gone missing in *CCT*. Significantly, the reverse is not the case: *CCT* and the *Cogad* share no information absent from *LO,* except with regard to the battle coda, a special case which will be discussed below. *CCT* is not a slavish follower of *LO,* however: in two instances involving folklore associated with Brian's son Murchad it departs entirely from the *LO/Cogad* text. The well which magically revived Murchad's strength during the heat of battle is perhaps but a furbelow; more impressive is *CCT*'s radical expansion on the story with Aoibheall. Murchad proved a vibrant figure in folklore from quite an early stage (see Bruford 1969, pp. 134-143; Ní Úrdail 2011, pp. 51-60), so it is not surprising that it is his story which varies the most in accounts of the battle. In essence, *LO* sketches a resumé of the battle, which is adopted and lightly embellished by the author of *CCT*. Given that *CCT* was written down in 1648 (Ní Úrdail 2011, p. 44), this points to a clear terminus *ante quem*.

LO and the *COGAD's* coda

LO seems even to have influenced the later versions of the *Cogad* itself. To appreciate the significance of the *Cath Maigh Guile* and its role in the *Cogad*, it will be necessary here to digress briefly. The *Cogad* is a heroic biography Brian Bóroimhe that recounts how he saved Ireland from the depredations of the Vikings and how his reign brought peace and justice throughout the land. The story of his betrayal through the jealousies and intrigues of his wife and her brother leads to the climax of the work, the thundering Battle of Clontarf, which takes up nearly one third of the entire opus and in which the author pulls out all the stops: demons from Ireland's pagan past scream over the battlefield while warriors hew and smite as did biblical and mythological heroes of old. The actual progress of the battle is scarcely heeded: as shown in Figure 7.8

the *de facto* winning of the battle is mentioned almost as an aside not even half way through the account: it serves merely as build-up to the glorious feats of Brian's eldest son and intended heir, Murchad. The following scenes orchestrate a series of tragedies whose order is dictated by their gravity rather than by their order of occurrence. The rising tension is punctuated by humorous relief in the form of satirical comments from Sitric and his wife, Brian's daughter, who are watching from the battlements. First in order of narration comes the death of Murchad's young son (caught by the tide chasing the fleeing Vikings after the battle is over); second, Murchad's own death (in the heat of battle well before the Viking offensive has been broken); and thirdly Brian's death in the aftermath of the battle. Brian's death and burial amount to a long drawn-out lament terminated by the death-lists from the battle. These would normally form a natural closure to the entire opus. But instead of ending there, the work carries on with the thematic *non-sequitur* of Donnchad's subsequent adventures getting home. Donnchad has up to this point scarcely been mentioned, and his dynasty later lost out in the scramble for the kingship stakes. The *Cogad* was written on behalf of a different

Cogadh Battle of Clontarf Part I
1. Line-up (LXXXVII- XCVII)
2. Supernatural elements (XCVIII & XCIX)
3. Single combats & build-up (C-CV)
4. Battle won at Dubhgall's Bridge (CVI)

Cogadh Battle of Clontarf Part II
1. Murchad's prowess + light relief (CVII & CVIII)
2. Murchad's son killed + light relief (CIV & CX)
3. Murchad's feats & death (CXI & CXII)

***Cogadh* Battle of Clontarf Part III**
1. Brian praying (CXIII)
2. Brian's death (CXIV)
3. Eulogy and lament (CXV & CXVI)
4. Death lists (CXVII & CXVIII)

Figure 7.8 Breakdown of the *Cogad*'s battle of Clontarf account.

LO	*Cogad*	*CCT*
§43 Cian demands hostages of Donnchad under the terms of alternating succession to the kingship of Munster. Donnchad complains that if he had as big a force as Cian's, he would yield him nothing.	**CXX** Cian demands hostages of Donnchad but Donnchad refuses. Cian's men arm for battle but are scared off when they see Donnchad's wounded preparing to join the fight.	**§17** Cian demands hostages of Donnchad, but Donnchad refuses.
§44 When Domnall mac Dub dá Bairenn sees Donnchad yielding hostages to Cian, he demands his share of them and the kingship.	**CXX** *cont'd.* Domnall suggests they divide Munster equally, but Cian refuses.	**§17** *cont'd.* Domnall refuses to support Cian, since Cian will give him no more than what he already has.
§45 Donnchad attempts crossing Osraige taking his wounded with him.	**CXXI** Donnchad moves camp with his wounded. Osraige demands hostages. Donnchad says that while Cian had some right to sovereignty, Osraige had none at all.	**§18** While traveling through Osraige with his wounded, Mac Giolla Phádraig demands hostages, but Donnchad refuses.
§46 Donnchad commands that the sick be bound to chairs in order to fight, but Mac Giolla Pádraig refuses to engage. Most of the wounded die while awaiting the battle. Donnchad remarks that while yielding hostages to Cian was no great wonder, Osraige could expect none. He returns home with the loss of eight score, despite having fought no battle at all.	**CXXI** *cont'd.* The wounded become furious and demand that they take part in the battle, insisting on being tied to stakes so they could stand. Mac Giolla Pádraig refuses battle under those conditions. Donnchad's wounded die of the excitement and are buried with honour.	**§18** *cont'd.* The wounded demand that they be tied to trees in order that they can fight too, but Mac Giolla Pádraig declines battle when he hears of it. Donnchad remarks that Desmond might well have asked for hostages, having the bigger army, but Mac Giolla Phádraig's demand is out of bounds. Eight score of his wounded die, and he goes home.

Figure 7.9 Comparison of the battle of Clontarf coda passages in *LO*, *Cogad* and *CCT*.

lineage, his half-brother's descendants. So why this sudden interest in Donnchad? Why, in a work of such exceptional literary merit, why after a battle portrayal in which temporal realities are flung aside in favour of dramatic impact, why should the author trail off into an account of later events irrelevant to his theme? Denis Casey has suggested that the coda represents something along the lines of a 'Saga of Donnchad' (Casey 2013), written later and tacked onto the *Cogad*'s story on behalf of an aspiring descendant of Donnchad. Plausible, indeed, but unlikely in the light of the evidence from *LO*. For in *Cath Maigh Guile* this same sequence of events pinpoints how the feud erupted between Cenél nAedha and Cenél Loegaire. It is *the* key story of the Cenél nAedha, whose long struggle to regain the sovereignty of Uí Eachach has been outlined above. In light of this let us compare the opening of the *Cath Maighe Guile* with the battle coda in the *Cogad* and in *CCT*.

It should first be noted that of the three surviving manuscripts of *Cogad*, [L] in the Book of Leinster dates from the late twelfth century but preserves only what is roughly the first third of the work (Todd 1867, pp. xii & ix). [D], contained in a fourteenth-century manuscript, breaks off shortly after beginning the description of 'what happened to Brian during the battle'. Our only witness to the coda as part of the *Cogad* is the third manuscript, [B], which was transcribed by Michael O'Clery in 1635. A comparison of this with the opening of the *Cath Maigh Guile* in *LO* shows surprising differences. *LO* avers that Donnchad yielded hostages to Cian and that Domnall mac Dub dá Bairenn demanded both the hostages and the kingship for himself. 'The kingship' in this case must certainly refer to the rule of Munster, which the Uí Eachach are claiming in light of the 'alternating kingship' model by which the Dál Cais originally validated their claim to Munster sovereignty.[17] By yielding hostages, Donnchad has *de facto* acknowledged Cian's overlordship, albeit reluctantly. Donnchad is vilified in the subsequent account: he forces his wounded to prepare for battle and thereby brings about the death of one hundred and sixty of his own warriors without a blow fought. The same story in the *Cogad* differs dramatically. Here, as Casey points out, Donnchad is portrayed as a hero, an 'effective king' and 'a natural leader' (Casey 2013, p. 18). He yields no hostages to Cian, and his wounded voluntarily insist on taking part in battle and in effect die of sheer joy at their success.

Given that the coda is the key component of *LO* while having no bearing whatsoever on the main subject of the *Cogad*, it must be concluded that *Cath Maigh Guile* in some form must be the older of the two. One may well imagine that Dál Cais adherents would be at pains to whitewash such a scurrilous attack on the name and fame of Dál Cais. Perhaps this might even be the reason why Cian has been written out of all the surviving *Cogad* accounts of the battle. That Cian was present at the battle is obvious even from the *Cogad*'s own account wherein he claims sovereignty over Brian's successor. His absence from the rest of the story must therefore be treated with great suspicion. A redactor at pains to bowdlerize the vitriolic description in *Cath Maigh Guile* might well take things one step further and blot out Cian's name from the battle account *per se*. Casey has suggested an early twelfth-century date (pre-1118) for the coda (Casey 2013, p. 20), but if the interpretation presented here is correct, then it cannot be earlier than the political phase which first came into being after the division of Munster in 1118. *CCT* interestingly chooses here to adhere to the *Cogad*'s version. Keeping in mind the argument above that *CCT* is derived from *LO* rather than from the *Cogad*, this would suggest that the Dál Cais coda may have been circulating independently of the main *Cogad* text, as indeed *Cath Maigh Guile* circulated independently of *LO*.

So far then, the evidence of Rawlinson B486 suggests that a version similar to *LO*'s 'Battle of Clontarf' account was in existence by the fourteenth century; a proto-*Cath Maigh Guile* must also have been in existence by then, as there would have been no reason otherwise for the *Cogadh*'s fourteenth-century D witness to have expunged Cian mac Mael Muad from his place at the head of the Desmond battalion in the battle. *LO*'s battle account as it stands today must have been composed prior to 1648, forming as it does the basis for the *CCT* narrative written in that year. As for the annals forming the last section of *LO*, a possible provenance will be discussed below.

Political events 1213–ca.1475

After the death of Donnchadh *na hImirce Timchill* the fortunes of the Cenél nAedha took a major turn. Having taken over the Éoganacht Locha Léin, the Cenél Loegaire seem to have lost interest in the afffairs of Éoganacht Ráithlinn, and the feud died down. *Cath Maigh Guile* in one form or another can therefore only have been produced before Donnchadh's death. Indeed, it would seem very probable that it was commissioned by him during his period(s) of exile. Whether or not the prototype included the poems and their framework stories is open to conjecture. *Ráith Ráithleann Chuirc is Chéin* is central to the work, containing its core message: that Cian was the lord of Uí Eachach and heir to the kingship of Munster. Other royal propagandist works of the twelfth century, such as the *Cogad*, *CCC* and *Morthimchel Éireann uile*, similarly all contained poems 'showing them to be the legitimate holders of kingships stretching back to the dawn of history' (Ó Corráin 1986, p. 153). *Ráith Ráithleann Chuirc is Chéin* would have had legal standing as evidence of Cenél nAedha's status, as

poetry ranked as valid testimony in court (Breatnach 2006, pp. 71-77). But such evidence could have been fabricated later, for as we will see, the body of materials inherited from this twelfth-century period underwent major reworking later on down the line.

The Reverend Canon O'Mahony has traced the subsequent fortunes of the family. After Muirchertach's death in 1240, Donnchadh *na hImirce Timchill*'s remaining sons wound up splitting the ancestral lands between the eastern section of Kinalmeky in which Ráith Ráithleann stands, and the Western Lands or *Fonn Iartharach*, comprising most or all of the Sheepshead and Mizen Peninsulas (O'Mahony 1913, p. 70; see also the map by K. W. Nichols reprinted in Duffy *et al.*, 2001, p. 24)). It was the elder brother who took the western portion and his remained the senior branch of the Uí Mathgamhna. The main residence of the Uí Eachach, rulers of Ivagha (the anglicised form of *Uibh Eachach*) came in time to be the castle of *Ard an Tinnaile* or Ardintinanne on Schull Harbour (O'Mahony 1913, p. 112). The Carews had established themselves in the northern corner of the territory near the head of Bantry Bay, but up until the Desmond Wars the main pressure on the Uí Mathgamhna seems to have come from their efforts to maintain independence from their Mac Cárthaigh overlords rather than from the English. Secure in their mountainous terrain, they were able to use their extensive coastline to advantage and reportedly thrived on trade with mainland Europe; Jeremiah O'Mahony points out that the relatively large number of castles they were able to establish on their holdings points to a state of relative affluence; the junior branch that stayed behind on the better lands of Kinalmeaky were far more at the mercy of their English neighbours and never rose to more than one castle at a time (Jeremiah O'Mahony n.d., p. 119).

Ivagha schools of learning and Fingín Uí Mathgamhna

A reputation of learning has survived in the territory of Fionn Iartharach. Kilcrohane on the Sheepshead Peninsula was given in large part to the bardic family of Ó Dálaigh, who founded a bardic school there. The remains there were surveyed in 2010 by Elizabeth Fitzpatrick in conjunction with her research on bardic schools (Fitzpatrick 2013). Although she stresses its connections with the Carew family, the Ó Dálaigh family were certainly also recognized as bards to Uí Mathgamhna and Mac Cárthaigh (O'Donovan, *Tribes of Ireland*, p. 12, quoted in Fitzpatrick 2013, p. 449; O'Sullivan 1971, p. 30). Another bardic family to the Uí Mathgamhna, the O'Mehigans, are said to have been granted 30 acres of land in Kilmore (O'Mahony 1913, p. 118). A school is furthermore said to have existed near Schull, allegedly mentioned in a Bull of Pope Innocent III in 1199 (O'Mahony 1913, p. 108). Some doubts on the validity of this claim have been raised by Dempsey, however, who quotes an interview with Nollaig Ó Muraíle in which Ó Muraíle appears to suggest that the Bull in question actually referred to a collegiate church in Waterford (Dempsey, 2011, p. 114). But we need not look to these schools or bardic families for an individual who might next have had a hand in the shaping of *LO*: Fingín Uí Mathgamhna of Rosbrin was the son of Diarmait Runtach, the seventh Chieftain of Ivagha, whose obit is listed in AFM 1427.5. Diarmait was succeeded first by his eldest son Conor Cabaicc, who died peacefully in 1473, to be followed by Diarmait's second son Donogh Mor. Following Donogh Mor's death the chieftaincy devolved upon the third brother, Fingín himself (O'Mahony 1913, p. 124).

Fingín's obit in the *Annals of Loch Cé* describes him as 'O'Mahony of Fionn Iartharach, i.e. Finghen, general supporter of the humanity and hospitality of the West of Mumha, and the most learned man of his time in Latin and English' (*ALC* 1496.2); the *Annals of Connacht* concur. Fingín is perhaps best known for his translation into Irish of the *Buke of John Manderville*. He introduces his work by telling us that he, Fingín son of Diarmait Mór Húa Mathgamna, translated the work in the year 1475 in Ross Broin in Uí Eachach in order to provide an account of the best way of journeying to the Holy Land (Stokes 1899, pp. 2 & 3). Ó hUiginn has commented that Fingín writes his translation in a language that is 'at no great remove from the spoken language of its time', deliberately avoiding the archaizing style favoured by other writers into the following century (Ó hUiginn 2013, p. 94). Besides this Fingín also employed a certain Donald O'Fihely, an Oxford graduate, to compile a set of annals for him. These annals later came into the possession of Florence McCarthy and are now known as *McCarthy's Book* (Ó hInnse 1947, p. ix), a source used extensively above. Ó Fiaich has pointed out that unlike the very detailed records in the early surviving portion, *MCB* entries between 1215 and a chasm at 1263 are laconic in the extreme, while over a dozen years bear no entries at all (Ó Fiaich 1950, p. 31). This corresponds to the period following the death of Donnchadh *na hImirce Timchill* in 1213, when the Uí Mathgamhna fortunes were at an extreme low and the family in the process of relocation. Presumably the original records must have come from a monastery in the Uí Eachach lands that were transferred at some stage into the keeping of the ruling family, perhaps during this period of transition. The only surviving copy of *MCB* is acephalous, having lost all folios prior to 1114. The original however certainly included the period covered by *LO*: Mícheál Ó Cléirigh when compiling his *Martyrology of Donegal* mined a copy of *MCB* for material on the Norman invasion; in the margin he notes the date of Brian Bóroimhe's death, 'according to this same

book of McCarthy' (Todd 1864, p. xxvii). Since our *LO* leaves off in 1027, there can be no way of comparing the two, but the post-Clontarf chronicles in *LO* may represent some of the lost portion of *MCB*; at the very least they were probably drawn from it.

We thus have in Fingín a highly literate figure who owned family records closely related to *LO* and who employed an Irish Oxford scholar to work on them. Brian O'Dwyer has commented on the very similar role played by Donncadh Baccach Ó Mailchonaire in shaping the narratives of the *Annals of Connacht*, 'stamping his concepts and viewpoints on the obituaries and the narratives ... the fifteenth-century elaborator must no doubt be accredited with much in the way of shaping and planning and selection of material as well as re-writing' (O'Dwyer 1972, p. 96). It would seem probable that Fingín and Donal O'Fihely similarly took the family histories in hand. We have seen that a Cenél nAedha account of the battle of Clontarf already existed, as did some form of *Cath Maigh Guile*. These may have been expanded and joined into a longer narrative at this time. This was, after all, a period of relative peace and prosperity and 'with cultural confidence comes a desire to renew the present through the past, to re-engage with earlier sources, to reinforce a shared sense of identity, and to rediscover what might have been put to one side, even temporarily' (Murray, 2014, p. 291).

We are still faced with a riddle however, for neither the poem nor the LO are written in the language of the twelfth or even fifteenth century, but in a more modern version of Irish. While linguistic considerations have usually been paramount in the rough dating of a text, Elizabeth Boyle and Deborah Hayden point out that narrative prose was particularly subject to linguistic modification (Boyle & Hayden, 2014, p. xix). Nevertheless, there is still a significant discrepancy between language and content in *LO* which remains to be explained.

After Fingín's death the lordship of Ivagha reverted to his nephews. Fingín's own descendants fell increasingly foul of the English government and his great grandsons lost all in the Desmond Wars. In 1602 Fingín's castle of Rosbrin, with any library that it still possessed, passed irrevocably into English hands (O'Mahony 1913, p. 139). The main branch had stayed out of the Desmond wars, but chose to ally themselves with the O'Neill cause. Following the O'Neill's defeat at Kinsale the lordship of Ivagha came to an end (O'Mahony 1913, p. 150).

Conclusions

The final stage of *LO*, its enshrinement in a language similar in date to that of *CCT*, must remain for the present a matter unresolved. It is tempting, however, to look to the bardic school of the Ó Dálaighs which existed in Kilcrohane on the lands of the Ivagha. Could they have become heirs to Fingín's library? Would one of their members have undertaken to rewrite the early O'Mahony history in a modern style? It is tempting to think that the appearance of Keating's *Foras Feasa ar* Éireann may have encouraged such an undertaking, for Keating, like Fingín before him, chose to write in a 'modern, accessible Irish, something close to that which he would have used orally when delivering a sermon (Cunningham 2000, p. 127). Cunningham goes on to note that '*Foras feasa* was written to define the Irish people in terms of who they were and where they had come from', an aim which would certainly characterize the re-fashioning of the O'Mahony heritage as well.

What remains clear in any case is that Ráithliu, regarded in the twelfth century as the symbolic centre of the kingship of Uí Eachach, remained a central feature of the Uí Eachach identity up into the seventeenth century despite the geographic relocation and later demise of the sept's leading branch. It is argued here that early Uí Eachach records concerning Ráithliu and the kingship became incorporated in a series of stages into the work known as the *Leabhar Oiris*, which in turn had considerable influence on later redactions of the *Cogad Gaedel re Gallaib* and served as the basis for the *Cath Cluana Tarbh*.[18]

Notes

1 Death of Fedlimid, son of Tigernach, king of Cashel AI 593.1 (=590); king of Mumu AU 590.1.
2 *Annals of Clonmacnoise*, edited by Denis Murphy, 1896.
3 The Annals of the Four Masters was translated and edited by John O'Donovan, as *Annala Rioghachta Eireann. Annals of the Kingdom of Ireland by the Four Masters, from the Earliest period to the year 1616* (Dublin 1856). The edition used here is downloaded from CELT at https://celt/ucc.ie//published/T100005A/index/html. The *Cogad Gaedel Re Gallaib* was translated by James Henthorne Todd, 1867.
4 The *Annals of Innisfallen* (*AI*), edited and translated by MacAirt, 1951.
5 *Chronicon Scotorum* (*CS)*, translated by W. M. Hennessy, 1866.
6 *Annals of Tigernach* (*AT*) Whitley Stokes (ed. & transl.) 1896/7.
7 *The Annals of Ulster* (*AU*) edited and translated by Seán Mac Airt and Gearóid Mac Niocaill, 1983.
8 Found in over twenty manuscripts, none older than 1711-12, see Ní Úrdail 2011, p. 77. It was edited by Richard Irvine Best in 1904, who also discusses the MSS known to him at that time. No translation of the text has been published to date, but dedicated studies consist of Meidhbhín Ní Úrdail (2013) and Lenore Fischer (2016).
9 Edited and translated by Ní Úrdail (2011).
10 See Fischer (2016) for a more detailed examination of this portion of *LO.*
11 For dating see Myles Dillon, 1958, p. 246, more recently confirmed by Kevin Murray, 2013, p. 95. Swift also discusses the passage, see Swift, 2013, p. 45.
12 See Ó Corráin, 1969, pp. 142 and 145; Ó Corráin 1974, pp. 39-41, Ó Corráin 1998, pp. 183-4. Attempts by Rev. Canon John O'Mahony, (1913, pp. 50-51), to outline the history of the Cenél Loegaire lacked the benefit of later genealogical research. The same excuse cannot be made for Henry A. Jefferies' desultory contribution (1983, pp. 81-99).
13 See Ó Corráin, 1974, p. 64, discussed in more detail in MacCotter, 2006, p. 64.
14 'Mac Carthaigh's Book' is published as the first in a collection called *Miscellaneous Irish Annals* translated and edited by Séamus Ó hInnse, 1947.
15 The *DAI* are an unpublished set of annals compiled in the eighteenth century from a variety of sources, some now no longer extant. See Ó Cuilleanáin, 1947, also more recently Ní Úrdail 2007 and Ní Úrdail 2011, pp. 82-87.
16 Translated and edited by Alexander Bugge, 1905. The main interpretive study is by Ó Corráin 1974.
17 The agreement that the kingship should alternate between the descendants of Cormac Cas and of Fiachu Muillethan is described, for instance, in the *CCC*, see the analysis in Ó Corráin 1974, p. 8.
18 I wish to express my thanks to William O'Brien for including me in this project, and for his patience and kindness. Most especially I also want to thank Cian Ó Cionnfhaolaidh, who proved a wonderful sounding board and merciless critic. Denis Casey and Meidhbhín Ní Úrdail were also kind enough to provide comments and encouragement.

7.3 BAYESIAN ANALYSIS OF THE GARRANES RADIOCARBON DATES

Kevin Kearney

This section reports on the Bayesian assessment of radiocarbon dates obtained following the excavations at Lisnamanroe (11E0110) and Lisnacaheragh (E629 and 17E0164 excavation licences) ringforts, Co. Cork. Fifteen radiocarbon dates were obtained from the Lisnamanroe excavation, while a further twelve were obtained from two phases of excavations at Lisnacaheragh. All radiocarbon dates were supplied by the Centre for Isotope Research (CIO) in the University of Groningen, The Netherlands. The dated samples from the earlier phase of excavation at Lisnacaheragh (sample numbers E629) were pre-treated and dated by gas proportional counting of carbon dioxide as described by Mook and Streurman (1983), while all other dated samples were processed and measured by accelerator mass spectrometry according to the procedures outlined by Aerts-Bijma *et al.* (1997; 2001) and van der Plicht *et al.* (2000).

Results and calibration

Details of all radiocarbon determinations are outlined in Figures 7.11 and 7.12, with results reported as conventional radiocarbon ages (Stuiver and Polach 1977) and quoted in accordance with the international standard established by the Trondheim Convention (Stuiver and Kra 1986). The calibrated date ranges have been calculated using the maximum intercept method (Stuiver and Reimer 1986), the IntCal13 calibration curve (Reimer *et al.* 2013) and the computer program OxCal v4.3.2 (Bronk Ramsey 1995; 1998; 2001; 2009). The graphical distribution of the calibrated results were derived from the probability method (Stuiver and Reimer 1993) and the calibrated date are quoted in the form recommended by Mook (1986), with the end points rounded outward to 10 years and are cited at two sigma, (95.4% confidence) unless stated otherwise. The wide date range of *c.*100 years (at 95.4% probability) results from plateau in the calibration curve at this radiocarbon age BP, caused by fluctuations in past atmospheric ^{14}C levels (For an example of the effects of the calibration curve fluctuation see Figure 7.10).

The Bayesian approach

The basic principles of the Bayesian approach to the interpretation of archaeological chronological data are based on the Bayes' theorem (Bayes 1763). The application of the Bayesian approach to archaeological datasets operates under the principle that while the calibrated age ranges of radiocarbon measurements estimate the calendar ages of the samples themselves, it is the dates of archaeological events associated with these samples that are of paramount important to archaeological interpretation (Bayliss *et al.* 2007, 5). Bayesian analysis provides quantitative estimates of the dates of such archaeological events (posterior beliefs) through the combination of two strands of data, absolute or scientific dating evidence ('the standardised likelihoods') and relative dating information, such as the stratigraphic relationship between contexts from which the dates were derived ('prior beliefs') (*ibid.*). These posterior beliefs are then expressed as '*posterior density estimates*' and are by convention always expressed in italics.

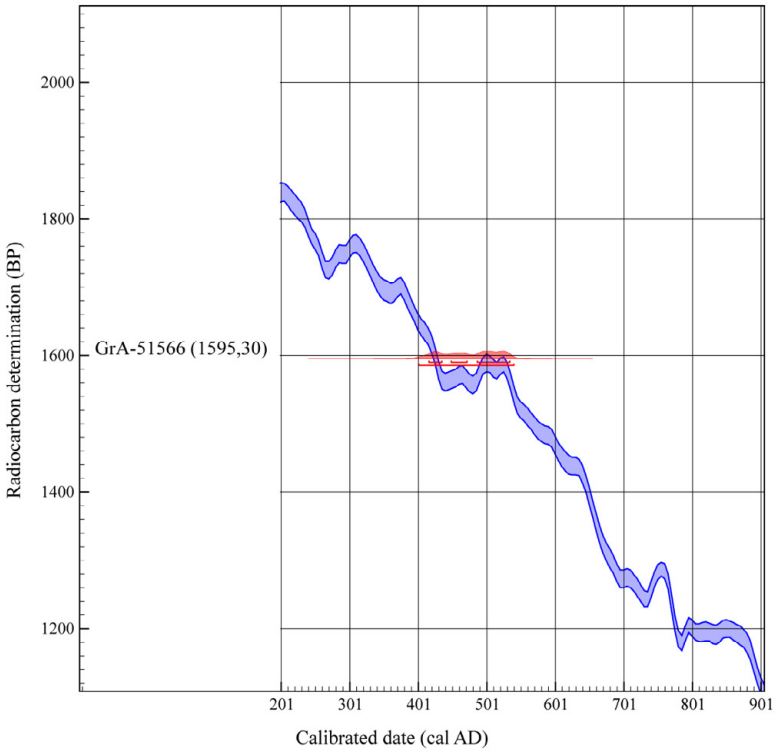


Figure 7.10 Effects of fluctuations in the calibration curve of the ^{14}C dates from Lisnamanroe, Garranes.

A general introduction to the application of the Bayesian approach to archaeological data is provided by Buck *et al.* (1996), with the methods for building Bayesian chronologies in archaeology following those outlined in Bayliss *et al.* (2007) and Bayliss (2007). This approach uses the Markov Chain Monte Carlo (MCMC) random sampling technique (Bronk Ramsey 1995;

2009) which generates a representative set of possible combinations of dates and has been applied using the programme OxCal v4.3.2 (http://c14.arch.ox.ac.uk/). Details of the algorithms employed by this programme are available in Bronk Ramsey (1995; 1998; 2001; 2009) or from the online manual. This process produces a *posterior density estimate* of each sample's calendar age, which occupies only part of the calibrated probability distribution. These *posterior density estimates* are not absolute and will change as additional radiocarbon dates are added or the Bayesian models are re-run from different perspectives.

Should specific events, such as the beginning or end of an activity at a given site, not be dated directly by radiocarbon measurements, it is possible to calculate more accurately a distribution for such events using the Bayesian method (Bayliss and Woodman 2009, 109), provided that a sufficient number of radiocarbon determinations (at least five) exist for the site. These posterior beliefs are not dependant on any one particular radiocarbon date, but rather on the entire assemblage of dates from the phase. Additionally, comparison of these *posterior density estimates* allows an estimation to be made of the duration of a particular phase of activity or activities and the time elapsed between the end of one and start of another phase of activity.

To assess the reliability of the models, two statistical indices were used by OxCal; (A:) and ($A_{overall}$), both of which have an index of agreement threshold value of 60% (Bronk Ramsey 1995, 429). The (A:) index indicates the robustness of agreement between the *posterior density estimate* and the standardised likelihood from which it derives. In this study that represents the level of agreement between the individual calibrated radiocarbon dates and the resulting *posterior density estimate* from the Bayesian model. Where there is a low (A:) index of agreement, it may merely indicate that the radiocarbon date is a statistical outlier, however very low agreement may suggest that a sample is residual or intrusive.

The ($A_{overall}$) tests the overall index agreement which is calculated using the individual agreement indices. This provides a general measure of the consistency between the prior information and the standardised likelihoods. This is essentially the agreement of the combined *posterior density estimates* generated within the model, and their agreement with the overall Bayesian model. It is therefore possible, particularly within large datasets, for one or more radiocarbon dates to fall below the required (A:) index of agreement but for the ($A_{overall}$) index of agreement to be greater than 60%, which would indicate that the overall model is robust. To determine if each model is stable and robust, OxCal also conducts a convergence test, which measures how quickly the MCMC sampler is able to produce a representative and stable solution to the model. In practice, a model with a poor convergence value (<95%) is deemed unstable and results should not be used.

For robust Bayesian models it is essential to impose such a distribution to counteract the statistical scatter on the radiocarbon measurements. Such statistical scatters occur as radiocarbon dates come with errors, and therefore a proportion of the probability distributions of the calibrated radiocarbon dates pertaining to a particular phase of activity, will be earlier or later than the calendar span of that phase. If this scatter is not taken into consideration, the model may produce results for the start or end of archaeological activity, which are earlier or later than was actually the case (Bronk Ramsey 2000; Steier and Rom 2000). The approach adopted in this report is to therefore assume that the archaeological events which have been sampled for radiocarbon dating are distributed uniformly (Buck *et al.* 1992).

Analysis and interpretation

A total of fifteen radiocarbon dates are available for Bayesian modelling of the start of activity at Lisnamanroe (Figure 7.11). These include three results from Trench 1, four from Trench 2, five from Trench 3, and three from Trench 6. Eight of these relate to the enclosing elements and entrance, with seven other results coming from occupation contexts inside the enclosure. Ten dates are for charcoal samples (oak sapwood or short-lived tree species), with four results for burnt bone (unidentified, but probably animal) and one for charred *Hordeum* (barley) grain.

Radiocarbon determinations *GrA-51566, GrA-51567* and *GrA-51595* were all derived from *Alnus glutinosa* (alder) charcoal and relate to the enclosing elements of the ringfort. *GrA*-51567, recovered from the mid ditch fill (C.100), is unrelated to the initial construction or occupation phase at the site and has therefore been treated as *terminus ante quem* for dating this feature. *GrA-51566* and *GrA-51595*, recovered from the within the bank (C.85) and the basal ditch fill (C.153), were shown to be statistically consistent [T'=0.5; T'(5%)=3.8; v=1] (Ward and Wilson 1978) and have been included in the model as relating to the initial construction phase of these features.

Radiocarbon determinations *GrA-54261* (charcoal), *GrA-54281* (charred *Hordeum* grain), *GrA-54893* [burnt bone *c.f. Bos* (cattle)], *GrA-54283* (charcoal) and *GrA-54285* (charcoal) relate to the entrance feature of the enclosure. *GrA-54261*, *GrA-54281* and *GrA-54893*, recovered from the lower fills of the northern ditch terminal, were

Lab Code	Sample No.	Context	Dated Material	Radiocarbon Age (BP)	Calibrated Age (2σ) 95.4% probability	Calibrated Age (1σ) 68.2% probability
GrA-51566	2011-16	C.85	*Alnus glutinosa* charcoal	1595±30	400-540 cal AD	410-440 cal AD (14.4%) 440-470 cal AD (14.8%) 480-540 cal AD (39.0%)
GrA-51567	2011-17	C.100	*Alnus glutinosa* charcoal	1100±30	880-1020 cal AD	890-930 cal AD (27.8%) 940-990 cal AD (40.4%)
GrA-51595	2011-18	C.153	*Alnus glutinosa* charcoal	1625±30	350-370 cal AD (2.5%) 380-540 cal AD (92.9%)	390-430 cal AD (44.5%) 490-530 cal AD (23.7%)
GrA-54261	2012-01	C.279	Charcoal	1620±30	380-540 cal AD	390-430 cal AD (44.5%) 490-530 cal AD (23.7%)
GrA-54281	2012-02	C.248	Charred *Hordeum* grain	1595±30	400-550 cal AD	410-440 cal AD (14.4%) 440-470 cal AD (14.8%) 480-540 cal AD (39.0%)
GrA-54893	2012-03	C.233	Burnt bone *c.f. Bos taurus*	1585±30	400-550 cal AD	420-440 cal AD (9.8%) 440-480 cal AD (18.8%) 480-540 cal AD (39.6%)
GrA-54283	2012-04	C.226	Charcoal	635±25	1280-1330 cal AD (39.3%) 1340-1400 cal AD (56.1%)	1290-1320 cal AD (25.8%) 1350-1390 cal AD (42.4%)
GrA-54285	2012-05	C.255	Charcoal	1560±25	420-560 cal AD	430-500 cal AD (58.4%) 530-550 cal AD (9.8%)
GrA-51563	2011-06	C.49	*Corylus avellana* charcoal	1615±35	350-370 cal AD (1.3%) 380-550 cal AD (94.1%)	390-440 cal AD (32.3%) 450-470 cal AD (4.0%) 480-540 cal AD (31.9%)
GrA-51565	2011-11	C.75	*Quercus* sp. (sapwood) charcoal	1655±30	260-280 cal AD (2.0%) 320-440 cal AD (87.9%) 490-530 cal AD (5.6%)	350-370 cal AD (13.1%) 380-420 cal AD (55.1%)
GrA-51594	2011-21	C.120	*Ilex aquifolium* charcoal	1595±30	400-540 cal AD	410-440 cal AD (14.4%) 440-470 cal AD (14.8%) 480-540 cal AD (39.0%)
GrA-51596	2011-30	C.106	*Corylus avellana* charcoal	1620±30	380-540 cal AD	390-430 cal AD (44.5%) 490-530 cal AD (23.7%)
GrM-16484	2015-01	C.495	Burnt bone	1580±25	410-550 cal AD	420-440 cal AD (8.0%) 440-480 cal AD (20.2%) 480-540 cal AD (40.0%)
GrM-16485	2015-02	C.521	Burnt bone	1600±30	390-540 cal AD	410-440 cal AD (18.4%) 450-470 cal AD (11.6%) 480-540 cal AD (38.2%)
GrM-16486	2015-03	C.527	Burnt bone	1550±30	420-580 cal AD	430-500 cal AD (50.0%) 510-520 cal AD (2.5%) 520-550 cal AD (15.7%)

Figure 7.11 Radiocarbon determinations from the 2011–15 excavations at Lisnamanroe enclosure, Garranes.

shown to be statistically consistent [T'=0.7; T'(5%)=6.0; v-2, *ibid.*] and have been included in the model as relating to the construction of this feature. *GrA-54283* was recovered from the upper fill (C.226) of the northern ditch terminal and has therefore been treated as *terminus ante quem* for dating this feature. *GrA*-54285, recovered from the northern gate post-hole, was shown to be statistically consistent [T'=2.1; T'(5%)=7.8; v-3, *ibid.*] with the dates from the lower fills of the northern ditch terminal and is included in the model as dating the construction of this feature.

Radiocarbon determinations *GrA-51563* [*Corylus avellana* (hazel)], *GrA-51565* [*Quercus* sp. sapwood (oak)], *GrA-51594* [*Ilex aquifolium* (holly)], *GrA-51596* (*Corylus avellana*), *GrM-16484* (burnt bone), *GrM-16485* (burnt bone) and *GrM-16486*

(burnt bone) were all recovered from features within the interior of the ringfort. All determinations were shown to be statistically consistent [T'=7.4; T'(5%)=12.6; v-6, *ibid.*] and were initially included in the model as relating to occupation of the ringfort. However, *GrA-51565* demonstrated poor overall agreement with initial model [A= 21.2%; (A'c)=60.0%] and was therefore excluded from the final model.

Twelve radiocarbon dates are also available for Bayesian modelling of the start of activity at Lisnacaheragh (Figure 7.12). These include four results from Trench 1, one from Trench 3, three from Trench 4, and four from the 2017 Trench. Eleven dates were derived from charcoal samples and the remaining date was derived from burnt bone (unidentified, but probably animal). As each of these determinations related to occupation contexts inside the enclosure, all were included in the Bayesian model, Lisnacaheragh Model 1 (Figure 7.15). However, the value of the Bayesian approach depends on the relationship between the dated samples and the context from which these are derived, and therefore the rigorousness of the sample selection strategy employed. Optimal samples are derived from short-lived, single entity material, for example cereal grains or charcoal from short-lived taxa such as *Corylus avellana* (hazel). As all of the radiocarbon dates from the pre-2017 excavations at Lisnacaheragh were derived from unidentified charcoal samples, these may have included fragments of various ages, thus the resulting ^{14}C determinations may be the mean of all fragments and the age of none or alternatively these may have been derived from longer living taxa, such as *Quercus* (oak).

Therefore, the reliability of the pre-2017 dates was statistically assessed to determine their consistence with the 2017 dates (Ward and Wilson 1978), which

Lab Code	Sample No.	Context	Dated Material	Radiocarbon Age (BP)	Calibrated Age (2σ) 95.4% probability	Calibrated Age (1σ) 68.2% probability
GrA-32683	E629: 180	F.80	Charcoal	1520±25	420-500 cal AD (26.1%) 510-520 cal AD (1.1%) 520-610 cal AD (68.2%)	470-490 cal AD (6.2%) 530-600 cal AD (62.0%)
GrA-32684	E629: 221	F.221	Charcoal	1510±25	430-490 cal AD (14.8%) 530- 620 cal AD (81.0%)	540-600 cal AD
GrA-32692	E629: 227		Charcoal	1530±30	420-600 cal AD	430-460 cal AD (16.4%) 460-490 cal AD (14.5%) 530-580 cal AD (37.3%)
GrA-32694	E629: 291	F.291	Charcoal	1580±30	410-550 cal AD	420-440 cal AD (8.5%) 440-480 cal AD (21.1%) 480-540 cal AD (38.6%)
GrA-32695	E629: 337	F.354	Charcoal	1620±30	380-540 cal BC	390-430 cal AD (39.8%) 490-530 cal AD (28.4%)
GrM-10238	GR2017-01	C.18	*Corylus avellana* charcoal	1560±25	420-560 cal AD	430-490 cal AD (58.4%) 530-540 cal AD (9.8%)
GrM-10239	GR2017-02	C.64	*Corylus avellana* charcoal	1480±25	540-640 cal AD	560-610 cal AD
GrM-10240	GR2017-03	C.96	*Corylus avellana* charcoal	1530±25	420-500 cal AD (39.1%) 500-600 cal AD (56.3%)	430-460 cal AD (13.2%) 470-490 cal AD (13.2%) 530-580 cal AD (41.8%)
GrM-10190	GR2017-04	C.38	Animal Bone	1485±15	540-620 cal AD	560-610 cal AD
GrA-32679	E629: 49		Charcoal	1590±25	410-540 cal AD	420-440 cal AD (11.5%) 450-480 cal AD (15.0%) 480-540 cal AD (41.7%)
GrA-32681	E629: 54	F.54	Charcoal	1555±25	420-560 cal AD	430-500 cal AD (56.1%) 530-550 cal AD (12.1%)
GrA-32693	E629: 287	F.189	Charcoal	1605±30	390-540 cal AD	400-440 cal AD (24.0%) 450-470 cal AD (6.7%) 480-540 cal AD (37.4%)

Figure 7.12 Radiocarbon determinations from the 1990–2 (E629:) and 2017 (GR2017:) excavations at Lisnacaheragh, Garranes.

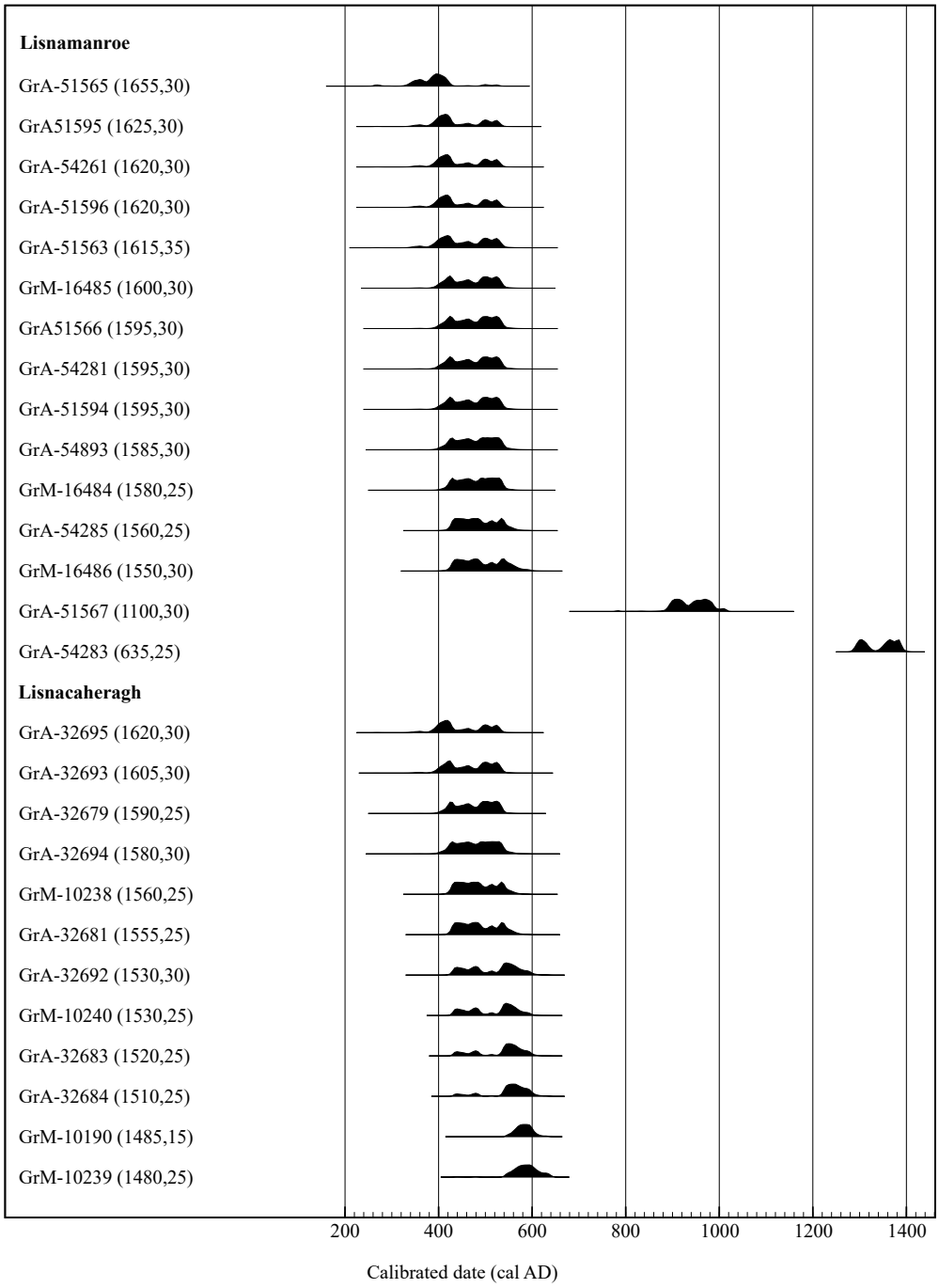


Figure 7.13 Calibrated radiocarbon dates from Lisnamanroe and Lisnacaheragh, Garranes.

were derived from identified short-lived, single entity material. All pre-2017 dates were demonstrated to be statistically consistent with both *GrM-10238* [T'=8.2; T'(5%)=12.6; v-6] and *GrM-10240* [T'=8.3; T'(5%)=12.6; v-6], however they were statistically inconsistent with both *GrM-10239* [T'=13.9; T'(5%)=12.6; v-6] and *GrM-10190* [T'=19.1; T'(5%)=12.6; v-6]. This would question the consistency of the pre- and post-2017 dates and therefore, the reliability of these to accurately reflect the date of occupation at Lisnacaheragh. However, the post-2017 radiocarbon determinations from Lisnacaheragh were also demonstrated to be statistically inconsistent with each other [T'=8.6; T'(5%)=7.8; v-3], which could therefore indicate that these represented two phases of activity at the site. A second model (Lisnacaheragh Model 2) was therefore constructed which treated *GrM-10238*, *GrM-10240* and the pre-2017 dates as representing Phase 1, while *GrM-10239* and *GrM-10190* represented Phase 2 activity (Figure 7.16).

These dates were plotted using OxCal 4.3.2 (Bronk Ramsey 2009) to propose a refined chronology for the

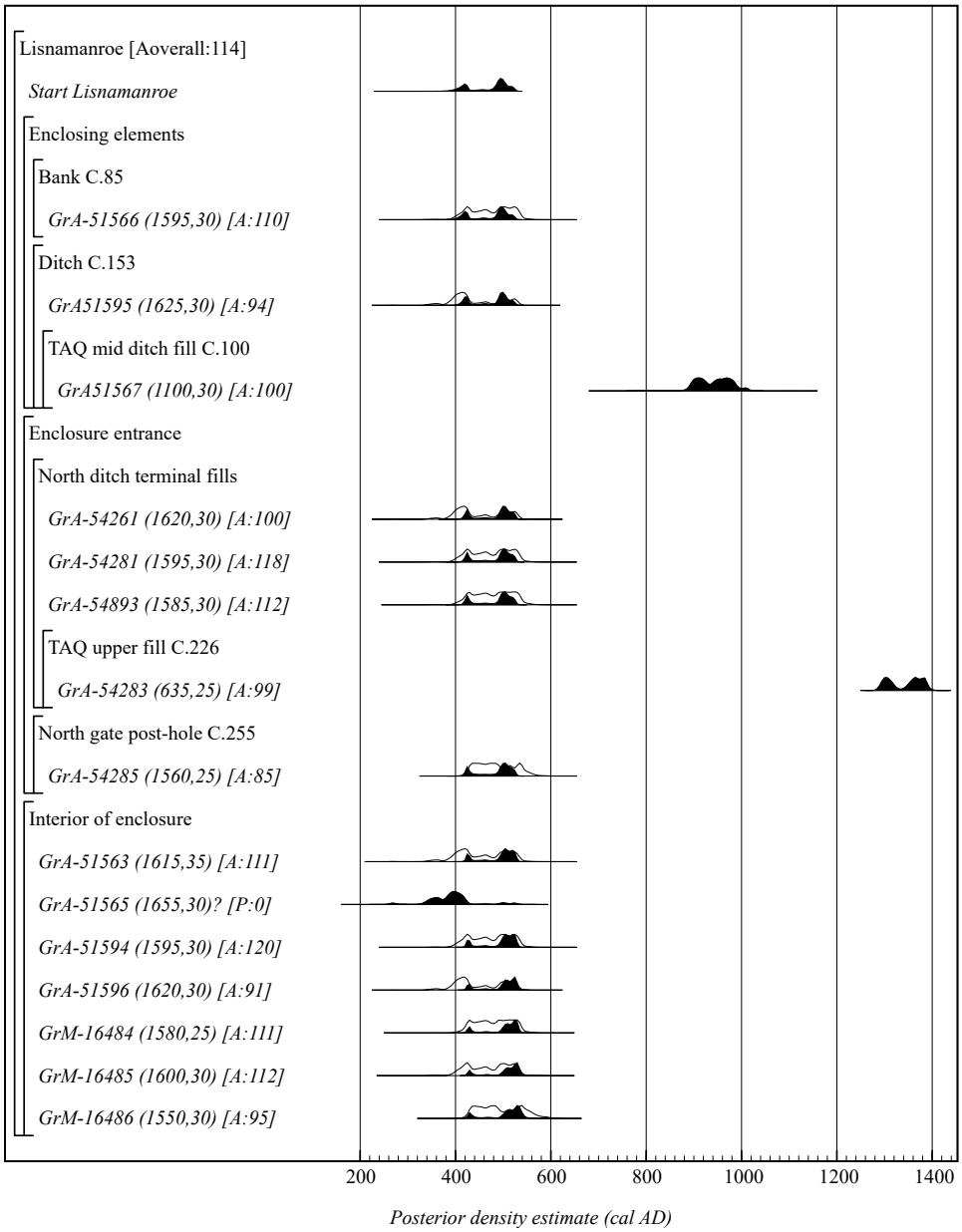


Figure 7.14 Bayesian model for occupation at Lisnamanroe, Garranes.

start of occupation of the ringforts at Lisnamanroe (Figure 7.14) and Lisnacaheragh (Figures 7.15 and 7.16). Bayesian modelling returned a date range of *390-530 cal BC* (*95% probability*), *410-520 cal BC* (*68% probability*) for the start of occupation at Lisnamanroe ($A_{overall}$=114), a date range of *390-530 cal BC* (*95% probability*), *440-530 cal BC* (*68% probability*) for the start of occupation at Lisnacaheragh Model 1 ($A_{overall}$=105) and a date range of *400-530 cal BC* (*95% probability*), *450-530 cal BC* (*68% probability*) for the start of occupation at Lisnacaheragh Model 2 ($A_{overall}$=110) (Figure 7.17).

The three models present here exhibit a high degree of consistency, suggesting that the dataset is very robust and so the models are likely to provide a good indication of the chronology of occupation at Lisnamanroe and Lisnacaheragh. The model also demonstrated that the start of occupation at Lisnamanroe and Lisnacaheragh Model 1 was statistically more probable to have occurred contemporaneously, while occupation at Lisnacaheragh Model 2 was shown to have commenced after that at Lisnamanroe (Figure 7.18). The model therefore indicates that if the dates from Lisnacaheragh represent one phase of activity (Model 1), then occupation of both sites commencedcontemporaneously tween the late 4th and early 6th century cal AD, while if these represent two phase of activity, the model infers that occupation commenced at Lisnamanroe shortly before it did at Lisnacaheragh (Model 2).

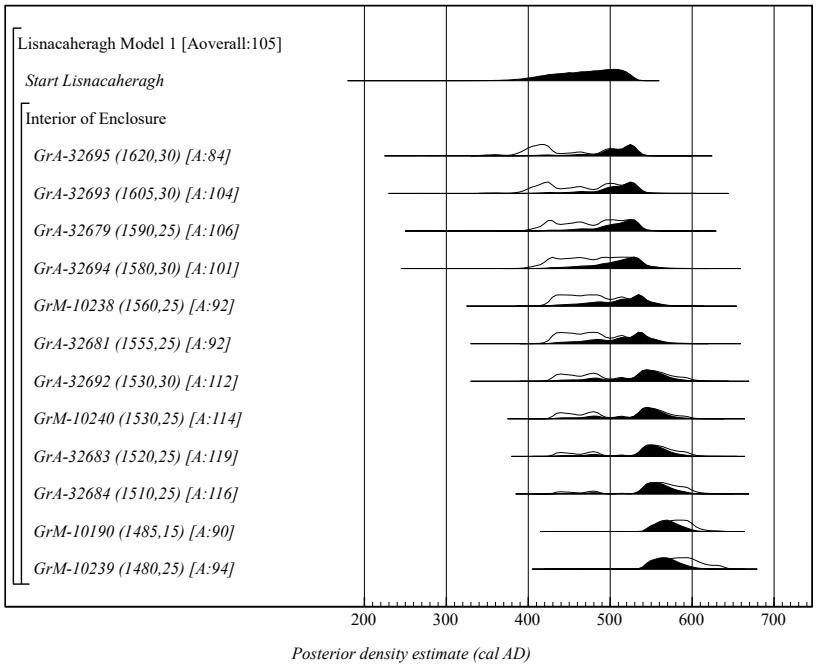


Figure 7.15 Bayesian model for occupation at Lisnacaheragh, Garranes (Model 1).

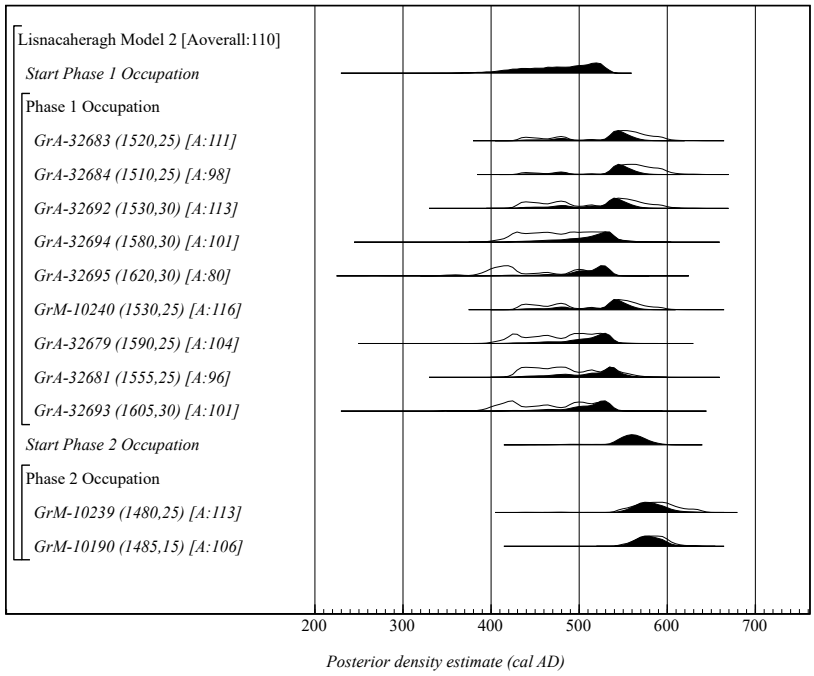


Figure 7.16 Bayesian model for occupation at Lisnacaheragh, Garranes (Model 2).

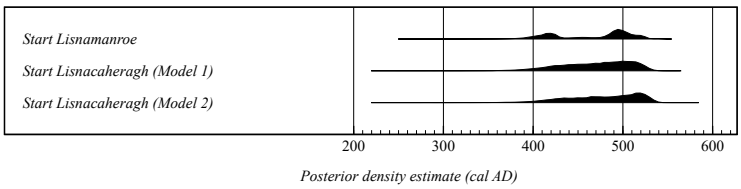


Figure 7.17 *Posterior density estimates* for the start of occupation at Lisnamanroe and Lisnacaheragh (Models 1 & 2), Garranes.

	(Model 1) Start *Lisnacaheragh*	**(Model 2) Start *Lisnacaheragh***
Start *Lisnamanroe*	51%	58%

Figure 7.18 Percentage probabilities of the relative order of the start of occupation at Lisnacaheragh and Lisnamanroe ringforts. This is expressed as the probability of the 'event' in the left-hand column occurring prior to the 'event' in the top row.

7.4 THE EARLY MEDIEVAL IMPORTED CERAMICS FROM LISNACAHERAGH AND LISNAMANROE

Ian W. Doyle

In this paper the early medieval pottery from the excavations during 1990–2 and 2017 at Lisnacaheragh, as well as at Lisnamanroe 2011–15, is described. Comparisons to the larger assemblage recovered in the 1937 excavations by Professor S.P. Ó Ríordáin at Lisnacaheragh are also made (Ó Ríordáin 1942, 125-33). In addition to describing the ceramic material uncovered in the recent excavations, there are four broader areas deserving greater consideration.

Firstly, what is the contribution by the modern excavations at Garranes to our understanding of the ceramic assemblage recovered by Ó Ríordáin? The pottery from the 1937 excavation was previously examined by this writer (Doyle 1996; 1999; 2009) and the recovery of additional stratified and dated material now provides an opportunity to reflect on previous analyses, in particular in the light of recent work on similar assemblages elsewhere in Ireland, western Britain, France and northern Spain.

Secondly, and arising from this, the series of radiocarbon dates obtained as part of the Garranes project offers an opportunity to assess the chronology of the pottery assemblage and to compare these dates with other typological and excavated sequences. A notable aspect of this project has been the sequence of radiocarbon dates assembled for both Lisnamanroe and Lisnacaheragh, with two dated environmental samples directly associated with identifiable sherds of pottery, as well as other dates from excavated deposits.

Thirdly, given the formative place of Ó Ríordáin's excavations at Lisnacaheragh in understanding power and economy in this part of Munster during the early medieval period, how do the ceramics from this site compare to other locations in Ireland and indeed the wider Atlantic context?

Finally, what is the place of the Garranes complex, specifically Lisnacaheragh, in the understanding of early medieval pottery from the 1930s onwards? The assemblage from the 1937 excavations was, with the material from Tintagel, Cornwall, the first to provide evidence of foreign contact in the period then seen as the 'Dark Ages'. Arguably, in subsequent ceramic studies the place of the Garranes assemblage was over looked, partly due to the scale of the material recovered from Tintagel, but also due to a lack of follow up investigations until those carried out recently and reported in this volume.

Figure 7.19 provides summary details of the origins and forms of these pottery classes, the names of which have changed since the initial accounts of these wares in the 1950s (Radford 1956; Thomas 1959).The use of classifications from the Mediterranean has now become

Type	*Forms*	*Modern-day origin*	*Insular dating*
Finewares			
***African Red Slipware* (ARS)**	Bowls	North Africa	Late-fifth to mid-sixth centuries AD
***Late Roman C* (LRC)** *(Phocaean Red Slip Ware or PRSW)*	Bowls	Western Turkey	Late-fifth to mid-sixth centuries AD
Late Roman Amphorae			
***LRA 1* (formerly Bii)**	Broad amphorae	Syria, Cyprus	Late-fifth to mid-sixth centuries AD (formerly 'B ware')
***LRA 2* (formerly Bi)**	Globular amphorae	Eastern Mediterranean: Greece	
***Dérivées sigillées paléochrétiennes, Atlantic group* (DSPA)**	Bowls, plates, mortaria	Bordeaux region likely	sixth-century AD (formerly 'D ware')
E ware	Jars, beakers, bowls, jugs, lids	Bordeaux region likely	Mid-sixth to early-eighth-centuries AD

Figure 7.19 Summary of early medieval imported pottery found in western Britain and Ireland.

standard practice rather than using terms which were previously devised with reference to British and Irish assemblages. The exception to this remains E ware, which although known from the Bordeaux area, has yet to acquire a more precise name.

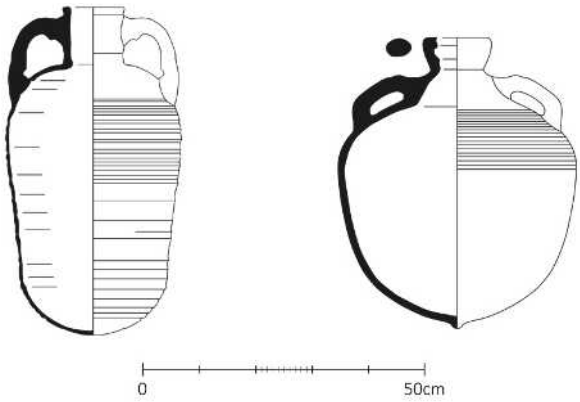


Figure 7.20 LRA1 (left) and LRA2 (right). (University of Southampton 2014)

The assemblage from 1990–92 and 2011–17 excavations at Garranes

Late Roman C/Phocaean Red Slipware

Three sherds from the excavation of the Lisnamanroe enclosure are from a Late Roman C (LRC)/Phocaean Red Slipware (PRSW) bowl (Hayes 1972, 323-4; 1980). These finewares bowls were made in what is now western Turkey between the 4th and 7th centuries AD. The examples of this pottery recovered from western Britain and Ireland are all of form 3, which are shallow, thin walled bowls, often decorated with rouletting on the rim exterior and with a footring on the base. LRC form 3 bowls can be dated to the late fifth-early sixth centuries AD. The fabric is typically orange-red with minute inclusions of yellow limestone. A purple or maroon coloured slip was applied to the surfaces. The 1937 excavation at Lisnacaheragh recovered three sherds from a single LRC form 3E bowl (Ó Ríordáin 1942, fig. 23, no. 249; Doyle 2009, 47-48). Elsewhere in Ireland, this pottery is known from Collierstown, Co Meath, and Mount Offaly, Co Dublin. This material was previously referred to as A ware in Britain, a term no longer in use. Hayes (1980) put forward the name Phocaean Red Slipware (PRSW) for this pottery based on kiln sites near Phocea or Foça in western Turkey and this term was current in the literature until relatively recently. However, the older name Late Roman C (LRC) is now increasingly being used for these wares (Figure 7.19).

11E0110:100 Lisnamanroe A small weathered LRC basal sherd with portion of footring. Patches of maroon coloured slip are present on the underside of the base. Size 29mm x 18mm, thickness 3-9mm. Trench 2, Context 93 (Figure 7.21).

11E0110:93 Lisnamanroe A small heavily weathered LRC basal sherd with portion of footring. One small patch of maroon coloured slip is present on the underside of the base. Size 22mm x 17mm, thickness 3-9mm. Trench 2, Context 93.

11E0110:60 Lisnamanroe A weathered LRC form 3 rim sherd. Faint traces of maroon slip on rim underside. Possible weathered, but very faint, roulette lines on rim exterior face. Undulations on rim underside may be remains of an offset. Size 29mm x 18mm, thickness 3-9mm. Trench 1, Context 11 (Figure 7.21).

Late Roman Amphora 1 (LRA1)

Two of the sherds recovered during O'Donnell's (1990-92) Lisnacaheragh excavations are from a single LRA1 (Peacock and Williams 1986, Class 44; University of Southampton 2014, LRA 1). These were large, wheel made, cylindrical amphorae with rounded base, broad tubular neck, slightly everted rim and with bands of horizontal ribbing on the body (Figure 7.20). Two handles, positioned symmetrically, would have risen from the shoulder to the neck area. The fabric is sandy with limestone inclusions, although this can vary, as can the colour which ranges from red-brown to buff-grey. In Ireland and western Britain finds of these vessels can be broadly dated from the late-fifth to mid-sixth centuries AD. This amphora class was previously referred to as Bii (or B ware) in Britain and Ireland, however they are now typically referred to by their Mediterranean name (Figure 7.19).

E629:113 Lisnacaheragh 1990-92 A small weathered LRA1 body sherd. Traces of two shallow horizontal grooves spaced 3mm apart are present on the external surface. The sherd has a light buff-brown external surface and pink-red core and internal surface. The fabric contains frequent inclusions of rounded quartz ≥ 1mm and infrequent inclusions of limestone and mica ≥ 1mm. Size 12mm x 17mm, Thickness 6mm. Trench 4, F189 hearth.

E629:114 Lisnacaheragh 1990-92 A weathered LRA1 rim and neck sherd with portion of the handle springing attached. Small piece of rim present, this is slightly everted out from the cylindrical neck. Portion of the handle springing remains on the neck, with a slight depression on the interior neck surface at this point. The sherd has weathered reddish-brown surfaces and a pink-red core. The fabric contains frequent inclusions of rounded quartz ≥ 1mm and infrequent inclusions of mica ≥ 1mm. Size 39mm x 35mm, Thickness 6mm at rim, 14mm at handle springing. Trench 4, F123 metalled surface (Figure 7.21).

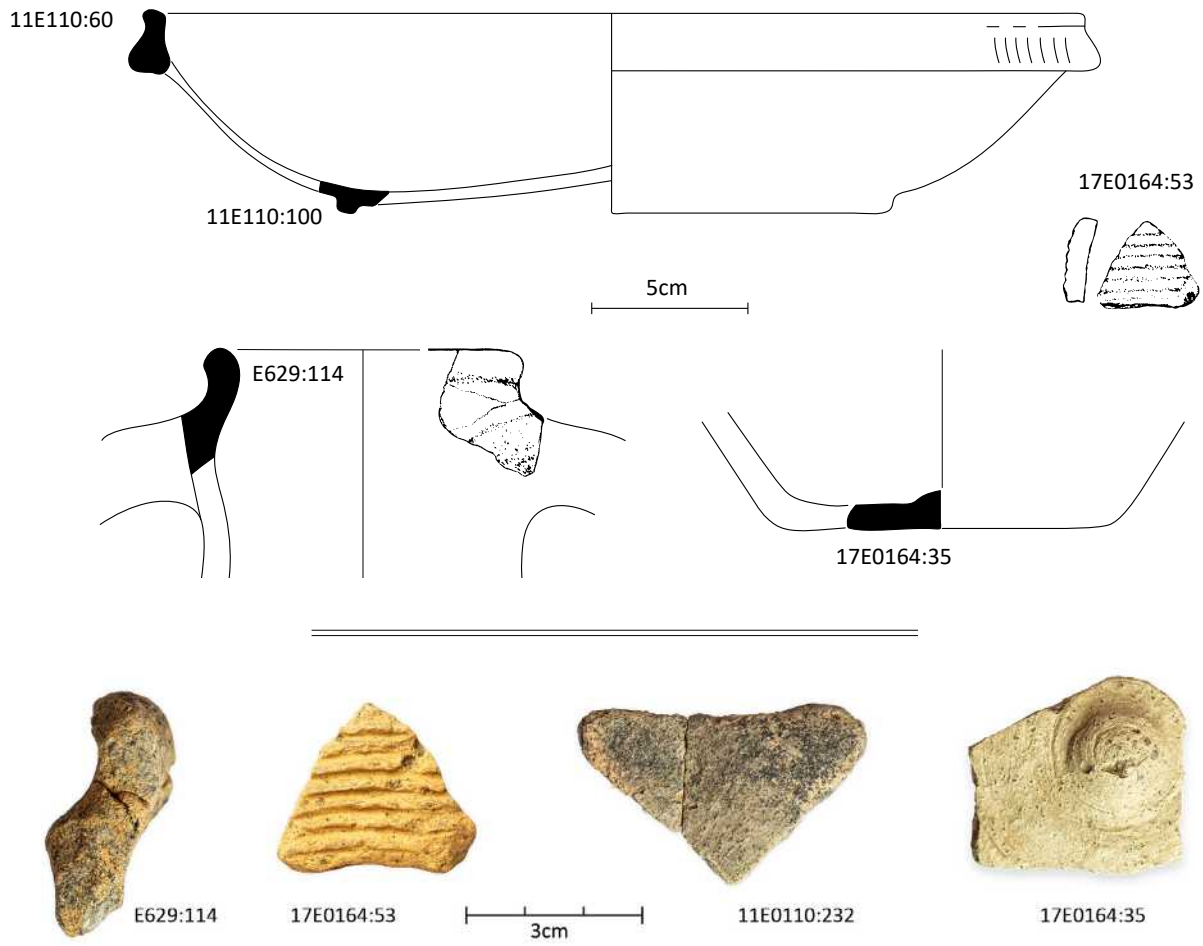


Figure 7.21 The excavated early medieval ceramics from Lisnacaheragh and Lisnamanroe, Co Cork.

Late Roman Amphora 2 (LRA2)

The LRA2 amphora is a large, wheel-made, almost globular vessel, with a conical neck and everted rim (Figure 2). Two bowed handles, oval in section, spring from the shoulder to join at the rim (Peacock and Williams 1986, Class 43; University of Southampton 2014, LRA2). One of the most distinctive features of the LRA 2 amphora is a zone of closely set horizontal grooving or combing. This is concentrated from the upper body to the shoulder and usually forms a band of approximately 100mm in width. This amphora class was previously referred to as Bi (or B ware) in Britain and Ireland.

17E0164:53 Lisnacaheragh 2017 A slightly weathered LRA2 sherd with typical horizontal combed grooving on the exterior face. The fabric is buff-brown with a red-orange core and contains infrequent inclusions of limestone and quartz. Size 29mm x 33mm, Thickness 7mm. Context 8, fill of cultivation furrow C9. (Figure 7.21).

E ware

Three sherds of E ware were recovered from the modern excavations at Lisnamanroe and Lisnacaheragh. E ware is thought to derive from the western coast of Gaul. It generally occurs in a range of pots/jars (E1), beakers (E2), bowls (E3), pitchers (E4) and lids (E5). The fabric is typically off white, cream or beige coloured with a distinctive pimply surface where large angular quartz grits break the surface (Campbell 2007, 32-52). In western Britain and Ireland E ware is conventionally dated from the late-sixth to mid-seventh centuries AD. Seven sherds of E ware, representing three vessels, were recovered from the 1937 excavations (Ó Ríordáin 1942, 126-27).

11E0110:232 Lisnamanroe Two slightly weathered joining E ware body sherds. Fabric is grey-brown in colour. Size 45mm x 29mm, thickness 6mm. Context 233 lower ditch fill of northern ditch terminal C277, Trench 3 (Figure 7.21).

17E0164:35 Lisnacaheragh 2017 A well preserved E ware sherd from the centre of the base. Raised central whorl on the inside surface, typical string-cut line impressions on the exterior underside. The fabric is buff in colour.

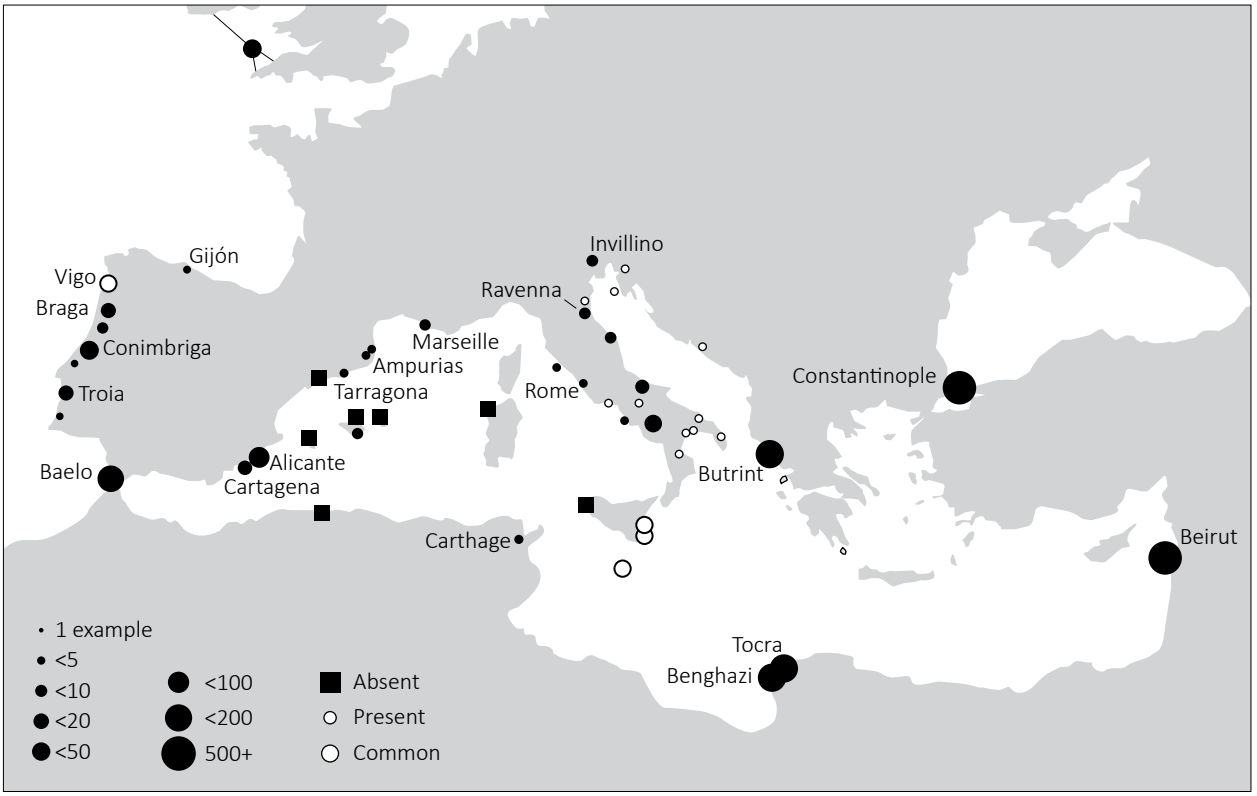


Figure 7.22 The distribution of LRC in the western Mediterranean (after Reynolds 2010, map 12; note this was published prior to recognition of relatively large quantities of LRC from Vigo, Spain).

Size 36mm x 32mm, Thickness 12mm at raised whorl, 6mm otherwise. Recovered in initial trowel clearance (Figure 7.21).

17E0164:114 Lisnacaheragh 2017 A weathered and damaged E ware sherd. Possibly refired, i.e. placed in a fire after breakage. The fabric is buff to reddish-brown with a grey-black core. Size 29mm x 35mm, Thickness 7-11mm. Found on ridge between two cultivation furrows.

The ceramic assemblage - discussion

The quantity of early medieval pottery from the recent Lisnacaheragh and Lisnamanroe excavations is not large relative to the finds made by Ó Ríordáin at the former site or indeed from other sites. Nonetheless, while small, this is an important assemblage that provides insights into the material recovered from the 1937 excavation, and it offers an opportunity to examine the dating of Lisnacaheragh and its relationship with Lisnamanroe.

From examination of the pottery assemblage recovered during the excavations of Ó Ríordáin in 1937, the total number of amphorae known from Lisnacaheragh can be estimated at seven or eight LRA1, one-two LRA2 and approximately three or four untyped amphorae. A single LRC form 3 bowl was also recovered (Doyle 2009, 47-52). This represents the largest known assemblage of Mediterranean imported pottery from Ireland to date.

Seven sherds of E ware, representing three vessels, were also recovered from the 1937 excavations.

LRC was the main competitor to African finewares, such as African Red Slipware (ARS), from the fourth century AD onwards. During the later fifth century LRC was widely distributed from its production zone in modern day western Turkey into the western Mediterranean (Figure 7.22). Production evidence has been identified in Phocea or Foça, northwest of the modern city of Izmir (Mayet and Picon 1986), hence the term 'Phocaean', however its production zone may have extended beyond the Foça area. Because of this uncertainty the older designation Late Roman C is increasingly being used (Duggan 2018, 47; Cau *et al.* 2011; Fernandes 2018, 107). Greater variation in the fabric of LRC fabric is now recognised and this suggests multiple clay sources, if not different places of production of the same small number of shapes or forms (Francis 2015, 74).

The LRC bowl present at Lisnacaheragh from the 1937 excavations is that of a form 3E bowl (Ó Ríordáin 1942, fig. 23, no. 249; Doyle 2009, 47-48). This form is assigned a date of *c.* AD 500 based on typological grounds matched with coin-dated excavated deposits at Athens and Antioch (Hayes 1972, 336-38, 445). Subsequent research has not altered the dating of this specific form (Duggan 2018, 48-49).

The LRC bowl from Lisnamanroe is represented by a rim sherd and two basal sherds from the footring. Despite their weathered condition, it is possible to identify residual patches of the maroon coloured slip on the sherds. The poor condition of the Lisnamanroe rim sherd unfortunately restricts comparison between this and the very well preserved form 3E rim sherd found in 1937 (Ó Ríordáin 1942, fig. 23, no. 249; Doyle 2009, 47-48). A feature of LRC bowls is the presence of a 'curious small offset' at the junction of the rim and body, attributed to the use of a mould for the manufacture of the body to which the rim was then added by hand throwing (Hayes 1972, 324). A pronounced offset is present on the sherd from the 1937 excavations. While the degree of weathering to the Lisnamanroe rim sherd means it is difficult to point to such a feature, there are traces of undulations on the rim underside where such an offset would be expected. As such, on the basis of rim profile alone it is difficult to determine whether the Lisnamanroe sherds belong to the same form 3E bowl recovered by Ó Ríordáin in 1937 at Lisnacaheragh. The 1937 sherds have a higher content of limestone inclusions and on that basis it is reasonable to infer that there are two LRC form 3 bowls from the Garranes complex, i.e. one from Lisnacaheragh and one from Lisnamanroe.

Two of the pottery sherds (E629:113 and 114) from the 1990-2 Lisnacaheragh excavations represent the remains of a single LRA1 amphora (University of Southampton 2014, LRA1). This amphora type displays varying forms of horizontal ribs, which are closely clustered at the shoulders and base, but more widely spaced at the midpoint of the vessel. There is considerable variation in the fabric of the LRA1 amphora class and this variety seems to be in accordance with the extensive geographical spread of known production sites (Empereur and Picon 1989, 236-43). Kiln sites and production areas have been located on Cyprus and Rhodes but they are more heavily concentrated in what are now southern Turkey and northern Syria (*ibid.*; Decker 2001, 77; Williams 2005). It has been suggested that the main contents of this amphora class were olive oil and wine (Decker 2001, 80).

The two sherds recovered in 1990-2 from Lisnacaheragh are of broadly the same fabric to examples recovered during the 1937 excavations (Ó Ríordáin 1942, 129-132; Doyle 2009). As such, there is no case for increasing the numbers of LRA1 from the Lisnacaheragh enclosure. What is significant is that, unlike the 1937 material, the two sherds from O'Donnell's excavations were from a modern excavation and have one associated radiocarbon date. This will be discussed below.

One sherd from the 2017 Lisnacaheragh excavation is from a LRA2 amphora. This is a large, wheel-made, almost globular vessel, with two bowed handles, which spring from the shoulder to join at the rim (Peacock & Williams 1986, Class 43; University of Southampton 2014, LRA2). One of the most distinctive features of the LRA2 amphora is a zone of closely set horizontal grooving or combing on the upper part of the body. Such combing is present on the Lisnacaheragh sherd. This is the standard late Roman Aegean amphora, with production sites known from Chios, Cnides and the Argolid region of Greece (Duggan 2018, 32).

Based on the colour, the 2017 Lisnacaheragh LRA2 sherd is likely to be from the same vessel recovered during the 1937 excavations, so again there is no case for increasing the numbers of LRA 2 at Garranes.

Four sherds of E ware were recovered from the recent excavations: two from Lisnacaheragh and two joining sherds from Lisnamanroe. The basal sherd (17E0164:35) from Lisnacaheragh is from the centre of the base with a raised central whorl on the inside surface. This is a feature of many E2 beakers (Labrouche 2012, 299-300; O'Donnell 1984, 29) and on that basis may represent an E ware (E2) beaker. That would be an addition to the three E1 jars recovered in 1937 (Ó Ríordáin 1942, 126-7), however the relatively large diameter of the basal sherd may argue against this form. As such it is likely to be from a E1 jar. The other recently recovered sherds of E ware are plain body sherds and their contextual position will be discussed below.

E ware is the most frequently recovered imported pottery type found in early medieval western Britain and Ireland. It occurs in a range of forms including jars (E1), beakers (E2), bowls (E3), jugs/pitchers (E4) and lids (E5) in a hard fabric which varies in colour. Its point of origin is likely to be western Gaul where there is a growing recognition of the presence of this ware, particularly in Bordeaux (Labrouche 2012; Duggan 2018, 104-15). Sherds have also been recovered from Vigo in north-west Spain (Fernández 2014, 354-58; Duggan 2018, 145-46). Unlike the amphorae from the Mediterranean which were traded because of their contents, E ware, as a kitchen ware, is likely to have been carried as a low value commodity with other higher value goods such as wine in wooden casks (Thomas 1990). This view is not universally accepted in so far as Campbell (2007, 51) has argued that it served as a container for products such as nuts, honey and dyes. E ware has a wide Insular distribution ranging from south-west Britain, southern Wales, the Isle of Man, western Scotland and north-eastern, eastern, southern and midland parts of Ireland. It has a strong Irish distribution with some sixty sites, the majority of which had settlement functions, known to have produced this pottery to date.

A feature of all excavations at Lisnacaheragh is a very mixed assemblage of weathered pottery spanning the early medieval period until modern times. Post-medieval cultivation ridges, which were probably enriched with household and farmyard waste, have produced a mix of different wares of different dates. Ó Ríordáin set out a group of about forty sherds which he termed 'Red ware'. While this included LRC sherds it also included a very mixed range of material. Based on fragments in this category, this writer identified a 'Red slipped platter' of likely early medieval date (Doyle 1999; Ó Ríordáin 1942, fig. 23, no. 183, 132-33). The platter identification was suggested based on a tray from a sixth-century level at Carthage (Fulford and Peacock 1984, 219, no. 13, fig. 86). However, it is clear from an examination of sherds recovered from Lisnamanroe (11E110:362:10, 363:01, 362:04) and Lisnacaheragh (17E0164:131, 13, 132) that this is, in fact, a part of an elaborate post-medieval ridge tile. The larger volume of this ceramic piece allows the fragments from the 1937 excavation to be seen in a new light and as such the 'Red slipped platter' should be discounted as an early medieval import.

The other sherds recovered from the excavations of 1990-2 and 2011-17 at Garranes remain difficult to identify with certainty, however many appear to be locally made pottery of post-medieval date and these can generally be referred to as unglazed red earthenwares. The topsoil context for many of these sherds suggests that they could be associated with the introduction of household refuse as part of lazy bed cultivation.

Chronology and context

An examination of the contextual information on the Lisnacaheragh and Lisnamanroe pottery raises a number of issues (Figure 7.23). The obvious point is the relatively small size of the early medieval assemblage from the two phases of recent excavation at Lisnacaheragh and the five seasons of work at Lisnamanroe. This makes the numbers of sherds from the 1937 excavation at Lisnacaheragh (sherd count: 225 amphorae, 3 LRC and 7 E ware) seem all the more remarkable. This may reflect the much larger areas excavated in 1937 compared to 2017.

The other conclusion is the degree of early modern disturbance to the early medieval deposits at both sites. Of the ten sherds discussed here, four were from disturbed contexts. Only two joining sherds of E ware, two sherds of LRC and two sherds of LRA1 came from secure early medieval stratified deposits. Of these,

Pottery type	***Find no.***	***Context***	***Calibrated ^{14}C date (OxCal v.4.3, 95.4% confidence level)***
Lisnacaheragh E629			
Late Roman Amphora (LRA) 1	113	*Trench 4, F189 hearth*	GrA-32693 1605±30 BP [undefined charcoal] AD 396–539
Late Roman Amphora (LRA) 1	114	*Trench 4, F123 metalled surface*	
Lisnacaheragh 17E0164			
Late Roman Amphora (LRA) 2	53	*C8, fill of cultivation furrow C9.*	
E Ware	35	*Initial trowel clearance*	–
E Ware	114	*Found on ridge between two cultivation furrows*	–
Lisnamanroe 11E0110			
Late Roman C (LRC)	93, 110	*Trench 2, C93*	––
Late Roman C (LRC)	60	*Trench 1, C11*	–
E ware (2 joining sherds)	232	*Trench 3, C233 lower ditch fill of northern ditch terminal C277*	GrA-54893 1585±30 BP [possible cattle bone] AD 406–544

Figure 7.23 The pottery from the recent excavations at Lisnacaheragh and Lisnamanroe by context, with directly associated radiocarbon dates where available.

directly associated radiocarbon dates are available for two deposits that also produced pottery. The first of these is C189, a hearth excavated in the 1990-92 Trench 4 located in the north-east of the Lisnacaheragh enclosure. Sherd 113 from this context is a very small weathered LRA1 sherd. The two sigma calibrated date for this hearth is AD 396-539; the importation period of Mediterranean ceramics is within the later part of this date range.

The excavations also provide an opportunity to assess the context and dating of LRC bowls. The Lisnacaheragh LRC bowl from 1937 can be dated to *c.* AD 500 based on typology (Hayes 1972, 336-38, 445; Duggan 2018, 48-49). While there is no direct radiocarbon date associated with the sherds of LRC from Lisnamanroe, the context of two of these sherds overlay a layer with a radiocarbon date. LRC sherds 11E0110:93 and :100 came from C93, an occupation layer within the enclosure interior. Deposit C93 directly overlay C106, an occupation layer which contained hazel charcoal. Charcoal from C106 provided a date (GrA-51596) of 1620±30 BP which calibrates to AD 357 – 539 (2 sigma). The later part of this date range corresponds quite well with the recognised date range for LRC bowls in Ireland and Britain.

The two joining sherds of E ware from Lisnamanroe's lower ditch fill (C233) have a directly associated radiocarbon date of (GrA-54893) 1585±30 BP which calibrates to AD 406 – 544, based on burnt bone, possibly cattle bone. In terms of the chronology of E ware this is a relatively early date, with this pottery normally dated in Britain and Ireland to circa AD 550 – 700 (Campbell 2007, 46). However, we should not see this date in isolation and it is noteworthy that the radiocarbon dates from both Lisnacaheragh and Lisnamanroe do not extend significantly into the seventh century (see Kearney, Chapter 7.3). This is in keeping with the character of the pottery from the Garranes complex which is overwhelmingly from the Mediterranean, spanning the date range AD 475 – 550 (Campbell 2007, 26). It is very significant that the radiocarbon dating of the recent excavations matches the broader chronology of the excavated ceramics. As Gaulish E ware has a chronology extending into the seventh century, arguably it is not present in the same quantities in the Garranes complex as, based on radiocarbon dates, the focus of occupation activity there was earlier. By way of contrast, the trivallate ringfort of Ballycatteen, which is located approximately 20km to the southeast of Garranes, only produced sherds of E ware, suggesting that the focus of occupation there was later in date (Ó Ríordáin and Hartnett 1943-4, 35-38, 40). Unlike Lisnacaheragh, this assertion has not been confirmed by radiocarbon dating.

The presence of both Mediterranean amphorae and finewares, as well as E ware, in the Garranes complex supports the evidence from elsewhere that for a time in the mid-sixth century the importation of these ceramics overlapped (Campbell 2007, 139; Doyle 2009, 25; Duggan 2018, 62). Contextual evidence from Vigo in Spain supports this (see below).

In 1979 Richard Warner argued there was a chronological separation between sherds of Mediterranean LRA1 and LRA2 and sherds of E ware based on the sequence of deposits encountered at Clogher hillfort, Co Tyrone. Sherds of LRA1 and 2 were found in the lower fills of the Clogher enclosure ditch, which were sealed by a layer of sterile clay (termed the 'Clogher Yellow Layer'). Only E ware was recovered from the fills associated with a ringfort overlying the Clogher Yellow Layer (Warner 1979; 1985–6). While this stratigraphic sequence is not in doubt at Clogher, information from other Irish sites has since altered the idea of a clear, and neat, chronological separation between Mediterranean LRA sherds and E ware. At several sites, both Mediterranean and Gaulish wares have been recovered from the same deposits: these include Caherlehillan, Co. Kerry, Colp West, Co. Meath, and Dalkey Island, Co. Dublin (Doyle 1998; 2009; Sheehan 2009). Similarly at Whithorn, in Galloway, Scotland, Mediterranean ceramics and E ware were found in a series of excavated deposits dated to *c.* AD 550 (Hill 1997, 323–4), while at Bantham, South Devon, radiocarbon dating points to Mediterranean LRA sherds in contexts dating from the early seventh century (i.e. a little later than traditionally accepted) (Reed et al. 2011). What this suggests is that the picture is a little more untidy than the neat arrangement demonstrated in the sequence of deposits at Clogher hillfort. It would appear that Mediterranean and Gaulish wares overlapped chronologically somewhere around the middle of the sixth century AD and that in places, the use of Mediterranean amphorae may have extended into the early seventh century. However, at Lisnamanroe the radiocarbon dates demonstrate activity into the early-mid sixth century at the latest, while at Lisnacaheragh activity seems to be concentrated in the fifth-sixth centuries AD but with some upper dates in the early seventh century.

As such, the dates from the Garranes complex are quite tightly clustered in terms of the chronology of the imported ceramics. Radiocarbon dates from Tintagel demonstrate that Mediterranean imported wares were in use during the period AD 560-670 (Barrowman *et al.* 2007, 332). This is later than the dates from the Garranes complex and it may well be that given the scale of the assemblage at Tintagel that there was greater scope for curation, the longer term use of vessels, the redeposition of sherds in later contexts or a more long lived trading and supply relationship. More recent

excavations in 2016-17 may refine the chronology of Tintagel (Nowakowski and Gossip 2017).

The Atlantic context

The presence of eastern Mediterranean amphorae and fineware pottery in fifth-sixth century Ireland and western Britain is part of a wider economic pattern in late Roman commerce. A prominent trend during that period was an increase in the volume of trade from the eastern Mediterranean to the west. The changing proportions of eastern amphorae to Tunisian amphorae, in particular, can be followed and used to compile broad economic statistics. The main eastern types (LRA 1, LRA 2, LRA 3, LRA 5) reached the west from the early fifth century, quantities rose throughout the late-fifth and early-sixth centuries and thereafter the quantity of eastern ceramics went into decline (Reynolds 1995, 76-79; 2010; Fulford and Peacock 1984; Fulford 1989). The amphorae from the Garranes excavations fall into this broad context.

Yet, what is notable about the British and Irish assemblages is the presence of the LRA2 amphorae. This amphora class is a common find in imported assemblages in western Britain and Ireland (Doyle 2009, 21; Campbell 2007, 22) yet in the western Mediterranean never attains this level of occurrence. According to Reynolds (2010, 110) the supply of these amphorae 'to Britain was exceptional in this period and can only be interpreted as evidence for the development of special ties between Britain and specific sources in the Aegean'. This view echoed the conclusion of Fulford (1989) who saw the presence of eastern Mediterranean LRC finewares and eastern amphorae such as the LRA1 and 2 as indicative of direct sailing connections between Britain and the eastern Mediterranean. However, this interpretation has been substantially modified in recent years to the effect that direct contact between western Britain and Ireland with the eastern Mediterranean is no longer tenable. This is due to the publication of analyses of fifth-seventh century AD pottery sequences along the Atlantic seaboard, in particular from Portugal, Northern Spain and western France (Figure 7.24). The key assemblages in this case are those from Vigo and Bordeaux. However, starting further south, recently published information from Portugal's Atlantic coast is also informative.

In southern Portugal, Faro (the Roman settlement of *Ossonoba*) has also produced sherds of LRC form 3 comparable to the sherds from Garranes. From the work of Fernandes (2018) it is apparent that LRC form 3 is present, albeit in lower quantities than that of African Red Slipware (ARS). At Faro, LRC began to appear *c.*450AD, with a slight peak in *c.*490-510, but its importation was constant until the mid-sixth century. Urban settlements like *Ossonoba* and others in its immediate hinterland stopped receiving significant quantities of north African and eastern Mediterranean finewares around the second quarter to mid-sixth century AD (Fernandes 2018, 106).

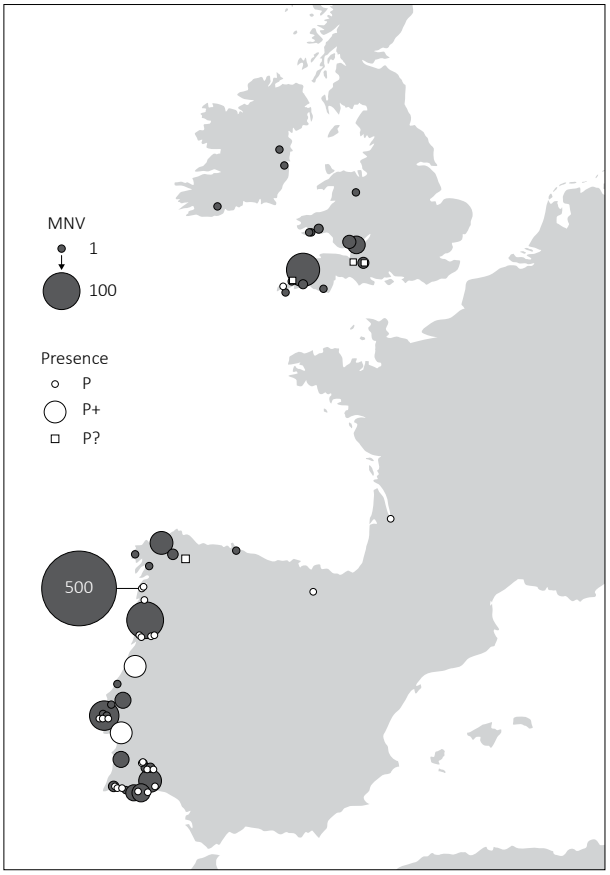


Figure 7.24 The quantified distribution of LRC in Iberia, western France, Britain and Ireland (after Duggan 2018, 196, H2).

This pattern is repeated in the Tagus estuary region of modern day Lisbon. The late Roman settlement of *Olisipo/Olysipona* functioned as a port into the sixth century and received eastern Mediterranean and African ceramic imports during the fifth and sixth centuries AD. This included LRC form 3 bowls which were present in lesser quantities than ARS but late in the fifth century 'it achieved very good competitive skills' (Quaresma and da Silva 2019, 93). By the second quarter of the sixth century the quantity of LRC form 3 finewares was in sharp decline on this part of the Atlantic coastline (ibid., 94-4). Further north, excavations at Conimbriga produced 95 sherds which seem to represent 21 LRC form 3 vessels dating to the second half of the fifth century. While later forms of LRC were present, no fineware imports can be identified from Conimbriga past the mid-sixth century (Duggan 2018, 133).

The most significant development in recent years for the understanding of exchange and trade in the Atlantic has been the analysis and publication of ceramic sequences from the port of Vigo in north-west Spain (Figure 7.24. It is now apparent that Galicia was a key point of trans-shipment and exchange between the Mediterranean, western France and western Britain and Ireland. From the analyses of Fernández (2014) and synthesis by Duggan (2018, 138-47) details on the phasing and quantification of Mediterranean finewares, amphorae and E ware are available in a way which has disrupted previous models and transformed understanding about the circulation of such ceramic imports. For example, excavations in the port area recovered 3595 sherds from eight varying types of finewares. Within this assemblage a total count of 605 LRC vessels has been estimated, which is approximately ten times more than what has been recovered from western Britain and Ireland (Duggan 2018, 139). As in Britain and Ireland, LRC form 3 is present (an estimate of 538 vessels) but also a single example of the earlier LRC form 1, and the later LRC forms 5, 6 and 8. Importantly, LRC form 10 is also present (estimated at 35 vessels) which shows the continued trade of Mediterranean goods into the late sixth century (Fernández 2014, 223; Duggan 2018, 139). The LRC forms present in Britain and Ireland are solely form 3 which has a date range not going beyond the early sixth century AD. Other finewares present at Vigo, specifically late forms of ARS, also demonstrate Mediterranean contacts into the seventh century.

The range of amphorae present in Vigo are also comparable to the Irish material. Although the amphorae do not appear to have been examined in the same detail as the finewares, both LRA1 and LRA2 were recovered in a series of late deposits in the harbour area. As in Ireland, LRA1 was the most dominant type, with a minimum number of vessels estimated at 48, while five LRA2 amphorae were estimated. The eastern Mediterranean amphorae represented 62% of the amphorae assemblage examined by Fernández from Vigo, this is in keeping with the character of the assemblages reaching Britain and Ireland.

One of the other noteworthy aspects of the Vigo deposits was the presence of E ware. As with the amphorae, this material also came from the relatively late deposits in the harbour area (Fernández 2014, 354-58). It appears to have arrived in Vigo after 550AD, most likely from Bordeaux. The E1 jar was the most common form recovered with an estimate of 32 vessels, while smaller numbers of E3 bowls (seven), a single possible E2 beaker and two examples of the E4B spouted pitcher were also found. At Vigo, the presence of E ware in the same phasing as Mediterranean pottery sherds is in accordance with patterns noted in Ireland, whereby E ware was found stratified with Mediterranean ceramics at a number of sites (Doyle 2009, 25).

Finally, the publication of the 1989-90 excavations at Place Camille Jullian, Bordeaux, has demonstrated the presence of Mediterranean ceramics and E ware in stratified deposits in this city. This particular site close to the Roman port yielded small numbers of eastern Mediterranean amphorae, including LRA 1-2, during the sixth century AD. LRC form 3 (two vessels) was also present in small numbers at Place Camille Jullian. A feature of the Bordeaux deposits is the presence of Mediterranean ceramics into the early seventh century AD (Berthault 2012, 317; Duggan 2018, 97-8). What this suggests is that both Vigo and Bordeaux were active in Mediterranean exchange networks for a longer time period than Britain and Ireland.

A notable feature of the Camille Julian excavations are the coarsewares ('céramiques communes') analysed by Labrouche (2012, 293-310; Duggan 2018, 105-10). While not referred to as E ware, the fabric details and the forms described and illustrated are all within the E ware repertoire. These coarsewares derived from 54 pit/features and consisted of 10,531 sherds. How much of this can be correlated with E ware is unclear but a date range has been assigned for these coarsewares from the fifth to the eighth centuries AD. All of the typical E ware forms known from western Britain and Ireland can be recognised in Labrouche's report, however the presence of E5 lids, E3 bowls, E4 pitchers and the rare E4B spouted pitcher are noteworthy due to their relative rarity in Insular contexts. Such a broad range of forms would be expected in the area of production. While Labrouche's dating of these coarsewares needs greater clarification, it does appear that the dating of E ware in western Britain and Ireland of *c.* AD550-700 may be a narrow range within a broader timeframe of production in the Bordeaux area. Further ongoing excavation and research within Bordeaux and the wider region (Duggan 2018, 110-15; Guitton 2020, 88-90) will serve to refine our understanding of E ware in southwest France.

This rapid survey of ceramics, and ultimately exchange along the Atlantic coast, reveals a number of points of interest relative to Britain and Ireland and specifically to the Garranes complex. Firstly, based on sequences in Portugal there does seem to be a contraction in trade and exchange from the Mediterranean by the mid-sixth century which is also mirrored in western Britain and Ireland. Secondly, the deposits in Vigo and Bordeaux suggest that Mediterranean ceramics were reaching these ports at least until the seventh century AD, but based on our current understanding of dating were not reaching Britain and Ireland beyond the mid-sixth century, although radiocarbon dates suggest Tintagel

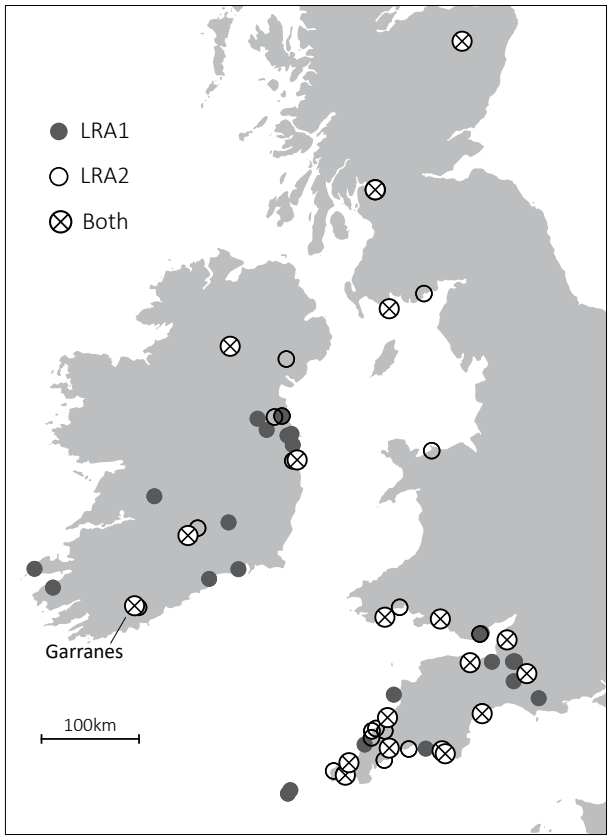


Figure 7.25 The distribution of LRA1-2 in Ireland and western Britain (based on Campbell 2007; Doyle 2009, Duggan 2018, with additions from Figures 7.28 and 7.29).

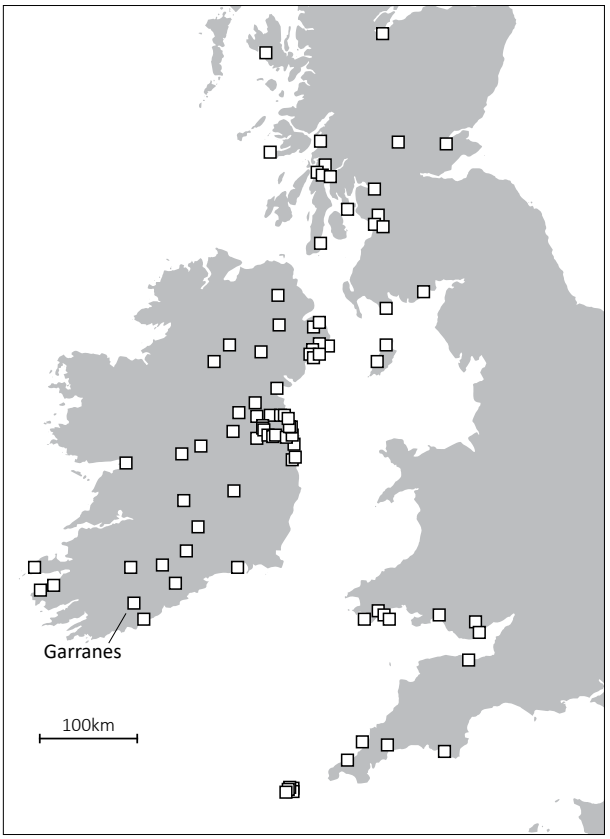


Figure 7.26 The distribution of E ware in Ireland and western Britain (based on Campbell 2007; Doyle 2009, Duggan 2018, with additions from Figure 7.30).

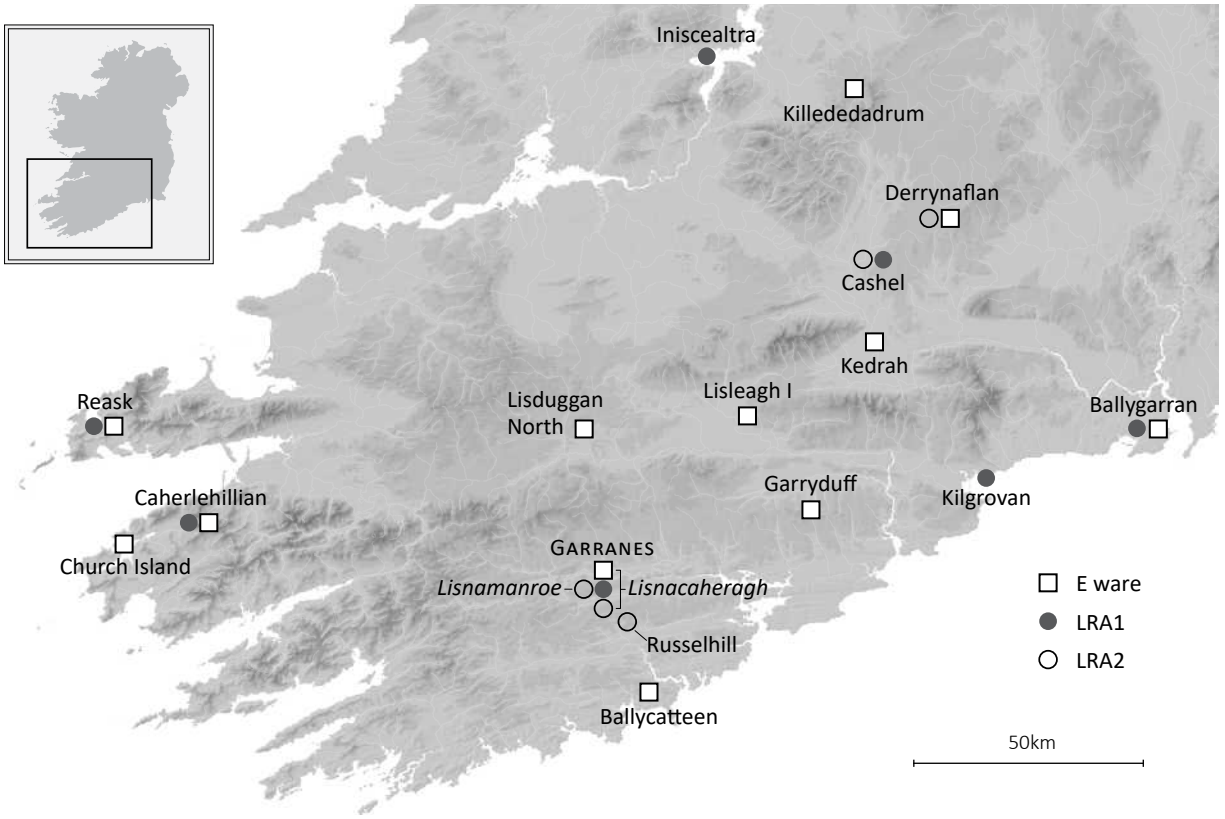


Figure 7.27 The distribution of imported ceramics in Munster (based on Doyle 2009, with additions from Figures 7.28, 7.29 and 7.30).

may be an exception. Thirdly, there is a growing body of evidence for E ware in both Vigo and Bordeaux and that, moreover, E ware overlapped chronologically with the Mediterranean ceramics during the mid-sixth century. Therefore, Mediterranean and Gaulish ceramics should not be seen as completely separate phases of activity as previously postulated for places like the hillfort of Clogher, Co Tyrone (Warner 1979; Doyle 2014). Finally, the key role of Vigo as a port for trans-shipment of Mediterranean and Gaulish ceramics and other goods is a new development in understanding. As pointed out by Duggan, Britain was not the sole focus of Mediterranean interest but was a part of a wider Atlantic exchange network which Vigo appears to have dominated (Duggan 2018, 147; Fernández 2014, 475; Reynolds 2018, 187). Such a model of contacts with northern Spain is also of interest in terms of cultural contacts as it opens up an archaeologically visible route to allow for the exchange of people, texts and ultimately ideas.

Ceramic imports in Ireland and western Britain

Having set out the wider context, how was this material distributed in Ireland and western Britain? As discussed above, contact between Vigo and Bordeaux seems the most likely means rather than any direct contact with the Mediterranean. However, much larger quantities of Mediterranean pottery are known from south-west Britain and southern Wales (Campbell 2007; Duggan 2018) where centres like Tintagel and Dinas Powys operated as high status elite sites with access to foreign trade from which vessels and associated goods were distributed. Smaller quantities of this pottery were distributed in the area of the Irish Sea, to sites in Scotland, such as Whithorn, in Dumfries and Galloway, and further inland to the Pictish power centre at Rhynie in Aberdeenshire (Figure 7.25). In Ireland, Dalkey Island seems to have acted as an entrepôt to allow for the dispersal of imported goods along the southern Dublin coastline. Excavations in the 1950s at the promontory fort on Dalkey Island recovered sherds of LRA1 and 2 as well as E ware (Figure 7.26; Doyle 1999). The nearby cemetery site at Mount Offaly (DU026-119) in Loughlinstown produced sherds from an LRC bowl and a LRA2 amphora, as well as E ware and a rare example of a DSPA bowl. To date, this remains the only definite find of these wares to the south of the river Liffey. Radiocarbon dates from the earliest burial phases span the fifth to seventh centuries AD, and the suggestion has been made that a *ferta* or ancestral burial mound was also present in this complex (O' Sullivan *et al.* 2014, 258; Boazman 2016, 28-35).

North of the Liffey, smaller quantities have been found in enclosure ditches excavated at Lusk and at Portmarnock, Co Dublin. The Portmarnock site consisted of an enclosure (DU015-014001), which was excavated in 2017 by Gill McLoughlin (McLoughlin 2018). The pottery assemblage came from the main enclosure ditch and from an internal linear feature. Sherds of LRA1 were recovered from the fills of the enclosure ditch. Specifically, a radiocarbon date from hazel charcoal associated with sherds of LRA1 in the middle fill of the enclosure ditch produced a date of 1532±49 BP which calibrates to AD416-623 (UBA-36093, OxCal 4.3; 95.4% confidence level). Sherds of E ware were recovered from the upper fill of a pit and from an east-west aligned internal gulley.

Further north along the Leinster coast, the river Boyne acted as a means to access the interior of the then kingdom of Brega where sherds from Mediterranean vessels are recorded. At the mouth of the Boyne, excavations in Colp West have produced low numbers of amphorae, but relatively large assemblages of E ware are known from sites in the townlands of Donacarney Great, Kiltrough, Painestown and Ninch. Further inland, the recovery of sherds from a LRA1 and four E ware vessels, as well as glass from imported drinking vessels, at the ringfort at Randalstown, Co Meath, raises the suspicion that the nearby royal centre of Ráth Airthir, Co Meath (ME017-033), was the primary site in this area from which luxury imports were distributed. Ráth Airthir, located 2.5km to the north-west of Randalstown, was an enclosure associated with the Uí Néill dynasty and appears to have functioned as an assembly or *óenach* site within the Teltown landscape where acts of conspicuous consumption and luxury redistribution occurred (Herity 1993, 140-3; Swift 2000, 118; Dowling 2011, 219-20; Gleeson 2015).

In Co Tyrone, the royal site of Clogher yielded both amphorae and E ware, as well as glass drinking vessels. This enclosure was associated with the Uí Cremthainn kings of Airgialla in southern Ulster (Warner 1979; 2000). The Clogher monument complex developed through several phases, which included Bronze Age, Iron Age and early medieval activity. The latter, may have been associated with the inauguration of kings, as it has been suggested that a mound adjacent to a sixth century ringfort was used for inauguration ceremonies (Warner 2004, 35-6; Gleeson 2012, 8-9).

In Munster, Mediterranean ceramics comparable to the Garranes material have been recovered from the Rock of Cashel, Co Tipperary (Figure 7.27). Small-scale investigations were necessitated by the conservation of Cormac's Chapel. The amphorae sherds (LRA1, 2, and an untyped vessel) came from the lowest levels and from small trenches that exposed very little surface area of this royal site (Doyle 2009, 41-2). Recent survey work has revealed processional earthworks approaching the Rock which may tie in with its association with the early medieval kingship of Munster (Gleeson 2012, 16-7).

Other sites in the south-west, such as the ecclesiastical sites of Caherlehillan, Co Kerry, Iniscealtra, Co Clare, and Derrynaflan, Co Tipperary, have produced one or two amphorae each, often in association with sherds of E ware (Doyle 2009). A more recent identification has been that of a LRA1 and a sherd of E ware from what is a probable ecclesiastical site at Ballygarran, Co Waterford.

In summary, the larger and more varied assemblages of Mediterranean imported assemblages derive from secular power centres associated with kingship such as Clogher and Cashel. That Garranes, in particular Lisnacaheragh, functioned as a high status secular settlement site is apparent from the trivallate morphology, the varied range of metalwork from the 1937 excavations, and finally, by the large volume of imported pottery which far exceeds that from other sites of the fifth to sixth centuries AD in Ireland to date. Even though the historical identification of Garranes with the Ráith Raithleann royal centre is open to question (Bhreathnach 2014, 163) there are still sufficient markers of its high status position in fifth-sixth century society. The numbers of amphorae and fineware vessels from there are higher than the one or two vessels that are generally detected elsewhere. A key conclusion from this survey of the distribution of Mediterranean imported ceramics in Ireland is that a distinct category of sites with these imports can be associated with kingship, namely Clogher, Cashel and potentially the material from close to Ráth Airthir, Co Meath. Moreover, excavations at the cemetery site of Collierstown, Co Meath, recovered sherds of LRC, LRA1 and E ware. Given its proximity to the Hill of Tara and the presence of the ceramic imports, the suggestion has been made that it represents the familial cemetery of one or a number of local leading dynasties (Bhreathnach 2011, 132). In a wider sense imports such as these ceramic vessels, and their potential contents of wine or oil, provide evidence of how enhanced status or authority could be demonstrated through foreign contact and conspicuous consumption. That an importance may have been placed on the ceramics as a link to the Roman world is a valid question, in particular in relation to kingship rituals. Interestingly, consideration of the Iron Age sees the presence of Roman material as adding a further dimension to ritual at places like Tara (Armit 2013, 292-3). The continuation of such practices is beyond the scope of this paper but it is possible that imported material culture of the fifth-sixth centuries AD was seen in this light.

Other sites like Dalkey Island served as importation points for neutral landing and contact, while ecclesiastical sites were likely recipients due to gift giving or through association with ruling elites.

While a single sherd of LRA2 was recovered from field walking at Russelhill, some 5km to the south-west of Garranes, finds of comparable material in Cork have proven rare. The trivallate ringfort of Ballycatteen, approximately 20km to the south-east of Garranes, produced sherds of E ware, suggesting that the focus of occupation there was later in date than Garranes, possibly focussed on the seventh century AD (Ó Ríordáin & Hartnett 1943-4, 35-38, 40). It is likely that the nearby beaches at Garrettstown and Whites Strand, 2-3km from Ballycatteen, provided landing sites for seaborne trade and this may have been the landing site for the Garranes material also, although alternatively the river Bandon would have facilitated access into the interior from Kinsale harbour.

Place of Garranes in ceramic studies

Shortly after the excavations had concluded, in a preliminary report on the Garranes excavations in the journal *Antiquity* Ó Ríordáin identified the pottery there as Roman amphorae, as well as 'cooking-pots also of Roman type' (1938, 98). Although it seems to have been unknown to Ó Ríordáin at that time, C.A. Ralegh Radford's work at Tintagel in Cornwall had uncovered similar pottery, which was published in an initial paper in 1935. This paper described ceramics which were then without any known English parallels and, following consultation with Mortimer Wheeler, Radford suggested an origin in southern Gaul (Radford 1935). Ó Ríordáin did not cite that paper in the 1938 or 1942 Garranes publications.

Ó Ríordáin had a very broad professional network from his time as a National University of Ireland travelling student in 1931 and from his visits to museums and universities in Britain and mainland Europe as a newly appointed assistant keeper in the National Museum of Ireland (Carew 2018, 33; Wallace 2004). When faced with an unrecognised assemblage of pottery from his 1937 excavations he made contact with A.W.G. Lowther, a Surrey-based architect with an interest in prehistory and Roman archaeology. Lowther spent two seasons as a supervisor and architect in the early 1930s excavations at Verulamium, near St Albans, Hertfordshire (Wheeler & Wheeler 1936, 4; Hawkes 1982, 158). In 1933 Ó Ríordáin spent a week excavating there (Wallace 2004, 260) where it is highly likely they met. Presumably based on this relationship, Lowther was asked to examine the Lisnacaheragh 'Roman or sub-Roman' material and he provided a direct parallel to an amphora sherd by sending Ó Ríordáin a sherd from a LRA2 amphora from the 1932 excavations at Eleusis, which was then a village 18km north-west of Athens. This Eleusis sherd was illustrated in the Garranes report (Ó Ríordáin 1942, 129).

Site	ARS	LRC	LRA1	LRA2	Untyped amphorae	E Ware	DSPA	Glass vessels
Blanchfieldsland, Co. Kilkenny			1					
Ballygarran, Co. Waterford			1			1		
Caherlehillan, Co. Kerry			2			2		
Rock of Cashel, Co. Tipperary			1	1	1			
Clogher, Co. Tyrone			1	1	4	11	1	8
Collierstown I, Co. Meath		1	1			1		
Colp West, Co. Meath (1988)			1		2	4		
Colp West, Co. Meath (2000-01)				1		3		
Dalkey Island, Co. Dublin			1	1	2–3	26		9
Derrynaflan, Co. Tipperary				*1*		1		
Garranes, Co. Cork:								
Lisnacaheragh		1	8	1	4	3		5
Lisnamanroe		1				1		
Gracedieu, Co. Dublin			1			1		
Iniscealtra, Co. Clare			1					
Kilgrovan, Co. Waterford			?1					
Kilree, Co. Kilkenny	1							
Lisnacreevy, Co. Down				1				
Lusk, Co. Dublin			1			2		
Mount Offaly, Co. Dublin		1		1		4	1	
Portmarnock, Co. Dublin			2			1		
Randalstown, Co. Meath			1			4		1
Reask, Co. Kerry			1		1	1		1
Russelhill, Co. Cork				1				
Stalleen, Co. Meath				1				

Figure 7.28 Imported Mediterranean pottery vessel numbers in Ireland (LRC, ARS, LRA 1-2, and untyped amphorae) with associated imported vessel numbers (E ware, DSPA and glass; glass totals from Campbell 2007; Bourke 1994).

Site	County	NGR (ITM)	No. of sherds	No of vessels	LRA	Reference
Portmarnock	Dublin	723753, 742004	23	2	LRA1	McLoughlin 2018
Ballygarran	Waterford	663240, 604026	3	1	LRA1	Power 1941; Curtin 2015

Figure 7.29 The occurrence of LRA1-2 in Ireland –finds known to the writer since 2009 (post Doyle 2009).

Site	County	NGR (ITM)	No. of sherds	No of vessels	E ware forms	Reference
Donacarney Great	Meath	714581, 773973	32	7–8	1E4b, 1E4, E1	
Kiltrough	Meath	711139, 772604	1	1	E5	Gallagher with Bailey 2011
Oldtown	Dublin	716325, 748450	2	1	E1/E2/E3	
Portmarnock	Dublin	723753, 742004	5	1	E1	McLoughlin 2018
Ballygarran	Waterford	663240, 604026	1	1	E1	Power 1941; Curtin, 2015

Figure 7.30 The occurrence of E ware in Ireland –finds known to the writer since 2009 (post Doyle 2009).

The outbreak of war in 1939 hindered the search for comparable material in mainland Europe, yet Ó Ríordáin had discussed the assemblage with Dr Hugh O'Neill Hencken of the Harvard Archaeological Mission (Carew 2018). Hencken drew Ó Ríordáin's attention to a 1938 exhibition of the results of recent fieldwork, which included details of Tintagel and its pottery, at the Institute of Archaeology in London. Accordingly, Lowther was asked to visit this exhibition on behalf of Ó Ríordáin and he provided notes which were incorporated into the published report (Ó Ríordáin 1942, 126). At a point late in the publication process Ó Ríordáin received a letter from the Tintagel excavator, C.A. Ralegh Radford, who was a leading figure in the development of what came to be known as early medieval archaeology (Thomas 1998; Gilchrist 2013). Both men had met in 1938 when Ó Ríordáin visited Mortimer Wheeler's excavations of later prehistoric earthworks at Huelgoat, Brittany (Hawkes 1982, 114-15) and presumably both were aware of each other's work.

Radford's letter provided a commentary on the Tintagel sherds which enabled Ó Ríordáin to compare them to the Garranes material in a detailed footnote. The letter provided greater detail on his Tintagel assemblage than his 1935 paper and this assisted Ó Ríordáin in making sense of the material excavated. The next publication by Radford on the Tintagel pottery only appeared in 1956 and this made a specific connection to Garranes (Radford 1956, 60), thereby the making the footnote in the Garranes report the most detailed statement by Radford in the time between his 1935 and 1956 papers.

Based on this correspondence Ó Ríordáin was able to state that his type 2 comb-surfaced amphora (ultimately termed LRA2) was directly comparable to Radford's (ii) comb-ornamented fine brown ware. Similarly, the Tintagel red slipped bowls were comparable to elements of Ó Ríordáin's type 3 'Red ware'. Despite a restricted ability to travel due to the outbreak of war in 1939, Ó Ríordáin made several correct deductions about the ceramics excavated in 1937. These included that they were 'Roman or sub-Roman type', that the coarse ware pots found at Garranes (E ware as ultimately termed) were of the same type as excavated by Hartnett at the nearby ringfort of Ballycatteen (Ó Ríordáin and Hartnett 1943-4), that this pottery was later in date than the amphorae and fineware bowls, and, finally, that the occupation at Lisnacaheragh was *c.* AD 500. The making of the connection with Tintagel, and the conclusion that the pottery was evidence of 'intercourse with the Continent...direct from Southern Ireland and Cornwall' and that 'these connections were directed to the coast of Gaul from whence possibly oil or wine may have been imported' (Ó Ríordáin 1942, 133) is also noteworthy. Admittedly, Ó Ríordáin did suggest that the Garranes cooking pot 'coarser wares' (E ware) were local copies and not imports (1942, 133), however, in the main the conclusions reached were impressive due to travel restrictions and a lack of any forms of scientific dating techniques.

Arguably, in recent years the role of Ó Ríordáin's excavations at Lisnacaheragh in 1937 has been under appreciated in the development of understanding of these wares in Britain and Ireland.

7.5 A SCIENTIFIC INVESTIGATION OF METALWORKING AT GARRANES

Ignacio Montero-Ruiz and
Mercedes Murillo-Barroso

This study is based on archaeometallurgical material recovered at Lisnacaheragh and Lisnamanroe, Garranes. Ó Ríordáin's excavation of Lisnacaheragh led to the discovery of hundreds of crucible fragments, some moulds and slag fragments in a 'black layer' in his Site D trench, which he interpreted as evidence of a non-ferrous metal workshop (Ó Ríordáin 1942). The original description of the crucibles identified two main types (pyramidal and semi-spherical), while a subsequent study (Comber 2004a) identified three types (pyramidal or triangular mouth, bag-shaped, and flat-bottomed or semi-spherical). No scientific analysis of Ó Ríordáin's finds was undertaken prior to this study, which limited the information available on the metals and metalworking techniques used in the site. Additional metallurgical finds were made in O'Donnell's 1990–2 and O'Brien's 2017 excavations in the interior of this ringfort. The former has not been studied in detail, apart from an unpublished catalogue of the crucible evidence (Comber in Cleary 2002). The focus of the present study is the 2017 material from Lisnacaheragh, with consideration also of some metal items from Lisnamanroe.

The elemental analysis in this study was undertaken with a INNOV-X Alpha, a handheld portable XRF energy dispersed spectrometer (ED-XRF) used at the National Archaeological Museum in Madrid. The spectrometer has an X-ray tube and an Ag anode as excitation source and a Si PiN diode detector, with working parameters of 20 μA, 35 kV voltage and 40 seconds of acquisition time. The analysis was processed with the alloy mode and the LEAP (Light Elements Analysis Programme) for the detection of elements lighter than iron in clay, slags and vitrified layers. This LEAP allows a general quantification of light elements (LE) (from phosphorus to iron) when its value is higher than 25%. So, the percentage provides a relative content of the metallic elements in slags or vitrified layers.

The results are presented in tables at the end of this section (Figures 7.55–61), with values expressed as percentages in weight. Different areas of the same item were measured where possible. Slag or vitrified layers are compared with clay or stone data to confirm the detection of metallic elements. Ratios for Sn:Cu, Pb:Cu or Zn:Cu were calculated for a better evaluation of the alloys in use. The detection limits for metals are well defined, most having a 0.02% (200 ppm) limit (Mn, Fe, Ni, Zn, As, Co, Pb, Bi). Due to the silver anode the area of energy higher than 20 KeV is affected, and so the limit for Ag and Sb (Kα spectral line) is 0.15% (1500 ppm). For tin, the Kβ spectral line is used and the detection limit is 0.05% (500 ppm). However, when LEAP is used for quantification some values are less reliable and copper is not considered under 0.05%; in some elements the measurement could be 0.01 % (under the theoretical detection limit in alloy mode), but these are not considered in the study. Some clay from non-metallurgical pottery was also tested as reference of the natural elements in the clay. Apart from iron, the frequency of zinc was noted with values up to 0.02 %. This indicates that natural levels of zinc might be present in the clay of the crucibles, and so a lower limit of 0.02% can be used to identify its presence derived from molten metal in the crucibles.

Following this XRF analysis, some items from the 2017 excavation were selected for further examination using a scanning electron microscope (SEM), including samples of slag and vitrified clay to understand how those residues formed. The equipment and working conditions are described below. Where individual objects are numbered (for example, PA27141/17E0164-76), the prefix is the laboratory code, with the second part being the excavation/museum number).

Lisnacaheragh elemental analysis

The material submitted from the 2017 excavation at Lisnacaheragh is classified in four categories:

1. Metal droplets: metals that are fully corroded.
2. Crucible fragments: usually with a vitrified layer on their inner and outer surfaces, although some fragments have lost one of the surfaces and the clay is visible (Figure 7.31). Some have metal drops or slags adhering to the inner surface or close to the rim.
3. Slag fragments: usually showing a porous or glassy surface.
4. Furnace wall: stone with vitrified layer of different colours on several faces (mostly sandstone).
5. Two pieces have also been analysed and discussed separately, a fragment of clay, and an object identified in the excavation as a possible tuyère fragment.

Melting waste or corroded metal objects

Only three objects were identified as metal, all poorly preserved and some fully corroded. Surface cleaning of all three did not expose metal. PA27141/17E0164-76 was found with slag fragments and could be an unshaped melting waste (Figure 7.32, 1). The PA27120/17E0164-123

is a small sub-circular item, possibly produced in casting or melting activity (Figure 7.32, 8). The only definite metal object is PA27121/17E0164-63, which has oval shape and broken endings that suggest an ornament such as a fibula or ring (chaton). This is impossible to confirm as the object has been fully corroded (Figure 7.32, 2). These three objects are bronze, with the original composition in each case altered by corrosion.

The analysis of PA27120/17E0164-123 at different stages during surface cleaning provides detail on



Figure 7.31 Crucible fragment with the exterior surface lost, upper part PA27124/17E0164-97, lower part PA27128/17E0164-97 (Photo Oscar García Vuelta).

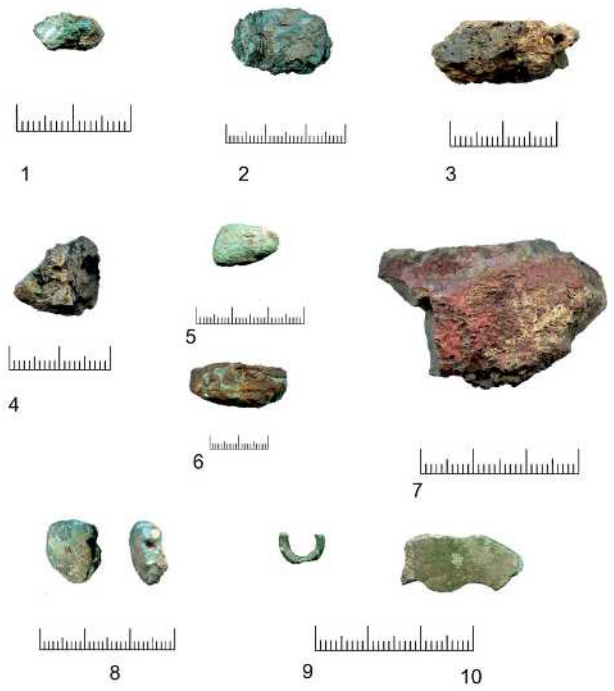


Figure 7.32 Analysed material from 2017 excavation of Lisnacaheragh (1–4; 7–8) and the Lisnamanroe enclosure (5–6; 9–10). 1. PA27141/17E0164-76 melting waste; 2. PA27121/17E0164-63 oval metal object; 3. PA27134/17E0164-93 slag with cleaned section; 4. PA27122/17E0164-81 slag with charcoal; 5. PA27119/ 11E110-10 copper mineral; 6. PA271112/11E110-306 copper mineral; 7. PA27142B/17E0164-91 sandstone fragment with vitrified layer; 8. PA27120/17E0164-123 metal object; 9. PA27116/11E110-370 single link from bronze chain; 10. PA27117/11E110-256 fragment of bronze sheet.

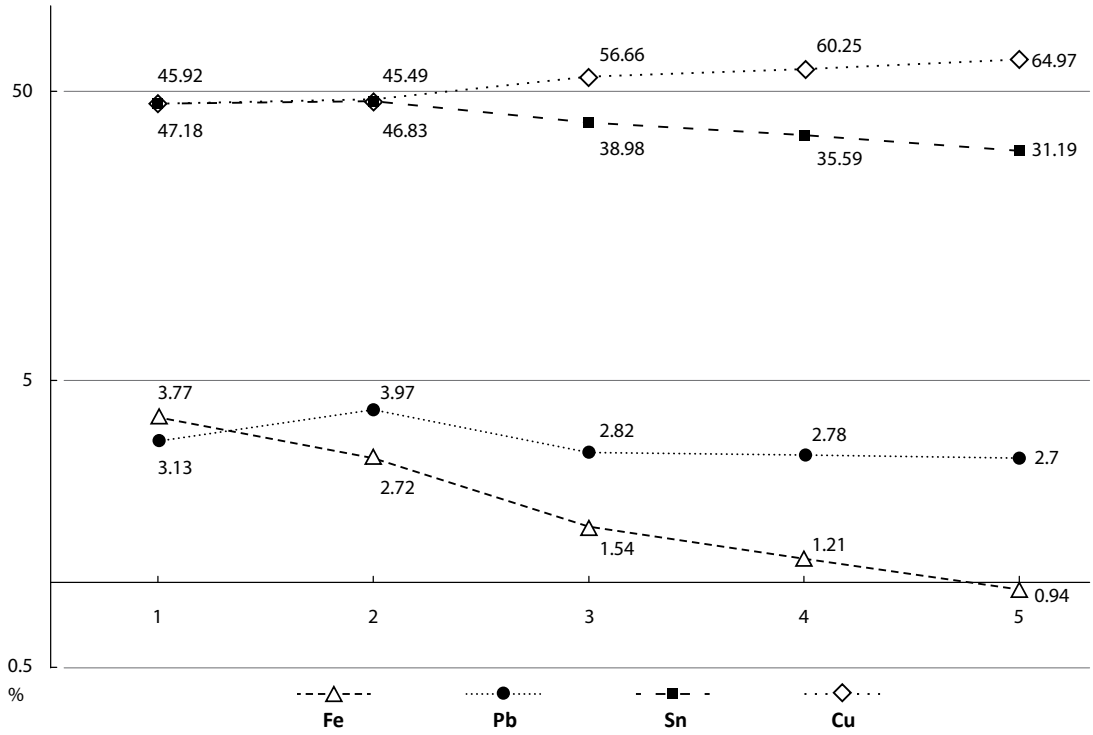


Figure 7.33 Changes in chemical composition after progressive cleaning of the surface of metal object PA27120/17E0164-123, Lisnacaheragh.

the process of change in the main chemical elements (Figure 7.33). The first two point analyses were on the surface, with others taken after a progressive cleaning of the surface of point 1, but no solid metal was present in the last analysis. The data reveals an overestimation of tin and iron in surface results, with progressive values decreasing from 46.5% to 31.2% (15% less). In general, high values of tin (>20%) are not common in ancient objects, except in specific types such as bells or mirrors, so the final percentage is still overestimated. In these samples the amount of lead decreases from 4% to 2.7%, but in point analyses 3–5 the change is lower, so the original amount could be close to 2%Pb. Interestingly, Zn was not detected in the initial surface analysis, but eventually a value of 0.2% was detected. While dezincification of metal surfaces is a well-known process, the total amount probably never exceeds 1% in this metal. The second melting waste has a similar composition with low Pb, the difference being the detection of silver (0.3% Ag).

The original alloy in the oval item follows the same pattern after surface cleaning, but in this case the amount of lead was higher, and the decreasing value is more significant, falling from 13.8% to 8.9% Pb (or 5% less). That metal was a leaded bronze (>2% Pb) with some silver impurity.

Crucible fragments

Twelve different sherds of clay crucible were analysed. The clay core of these objects can contain some copper, but generally this is much lower than in the glassy surfaces, irrespective of the colour. The main element in the clay is iron (2–4%). The highest values of copper appear in residues or slags adhering to the inside of the crucibles. In one case, a corroded metallic prill (PA27138B/17E0164-60) was identified. The original alloy could be quaternary or ternary, but corrosion makes it difficult to confirm this by overestimating lead and tin, and underestimating copper and zinc. The percentages obtained, with more than 50% tin, 30% Cu, 11% Pb and 0.4% Zn suggest the typical leaded bronze or leaded gun-metal (an alloy of copper, tin and zinc) used in the late Roman and Early Saxon period in Britain, when 40% or more of recorded bronze was of that alloy type (Pollard *et al.* 2015). One exception is a result obtained in the interior of a crucible rim (PA27127B/17E0164-78). With 80% Fe content, this result must indicate an iron prill or iron hammer scale accidentally attached to the crucible from the soil environment (Figure 7.34). The other components with 5% Cu, 10% Sn and 3% Pb suggest a ternary alloy or leaded bronze processed in it. The amount of silver is high (0.5% Ag) and so unusual in this set of analyses.

Two fragments of crucible rim have copper as main element (PA27128B/17E0164-97 and PA27129/17E0164-48). The composition is similar in both cases, with 15–16% Cu; 0.6–0.8% Sn, 0.15% Pb and 0.1–0.4% Zn. If these values are normalised to 100% they are all more than 1%; however, surface enrichment in tin and lead detected in other items from the site suggest the metal processed could be a brass with impurities of tin and lead.

For the remaining crucible samples, the information comes from the glassy surface, where the elements detected could be part of the thermal reaction during the metallurgical process, or might indicate the metal melted. This is evident in the inner glassy surfaces,



Figure 7.34 Crucible sherds PA27127B/17E0164-78 and PA27129/17E0164-48, from 2017 excavation of Lisnacaheragh (photograph: Oscar García Vuelta).

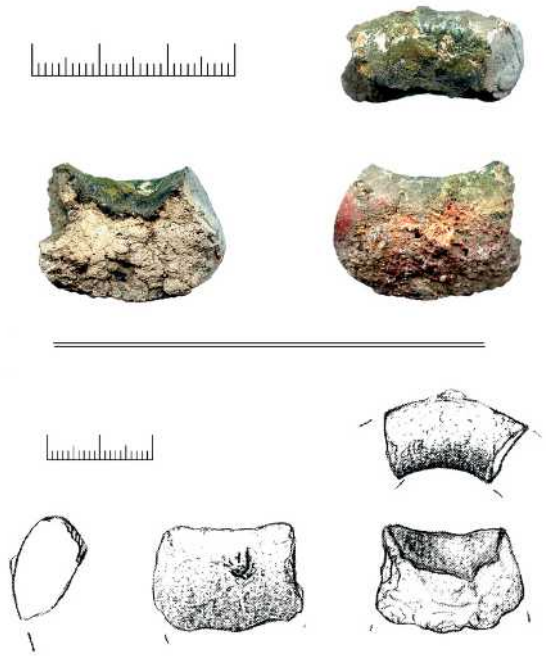


Figure 7.35 Sherd of tuyère or flat-bottomed crucible PA27123/17E0164-46, from 2017 excavation of Lisnacaheragh (photograph and drawing: Oscar García Vuelta).

but is more uncertain in the external vitrification. In some instances the environment of a contaminated soil in the workshop or some fumes during the melting process could explain the interaction, where analysis of the clay does not suggest a natural inclusion of those elements. The internal and external surfaces of sample PA27129/17E0164-48 were analysed (Figure 7.34). The interior is a slaggy dark surface, but the external is vitrified with red and green colours. Analysis reveals a proportionate decreasing amount of copper and zinc in the exterior, but an increasing value of tin and of lead in a minor proportion. There is no explanation for these changes, particularly in the case of tin which is five times in relation to copper. The thickness of clay in this sherd (Figure 7.34) suggest it comes from a flat-bottomed or semi-spherical crucible, a type possibly used in non-metallurgical processes (glass or enamel), or else as a type of support for pyramidal crucibles (Comber 2004a, 34).

The vitrified surfaces of these crucible sherds do not contain a regular composition. In some samples lead, zinc or tin is absent (PA27125A/17E0164-124 or PA27133/17E0164-86), while variations in colour (white or red respectively) could explain the different amount of copper detected (0.23% and 2.34% respectively). Other grey surfaces (PA27138A/17E0164-60) contains copper (2.9%), tin (2.5%) and lead (0.4%), but not zinc (see full results in Figure 7.55).

Slag Fragments

The analysis of slag samples were conducted on the surface, in some cases after a cleaning process to remove soil contamination. From the eight samples examined, two (PA27131/17E0164-44 and PA27130/17E0164-49) are clearly related to iron metallurgy, and are probably forge slags. Iron in high proportion is the only element detected, apart from some manganese, although PA217130 could be a fragment of metallic iron with no light elements detected.

An interesting case is the slag sample PA27134 / 17E0164-93 (Figure 7.32, 3). Surface analysis shows mainly iron and copper, but no tin. After the sample was abraded the results contain less Light Elements (LE) and more iron and copper, and a significative amount of tin (0.85%). A second analysis in a different area confirms only iron and copper, but in a third one (orange area) tin is again detected, but in a higher proportion. All three analyses reveal low impurities of arsenic. Although a more detailed study would be necessary, this slag with the irregular detection of tin could be part of a cementation process of copper and cassiterite, where some prills are pure copper, while others contain a highly variable amount of tin (Rovira *et al*. 2009).

One of the slag samples (PA27140/17E0164-76) contains a trapped metallic prill. Analysis of the porous vitrified area detected copper (4.6%), tin (2.3%) and lead (0.6%). The corroded metal shows a typical enrichment composition, with a higher proportion of tin (57%) than copper (33.1%) and lead (3.8%), silver as a main impurity (0.3%), but no zinc. A corroded metal drop (PA27141/ 17E0164-76) from the same archaeological context gives a similar proportion in the main elements and also in the silver content. The alloy processed here could be a binary bronze with some lead (probably < 2%), which needs to be confirmed by SEM analysis (see below).

Another interesting slag is PA27122/17E0164-81 (Figure 7.32, 4), which has corroded metal adhering to one side, with some charcoal attached to the other where clay is also present. The analysis of the corroded metal confirms a ternary alloy with high tin (33%) and lead (12%) and silver (0.3%) as minor elements. The slag composition does not show the same proportion between elements than the corroded metal, but copper always has the highest value. In this metal the amount of lead is higher than in the previous example (PA27140/17E0164-76) and could come from a ternary alloy (Cu-Sn-Pb). In both samples the presence of silver, unusual in the other analyses from the site, could suggest a similar copper type, used here in two different alloys.

Finally, slag sample PA27150/17E0164-67 can be linked to the production of a ternary or quaternary alloy, with copper and tin as main elements, and zinc and lead in less proportion. The difference with other slag fragments is the presence of nickel as an impurity in the metal, an element that was only detected in one crucible sample (see full results in Figure 7.55).

Furnace walls

A selection of 20 fragments of stone with thinly vitrified surfaces submitted for analysis were examined. These fragments of grey sandstone are small to medium in size (maximum length 100mm), with vitrification apparent on several faces, often with different colours in the same face (Figure 7.32, 7). In two cases we could analyse the broken stone and confirm than none of the metallic elements present occur naturally in the rock, with the exception of iron. The amount of Cu, Sn, Pb and Zn detected is related to the high temperature process that created the vitrified layer.

The highest values come from a slag attached to one of these vitrified stones (PA27142B/ 17E0164-91). Four main elements are present (8.7% Cu; 0.5% Zn; 2% Sn; 0.4% Pb). Their values decrease in the red area, while the proportions are very low in the yellow-green area

with only 0.15% Cu and 0.11% Zn. The same proportions in the four elements are detected in the slaggy surface of sample PA27143/17E0164-82, while in a heavy glazed stone sample (PA27146/17E0164-45) the relative amount is lower (3.2 % Cu).

These heat-altered stones may have been part of a furnace structure where leaded gun metal or leaded bronze has been processed, as the vitrified layer is similar to those present in the crucibles. The small size of these stones could be in relation to the small area where the crucibles were located to melt the alloys and the process of formation of this vitrified layer was the same in the stones and in the clay.

Burnt clay and tuyère/crucible

These two items are difficult to classify. There are several fragments (PA27150/17E0164-73) of clay with a soft texture that is not hardened by fire. The analysis detected copper (0.2–0.3%) with very low traces of tin (0.04–0.06%), and no zinc or lead. When compared with other crucible analyses from the site this level of impurities suggests the clay was impregnated by the fumes of the metallurgical activities or contaminated by the soil environment.

One of the objects submitted for analysis (PA27123/17E0164-46) was identified by the excavator as a fragment of a tuyère or clay nozzle. This has an external diameter of 28mm, with a dark crust on the inner side, a green vitrified layer in the rim, and a more irregular reddish and glassy external surface (Figure 7.35). The dark crust contains mainly copper (92.8%) and small proportion of tin (1.4%) and lead (1.1%), but no zinc or light elements were detected. Examination of the rim suggests a light oval shape more than circular, and the clay thickness in the section points towards a small flat-bottomed or semi-spherical crucible similar to those described in Garranes by Ó Ríordáin (1942, 136–138, fig. 24) or an example from Lagore with a diameter of 25mm (Comber 2004a, fig. 137, no. 61). The Lisnacaheragh fragment was selected for a more detailed SEM study of the adhering slag (see section 3). The fragment of tuyère from the same site described by Ó Ríordáin (1942, 139, fig. 25, no. 262) is clearly different in shape, with an aperture for the air in the middle of the nozzle.

Lisnamanroe elemental analysis

Six copper minerals and two metal objects were analysed from this enclosure adjacent to Lisnacaheragh. The copper minerals are small fragments with a rectangular shape and rounded borders, found in cultivated topsoil in this site. There are green and brown tones on the surface, but the core is dark. The results reveal all six minerals have a homogenous composition, essentially a copper-iron sulphide with small and variable amounts of lead depending on the area analysed (see full results in Figure 7.56).

The two metal objects analysed include a small ring from a short length of chain (11E110-370) and a fragment of sheet (11E110-256) (Figure 7.32, 9 and 10). In both instances surface cleaning exposed original metal for analysis, providing a more accurate picture of the original composition. Variation between the bulk metal and surface patina results confirms the surface enrichment of tin and lead in both objects. Changes in each element are not constant. The cleaned metal in the ring contains about 55% of the amount of Sn and Pb detected in the patina. This is consistent with other studies looking at patination effects on metal composition (e.g. Orfanu and Rehren 2015), but in the case of the sheet the Sn and Pb are only the 35% of the surface. This can be variable depending on the soil environment, as in Iberia where higher changes have been identified, reaching up to 30% of the value obtained in the patina (Rovira and Montero, 2018, 234). Although some residual effect of corrosion enrichment on cleaned surfaces is possible, the analysis of both objects are likely to be close to the original alloys, probably a high tin leaded bronze in the case of the ring, and a leaded gun metal in for the fragment of sheet.

Object	Analysis	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb
Sheet	PA27117	0.24	0.07	86.72	3.43	0.31	0.31	5.30	Bld	3.93
	PA27117P	3.52	bld	65.71	1.30	0.85	0.83	16.49	0.35	10.94
	Variation %	-93	--	32.0	163.8	-63.5	-62.7	-67.9	--	-64.1
Ring	PA27116	0.72	bld	75.96	bld	bld	bld	17.78	Bld	5.54
	PA27116P	1.27	bld	55.99	bld	bld	bld	33.09	Bld	9.65
	Variation %	-43.3	--	35.7	--	--	--	-46.3	--	-42.6

Figure 7.36 XRF analysis (% in weight) detecting changes in the composition due to the patina effect. The variation is calculated as the percentage of the element in the cleaned metal compared to the value in the patina (bld= below limit of detection; in Sb and Ag is 0.15 %).

The leaded gun metal with 3% Zn, 6% Sn and 4% Pb is an alloy usually considered to be a product of recycled metal, where no element is clearly dominant. In their summary of leaded gun metal composition from Early Saxon contexts in Britain, Pollard *et al.* (2015, fig. 4) suggest that items with 2–4 % Zn represent the majority (30%) of the assemblage. The detection of silver (0.3%) and arsenic (0.3%) classify the Lisnamanroe sheet fragment in Oxford´s metal group 9, but when antimony is taken into account as detected in the patina, the metal can be re-classified to Oxford´s group 12. If the loss of antimony is proportional to the rest of elements (~65%) (Figure 7.36) the amount could be around 0.12% Sb, lower than the spectrometer detection limit (0.15%). Group 9 metal is poorly represented in Anglo-Saxon metallurgy, with those containing Sb (groups 3, 6, 7 and 12) being more common (Pollard et al. 2015: 709, table 6). In contrast, the Lisnamanroe ring is of Group 1 metal.

SEM analysis

Samples PA27140, PA27122 and PA27123 were selected for further analysis using the Scanning Electron Microscopy (SEM). Analyses were conducted at the Scientific Instrumentation Center (CIC) of the University of Granada (Spain) using a variable pressure SEM Leo 1430VP equipped with an X-Ray dispersive energy microanalysis system (EDS) Inca 350 v. 17 of Oxford instruments. The SEM-EDS system used an accelerating voltage of 20 kV, a working distance of 15mm, and a process time of five, corresponding to a dead time of *c.*30%; acquisition time was 50 seconds.

Slag PA27140/17E0164-76

A cross-section of this sample showed great heterogeneity and high vitrification with a significant number of large voids (Figure 7.37). This heterogeneity and the presence of several large inclusions (such as the large quartz fragment on the right) suggest this slag fragment was only partially melted.

This sample contains a large metal prill (top right corner of Figure 7.37; see also Figure 7.38a), analysed as a low tin bronze (*c.*3.8% Sn). There are small lead inclusions all over the matrix, although lead is detected in low levels in general area analyses of the metal phases (< 1% Pb). Some romboedric crystals of tin oxide (SnO_2) are present within the metal prill, mostly concentrated in its borders (Figure 7.38a). This suggests the progressively more oxidising conditions towards the prill's exterior surface. Tin oxide crystals of different shapes formed within the metal have been documented in alloying of metallic copper and tin by experimental cementation (Rademakers and Farci 2018).



Figure 7.37 Cross section of slag with prill PA27140/17E0164-76. Note the big bronze inclusion on its upper right corner (Figure 7.38a), the area with high tin bronze and clusters of cassiterite in its low left corner (Figures 7.40 and 7.41) and the yellow/orange and red glass in the middle (Figure 7.43).

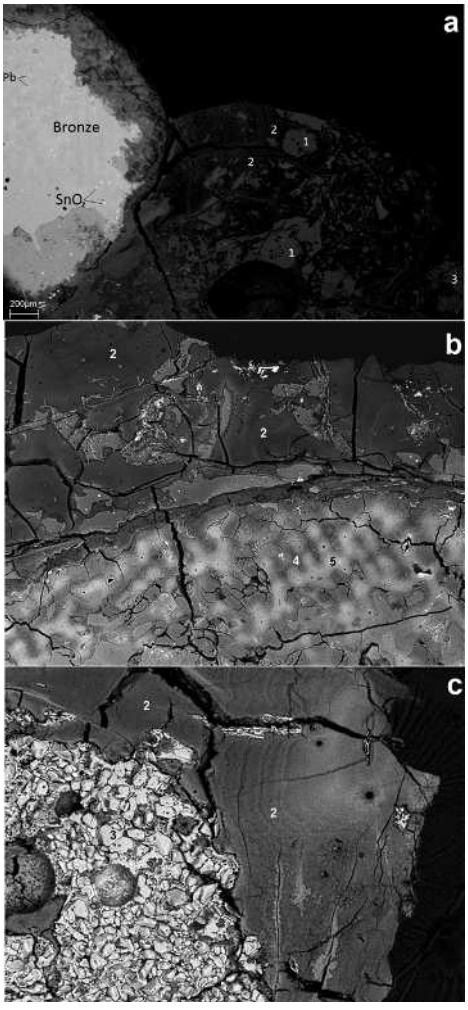


Figure 7.38 BSE images of PA27140/17E0164-76. (a) Bronze prill with lead inclusions and SnO_2 crystals, phases 1 and 2 described in the text (results in Figure 7.39) and apatite crystals in the low right corner; (b) intergrowth of the bronze dendritic microstructure with carbon and phosphorus of phase 2 (results in Figure 7.39); (c) Detail of the apatite crystals (white crystals on the left) and phase 2 (grey on the right).

	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	Mno	FeO	CuO	SnO2	PbO	Total
1	2.3	3.0	4.4	53.2	4.2	4.2	16.9		1.4	3.6	6.3			102.9
2			15.4	2.3	25.0			1.1		9.7	8.1	5.2	1.7	68.6 (C is missing)
3					50.7		49.2							101.8
4			6.5	1.5	12.7						20.1	22.9	1.5	65.2 (C is missing)
5			1.7	3.6	7.2						24.4	48.4	2.4	87.7 (C is missing)

Figure 7.39 Analysis by SEM-EDS of phases in slag PA27140/17E0164-76 (nos 1–5 in Figure 7.38). The results are the average of between three to six analyses. Measured as percentages in compounds, with oxygen added by stoichiometry. Data is normalized and analytical totals reported. Analysis with low totals must consider carbon losses, which cannot be measured by EDS as samples were carbon-coated. In those cases, data is not normalised.

Next to the prill, this slag sample is composed mainly of two phases: lime-glass rich in copper with some amount of K, Al, P, Mg, Fe, Na and Mg (no. 1 in Figures 7.38 and 7.39) and carbonate-rich in phosphorous, alumina and iron with some levels of copper and tin (no. 2 in Figures 7.38 and 7.39). In the corrosion layers surrounding the prill, an interaction between the metal and a phase rich in C and P, enriched in Cu and Sn, can be observed (nos 4 and 5 in Figures 7.38(b) and 7.39). In this corrosion layer, the characteristic dendritic microstructure of as-cast bronze is clearly defined, with a tin and lead enrichment reaching *c.*50% Sn. This bronze is reacting with phosphorous and carbon (not measured as samples were carbon-coated) to form the carbonate phase (no. 2 in Figure 7.38).

A concentration of apatite crystals of hexagonal tendency is also recorded in this sample (no. 3 in Figures 7.38(c) and 7.39). This may be a relic of crushed bone possibly added as flux to the system. This bone, in addition to ashes, could be the source of lime and phosphorus detected in phases 1 and 2.

Evidence of an apparent high-tin bronze (highly oxidised) is visible in the lower right corner of the slag fragment. This microstructure shows two phases of bronze formation: a dendritic microstructure with smaller grains in its lower part (Figure 7.40b) and a more developed one with bigger grains on top (Figure 7.40a) as a result of slower cooling rate. The composition of this bronze reaches >40% Sn, which may be over-estimated due to oxidation. The ε- or η-intergranular phases (light grey) reach >60% Sn in some areas, although what one would interpret as α grains (grey) do not have a normal composition richer in Cu, and high tin bronze with silica is quantified. This composition suggests that at some point when bronze was forming, copper started to react with silica forming a high tin-bronze silicate that interrupted the bronze formation. This has also been documented in Iron Age slag fragments in Iberia (Rovira 2007).

Surrounding this area, there is a high concentration of euhedral and acicular crystals of tin oxide and high tin-bronze metallic prills (reaching up to 56% Sn) embedded in a glassy matrix rich in Sn (>30% Sn) can be observed (Figures 7.41 and 7.42). No pure copper prills were analysed. The high levels of tin indicate bronze smelting rather than melting, with the cluster concentration of SnO2 crystals indicating the presence of relic cassiterite minerals.

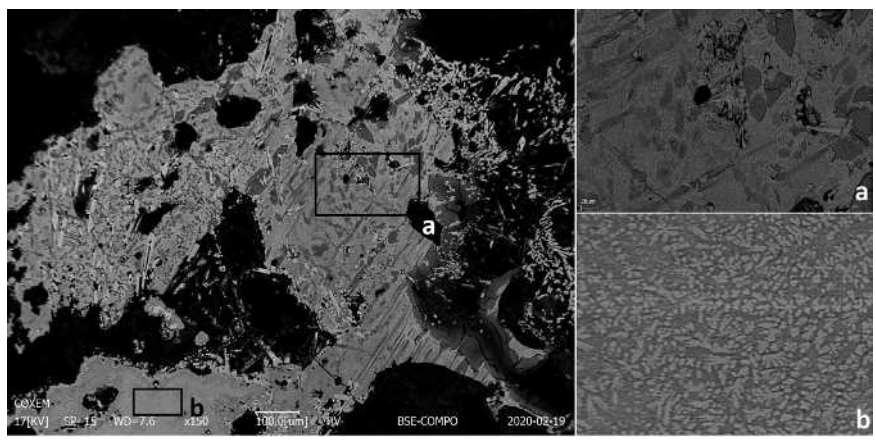


Figure 7.40 BSE images of the low left area of the slag fragment PA27140/17E0164-76 showing the formation of a high tin bronze with the presence of large euhedral cassiterite (SnO_2) crystals and the characteristic dendritic structure (b) as well as an as cast microstructure with bigger grains (b) in which the expected α grains (grey) are reacting with silica to form a high-tin bronze silicate what would have render in the disruption of the bronze formation.

Between this high tin-bronze slag and the large metallic prill, a yellow/orange and red glass can be observed (Figure 7.37). Under the SEM, a glassy matrix full of micro-inclusions of copper is observed in both cases. The main difference is the presence of a cuprite growth with copper nuclei in the yellowish glass (Figure 7.43a) while only metallic copper inclusions are documented in the red glass (Figure 7.43b). In both cases small apatite crystals are also present. Slight differences can be observed in their compositions, with the red glass richer in soda and iron, and poorer in lime and phosphorous (Figure 7.42).

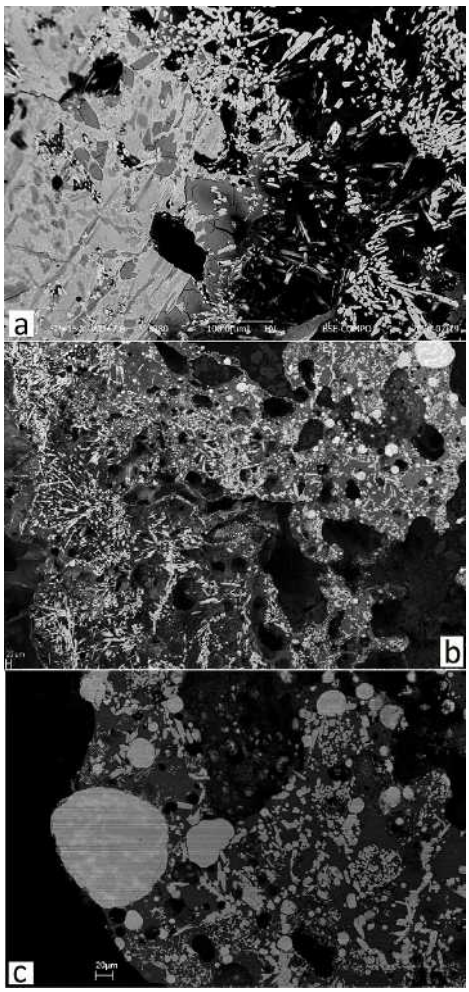


Figure 7.41 BSE images of the low left area of the slag fragment PA27140/17E0164-76 showing the clustered concentration of formation of euhedral and acicular crystals of tin oxide (a) and (b) and the formation of a glassy matrix rich in tin (EDS analyses in Figure 7.42) with high tin bronzes prills reaching >50% tin embedded.

Although general Sn levels can be overestimated due to oxidation, the high Sn levels quantified, as well as the large cluster of tin oxide crystals documented, would suggest a bronze smelting or alloying rather than a melting process. Smelting copper with fresh tin (or cassiterite) results in high tin-bronze prills, while melting bronze results in prills with a tin content equal to or below that of the recycled bronze (eg. Rademakers and Farci, 2018; Rademakers *et al*. 2018; Crew and Rehren 2002). However, excluding melting, three options can be considered here: a) co-smelting of copper and tin ores; b) alloying metallic copper and tin or b) cementation of scrap metallic copper with cassiterite mineral.

Low levels of iron, and the absence of olivine, delafossite, magnetite or other Fe-rich phases commonly observed in copper smelting or bronze co-smelting slags, should be the consequence of copper entering the system as a metal and therefore not adding iron impurities commonly present in copper ore gangue. On that basis the Lisnacaheragh analyses do not support option a (co-smelting), although it does not discriminate between options b and c. It is also notable that no copper or tin ore was discovered in the various excavation of this site.

Tin could have entered the system as an ore (cassiterite) or as a metal, and distinguishing tin oxide crystals as a consequence of tin oxidation or as a relic of a tin oxide ore (cassiterite SnO_2) is not straightforward. Dungworth (2000a) documented euhedral tin oxide inclusions as rhomboids or needles with copper nuclei in experimentally cast bronze and interpret these as a result of oxidation during casting, rather than the use of cassiterite for alloying. The presence of clusters of

	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	Mno	FeO	CuO	SnO2	Total
Area analysis yellow glass		3.2	5.1	53.7	4.1	5.3	13.0		1.4	2.3	11.8		102.9
Area analysis red glass	1.9	2.7	5.9	55.8	3.1	4.9	9.5	0.6	1.1	4.3	10.1		104.7
Yellow glass matrix		3.2	5.0	52.9	4.7	5.3	13.7	0.5	1.3	2.5	10.8		101.7
Red glass matrix	1.9	2.6	5.7	57.9	3.1	5.1	9.7	0.5	1.1	4.9	7.6		103.8
Glassy matrix Fig. 7.41(c)	1.5	2.3	3.7	40.9	1.5	4.9	7.6		1.3	2.0		34.4	104.6

Figure 7.42 EDS results of glassy matrices of Figure 7.41(c). Results are the average of between three to six analyses. Measured as percentages in compounds, with oxygen added by stoichiometry. Data is normalized and analytical totals reported.

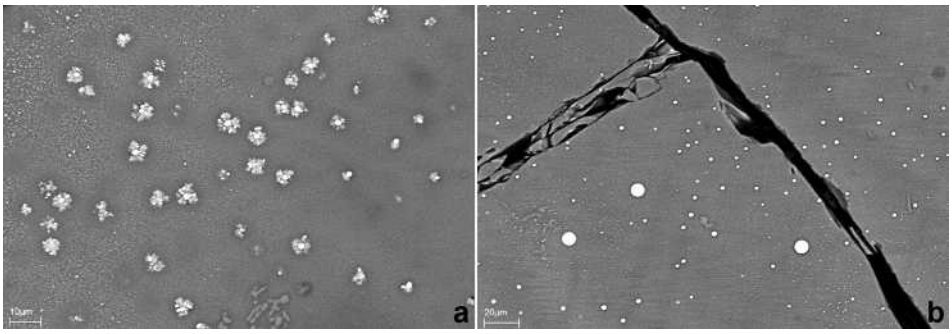


Figure 7.43 BSE Images. (a) Detail of the yellow glass. Note cuprite crystals with metallic copper nuclei and small tabular crystals of apatite in a lime-silica glassy matrix. (b) Detail of the red glass. Note copper prills and small tabular crystals of apatite.

various morphologies of tin oxide inclusions have been interpreted as evidence for the use of cassiterite ore in cementation or co-smelting processes, based more on the tight clustering occurrence of tin oxide than in the crystal shapes (see Rovira 2007; Rovira *et al.* 2009; Murillo-Barroso *et al.* 2010; Farci *et al.* 2017). It appears that skeletal and acicular tin oxide crystals tend to form more frequently by the oxidation of tin and bronze, while relics of cassiterite ore tends to disintegrate into tight clusters of anhedral to blocky euhedral crystals (Rademakers and Farci 2018). However, as experimental studies demonstrate, apart from residual cassiterite ore, tin oxide crystals occur abundantly in every bronze-related crucible process and their shape cannot be used to distinguish between the use of cassiterite or metallic tin (Rademakers and Farci 2018).

The Lisnacaheragh analysis reveals the microstructure of a high tin bronze with >50% Sn, surrounded by a glassy matrix with >30% Sn (with no pure copper detected) and high tin prills, as well as cluster of euhedral and acicular tin oxide crystals (Figure 7.41). The tight cluster in which tin oxide crystals are disposed, and the absence of copper or bronze nuclei in those crystals, suggest the use of the tin oxide, cassiterite. This suggests a process of bronze production by the cementation of metallic copper and cassiterite.

The formation of the yellowish/orange and red glass would be a by-product of this cementation process. Some studies have highlighted a link between metallurgy and glass manufacture since Roman times by the re-use of metallurgical slag and litharge in enamel and glass production (e.g. Mass *et al.* 1998; Stapleton *et al.* 1999; Rehren and Krauss, 1999). Peake and Freestone (2012) convincingly demonstrate the use of smelting by-products in glass making, as they documented small slag particles, mainly composed by olivine-type minerals characteristic of copper and iron smelting slags such as fayalite (Fe_2SiO_4) or kirschsteinite ($CaFeSiO_4$), in the matrix of red early Anglo Saxon glasses. Their study suggests that slag was added as a reducing agent to promote the precipitation of micro-inclusions of metallic copper, the colorant red agent, and as a colorant agent itself in black glasses (as a source of iron). Bronze and glass working have been documented in the same context at the early medieval site of Dunmisk, Co. Tyrone (O'Sullivan *et al.* 2008: 231; cf. Ivens 1989, 57). However, in that case we cannot be sure if glass produced as a by-product of bronze smelting was intentional, an accidental by-product that was reused, or a visually similar by-product that has nothing to do with glass productions.

Slag with charcoal PA27122/17E0164-81

This slag fragment is mainly composed of highly vitrified clay and a large lump of bronze (Figure 7.44). No slag phases are recorded, except that the glassy matrix surrounding the bronze lump (no. 1 in Figure 7.44a) is richer in copper and includes small copper prills. No bronze prills or cassiterite were identified within the glassy matrix. The composition of the glassy matrix of the area surrounding the bronze lump differs from the vitrified matrix of the clay analysed at the opposite end (no. 2 in Figure 7.44a and 7.45). In the former case, in addition to detecting copper in a large number of micro-inclusions disseminated within

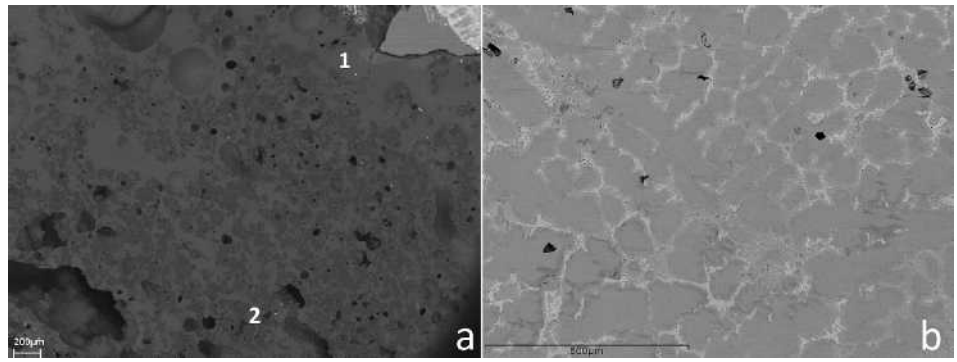


Figure 7.44 (a) BSE image of the ceramic melted fabric showing small quartz inclusions and abundant round vitrification voids; (b) BSE image of the bronze lump showing α grains (grey) and Ɛ intergranular phase (light grey).

	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	Mno	FeO	CuO	ZnO	Total
Glassy matrix (area 1)	2.0	2.1	9.5	63.1	1.2	7.4	7.4	0.6	0.9	3.3	2.3	0.3	101.2
Clay glassy matrix (area 2)	1.0	3.6	18.2	58.8	1.4	3.3		0.8		12.9			100.1

Figure 7.45 SEM-EDS analysis of slag PA27122/17E0164-81. Results are the average of four analyses. Measured as percentages in compounds, with oxygen added by stoichiometry. Data is normalized and analytical totals reported.

the glassy matrix, higher levels of lime and potash are also documented, consistent with wood ash rich in Ca and K derived from the combustion fuel. The fact that phosphorous levels are similar in both cases seems to indicate that no bone was used in this sample. The lower iron levels of the upper glassy matrix if compared to the clay matrix also speaks against smelting.

The bronze lump exhibits the characteristic dendritic structure of an as-cast bronze (Figure 7.44(b), with α grains richer in copper (grey in Figure 7.44(b) reaching 7% Sn) and an ε phase richer in tin and lead (light grey in Figure 7.44b, up to 40% Sn). Levels up to 15% Sn and 2% Pb were quantified in general area analysis, although they can be overestimated due to some oxidation (>10% O). The absence of pyroxene, delafossite, olivine-type or any other crystallisation commonly found in bronze smelting slag, suggest this slag fragment is a by-product of melting or casting bronze instead of smelting, although high temperatures up to 1200ºC would have been reached according with the level of the clay vitrification.

Tuyère or crucible (PA27123/17E0164-46)

This is a rim fragment from a tuyère or a flat-bottomed crucible. SEM analysis reveals a ceramic fragment with a superficial soda-lime-silica glass layer rich in copper (Figure 7.46a and b; Figure 7.47). The higher levels of lime and potash compared to the glassy matrix of the ceramic may derive from wood ash used in the process. The ceramic has been exposed to high temperatures (*c.*1200ºC) given the degree of vitrification achieved, being partially molten and with a large amount of vacuoles produced by gases in the melting and vitrification process. Quartz appears cracked in some areas as a result of these high temperatures (Figure 7.46c).

The surface glass layer has a very large number of micro-inclusions of metallic copper prills immersed all over the matrix where no cuprite has been identified. The larger copper prills form a layer in the most superficial area, of which the bigger ones seem to be sinking (Figure 7.46b). The prills are mostly copper, although some of them have low levels of tin (1.6%), similar to the results obtained by pXRF analysis.

Similar to PA27123, the absence of pyroxene, olivine-type or any other minerals commonly found in copper smelting slag would speak against a smelting process. However, as experimental studies have shown (e.g. Rovira *et al.* 2009) melting usually produces little or no slag at all. The thick and regular glass layer with copper

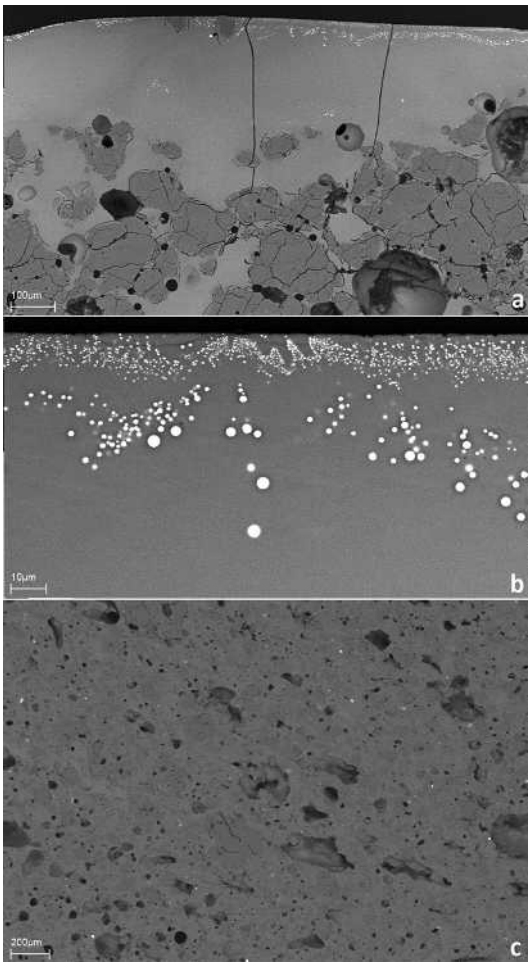


Figure 7.46 BSE image of the glass layer showing a surface concentration of copper prills and the ceramic fabric with quartz inclusions shattered by thermal stress, and abundant round vitrification voids. (a) General view of the ceramic fabric and the glass layer. Note shattered quartz due to high temperatures reached; (b) Detail of the glass layer showing the surface concentration of copper prills. Note that bigger prills are sinking; (c) BSE image of the ceramic vitrified fabric showing small quartz inclusions and abundant round vitrification voids.

	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	CaO	TiO_2	Mno	FeO	CuO	Total
Gral ceramic composition	1.3	0.5	14.2	78.8		2.3		0.7		2.2		102.9
Glassy matrix ceramic	2.9	2.2	18.8	67.1		4.4		0.7		4.2		104.7
Glass matrix	4.2	2.5	6.1	69.5	0.2	8.5	5.7		0.8	1.6	0.6	101.7

Figure 7.47 SEM-EDS analysis of sample PA27123-17E0164_46. Results are the average of four analyses. Measured as percentages in compounds, oxygen added by stoichiometry. Data is normalized and analytical totals reported.

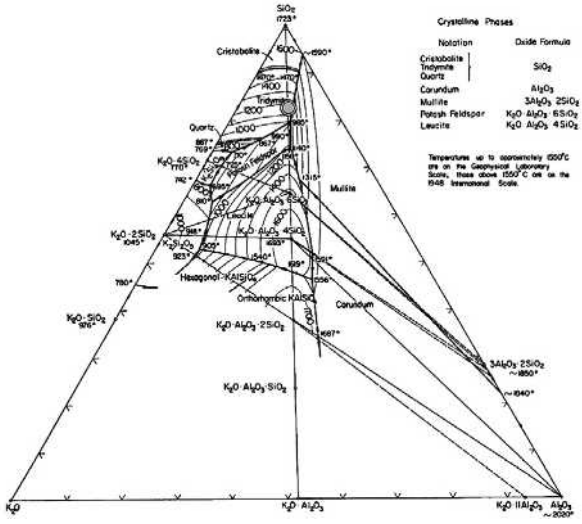


Figure 7.48. Ternary SiO2-K2O-Al2O3 showing the temperature reached by the glass layer of sample PA27123/17E0164-46.

prills produced in this sample would imply keeping a reducing atmosphere for copper to precipitate under unusually high temperatures in copper melting. The melting point of this glass is *c.*1200ºC (Figure 7.48), much higher than needed for copper melting (1089ºC). If this sample is a tuyère fragment, that would probably require repeated and intense use for the homogeneous glassy layer to be produced. This glassy layer would have been formed by the partial melting of the ceramic fabric in contact with combustion ashes, the metallic prills being the consequence of copper spatter. However, the small fragment conserved does not allow a clear typological characterisation and the intentional production of this glass layer and therefore its link to glass instead of copper manufacture cannot be discarded due to its high homogeneity and the high temperatures reached. Except for the surface copper prills, similar samples of heavily vitrified clay with bloating pores and a homogeneous layer of glass on top of it have been documented in a Roman glass workshop in London (Freestone 2015) although one would expect more glass debris if produced *in situ*.

XRF-EDS analysis of metallurgical finds from 1937 excavation at Lisnacaheragh

Metallurgical finds from the 1937 excavation at Lisnacaheragh, now held in the collections of the Cork Public Museum, were examined by XRF-EDS. This analysis was supported by a Salvador de Madariaga Mobility *Grant* to Ignacio Montero, awarded by the Spanish Ministry of Education, Culture and Sports (ref. PRX12-00555). The spectrometer used is the INNOV-X instrument described below. Carolina Gutierrez Neira assisted in the analytical work. A number of samples from the 2011–15 excavations at Lisnamanroe were also analysed using the same methods.

The study covered a selection of 126 samples from both sites (Lisnacaheragh and Lisnamanroe), mainly crucibles but also a few copper-based objects and clay moulds (Figure 7.49). The results are compiled in by type of sample in Figures 7.57–7.61, below.

Site	*No. of analyses*	*No. of samples*	
Lisnacaheragh	159	112	6 metal objects 1 metal waste 8 moulds 10 slags 5 furnace lining? 82 Crucibles
Lisnamanroe	19	14	1 object 5 copper ores 1 melting waste? 7 Fe slags

Figure 7.49 Number of samples from Lisnacaheragh used for XRF-EDS analysis in the Cork Public Museum and samples from from the 2011–15 excavations at Lisnamanroe.

The results of the Lisnacaheragh samples are summarized here, to add to information obtained from analysis of the 2017 finds from that site (see above). In one crucible (PA22743/3095-454 silver is detected as main element (Figure 7.50). The amount of Ag detected in two different areas of the vitrified crucible are high (13.7% and 7.7%), with Cu, Sn, Zn and Pb also detected and some Br (frequent in silver corrosion) and Bi. Light elements are not quantified, meaning that a large amount of metal is present in that area. However, the proportion of elements (43% Cu, 20% Sn, 13.7% Ag, 8% Pb and 3%Zn) does not match with any silver or copper-based alloy known. The recycling of metal objects with a silvered surface or inlay could produce this strange combination. In spite of only qualitative data is offered, some crucibles from Dunadd in Scotland (Bayley 1984) contain these five elements in different combinations (Zn, Cu, Pb, Sn, Ag / Zn, Cu, Ag, Sn, Pb), together with crucibles used only for gold and silver casting. Silver coating is not exceptional in the metallurgy of this period, although is less frequent than gilding, and the base metal could be made with different alloys including gun metal or bronze (Baker 2013, 405–410).

Three other crucibles (PA22754A/3099-200C; PA22720A/3123-448; PA22756A/3099-451) contain silver in the alloy in low amounts (0.12%). Cu, Zn, Sn and Pb are detected in all three crucibles, but always <3 % of each element. These analytical patterns could be the results of melting old objects with silvered coatings, another example of recycling of metals in that workshop.

Lead is detected as main element (>70%) on the inside of six crucibles (PA22746A/3095-SN2; PA22690B/3124-245X; PA22744A/3095-251; PA22719A/3123-456; PA22716A/3131-448; PA22730/3127-233; Figure 7.50). The analysis also detects copper, zinc and tin in low proportions (usually < 10%). The presence of tin is an indicator of whether fresh or recycled lead was used. But the substance melted in these crucibles would not only contain tin but also copper and zinc. The explanation of this high lead could be connected to the production of enamel. The study of red opaque enamel by Stapleton *et al.* (1999) gives a similar quantification, but in oxides with lead as the main element. Our spectrometer was configured to quantify light elements (LE) if they are higher than 25%. In red opaque enamel with a high degree of heterogeneity the sum total of Si, Al and Ca does not exceed this limit.

The melting wastes (one from each site) have different composition. The sample from Lisnamanroe (PA22670) is a very pure copper and the drop from Lisnacaheragh (PA22637) is a high leaded gun metal. The alloy after cleaning the surface contains 59.7% Cu, 5.2% Zn, 9.63% Sn, 19.3% Pb, and 0.83% As.

Seven metal objects were analysed, six from Lisnacaheragh (Figure 7.51) and one from Lisnamanroe. The corrosion prevented the analysis reaching unoxidized metal and so the data does not reflect the real proportions of the alloyed elements. The data does confirm the tendency to overestimate Sn and Pb, and the dezincfication process on the metal surface, to provide some information about the main alloy.

The bronze strip tapering, with incised herring-bone (PA22641/349-37) is a leaded brass with 14.9% Zn and 3% Pb content, and arsenic and bismuth as minor elements. The sheet wrapped a metal with a Pb-Sn (50-50) alloy that is visible in the back side. Four items can be classified as leaded gun metal, with tin as the highest percentage in the alloy. A pin (PA22639/330-36), possibly from a penannular brooch, is made with a high leaded bronze alloy and zinc is not detected. The penannular brooch (PA22638/265-38) is also a leaded bronze, although the amount of lead could be under



Figure 7.50 Fragments of crucibles from the 1937 excavation of Lisnacaheragh analysed by XRF. Silver is detected in fragments PA22743/3095-454 and PA22756A/ 3099-451, and lead in fragment PA22716A/3131-448.

2% in the original alloy. The stud (PA22643/322-35) and the button (PA22642/231-34) were described as 'surface tinned' (Ó Ríordáin 1942, 89 and 96), but this is not confirmed by the present analysis, which revealed no significant differences in tin content between both sides. The enamel in the button gives a very high lead percentage (70%). It is not known what precise proportion of other elements (Cu, Sn, Zn) are present because the area analysed by the spectrometer exceeds the enamel. Analysis of early mediaeval opaque red enamel (Stapleton *et al.* 1999) confirms lead as the main element (average 60% PbO), with copper (average 15% CuO) and a variable Sn content (maximum 16.4% SnO_2). With 18% Cu and 7.8% Sn, the results of this study are a little bit higher, allowing for the fact that the higher the lead content the lower the other elements.

In terms of the minor elements, Oxford´s classification of metal groups (Pollard *et al.* 2015) highlights that the most frequent element is silver (Ag), but arsenic is detected in four analyses, nickel in two and antimony in one. The result is that several groups are present even if antimony could be present although is not detected lower than 0.15 %.

In conclusion, this group of metal objects from Garranes is heterogeneous, with leaded brass, leaded bronze, leaded gun metal and tin-lead alloys detected. The high quality of the brass (15%), the leaded bronze without zinc impurities, and the overall variability of compositions, suggest that some of these objects may have been gathered for recycling rather than produced at Lisnacaheragh. Ó Ríordáin (1942, 93) suggested the penannular brooch could be in an intermediate stage of manufacture, but it was found broken in three parts. The production of fresh tin-bronze in the site is confirmed by the analysis of slag PA27140/17E0164-76, which could mean the brooch was a failed casting intended for recycling.

The interpretation of the XRF analysis of the clay moulds needs to be approached with caution because the analytical values do not necessarily determine the types of metal melted. The experimental work by Kearns *et al.* (2010) using clay moulds and different alloys helps to interpret the analysis here of six clay moulds and two stone moulds from Lisnacaheragh (Figure 7.52). The study concluded that:

1. Zinc contamination appears at strongly-elevated levels, even if this metal is only present in the original alloy in small concentrations.
2. Lead will also tend to be over-represented, although not as heavily as zinc.
3. Tin, on the contrary, will leave very limited traces in the mould, sometimes close to limits of detection, even when heavily alloyed bronzes are cast.
4. Traces of copper were detected in all the moulds analysed, although nearly always in relative proportions much lower than in the original alloys (*ibid.*, 55).

Our results are consistent with these conclusions. Zinc is the main element in the clay moulds, but not in the stone examples. Tin is not present, although in two cases some traces have been detected close to the detection limit. In the experiments lead seems to follow a similar pattern of zinc but in small proportion, with the zinc signal ratio two to four times higher than lead, and the same original proportion of each element in the alloy. If this Zn/Pb ration is assumed, a comparison of the data here with the Kearns *et al.* (2010) results



Figure 7.51 Metal objects from Lisnacaheragh, Garranes (after Ó Ríordáin 1942) analysed by XRF.

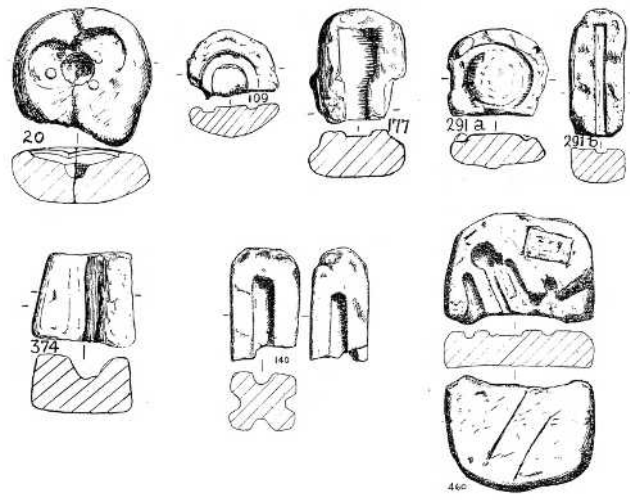


Figure 7.52 Clay and stone moulds from Lisnacaheragh, Garranes (after Ó Ríordáin 1942) analysed by XRF.

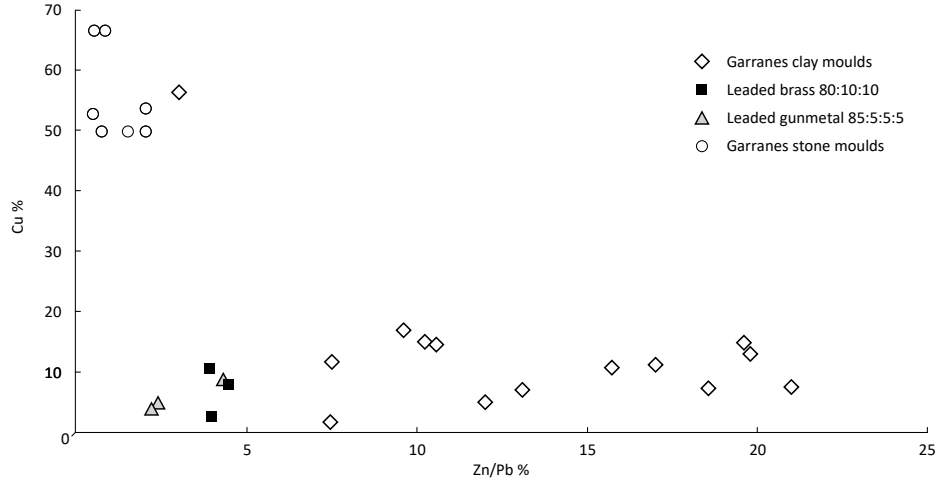


Figure 7.53 Comparative proportions between clay and stone moulds from Lisnacaheragh, Garranes, and experimental work with clay moulds (Kearnes et al. 2010) using the original XRF analysis normalized to 100%.

reveals the differences between clay and stone moulds (Figure 7.53). Clay is more porous and can retain more zinc and lead vapour than the stone, but what changes is the higher proportion of copper detected in the stones. In the clay moulds from Lisnacaheragh the proportion of copper is in the same range than in the experimental work, but the amount of zinc detected is clearly higher than lead. The ratio of zinc to lead is constant independent of the original amount in the alloy (10% or 5%) used in the experiment, whereas in the Lisnacaheragh moulds the amount of zinc could be up to five times more than lead. It is difficult to define the type of alloy as the tin content is hardly detected. The objects casted are probably low leaded or even unleaded (< 2%) gun metal if a comparison is made with data published by Baker (2013, 284-285) for some Early Anglo-Saxon sites with few items containing more than 5% Zn or more than 3% Pb. As zinc is detected in higher proportion than lead the probability of a bronze (Cu-Sn with <2% Zn) casting in these clay moulds is low.

In the case of crucibles, Dungworth (2000b) highlighted difficulties with XRF analysis, suggesting that proportions of zinc, tin and lead are greater in crucibles than in the original metal because they are more easily oxidized than copper. Another factor is that vapour pressure determines how volatile the metal becomes during melting. The metal inclusion in vitrified layers of crucibles seem to follow a different model than in the clay moulds (Kearnes *et al.* 2010), particularly for tin, which is hardly detected in clay moulds but is frequent in the crucibles. Also, lead tends to increase in content on the vitrified slags due to its affinity with the silica (Si). In 8the Mucking study, Dungworth (2000b) calculated the crucible to metal ratios, demonstrating that lead was eight times and tin 33 times higher in crucibles than in the metal.

In the analysis of crucibles it is important to distinguish between the vitrified layer, adhering slags or the residue of the molten metal. The latter two are closer to the original metal, as the slags could have been trapped

Site	Zone	Original Analysis				Sum	Normalised values (100%)			
		Cu	Sn	Pb	Zn		Cu	Sn	Pb	Zn
Galway LRI 18,115	Slag	20	1.0	2.1	4.8	27.9	71.7	3.58	7.53	17.2
	Droplet						78.8	3.1	0.9	15.5
Meath 468,124	Slag	28.2	0.5	0.3		29.0	97.2	1.72	1.03	
	Droplet						88.0	11.6	1.97	
Mucking	Vitrified						14.0	60.0	22.0	4.0
	Droplet						95.0	1.8	2.8	0.2
Garranes 45 (PA22654)	Vitrified	1.44	0.04	0.11	1.42	3.01	47.8	1.3	3.7	47.2
	Droplet	6.44	1.27	0.19	1.04	8.94	72.0	14.2	2.1	11.6

Figure 7.54 Comparative analysis between slag and metal droplets in crucibles from counties Galway and Meath (Moss 1927), Mucking, Essex (Dungworth 2000a), and Garranes (this study).

more metal than the vitrified surfaces. However, an early study of the Irish crucibles by Moss (1927) revealed erratic changes in the comparative results between slag and the metal droplets in two crucibles if the data is normalised to 100% of the alloyed elements (Cu, Zn, Pb, Sn) (Figure 7.54). The amount of metal in the slag is very high (> 25%), but this is not necessarily more representative of the original alloy than analyses with less metal, as is the case with most of the results from Garranes which have less than 5% metal. The corrosion process also affects the metal composition on the crucible surface, to change the proportion of different elements, with the effect of increasing tin and lead content and diminishing copper and zinc. It is not certain what metal was melted in each crucible, but the presence/absence and the higher/lower proportion of each element can be evaluated.

The study by Bayley (1984) at the Scottish site of Dunadd is a useful insight into the limitations of XRF analysis to define the real alloy. The qualitative analysis by XRF orders the elements by decreasing signal strength. Different non-ferrous metals, including gold and silver were cast in that site. Zinc was the main element in 62 of 107 analyses, with copper present in only 16 analyses. If we compare Dunadd with the crucible analyses from the 2017 season in Lisnacaheragh the differences are evident: silver and gold is never detected in the latter, while zinc is never the highest value. Zinc is less relevant in the Garranes metallurgy, however a more complete perspective is obtained by comparing Dunadd with the material from the 1937 excavation at Lisnacaheragh. Silver is detected in only in three crucibles, never as the main element, whereas in 10 of 80 crucibles zinc has the highest value; copper is the main element quantified in the majority of the crucibles and in four cases is the only element present. The four elements (Cu, Sn, Pb, Zn) in different combinations are detected in 45 of 80 crucibles, but copper is the highest value in 34. Another difference is the identification of enamel in six crucibles.

Conclusions

The various excavations at Lisnacaheragh identified a metalworking area with a large number of crucibles, as well as moulds and slag and metal waste. Scientific analysis confirms that copper-based metallurgy was the main activity, with minor indications of lead and iron metallurgy. The elemental analysis of crucibles and moulds by XRF cannot identify the metal alloys processed with certainty, the data suggests this was mainly tin-bronze, leaded bronze or leaded gun metal. Analyses of metal droplets and items of finished metalwork confirms those were the main alloys worked at the site. A comparison can be made with Anglo-Saxon Britain where leaded gun metal was the main alloy (~70 %); followed by leaded bronze (~20%) (Pollard *et al.* 2015).

The SEM-EDS analysis provides evidence of bronze production in the Lisnacaheragh workshop. Although some recycling could have taken place, as suggested by some incidental silver in three crucibles, it is certain that new bronze was also produced at the site using with a significant amount of tin most probably as a cementation process. Two objects from the 1937 excavation, initially identified as 'lumps of tin', were revealed by chemical analysis to contain both copper and tin (Ó Ríordáin 1942, 100–102). Cassiterite is not recorded from the site. It is notable there was an apparent lull in tin production in south-west England during the fourth to seventh centuries AD (Meharg *et al.* 2012).

The identification of four crucibles with copper as the only element in the metal residue suggests that fresh bronze could have been produced at Lisnacaheragh, in addition to the verified use of recycled bronze. It is worth noting other results for Irish crucibles, where in five examples copper was the only element, in five others tin bronze, with brass in one example (Moss 1927). The analysis of clay and stone moulds from Lisnacaheragh confirm selective use of different metal alloys in the casting of finished metalwork in this site. High temperatures over 1200ºC were reached in these metallurgical processes according to the high rate of vitrification of ceramic fabrics, although atmospheres were not optimal in all cases. While too much oxidation seems to have occurred in analysis PA27140, a clear reducing atmosphere was achieved in analysis PA27123 that allowed the precipitation of a large amount of micro-inclusions of metallic copper. Wood charcoal was used as fuel, as suggested by high concentrations of lime and potash, with crushed bone probably used as a flux, as evidenced by the apatite relics documented in analysis PA27140.

Enamel was molten in six of 95 analysed crucibles from Lisnacaheragh. This identification is important because of the possibility that enamel can be obtained from re-use of metallurgical slags (Stapleton *et al.* 1999). Due to the light weight and the red/orange glassy appearance of the slags produced, they can be easily mistaken as glass or enamel related by-products. The SEM-EDS analyses connect these slags to on-site metallurgy at Lisnacaheragh. However, if these glassy slags were accidentally or intentionally produced in the metallurgical activity, or if they were discarded or reused as glass, or as *tesserae*, remain open. Further analysis of the Lisnacaheragh slag may provide more detail on the raw materials and technological skills used at this workshop. That might also reveal a close connection between bronze and glass manufacturing in the Lisnacaheragh workshop.

Figure 7.55 *(Page 1 of 4)*

Analysis	Object	Comments	Invent.	Mn	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	LE	Elements order	Cu+Sn+ Pb+Zn	Ratio Zn/ Cu	ratio Sn/ Cu	ratio Pb/ Cu	Alloy
PA27120	Melting waste	Cleaned section	17E0164_123	bdl	1.54	bdl	56.7	bdl	bdl	bdl	39.0	bdl	2.82		Cu, Sn, Pb	98.46		68.8	5.0	B
PA27120B	Melting waste	More Cleaned section	17E0164-123	bdl	1.21	bdl	60.3	0.17	bdl	bdl	35.6	bdl	2.78		Cu, Sn, Pb, Zn	98.79	1.8	59.1	4.6	B
PA27120C	Melting waste	More Cleaned section	17E0164-123	bdl	0.94	bdl	65.0	0.19	bdl	bdl	31.2	bdl	2.7		Cu, Sn, Pb, Zn	99.05	1.7	48.0	4.2	B
PA27120P1	Melting waste	Patina	17E0164_123	bdl	3.77	bdl	47.2	bdl	bdl	bdl	45.9	bdl	3.13		Cu, Sn, Pb	96.23		97.3	6.6	B
PA27120P2	Melting waste	Patina	17E0164_123	bdl	2.72	bdl	46.8	bdl	bdl	bdl	46.5	bdl	3.97		Cu, Sn, Pb	97.29		99.3	8.5	B
PA27121	Oval Object	Corroded cleaned section	17E0164_63	bdl	0.35	bdl	56.9	bdl	bdl	0.27	33.6	bdl	8.86		Cu, Sn, Pb	99.38		59.1	15.6	LB
PA27121P	Oval Object	Patina	17E0164_63	bdl	3.59	bdl	37.2	0.35	bdl	0.43	44.7	bdl	13.8		Sn, Cu, Pb, Zn	95.97	3.0	120.1	37.0	LB
PA27122	Slag with charcoal		17E0164_81	0.48	3.58	bdl	3.28	0.03	bdl	bdl	0.47	bdl	0.71	91.0	Cu, Pb, Sn, (Zn)	4.49		14.3	21.6	LB
PA27122B	Slag with charcoal	Corroded prill	17E0164_81	bdl	2.53	bdl	51.4	0.15	bdl	0.36	33.4	bdl	12.2		Cu, Sn, Pb, Zn	97.11	2.1	64.8	23.7	LB
PA27123	Tuyere or flat-bottomed crucible	Rim	17E0164_46	0.37	1.54	bdl	1.65	0.02	bdl	bdl	0.06	bdl	0.02	95.8	Cu, Sn, (Pb)	1.75		3.6	1.2	Cu
PA27123B	Tuyere or flat-bottomed crucible	Clay	17E0164_46	0.05	1.99	bdl	0.14	bdl	bdl	bdl	bdl	bdl	0.02	96.9						
PA27123C	Tuyere or flat-bottomed crucible	outer red	17E0164_46	0.49	1.24	bdl	1.64	bdl	bdl	bdl	0.2	bdl	0.03	96.0	Cu, Sn, Pb	1.87		12.2	1.8	B
PA27123D	Tuyere or flat-bottomed crucible	inner dark	17E0164_46	bdl	4.74	bdl	92.8	bdl	bdl	bdl	1.41	bdl	1.1		Cu, Sn, Pb	95.26		1.5	1.2	Cu
PA27124	Crucible	inner side red	17E0164_120	0.76	3.41	bdl	0.9	bdl	bdl	bdl	0.27	bdl	0.06	94.0	Cu, Sn, Pb	1.23		30.0	6.7	B

Figure 7.55 *(Page 2 of 4)*

Analysis	Object	Comments	Invent.	Mn	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	LE	Elements order	Cu+Sn+ Pb+Zn	Ratio Zn/ Cu	ratio Sn/ Cu	ratio Pb/ Cu	Alloy
PA27124B	Crucible	inner side red	17E0164_120	0.63	4.79	bdl	0.92	bdl	bdl	bdl	0.78	bdl	0.12	91.8	Cu, Sn, Pb	1.82		84.8	13.0	LB
PA27124P	Crucible	Clay	17E0164_120	0.14	2.54	bdl	0.03	0.03	bdl	bdl	0.02	bdl	bdl	96.4						
PA27125A	Crucible (big frag.)	Outer white	17E0164_124	0.35	1.69	bdl	0.23	bdl	bdl	bdl	0.1	bdl	0	97.4	Cu, Sn	0.33		43.5	0.0	
PA27125P	Crucible (big frag.)	Clay	17E0164_124	0.52	3.94	bdl	0.07	bdl	bdl	bdl	0.03	bdl	0	94.7						
PA27126A	Crucible (rim)	inner side	17E0164_124	0.3	2.95	bdl	0.15	0.20	bdl	bdl	0.08	bdl	0.04	95.4	Zn, Cu, Sn, Pb	0.47	666.9	53.3	26.7	LG
PA27126B	Crucible (rim)	outer side	17E0164_124	0.25	2.63	bdl	1.47	0.04	bdl	bdl	0.15	bdl	0.04	94.7	Cu, Sn, Pb, (Zn)	1.7		10.2	2.7	B
PA27127	Crucible	outer side red	17E0164_78	0.2	2.74	bdl	2.48	0.07	bdl	bdl	0.45	bdl	0.14	93.6	Cu, Sn, Pb, Zn	3.14	40.4	18.1	5.6	G
PA27127B	Crucible	inner side	17E0164_78	0.24	80.1	bdl	5.87	bdl	bdl	bdl	10.5	bdl	3.3		Sn, Cu, Pb	19.68		179.0	56.2	LB
PA27127C	Crucible	inner side	17E0164_78	bdl	85.5	bdl	4.19	bdl	bdl	bdl	7.48	bdl	2.83		Sn, Cu, Pb	14.5		178.5	67.5	LB
PA27128	Crucible (rim)	inner side	17E0164_97	0.32	3.1	0.04	2.67	0.65	bdl	bdl	0.97	bdl	0.18	91.3	Cu, Sn, Zn, Pb	4.47	38.1	36.3	6.7	G
PA27128B	Crucible (rim)	Rim	17E0164_97	bdl	1.15	bdl	16.1	0.43	bdl	bdl	0.64	bdl	0.15	81.6	Cu, Sn, Zn, Pb	17.28	6.7	4.0	0.9	Cu
PA27129	Crucible Flat-bottomed?	inner side	17E0164_48	bdl	1.96	bdl	15.2	0.15	bdl	bdl	0.77	bdl	0.17	81.1	Cu, Sn, Pb, Zn	16.32	6.7	5.1	1.1	Cu
PA27129B	Crucible Flat-bottomed?	outer side	17E0164_48	0.45	4.09	bdl	4.17	0.06	bdl	bdl	1.3	bdl	0.18	88.8	Cu, Sn, Pb, Zn	5.71	24.0	31.2	4.3	G
PA27129P	Crucible Flat-bottomed?	Clay	17E0164_48	bdl	2.2	bdl	0.02	bdl	bdl	bdl	bdl	bdl	0.01	96.8						
PA27130	Slag		17E0164_49	1.26	98.6	bdl	0.08	bdl	0.04	bdl	bdl	bdl	bdl		Fe					
PA27130B	Slag		17E0164_49	0.65	87.1	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	12.3	Fe					
PA27131	Slag		17E0164_44	1.58	64.5	bdl	0.04	bdl	0.01	bdl	bdl	bdl	bdl	33.5	Fe					
PA27131B	Slag		17E0164_44	1.47	65.0	bdl	bdl	bdl	0.02	bdl	bdl	bdl	bdl	33.1	Fe					
PA27132	Crucible	outer side green	17E0164_71	0.59	1.56	bdl	0.33	bdl	bdl	bdl	0.16	bdl	0.01	97.0	Cu, Sn	0.5		48.5	3.0	B
PA27132B	Crucible	inner side	17E0164_71	0.76	4.1	bdl	0.06	bdl	bdl	bdl	bdl	bdl	0	94.1	Cu	0.06			0.0	Cu

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Analysis	Object	Comments	Invent.	Mn	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	LE	Elements order	Cu+Sn+ Pb+Zn	Ratio Zn/ Cu	ratio Sn/ Cu	ratio Pb/ Cu	Alloy
PA27133	Crucible	outer side red	17E0164_86	0.83	1.83	bdl	2.34	bdl	bdl	bdl	0.17	bdl	0	94.5	Cu, Sn	2.51		7.3	0.0	Cu
PA27133B	Crucible	slag	17E0164_86	0.9	5.37	bdl	0.21	bdl	bdl	bdl	0.27	bdl	0.05	91.9	Sn, Cu, Pb	0.53		128.6	23.8	LB
PA27134	Slag	Polished section	17E0164_93	0.25	60.8	bdl	0.32	bdl	0.02	bdl	0.85	bdl	bdl	37.7	Sn, Cu	1.17		265.6		B
PA27134B	Slag	Polished section	17E0164_93	0.47	62.6	bdl	0.13	bdl	0.02	bdl	bdl	bdl	bdl	36.5						
PA27134C	Slag	Surface with soil	17E0164_93	0.26	32.6	bdl	0.11	bdl	0.01	bdl	bdl	bdl	bdl	66.6						
PA27134D	Slag	orange	17E0164_93	0.15	42.8	bdl	0.25	bdl	0.02	bdl	0.84	bdl	bdl	55.6	Sn, Cu	1.09		336.0		B
PA27136	Crucible	Dark grey	17E0164_60	0.87	2.96	bdl	0.2	bdl	bdl	bdl	bdl	bdl	0.01	95.4	Cu	0.2			0.0	
PA27137	Crucible	Red	17E0164_60	0.66	2.21	bdl	4.68	0.38	bdl	bdl	0.95	bdl	0.11	90.7	Cu, Sn, Zn, Pb	6.12	21.7	20.3	2.4	G
PA27138	Crucible	outer grey	17E0164_60	0.31	2.06	bdl	2.89	bdl	bdl	bdl	2.41	bdl	0.44	91.2	Cu, Sn, Pb	5.74		83.4	15.2	LB
PA27138B	Crucible	apendice interior	17E0164_60	0.39	4.81	bdl	30.5	0.39	bdl	0.52	51.6	bdl	11.8		Sn, Cu, Pb, Zn	94.3	3.7	169.4	38.6	LB
PA27138C	Crucible	inner whitish	17E0164_60	bdl	2.69	bdl	0.24	0.05	bdl	bdl	0.02	bdl	0.19	95.5	Cu, Pb, Zn	0.5	416.7		79.2	LB
PA27139	Crucible (big frag.)	outer side red	17E0164_76	0.64	1.14	bdl	2.43	bdl	bdl	bdl	0.17	bdl	0.02	95.6	Cu, Sn, (Pb)	2.62		7.0		Cu
PA27139B	Crucible (big frag.)	Clay	17E0164_76	0.15	3.27	bdl	0.1	0.02	bdl	bdl	0.04	bdl	0	95.4						
PA2714	Slag		17E0164_67	0.47	3.04	bdl	11.2	0.09	bdl	bdl	0.81	bdl	0.12	83.8	Cu, Sn, Pb, Zn	12.3	9.0	7.2	1.1	Cu
PA27140	Slag with prill	corroded prill	17E0164_76	0.58	4.67	bdl	33.2	bdl	bdl	0.35	57.4	bdl	3.76		Sn, Cu, Pb	94.3		173.2	11.3	LB
PA27140B	Slag with prill	inner side	17E0164_76	0.49	8.53	bdl	4.64	bdl	bdl	bdl	2.31	bdl	0.6	82.7	Cu, Sn, Pb	7.55		49.8	12.9	LB
PA27141	Metal drop	Corroded	17E0164_76	bdl	0.86	bdl	35.3	bdl	bdl	0.32	59.8	bdl	3.74		Sn, Cu, Pb	98.8		169.4	10.6	LB
PA27142	Furnace wall	whitish	17E0164_91	0.23	1.41	bdl	0.15	0.01	bdl	bdl	0.11	bdl	0.01	97.8	Cu, Sn	0.27		73.3	0.0	G
PA27142B	Furnace wall	Slag	17E0164_91	0.11	2.99	0.02	8.66	0.48	bdl	bdl	2.05	bdl	0.37	84.8	Cu, Sn, Zn, Pb	11.6	12.0	23.7	4.3	B
PA27142C	Furnace wall	red	17E0164_91	0.21	1.88	bdl	5.79	0.15	bdl	bdl	0.6	bdl	0.12	91.0	Cu, Sn, Zn, Pb	6.66	17.4	10.4	2.1	B

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Analysis	Object	Comments	Invent.	Mn	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	LE	Elements order	Cu+Sn+ Pb+Zn	Ratio Zn/ Cu	ratio Sn/ Cu	ratio Pb/ Cu	Alloy
PA27142D	Furnace wall	Stone	17E0164_91	0.08	2.79	bdl	0.01	bdl	bdl	bdl	bdl	bdl	bdl	96.7						
PA27143	Furnace wall	outer	17E0164_82	0.23	3.88	0.02	8.37	0.19	bdl	bdl	0.86	bdl	0.3	85.6	Cu, Sn, Pb, Zn	9.72	12.1	10.3	3.6	B
PA27143B	Furnace wall	Stone	17E0164_82	0.05	4.6	bdl	0.02	0.01	bdl	bdl	bdl	bdl	bdl	94.6						
PA27144	Furnace wall	cream	17E0164_61	0.63	6.76	bdl	2.35	0.04	bdl	bdl	1.59	bdl	0.18	87.4	Cu, Sn, Pb, (Zn)	4.16		67.7	7.7	G
PA27146	Furnace wall	Red	17E0164_45	0.42	2.28	0.04	3.25	0.63	bdl	bdl	0.48	bdl	0.25	92.4	Cu, Zn, Sn, Pb	4.61	31.4	14.8	7.7	G
PA27146B	Furnace wall	Red	17E0164_45	0.39	3.36	bdl	0.36	0.05	bdl	bdl	0.02	bdl	0.02	95.5	Cu, Zn, (Sn, Pb)	0.45	277.8			
PA27147	Furnace wall	Green	17E0164_67	0.63	2.09	bdl	0.73	0.04	bdl	bdl	0.01	bdl	0.01	96.2	Cu, (Zn)	0.77			0.0	
PA27148	Furnace wall	Green	17E0164_67	0.28	2.16	bdl	0.08	0.02	bdl	bdl	bdl	bdl	bdl	97.2	Cu					
PA27150	Slag		17E0164_67	1.26	5.46	0.02	4.33	0.17	bdl	bdl	1.2	bdl	0.19	86.7	Cu, Sn, Pb, Zn	5.89	23.3	27.7	4.4	G
PA27150B	Slag		17E0164_67	0.55	5.46	0.03	5.16	0.09	bdl	bdl	5.82	bdl	0.12	82.2	Sn, Cu, Pb, Zn	11.19	19.5	112.8	2.3	G
PA27151	Clay		17E0164_73	0.98	3.26	bdl	0.35	bdl	bdl	bdl	0.06	bdl	0	94.6						
PA27151B	Clay		17E0164_73	0.19	2.98	bdl	0.23	bdl	bdl	bdl	0.04	bdl	0.01	95.7						

Figure 7.55 XRF analysis of samples from 2017 excavation in Lisnacaheragh. Values expressed as percentages in weight (bdl= below detection limit) Alloy (Cu= copper; B= bronze; LB= leaded bronze; G= gun metal; LG= leaded gun metal)

Analysis	Object	Comments	Invent.	Mn	Fe	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	LE
PA27112	Cu ore		11E110-306	bdl	17.9	bdl	43.9	bdl	bdl	bdl	bdl	bdl	0.2	38,0
PA27112B	Cu ore		11E110-306	bdl	32.5	bdl	67.1	bdl	bdl	bdl	bdl	bdl	0.46	
PA27112C	Cu ore		11E110-306	0.17	28.1	bdl	3.3	0.09	bdl	bdl	bdl	bdl	0.12	67,6
PA27113	Cu ore		11E110-306	bdl	22.2	bdl	34.5	bdl	bdl	bdl	bdl	bdl	0.2	43,1
PA27113B	Cu ore		11E110-306	bdl	12.7	bdl	22.5	bdl	0.01	bdl	bdl	bdl	0.05	64,5
PA27114A	Cu ore		11E110-302	bdl	9.43	bdl	34.6	bdl	0.02	bdl	bdl	bdl	0.02	55,9
PA27114B	Cu ore		11E110-302	0.12	10.8	bdl	7.21	bdl	0.01	bdl	bdl	bdl	0.01	81,5
PA27115A	Cu ore		11E110-302	bdl	4.09	bdl	17.3	bdl	bdl	bdl	bdl	bdl	0.01	78,6
PA27115B	Cu ore		11E110-302	bdl	8.34	bdl	29.6	bdl	bdl	bdl	bdl	bdl	0.02	62,0
PA27116	Chain ring	Cleaned section	11E110-370	bdl	0.72	bdl	76.0	bdl	bdl	bdl	17.8	bdl	5.54	
PA27116P	Chain ring	Patina	11E110-370	bdl	1.27	bdl	56.0	bdl	bdl	bdl	33.1	bdl	9.65	
PA27117	Sheet	Cleaned section	11E110-256	bdl	0.24	0.07	86.7	3.43	0.31	bdl	5.3	bdl	3.93	
PA27117P	Sheet	Patina	11E110-256	bdl	3.52	bdl	65.7	1.3	0.85	0.83	16.5	0.35	10.9	
PA27118	Cu ore		11E110-09	bdl	18.3	bdl	23.6	bdl	0.03	bdl	bdl	bdl	0.03	58,0
PA27118B	Cu ore		11E110-09	0.04	25.6	bdl	5.4	bdl	0.03	bdl	bdl	bdl	0.04	68,9
PA27119	Cu ore		11E110-10	bdl	0.91	bdl	99.0	bdl	bdl	bdl	bdl	bdl	0.04	
PA27119B	Cu ore		11E110-10	bdl	0.97	bdl	57.9	bdl	bdl	bdl	bdl	bdl	0.03	41,1

Figure 7.56 XRF analysis of samples from 2017 excavation in Lisnamanroe. Values expressed as percentages in weight (bdl= below detection limit) Alloy (Cu= copper; B= bronze; LB= leaded bronze; G= gun metal; LG= leaded gun metal)

Analysis	Object	Inventory	Comments	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi
PA22642B	Button	231/34	Enamel	1.81	bdl	bdl	18.0	0.49	bdl	0.23	7.75	bdl	71.8	bdl
PA22642C	Button	231/34	Section	5.47	bdl	0.27	48.6	1.54	0.55	0.62	31.0	bdl	12.0	bdl
PA22642A	Button	231/34	Loop	5.38	bdl	0.32	58.2	1.93	0.5	0.39	23.8	bdl	9.5	bdl
PA22641A	Bronze strip tapering, with incised herring-bone	349 / 37	Back	5.56	bdl	bdl	0.6	0.1	bdl	bdl	40.5	0.85	52.3	bdl
PA22641B	Bronze strip tapering, with incised herring-bone	349 / 37		0.32	bdl	bdl	80.9	14.9	0.41	bdl	0.2	bdl	3.04	0.25
PA22639A	Pin penannular brooch	330 / 36		1.4	bdl	bdl	35.7	bdl	bdl	0.31	24.3	bdl	38.3	bdl
PA22639B	Pin penannular brooch	330 / 36	Patina	9.65	bdl	bdl	31.1	bdl	bdl	0.37	36.3	bdl	22.6	bdl
PA22638A	Penannular brooch	265 / 38	Patina	4.92	bdl	0.09	66.2	0.28	bdl	0.25	23.5	bdl	4.74	bdl
PA22638B	Penannular brooch	265 / 38		1.13	bdl	0.06	79.0	bdl	bdl	bdl	17.3	bdl	2.5	bdl
PA22673B	Strip	11E110/256		1.95	bdl	bdl	72.7	1.74	0.62	0.81	11.6	0.29	10.2	0.21
PA22673A	Strip	11E110/256	Patina	3.36	bdl	bdl	65.2	1.41	0.92	0.71	13.8	0.26	14.2	0.24
PA22640A	Strip U-shaped with decoration	341 / 36		0.66	bdl	bdl	67.4	4.0	0.67	0.3	12.8	bdl	14.3	bdl
PA22640B	Strip U-shaped with decoration	341 / 36	Patina	0.96	bdl	bdl	63.1	2.58	1.05	0.16	17.3	bdl	14.8	bdl
PA22643C	Stud	322 / 35	Tinned surface	0.41	bdl	bdl	45.5	0.18	bdl	0.47	38.2	bdl	15.3	bdl
PA22643B	Stud	322 / 35	Tinned surface	0.59	bdl	bdl	45.1	0.19	bdl	0.53	38.7	bdl	14.9	bdl
PA22643D	Stud	322 / 35	Back	6.13	bdl	bdl	36.6	0.25	bdl	0.72	40.7	bdl	15.6	bdl
PA22643A	Stud	322 / 35	Central nail	2.82	bdl	bdl	53.4	0.78	bdl	0.53	27.4	bdl	15.2	bdl

Figure 7.57 XRF analysis of metal objects from the 1937 excavation at Lisnacaheragh in the Cork Public Museum and from 2011–15 excavations at Lisnamanroe (11E110/256). Values expressed as percentages in weight (bdl= below detection limit).

Analysis	Object	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi	Elements	Cu+Sn+ Pb+Zn	Normalised to 100%				Ratio Zn/Pb
																			Cu	Zn	Sn	Pb	
PA22644A	Flat object mould		177	93.17	1.12	3.08	bdl	bdl	0.23	1.73	bdl	bdl	0.02	bdl	0.11	bdl	Zn,Cu, Pb	2.09	11	82.8	1	5.3	15.7
PA22644B	Flat object mould		177	94.47	0.51	2.86	bdl	bdl	0.11	1.31	bdl	bdl	bdl	bdl	0.1	bdl	Zn,Cu, Pb	1.52	7.2	86.2		6.6	13.1
PA22644C	Flat object mould	Clay	177	94.07	0.24	2.64	bdl	bdl	0.05	2.23	bdl	bdl	bdl	bdl	0.3	bdl	Zn,Cu, Pb	2.58	1.9	86.4		11.6	7.4
PA22645A	Narrow thin strip mould	Clay	291B	94.48	0.17	3.43	bdl	bdl	0.11	1.3	bdl	bdl	bdl	bdl	0.07	bdl	Zn,Cu, Pb	1.48	7.4	87.8		4.7	18.6
PA22645B	Narrow thin strip mould		291B	94.23	0.42	2.97	bdl	bdl	0.29	1.57	bdl	bdl	bdl	bdl	0.08	bdl	Zn,Cu, Pb	1.94	14.9	80.9		4.1	19.6
PA22646A	Ring		109	92.63	0.18	5.46	bdl	bdl	0.22	0.96	bdl	bdl	bdl	bdl	0.1	bdl	Zn,Cu, Pb	1.28	17.2	75		7.8	9.6
PA22646B	Ring		109	92.26	0.16	4.59	bdl	bdl	1.51	0.87	bdl	bdl	bdl	bdl	0.29	bdl	Cu, Zn, Pb	2.67	56.6	32.6		10.9	3
PA22647A	Ring	Clay	291A	94.61	0.14	3.26	bdl	bdl	0.11	1.26	bdl	bdl	bdl	bdl	0.06	bdl	Zn,Cu, Pb	1.43	7.7	88.1		4.2	21
PA22647B	Ring		291A	95.63	0.21	2.54	bdl	bdl	0.16	0.99	bdl	bdl	bdl	bdl	0.05	bdl	Zn,Cu, Pb	1.2	13.3	82.5		4.2	19.8
PA22648A	Circular mould	Clay	20	96.35	0.04	2.43	bdl	bdl	0.07	0.51	bdl	bdl	bdl	bdl	0.03	bdl	Zn, Cu, Pb	0.61	11.5	83.6		4.9	17
PA22648B			20	96.1	0.25	1.93	bdl	bdl	0.18	0.95	bdl	bdl	0.01	bdl	0.09	bdl	Zn, Cu, Pb	1.23	14.6	77.2	0.8	7.3	10.6
PA22648C	Circular mould		20	96.12	0.3	1.96	bdl	bdl	0.18	0.92	bdl	bdl	bdl	bdl	0.09	bdl	Zn, Cu, Pb	1.19	15.1	77.3		7.6	10.2
PA22649A	Mould of bar	Clay	374	94.66	0.09	3.86	bdl	bdl	0.05	0.84	bdl	bdl	bdl	bdl	0.07	bdl	Zn, Cu, Pb	0.96	5.2	87.5		7.3	12
PA22649B	Mould of bar		374	93.86	0.7	3.48	bdl	bdl	0.16	1.05	bdl	bdl	bdl	bdl	0.14	bdl	Zn,Cu, Pb	1.35	11.9	77.8		10.4	7.5
PA22650A	Stone multiple mould		140	95.72	0.72	3.05	bdl	bdl	0.18	0.03	bdl	bdl	bdl	bdl	0.06	bdl	Cu, Pb, Zn	0.27	66.7	11.1		22.2	0.5
PA22650B	Stone multiple mould		140	95.54	0.06	3.48	bdl	bdl	0.24	0.1	bdl	bdl	bdl	bdl	0.14	bdl	Cu, Pb, Zn	0.48	50	20.8		29.2	0.7
PA22650C	Stone multiple mould		140	96.26	0.14	3.06	bdl	bdl	0.18	0.04	bdl	bdl	bdl	bdl	0.05	bdl	Cu, Pb, Zn	0.27	66.7	14.8		18.5	0.8
PA22650D	Stone multiple mould		140	93.87	0.33	4.54	bdl	bdl	0.63	0.17	0.04	bdl	0.02	bdl	0.37	bdl	Cu, Pb, Zn	1.19	52.9	14.3	1.7	31.1	0.5
PA22651A	Stone plane mould	Stone	460	97.46	0.35	1.68	bdl	bdl	0.05	0.03	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Zn, Pb	0.1	50	30		20	1.5
PA22651B	Stone plane mould		460	96.91	0.42	2.16	bdl	bdl	0.07	0.04	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Zn, Pb	0.13	53.8	30.8		15.4	2
PA22651C	Stone plane mould		460	97.58	0.24	1.63	bdl	bdl	0.12	0.08	bdl	bdl	bdl	bdl	0.04	bdl	Cu, Zn, Pb	0.24	50	33.3		16.7	2

Figure 7.58 XRF analysis of clay and stone moulds from the 1937 excavation at Lisnacaheragh in the Cork Public Museum. Values expressed as percentages in weight (bdl= below detection limit; LE=Light elements).

Analysis	Type	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi
PA22676	slag	11E110/12	93.4	0.2	5.63	bdl	bdl	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22679	slag	11E110/185	84.3	0.17	15.0	bdl	bdl	0.04	bdl	0	bdl	bdl	bdl	bdl	bdl
PA22680	slag	11E110/21	88.0	0.18	11.4	bdl	bdl	0.04	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22676	slag	11E110/23	88.0	0.51	10.8	bdl	bdl	0.04	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22675A	slag	11E110/295	89.9	0.24	9.2	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22675B	slag	11E110/295	84.6	0.31	14.5	bdl	bdl	0.09	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22674A	slag	11E110/296	88.0	0.1	11.5	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22676	slag	11E110/305	90.1	0.3	8.95	bdl	bdl	0.04	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PA22737A	slag	3094/240	94.1	0.86	3.95	bdl	bdl	0.55	bdl	0.01	bdl	bdl	bdl	0.13	bdl
PA22736B	slag	3094/297	92.9	1.63	4.27	bdl	bdl	0.21	0.02	bdl	bdl	0.15	bdl	0.14	bdl
PA22736A	slag	3094/297	93.8	1.25	3.86	bdl	bdl	0.3	bdl	bdl	bdl	0.1	bdl	0.03	bdl
PA22738B	slag	3094/312	94.6	0.74	3.86	bdl	bdl	0.08	bdl	bdl	bdl	bdl	bdl	0.04	bdl
PA22738A	slag	3094/312	96.5	0.34	2.31	bdl	bdl	0.1	0.02	0.03	bdl	bdl	bdl	0.36	bdl
PA22732A	slag	3094/318	89.7	2.54	4.15	bdl	bdl	1.96	0.06	bdl	bdl	0.45	bdl	0.39	bdl
PA22732B	slag	3094/318	92.3	1.96	2.8	bdl	bdl	0.94	0.06	bdl	bdl	0.11	bdl	1.37	bdl
PA22733A	slag	3094/418	87.5	0.22	3.71	bdl	0.02	6.69	0.05	bdl	bdl	0.69	bdl	0.79	bdl
PA22735B	slag	3094/426	95.9	0.64	1.99	bdl	bdl	0.94	0.03	bdl	bdl	0.02	bdl	0.03	bdl
PA22735A	slag	3094/426	93.1	0.75	3.97	bdl	bdl	0.86	0.02	bdl	bdl	0.32	bdl	0.39	bdl
PA22734B	slag	3094/SN1	93.4	0.5	4.08	bdl	bdl	0.26	bdl	bdl	bdl	0.49	bdl	0.01	bdl
PA22734C	slag	3094/SN1	94.6	0.84	3.62	bdl	bdl	0.06	0.04	bdl	bdl	0.02	bdl	0.05	bdl
PA22734A	slag	3094/SN1	93.4	1.02	4.29	bdl	bdl	0.51	bdl	bdl	bdl	0.08	bdl	0.02	bdl
PA22762A	slag	3122/233G	90.0	1.02	4.7	bdl	bdl	2.85	0.45	bdl	bdl	0.38	bdl	0.06	bdl
PA22762B	slag	3122/233G	90.4	0.25	2.27	bdl	bdl	5.94	0.46	bdl	bdl	0.6	bdl	0.1	bdl
PA22761A	slag	3122/SN1	83.0	0.13	15.7	bdl	bdl	0.12	0.51	bdl	bdl	bdl	bdl	0.04	bdl
PA22720A	slag	3123/SN1	93.9	1.01	3.11	bdl	bdl	1.29	0.04	bdl	bdl	0.06	bdl	0.03	bdl

Figure 7.59 XRF analysis of slags from the 1937 excavation at Lisnacaheragh in the Cork Public Museum. Values expressed as percentages in weight (bdl= below detection limit; LE=Light elements).

Analysis	Type	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi
PA22705	Cucible	Clay	3130/426	98.0	0.15	1.32	ND	ND	0.06	ND	ND	ND	ND	ND	0.11	ND
PA22728A	Cucible	Clay	3127/SN1	95.0	ND	3.82	ND	ND	0.06	0.11	ND	ND	ND	ND	0.05	ND
PA22662B	Cucible	Clay	131	93.2	0.15	5.5	ND	ND	0.09	0.06	ND	ND	ND	ND	0.01	ND
PA22696	Cucible	Clay	3124/245Y	92.0	0.26	6.47	ND	ND	0.1	0.11	ND	ND	ND	ND	0.01	ND
PA22703	Cucible	Clay	3129/391K	93.6	0.03	4.2	ND	ND	0.1	0.81	ND	ND	ND	ND	0.08	ND
PA22660B	Cucible	Clay	221	96.0	0.65	2.61	ND	ND	0.11	0.07	ND	ND	ND	ND	0.01	ND
PA22661B	Cucible	Clay	273	95.5	0.31	3.39	ND	ND	0.14	0.1	ND	ND	ND	ND	0.07	ND
PA22665B	Cucible	Clay	31251/391J	97.0	0.5	1.12	ND	ND	0.28	0.2	ND	ND	0.05	ND	0.33	ND
PA22711B	Cucible	Clay	3128/SN-2	94.1	0.25	5.09	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND
PA22719B	Cucible	Clay	3123/456	93.2	0.05	4.85	ND	ND	0.06	0.03	ND	ND	ND	ND	0.3	ND
PA22710B	Cucible	Clay	3128/SN-1	96.0	0.05	2.58	ND	ND	0.09	0.12	ND	ND	0.02	ND	0.27	ND
PA22733B	Slag	Clay	3094/418	97.4	0.13	1.59	ND	ND	0.05	ND	ND	ND	ND	ND	0.01	ND

Figure 7.60 Clay analysis from crucibles in figure 7.59. Values expressed as percentages in weight (bdl= below detection limit; LE=Light elements).

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Analysis	Type	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi	Elements order	Cu+Sn+Pb+Zn
PA22637	Metal	Clean Metal	39	bdl	bdl	5.33	bdl	bdl	59.7	5.2	0.83	bdl	9.63	bdl	19.3	bdl	Cu, Pb, Sn, Zn	93.9
PA22637B	Metal	Patina	39	bdl	bdl	2.48	bdl	0.11	48.9	3.17	0.35	bdl	22.3	bdl	22.8	bdl	Cu, Pb, Sn, Zn	97.1
PA22652A	Crucible	Rim	233	bdl	0.56	40.63	bdl	bdl	23.3	1.71	bdl	bdl	26.1	bdl	7.71	bdl	Sn, Cu, Pb, Zn	58.8
PA22652B	Crucible	Outer Slag	233	77.9	0.16	5.99	bdl	bdl	11.8	0.24	bdl	bdl	2.31	bdl	1.14	bdl	Cu, Sn, Pb, Zn	15.4
PA22653A	Crucible	Rim	101	94.5	0.28	2.28	bdl	bdl	1.61	0.27	0.02	bdl	0.28	bdl	0.41	bdl	Cu, Pb, Sn, Zn	2.57
PA22653B	Crucible	Outer	101	89.1	0.65	3.53	bdl	bdl	5.66	0.14	bdl	bdl	0.12	bdl	0.24	bdl	Cu, Pb, Zn, Sn	6.16
PA22654A	Crucible	Outer	45	87.8	0.11	8.48	bdl	bdl	1.44	1.42	bdl	bdl	0.04	bdl	0.11	bdl	Cu, Zn, Pb	3.01
PA22654B	Crucible	Droplet	45	84.2	0.14	6.42	bdl	bdl	6.44	1.04	bdl	bdl	1.27	bdl	0.19	bdl	Cu, Sn, Zn, Pb	8.94
PA22655A	Crucible	Rim	103	94.2	1	3.49	bdl	bdl	0.3	0.07	bdl	bdl	0.02	bdl	0.05	bdl	Cu, Zn, Pb	0.44
PA22655B	Crucible	Bottom Outer	103	95.3	1.01	2.92	bdl	bdl	0.1	0.04	0	bdl	bdl	bdl	0.01	bdl	Cu, Zn	0.15
PA22656A	Crucible	Rim	6	bdl	bdl	7.04	bdl	bdl	51.0	1.78	bdl	bdl	21.4	bdl	17.6	bdl	Cu, Sn, Pb, Zn	91.8
PA22656B	Crucible	Rim	6	85.1	bdl	2.28	bdl	bdl	9.57	0.31	bdl	bdl	0.54	bdl	1.75	bdl	Cu, Pb, Sn, Zn	12.2
PA22657A	Crucible	Droplet	261	92.5	0.48	5.15	bdl	bdl	1.16	0.33	bdl	bdl	0.06	bdl	0.27	bdl	Cu, Zn, Pb, Sn	1.82
PA22657B	Crucible	Rim	261	92.0	0.16	1.73	bdl	bdl	3.72	0.23	bdl	bdl	0.84	bdl	1	bdl	Cu, Pb, Sn, Zn	5.79
PA22657C	Crucible	Bottom Outer	261	96.4	1.28	1.62	bdl	bdl	0.18	0.04	bdl	bdl	bdl	bdl	0.04	bdl	Cu, Zn, Pb	0.26
PA22657D	Crucible	Red	261	96.8	0.67	1.77	bdl	bdl	0.32	0.04	bdl	bdl	0.01	bdl	0.07	bdl	Cu, Pb, Zn	0.44
PA22657E	Crucible	Withe	261	96.5	0.58	1.82	bdl	bdl	0.38	0.06	bdl	bdl	0.02	bdl	0.06	bdl	Cu, Zn, Pb	0.52
PA22658A	Crucible	Rim	48	91.6	0.31	3.09	bdl	bdl	1.71	0.3	bdl	bdl	1.26	bdl	1.28	bdl	Cu, Pb, Sn, Zn	4.55
PA22658B	Crucible	Outer	48	91.0	0.07	1.97	bdl	bdl	5.81	0.08	bdl	bdl	0.17	bdl	0.89	bdl	Cu, Pb, Sn, Zn	6.95
PA22659A	Crucible	Droplet	448	bdl	bdl	23.45	bdl	bdl	32.7	7.56	bdl	bdl	20.6	bdl	13.2	bdl	Cu, Sn, Pb, Zn	74
PA22659B	Crucible	Rim	448	96.7	0.15	2.13	bdl	bdl	0.18	0.12	bdl	bdl	bdl	bdl	0.12	bdl	Cu, Zn, Pb	0.42
PA22660A	Crucible	Rim	221	91.2	4.33	2.76	bdl	bdl	0.77	0.17	bdl	bdl	0.02	bdl	0.03	bdl	Cu, Zn, Pb	0.99
PA22661A	Crucible	Rim	273	90.9	0.15	3.89	bdl	bdl	2.71	0.28	bdl	bdl	0.97	bdl	0.67	bdl	Cu, Sn, Pb, Zn	4.63
PA22662A	Crucible	Outer	131	92.6	0.14	5.92	bdl	bdl	0.13	0.07	bdl	bdl	bdl	bdl	0.01	bdl	Cu, Zn	0.21
PA22663A	Crucible	Rim	448B	95.9	0.04	2.85	bdl	bdl	0.06	0.26	bdl	bdl	bdl	bdl	0.07	bdl	Zn, Pb, Cu	0.39
PA22664A	Crucible	Outer Red	31251/1	97.4	0.55	1.37	bdl	bdl	0.18	0.05	bdl	bdl	bdl	bdl	0.03	bdl	Cu, Zn, Pb	0.26
PA22664B	Crucible	Inner Red	31251/1	95.8	0.33	2.13	bdl	bdl	0.3	0.53	bdl	bdl	0.04	bdl	0.14	bdl	Zn, Cu, Pb	1.01
PA22665A	Crucible	Inner	31251/391J	88.9	0.12	6.45	bdl	bdl	2.49	0.88	bdl	bdl	0.36	bdl	0.46	bdl	Cu, Zn, Sn, Pb	4.19

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Analysis	Type	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi	Elements order	Cu+Sn+ Pb+Zn
PA22666A	Crucible	Bottom	31251/2	95.6	0.22	3.17	bdl	bdl	0.03	0.19	bdl	bdl	bdl	bdl	0.04	bdl	Zn, Pb, Cu	0.26
PA22666B	Crucible	Outer	31251/2	97.6	0.63	1.34	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	0.03	bdl	Cu, Pb	0.09
PA22667A	Crucible	Rim	31251/315	bdl	0.52	31.99	bdl	0.09	13.59	9.6	bdl	bdl	34	bdl	10.2	bdl	Sn, Cu, Pb, Zn	67.4
PA22670B	Metal	Clean Metal	11E110/256	bdl	bdl	0.91	bdl	bdl	99.1	bdl	bdl	bdl	bdl	bdl	bdl	bdl	Cu	99.1
PA22670C	Metal	More Cleaned	11E110/256	bdl	bdl	2.01	bdl	bdl	98.0	bdl	bdl	bdl	bdl	bdl	bdl	bdl	Cu	98.0
PA22689A	Crucible	Droplet	3124/28F	94.3	0.41	4.45	bdl	bdl	0.1	bdl	bdl	bdl	bdl	bdl	0.01	bdl	Cu	0.11
PA22690A	Crucible	Inner	3124/245X	83.0	bdl	4.37	bdl	bdl	0.97	bdl	bdl	bdl	0.18	bdl	11.0	bdl	Pb, Cu, Sn, Zn	12.2
PA22690B	Crucible	Outer	3124/245X	bdl	bdl	4.79	bdl	bdl	11.1	bdl	bdl	bdl	0.61	bdl	83.5	bdl	Pb	95.2
PA22691	Crucible	Inner	3124/427	95.0	0.28	3.56	bdl	bdl	0.35	0.05	bdl	bdl	0.14	bdl	0.11	bdl	Cu, Sn, Pb, Zn	0.65
PA22692	Crucible	Inner	3124/SN-1	96.3	0.26	2.21	bdl	bdl	0.42	0.17	0.01	bdl	0.08	bdl	0.05	bdl	Cu, Zn, Sn, Pb	0.72
PA22693	Crucible	Inner	3124/SN-2	94.0	0.07	5.07	bdl	bdl	0.06	0.03	bdl	bdl	bdl	bdl	0.02	bdl	Cu, (Pb)	0.11
PA22694	Crucible	Inner	3124/SN-3	97.6	0.26	1.18	bdl	bdl	0.21	0.1	bdl	bdl	0.02	bdl	0.06	bdl	Cu, Zn, Pb	0.39
PA22695	Crucible	Inner	3124/SN-4	95.2	0.08	2.84	bdl	bdl	0.14	0.22	bdl		0.38	bdl	0.27	bdl	Sn, Pb, Zn, Cu	1.01
PA22697	Crucible	Inner	3129/245	92.4	0.31	1.75	bdl	bdl	3.58	0.46	bdl	bdl	0.81	bdl	0.35	bdl	Cu, Sn, Pb, Zn	5.2
PA22698	Crucible	Inner	3129/236	93.9	0.16	3.85	bdl	bdl	0.27	0.58	bdl	bdl	0.15	bdl	0.37	bdl	Zn, Pb, Cu, Sn	1.37
PA22699	Crucible	Inner	3129/SN-1	88.7	0.67	3.93	bdl	bdl	1.6	0.05	bdl	bdl	4.26	bdl	0.23	bdl	Sn, Cu, Pb, Zn	6.14
PA22700	Crucible	Inner	3129/SN-2	94.8	0.04	3.81	bdl	bdl	0.07	0.42	bdl	bdl	bdl	bdl	0.07	bdl	Zn, Cu, Pb	0.56
PA22701	Crucible	Inner	3129/SN-3	92.7	0.17	6.07	bdl	bdl	0.11	0.04	0	bdl	0.02	bdl	0.01	bdl	Cu, Zn, Sn	0.18
PA22702	Crucible	Inner	3129/SN-4	97.0	0.14	1.97	bdl	bdl	0.05	0.04	bdl	bdl	bdl	bdl	0.04	bdl	Cu, Zn, Pb	0.13
PA22704	Crucible	Inner	3130/120D	94.9	0.15	3.63	bdl	bdl	0.86	0.04	bdl	bdl	0.05	bdl	0.13	bdl	Cu, Pb, Sn, Zn	1.08
PA22706	Crucible	Inner	3130/142	95.7	0.15	3.23	bdl	bdl	0.13	0.11	bdl	bdl	bdl	bdl	0.1	bdl	Cu, Zn	0.34
PA22706B	Crucible	Outer Clay	3130/142	96.9	0.42	2.02	bdl	bdl	0.1	0.06	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Zn, Pb	0.18
PA22707	Crucible	Outer	3130/457	91.5	0.65	4.83	bdl	bdl	0.65	0.05	bdl	bdl	0.3	bdl	1.52	bdl	Pb, Cu, Sn, Zn	2.52
PA22708	Crucible	Inner	3128/229B	93.9	0.36	4.86	bdl	bdl	0.19	0.06	bdl	bdl	bdl	bdl	0.01	bdl	Cu, Zn	0.26
PA22709	Crucible	Stone	3128/457	93.6	bdl	0.58	bdl	bdl	4.72	bdl	bdl	bdl	bdl	bdl	0.85	bdl	Cu, Pb	
PA22710A	Crucible	Inner	3128/SN-1	bdl	2.32	9.1	bdl	0.11	48.3	2.44	bdl	bdl	17.5	bdl	19.1	bdl	Cu, Pb, Sn, Zn	87.3
PA22711A	Crucible	Slag Inner	3128/SN-2	94.6	0.11	4.61	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl		0
PA22712	Crucible	Outer	3128/316K	95.0	0.62	3.44	bdl	bdl	0.12	0.08	bdl	bdl	bdl	bdl	0.04	bdl	Cu, Zn, Pb	0.24

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Analysis	Type	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi	Elements order	Cu+Sn+ Pb+Zn
PA22713	Crucible	Outer	3128/264J	97.5	0.23	1.6	bdl	bdl	0.16	0.03	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Pb	0.21
PA22713B	Crucible	Outer	3128/264J	97.6	0.29	1.63	bdl	bdl	0.14	0.05	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Zn, Pb	0.21
PA22714A	Crucible	Rim	3131/200E	93.9	0.78	2.15	bdl	bdl	0.79	1.25	bdl	bdl	0.14	bdl	0.4	bdl	Zn, Cu, Pb, Sn	2.58
PA22715A	Crucible	Rim	3131/SN1	94.8	0.41	3.45	bdl	bdl	0.33	0.17	bdl	bdl	0.06	bdl	0.17	bdl	Cu, Zn, Pb, Sn	0.73
PA22716A	Crucible	Rim	3131/448	bdl	0.27	2.51	bdl	bdl	4.15	0.17	bdl	bdl	2.11	bdl	90.7	bdl	Pb	97.1
PA22717A	Crucible	Section	3131/118E	96.2	0.22	2.84	bdl	bdl	0.07	0.03	bdl	bdl	bdl	bdl	0.01	bdl	Cu,	0.11
PA22718A	Crucible	Inner	3131/245E	84.7	0.14	10.68	bdl	bdl	1.58	0.83	0.03	bdl	0.96	bdl	0.77	bdl	Cu, Sn, Zn, Pb	4.14
PA22719A	Crucible	Slag	3123/456	bdl	bdl	2.83	bdl	bdl	7.61	bdl	bdl	bdl	bdl	bdl	89.6	bdl	Pb	97.2
PA22720A	Crucible	Slag Outer	3123/448	77.7	4.31	10.74	bdl	bdl	2.7	0.2	bdl	0.13	2.59	bdl	0.57	bdl	Cu, Sn, Pb, Zn	6.06
PA22722A	Crucible	Inner	3123/SN2	93.7	0.71	3.43	bdl	bdl	1.1	0.03	0.01	bdl	0.04	bdl	0.11	bdl	Cu, Pb	1.28
PA22723A	Crucible	Outer	3123/942	95.1	0.87	2.69	bdl	bdl	0.21	0.07	0.01	bdl	0.02	bdl	0.06	bdl	Cu, Zn, Pb	0.36
PA22724A	Crucible	Inner	3123/SN3	92.2	1.49	3.79	bdl	bdl	0.94	0.39	bdl	bdl	0.24	bdl	0.6	bdl	Cu, Pb, Zn, Sn	2.17
PA22725A	Crucible	Rim	3127/18E	88.9	0.71	6.69	bdl	bdl	2.09	0.12	bdl	bdl	0.9	bdl	0.22	bdl	Cu, Sn, Pb, Zn	3.33
PA22726A	Crucible	Rim	3127/468B	93.8	0.29	3.5	bdl	bdl	1.34	0.07	bdl	bdl	0.19	bdl	0.35	bdl	Cu, Pb, Sn, Zn	1.95
PA22727A	Crucible	Inner	3127/129D	bdl	0.26	20.08	bdl	bdl	2.47	2.92	bdl	bdl	2.89	bdl	71.4	bdl	Pb	79.67
PA22729A	Crucible	Inner	3127/383	94.8	0.29	3.58	bdl	bdl	0.74	bdl	bdl	bdl	bdl	bdl	0.03	bdl	Cu, Pb	0.77
PA22730A	Crucible	Inner	3127/233	bdl	bdl	1.47	bdl	bdl	0.82	0.18	bdl	bdl	1.52	bdl	96.0	bdl	Pb	98.54
PA22731A	Crucible	Inner Slag?	3127/451	bdl	0.25	57.96	bdl	bdl	6.6	2.14	bdl	bdl	22.7	bdl	9.76	bdl	Sn, Pb, Cu, Zn	41.17
PA22731b	Crucible	Inner	3127/451	89.9	0.36	7.58	bdl	bdl	0.51	0.2	bdl	bdl	0.38	bdl	0.48	bdl	Cu, Pb, Sn, Zn	1.57
PA22739A	Crucible	Inner	3103/SN1	95.0	0.08	4.31	bdl	bdl	0.02	bdl	bdl	bdl	bdl	bdl	bdl	bdl		0.02
PA22739B	Crucible	Outer	3103/SN1	95.5	0.04	4.04	bdl	bdl	0.03	bdl	bdl	bdl	bdl	bdl	0	bdl		0.03
PA22739C	Crucible	Seccion	3103/SN1	94.9	0.05	4.29	bdl	bdl	0.02	bdl	bdl	bdl	bdl	bdl	bdl	bdl		0.02
PA22740A	Crucible	Inner	3095/SN1	77.5	0.18	21.1	bdl	bdl	0.14	bdl	bdl	bdl	0.03	bdl	0.11	bdl	Cu, Pb	0.28
PA22740A	Crucible	Inner	3095/434	84.8	0.46	4.22	bdl	0.02	5.63	2.46	bdl	bdl	0.52	bdl	1.54	bdl	Cu, Zn, Pb, Sn	10.15
PA22742A	Crucible	Inner	3095/SN2	93.1	1.81	3.36	bdl	bdl	0.18	0.42	bdl	bdl	0.01	bdl	0.29	bdl	Zn, Pb, Cu	0.9
PA22743A	Crucible	Rim	3095/454	bdl	0.44	7.83	bdl	0.3	43.6	3.05	bdl	13.6	20.9	bdl	8.15	bdl	Cu, Sn, Pb, Zn	75.72
PA22743B	Crucible	Broken Section	3095/454	76.3	0.23	3.64	bdl	0.11	5.11	0.97	bdl	7.65	1.7	bdl	1.95	0.08	Ag, Cu, Pb, Sn, Zn	9.73

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Analysis	Type	Zone	Ref.	LE	Mn	Fe	Co	Ni	Cu	Zn	As	Ag	Sn	Sb	Pb	Bi	Elements order	Cu+Sn+ Pb+Zn
PA22744A	Crucible	Inner	3095/251	bdl	0.22	6.03	bdl	bdl	7.75	bdl	bdl	bdl	0.18	bdl	85.1	bdl	Pb	93.03
PA22745A	Crucible	Inner	3095/607	83.6	0.13	8.98	bdl	bdl	3.01	1.45	bdl	bdl	1.62	bdl	0.79	bdl	Cu, Sn, Zn, Pb	6.87
PA22746A	Crucible	Rim	3095/SN2	bdl	0.69	3.05	bdl	bdl	12.81	bdl	bdl	bdl	0.71	bdl	82.6	bdl	Pb	96.16
PA22747A	Crucible	Bottom Inner	3095/SN3	84.8	0.52	9.83	bdl	bdl	2.03	0.58	bdl	bdl	0.95	bdl	0.83	bdl	Cu, Sn, Pb, Zn	4.39
PA22748A	Crucible	Inner	3095/112L	91.8	1.78	4.69	bdl	bdl	0.63	0.07	bdl	bdl	0.14	bdl	0.24	bdl	Cu, Pb, Sn, Zn	1.08
PA22749A	Crucible		3095/SN4	93.3	0.93	3.79	bdl	bdl	1.14	0.14	bdl	bdl	0.06	bdl	0.09	bdl	Cu, Zn, Sn, Pb	1.43
PA22750A	Crucible	Bottom	3099/458	87.1	0.66	6.36	bdl	bdl	3.98	0.12	bdl	bdl	0.75	bdl	0.25	bdl	Cu, Sn, Pb, Zn	5.1
PA22751A	Crucible	Inner	3099/199E	86.0	0.22	10.82	bdl	bdl	1.03	0.16	0.03	bdl	0.86	bdl	0.53	bdl	Cu, Sn, Pb, Zn	2.58
PA22751B	Crucible	Outer	3099/199E	95.2	0.39	2.57	bdl	bdl	1.35	0.04	bdl	bdl	0.04	bdl	0.01	bdl	Cu, Zn	1.44
PA22752A	Crucible	Inner	3099/18D	86.4	0.34	7.68	bdl	bdl	2.57	0.16	bdl	bdl	0.98	bdl	1.62	bdl	Cu, Pb, Sn, Zn	5.33
PA22752B	Crucible	Outer	3099/18D	bdl	0.7	27.8	bdl	bdl	35.5	0.56	bdl	bdl	14.6	bdl	20.6	bdl	Cu, Pb, Sn, Zn	71.3
PA22753A	Crucible	Bottom Inner	3099/261R	93.8	0.17	4.4	bdl	bdl	0.78	0.15	bdl	bdl	0.05	bdl	0.12	bdl	Cu, Zn, Sn, Pb	1.1
PA22754A	Crucible	Inner	3099/200C	75.4	0.1	19.4	bdl	0.02	1.19	0.08	bdl	0.12	1.68	bdl	1.46	bdl	Sn, Pb, Cu, Zn	4.41
PA22754B	Crucible	Outer	3099/200C	89.6	0.17	3.98	bdl	bdl	4.42	0.16	bdl	bdl	0.92	bdl	0.25	bdl	Cu, Sn, Pb, Zn	5.75
PA22755A	Crucible	Droplet Inner	3099/40N	93.5	0.3	1.86	bdl	bdl	2.62	0.68	bdl	bdl	0.19	bdl	0.35	bdl	Cu, Zn, Pb, Sn	3.84
PA22755B	Crucible	Inner	3099/40N	85.7	0.31	7.01	bdl	bdl	1.29	1.79	bdl	bdl	0.46	bdl	2.98	bdl	Pb, Zn, Cu, Sn	6.52
PA22756A	Crucible	Inner	3099/451	89.7	0.4	5.36	bdl	bdl	1.49	0.08	bdl	0.14	1.6	bdl	0.66	bdl	Sn, Cu, Pb, Zn	3.83
PA22757A	Crucible	Rim	3098/245	97.5	0.2	1.82	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	0.02	bdl	Cu, Pb	0.08
PA22758A	Crucible	Inner	3110/417	78.4	0.11	15.55	bdl	bdl	0.68	3.27	bdl	bdl	0.81	bdl	0.78	bdl	Zn, Sn, Pb, Cu	5.54
PA22759A	Crucible	Bottom	3110/SN1	93.3	0.56	2.82	bdl	bdl	2.09	0.2	0.03	bdl	0.2	bdl	0.31	bdl	Cu, Pb, Zn, Sn	2.8
PA22763A	Crucible	Section	3115/426R	96.6	0.31	2.19	bdl	bdl	0.05	0.02	bdl	bdl	0.03	bdl	0.03	bdl	Cu, Sn, Pb	0.13
PA22764A	Crucible	Bottom	3115/16	95.6	0.77	1.5	bdl	bdl	0.12	1.49	bdl	bdl	bdl	bdl	0.02	bdl	Zn, Cu, Pb	1.63
PA22765A	Crucible	Inner	3096/391A	90.2	0.2	6.08	bdl	bdl	1.45	0.54	bdl	bdl	0.32	bdl	0.64	bdl	Cu, Pb, Zn, Sn	2.95
PA22766A	Crucible	Inner	3112/474	83.9	0.87	1.37	bdl	bdl	4.93	bdl	bdl	bdl	bdl	bdl	8.57	bdl	Cu, Pb	13.5
PA22767A	Crucible	Inner	3112/426A	95.8	0.27	2.92	bdl	bdl	0.12	0.31	bdl	bdl	bdl	bdl	0.01	bdl	Zn, Cu	0.44
PA22768A	Crucible	Droplet	3111/SN1	89.0	0.14	1.59	bdl	bdl	8	0.42	bdl	bdl	0.27	bdl	0.16	bdl	Cu, Zn, Sn, Pb	8.85
PA22769A	Crucible	Droplet	3111/245D	92.7	0.25	3.17	bdl	bdl	2.34	0.04	bdl	bdl	0.45	bdl	0.41	bdl	Cu, Sn, Pb, Zn	3.24

Figure 7.61 XRF analysis of Crucibles and Waste metal from the 1937 excavation at Lisnacaheragh in the Cork Public Museum.
Values expressed as percentages in weight (bdl= below detection limit; LE=Light elements).

7.6 A POLLEN RECORD FROM GARRANES

Tim Mighall and
Douglas Borthwick

The aim of this project was two-fold: (1) To reconstruct local and regional vegetation history using pollen and microscopic charcoal data from a peat core taken in a bog in Garranes townland; (2) To place the findings into a geochronological framework in order to discuss their implications for an understanding of the environmental impact of early medieval ringfort settlement in this landscape.

A 1m deep core was retrieved from the site (Figure 7.62). Pollen and microscopic charcoal samples were prepared using conventional methods every 2cm through the core (Barber 1976). At least 500 land pollen grains were counted for each sub-sample and for most levels at least 100 NPPs were also recorded. One *Lycopodium clavatum* tablet was added to each sub-sample (Stockmarr 1971). Pollen identification was made using the identification keys from Fægri *et al.* (1989) and Moore *et al.* (1991) and a pollen type slide collection housed in the School of Geosciences at the University of Aberdeen. Cereal-type pollen identification was made using the keys from Fægri *et al.* (1989) and Moore *et al.* (1991) with cereal-type pollen differentiated from wild grass pollen based on grain size, pore and annulus diameter and surface sculpturing (Andersen 1979). As the separation of *Myrica gale* from *Corylus avellana* can be difficult these pollen grain types are classified as *Corylus avellana*-type (Edwards 1981). The pollen data are expressed as percentages of total land pollen (TLP), excluding spores and aquatics. Spores and aquatics are also expressed as percentages of TLP. The pollen diagrams were constructed using Tilia and Tilia.graph (Grimm 1991–3). Zones were delineated using CONISS. Pollen nomenclature follows Stace (1991). Microscopic charcoal is expressed in concentrations and as a charcoal : pollen ratio.



Figure 7.62 Location of pollen sampling site, Garranes townland. (source: Google Earth, Maxar Technologies).

Two bulk sediment samples for AMS dating were submitted to the Chrono Centre, Belfast (Figure 7.63). The upper sample from a depth of 26–27cm depth is significantly older (3578±33 BP) than the lower sample taken at 62–63cm (3186±35 BP). To assess this problem, the upper sample was re-submitted to the same laboratory, where the humin and humic fractions were dated to 3873±36 BP and 3470±49 BP respectively. This confirmed the original inversion of the radiocarbon dates, indicating significant disturbance of the upper part of the core.

Results and discussion

The results of this analysis are presented here and have provided a record of vegetation change during the Holocene. Radiocarbon dates for the core are presented in Figure 7.62 and calibrated using CALIB 7.2 and IntCal 13 atmospheric curve (Reimer *et al.* 2013). The pollen record and LPAZ summary is presented in Figures 7.64 and 7.65.

Notwithstanding the inverted radiocarbon dates, the vegetation changes reconstructed from Garranes are consistent with vegetation patterns reconstructed across the British Isles since the start of the Holocene (Birks, 1989). A relatively open landscape dominated by grassland and Juniper-willow rich-shrub with some wetter areas, characterised by Cyperaceae, Pterospida mono undiff and eventually *Alnus* and *Equisetum*. The presence of *Myriophyllum alterniflorum* indicates the presence of open water whilst peatland is represented by *Calluna*, *Empetrum* and a peak in *Sphagnum* spores (Brown *et al.* 2007) at the end of the LPAZ as any sign of open water diminished. Values of these pollen taxa decreased throughout LPAZ GARR-1 as first birch scrub-woodland invaded and then more warming loving deciduous trees such as *Quercus*, *Ulmus* and *Corylus avellana*-type. These taxa along with *Pinus* form a mixed woodland typical of the very early Holocene. Microscopic charcoal values are low during this period suggesting that fire did not play an important role this phase of vegetational development at the site. There has also been much debate concerning the insularity of vegetation in the British Isles and how

Lab code	Depth	Uncalibrated age	Calibrated age range (2σ)	Material
UBA-8491	26–27cm	3578±33	2029–1781 BC	bulk peat
UBA-8490	62–63cm	3186±35	1529–1401 BC	bulk peat
UBA-37765	26–27cm	3873±36	2467–2211 BC	humin
UBA-37766	26–27cm	3470±49	1914–1664 BC	humic acid

Figure 7.63 Radiocarbon dates from the Garranes core (calibration after OxCal v.4.3.2).

land separation has affected the establishment of trees and shrubs in the British Isles since the start of the Holocene. Whilst most trees and shrubs are thought to have migrated from the continent across into southern Britain (Birks 1989; Bennett 1995) there is a limited amount of evidence to suggest that the arrival of trees in Ireland might have occurred via a different route. Isochrone models constructed by Huntley and Birks (1983) and Birks (1989) suggest that *Pinus*, *Quercus* and *Corylus* arrived from the south-west at the end of the Devensian ice age and colonised southern Ireland. Devoy and Sinnott (1993) have recorded significant amounts of *Pinus*, *Betula*, *Corylus* and *Quercus* pollen, *c*.11240±90 years BP, at a site in Clogheenmilcon (Blarney), County Cork. Devoy (1995) speculates that a southern land connection might have existed which acted as a land bridge to the continent allowing the early immigration of plants or acted as refugia. Such models and hypotheses outlined here are still hampered by a lack of sites especially in south-west Ireland. The addition of more sites with detailed palaeoenvironmental data and good chronology are vital to refine our understanding of Late Glacial – and early Holocene vegetation change.

At slight dip in the percentages of the tree and shrub pollen occurred at the start of LPAZ GARR-II. This period is characterised by the major decline in *Betula* as *Alnus* values increase sharply in the middle of the LPAZ, suggesting that birch woodland is replaced by alder carr. Alder spread into south–west Ireland between 9000 and 8500 years BP and had spread throughout the country by 7000 years BP as suitable conditions developed such as floodplain development and hydroseral succession (Bennett and Birks, 1990). At Garranes, drier soils still maintained mixed woodland characterised by oak, elm, pine and hazel. Some grassland persisted characterised by Poaceae, Cyperaceae but the diversity of this vegetation community is low and there is no clear signs of any human impact. A gradual rise in *Calluna* indicates there was a limited increase in peatland development. Microscopic charcoal peaks at the end of LPAZ GARR-II suggesting a local fire and the trend is similar to that of *Calluna* suggesting that the fire probably occurred on the peat. *Alnus* is temporally replaced by increased *Betula* and is also probably in response to the more intense period of burning at this time. This fire is probably natural due to the absence of any anthropogenic indicators recorded in the pollen record. The start of GARR-III is characterised by the re-establishment of *Alnus* as part of a mixed wet and dry woodland and the composition of vegetation appears to be similar to that established in the previous zone. Microscopic charcoal values also increase in the latter stages of this LPAZ suggesting local fire but the only noticeable change in woodland composition is an increase in alder. Given the radiocarbon dates are very similar at the top of each LPAZ II and III respectively, this profile may have been affected by peat cutting and stacking with material comprising GARR-III of the same age stacked upon top of GARR-II. This would explain the incoherent chronology reconstructed from the radiocarbon dates. Peat accumulation in GARR-I is therefore *in-situ* and represents the early Holocene and LPAZ GARR-IV mostly represents more recent historical peat accumulation after cutting and stacking was stopped.

A major transformation occurred across the LPAZ IIi-IV boundary as woodland all but disappears to be replaced by grassland with some peatland. Palynological diversity remains low in the non-arboreal pollen record with little sign of human activity to suggest the reduction in woodland was caused by clearance. However, if the radiocarbon date at 27–28 cm is reliable, it took place in later prehistoric when human activity was more prominent. Alternatively, the record could be curtailed by a hiatus and/or peat cutting/stacking although the decline in arboreal pollen and increase in Poaceae and Cyperaceae are gradual. Whether these changes are connected with the occupants of the hillfort cannot be firmly established as there is still a lack of any indicators of human activity in the herbaceous pollen record. The rise of *Pinus* in the near-surface samples is compatible with modern forestry plantations.

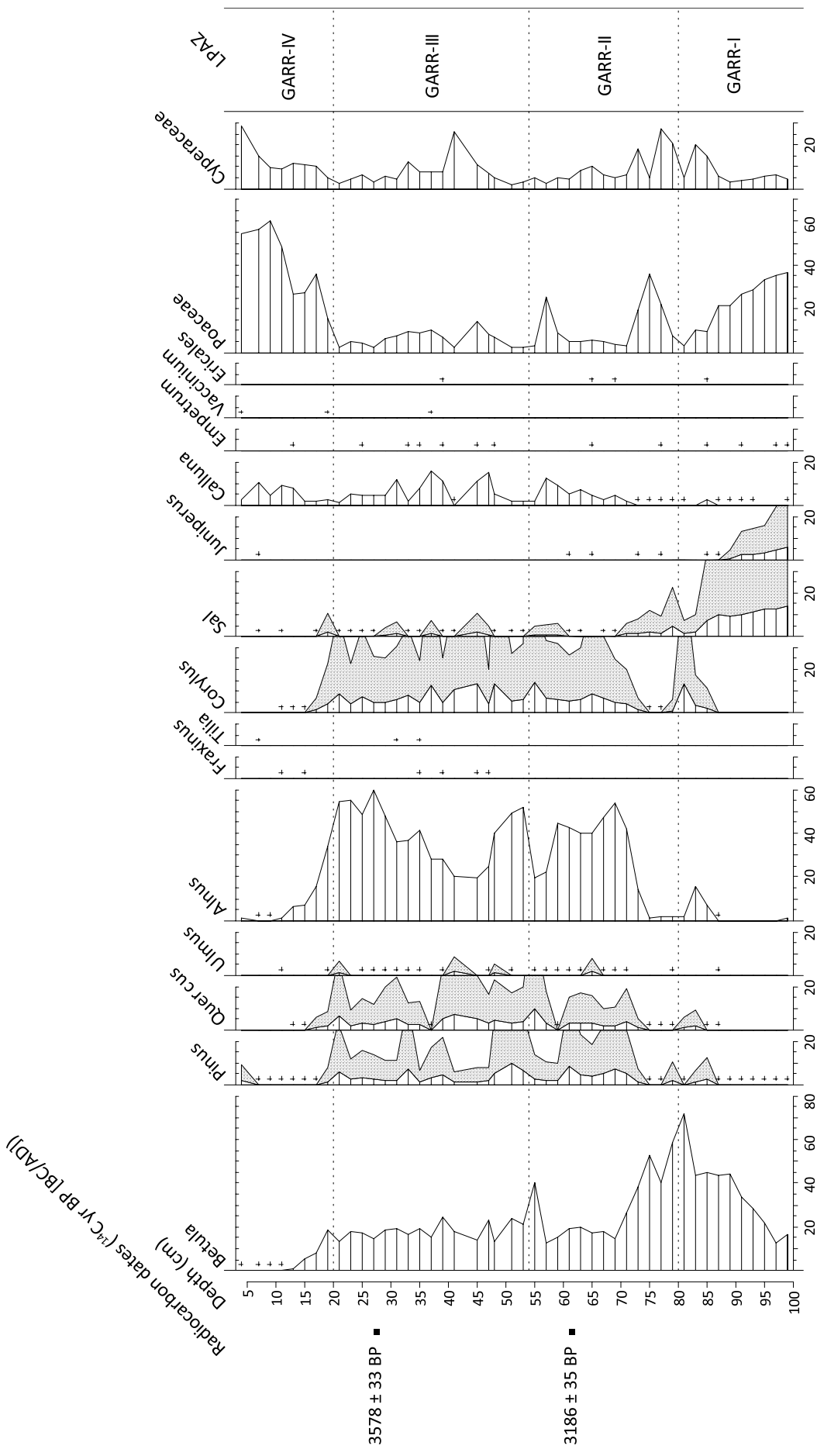


Figure 7.64a Pollen diagram, Garranes.

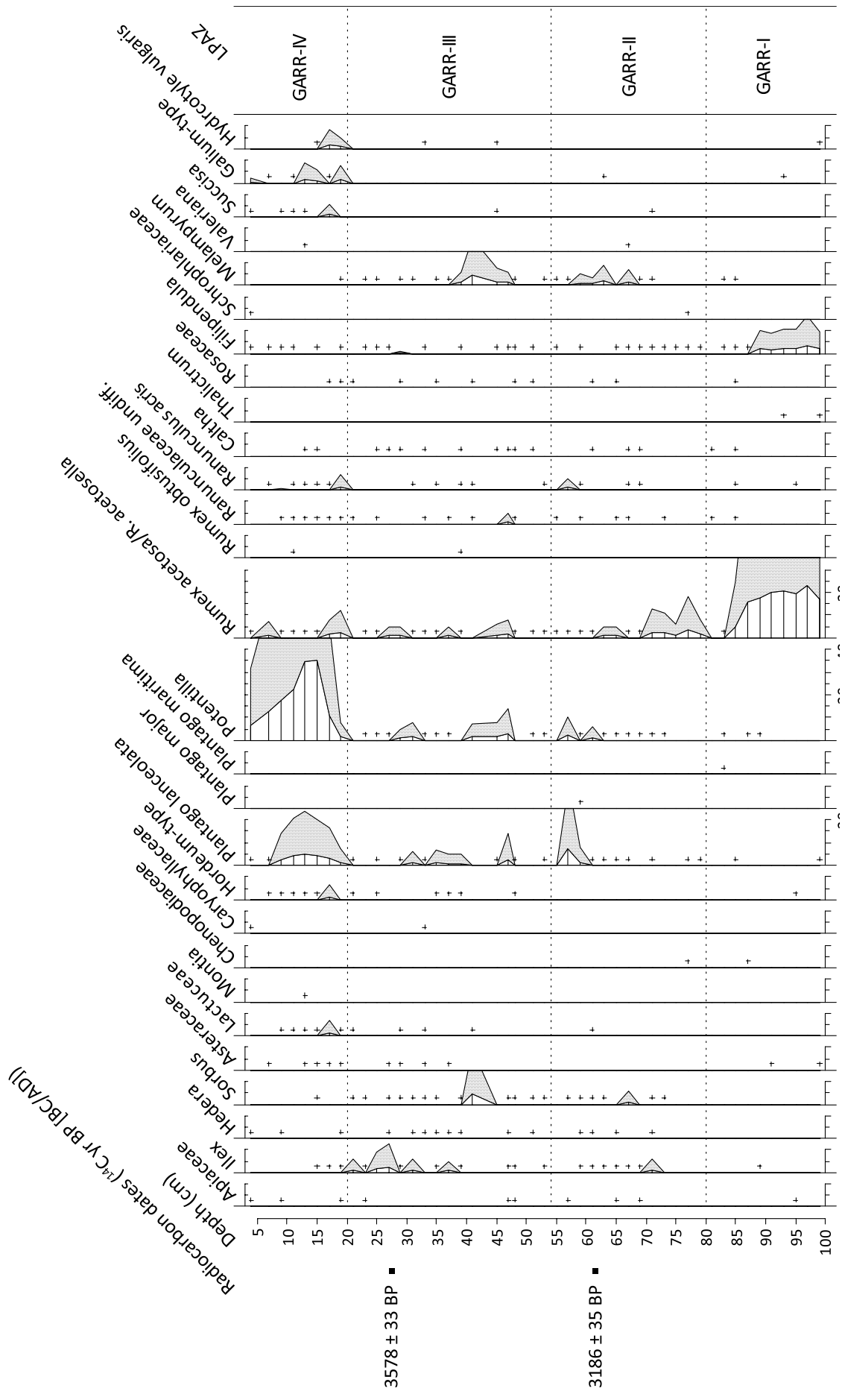


Figure 7.64b Pollen diagram, Garranes.

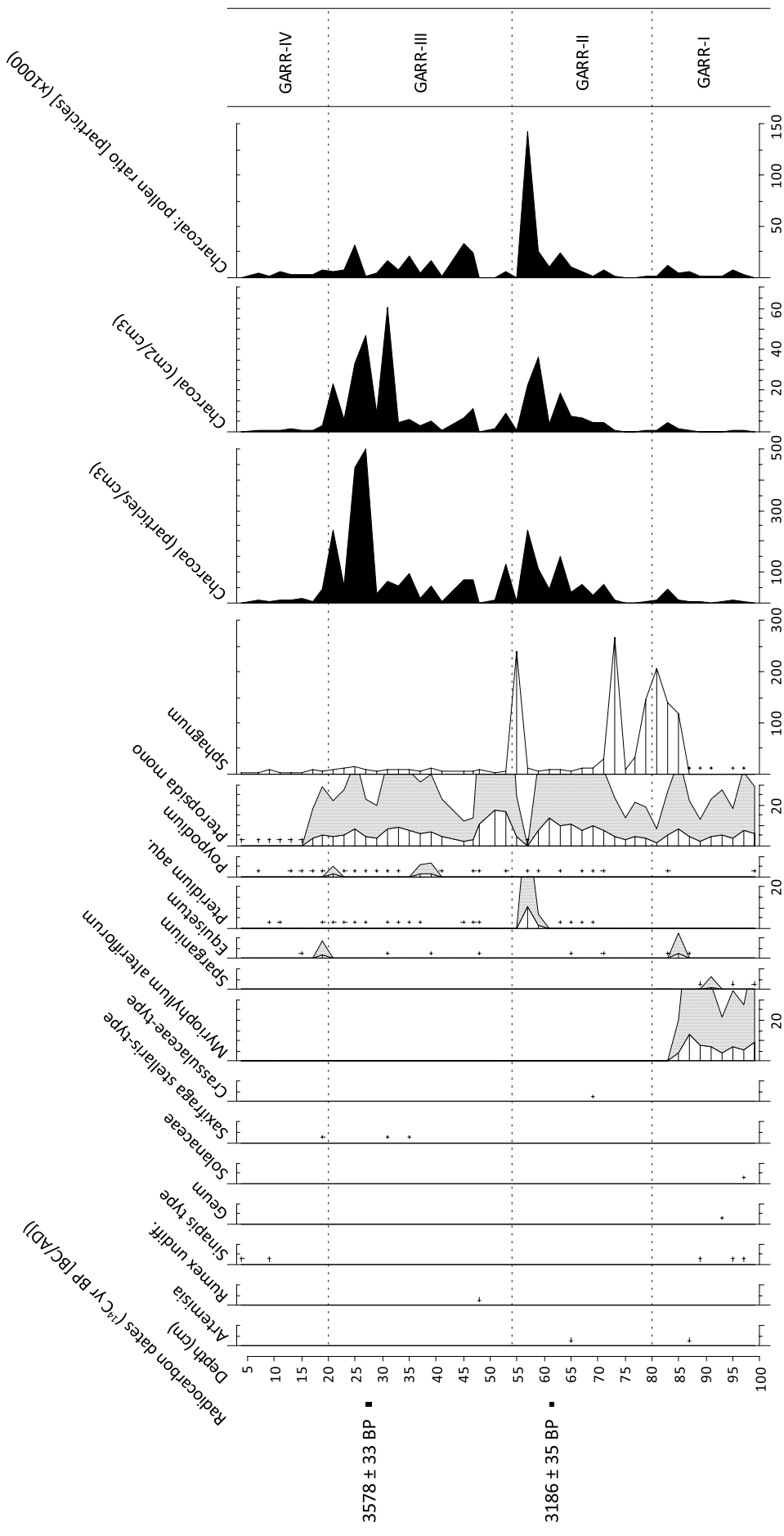


Figure 7.64c Pollen diagram, Garranes.

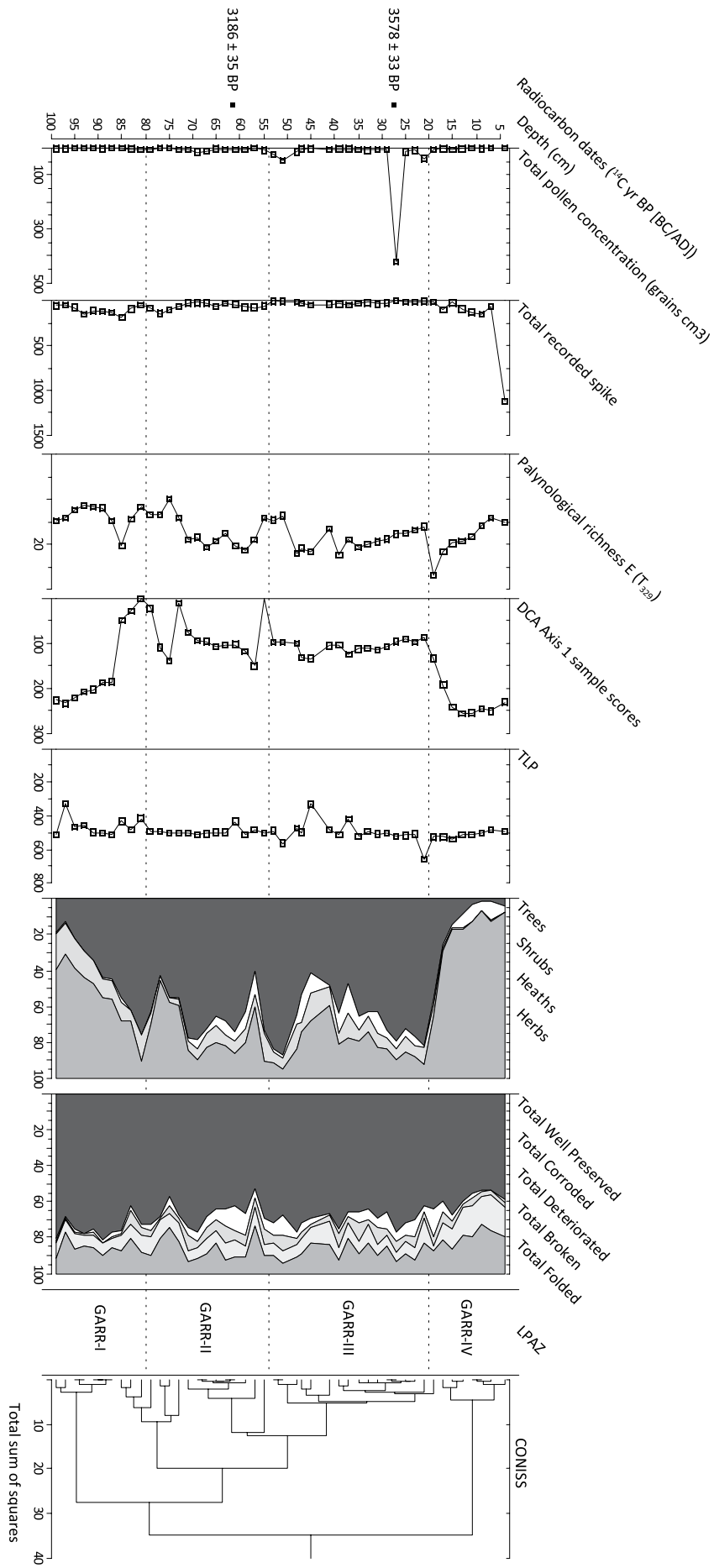


Figure 7.64d Pollen diagram, Garranes.

GARR-IV	Characterised by high Poaceae and *Potentilla*-type; increasing Cyperaceae, low arboreal pollen percentages; notable *Plantago lanceolata* and *Hordeum*-type; low charcoal concentrations.
GARR-III	High arboreal pollen percentages, especially *Alnus* and *Betula*. Continuous percentages of *Calluna*, Poaceae and Cyperaceae mainly below 10%TLP; Diverse number of herbs mainly as rare types with occasional peaks e.g. *Plantago lanceolata*, *Potentilla*-type, *Rumex acetosa/acetosella* and *Melampyrum*. Occasional *Hordeum*-type pollen recorded. Increased charcoal concentrations towards the end of the LPAZ.
GARR-II	High arboreal pollen percentages characterised by decreasing *Betula* and increasing *Alnus*. *Pinus*, *Quercus* and *Corylus avellana*-type also increase. Lower Poaceae and Cyperaceae; *Calluna* increases from 70 cm. Initially *Rumex acetosa/acetosella* is well represented. Other herbs increase in upper part of the LPAZ: *Plantago lanceolata*, *Potentilla*-type and *Melampyrum*. Increased charcoal concentrations in the upper part of the LPAZ.
GARR-I	High arboreal pollen especially increasing Betula. *Salix* and *Juniperus* decrease. Poaceae, *Filipendula* and *Rumex acetosa/acetosella* are initially high but declines. *Myriophyllum alterniflorum* fades. Microscopic charcoal concentrations are low.

Figure 7.65 Key LPAZ zone descriptions

– 8 –

EARLY MEDIEVAL SETTLEMENT AND ECONOMY AT GARRANES

The investigations at Garranes have identified two horizons of ringfort settlement during the early medieval period. The earliest of these is represented by the large trivallate ringfort of Lisnacaheragh and the adjacent ditched enclosure of Lisnamanroe. Both were probably built in the early/mid-fifth century AD, with contemporaneous occupation until they were abandoned around AD 600. The ditched enclosure, possibly with ogam stone, at Lisheenagreine dates to the same era. These early enclosures at Garranes were followed by the building of small univallate ringforts with souterrains during the eighth to tenth centuries. This occurred at Lisheenagreine and the CO084-085 site, and probably at many levelled enclosures in the area. There is no evidence that ringforts were built or occupied at Garranes after the first millennium AD.

While these excavations provide important site histories, more research is required to fully understand how the settlement landscape at Garranes evolved in the period AD 400–1000. Though defined as a monument *type*, each ringfort had its own unique history from construction to occupation and abandonment. That cycle could be repeated on individual sites, influenced by many inter-related factors, from environment and natural resources, to cultural context, human agency and historical contingency. Understanding the temporality of these ringforts seeks to explain the interaction of processes that occurred over the course of short-term events and longer-term cycles of political, socio-economic, demographic and environmental change. While excavated as discrete monuments, no ringfort was a self-contained entity, but was always part of a wider cultural landscape that shaped its history.

Before exploring that wider context, this chapter will consider the Garranes ringforts as settlement space, focusing on the use and relationship of different types of enclosure in the complex. Their connection to an agricultural economy is explored, as is the importance of Garranes as a centre of specialist craftworking in the fifth and sixth centuries. The relationship of the adjacent enclosures of Lisnacaheragh and Lisnamanroe is also considered. The chapter concludes with a discussion on the significance of souterrains found in some ringforts at Garranes, with reference to an important ogam stone discovery at Lisheenagreine.

8.1 SETTLEMENT ENCLOSURE AT GARRANES

Recent discoveries on road schemes and other developments have identified different types of settlement enclosure in early medieval Ireland (see Fitzpatrick 2009, Kinsella 2010, Noonan 2013, Comber 2019). The relationship of these sites to what are conventionally described as ringforts is not well understood. The latter also have many variants, often defined by the type and number of enclosing elements. This is evident in the Garranes landscape where three types of earthwork enclosure of early medieval date can be identified (see Figure 2.6 for location):

1. Univallate ringforts enclosed by a substantial single bank-and-ditch. These include sites excavated in this project (CO084-085 and Lisheenagreine Period 2) and unexcavated examples (e.g. levelled CO084-088 and -136).

2. Multivallate ringfort enclosed by two or three bank-and-ditch combinations This includes Lisnacaheragh and the unexcavated bivallate ringfort CO084-096.

3. Ditched enclosures with low internal banks, with (Lisnamanroe) or without (Lisheenagreine Period 1) stake fencing.

These sites are circular in plan, with overall diameters of 110m at Lisnacaheragh (interior 67m), 84m at Lisnamanroe (interior 68m), 50m at Lisheenagreine (interior 40m), and *c.*50m at site CO084-085 (interior 40m). They occur mostly in elevated positions, either on the crest (Lisnamanroe) or slopes of prominent ridges (Lisnacaheragh and Lisheenagreine), or on low rises (CO084-085). There are two basic designs, involving one or more substantial bank-and-ditch combinations, or else a low bank and ditch with or without stake fencing on the inside. In terms of defence, these range from substantial barriers in excess of 3m high (Lisnacaheragh, Lisheenagreine Period 2 and site CO084-085) to more slightly built elements 2m or less in height (Lisnamanroe and Lisheenagreine Period 1).

Access to most ringforts, including those at Garranes, was controlled through a single entrance, usually protected by some form of wooden gate. The entrance to Lisnacaheragh was a 4–5m wide passageway across three enclosing elements on the eastern side of the enclosure. Breaks in the three banks were accompanied by narrow causeways across the accompanying ditches. Posthole evidence indicates four gates at various points along this passage. The two outer gates are each defined by a pair of postholes with an intervening shallow slot for a threshold or jamb. The third gate is represented by two postholes, while a post-lined fence

led to the fourth and innermost gate, defined by a pair of large postholes where two gates projected outwards to a central stop. The number of gates and variations in their design suggests they were not all used at the same time. Lisnamanroe also had a single east-facing entrance, comprised of a 7.5m wide causeway across the shallow enclosing ditch, inside which there was a single wooden gate built into stake fencing. Neither entrance passage was surfaced with gravel or paving, which is recorded at some excavated ringforts (O'Sullivan *et al.* 2014a, 85–7).

The significance of the enclosing elements at these sites is much discussed, from their use as practical barriers to symbolic meaning in socio-political terms. O'Sullivan and Nicholl observed, 'the construction of an enclosure with a controlled point of entry and exit does seem to suggest a concern with division of space from the domestic, *muinter*-held dwellings within and the *derbfine*-held settlement landscape beyond, and this a recognition of a social group defined by living together' (2010, 67). Early law tracts, such as the eighth-century *Críth Gablach*, list penalties for trespass (Kelly 1988, 110). The average-size univallate ringfort was designed to protect family and property. Their construction displays a level of insecurity, though the degree of protection afforded has been questioned. Practical considerations include the absence of bank palisades, the size of banks and the design of ditches. In the case of multivallate sites, banks of similar height are not particularly suited for defence, which is the case for Lisnacaheragh, Garranes. Where closely-set multiple defences are of graded height, the defenders have a greater advantage, an impressive example being the bivallate ringfort at Cahirvagliair, 17km west of Garranes (see Manning 1987/8; see Figure 10.10).

Too much emphasis, of course, can be placed on the physical defences. The defensive potential of any fortification is based on the passive resistibility of the physical barriers and natural topography, and the active force of the defenders. The number of warriors, their experience, fighting spirit and motivation, and the quality of command, were critical factors in the defence of any ringfort settlement. These human factors do not leave much physical evidence, which is why archaeological interpretations of ringforts tend to focus on the military effectiveness of the physical defences as a measure of site function. As well as the active force of defenders, the protection of any ringfort relied on the collective action of its neighbours in the same *tuath*, the defence of which was ultimately the responsibility of its king. That outer defensive zone reduced, but did not remove entirely, the threat of hit-and-run raiding. With more protracted conflicts, high-status ringforts, including the residence of the king, could be targeted as centres of power with economic and military significance.

The siting of a typical ringfort was not usually defensive or strategic, but rather the type of location that might be expected for a working farm and homestead, on well-drained level or moderately sloping land below an elevation of 200m OD (Warner 1988, 50). For Warner, the defensive nature of these settlements is not in doubt, as 'the cattle-based economy, the confinement of law and protection to the tribe, the small size of the tribes and the often bad relations between them described in the contemporary annals, all conspired towards a rather insecure situation for the farmers' (1988, 51).

Defensive features were certainly important in ringfort design, but that was only part of their significance. This is particularly true of the larger ringforts such as Lisnacaheragh, where multivallate enclosure displayed in a highly visible fashion the social and political standing of its occupants. These elaborate defences combined the protection of human life and property with an imposing presence on the landscape. Their construction should not be viewed in terms of insecurity, but more as a display of military power and dominion over the territory of a *tuath*.

The scale of construction at sites such as Lisnacaheragh indicates a considerable input of labour and materials, organized under some form of centralized leadership over a short period of construction. The capacity to mobilize such resources demonstrates an ability to muster a large fighting force at short notice. This meant these sites were not only defensive positions, but probably also mustering points for raiding parties and military campaigns, where a military force was assembled from ringforts and other settlements within that *tuath*. Ringfort location could also present strategic advantages in respect of frontier defence, and offer protection to allied settlements vulnerable to raiding and attack. Their deterrent presence in the landscape would have helped to ensure the security of trade routes through that territory.

Annalistic sources record endemic warfare and violence in early medieval Ireland (Charles-Edwards 1996). The scale of those conflicts increased with the emergence of regional kingdoms from the eighth century onwards, including those of the Eóganacht federation in Munster. The annals indicate that raiding was also the most common form of warfare in the early medieval period. These present a similar picture of short-range sorties undertaken by a small group of warriors moving rapidly into enemy territory to seize and escape with as many cattle and other spoils as possible (see Lucas 1989). Raiding features in customary legal obligations, such as the institution of clientship (*célsine*) where the

capture of livestock was a way of accumulating and dispersing wealth, or distraint (*athgabál*) where a raid was staged by a wronged party to seize an offender's property to compel him to submit to adjudication. There was also the royal raid (*crech ríg*) that was part of an inauguration process, designed to demonstrate the prowess and popularity of a potential king (*ibid.*). As in the later medieval period, raiding was rarely carried out to acquire new territory, but was intended to subjugate a territory and then exact tribute (MacNiocaill 1972). The taking of hostages was an important part of that process, to ensure the political submission of the new territory (Kelly 1988, 173–6).

The prevalence of raiding was such that there is an entire genre of literature (*Táin*) devoted to the subject, of which the great epic *Táin Bó Cúailnge* is the best known. Sadowska (1997) discussed how that particular raid was essentially a pretext for a sustained military campaign with long-term political objectives. In many instances the seizure of cattle was an immediate outcome, rather than the long-term objective of those raids. Cattle were a significant economic resource in that period, and so would have been a prize in any conflict. Ringforts had an important role in the protection of such herds in adjacent fields, with some variants used occasionally as stockades. Relevant here is the aforementioned defensive shield provided by other ringforts in a *tuath* territory, which helped to protect cattle and other property.

8.2 RINGFORT RESIDENCE AT GARRANES

> 'Archaeological excavation of early medieval raths, cashels and crannogs have revealed that they were the locations for houses, workshops, stores, pathways, cobbled areas and middens, all situated within an enclosed space defined by earthen banks and ditches, stone walls or wooden palisades. Early Irish historical sources, laws, saint's *Lives* and narrative literature also illustrate how they were the places where the household slept, worked on crafts, ate food, gathered for social occasions and extended hospitality to their wider kin and neighbours. Early medieval raths were places where traditional knowledge, values and beliefs intersected with daily life and practice and where most social identities were created and reproduced. Settlement enclosures from the period could therefore be seen as key venues for the enactment or performance of the social identities of ethnicity, social status, gender, kinship and community and for social and economic interactions between people, places, animals and things' (O'Sullivan and Nicholl 2010, 60).

This statement conveys the many layers of habitual use and deeper meaning attached to ringforts and other forms of enclosed settlement in early medieval Ireland. It is based on the results from an estimated 320 earthen ringfort (rath) excavations conducted in Ireland in the modern era (O'Sullivan *et al.* 2014a, table 3.2). Most of these sites have evidence of residential occupation, in the form of house structures, food waste, domestic equipment, personal possessions, craft-working and farm activities, and in some cases souterrains.

An estimated 550 built structures are recorded from early medieval sites in Ireland (*ibid.,* 88). Some have one house while others have evidence of two or more buildings (Lynn 1978; 1994; O'Sullivan 2008; O'Sullivan and Nicholl 2010; O'Sullivan *et al.* 2014b). These are generally circular (roundhouses) or rectilinear in



Figure 8.1 Reconstruction of a roundhouse in excavated ringfort at Lisnagun near Clonakilty, Co. Cork.

plan, of variable size, design and construction method (Figure 8.1). Most were built of post-and-wattle walls, with occasional use of stone walling, and roofed with reed or cereal thatch, turf or wooden shingles. While basic design and construction methods are well known, there is little evidence of fixtures and furnishings. In most cases, only foundation traces survive as circular arrangements of postholes, stakeholes, slots and stone walling. The life span of those buildings varied, with many occupied for 20–30 years, or longer with maintenance.

While the earliest buildings of the early medieval period were roundhouses, there was a general change in house design in Ireland during the ninth to eleventh centuries towards rectangular buildings. These were typically 6–8m in length and built of similar materials to roundhouses, with a larger number of stone-built examples associated with cashels. The reasons for this change in house design are unclear, with one theory linking this '...to a wider social and ideological change in early medieval Ireland, which experienced an increasing centralization of political power in large dynasties, and increased emphasis on smaller kin groups and more individualistic land ownership practices' (O'Sullivan *et al.* 2014a, 93). These changes did not occur everywhere at the same time, with regional variations depending on whether construction was predominantly in stone or organic materials.

A notable feature of the 1937 excavation of Lisnacaheragh was the absence of built structures in that ringfort. While Ó Ríordáin explained this in terms of site function, it relates more to archaeological preservation and excavation strategy. Using the basic methods of that era, he excavated numerous narrow trenches inside a ringfort where the stratification was significantly disturbed by spade cultivation of the nineteenth century. Though the overall picture remains unclear, the presence of buildings at Lisnacaheragh has been confirmed by the 2017 excavation (see Chapter 3). There are no examples of rectangular houses recorded at Garranes, possibly because there has been so little excavation of later ringforts in that landscape.

Early text sources provide some detail on the size and use of houses, though these accounts are often difficult to reconcile with excavation evidence. The early eighth-century text, *Críth Gablach*, indicates that the typical farmer's house was 6–8m in diameter, whereas excavation indicates an average of 4–5m with some examples in the 6–10m range (O'Sullivan *et al.* 2014a, 90). House size was proportional to social rank, with the houses of the nobility considerably larger than those of the free/unfree farming classes. On that basis, the roundhouses at Lisnacaheragh and Lisnamanroe, measuring 9m and possibly 15m in diameter respectively, are consistent with noble residence.

As well as one or more houses, excavation has identified other types of built structure and activity areas inside ringforts (O'Sullivan *et al.* 2014b). These include various outbuildings and byres used for farm animals, fences, paths, middens, fuel stores, manure heaps, storage pits, and areas for craftworking. Some facilities and activity areas are difficult to identify archaeologically, whereas others, such as the metal workshops at Lisnacaheragh, can be located through excavation. Where occupation evidence is entirely absent in excavated sites, it is often suggested those enclosures were used for other purposes. Early law tracts refer to a *bódún* ('cow fortress'), used for the protection of animals in times of raiding. Residential sites could also be used for this purpose. The same sources refer to an enclosed space known as a *les* (farmyard), surrounded by an earthen rampart (*rath*), where houses, farm buildings, animal pens and other activity areas were located (Kelly 1988).

8.3 AGRICULTURAL ECONOMY

As already mentioned, there were important changes in the settlement landscape of Ireland from the fifth century AD onwards. The emergence of new forms of enclosed settlement, the expansion of field patterns, and innovations in cereal processing technology, can all be linked to a gradual intensification of agriculture. That, in turn, was connected and probably contributed to rising population, most obvious in the large number of ringforts built over the following centuries. This is evident in the Cork region where the number of confirmed or possible raths (currently estimated at 3700 in the *Record of Monuments and Places;* Figure 8.2) contrasts with a particularly low visibility of Iron Age settlement in the region.

Despite several attempts in this project (see Chapter 7.6), there is no local pollen study available for the Garranes area. It is necessary then to rely on the regional picture in terms of vegetational history and climate-environment reconstruction. While there are numerous dated pollen records from Cork and Kerry, many are from the south-west peninsulas, which is a different environmental setting to mid Cork. Pollen studies in the Killarney valley, 55km to the north-west of Garranes, are also unlikely to be representative of local vegetational history. While recognising these difficulties, some general observations may be made concerning regional patterns of human-environment interaction in the first millennium AD.

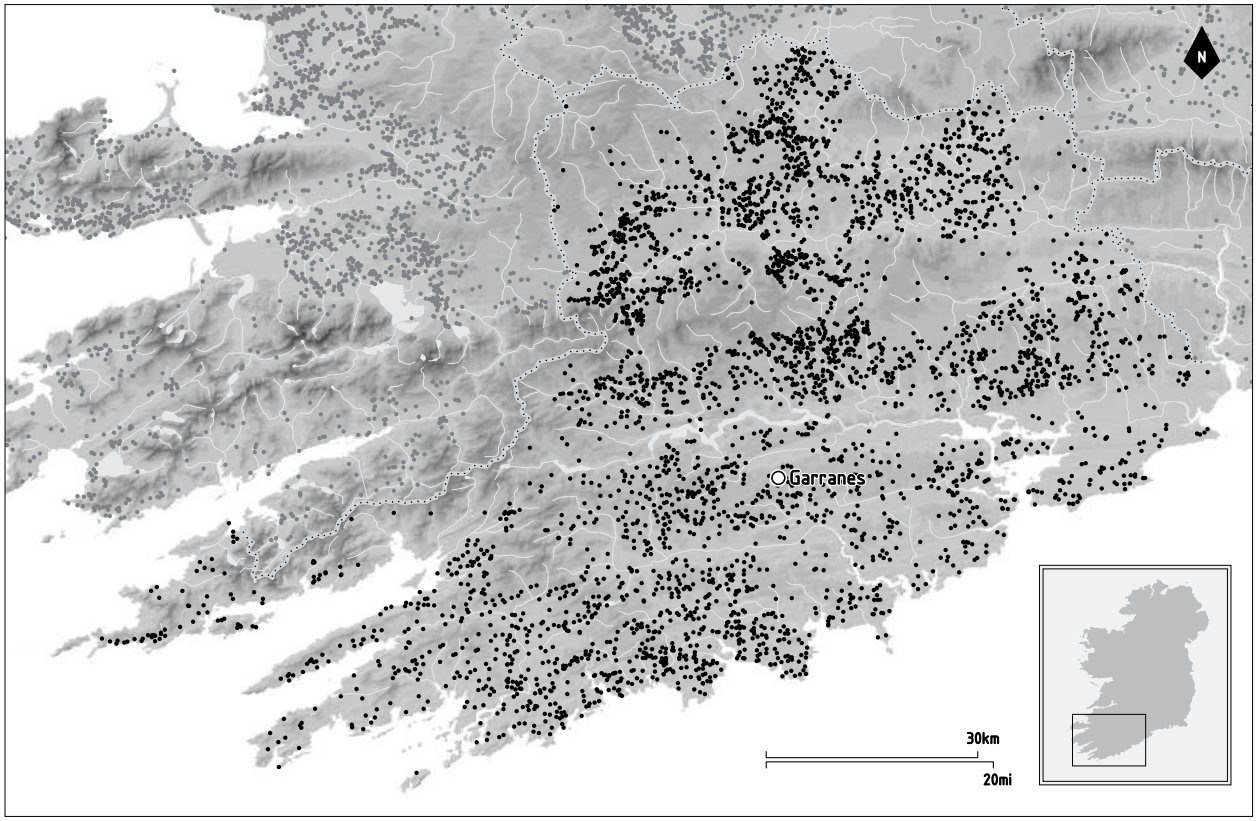


Figure 8.2 Distribution of ringforts (*raths* and cashels) in Co. Cork
(source: National Monuments Service, Sites and Monuments Record; accessed 01/02/2020)

Farming and environment in the first millennium AD

The Late Iron Age is generally associated with a marked decline in agriculture in many parts of Ireland when compared to activity in the Late Bronze Age (Mitchell 1965; Edwards 1985; Weir 1995). Pollen records indicate a strong regeneration of woodland in the early centuries AD leading to a reduction in open grassland that impacted on animal pastoralism. There is evidence of a significant reduction in tillage farming in most areas. The duration and intensity of those changes varied by region, suggesting that they were not connected to a single historical event. Mitchell placed greater emphasis on environmental factors, suggesting this agricultural decline was 'the culmination of a long-continuing and widespread exhaustion of the soil, rather than a drastic social upheaval brought about by military conquest' (Mitchell 1976, 162). He argued that intensive ard cultivation and over-cropping, in combination with increased leaching and soil podzolization connected to long-term climate deterioration, led to this contraction of agricultural activity after 200 BC. For the south-west region Lynch (1981) identified a similar decline in agricultural activity, accompanied by woodland regeneration during the Late Iron Age. She also emphasized environmental factors, principally climate deterioration linked to soil acidification and peat formation, as contributing to a collapse in agriculture with serious consequences for the economy as a whole (*ibid.,* 133).

There is much variability in pollen records over those centuries, with evidence that farming continued at a reduced scale in many areas. This is evident at Scragh Bog, Co. Westmeath (O'Connell 1980), Gortcorbies, Co. Derry (Smith 1975) and Whiterath Bog, Co. Louth (Weir 1995). Mighall and Lageard's (1999) research at Mount Gabriel in the Mizen Peninsula of West Cork records some evidence of woodland regeneration in the early centuries AD, but also evidence of continued farming, including some cereal cultivation, throughout that period (*ibid.,* 57). A similar pattern was observed by Lynch (1981) at Cashelkeelty on the north side of the Beara Peninsula, Co. Kerry (Fig. 9.1). The pollen record there indicates a general reduction in agriculture accompanied by woodland regeneration *c.*500 BC–300 AD, but with sufficient indicators to suggest some continuation of pastoral and arable farming during the Late Iron Age.

Farming continued in other parts of the Beara Peninsula during the same period. A recent study identified a Late Iron Age farmscape in the Barrees valley near Eyeries, where a large stockade and a settlement enclosure were built around the first century AD (O'Brien 2009b). This

was accompanied by a significant reduction in tree cover and indicators of pastoral farming with an arable component. The period from around AD 400 was one of considerable farming activity in the Barrees valley. There is a long-term reduction in tree cover at a time when the building of fields expanded in the upper valley. The emphasis over the next few centuries was on animal pastoralism (probably cattle), with only slight indications of cereal cultivation.

A review of other pollen records demonstrates renewed clearance of woodland and agricultural activity across many parts of Ireland during the third and fourth centuries (Hall 2000, 2006; Plunkett 2007). This was accompanied by a developed arable agriculture that included the addition of rye and oats to established wheat and barley cultivation. Contact with the Roman world may have been significant in terms of agricultural technology with the introduction of the coulter plough allowing reclamation of the many 'infertile heaths' that developed during the Iron Age 'lull' (Mitchell 1976, 165). Some have connected this intensification of farming to the arrival of immigrant groups. Weir (1995) linked the use of beehive querns in the northern part of Ireland in the first and second centuries AD to a possible influx of peoples from northern Britain, which Warner (2002) explained in terms of different groups of sedentary tillage farmers and mobile pastoralists.

The general pattern at the beginning of the early medieval period is a long-term reduction in tree cover across Ireland, tied to a progressive expansion of agriculture. Tree-ring evidence indicates a major environmental event at AD 540, linked by one study to an asteroid or comet strike (Baillie 2001). This probably had only short-term implications for tillage agriculture, and pastoral farming continued to expand in this period. That coincided with a major re-organization of Irish society, with fragmentation of political power and a greater dispersal of settlement (Edwards 2005). Together with an increased emphasis on pastoral farming, this partly explains the emergence of the ringfort, built in large numbers c.AD 600–900 (Stout 1997).

The farming economy of early medieval Ireland

> 'Early medieval Ireland was an overwhelmingly rural landscape, with individual farmsteads (raths and crannogs), fields, and route-ways set in a highly managed agricultural landscape. In this rural landscape, farming was the constant in people's daily lives. The majority of the community, especially the ordinary and un-free members of society, such as the low-status commoners, hereditary serfs and slaves, would have spent most of their lives at work in the fields – herding cattle, sheep and pigs, ploughing, sowing and harvesting crops, or building and repairing field-walls. In the home, the daily lives of men and women would have been dominated by domestic activities relating to agriculture, whether this was in terms of preparing milk and cheeses, grinding grain for flour, salting meats for winter storage, or spinning and weaving' (McCormick *et al.* 2014, 1).

This observation from a recent review of early medieval agriculture captures the importance of farming to ringfort settlement in Ireland. Early texts confirm that agriculture was central to the structure of early medieval society in respect of social status and legal obligations, kinship and gender roles. The same law tracts provide an insight into the nature of the early medieval society in which ringforts were built. The political structure was based on the *tuath* ruled by a king and maintained by clientship, a system of loans and repayments involving grants of stock in return for rents and services (Kelly 1988, 29–33; Bolger 2011). The same sources stress the importance of pastoralism, mostly of cattle, but also sheep and pig farming. There are numerous references to dairying and arable farming, supported by a growing body of archaeological evidence that indicates mixed farming was commonplace, allowing for regional and temporal variations.

The main period of ringfort construction coincides with this general expansion of farming across Ireland between the seventh and ninth centuries. While farming practices varied by region, early text sources (Lucas 1989) and the archaeozoological record (McCormick and Murray 2007) confirm that cattle pastoralism was a central element of agricultural economy in those centuries. This was also a time of increased cereal cultivation, with the introduction of new food crops (oats and rye). It is also marked by important technological innovations, such as the development of iron farming tools, drying kilns and the water-powered mill.

Livestock farming

Early text sources confirm the importance of cattle in the economy of early medieval Ireland (Lucas 1989; Kelly 1988). These animals were at the centre of an economic and legal value system that determined to a large extent the social standing of individuals and families in a rigidly hierarchical society. Law tracts of seventh- and eighth-century date, such as the *Uraicecht Becc* and the *Críth Gablach*, stipulate the number of animals of different species that grades of farmer such as the *boaire* ('cattle lord') and *ocaire* should own (Kelly 1997).

Some researchers have associated the origins of the ringfort with the importance of cattle in early medieval Ireland. The possibility that these enclosures were developed to protect cattle from raids has already been discussed. Another theory highlights the importance of milch cows and dairying (McCormick 1995; 2008). There are numerous references to secondary milk products in the early text sources, with less emphasis on beef or the by-products of butchered cattle (Lucas 1989). This focus on dairying is supported by archaeozoological analysis of age and sex slaughter patterns in cattle bone assemblages from excavated settlements (McCormick 1992). McCormick believes that the development of dairying revolutionized agriculture in Ireland, providing an '...opportunity to increase agricultural productivity with the accompanying increase of agricultural capital, i.e. land, which ultimately gave rise to an increase in population, general agricultural expansion and the development of a new settlement type, the ringfort' (McCormick 1995, 36).

Faunal records from excavated ringforts confirm that animal husbandry was central to the agricultural economy in the seventh and eighth centuries, with an emphasis on cattle across Ireland, followed in importance by pig and then sheep (McCormick and Murray 2007, 2014). Sheep were both eaten and kept for their milk and wool value, while goats and poultry were of lesser importance. Faunal records indicate that textile production using brown sheep wool expanded in many regions during the early medieval period (Kerr 2014, 99). Pigs were an important food animal, particularly on feasting occasions, while horses were mainly used for transport.

This diversification of livestock-rearing from the ninth century onwards was accompanied by a shift towards intensive cereal production. A gradual move away from cattle farming may explain a decline in the use of ringforts in many regions by the tenth century (McCormick, O'Sullivan and Kerr 2014). That coincided with an increase in arable farming, evident in macro-plant records from excavated settlements, and in the large number of grain-drying kilns and water mills from that period. There is much regional diversity in farming practice, with indications that dairying continued to be important into the ninth and tenth centuries as part of a mixed farming economy (Kerr 2014).

A further factor is the growing influence of the Church. By the sixth and seventh centuries church settlements were playing a significant role in the intensification of agriculture across Ireland (Edwards 1990). These monastic sites were important locations for the exchange of agricultural and other goods, providing market centres for a largely dispersed and expanding population. They were centres of progressive farming and played a significant role in the development of new milling technology. The contribution of Hiberno-Norse settlement to the development of agriculture and market economy from the tenth to twelfth centuries must also be considered.

Cereals

Early text sources confirm the importance of cereals as a staple food in early medieval Ireland (Kelly 1997). Cereal grain was also used in brewing, with cereal straw important as animal fodder and bedding, and as a roofing material. While many cultivated plants mentioned in early text sources are not identified in the archaeological or pollen records, the latter do provide a broad understanding of the principal food crops. Macro-plant remains from excavated sites confirm that barley and oats were the main cereals grown in that period, with lesser cultivation of wheat and rye and, to a much lesser extent, flax and legumes. The eighth-century law tract, *Bretha Déin Chécht*, confirms that all four cereals were grown, and also their relative status (Kelly 1997, 219). Wheat and rye are rarer in archaeological contexts possibly because they were high-status food, whereas oats and barley were more for general consumption. A recent review suggests that barley was the dominant crop until the sixth century, after which oats increased in importance (McClatchie 2014, 40). Both cereals were easier to grow in the humid Irish climate, with better yields than wheat from poorer soils.

This expansion of cereal cultivation is also indicated by the large number of cereal-drying kilns discovered through road schemes and other excavations in recent years (Monk and Kelleher 2005). There are different designs, including keyhole, figure-of-eight, dumbbell, L-shaped and irregular types. These date from the third to tenth centuries, with a significant number built during the fifth and sixth centuries (Timpany *et al.* 2011). Some of these may be innovations from the Roman world, as there are comparatively few examples of prehistoric date in Ireland.

The importance of cereal cultivation in this period is also reflected in the development of water-power milling technology. A large number of horizontal and vertical water mills are now known, including many examples from county Cork (Rynne 1998; 2015). The earliest examples date from the third and fourth centuries, increasing in number by the sixth century when they were associated with early church settlements. Dendrochronology demonstrates a significant increase in mill construction in the early ninth century (Brady 2006; McErlean and Crothers 2007), broadly coinciding with a shift to arable farming across many parts of Ireland (McCormick and Murray 2007).

Finally, the intensification of agriculture in early medieval Ireland required managed farmscapes, which were different in several respects to those of the early modern era. Early legal sources such as the eighth-century *Críth Gablach* refer to the *airlise*, an area of land that extended 'the length of a spear cast on every side' from the rath/farmstead (Kelly 1997, 368). The clearance of woodland was accompanied by increasing division of the open landscape to reflect land ownership and the management of animal grazing and tillage. Text sources record various types of field boundaries and comment on the quality of farmland (Ó Corráin 1983; Kelly 1997, 372–8). Contemporary field patterns do not generally survive at ringforts, where farmland has been subjected to continuous modification over the centuries. The best examples of early fields are those associated with cashels in the rocky landscapes of western Ireland. Other examples include the ringfort complex at Cush, Co. Limerick (Ó Ríordáin 1940, fig. 2), and those investigated in the Barrees valley, Co. Cork (O'Brien 2009b, fig. 6.12). Some field boundaries have been excavated at ringfort-type enclosures in the modern era, however a recent review questioned how representative these are of the contemporary farmscape (McCormick, O'Sullivan and Kerr 2014, 4–20). The authors suggest that most ringforts were situated in open landscapes, where any cultivated areas were protected by removable boundaries constructed of brushwood or post-and-wattle.

Early medieval farming at Garranes

In the absence of a local pollen record, information on contemporary agriculture relies on a limited amount of food residues from the excavations at Lisnacaheragh, Lisnamanroe, and Lisheenagreine. This includes rare occurrences of burnt bone and cereal grains, mostly extracted from sediment samples processed after excavation. Preservation was generally poor in these three enclosures due to acidic soil conditions and a high level of disturbance caused by cultivation in the modern era. With no waterlogged contexts, the preservation of seeds, wood and bone depended mostly on exposure to heat as carbonised or burnt remains.

Fragments of burnt and unburnt bone were recovered from a small number of contexts at Lisnacaheragh, Lisnamanroe and Lisheenagreine. In most cases, these cannot be identified to species, but the site contexts indicate animal food waste rather than human remains. Some material is identified to animal genus but is not always well dated nor in sufficient quantities to be representative of site economy. All of the identified bone is from large mammal domesticates (cattle, pig and sheep/goat), probably connected to local farming.

In the case of Lisnacaheragh, the 1937 excavation uncovered a small quantity of bone, which was examined by Arthur Stelfox of the National Museum of Ireland. There is no detail on find location, date or context, nor is the condition of the bone recorded except that it was in small fragments. Most of the identified bone is cattle, with 40 teeth, as well as pieces of a skull, scapula, femur, humerus, pelvis and other fragments. Pig bone is next in order of frequency, with eight teeth and fragments of upper jaw, scapula, toe-bone, ulna and humerus, as well as one boar tusk. Horse is represented by finds of five teeth, part of a lower jaw, pelvis, ulna and radius, while there is a single tooth and two scapula fragments of sheep (Ó Ríordáin 1942, 139–140).

The 1990–2 excavation at Lisnacaheragh uncovered a small quantity of burnt bone, mostly from Trench 4 inside the ringfort entrance (McCutcheon in Cleary 2009, 33, appendix 6). The most significant find was from a hearth deposit that contained a cow tooth and jaw fragments, and other unidentified large and medium mammal bone. Other finds in that trench include a cow molar and a sheep tooth from early medieval contexts. The 2017 excavation of this site recovered tiny fragments of burnt bone from several early medieval contexts. These include the 'black layer' with metallurgical residues, a charcoal deposit, four stakeholes and three posthole fills. Regrettably, none of this bone can be identified to animal genus (see Chapter 3.3).

A small amount of burnt bone was recovered in the 2011–2015 excavations at Lisnamanroe. This consists of tiny fragments recovered by sieving from 39 contexts in the six trenches. The identified bones and teeth are cattle and sheep/goat (see Chapter 4.4). No measurements, ageing or sexing could be undertaken on these bones due to the nature of this assemblage. The only bone found at Lisheenagreine was in the floor sediment of the Period 2 souterrain. A small quantity (12.78g) of highly comminuted burnt bone recovered by sieving of early medieval contexts could not be identified (see Chapter 5.4).

Macro-plant remains connected to farming, mainly cereal grain and weeds of cultivation, have been recovered from the recent excavations of Lisnamanroe and Lisheenagreine. Despite laboratory sieving and flotation of numerous samples from both sites, the incidence of this material is very low. For Lisnamanroe, the most important context is a burnt deposit (C.248) in the lower fill of the northern ditch terminal at the enclosure entrance. This contained charcoal, hazel-nut fragments, burnt bone and a small quantity of cereal seeds. The dominant cereal type is hulled barley (*Hordeum vulgare L.*). Wheat was identified in relatively low frequencies and has been identified to generic level

(*Triticum sp*.) due to the extent of distortion and the absence of diagnostic chaff fragments (see Chapter 4.4). The context is securely dated, with the barley grain radiocarbon dated AD 401–540 (see Chapter 4.4).

For Lisheenagreine, food residues were recovered from the primary layer in the Period 2 souterrain. In addition to the animal bone mentioned above, this included a small amount (4.9g) of carbonised seeds and a few fragments of charred hazel-nut and unidentified charred plant material. The cereal grain mostly comprised cultivated oats, with a small amount of hulled barley and rare occurrence bread/club wheat and rye. The context is securely dated, with a sample of oat grain radiocarbon dated AD 778–980 (see Chapter 5.4).

No agricultural tools were recovered in the recent excavation of these enclosures. A number of whetstones are recorded from Lisnacaheragh, Lisnamanroe and Lisheenagreine, but these are not well dated and may have been for domestic use. The same is true of whetstones from the 1937 excavation at Lisnacaheragh, where fragments of six iron knives were recovered (Ó Ríordáin 1942, fig. 9). No iron farm implements, such as sickles, were recovered, though Ó Ríordáin did find part of a heavily worn lower stone of a rotary quern, 0.54m in diameter, outside the semi-circular 'hut' foundation in the Site D black layer (*ibid.,* plate 23.2; no. 168).

There are no examples of cereal-drying kilns recorded at Garranes. This may reflect the lack of excavation outside the early medieval enclosures. Discoveries elsewhere in Ireland indicate that kilns are rarely found inside ringforts, possibly because of the potential fire hazard (Monk and Kelleher 2005; see Noonan 2013, 234 for excavated example at Ballynacarriga 1 near Youghal). While the possibility of an early mill at Shanawillen Caherkean has been refuted (see Chapter 6.2), it is likely that there were one or more examples close to Garranes in the early medieval period. Rynne has identified as many as 32 early mills in the Cork region, with several examples of seventh- to ninth-century date. They include mills at Little Island in Cork harbour dated AD 630; Ardcloyne near Kinsale dated AD 787; Crushyriree near Glanmire dated c.AD 799; Kilphillibeen near Ballynoe dated AD 827; Cloontycarthy near Macroom dated AD 833, and Keelaraheen near Dunmanway dated c.AD 843 (Rynne 2013, table 6.1, illus. 6.1).

The discovery of cereal and animal remains in excavated settlements at Garranes is not conclusive evidence of local agriculture. These foodstuffs may have been obtained by trade, and also as tribute payments. The system of clientship in early medieval Ireland involved a series of contractual agreements between a lord or king and a number of socially inferior clients. In return for a grant of land and/or livestock, and legal and military protection, the client paid an annual tribute or 'rent' of foodstuffs or other commodities and also provided the lord with hospitality, labour and military service. Another obligation was to help with construction of a rampart protecting his lord's *dún* (Kelly 1988, 30). The social position of the latter was reflected in the number and status of clients held.

This question of supply may be considered with reference to the cereal assemblage from the souterrain at Lisheenagreine. The assemblage is indicative of a crop that has not been fully cleaned, with the grain:chaff ratio indicating it has probably gone through the initial winnowing and threshing stages, and possibly fine sieving to remove smaller weeds and chaff parts. The high incidence of oat chaff at 20% in relation to the frequency of oat grain identified, together with the presence of larger weed seeds, suggests this grain did not go through a coarse sieving process for the purpose of storage as food or fodder. While this requires further research, work by Van Der Veen *et al.* (2013) on Iron Age and early medieval assemblages in Britain interprets the absence of by-products of the harvest (chaff and weeds) as representing crop processing carried out at another location. The evidence from Lisheenagreine souterrain points to locally grown and processed crops (information from Susan Lyons).

8.4 CRAFT SPECIALIZATION AT GARRANES

Excavation has uncovered evidence of craft activities at many early medieval settlements in Ireland (see Comber 2004a, 2008a; O'Sullivan *et al.* 2014a). The average ringfort farmstead was self-sufficient in basic crafts, from wood, bone and leather-working to iron fabrication and the manufacture and repair of work tools. Higher-status ringforts have evidence of specialist craft activity, including bronze, silver and gold production, as well as glass and enamel working, coopering and lathe-turning, and other prized skills. Those skills were accorded different levels of status in early legal texts such as the *Uraicecht Becc*, with blacksmiths (*gobae*) coppersmiths (*umaige*) and silversmiths (*cerd*) being of particular importance (Kelly 1988, 62–3).

Non-ferrous and precious metals (copper/bronze, lead, tin, silver and gold) were mostly used in early medieval Ireland in the manufacture of luxury items. The best known of these are examples of altar plate and relic shrines produced for the Church. They were also used in the production of personal ornaments, such as the hand-pin, the penannular brooch and its zoomorphic variant. Items of a more practical or domestic nature include vessel fittings, tweezers and toilet implements, buttons and studs, sewing needles and writing instruments (Comber 2004a, 8).

A number of specific groups associated with mining and metalworking are recorded in early text sources. The most commonly referenced are the *Cerdr(a)ige*. The term *cerd* may originally have referred to a bronze-worker while the second part of the name, *-raige* or *-rige*, merely refers to a 'local autonomous community' (Ó Córráin 1974a, 66). Ó Córráin identifies at least three distinct groups of *Cerdrige* in the Munster area. One is located in west Cork, the second associated with the *Deisi* of east Limerick, and the third is closely linked with the *Eóganacht*, possibly located near Cashel. While Ó Córráin concluded that '... the bronze workers form a coherent community at a local level' (1974a, 71), the literary evidence can also be interpreted as referring to a professional or family relationship (Comber 2004a).

The 1937 excavation at Lisnacaheragh uncovered evidence of specialist craft-working dating to the fifth and sixth centuries. These finds, together with an apparent absence of residential buildings, led Ó Ríordáin to interpret the settlement at Lisnacaheragh as '...a specialised occupation of craftsmen engaged on metal-working and allied pursuits' (Ó Ríordáin 1942, 141). Relevant here is a reference in the *Life of St Finbarr* that the saint's father, Amargein, was a skilled iron-worker in the service of Tigernach, father of Feidlimid Mac Tigernaig, a legendary king of the Eóganacht Raithlind who was king of Munster in the sixth century (Ryan 1942, 147).

Bronze-working at Garranes

Excavations at Lisnacaheragh ringfort have recovered a significant amount of remains from the production of bronze metalwork. This material was mostly recovered from Ó Ríordáin's Site D on the southern interior side of the ringfort, where a 34m by 7m spread of charcoal-rich sediment ('black layer') was sealed by the collapse of the inner ringfort bank. This 0.15–0.43m thick deposit contained a significant number of crucibles, moulds, waste metal and slag, as well as iron tools used in a workshop location. The possible remains of a hut or shelter were identified in the same area, where a setting of stones formed an irregular arc (Ó Ríordáin 1942, plate XVI).

Approximately 60 items of finished or unfinished bronze metalwork were recovered, all but five of these from Site D (selection in Figure 7.51). Approximately half are fragments of waste metal from bronze workshops in that part of the site. The finished objects notably include a small bronze button with a triskele design in champlevé enamel (Ó Ríordáin 1942, fig. 3, no. 231), an object exhibiting a 'sureness of touch and delicacy of execution [that] could only have come from long practice and tradition' (*ibid.,* 89). Other personal ornaments include an unfinished penannular brooch (*ibid.,* fig. 3, no. 265), the pin of a penannular brooch (*ibid.,* fig. 4, no. 330), a freshly cast bronze pin with circular head (*ibid.,* fig. 3, no. 352), the unfinished head of a pin (*ibid.,* fig. 4, no. 95), a spherical object with fluted decoration, possibly part of a pin or brooch (*ibid.,* fig. 4, no. 351).

A number of small delicate mounts were found, designed for attachment to larger objects of unknow type. They include a strip mount with herringbone design (*ibid.,* fig. 4, no. 349), a strip mount with incised decoration (*ibid.,* fig. 4, no. 341), a small boss mount with projecting curves (*ibid.,* fig. 3, no. 276), a bronze stud with tinned surface (*ibid.,* fig. 3, no. 322), and an unfinished rectangular mount (*ibid.,* fig. 4, no. 178). Other items include a D-shaped object with attached ring, possibly part of a belt or horse-trapping (*ibid.,* fig. 3, no. 167), part of a sewing needle (*ibid.,* fig. 4, no. 206), broken links or rings (*ibid.,* fig. 4, no. 205 and fig. 6, 105), a wire spiral (*ibid.,* fig. 4, no. 176), and part of a circular sheet of bronze, possibly the base of a vessel (*ibid.,* fig. 5, no. 333). One unusual find is a tubular piece of bronze containing a piece of millefiori glass (*ibid.,* fig. 15, no. 336).

Some bronze finds can be connected directly to metal production at this site, including casting and subsequent fabrication processes. The use of raw metal is represented by a bar ingot (*ibid.,* fig. 6, no. 99), as well as moulds used to produce same (see below). Various items of bronze sheet and wire were found, including nine short strips or rods of bronze (*ibid.,* fig. 6, no. 122, 175, 204, 271, 340, 342, 343, 345 and 346). Many formless lumps of bronze were found (e.g. *ibid.,* fig. 4, no. 335), which represent waste from the casting process or else pieces of raw metal that were lost. Almost all of this workshop material was recovered from the 'black layer' in Site D. Ó Ríordáin noted that some of these waste bronze fragments have parts of a clay mould attached. Also relevant is the discovery of a bronze casting jet (*ibid.,* fig. 4, no. 279).

Other finds from the 1937 excavation include two possible fragments of tin, or high tin bronze (*ibid.,* nos 209 and 338), while three of the aforementioned bronze objects appear to be deliberately tinned (*ibid.,* nos 231, 322 and 351). This suggests that some alloying of copper and tin was carried out, though no ingots of tin were discovered. A small ring of lead was also found (*ibid.,* fig. 6, no. 281), but no items of gold or silver.

Additional items of bronze metal were discovered in O'Donnell's excavation of this site in 1990–2 and the 2017 excavation undertaken for this project. The former have not been analysed, but include a 'bronze rod' (find no. 73), 20mm in length and 4mm diameter (McCutcheon in Cleary 2009). Seven small pieces of copper/bronze

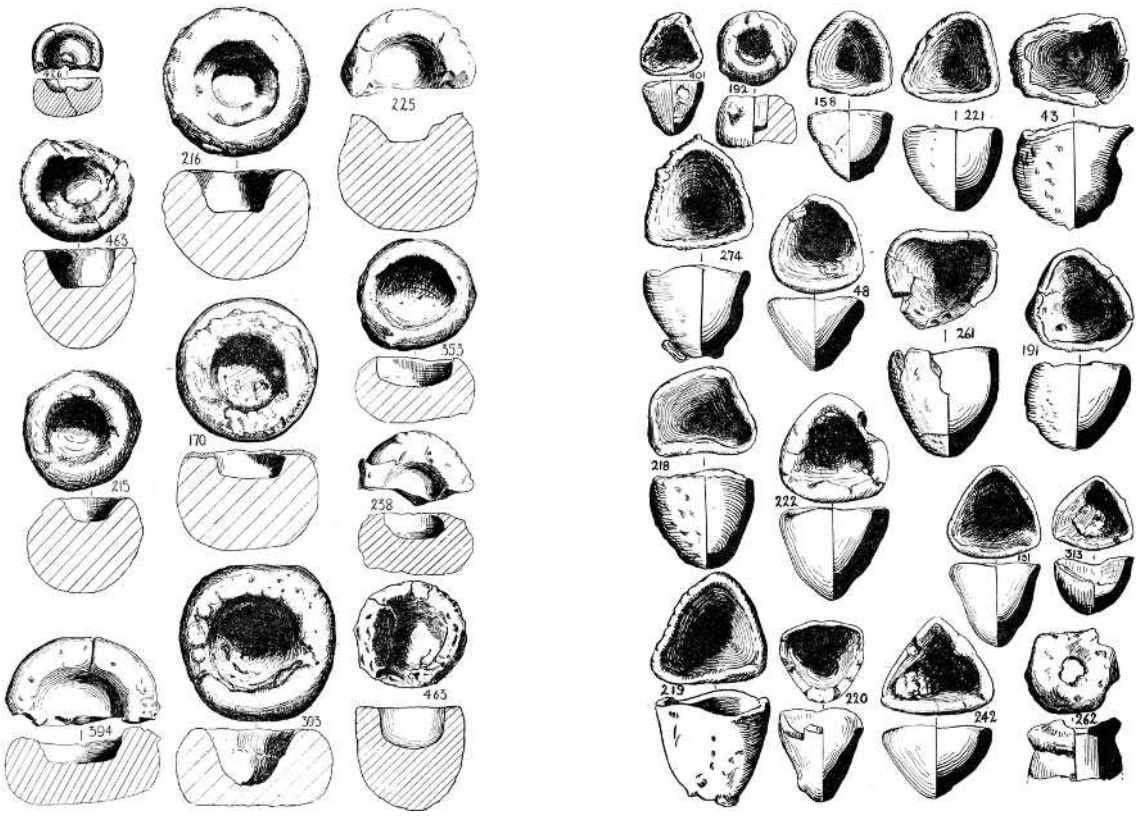


Figure 8.3 *(left)* Semi-spherical and *(right)* triangular clay crucibles from 1937 excavation of Site D, Lisnacaheragh (source: Ó Ríordáin 1942, figs 24–25).

were found in the 2017 trench (described in Chapter 3.3, with scientific analyses in Chapter 7.5). These mostly represent waste metal from bronze casting in the same workshop identified by Ó Ríordáin.

While some items of bronze metalwork may have been obtained by trade, there is strong evidence of bronze casting at Lisnacaheragh. An estimated 39 complete or near-complete clay crucibles, along with 2500 fragments of same, were recovered in the 1937 excavation (Ó Ríordáin 1942, 134–9). All but five complete crucibles and 20 fragments are from Site D, providing the strongest indication that this was a metalworking area. These are of two main types: the pyramidal form with a triangular opening and pointed base, and the semi-spherical or low flat-bottomed form (Figure 8.3). The former have surface traces of intense heating where they were placed over an open fire. Their use for melting metal in small quantities (9–93cc size range) is confirmed by the discovery of copper or bronze residues in some examples. No other metal residues were found, and there are no finds of gold or silver from the site. The semi-spherical crucibles are heavier and larger (20–100cc size range), and apart from one clay example are made of stone. Unlike the pyramidal forms, any heat alteration is confined to the upper part of the vessel, suggesting that they were used with a blowpipe. Ó Ríordáin suggested these crucibles were used in glass and enamel production (see below). One tuyère was found during the 1937 excavation, possibly used as a nozzle for a blowpipe (*ibid.,* 139, fig. 25). Tuyère fragments are recorded from other early medieval settlements, including Garryduff and St Gobnet's, Ballyvourney in Co. Cork, and Cahergal and Reask, Co. Kerry (Comber 2004a, 23).

The 1937 excavation at Lisnacaheragh recovered a number of stone and clay moulds, most again from the 'black layer' in Site D (Figure 8.4; Ó Ríordáin 1942, 107–110, 121–124). These include two parts of a mould used for casting bar ingots (*ibid.,* fig. 10, no. 1), one of which fitted exactly into one of the matrices (*ibid.,* fig. 6, no. 99). Two other ingot moulds were found (*ibid.,* fig. 10, nos 140 and 447), as was a stone mould used to cast light bars of bronze and possibly pins (*ibid.,* fig. 10, no. 460). The most unusual example is a 180mm by 105mm by 66mm stone block with a mirror-shaped depression with a incised cross in the centre (*ibid.,* fig. 10, no. 445; also Figure 8.4 this volume). About 30 clay moulds or fragments of same were found in the 1937 excavation, all but three from the 'black layer' in Site D (Ó Ríordáin 1942, 121–4, fig. 16). Stone moulds were used to make rings, bars, semi-spherical objects, while clay equivalents were mostly used in the casting of personal ornaments such as penannular brooches and ringed pins (Comber 2004a, 33–7).

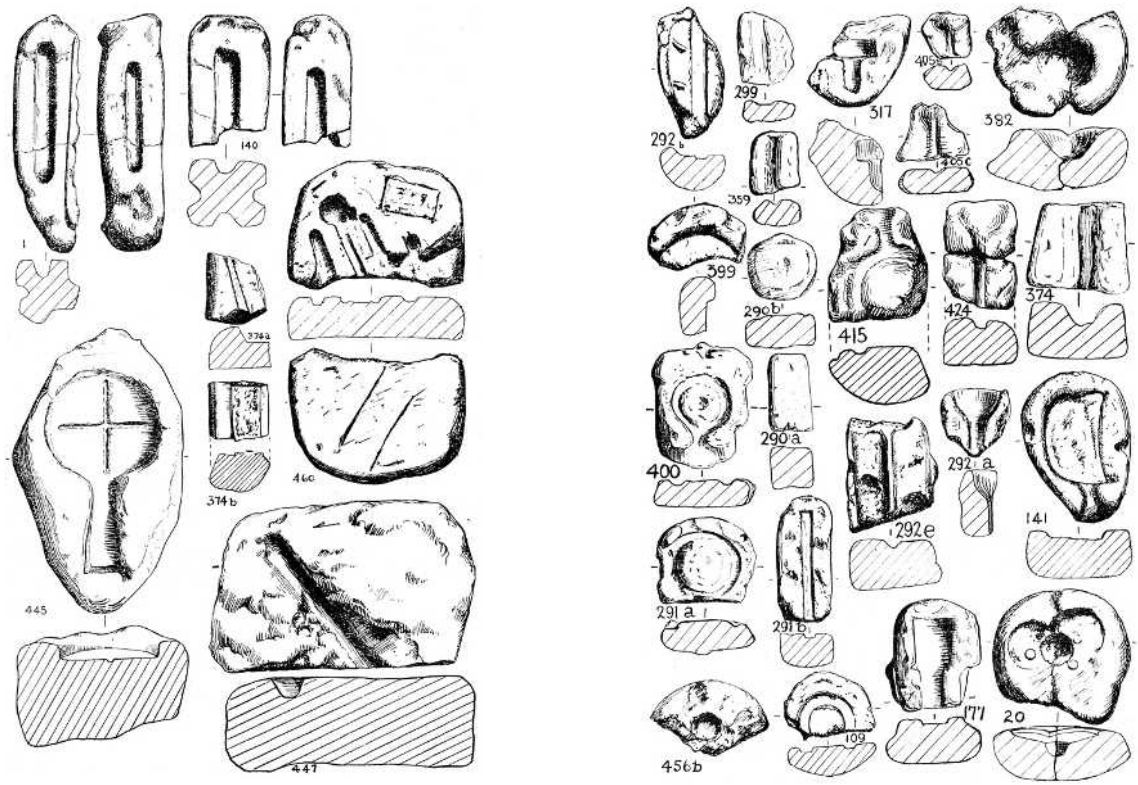


Figure 8.4 *(left)* Stone and *(right)* clay moulds from 1937 excavation of Site D, Lisnacaheragh (source: Ó Ríordáin 1942, figs 10 and 16).

Evidence of bronze casting was also identified in the 1990–2 and 2017 excavations at Lisnacaheragh. The O'Donnell excavation recovered 47 sherds of crucibles, most of which are probably from pyramidal vessels, with two sherds of Ó Ríordáin's 'semi-spherical' type (Comber in Cleary 2009). One of these crucible fragments had a bronze droplet adhering to the surface (*ibid.,*). Thirty-five sherds of ceramic crucible were found in the 2017 excavation at Lisnacaheragh, most from the 'black layer' radiocarbon dated to the fifth century AD (see Chapter 3.3). The discovery of droplets of copper/bronze waste in this layer suggests these crucibles were used in the casting of that metal. Fragments of one or more clay nozzles (tuyères) were also found, along with 50 pieces of metallurgical slag and 20 fragments of what may be vitrified furnace wall. Most of these finds are from the same black layer, where seven pieces of waste bronze were also recovered. No moulds were recovered in the 1990–2 and 2017 excavations, nor were any furnace structures excavated in those trenches. This suggests that the metal workshop(s) was located on the southern inner side of the ringfort, rather than the western side where there was a large roundhouse.

A small number of workshop tools were discovered during the 1937 excavation of Site D at Lisnacaheragh. These include two iron pincers possibly used to hold crucibles of molten bronze (Ó Ríordáin 1942, fig. 7, nos 266 and 232), as well as some bronze and iron awls and punches (*ibid.,* figs 7–9). There are no metal anvils from the site. Scientific examination of metalworking residues from the 2017 excavation at Lisnacaharagh confirms that bronze casting was conducted in this site (see Chapter 7.5 for details of metal alloys)

No crucibles, moulds or other evidence of bronze-working was found at other excavated sites in the Garranes complex. Some items of bronze were recovered at Lisnamanroe (see Chapter 4.4), including a small ring (11E110:243), a length of chain (11E110:370), and a small fragment (11E110:256). Six small lumps of cupreous material were found in cultivated topsoil in this site, identified as oxidixed copper-iron sulphide (possibly chalcopyrite). These cannot be connected to on-site metallurgy, as there no furnaces, refractory materials or other metalowrking finds from Lisnamanroe. The possibilty that these are of natural occurrence in the glacial drift subsoil must be considered. Finally, there are no bronze metalwork finds from either Lisheenagreine or the CO084-085 enclosure.

A Killarney connection?

There is no evidence of primary copper production from smelted ore at Lisnacaheragh. There are no finds of copper minerals, nor any smelting furnaces

or related slag. Copper, tin and bronze was probably supplied to this ringfort in the form of ingots of primary or recycled metal, or else scrap gathered from multiple sources for recycling. This is consistent with other early medieval settlements where evidence of non-ferrous metalworking has been discovered (Comber 2004a). Bronze ingots from this period are generally bar-shaped, averaging 5–10cm in length, which correlates well with contemporary moulds (*ibid.,* 38). The ingots of bronze from Lisnacaheragh are a good example.

While there are references to copper mining in early law tracts (Kelly 1988), the only example known from the early medieval period is Ross Island, Killarney, Co. Kerry. Excavations there in the 1990s uncovered evidence of copper production, based on the smelting of chalcopyrite ore, dating from the mid-seventh to early eighth centuries AD (O'Brien 2004, 406–424). During that period this mine was in the territory of the Eóganacht Locha Léin, who along with the Eóganacht Raithleann represent the western branch of the Eóganachta federation (see Chapter 1). That political connection could explain the supply of Killarney copper to Garranes, except there is no evidence of copper production at Ross Island during the fifth and sixth centuries when Lisnacaheragh was occupied. That possibility cannot be excluded, as there has only been limited investigation of early medieval mining at Ross Island.

The possibility that Ross Island mine was a source of copper in earlier centuries, with possible supply to the Garranes workshops, was examined using lead isotope analysis. This is a scientific method used to establish the geological origin of lead present in ancient metals and other materials. This method of source provenancing attempts to match lead isotope ratios of analysed metal with similar data for metal ore deposits (see Pernicka 2014, 247–250 for summary).

Four samples from recent excavations at Garranes were submitted for lead isotope analysis to the Geochronology and Geochemistry Service, University of the Basque Country, Spain. This was conducted using multi-collector inductively-coupled plasma mass spectrometry (MC-ICP-MS). Three of these samples

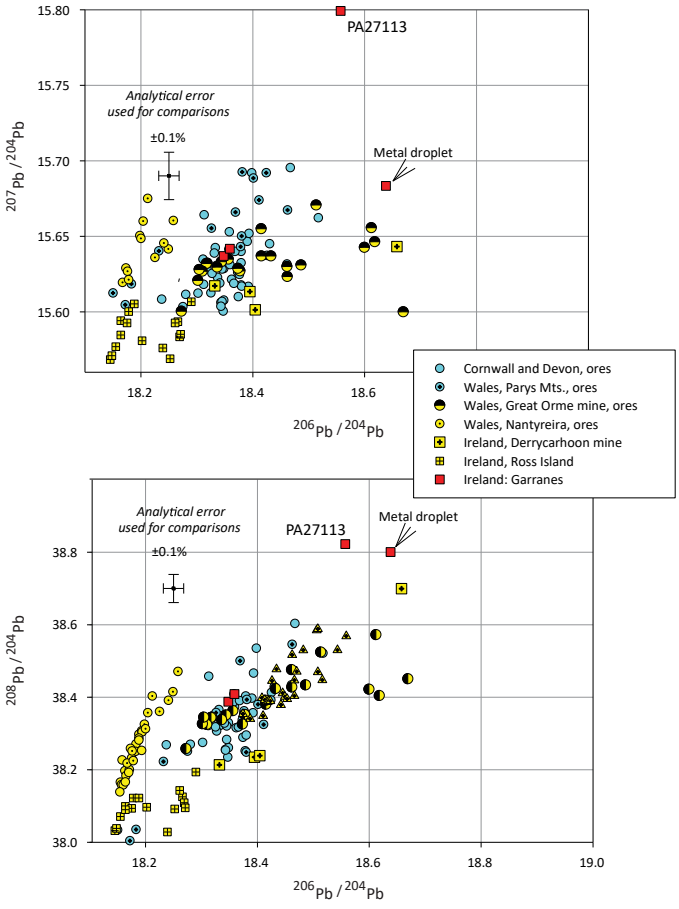


Figure 8.5 Comparison of four lead isotope analyses from Garranes with data from early copper mines in Ireland (Ross Island and Derrycarhoon), and Wales (Great Orme and Parys Mountain), and copper deposits in Cornwall and Devon (source: Zofia Stos Gale).

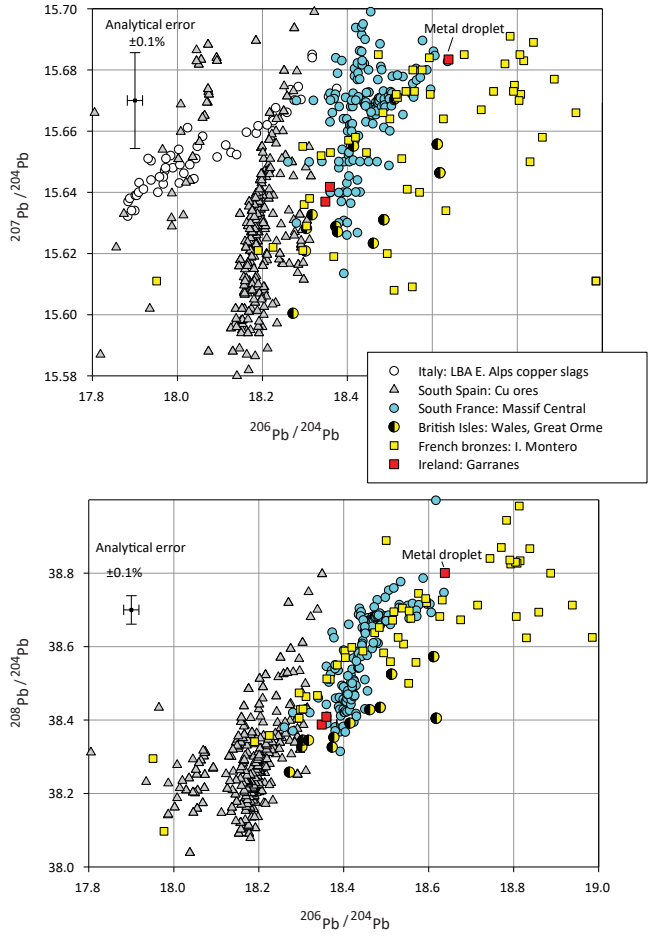


Figure 8.6 Comparison of four lead isotope analyses from Garranes with copper deposits and early metallurgy in Britain, France, Italy and Spain (source: Zofia Stos Gale).

(PA27113, PA27114 and PA27119) are small pieces of copper mineral found separately in cultivation soil in the Lisnamanroe enclosure. They do not have a secure context and cannot be connected to metallurgy in this site. There is a possibility they derive from the natural soil/glacial drift. The fourth sample (PA27120) is for a droplet of high tin-bronze from a secure context dated to the fifth century AD in Lisnacaheragh ringfort. This find is from a bronze casting workshop of fifth/sixth century date in this site.

The results of these lead isotope analyses were sent to Dr Zofia Stos Gale for consideration. Figure 8.5 compares the four Garranes samples to lead isotope data from early copper mines in Ireland (Ross Island and Derrycarhoon), and Wales (Great Orme and Parys Mountain), as well as copper deposits in Cornwall and Devon. Figure 8.6 is a comparison with copper deposits and early metallurgy in Britain, France, Italy and Spain. Two of the three copper minerals from Lisnamanroe have lead isotope ratios consistent with the ores from the Great Orme in Wales Cornwall/Devon (the PA27113 measurement is anomalous). The two Lisnamanroe minerals and the Lisnacaheragh droplet compare favourably with copper deposits from the Massif Central in France, but the possibility of correlation with copper deposits of south-west England cannot be excluded. None of the Garranes samples matches with geologically older copper ores from Ross Island, and so no direct connection can be established with that copper mine (information: Zofia Stos Gale).

Finally, the discovery mentioned above of two possible lumps of tin found in 1937 at Lisnacaheragh may indicate some primary alloying of bronze there. This needs to be confirmed as there are no finds of tin ingots or cassiterite from the site. If raw tin was used at Garranes, the most likely source would have been Cornwall, connected to merchant trade in the Irish Sea during the fifth and sixth centuries. Large quantities of LRA and E-ware pottery are known from Cornish and Irish sites such as Tintagel and Gwithian, with similar pottery from sites such as Garranes, Garryduff and Ballycatteen in Cork (see Doyle, Chapter 7.4).

Iron-working at Garranes

The excavations at Lisnacaheragh confirm that iron was an important material in the early medieval occupation of that site. A significant number of iron objects were found in the 1937 excavation, with some items also from later investigations at the site (Figure 8.7). The former include the two iron pincers from the Site D metalworking area, as well as a shears (*ibid.,* fig. 8, no. 188), three awls, one of which had an antler handle (*ibid.,* fig. 9, no. 84), a dozen short nails, fragments of at least six knives, and various small fittings (*ibid.,* figs 79). A small number of nails and some unidentified objects were found in the 19902 excavation (McCutcheon in Cleary 2009). Finally, two iron objects, one of which is a nail, were recovered in the 2017 excavation at Lisnacaheragh, both from the 'black layer' and radiocarbon dated to the fifth century AD.

Iron objects were recovered in the excavation of the Lisnamanroe enclosure. The majority are from cultivated topsoil and likely to be early modern in date. The only early finds are some nail fragments from the lower ditch fill on the western side of the enclosure. The only early iron finds from Lisheenagreine are two

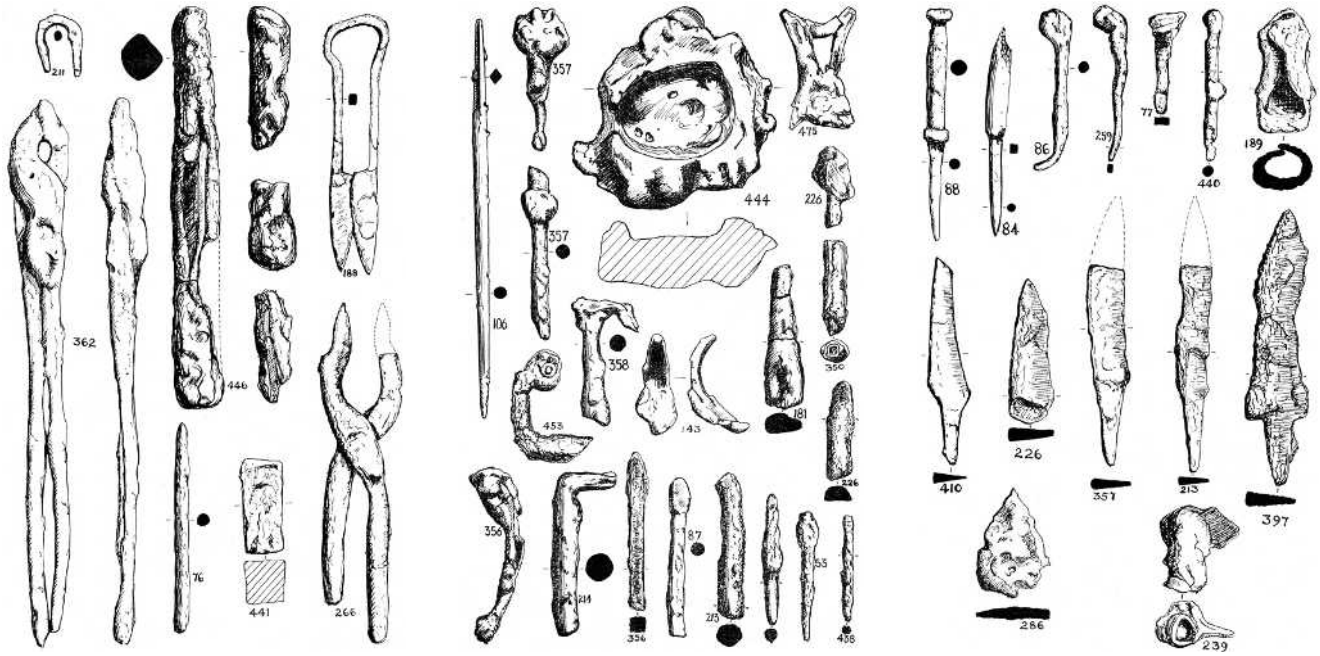


Figure 8.7 Selection of iron implements from 1937 excavation of Site D, Lisnacaheragh (source: Ó Ríordáin 1942, figs 7–9).

small nails found in the souterrain floor deposit, while there are none from the CO084-085 ringfort.

While the finds from Lisnacaheragh testify to extensive use (and probably repair) of iron equipment in that settlement, the evidence for primary production is more equivocal. No smelting furnaces or smithing hearths are recorded from any of the Garranes ringforts. That said, a significant quantity of iron slag was found in Ó Ríordáin's excavation at Lisnacaheragh. Most of this material does not have a secure context, nor has it been subject to scientific analysis to identify the processes involved. The discovery of two 'furnace bottoms' (*ibid.,* 107, fig. 8) may indicate iron smelting, but these finds are not dated.

Iron slag was also found in the 1990–2 and 2017 excavations at Lisnacaheragh. A small quantity of slag found in O'Donnell's excavation has not been analysed. Fifty pieces of slag were recovered in the 2017 trench at Lisnacaheragh, most from the aforementioned 'black layer'. Analysis of eight of these revealed two (PA27131/17E0164-44 and PA27130/17E0164-49) that are clearly related to iron metallurgy, and are probably forge slags (see Chapter 7.5). This, together with the large number of iron objects and slags from the 1937 excavation (Ó Ríordáin 1942, 102–7), confirms that ironworking was conducted at Lisnacaheragh, probably in close proximity to the bronze and glass workshops. Finally, there only two fragments of possible iron slag from Lisnamanroe, neither of which is dated, with no examples from either Lisheenagreine or the CO084-085 enclosure.

Glass and enamel

Glass beads of various types are recorded from Lisnacaheragh, Lisnamanroe and Lisheenagreine enclosures. Ten complete or broken beads were found in 1937 at Lisnacaheragh (Figure 8.8; Ó Ríordáin 1942, 116–8), with three examples from the 1990–2 excavation (McCutcheon in Cleary 2009, 56). There is no evidence these beads were manufactured on site, with stylistic parallels suggesting that at least some were imports. This is possibly the case for two amber beads found in the 1937 excavation, where seven sherds from imported glass vessels were also recovered (Ó Ríordáin 1942, 120).

There is also evidence of glass production at Lisnacaheragh, in the form of three lengths of multi-coloured millefiori glass (Figure 8.8; Ó Ríordáin 1942, nos 267, 268 and 336). One of these was held in a bronze tube, from which pieces of this patterned glass were cut off. Three rods of plain glass were also found (*ibid.,* fig. 14, nos 269, 347a and 347b), and like the millefiori was from the Site D excavation area. There is no evidence the millefiori was manufactured in this site, but was certainly used there to make ornaments and other composite objects. The presence of a specialised workshop at Site D is emphasized by the recovery of

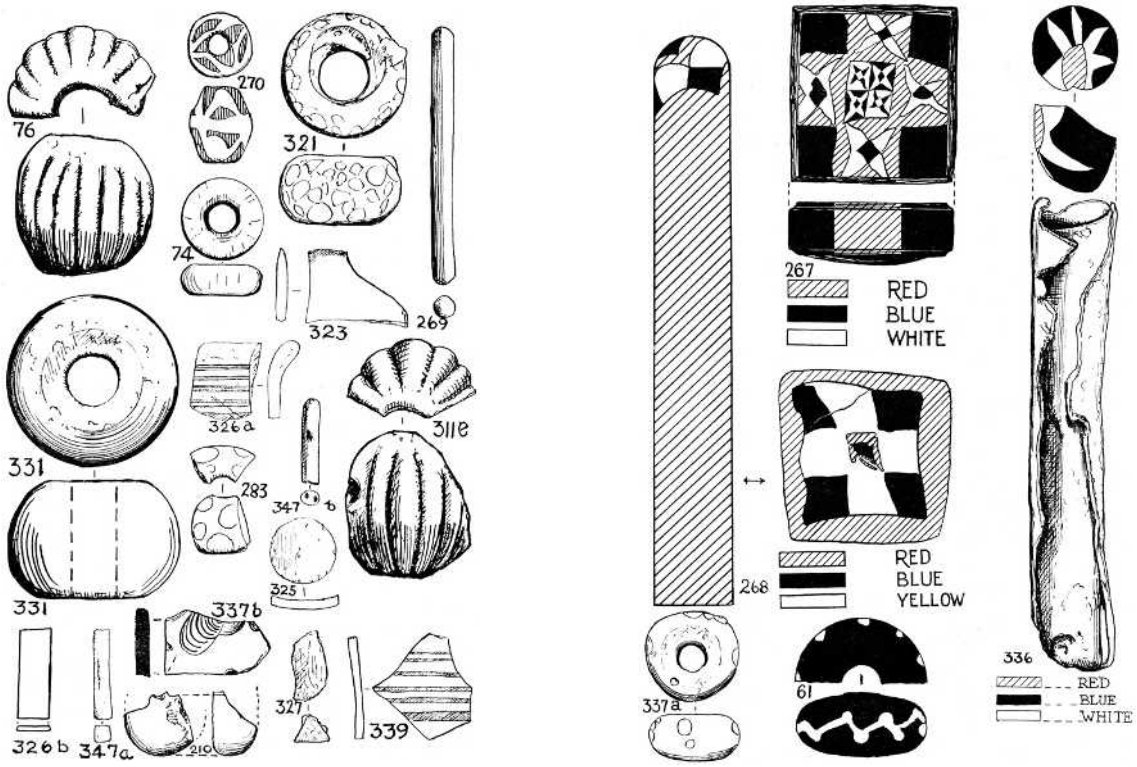


Figure 8.8 *(left)* Selection of glass objects from 1937 excavation of Site D, Lisnacaheragh (source: Ó Ríordáin 1942, figs 14–15). *(right)* Millefiori glass with bronze tube holder. (source: *ibid.*, figs 10 and 16).

fragments of red and greenish yellow enamel, '...all without definite shape and were such as might have broken off larger pieces, or such as, having been molten, cooled into a formless shape' (*ibid.,* 121). This included two fragments of enamel 'fused to clay of crucible' (*ibid.*). A recent study of the 1937 crucible finds from Lisnacaheragh revealed enamel was molten in six of 95 analysed examples (see Chapter 7.5).

Glass was also found at nearby Lisnamanroe, comprising four beads and five sherds of imported Late Roman glass (see Chapter 4.4, Figures 4.74–4.79). A single glass bead was found at Lisheenagreine souterrain (Figure 5.37), possibly a residual find in the floor sediment. There is no evidence that glass beads were manufactured in either enclosure.

Other crafts

As discussed above, many ringforts were self-sufficient in crafts connected to household and farming economy. This includes textile production, with evidence of spinning and weaving from Lisnacaheragh, Lisnamanroe and Lisheenagreine. At Lisnacaheragh, three stone spindle whorls (Ó Ríordáin 1942*,* fig. 13, nos 328, 332 and 407) and two stone loom weights (*ibid.,* fig. 13, nos 9 and 348), were recovered in the 1937 excavation, with one example of the former in the 1990–2 excavations (McCutcheon in Cleary 2009, 84). Spindle whorls were also found at Lisnamanroe (six examples; Figure 4.80) and Lisheenagreine (one example), making it likely that textiles were produced in those settlements.

There is also evidence of basic stone working. The discovery of stone discs and part-perforated discs (Ó Ríordáin 1942, fig. 13, nos 48 and 407) at Lisnacaheragh, as well as four unperforated discs at Lisnamanroe (see Chapter 4.4; Figure 4.81) and one from Lisheenagreine (see Chapter 5.4), indicates the production of spindle whorls. There is also some minor use of flint at both sites, possibly as strike-a-lights (*ibid*., fig. 13, nos 404, 412 and 482). Whetstones are recorded from both Lisnacaheragh and Lisnamanroe, and though difficult to date are likely to have been used with bladed tools, such as the iron knives found in the former (*ibid.,* figs 9 and 12).

While there is no direct evidence in the form of preserved wood remains or carpentry tools, wood-working expertise can be inferred from the construction of large roundhouses at Lisnacaheragh and Lisnamanroe, and the entrance gates in the former site. Soil conditions in both sites do not favour preservation of bone and antler. The discovery of an iron awl with an antler handle at Lisnacaheragh (*ibid.*, fig. 9, no. 84) provides some evidence, assuming that particular tool was not manufactured elsewhere. Not all crafts were practised, however, as there is no evidence at Garranes of locally manufactured pottery despite the popularity there of imported Roman ceramics (see Chapter 7.4). This is consistent with the aceramic domestic economy of early medieval settlements in southern Ireland.

In conclusion, different scales of metalworking activity recorded in excavated ringforts reflect differences in the political and economic status of those settlements (Comber 2004a, table 64). Basic iron-working is recorded at many ringforts, where an ability to make and repair work tools was essential. The same farmsteads could obtain personal ornaments such as bronze pins by trade. Where evidence of bronze-working and other specialist crafts is identified, the importance of those workshops can be difficult to evaluate with limited excavation. Where extensive investigation has been undertaken, as at Garranes and Garryduff in Co. Cork, and Carraig Aille, Co. Limerick, there are indications of craft specialization in workshops with considerable output of valuable objects. This evidence connects a hierarchy of settlement to differences in the scale and type of metalworking in ringforts of different social standing.

In terms of the organization of this activity, O'Sullivan and Nicholl observed these were '...specialist crafts carried out by skilled craftsmen who would not have been permanent residents but would have moved episodically around the *tuath* working for patrons who supplied them with raw materials, food and protection in return for the prestige goods they produced' (2010, 82). It is difficult to find archaeological evidence of itinerant smiths, while text sources are also unclear as to their status. The type of metalworking at Lisnacaheragh suggests a resident metalworker working under the patronage of a king or noble in a high-status settlement. Whether these specialists were permanently attached to a single patron or site is unclear. Those ringforts with smaller workshops may have availed of itinerant smiths, whose social standing afforded them a freedom of movement that made it possible to obtain raw materials and possibly trade in finished metalwork.

Ó Ríordáin initially interpreted Lisnacaheragh as a specialised community of craftsmen engaged in bronze working and related crafts, '...who had trade relations and interchange of artistic motives with Gaul and Britain.' (*ibid.,* 143). He subsequently amended that interpretation, accepting that the Garranes metalworkers may '...have been attached to the local Eoganacht kings...and therefore placed by them in their "capital" stronghold in the security and eminences of its defences and prestige' (Ó Ríordáin and Hartnett 1943, 42, fn. 61). The possibility of specialised craftworkers working under royal patronage at Lisnacaharagh

is consistent with the consumption there of luxury imported goods, notably the imported pottery. While metalworkers were held in high regard in early medieval Ireland, they were not of such standing as to allow them control over such an important site (Comber 1998, 13).

8.5 LISNACAHERAGH AND LISNAMANROE

While most ringforts are sited individually, the clustering of two or more examples in close proximity is not uncommon. Excavation can provide detail on the functional relationship of adjacent enclosures, as residential sites or places of specialist craftworking. In other instances, this was connected to farming practice, where one of the enclosures was used for animals or where several ringforts were part of an integrated farmscape, as at Cush, Co. Limerick (Ó Ríordáin 1940).

Excavated ringfort clusters in the Cork area include the sites of Garryduff 1 and 2 north of Midleton (O'Kelly 1962), Lisleagh 1 and 2 near Mitchelstown (Monk 1995), and three examples at Lisduggan North near Kanturk (Twohig 1990). In the latter case, it was proposed that a farming community lived in one of the ringforts, with the other two ringforts used as livestock enclosures. A similar model was suggested to explain the absence of occupation evidence at Garryduff 2, whereas evidence was found for contemporary residential occupation of the two ringforts at Lisleagh. Monk (1998, 37) highlighted this in relation to Mallory and MacNeill's (1991, 204) suggestion that clusters of ringforts are more likely to represent a sequence of abandoned sites rather that contemporary occupation.

Understanding the significance of these clusters therefore requires detail on their relative chronology, with examples of both contemporary and consecutive occupation known (see Ó Droma 2008 discussion of multiple enclosure sites at Twomileborris, Co. Tipperary and Newtown, Co. Limerick). This may be considered in regard to Lisnacaheragh and Lisnamanroe at Garranes, starting with the chronological relationship of these two impressive enclosures. Radiocarbon dating confirms contemporaneous occupation in the fifth and sixth centuries (AD 390–530), with no indication that one site replaced the other. Both settlements seem to have been abandoned around the same time (probably the late sixth century). While there is considerable information on each enclosure, their landscape context is not well understood in terms of how they related to other enclosures, field patterns and trackways as part of a local farmscape. Also unclear is the extent to which there was extra-mural settlement in the vicinity of what was once called 'an ancient tribal city' (Lyons 1893, 146).

The designation of these two large enclosures as 'ringforts' raises the question of their military significance as fortifications. Their siting on a low ridge does not present a natural defence, apart from the fact neither enclosure is overlooked and they have a wide visibility of the landscape. Both settlements were enclosed, but not fortified in a military sense nor physically connected in a defensive arrangement. The closely-set multivallation at Lisnacaheragh is not particularly suited to passive defence. As mentioned above, the elaboration of the enclosing elements is best considered in terms of the political and social standing of the settlement in relation to other ringforts in the landscape. In the case of Lisnamanroe, the low enclosing bank and ditch, with stake fence, did not constitute a significant defensive barrier. Instead of substantial fortification, the military significance of these enclosures was more connected to the active force of warriors that could be mustered there for defensive and offensive action.

It is unlikely these two contemporary settlements represent an extension of residential space caused by population overflow. The use of a large area in the interior of Lisnacaheragh for craftworking suggests there was adequate space for dwelling houses inside that enclosure. Given the evidence for built structures in its interior, Lisnamanroe was certainly not an animal stockade, as was proposed for Garryduff 2 (O'Kelly 1962). There are important differences in site activities, with evidence of high-skill industrial process at Lisnacaheragh, whereas the only craft identified at Lisnamanroe is textile production. That said, Lisnacaheragh cannot be interpreted exclusively as a craftworking centre, as there is significant evidence of residence there.

Given their size and material culture, the significance of these two enclosures at Garranes must lie in the social and political sphere. One early interpretation of Garranes is that Lisnacaheragh, also known as *Ráth Chein*, was the royal seat of Cían mac Maolmuadh, a ruler of the Eóganacht Raithleann in the early eleventh century, with the adjacent Lisnamanroe enclosure (*Lios na Bainriogna*; 'queen's fort') being the residence of his wife Sadb. That political marriage arose out of the death of Cían's father in AD 978 at the hands of Sadb's father, Brian Bóruma (see Chapter 1.2). While this would explain the proximity and different design of the two enclosures (and accommodate a possibly strained marital relationship), it is not supported by the archaeological evidence. Both enclosures were built and occupied at least four centuries prior to the historical events in question, and there is no excavation evidence that either was re-occupied during the life-time of Cían mac Maolmuadh.

While their historical associations are unknown, the relationship of the two enclosures is probably best understood in social terms. The structure of society in early medieval Ireland was examined in Chapter 1 in relation to kinship, social class, economic power and political hierarchy. Early law texts record the different grades of privileged (*nemed*) and non-privileged, free (*sóer*) and unfree (*dóer*) classes (Kelly 1988). This was a hierarchical society based on military power, economic wealth and clientship, with different grades of king, nobles, freeman, serfs and slaves. That finds expression in an apparent hierarchy of settlement in the landscape, most visible in the size and design of individual ringforts and how they related to each other in *tuath* territories. Kelly observed that 'the most significant difference between the house of the lord and that of the commoner is the presence of defensive earthworks, the digging of which is listed among the duties owed by a client to his king' (1997, 363; also Stout 1997, 113). While early texts suggest the ownership of defensive earthworks was confined to those of noble status, the sheer number of ringforts on an island where the number of *tuath* is estimated at 150 (Kelly 1988) make this unlikely. Stout suggests that larger ringforts can be associated with different grades of nobility, with multivallate examples at the higher end of the social ladder, while small univallate ringforts were the residential sites of the free non-noble classes of *boaire* (strong farmer) and *ocaire* (small farmer), and were used by them to protect cattle provided by the king through clientship (Stout 1997, 123–6, figs 31 and 33). While early legal texts do not directly correlate status with the number of enclosing elements, excavations such as Lisnacaheragh confirm that multivallate ringforts were of higher status than univallate counterparts.

The relationship of Lisnacaheragh and Lisnamanroe is examined further in Chapter 10, as part of an understanding of what constituted an early medieval 'royal site' at Garranes.

8.6 SOUTERRAINS AND OGAM STONES AT GARRANES

Souterrains (Old Irish: *uam*), as the French translation indicates, are self-contained underground structures, consisting of one or more small chambers connected by narrow tunnels, generally accessed at ground level by a single concealed opening. An estimated 3500 examples are recorded in Ireland, 95% of which were built with drystone walling and large roofing slabs in construction trenches (Clinton 2001, fig. 10). The remainder were tunnelled in soil or rock, with the former using construction shafts that were later backfilled. Some examples incorporate all three methods of construction, and occasionally timber structures. The largest concentration of earth-cut souterrains occurs in the mid- and west-Cork region (*ibid.*, fig. 12), with many examples in the general vicinity of Garranes (Figure 8.9; see McCarthy 1983 and Power *et al.* 1992 *et seq.* for details of Cork souterrains).

There has been much uncertainty around the dating of souterrains, but there is now general agreement that this tradition spanned the eighth to twelfth centuries (Clinton 2001, 65–95). That is consistent with new radiocarbon dates from two souterrains in Garranes townland (see Chapters 5 and 6), which were probably built in the eighth or ninth centuries. The absence of souterrains at both Lisnacaheragh and Lisnamanroe reflects their earlier date, as there are few dated examples prior to the seventh century (*ibid.*). The earliest souterrains are often associated with ringforts and early church sites, and by the tenth century increasingly with unenclosed settlement (Clinton 2001). Souterrains also occur as secondary features on early medieval enclosures (O'Sullivan *et al.* 2014a, 107–9). There are a number of examples where these tunnels were dug through the infilled ditches of earlier enclosures, including Faughart Lower, Co. Louth (Buckley and McConway 2010), and Treanbaun, Co. Galway (Lehane *et al.* 2010). This is also recorded at Lisheengreine, Garranes, as part of the Period 2 ringfort settlement at that site.

The purpose of souterrains and their use-history has been controversial. Early ideas on underground dwelling were replaced by debate around their use as places of storage or refuge (see Clinton 2001, for history of research). Both functions were feasible in different contexts, with souterrains used as cold stores for food, as hiding places for valuables and for short-term protection of family. The absence of valuables in excavated souterrains does not preclude their use as stores. The refuge theory is supported by the deliberate concealment of the entrance, and by an often complex design that impeded underground movement (Warner 1979; 1980). While not designed for long-stay refuge, these safe spaces were ideal for protection of family and valuables in the type of hit-and-run raiding that was so prevalent in the early medieval period (see above). In that sense, they served a dual purpose, '...built with refuge in mind but on a day-to-day basis functioned as convenient cold storage places' (Clinton 2001, 64). This is consistent with the discovery of charcoal and food residue inside the Lisheenagreine souterrain, and with charcoal in the chamber of a newly discovered site 600m to the south (discussed in Chapters 5 and 6).

There are records of six or seven souterrains in Garranes townland. These include the excavated example at Lisheengreine (discussed in Chapter 5); a new site to the immediate south where there may be a second example (see Chapter 6); local information of a possible

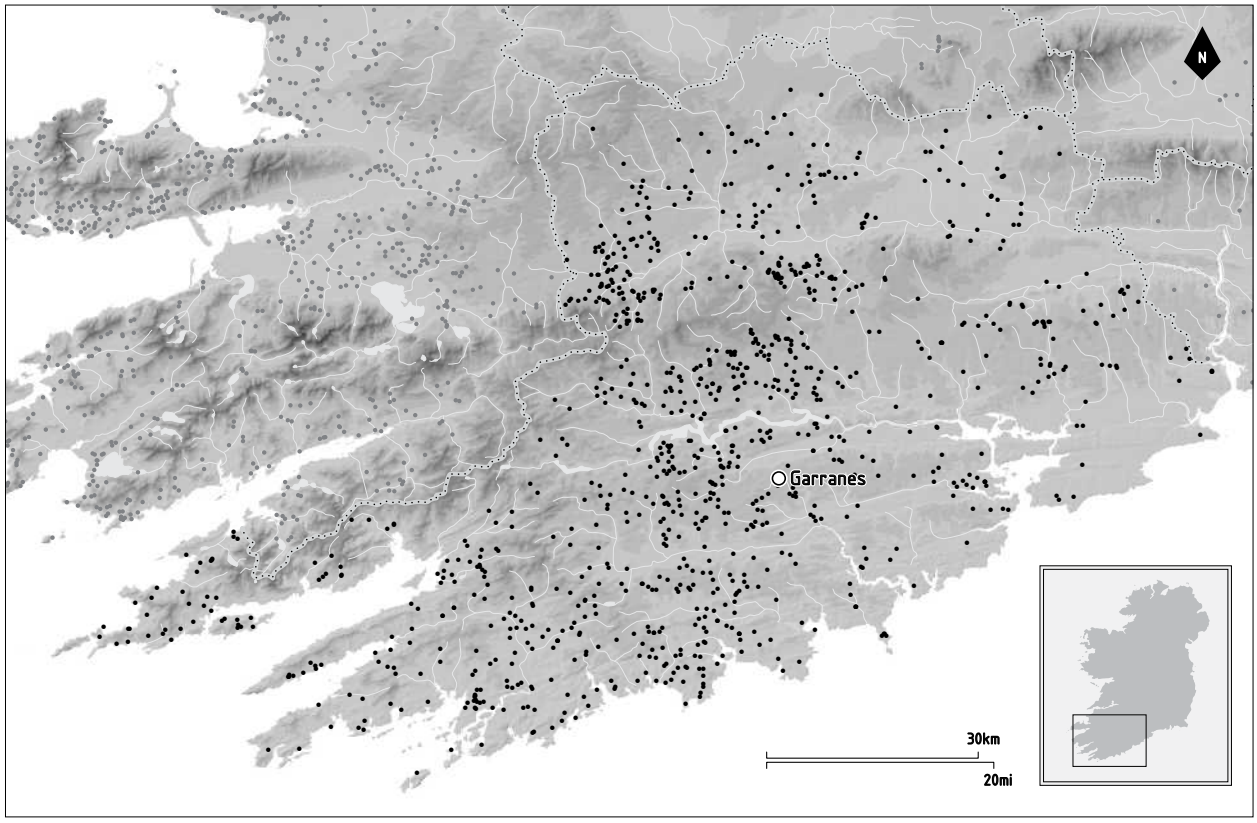


Figure 8.9 Distribution of souterrains in Co. Cork
(source: National Monuments Service, Sites and Monuments Record; accessed 01/02/2020)

'tunnel' adjacent to St Martin's Church (CO096-008); an Ordnance Survey record of a souterrain in the CO084-085 ringfort (see Chapter 6); a discovery (CO084-087) in 1980 to the east of Garranes House, and a record of a 'cave' (CO084-147) in a field adjacent to Lisnacaheragh ringfort. There are likely to be many more examples in the Garranes area given the circumstances of how these tunnel systems are exposed in modern farming, and nearly always closed immediately afterwards. While details are lacking, it is likely that most of the Garranes souterrains are of the earth-cut burrow type, though, as the Lisheenagreine example demonstrates, stone was also used in their construction.

Ogam

This is the earliest writing known in Ireland, representing a unique alphabet based on distinct sounds of an early form of the Irish language. The alphabet is comprised of four groups of five characters, made up of between one and five lines or scores on a stem-line that is generally vertical on stone or horizontal in manuscript form. The majority of inscriptions in stone record the name of an important person with or without their father's name and occasionally that of their sept or tribe. There are 365 recorded ogam stones in Ireland, with the main distribution (70%) in the southern counties of Kerry, Cork and Waterford (Figure 8.10). The majority are associated with early church sites and souterrains, with a variety of other primary and secondary contexts (Moore 1998). Ogam stones are also found in those parts of western Britain, including Cornwall, south-west Wales and Scotland, where there was Irish settlement in the later Roman period.

McManus (1991, 97) has proposed a date range for ogam stones spanning the late fourth to sixth centuries AD. This is the period of 'orthodox ogam', used for memorial inscriptions on large stone slabs. Absolute dating is difficult as most of the individuals and groups recorded in those inscriptions are generally not known in the historical record. Studies suggest that this tradition was abandoned by the early seventh century, with the script surviving in manuscript form as 'scholastic ogam' into the later medieval period.

The origins of ogam remained uncertain. The alphabet was designed for an early form of the Irish language, possibly in the fourth century (McManus 1991, 1). Thomas (1998, 15) and others believe the ogam-memorial tradition began in south-west Munster. Moore suggests that ogam may have originated in the mid-Cork region, where inscriptions on large standing stones of possible prehistoric date 'may represent a

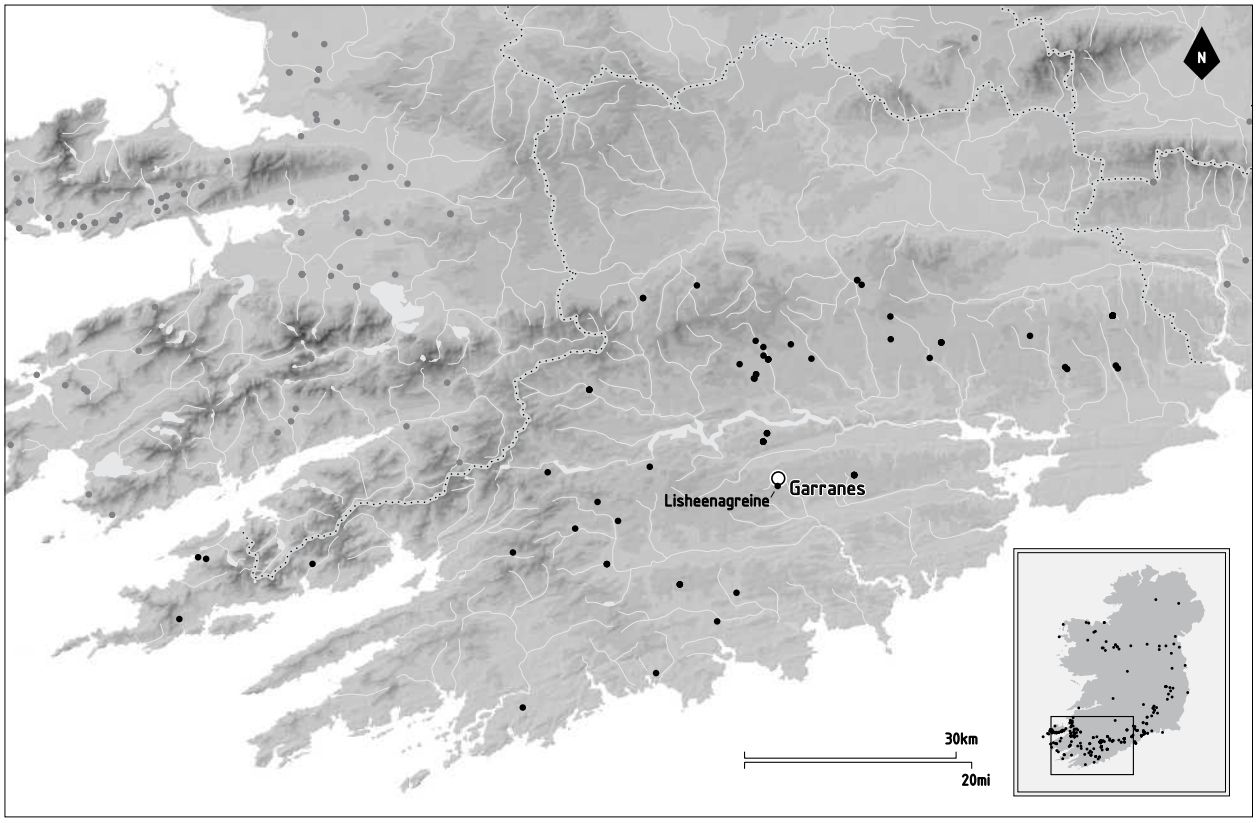


Figure 8.10 Distribution of ogam stones.
(source: National Monuments Service, Sites and Monuments Record; Historic Environment Division, Northern Ireland Sites and Monuments Record; accessed 01/02/2020)

local response to fashions apparent in the Roman world in the late fourth and early fifth centuries' (1998, 32).

The language of ogam is invariably Irish, as are the names of most individuals and tribal groups memoralized in the inscriptions (MacNeill 1909; Macalister 1945; Harvey 1987; Stevenson 1989; McManus 1991). Ogam had a developed alphabet and orthography when it was first applied to memorial stones in the fifth century. This suggests that it was already in use in wood and other media during the fourth century, if not earlier (McManus 1991, 31; see also Carney 1975). There are numerous references to ogam in early Irish sagas, including the Táin, written with literary embellishment in later periods. While those legends may preserve some memory of the original use of ogam, they are not a reliable source for understandings its Late Iron Age origins (MacManus 1991, 166).

Instead, the structure of ogam reflects prolonged contact between Ireland and the late Roman world. The cultural influence of the Empire (*romanitas*) on outside peoples included the adoption of literacy based on Latin and the spread of Christianity. The structure of ogam suggest an Irish learned class was familiar with spoken and written Latin, a literacy that derived from regular contacts with Roman Britain, possibly as early as the third century AD, when ogam developed as a parallel to Roman writing (Thomas 1998, 10). Those maritime contacts were of a commercial and political nature, the type that informed Ptolemy's knowledge of Ireland as represented in his map of the mid-second century AD.

How that transfer of literacy occurred during or before the fourth century remains contentious. This may be connected to Irish settlement in western Britain in that period, to groups from Britain or Gaul settling in Ireland, or to Christian missionaries. Irish colonies in Wales during the fourth century provide an obvious contact with Roman literacy, as indicated by use of ogam stones with Latin inscriptions in this areas (Jackson 1953; McManus 1991, 48). This includes the raiding activity and later settlements of the *Déisi* and the *Uí Liatháin* of east Munster (Richards 1960).

Early research on ogam emphasized this was a pagan script that was eventually abandoned with conversion in the fifth century (Macalister 1945). This interpretation is no longer accepted, as there is strong contextual and epigraphic evidence of a close connection between ogam and the earliest horizon of Christianity in Ireland (Hamlin 1982; Swift 1997;

Thomas 1998). While its origins lie in a pagan past, '...the inspiration for ogam probably came from Latin itself, and the cult of inscribing ogam memorials flourished during the early Christian era' (McManus 1991, 60). The mission of bishop Palladius to southern Ireland in AD 431 suggests that there was already a sizeable number of *credentes* there by the early fifth century (De Paor 1993, 35). Who these first Christians were is not entirely clear. It cannot be assumed that they were all ethnic Irish, as there is evidence of groups from Britain settling here for economic or political reasons (Thomas 1998, 12). With rapid conversion, the extent of Christian settlement expanded across Munster during the fifth century, with an accompanying spread of Latinate literacy. Thomas (1998, 15) argues that the idea of memorial stones inscribed with the name and filiation of the deceased was ultimately derived from pagan Roman traditions. The use of ogam in this way continued through the conversion period, with crosses and inscriptions commemorating early Christians in different contexts, before being replaced by the cross slab tradition with Latin inscriptions from the seventh century onwards.

The personal inscriptions on ogam stones reveals their commemorative nature, expressing kindred and tribal affiliation, consistent with their use as grave memorials. The inscriptions are short, usually male personal names written in relation to immediate or remote ancestors. It has been suggested that these stones were used to mark burial grounds and, in some instances, church foundations (Moore 1998, 25). Their use as grave-markers has not been confirmed by excavation, partly because so many ogam stones today are in secondary contexts.

Another feature of ogam stones is their frequent occurrence on prominent landmarks, which suggests their significance as boundary and territorial markers (*ibid.*,). The early law tracts confirm that ogam had a legal function in respect of ancestral claims to the title of land (McManus 1991, 163). Their use as grave markers would be significant in terms of land tenure and inheritance rights within kin groups. The legal tracts also make reference to the use of ogam stones to mark land boundaries and the grave-mound (*fert*) of the landowner. With their commemorative inscriptions, ogam stones may have served an important role in the validation of those hereditary rights (Kelly 1997, 409).

Ogam stones and souterrains

Ogam stones are commonly found as structural elements in underground tunnel systems called souterrains, often within or close to ringforts, but also at church sites and other contexts. Ogam stones are recorded from 18 souterrains in Cork, 18 in Kerry, three in Waterford and one each in counties Antrim, Derry, Louth, Meath and Roscommon (Clinton 2001, appendix 1). Examples from Cork include 15 stones found in a souterrain at Ballyknock near Dungourney, which dates from the early fifth to late sixth centuries. Examples from mid Cork include six ogam stones in a souterrain at Ballyhank, north-east of Crossbarry and 10.5km east of Garranes. A similar number were found in a souterrain at Knockshanawee near Farnanes, 5km north of Garranes. Four ogam stones are recorded from a souterrain at Monataggart near Donoughmore. Many of these stones are housed today in University College Cork (details in McManus 2004). These souterrain stones may have been moved from their original locations, possibly ancestral burial grounds, during the eighth and ninth centuries.

A single ogam stone is recorded from the Garranes landscape. This stone from Lisheenagreine was found *c.*1851 in a souterrain during field clearance (see Chapter 2.2). Recent excavation confirms two phases of activity at the site, both of which involved the use of the ogam. This began with the open-air display of the stone in a circular ditched enclosure of probable fifth/sixth century date. That enclosure was re-built as a small univallate ringfort in the eighth or ninth century, when the stone was buried in a souterrain built at that time.

The dating of the Lisheenagreine stone can be understood with reference to an outline chronology of ogam inscriptions in stone that is based on stages of linguistic development. McManus (1991; 2004) dates the earliest examples to the early-to-mid fifth century. These include the Lisheenagreine stone (Figure 1.10) with its C[A]SSITT[A/O]S maQI Mu[CO]I CALLITI inscription (McManus 2004, 15). While the identity of CASSITTAS/CASSITTOS is unknown, the MAQI MUCOI formula was interpreted by MacNeill (1909, 367) as 'A son (i.e. member) of the posterity of B', with B referring to the patriarch of the kindred, but also the eponymous ancestor of the *túath*, the tutelary god or goddess of the tribe (McManus 1991, 111). On that basis, the inscription is generally translated as Cassis, son of one bearing the tribal name of Calitos.

This has been interpreted as a memorial stone of a local tribal group named the Calliti, dating to around the sixth century. MacNeill (1907, 46) initially identified the CALLITI as *Caílte*, but subsequently amended this to the *Cailtrige* (MacNeill 1911, 72). This may equate to the *Cailtrige* in Connacht or the *Calraige* in the north-west Midlands, but that makes no sense in geographical terms (McManus 1991, 111–2). As discussed in Chapter 1, the genealogies of the Eóganachta list one of their kindred as the Cenél Caíllaide, descended from Caíllaide mac Conaill, reputed grandson of Natfróech, son of

Corc/Conall Corc (Bhreathnach 2014, 163). Gleeson links the Calliti name to a group known as the Caltraige living in the Garranes area (see Mac Niocaill 1972, 3 for discussion of such archaic population names). He suggests that the later Uí Echach either emerged out of the Caltraige or else attached themselves to an early kingship in that area (Gleeson 2014, 208). All this is speculation in the absence of contemporary written sources.

The use of ogam stones as roofing or support stones in trench-built souterrains is often explained as a convenient use of large slabs available in the locality. While this cannot be ruled out, the ogam association is too strong not to have been a more meaningful action. One early suggestion is that these pagan stones were deliberately buried as communities converted to Christianity. McManus (1991, 93–97) has shown how linguistically ogam stones of likely pre-Christian date were more vulnerable to being re-used in souterrains. This theory, however, is not consistent with the continued use of ogam writing after conversion and common occurrence of these stones, often with Christian symbols, in early church sites.

The burial of ogam stones may be connected to use of the souterrains as refuges, placing those hiding within under the protection of their ancestors. More likely is that this practice relates to their original purpose as open-air memorials of historical figures, which over time acquired broader significance in political and legal terms (McManus 1991, 163–4 for legal standing of ogam). Their burial was a highly visible suppression of ancestral claims to land and territory, while at the same time not actually destroying these ancient stones. The fact that ogams remained extant in many church sites supports the interpretation that their burial was motivated by legal and political consideration. Other explanations are possible, such as Macalister's (1897 *et seq*.) opinion that up to half of the *mucoi* inscriptions on ogam stones in Kerry were defaced due to local tribal hostilities. MacNeill (1909, 333–4) attributed that desecration of tribal eponyms to a rejection of the pagan gods connected to the ancestors of the ancient Irish *tuatha*.

Conclusions

> 'Early medieval dwellings and settlements were the places where people spent most of their time, where they came to learn about the world from birth, through life to death. Ordinary places and things, such as houses, fire-places, doors, sheds, working areas, pits and latrines, gateways, entrances, pathways and the enclosure boundary itself were the stage settings, props and furniture through which traditional values and beliefs could be expressed and domestic life experienced. They were the places where children learned social conventions, and where men and women enacted and negotiated multiple social identities of household, kinship, gender, social status and social role. In exploring daily life and practice within early medieval settlements, we gain a sense of how social relationships and identities were actually materialised in the period' (O'Sullivan and Nicholl 2010, 90).

As dwelling places, ringforts were dynamic social spaces, where the residents had close family connections and clearly defined social relationships. The average ringfort was a largely self-sufficient, defended farmstead, closely tied to agricultural economy in a local farming environment. Variations in size, layout and material culture can reflect differences in wealth between and within the different grades of farmer (*boaire* and *ocaire*). The ringfort residences of the nobility (*nemed*) retained those core functions, with more visible display of economic wealth and social standing. This is manifested in the embellishment of their enclosing elements, the size of house dwellings, the number of residents, servants and slaves within, and more specialist craftworking and imported goods. External relations were also more complex compared to the average ringfort, in terms of social obligations and engagement with distant trade networks.

The life-cycle of a ringfort followed individual histories of construction, occupation and abandonment. Some experienced destruction, re-building and secondary occupation, before being finally abandoned for residential use. Those circumstances of abandonment, whether forced or voluntary, organized or rushed, have an important bearing of the physical evidence of occupation. In some instances, there is evidence of earlier activity, which may have influenced the original decision to build at that site. Those decisions were tied to legal recognition of land tenure and clientship arrangements, to kin relations and political territory, and to the economic value of the land holding concerned. The later history of a ringfort should be considered, from its re-use by descendants of the original community or a new community, to its significance in later periods. A ringfort was a permanent presence on the landscape long after it was 'abandoned' from its original use or subsequent occupation. Over time, these sites acquired different meanings and associations as part of a mythologized landscape, which is generally not expressed in physical terms accessible to archaeologists. The significance attached to these sites in the early modern period will be considered in the next chapter.

Another level of temporal analysis considers the phenomenon of ringfort clusters in a particular landscape. That requires some understanding of the socio-economic relationships that developed between adjacent ringforts over time. Not all ringforts in the same area were built at the same time, nor was their occupation always contemporaneous. In the case of Garranes, the relationship of the adjacent enclosures of Lisnacaheragh and Lisnamanroe requires consideration, as well as their connection to other ringforts in that cluster. The significance of high-status ringforts such as Lisnacaheragh should be examined within a dynamic landscape context of shifting political, social and economic relationships. This will also be considered in the next chapter in relation to patterns of ringfort settlement in Mid Cork.

– 9 –
RINGFORTS IN THE LANDSCAPE

This study has considered different aspects of the Garranes complex from an archaeological and historical perspective. The present chapter examines the wider settlement context of Garranes, with reference to the distribution of ringforts in Mid Cork. The survival of those enclosures in the early modern era will be assessed, to understand how that influences the present visibility of the early medieval landscape.

9.1 AN ANALYSIS OF RINGFORT SETTLEMENT IN MID CORK

Michelle Comber

The landscape of Mid Cork is an archaeologically rich one, with plentiful remains from the prehistoric and medieval periods. The site of Clashanimud hillfort (CO096-34), 7km to the north-east of Bandon town, may have provided a focus for prehistoric activity in the region, particularly in the Late Bronze Age. The amount of labour required in its construction points to the existence of an organising elite and thriving community in the locality during late prehistory. This study explores the continued use of the mid-Cork landscape into the first millennium AD. The archaeology of the first half of this millennium, the late Iron Age, is difficult to identify in most parts of Ireland, and this area is no exception. Therefore, it is the second half of the first millennium AD (the early medieval period) that reveals large-scale patterns of landscape use. The settlements of those later centuries have a high archaeological visibility, typified by the widespread occurrence of ringforts.

Ringforts are numerous in the area surrounding Clashanimud hillfort, with the Garranes complex located just 5.5km to the north-west. Like the earlier hillfort, Lisnacaheragh suggests the existence of a powerful, organising elite and flourishing local community. Early historical and literary texts name that elite as the Eóganacht Raithlinn (see Chapter 1.3). It would seem, then, that the landscape surrounding both Clashanimud hillfort and Lisnacaheragh ringfort was a socially and politically important one in at least two different periods of the past. This study examines the wider landscape of ringfort settlement in Mid Cork, centred on the location of these two sites, on Ordnance Survey six-inch maps 84 (Lisnacaheragh ringfort) and 96 (Clashanimud hillfort). This central area was extended to both east and west to incorporate another four maps (sheets 83 and 85, 95 and 97). This rectangular study area of 379km^2, though defined by the limits of nineteenth-century maps, also corresponds with geographical features that may have acted as territorial boundaries, at least to the north and south (see below).

The landscape of the second half of the first millennium AD, whether referred to as early Christian, early historic or early medieval, is not composed entirely of earthen ringforts, though these are by far the most numerous indicators of activity. Contemporary settlement evidence in the study area includes a few stone-built cashels and a number of now-unenclosed souterrains (perhaps representing a non-ringfort form of 'open' settlement). There are also several sites recorded as 'enclosures' by the *Archaeological Inventory of County Cork* (Power *et al.* 1992, 1994, 1997, 2000; Ronan *et al.* 2009), some of which may date to this period. The cultural landscape also has visible evidence of ecclesiastical activity, with a small number of possible monastic enclosures, a single bullaun stone, a stone cross, and several holy wells. In the following discussion sites are referred to by their *Record of Monuments and Places* (RMP) number (e.g. CO084-042 is site number 42 on OS six-inch map 84 for Cork, abbreviated here as 84:42).

This largely desktop-based study relies on the Ordnance Survey maps, RMP lists and five published volumes of the Cork Archaeological Survey (*ibid.*). Additional site information was provided by the field survey files of the latter and selective site visits. Data from these sources is presented in its physical and cultural setting, analysed statistically and cartographically, and examined in relation to status and territorial divisions. This is followed by a comparison with similar landscape studies elsewhere in Munster, to build a landscape model that reflects the political economy of the Garranes area.

Research context

Many studies of ringfort landscapes have been undertaken across Ireland in the last few decades, ranging from McCaffrey's (1952) site surveys on the Maree peninsula, Co. Galway, to the author's ongoing mapping of an early medieval landscape in the Burren, Co. Clare (Comber 2005, 2006a, 2008b). Between these extremes of individual site recording and detailed landscape mapping lies an additional body of useful studies. Those works, many undertaken as postgraduate theses, include statistical analyses of chosen study areas, e.g. Gillian Barrett's (1972) review of ringfort settlement in South Donegal and the Dingle Peninsula, Kerry. The results of several such studies are summarised by Matthew Stout in *The Irish Ringfort* (1997).

The author has completed similar studies, employing both standard statistics and general landscape

assessment, in a number of areas along the western seaboard. These include north Donegal (2006b), south-west Galway (2002), the Burren, Co. Clare (2005, 2006a, 2008b, 2018), the Beara Peninsula, Co. Cork (2009), and the Killarney area of Co. Kerry (2004b). The latter examined an area controlled and occupied by the Eóganacht Locha Léin, a group with dynastic connections to the Eóganacht Raithlinn. The Burren study area also fell under the control of Munster dynasties, in this case the Eóganacht Árann and later Dál Cais (Gibson 2012, 171–2). Although geographically different, these studies provide useful comparisons for the current analysis of ringfort settlement in Mid Cork.

Physical landscape

A relatively low east–west ridge runs across the long axis of the chosen study area (Figure 9.1). Covering most of the area surveyed, this ridge is 100–200m OD. Very rarely does the land rise above 200m OD, with only seven low hills above this altitude, six of which fall between 208m and 231m OD. The highest point in

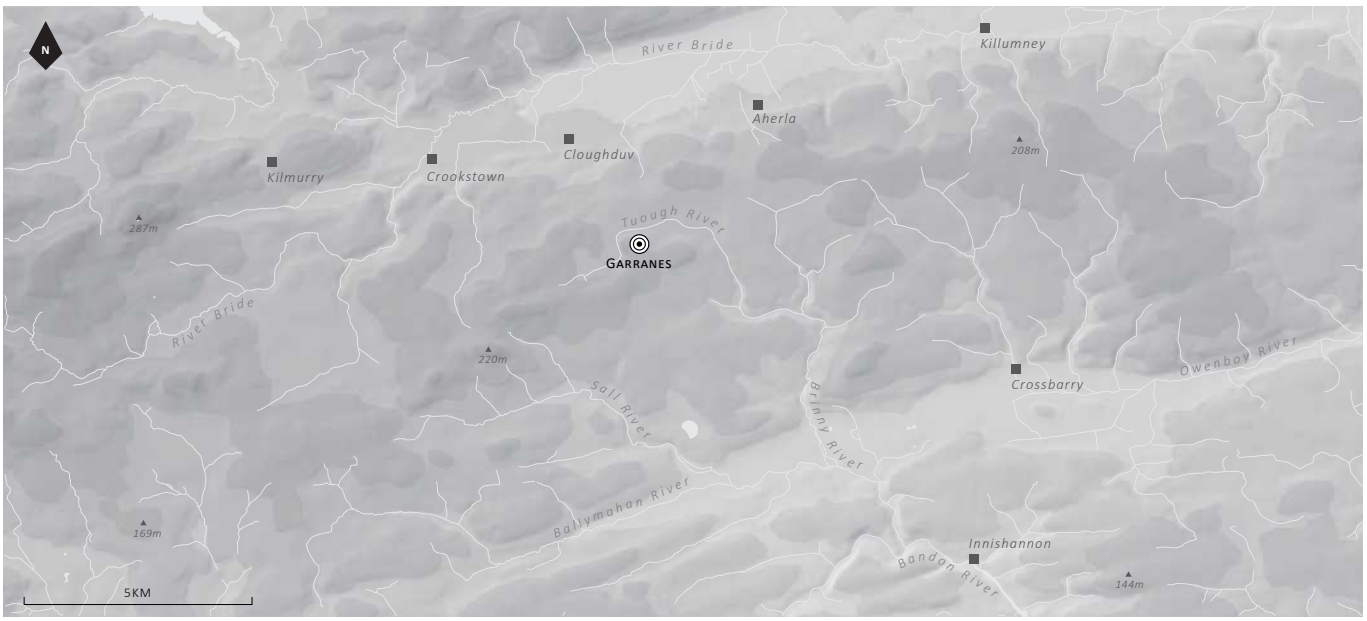


Figure 9.1 Map showing study area, with drainage pattern and modern villages.

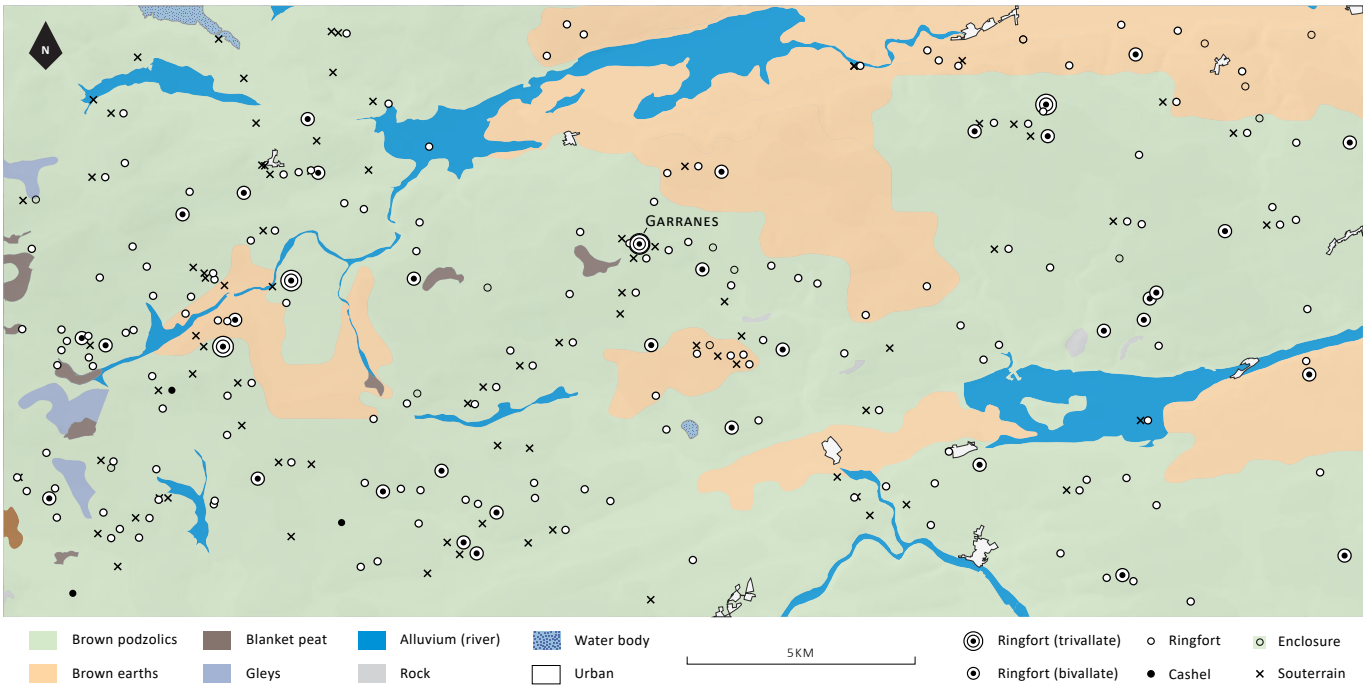


Figure 9.2 Soils in the study area (source: Irish Soil Information System, Teagasc and Cranfield University).

the area reaches 287m OD in Clearagh townland on the western edge of the study area. Elsewhere, the ridge comprises low rolling hills separated by small valleys. The lowest land in the study area is found alongside its rivers, especially the Bandon river and its tributaries to the south. The valleys of the Bandon, Owenboy and Brinny rivers define the southern edge of the ridge, with the northern side delimited by the valley of the Bride river. These rivers are fed by numerous smaller rivers and streams flowing downhill from the higher altitudes of the ridge. The Bride river, for example, is fed by the rivers Ochaul and Brouen, the Brinny by the Ballymahane, Ballymahon and Tuough, and the Owenboy by the Aughnaboy river. There are very few lakes in the study area, however, and those that are present are quite small. Very small lakes are found in the townlands of Clonomara (Carrigeenhawks Lake) and Castletown (Portalougha) in the south-western corner of the study area, in Brinny and Garryhankard townlands to the south of Clashanimud hillfort, and in Bawnleigh townland in the south-eastern corner. Slightly larger lakes are located in Warrenscourt Forest Park in the north-western corner, and at Castlenalact to the north of Bandon town. Some of these, such as the latter example, were created in the early modern era.

Late Devonian (Old Red Sandstone) geology forms most of the underlying bedrock in the area, with occasional stretches of Lower Avonian and Lower Carboniferous limestone (OSI 1985). The covering soils are primarily brown podzolics derived from the parent sandstone and Lower Avonian shale glacial till (Figure 9.2). They are sometimes associated with acidic brown earths and gleys (Gardiner 1980). Brown podzolics are generally quite productive agricultural soils, especially the lighter sandy podzolics. The heavier podzolics, however, could also be efficiently exploited for crop cultivation during the early medieval period, using the coulter and mouldboard plough introduced in the eighth century (Kelly 1997, 470). The brown earths represent smaller patches of better soil, though the acidic brown earths required the addition of fertilizer to achieve their full potential. Gleys are poorly-drained, wet soils not suited to crop cultivation, and more likely to be used for pasture (Mitchell 1986, 70–71).

Early Medieval landscape: extant sites

Human activity in the study area during the early medieval period is well represented (Figure 9.3). There are an estimated 300 monuments probably dating from the fifth to twelfth centuries AD, including approximately 220 earthen ringforts or raths, the standard settlement form of this period. There are also three stone-built ringforts or cashels, and an estimated 15 enclosures and unclassified earthworks. Many of the enclosures may originally have been ringforts, but are too poorly preserved to be certain. Scattered across the study area, and found both inside and outside settlement enclosures, are approximately 80 recorded souterrains. Evidence of ecclesiastical activity is far less common, confined to seven or eight sites that might be interpreted as early monastic enclosures (some with burial grounds and souterrains), a single bullaun stone, a stone cross, and numerous holy wells.

The study area of 379km^2 has an estimated 222 recorded ringforts and 15 possible settlement enclosures, an average of 0.6 known sites per km^2. The majority of these sites are univallate enclosures delimited by an earthen enclosing bank with an external ditch. Approximately 60% are levelled or partially levelled, and so may be classed as very poor or poor in condition (see Chapter 9.2), with the remaining 40% in fair or good preservation (Figure 9.4). Most of the damage is due to agricultural activity over a number of centuries, connected to tillage and grazing in the good soils of the area. The possible early ecclesiastical sites are in worse condition, all classed as levelled with few of their original features visible today.

Most settlement ringforts and enclosures (71%) are located 90–180m OD (Figure 9.5). This reflects the topography of the study area, with 24% of sites below 90m OD taking advantage of the lower-lying ground of the river valleys. The vast majority of ringforts occupy land 120–180m OD, while most of the sites classed as enclosures are found 30–120m. Most of the settlements above 180m are ringforts, while most of the possible ecclesiastical enclosures occur 30–150m. Of the bivallate sites, 22 are near the 90m OD contour, perhaps reflecting deliberate siting along the edges of the central ridge.

Almost all of the ringforts and enclosures are earth-built, with only three drystone cashels recorded (95:20 in Bengour West, 95:77 in Clonomara, and 95:90 in Tullyglass). Of the earthen ringforts, 78% are univallate, 20% bivallate, and 2% trivallate. All of the trivallate, and most of the bivallate, sites are ringforts or probable ringforts, though one of the possible ecclesiastical enclosures may be classed as bivallate. This analysis considers early monument surveys in this part of Cork (Ó Ríordáin 1931–1935; Hartnett 1939), as well as data collected by the Cork Archaeological Survey (Power *et al*. 1992; Ronan *et al*. 2009).

The surveyed settlements show a marked preference for a southerly aspect, with 53% of sites facing south-west, south or south-east (Figure 9.6). A further 11% have good views in all directions, located on either a hill or ridge top, or on a wide expanse of level ground. A broad northern aspect is evident in 22% of sites, with even fewer examples facing due east or due west.

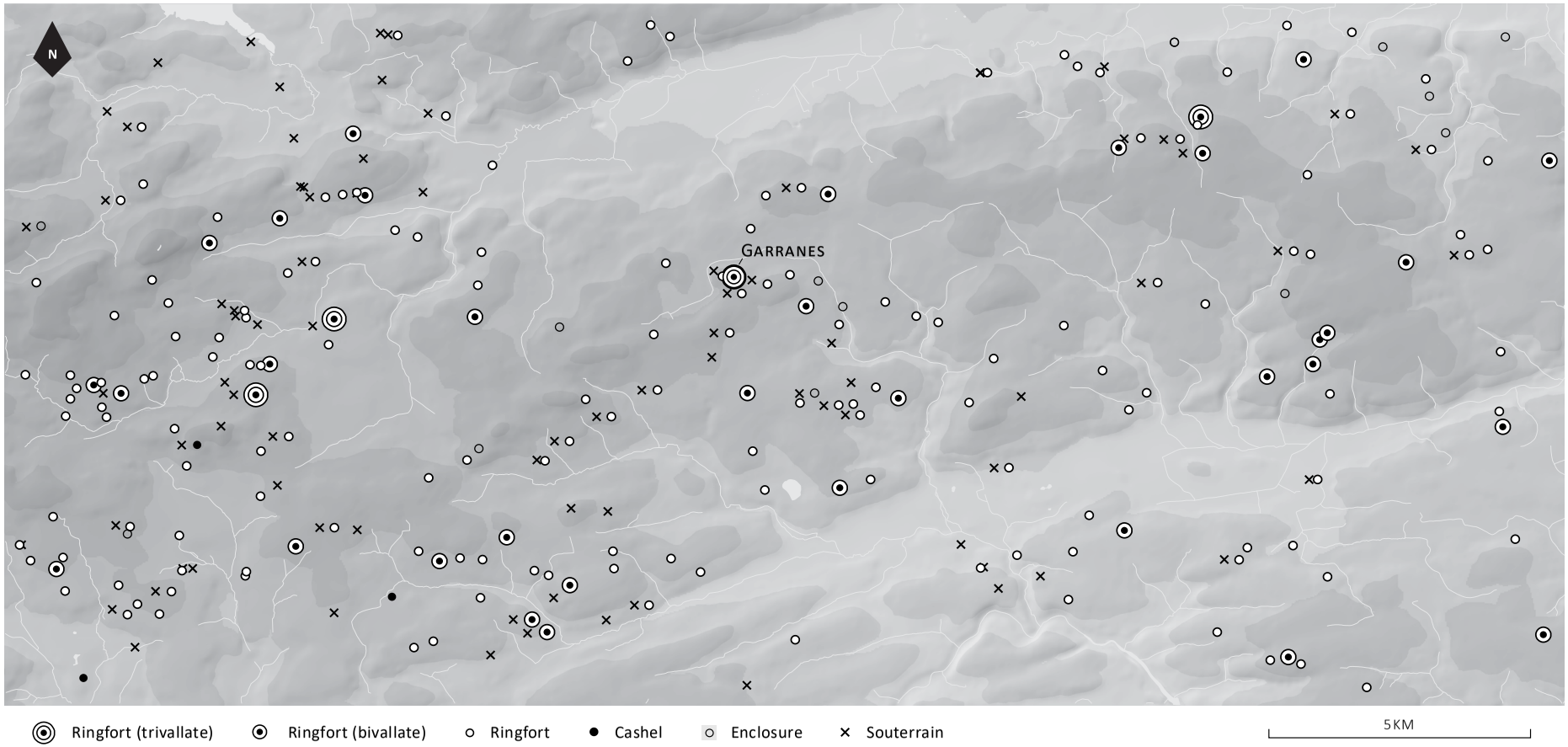
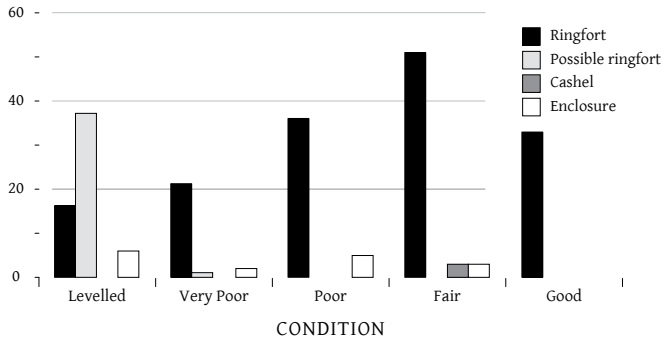
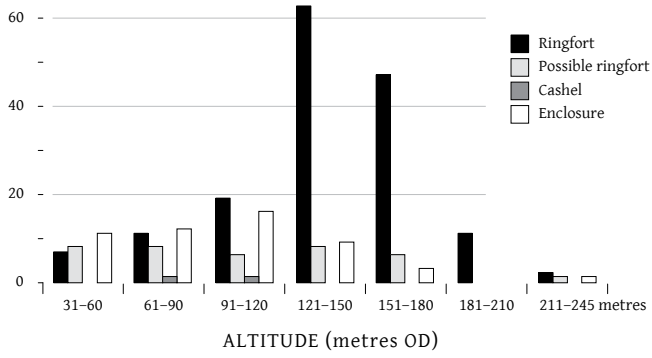
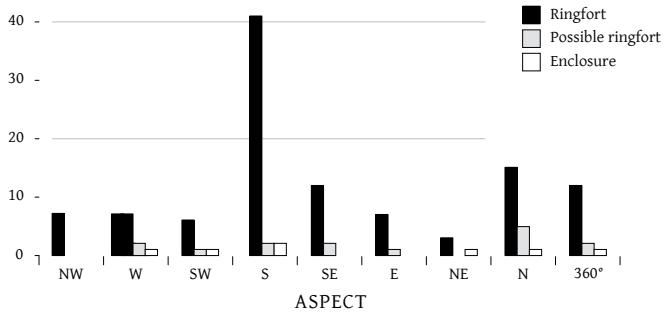
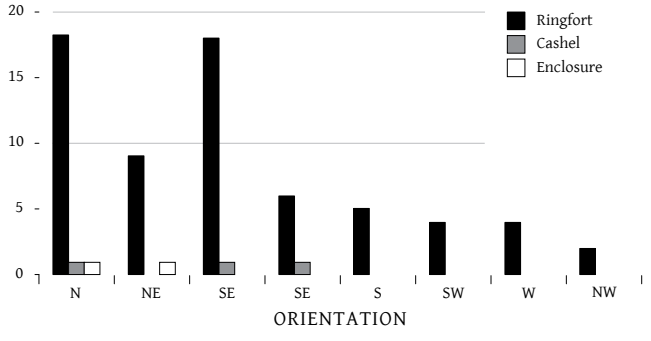


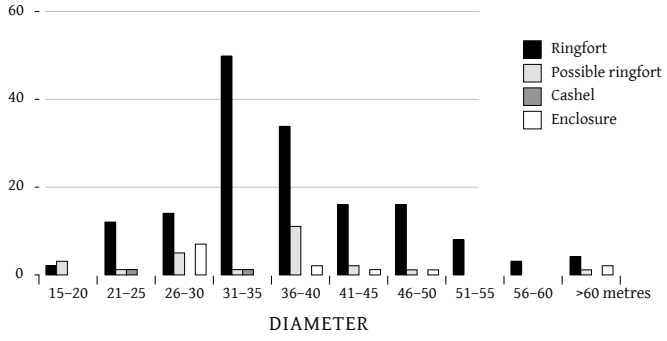
Figure 9.3 Relevant sites in the study area.











(top to bottom)

Figure 9.4 Condition of sites in study area.

Figure 9.5 Altitude of sites in study area.

Figure 9.6 Preferred aspect of sites in study area.

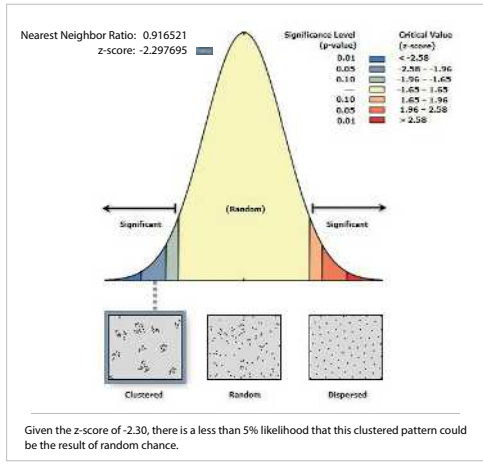
Figure 9.7 Preferred orientation of sites in study area.

Figure 9.8 Size of enclosed sites in study area.

Perhaps too few to analyse meaningfully, the possible ecclesiastical sites prefer a northerly aspect, with a smaller number facing south. A similarly distinct pattern is evident in the orientation of site entrances (Figure 9.7). Those with easterly entrances comprise 61% of the total, with far fewer orientated in any other direction.

Most ringforts and enclosures in the study area are circular (82%), with the remainder sub-circular, oval, 'D'-shaped, or irregular. None of the possible ecclesiastical enclosures are circular in plan, being sub-circular, oval or another shape. These sites are also some of the largest in the study area, all above 45m in diameter and most above 60m. The majority of other settlements average between 26m and 40m in diameter (54%), with only 10% smaller than 25m (Figure 9.8).

Given its extent, a mean distance of 671m would be expected between ringforts if they were distributed evenly across the study area (ArcGIS Average Nearest Neighbour tool). The actual measured mean distance,



Average Nearest Neighbor Summary

Observed Mean Distance:	615.1370 Meters
Expected Mean Distance:	671.1650 Meters
Nearest Neighbor Ratio:	0.916521
z-score:	-2.297695
p-value:	0.021579

Dataset Information

Input Feature Class:	Garranes area ringforts
Distance Method:	EUCLIDEAN
Study Area:	372982963.588209
Selection Set:	True

Figure 9.9 Average Nearest Neighbour calculation for ringforts in the study area.

however, is less than this at 615m, producing a Nearest Neighbour Ratio of less than 1. This reflects clustering of sites, rather than a random distribution. Average Nearest Neighbour Analysis confirms a minimum 95% likelihood that this clustering is deliberate (Figure 9.9). The significance of those clusters is examined below.

Early Medieval landscape: discussion

The system of rivers surrounding Garranes provided a supply of domestic water, as well as a communications network and territorial markers. Of equal importance, however, was the human resource. As it is likely the inhabitants of Garranes controlled the surrounding territory, receiving tribute from the occupants of various ringforts in the area, they had a relatively large labour-force at their command. This is reflected, for example, in the scale of the three large enclosing banks and ditches at Lisnacaheragh. It is clear from the excavated evidence (see Chapter 3) that the economy of Lisnacaheragh was a wealthy one and, for the most part, self-sufficient. External trade occurred, and both mundane and luxury items were manufactured on site. This economy was supported by the larger territory identified by this landscape study, again in the form of tribute paid by the lower-class ringfort occupants or clients. The farms of the latter exploited the available territorial land, but were also strategically placed to control river trade and protect its borders.

Settlement clusters

With clustering of sites confirmed by Nearest Neighbour Analysis, visual examination of distribution maps allows the identification of a number of settlement clusters in the study area. Eleven concentrations of relevant sites can be suggested, some more strongly than others, with sites in the intervening area more distant from one another (Figure 9.10). The clusters centre around the sites outlined below, with their boundaries being more fluid than definite.

Settlement Cluster 1 is centred on Garranes and Moneen townlands. The northern two-thirds of these townlands form an area of land delimited on three sides by the River Tuough and, as such, could be viewed as a unit of landholding, albeit a small one. The early medieval ringforts and enclosures in Garranes townland were examined in earlier chapters of this book. The only ecclesiastical links in this cluster are an early stone cross (96:8004) at St. Martin's/Templemartin church and a holy well named Tobernafoora (84:81003), situated to the south-west of Lisnacaheragh in the same townland. There is now no trace of this monument (Power *et al.* 1992, 284), and no certainty of an early date for such features regardless.

In addition to the ringforts located in Garranes townland, four are located in Moneen to the east. These comprise three definite ringforts and one possible ringfort. Site 84:97 consists of a slightly raised circular area that measures 28m in diameter, and is located roughly one kilometre east of Garranes. A further 0.5km east of this is the site of an oval enclosure (84:98) measuring 30m north–south and 21m east–west. There is now no trace of the site due to agricultural activity although the landowner did note soil differences in the area of the site when ploughing (Power *et al.* 1992, 269). Site 84:96 lies to the south-east of 84:97 and is a small but impressive bivallate ringfort, measuring 32m in internal diameter. The final site, 84:99, is the farthest from Lisnacaheragh (1.7km distant), and both it and the aforementioned site 84:98 overlook the River Tuough as it flows southwards. Site 84:99 is located atop a low hill and is marked by a slightly raised area measuring 34m north–south.

There is one other site that might be considered part of this cluster due to its proximity. Site 84:100 is situated on the east side of the Tuough river, across from the other sites of this group. Named Lissaphooleen, this enclosure is now 'D'-shaped in plan, 13.4m across and defined by an earthen bank 1.7m high (Power *et al.* 1997, 307). The distribution of sites within the loop of the river does present one interesting feature. Sites 84:83, 84:84, 84:86, 84:87, 84:97 and 84:98 lie in an almost straight-line running west–east, reaching from one side of the enclosed area to the other, all with a very good view of the lands to the north of the Tuough river.

Settlement Cluster 2 is located immediately south-west of the Garranes group, delimited on the north and east by the River Tuough, and on the south by the River Brinny. This group of sites includes two bivallate ringforts, seven other ringforts (including possible ringforts), and an ecclesiastical site. The bivallate ringforts are located in Kilmore and Kilnagnady townlands. Both have partially stone-faced earthen banks, those at Kilmore (96:52) surviving to heights of 1.1m and 0.6m, and those at Kilnagnady (96:28) to 0.8m and 1.5m. The former measures 48m in diameter and the latter 41m (Power *et al.* 1992, 183–184). The ecclesiastical remains in Moneen townland comprise a now-levelled burial ground (96:18), with a local tradition of an associated enclosure (96:86) and souterrain (96:84) (*ibid*., 254, 269, 308). The latter suggest the possibility of an early religious site, though this remains to be confirmed.

There are four ringforts in the immediate vicinity. Site 96:30 in Tuocusheen townland to the east is a now-levelled univallate enclosure, *c*.30m in diameter (Power *et al.* 1997, 262–3). To the south-west are the three other ringforts, all in Kilnagnady townland and all in very poor condition having been levelled or almost

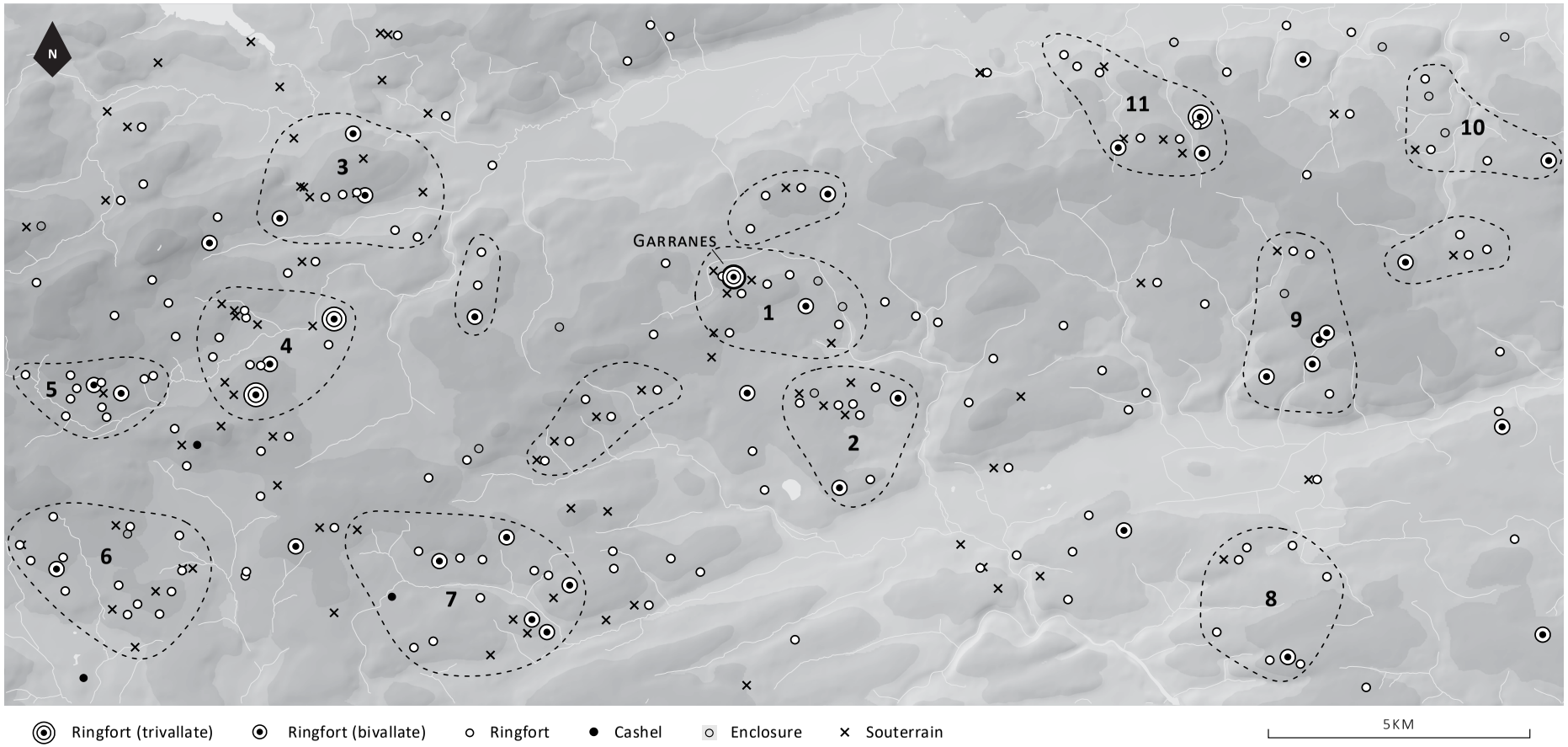


Figure 9.10 Settlement clusters in the study area.

levelled. All univallate, sites 96:19 and 96:21 contained possible souterrains and measured *c.*35m in diameter, while site 96:20 reached *c.*40m (Power *et al.* 1992, 184, 217). There are two further sites to the north-west. In Lisnaboul townland a now-levelled ringfort (96:10) measured *c.*27m in diameter (*ibid.*, 174), while an enclosure in adjacent Moneen townland possibly contained a souterrain in its north-west quadrant, and reached 41m in diameter (*ibid.*, 269). The final site in this group, 96:53, is situated just east of the bivallate 96:52 in Kilmore townland. The exact form of this site is unknown as there is now no trace of it. The landowner, however, recalled a 'small fort' and the field in question is locally referred to as the graveyard field. Ó Ríordáin (1934, 18) mentions an old church in relation to the site, suggesting the possibility of a religious connection.

Settlement Cluster 3 is located to the north-west of Garranes, in the area around Kilmurry and the Aghavrick stream, where there are three bivallate ringforts, eight univallate examples, and an ecclesiastical site. The three bivallate sites lie roughly the same distance from Kilmurry, to the north-east in Ballymichael townland (83:58), to the south-east in Cloghmacow (83:66), and to the south-west in Coolduff (83:52). The first measures 38m in diameter with banks surviving to a height of 2.5m and 1.7m, and a ditch 1.4m deep (Power *et al.* 1997, 180). A possible souterrain is located in the north-west quadrant of 83:66, the enclosure measuring 39m in diameter with banks 2.7m and 2m high, and a ditch 1.4m deep (*ibid.*, 194). Heavily overgrown, the fort in Coolduff is *c.*40m in diameter (*ibid.*, 197–198). Three of the univallate ringforts are found in a line between the bivallate 83:52 and 83:66 examples, all in Cloghmacow townland. They measure 38m (83:62), 32m (83:64) and 25m (83:65) in diameter, with banks 1.7m, 0.4m and 1.65m high, respectively (*ibid.* 194). Continuing this linear pattern a little farther to the north-east are sites 83:67 and 83:68, both univallate ringforts *c.*25m in diameter (*ibid.*). The final three ringforts in this group are situated closer to Aghavrick stream in Clodah and Currabeha townlands. The Clodah example (83:71) is a univallate enclosure with a possible souterrain (*ibid.*, 288), while the two Currabeha ringforts are also univallate (*ibid.*, 201, 253). The ecclesiastical remains in Kilmurry village comprise a ruined medieval church (83:55.02), a surrounding graveyard measuring 50m by 70m with eighteenth-century headstones and low uninscribed grave-markers enclosed by a stone wall and earthen bank (83:55.03), and two possible souterrains (83:55.01 and 83:55.04) to the west and south of the church (*ibid.*, 289, 377, 383). The souterrains, enclosure, and simple grave-markers might reflect early medieval activity at this site.

The next two settlement clusters may be considered as one large group along a stretch of the Bride River. It is also possible, however, to identify two concentrations of activity, referred to here as Bride East and Bride West. Settlement Cluster 4 incorporates two trivallate sites and one bivallate, and nine univallate ringforts. The best preserved of the trivallate ringforts is site 83:104 in Poularick townland, comprising three earthen banks with three external ditches and a counter-scarp bank, with an internal diameter of 39m (*ibid.*, 237). The second trivallate site, 95:32 in Bengour East, was levelled in 1979 though three banks and an internal souterrain were recorded (Hurley and Hurley 1979, 49). A bivallate example at Lisnabunny (95:35) also lies in Bengour East, with its banks surviving to heights of 2.05m and 0.9m, its diameter 41m (Power *et al.* 1997, 142). Three of the univallate ringforts are also close to the trivallate 95:32, two in the same townland and the third in Bengour West. The latter, 95:18, is now levelled, but possibly had a souterrain in its 25m wide interior (*ibid.*). Of the other two, 95:33 has also been levelled though measured *c.*20m (*ibid.*, 212), while 95:34 is a univallate site 31m in diameter (*ibid.*, 142). The only other site on the southern side of the river is 83:103, just south of the trivallate ringfort 83:104. This univallate ringfort has a 0.7m-high bank, and measures 27m in diameter (*ibid.*, 237). The remaining five ringforts are on the north side of the river. Three are in Knocknaneirk townland, and two in Curraclogh. Site 95:17 comprises an overgrown univallate ringfort 31m in diameter (*ibid.*, 225), site 83:87 a univallate ringfort with partially stone-faced bank 32m in diameter (*ibid.*), and site 83:136 a levelled ringfort that once enclosed a souterrain (*ibid.*, 444). The Curraclogh ringforts are also univallate and 35m (83:94) and 27m (83:96) in internal diameter (*ibid.*, 201).

Farther west, Settlement Cluster 5 *or* Bride West contains two bivallate ringforts, ten univallate ringforts and one rectangular enclosure (the latter is not classified as a moated site by the Cork Archaeological Survey, and the author's work in the Burren has confirmed an early medieval date for some rectangular enclosures; Comber 2019). All but two of these (95:19 and 95:101) are on the north side of the Bride river. Situated in Garranereagh townland, the bivallate example 95:8 has a partially stone-faced inner bank, 1.2m high, and measures 25m in diameter (Power *et al.* 1997, 208). Several other ringforts are found in the same townland, only two of which have been levelled (83:79 and 95:4). They range in size from 20m (95:13) to 43m (95:12) in internal diameter (*ibid.*). The remaining five sites are all on the edges of this grouping. Sites 95:1 and 95:2 in Moneygaff East are on the south side of the river. The former is overgrown, 34m in diameter, and the latter has partly stone-faced banks and is 39m in diameter (*ibid.*, 198). Also on this side of the river are sites 95:19 and 95:101 in Bengour West. The former comprises a partly stone-faced univallate ringfort 32m in diameter (*ibid.*, 142),

and the latter a rectangular enclosure defined by a field fence, road, scarp and low rise (*ibid*., 316).

Settlement Cluster 6 occupies the south-west corner of the study area. One bivallate ringfort, an ecclesiastical site, and fourteen ringforts make up this group. The bivallate site 95:42 is situated in Shanaclogh townland, with an inner bank surviving to a height of 2.6m, and a diameter of 31m (Power *et al*. 1992, 206). The univallate ringforts are scattered about the area in a number of different townlands. Sites 95:40, 95:49, 95:56 and 95:125 are all associated with souterrains and range 21m to 45m in diameter. The exception is a ringfort (95:76) in Castletown townland, which has a bank faced with upright boulders to the south, and measures 65m in diameter (*ibid*., 152). A destroyed souterrain (95:81.02) and burial ground called Parknakilla (95:81.01) in Kilnacranagh West represent ecclesiastical remains (*ibid*., 304, 250) on the southern edge of this cluster. The other sites in this group form three approximate lines extending north, namely sites 95:76 to 95:40, sites 95:80 to 95:49, and sites 95:46 to 95:54.

Settlement Cluster 7 is the largest concentration of sites, located around the Ballymahan river, a tributary of the Brinny River. There are five bivallate and ten univallate ringforts in this group, alongside a stone cashel, possibly isolated souterrains and a holy well. Two of the bivallate sites are in Farranalough townland and are recorded as such by Ó Ríordáin (1933, 61). Site 95:72 is now levelled, but is recorded as 41m in diameter (Power *et al.* 1992, 169–170). The single surviving bank at site 95:75 is 1.4m high and 33m in diameter (*ibid*.). Two bivallate ringforts were recorded in Roughgrove West (96:39) and Mallowgaton (96:60) townlands (Ó Ríordáin 1932, 100; Hurley and Hurley 1979, 50–1). The former now measures 25m in diameter with a bank 1.7m high (Power *et al.* 1992, 204), while the Mallowgaton example was levelled in 1979 (*ibid*., 195). There is no obvious pattern to the distribution of the univallate sites, though many are located relatively close to the river. They range in size from 25m (95:74) to 43m (96:41) in diameter.

Settlement Cluster 8 is a small concentration of sites on the south-east side of the study area. The primary settlement focus is Clouracaun townland, with one bivallate and three univallate ringforts in close proximity. The bivallate site (97:60) measures 38m in diameter with banks surviving to a height of 1.8m and 1.1m, and an intervening ditch 0.9m deep (Power *et al*. 1994, 93). Sites 97:59 and 97:61 are both univallate and measure 33m and 48m in diameter, respectively (*ibid*.). Site 97:62 is simply classed as a levelled earthwork, which the 1842 Ordnance Survey depicts as an arc of bank (*ibid*., 72). Situated to the north-west of these in Rathnaruogy townland is a univallate ringfort (97:56) 31m in diameter (*ibid*., 115-116). Four other sites to the north could be viewed as forming part of this group, though they are some distance away. Sites 97:35 and 97:36 are univallate ringforts 41m and 33m in diameter, respectively (*ibid*., 95, 106), while sites 97:38 and 97:40 were both depicted on the 1842 Ordnance Survey map, but are now levelled (*ibid*., 132, 139).

The remaining three clusters are similarly tentative. Settlement Cluster 9 on the north side of the Owenboy river is somewhat unusual in that it comprises four bivallate ringforts in close proximity to one another. The northernmost two are in Corran townland and measure 53m (85:73) and 33m (95:74) in diameter (Power *et al*. 1997, 200). Site 97:18 in Coolatooder measures 34m across, and site 97:19 in Gortnaclogh 30m (*ibid*., 197, 214). Gortnaclogh also has a univallate ringfort, 97:20, 20m in diameter (*ibid*.). Three other sites to the north might be considered part of this group. Site 85:70 in Corran is a possible ringfort, depicted on the 1842 map but now levelled (*ibid*., 252). To the immediate west, a univallate ringfort in Ballyhank (85:67001) enclosed a souterrain (85:67.02) that produced six ogham stones re-used in its construction (85:67003–67008) (*ibid*., 179). The final site, 86:71 in Corran, is classed as an enclosure by the Cork Inventory (*ibid*., 306). Known locally as 'lios', it is irregular in plan and was originally defined by a bank enclosing an area of *c*.85m diameter. That equates with the size of Lisnacaheragh, Garranes, which suggests a significance greater than a simple univallate ringfort.

Settlement Cluster 10 is situated around the Curragheen river and its tributaries in the north-east corner of the study area. It comprises an ecclesiastical site, a bivallate ringfort, three univallate ringforts and two enclosures. The ecclesiastical remains at Inishkenny constitute the most convincing example of an early monastic settlement in the study area. An aerial photograph identified a large, sub-circular enclosure defined by an earthen bank, scarp and stone wall, measuring *c*.100m in diameter (85:120, Power *et al.* 1994, 168). The ruined medieval church (85:41002) and graveyard (85:41001, 50m by 40m) of St. John are situated in its south-east quadrant (*ibid*., 264). The site was identified as 'Dissertanaeda' in a Decretal Letter of AD 1199 (Bolster 1972, 88), 'disert' being a term commonly used in relation to early monastic sites. The bivallate ringfort, 85:105, is situated to the east in Ballinvrinsig townland. Its banks survive to a height of 1m and 1.6m, its diameter 34m (Power *et al.* 1994, 81). To the south-west of Dissertanaeda is a univallate ringfort (85:40) in the same townland. This site is a little larger than the ringfort average at 52m in diameter (*ibid*., 105). The remaining sites in this cluster are all in Ballynora townland on the west side of the river. Two are univallate ringforts, 33m in diameter (85:33 and 85:36). The other two sites are both classed as enclosures, 85:34

because it is levelled (*ibid*., 188) and 85:37 because of its irregular shape (*ibid*., 183).

Finally, Settlement Cluster 11 lies just south of Killumney village. The townlands of Mylane, Knockburden and Windsor contain a trivallate ringfort, two bivallate ringforts, and three univallate ringforts. Though now levelled, the trivallate site 85:18 was recorded by Hartnett as *c.*30m in diameter (1939, 260). The bivallate ringfort 85:20 in Windsor townland to the south measures 33m across (Power *et al.* 1997, 247), while the bivallate example 85:9 in Mylane to the west measures 34m (*ibid*., 235). The three univallate ringforts, 28m to 35m in diameter, lie between these three multivallate sites (*ibid*.). A small group of three sites in Ballygroman Lower to the northwest might be considered outliers of this cluster. Two are now levelled (85:2 and 85:3) though all three were probably univallate ringforts of *c.*40m diameter (*ibid*., 178, 248).

The above clusters all contain at least one multivallate ringfort and, in some instances, up to five. These need not, of course, all be contemporary. Areas between the clusters are also populated by settlements, primarily univallate ringforts though there are a number of bivallate sites scattered throughout. These are more isolated then their counterparts within clusters, but most do have a smaller univallate site within a 1–1.5km distance. The only bivallate site that does not appear to have such a neighbouring enclosure is site 96:11 in Castlenalact townland. This ringfort is almost equidistant from site 84:90 to its north, 96:10 to its east, 96:19 to its south and 96:07 to its west, all approximately 2.5km away.

Ringfort classification and status

An examination of ringfort types, largely defined by morphology and location, furthers an understanding of these clusters. In his study of the early medieval sites of the south-west Midlands, Matthew Stout developed a morphological model for ringforts, dividing them into five classes or types (1991, 201–243). Type 1 are relatively isolated low-lying sites, though occasionally located close to a Type 2 ringfort. Type 2 are high-status bivallate forts with defences measuring 12.22m in width and located close to an ecclesiastical site, and near a small group of either Type 1 (lowland) or, more commonly in the Midlands, Type 5 sites (upland). Type 3 ringforts are generally segregated from the larger sites but are close to one another on relatively good land, though less strategically placed than some of the other types. Type 4 comprise large multi-functional forts, located near the edges of a townland or barony, and with average internal diameters of 46.97m (67.63m externally) and defences 10.33m wide. A passage in the early law tract *Críth Gablach* describes the residence of a king as 'seven score feet of perfect feet are the measure of his stockade on every side' (MacNeill 1923, 305). Stout interprets this as meaning the internal diameter of a king's ringfort should measure approximately 42.56m. Type 5 forts are upland sites with small interiors and defences measuring, on average, 6m in width.

In considering Settlement Cluster 1, it becomes clear that Lisnacaheragh does not fit well into any of Stout's categories, though it comes closest to the sites of Type 2. Internally, the site is approximately 20m larger than the suggested diameter, while the defences are much larger than those described by Stout. Lisnacaheragh is obviously an exceptional site, but not unique in terms of size or morphology. There are a number of similarly sized ringforts throughout Cork and elsewhere, e.g. Rathra in Co. Roscommon (trivallate, 161m in diameter, unexcavated; Waddell *et al.* 2009, 54) and Ballycatteen in Co. Cork (trivallate, 119m in diameter, excavated by Ó Ríordáin and Hartnett 1943).

Lisnacaheragh also differs from Type 2 in that it is not located immediately adjacent to an early ecclesiastical site. Although no surface trace remains, a holy well of indeterminate date was located 1km to the south-west in Garranes townland (84:81-003), while the early medieval stone cross and later ecclesiastical remains at St. Martin's church (96:08) are 1.7km to the south. Beyond these, the nearest possible early monastic enclosures are located 2.3km to the north in Kilbonane townland (84:12), and 3.1km to the south-east in Moneen townland (96:86). Neither is the fort situated next to a group of Type 5 sites. Only two of the nearby ringforts might be classed as Type 5, depending on the definition of a 'small' interior. Sites 84:85 and 84:88 measure approximately 35–40m in diameter. However, these sites might just as easily be identified with Type 3 as they are relatively close to one another on good land, though they are not very far from the larger Lisnacaheragh. Site 84:83, a univallate ringfort with a diameter of *c.*60m, resembles the sites of Type 4 most closely. It is relatively large and located on the townland and barony border, very close to Lisnacaheragh. Another ringfort in the townland, 84:90, comes closest to the Type 1 definition in so far as it is relatively isolated. It is not, however, low-lying.

Site 84:96, a bivallate fort with small diameter of 32m, lies outside Garranes townland, but within the bend of the Tuough river. It is located approximately 0.5km from the river, with sites 84:98 and 84:99 much nearer to the river to the north-east and south-east of 84:96. The latter falls somewhere between types 2 and 4, while sites 84:98 and 84:99 are both somewhat segregated from the larger ringforts and, as they are located along the banks of a river, are lower-lying than the main Garranes group, thus falling between types 1 and 3.

In general, Stout's model for the south-west Midlands is not fully applicable to the mid-Cork territory of Garranes. However, many sites there can be placed in some way into one or other of his types or cluster groups. That morphological scheme places Lisnacaheragh at the top of the social hierarchy, where Type 2 and Type 4 were the residences of local lords or kings, Type 3 represents the farms of the *bóaire* class (strong farmers), while Type 1 and Type 5 belonged to the lower social classes. If this is correct, those sites would have paid tribute to the occupants of Lisnacaheragh to differing extents. The economy of this site should, therefore, be representative of the wealthiest in society, the highest social and economic class.

Although Stout's classification might not be directly applicable, it is possible to identify similar site types in the wider study area. There are two main types of multivallate ringfort – those surrounded by other settlements, and those with perhaps just one neighbouring site. These may equate with Stout's types 2 and 4 respectively. Stout's three other types are difficult to recognise in the study area, though perhaps those univallate sites found in close proximity to multivallate sites might represent Stout's Type 5. Types 1 and 3 are both relatively isolated, with Type 1 sites described as low-lying and Type 3 as often close to one another, yet distant from the larger sites. In this case, sites below the 100m contour and outside of the settlement clusters identified above might equate with Type 1, while those above the 100m contour and scattered across the ridge might fall into Type 3.

Regardless of the exact classification or terminology employed, the following can be identified in the study area:

Class A: Large multivallate ringforts, surrounded by smaller enclosures

Class B: Multivallate ringforts, more isolated than A.

Class C: 'Upland' univallate ringforts, distant from multivallate sites

Class D: 'Lowland' isolated univallate ringforts

Class E: Univallate sites clustered around a multivallate site

Classes A and B most likely represent the upper classes in society, those of sufficient status and resources to allow them build and occupy a multivallate enclosure. The strong farmers might be equated with class C, those not too closely dependant on their social superiors. The status of classes D and E is less clear, perhaps occupied by strong or small farmers and those more closely tied to their ruling lord or noble family.

Territorial units and settlement distribution

Settlement clusters identified through visual spatial analysis (such as those outlined above) mark places on the landscape that attracted concentrated human activity in the past, particularly in the early medieval period. Although many early territorial divisions utilised natural features of drainage and topography to mark their boundaries, other territories may have had such features at their centre or core. For example, should the sites clustered around the Ballymahan river be viewed as a territorial unit (Settlement Cluster 7 above) or do the sites on the north side of the river represent the border of one territory, and those on the south the border of another? Unfortunately, it is not possible to *definitely* identify the borders of early territorial divisions. Occasionally, however, such borders and divisions may survive in the outlines of current territorial units. Given the size of the study area, two such units – townlands and civil parishes – are worthy of consideration, as multiples of each occur within the boundaries of the study.

Of the 260 townlands present (fully or partially) in the study area, 120 have relevant monuments recorded. Ten townlands have three relevant sites (ringforts, enclosures, now-isolated souterrains), six have four, six have five, and six have between six and eleven sites (Figure 9.11). Townland size alone does not explain the greater density of sites in some areas, as many similarly sized townlands contain fewer, if any, relevant sites. Three of the townlands that have trivallate ringforts may form foci for settlement (Garranes, Poularick and Bengour East). The distribution of the more densely populated townlands reflects three main areas of settlement activity – one around Garranes in the centre of the study area (Garranes, Moneen, Rearour and Kilnagnady townlands), a second along the Bride River to the west (Knocknaneirk, Garranereagh, Bengour West and East, Poularick and Bellmount Upper), and a third along the Ballymahan River to the south (Tullyglass, Mallowgaton, Roughgrove West and East, and Farranalough). This supports the previous identification of settlement clusters in these areas (Figure 9.10).

Nine townlands possess a single bivallate ringfort with no other relevant sites, ten others have a single bivallate and a single univallate ringfort, while four townlands contain two bivallate sites and multiple univallate ringforts (Figure 9.12). It is possible that some of the first nineteen townlands, at least, may represent farms under the immediate control of their bivallate ringfort occupants. Two townlands, Poularick

Townlands in study area with:

3 sites		4 sites	5 sites	6–11 sites
Ballygroman Lower	Mallowgaton	Clouracaun	Ballynora	Kilpatrick (6)
Belrose Upper	Poularick	Corran	Bengour East	Moneen (8)
Bellmount Upper	Rearour	Kilnagnady	Cloghmacow	Knocknaneirk (9)
Clashanimud	Roughgrove West	Laravoolta	Farranalough	Bengour West (9)
Liskillea	Scartnamuck	Mylane	Moskeagh	Garranes (10)
		Roughgrove East	Tullyglass	Garranereagh (11)

Figure 9.11 Townlands in the study area containing multiple relevant sites.

Single Bivallate		*Single Bivallate and Single Univallate*		*Single Trivallate and Single Univallate*
Coolduff	Ballinvrinsig	Knockacareigh	Kilmore	Poularick
Ballymichael	Ballinveiltig	Shanaclogh	Clashanimud	Knockburden
Barna	Ballyburden More	Coolanagh	Rathroe	
Coolatooder	Windsor	Roughgrove West	Gortnaclogh	
Ballyleigh		Rathard	Grange	

Figure 9.12 Townlands in the study area containing multivallate sites.

and Knockburden, contain just one trivallate and one univallate site, again possibly representing the area directly farmed by the trivallate occupants. It is also feasible that several of the other townlands containing just one or two sites may represent the limits of the land farmed by the occupants of those settlements. The townlands with multiple sites, three or more, may mark noble settlements with the principal family of the area dwelling there, and directly controlling the surrounding land (including townlands with no surviving settlements) through the clientship system.

Just as some townlands may represent early farm sizes, so too some civil parishes may reflect earlier territorial divisions/ areas of control (see discussion below). There are 26 civil parishes, or parts thereof, within the study area. Of these, only twelve are completely contained within the study limits, and four of those are very small compared to the others. A further parish is almost completely situated within the study area, while sizeable areas of four others are also present. The four trivallate sites are all in different parishes, while seven other parishes contain a single bivallate and varying numbers of univallate ringforts (Figure 9.13). Ten parishes possess between two and four bivallate sites, with no more than four in any parish (with any number of univallate ringforts). Parishes with trivallate ringforts have at least sixteen relevant sites, i.e. the more densely populated parishes contain the largest/most-impressive sites. This may reflect the accumulation of settlement, from both the free and unfree classes of society, around the wealthier nobles or ruling families. Those parishes with less dense settlement were probably ruled from a bivallate ringfort (all possess at least one), perhaps free clients or slightly inferior allies of those in the trivallate-led parishes. All four trivallate sites are quite close to parish boundaries,

Civil parish enclosed in Study Area	*Civil parish partially enclosed in Study Area*	*Small civil parish enclosed in Study Area*
Moviddy (6)	Kilbrogan (17)	Ballinadee (1)
Inishannon (10)	Kilmichael (19)	Corbally (1)
Dunderrow (10)	*Kilnaglory (16+)	St. Finbars (3)
Kilbonane (11)	Kinneigh (22)	Templemichael (4)
Knockavilly (15)	*Kilmurry (39)	
Brinny (20)		
*Templemartin (30)		
*Murragh (32)		

(Number of relevant sites)

Figure 9.13 Civil parishes in the study area containing multiple relevant sites (* = contains a trivallate ringfort).

their strategic siting possibly representing a display of strength or political status. This might also apply to 22 of the bivallate ringforts that are positioned relatively close to, or on, parish borders. Bivallate sites farther 'inland' may have formed the residences of high-status families, kept safely away from border areas.

Comparable ringfort landscapes

Ringfort settlement in the Garranes landscape can be compared with that in other parts of Munster ruled by the Eóganachta, their subject peoples, or other groups (Figure 9.14). Similar studies on the Beara peninsula, Co. Cork (Comber 2009), around Killarney, Co. Kerry (Comber 2004b), and in the Burren, Co. Clare (Comber 2005, 2006a, 2008b, 2018) have produced results that match some in this study. In all of these areas, ringforts show a marked preference for a southerly aspect, eastern orientation, circular shape and proximity to good farmland. However, some differences are also evident.

Beara, due to its mountainous terrain, and perhaps also its peripheral location, is the least densely populated of these areas. The most densely populated is the Burren, Co. Clare. This may, however, be a result of higher rates of preservation in this region, with only 50% of the sites there classed as poor or very poor (compared to 89% around Killarney). Another marked difference is seen in the percentage of multivallate sites in these areas, with 1.6% in Beara, 3.23% in the Burren, a significant increase to 18% around Killarney and 22% in the Garranes study area. A comparison of site size (based on internal diameter) reveals a further contrast, with the smallest enclosures found on Beara (averaging 15–20m) and in the Burren (averaging 10–35m). Enclosures in the other two areas average 26–40m in diameter. These simple comparisons suggest varying roles for ringforts in these four areas. Beara and the Burren appear to be less important peripheral areas, with fewer and/or smaller settlements. Killarney and Garranes, on the other hand, are densely populated core regions with larger sites and more high-status enclosures. The archaeological picture is corroborated by the historical or political evidence, with the ruling groups of Beara (Corcu Lóegde) and the Burren (Corcu Mruad) of much lower political standing than the Eóganacht Locha Léin of Killarney and the Eóganacht Raithlinn of Garranes.

Settlement clustering in these areas can also be compared. The mountainous terrain of the Beara peninsula limited the spread of agricultural settlement, resulting in fewer relevant sites and an absence of multivallate enclosures. Nonetheless, a few possible clusters do exist, usually located adjacent to, or on, pockets of better soil (Comber 2009, figs. 3.13 and

	BEARA	**BURREN**	**KILLARNEY**	**GARRANES**
Setting	Peninsula	Inland uplands and lowlands	Inland uplands and lowlands	Inland low ridge and river valleys
Aspect	South aspect	South aspect	South aspect	South aspect
Shape	Circular	Circular	Circular	Circular
Orientation	72% east	84% east	71% east	61% east
Resources	Farmland, coast	Farmland, all-year grazing	Farmland, lakes, mineral resources, political stronghold	Farmland, rivers, political stronghold
Condition	66% poor or v.poor	50% poor or v.poor	89% poor or v.poor	60% poor or v.poor
Site Density	0.15 sites/km2	3 sites/km2	0.24 sites/km2	0.6 sites/km2
Vallation	1.6% multivallate	3.23% multivallate	18% multivallate	22% multivallate
Diameter	60% 15-20m	78% 10-35m	71% 26-40m	64% 26-40m
Political group	Corcu Lóegde	Corcu Mruad	Eóganacht Locha Léin	Eóganacht Raithlinn

Figure 9.14 Comparative data from four ringfort landscape studies in Munster.

3.15). The scale and component elements of these clusters are different to those in the other study areas, being greatly impacted by topography, economy and regional politics. At least 50% of the Killarney study area comprised mountainous upland, largely devoid of settlement. This skewed any attempt at statistically proving the existence of clusters. Visually, however, clear clusters can be identified in the distribution map of relevant sites (Comber 2004b, figs. 194, 199, 202). Up to half a dozen are present, each containing a number of multivallate sites surrounded by several univallate settlements.

The most interesting comparisons occur in the Burren study, where detailed analysis of the ringfort landscape has been undertaken. A three-stage survey of the ringfort landscape resulted in the identification of settlement clusters as central places (see below). Stage 1 confirmed that ringfort settlement was unevenly distributed across the landscape, and that it had a primary agricultural focus, with secondary concerns for accessibility and local politics (Comber 2005). The next stage saw the identification and mapping of general activity clusters (Comber 2006a), while the third stage comprised the detailed survey of one such cluster in Caherconnell townland (Comber 2008b). This then progressed to an excavation stage, allowing the incorporation of excavated evidence into the analysis of settlement clusters, and the application of central place theory to this settlement pattern (Comber 2018). This last exercise allowed the identification of settlement clusters as rural 'central places', fulfilling most of the characteristics of traditional 'central places', with the addition of several criteria specific to early medieval Ireland.

Traditional components of central places include the presence of a high-status settlement with a concentration of lower-status settlements in its vicinity, good communications/ease of access, the provision of goods/services, and access to natural resources and exotic goods. The Burren study added specific access to good farmland, local Christian activity, an ancestral link through the presence of prehistoric sites, and a connection with territorial politics (*ibid*.). It became clear that the distribution and size of these central places in the Burren were dictated by the above, and that none were actually centrally located within territories, leading to the suggestion that 'focal place' might be a more appropriate term in the rural ringfort landscape.

When the Garranes landscape is examined in light of the focal-place criteria identified in the Burren, it is clear that these characteristics are also present in the settlement clusters already outlined. With several ringfort studies identifying multivallate sites as high status, and smaller sites as lower status, it is notable that each of the study-area clusters contain at least one high-status settlement surrounded by a concentration of lower-status sites. The river valleys along the north and south of the study zone provide easy access to the area. Excavated evidence from Garranes townland confirms the provision of specialized services such as non-ferrous metalworking and glass-working, and access to goods imported from outside the region. Physical ancestral links are seen in the presence of ring ditches, standing stones, boulder-burials, a stone row, cairn, and barrow (not to mention numerous *fulachtaí fia*) within the eleven settlement clusters (Figure 9.15). The association with good agricultural soils indicates the main natural resource exploited, and the presence of monastic enclosures a link with the newer Christian beliefs. It appears that the settlement clusters identified in the Garranes study area are the equivalent of the focal places identified in the Burren – places people travelled to for specific services and goods.

In addition to the central places already discussed (referred to as 'high order central places') central place theory also identifies 'low-order central places' – locations where only some of the aforementioned criteria are present. The Burren study area contained a few such clusters. Some of the smaller groupings of ringforts (and other sites/features) located between the larger settlement clusters in Moviddy, Templemartin, Kilbonane, and Ballinaboy parishes may have operated as low-order central places.

Just as an examination of site distribution in relation to surviving land divisions (townland and civil parish) suggests possible areas and levels of land ownership, so too an examination of focal places in relation to parish boundaries suggests possible areas of economic and political influence. Civil parishes are selected for this analysis as they appear to reflect earlier secular territories called *túatha*, or parts thereof (Nugent 2007, chapter 5). These parishes are the equivalent of what MacCotter refers to as 'late *túatha*', sub-divided versions of larger earlier *tuatha* (a division caused by subinfeudation over the course of several centuries). Sometime around the eleventh century, varying numbers of late *túatha* were re-organised into new territorial units called *Trícha Cét*, the latter likely reflecting the larger original *túatha* (MacCotter 2008, 22–3). In this scheme, then, individual civil parishes represent the *túatha* that existed in the eleventh/twelfth century, while collections of such parishes constitute the *Trícha Cét* or early *túath*.

With the exception of one or two, all of the parishes contain a focal place of some form, confirming a relationship between these territorial units and the political and economic landscape (Figure 9.16), the

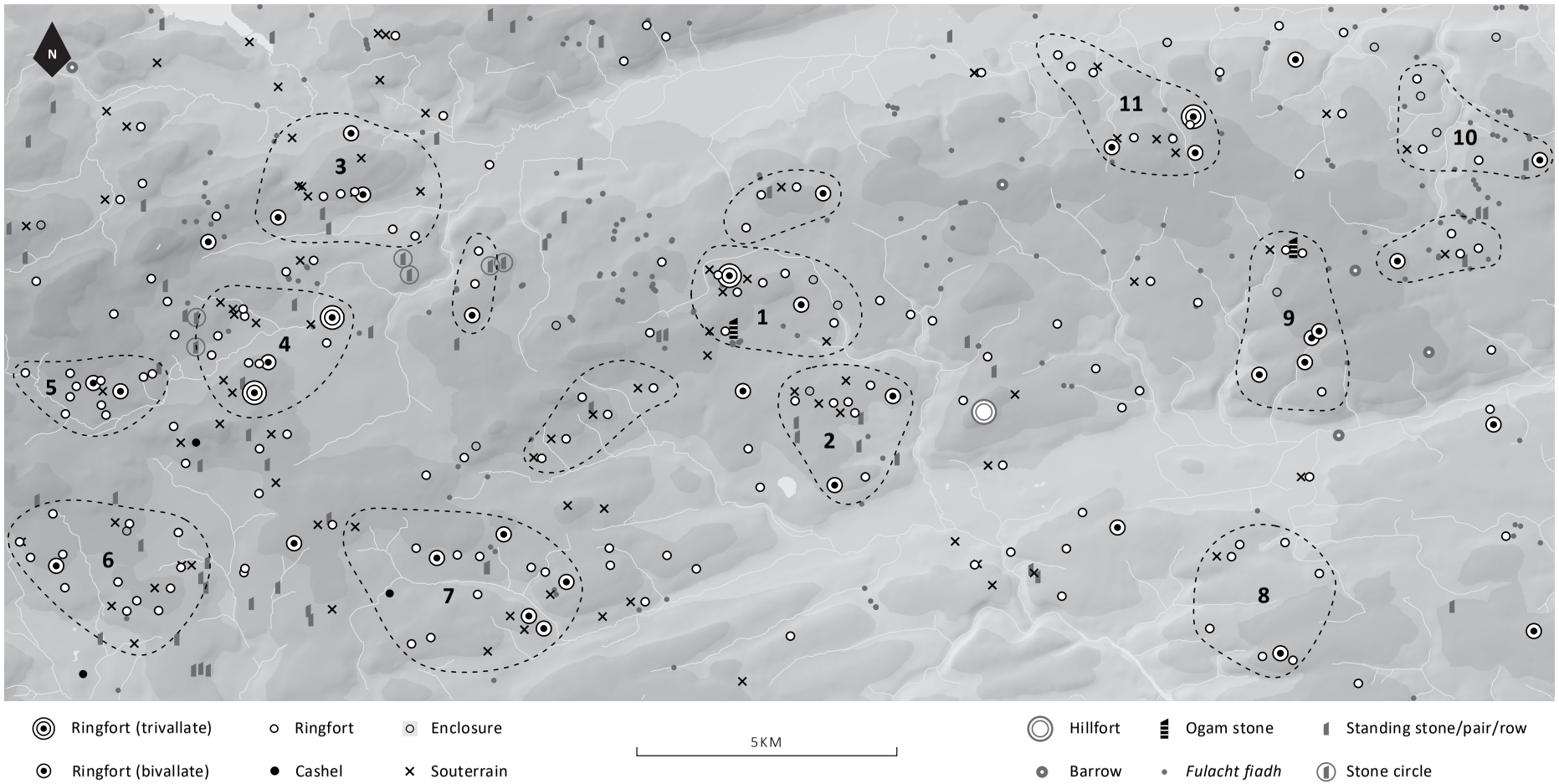


Figure 9.15 Settlement clusters and prehistoric sites in the study area.

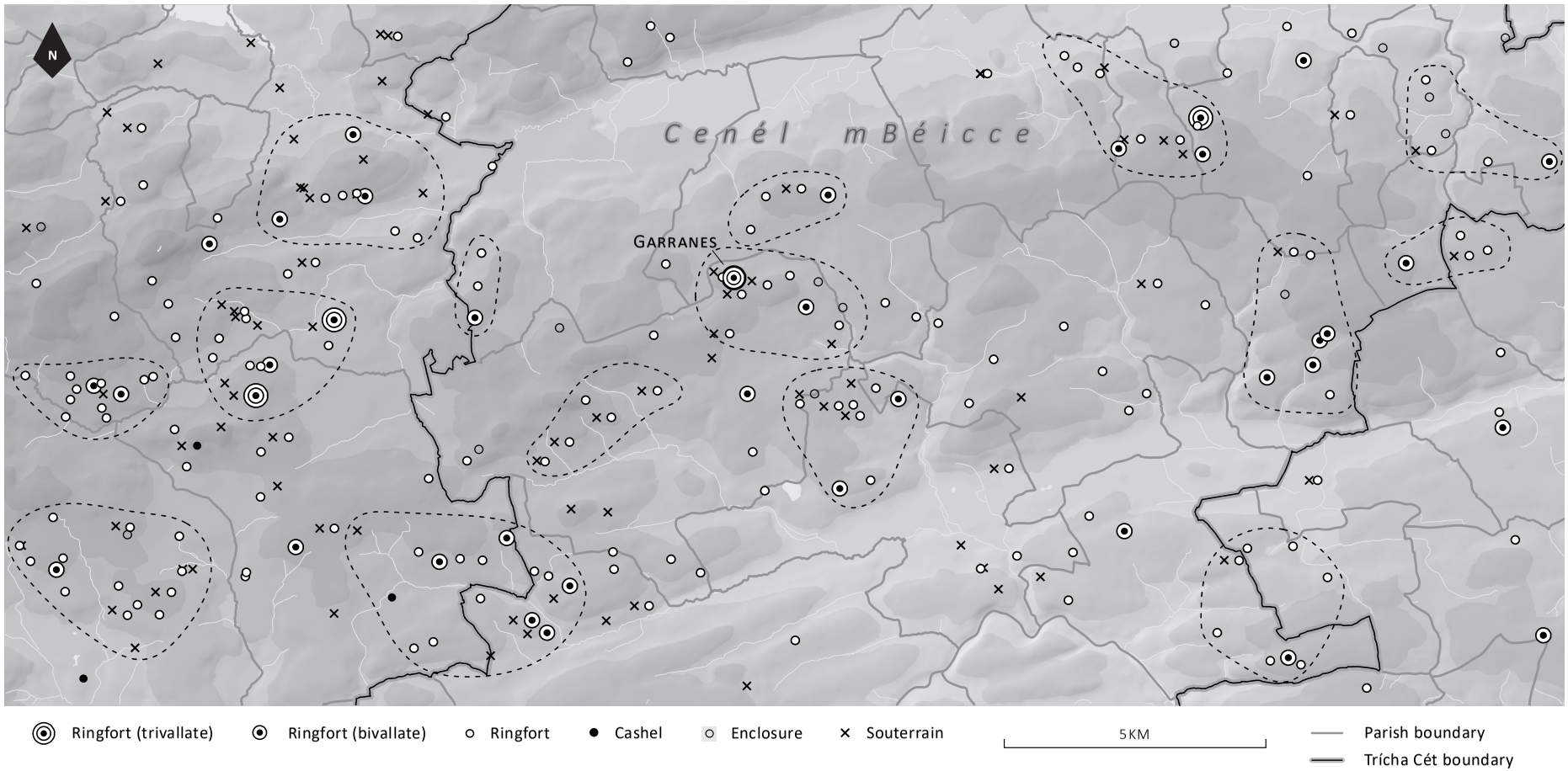


Figure 9.16 Settlement clusters/focal places with civil parish boundaries and *Cenél mBéicce* hightlighted (after MacCotter 2008).

significance of which is explored below. Only two or three of the high-order focal places are centrally placed within these territories, the others – like in the Burren – being located near borders. Settlement cluster/focal place 3 is centrally located within Kilmurry parish, but that parish also boasts a border focal place (settlement cluster 4). Dunderrow parish is small enough that its focal place (settlement cluster 9) could be seen as either centrally located or close to a border, while focal place/settlement cluster 11 covers all of the tiny fragment of St. Finbar's parish and extends into Desertmore and Kilnaglory parishes. The low-order focal places are generally more centrally placed within parishes/territories, while the only complete parish within the study area without a focal place of any kind is Corbally, a tiny parish located between high-order focal places/settlement clusters 9 and 10.

In a visual examination of the focal places/settlement clusters (Figure 9.16), focal places 1 and 2 seem to form a centre of activity within this study area. The next closest high-order focal place is located a minimum of 5km away, with three of the four identified low-order focal places located in the intervening space. The other nine high-order focal places are located much closer to their neighbours, being no more than 2.5km apart. The Burren examples were located just 1–2km apart. It seems possible that this distribution/spacing of high-order focal places is a physical representation of the elevated importance of focal places 1 and 2, controlling a hinterland where only low-order focal places occur. The presence of both Clashanimud hillfort and Lisnacaheragh ringfort in this area suggests a place of regional significance, a suggestion now supported by this analysis of the ringfort landscape.

Conclusion

The landscape of the study area is clearly very rich in archaeological remains from many periods. There are numerous *fulachtaí fia*, standing stones, stone circles, stone rows, boulder burials and barrows in a landscape dominated at one stage by the Late Bronze Age hillfort at Clashanimud (O'Brien and O'Driscoll 2017). Activity in the area becomes less visible during the Iron Age, as is the case throughout Munster. The early medieval period, however, is once again marked by numerous settlement indicators, of which the earthen ringfort is the most visible and important form. Their number and distribution across the study area reflect a concentrated and controlled exploitation of the landscape.

The archaeological record from the area, then, reflects the continued use and significance (social, political, economic) of this landscape over several millennia. Much of this may originally relate to the accessible location between two river valleys, in an area with very good agricultural soils. These elements may have contributed to the construction of the tribal centre at Clashanimud hillfort in the Late Bronze Age. That this area retained its political importance in later centuries is evident in the proximity of the early medieval 'royal' site of Lisnacaheragh just 5km to the north-west. Also relevant is a sherd of imported B-ware, similar to that from Garranes, which was recently found in fieldwalking near the hillfort (O'Brien and O'Driscoll 2017, 118). Although a 1400-year direct connection between hillfort and ringfort seems unlikely, early medieval royalty regularly sought out and/or created ancestral links, both physical and genealogical, to legitimize their territorial and political claims (e.g. Bhreathnach 2014, chapter 2).

Ringforts, of course, occur throughout the centuries of the early medieval period, and were not all in use at the same time. This is apparent at Garranes, where excavation results indicate the continued construction and use of ringforts during the second half of the first millennium AD. There, three excavated sites (Lisnacaheragh, Lisnamanroe, and Lisheenagreine) were occupied during the fifth and sixth centuries AD, spanning the late prehistoric/early medieval transition. A souterrain to the south of Lisheenagreine produced a seventh–ninth century date, while a second period of use at Lisheenagreine and a pre-bank sample at ringfort 84:85 were dated late eighth to tenth century AD. Therefore, just as significant prehistoric activity may have been a contributing factor in the establishment of an early medieval power base in this area in the fifth/sixth century, settlement at a later stage in the early medieval period continued to be attracted to these graphThe soils of the area were a significant contributing factor in the concentration of so many early medieval farmsteads in the area. Such a sound agricultural base may have been a key factor in the rise to power of the ruling people of this area, the Eóganacht Raithlinn. The settlements of such a group should reflect the elevated status of their owners. In this case, the settlements in question are ringforts, and the status of an early medieval ringfort can be determined in a number of ways. As previously discussed, status can be embodied in the morphology of a settlement enclosure, though issues of site preservation/survival can impact such representations. Likewise, excavated material culture can provide a clear indicator of wealth, though influenced by varying preservation conditions and scale of excavation. As this study has now shown, settlement distribution can also reflect the significance and status of a site and its location.

The Garranes complex once again provides detailed evidence in this regard. The size and trivallate design of Lisnacaheragh places that enclosure apart from the majority of other ringforts in the area. Similarly, the

excavated evidence from the site reflects a settlement of high status, comprising standard everyday items, personal ornament, imported goods, and the remains of high-status craft activities such as non-ferrous metalworking and glass-working. The identification of the site's locale as a focal place of considerable significance both supports this evidence and is, in turn, supported by it. This is also true of high-status early medieval settlements beyond the Garranes study area. In the Burren, for example, comparisons can be drawn with the excavated cashel of Caherconnell (Comber 2018). Although dating from the opposite end of the early medieval period to Lisnacaheragh (being constructed in the late tenth century AD), the size of Caherconnell's drystone walls (possibly 5m high originally) and its relatively large diameter (42m) compared to most cashels in the region, reflect a site of some importance (Figure 9.17). A rich assemblage of material culture included domestic and agricultural implements, weapons, evidence of music and games, non-ferrous metalworking, luxury personal items, and imported goods. The status of the settlement is confirmed by documentary references, and the whole supported by a landscape analysis that highlights the strategic location of the ringfort at the centre of a high-order focal place. Therefore, morphology and material culture, when combined with landscape analysis, can pinpoint significant places in the landscape.

This study has identified three different types of focal place in the mid Cork landscape. Located twice the normal distance from its nearest neighbour, the Garranes focal place (settlement clusters 1 and 2) constitutes the most significant example of this landscape entity. Its hinterland contains three of the four low-order focal places in the study zone – places providing limited/lower-level services and goods, perhaps extending the reach of a nearby high-order focal place. The remainder of the settlement clusters constitute standard high-order focal places. This structure provides a physical representation of the early medieval *túath* system. Described as 'the basic socio-political and jurisdictional unit of society', each *túath* had its own 'king, bishop, judge and scholar' (MacCotter 2008, 88). The high-order focal places of settlement clusters 3–11, each related to a later civil parish, appear to represent the core activity centres of the relatively small *túatha* that existed towards the end of the early medieval period.

The Garranes focal place, however, presents as the centre of a larger territory, where any late *túatha* that might have existed did not have/need a high-order focal place. MacCotter's reconstruction of the *Trícha Cét*/early *túatha* system (2008, 150–5; appendix 2) provides a possible reason for this. Garranes and its hinterland may correspond to the *Trícha Cét* of Cenél mBéicce, mirroring the extent of an earlier large *túath*, probably one directly controlled by the Eóganacht Rathlinn. The lack of high-order focal places in this hinterland suggests a greater status and controlling power for the example at its core than for those located closer together in neighbouring *Trícha Cét*. The Garranes focal place appears to have controlled a large territory using only low-order focal places. This control is evident at the end of the early medieval period, at a time when economic and political power in neighbouring *Trícha Cét/Túatha* had devolved to the smaller territorial units or 'late *túatha*', each with their own high-order focal place. Between them, those focal places and the territories they inhabited provided structure and control of this valued landscape, as centres of power in the early medieval rural landscape.



Figure 9.17 Caherconnell Cashel, Co. Clare, during excavation in 2016. (photograph: Paul Naessens)

9.2 RINGFORT SURVIVAL IN THE GARRANES LANDSCAPE

Edward O'Riordan

Ringforts are the most recognisable field monument in most parts of Ireland. During the early modern era when the entire countryside was mythologised, a relationship with an underground dwelling race was transferred to these structures. This association probably developed in part because of the frequent occurrence of souterrains in these sites. Tied to this was the notion that destruction of ringforts would incur the wrath of their supernatural inhabitants, affording a level of protection that accounts for their widespread occurrence. However, cartographic evidence across Ireland confirms there was always a certain level of ringfort destruction in recent centuries. In an attempt to unravel these contradictory strands, this article will investigate the rate of decline of ringfort survival in Garranes and other townlands in Templemartin parish, Co. Cork. It will consider the strength of traditional belief in that area and the factors that contributed to the damage or destruction of these monuments.

The important position of ringforts within the Irish mythological narrative has long been evident. The association of some monuments with an underground dwelling race is emphasised as early as the ninth century in tales such as *Eachtra Nerai*, considered by some to be a *remscéla* or fore-tale for the *Táin* (Meyer 1899, 212). This association is also referenced in the work of several antiquarians, such as Thomas Crofton-Croker (1835), and is further emphasised by the work of the Irish Folklore Commission, most notably through its Schools Collection project of the late 1930s (Briody 2007). Within popular imagination, it is widely accepted that a connection with the *sidhe* (fairies) provided ringforts with an unassailable protection. It was likely that 'fairy forts' in the Garranes area were regarded in a similar manner, though such folk beliefs did vary by region.

That perception is contradicted by records in the historical mapping of the Ordnance Survey (OS), which reveal that a significant level of ringfort destruction took place between the first edition of the six-inch survey (surveyed 1841–2, published 1845) and its subsequent revisions (1903–4; 1942). However, caution is advised when referencing the 1942 edition for not every townland was covered in this survey and often these maps were direct copies of the earlier second edition maps. A further comparison between these maps and recent aerial surveys (Google Earth [GE] 2009–18; Digital Globe [DG] 2011–3) indicate a continued, albeit slower, rate of destruction in the later twentieth century. These cartographic sources, in conjunction with field surveys undertaken by Ó Ríordáin (1931) and the Cork Archaeological Survey of the 1980s (Power *et al.* 1992 et. seq.), allow an overall level of destruction to be calculated, to identify periods when ringforts were under the greatest threat.

Consideration must also be given to the destruction of ringforts long before the OS maps were compiled. This is evidenced in various parts of Ireland by the privately commissioned estate maps of the later eighteenth century (O'Flanagan 1981). In the study area, in particular, it is recorded in the private estate mapping of Bernard Scalé (1736–1828), who in 1775 surveyed part of the barony of Kinalmeaky north of the River Bandon. This survey was carried out at the behest of the Devonshire family, part of whose estate extended into that area. Scalé's mapping was undertaken 70 years prior to the Ordnance Survey, and so preserved a record of the rural landscape during the period of significant population growth prior to the Great Famine of 1845–9. The townland maps produced for Scale's survey were extremely precise, with a large number of ringforts or 'Danish forts' listed in most townlands. For this study, the Scalé estate survey will be compared with the OS maps for townlands in Templemartin parish.

The purpose of this study is to evaluate the overall level of ringfort destruction in the study area and to identify the periods of greatest threat. This data will be considered against any evidence that indicates the strength of popular tradition served to safeguard these monuments. Bearing in mind the effort required to level a large earthen ringfort in the period before mechanised farming, there must have been a considerable incentive in economic terms. This raises the question the question why any ringforts survived at all. It is proposed to investigate what factors may have encouraged the preservation of ringforts in different land holdings.

Assessing the rate of ringfort destruction in the study area requires a comparative study of historical map sources and recent aerial surveys. This permits the establishment of a timeline with a difference of approximately seventy years between each survey. The earlier maps, however, followed different conventions in scale and orientation. For example, Scalé's survey of 1775 depicts each townland in isolation, while the OS maps (1841–2 and 1903–4) were constructed at county level. Each survey made use of differing scales; Scalé constructed his maps to a scale of twenty perches to an inch, corresponding to around 1:3960, while the Ordnance Survey used statute measurements at a scale of six inches to a mile, or 1:10560. These differing scales, and the different orientation of the maps, can make it difficult in some instances to compare directly the location of field monuments.

In most cases, however, it is possible to establish the position of ringforts in relation to particular areas within each townland, such as changes in boundary directions, which can assist in determining the location of these sites. Scalé attempted to show differences in the size of the ringforts, and to depict differing forms, while the OS maps also show different forms and, occasionally, the condition of individual sites. The OS maps always have north at the top of the page, whereas townlands in Scalé's maps are rotated to fit on the available page space. There is no confusion in the latter, however, as the orientation of north is always indicated.

Ringforts in selected townlands of Templemartin parish

The parish of Templemartin is located in the north of the barony of Kinalmeaky and contains sixteen townlands. However, eight of these townlands were not included in the 1775 survey, while another townland, Shanacloyne, provided no evidence for the presence of ringforts. For these reasons, this study will focus on the remaining seven townlands of Castlenalact, Garranes, Kilbarry, Moneen, Moskeagh, Scarriff, and Scartnamuck.

Castlenalact

This townland is divided between the parishes of Templemartin and Brinny, though Scalé (1775, map 32) displays it as a single unit. There are three ringforts recorded in the *Record of Monuments and Places* (RMP) for the townland (CO096-011, CO096-114 and CO096-049), the first two of which are shown on Scalé's map. On both editions of the OS map (Sheet 96), CO096-011 is clearly shown, while CO096-049 is depicted as a sub-rectangular feature on the first edition and as a more rounded monument in the second edition. CO096-114 is not depicted on either edition of the OS map. Ó Ríordáin (1931, 68) described CO096-011 as 'a double ramparted lios'. The third edition OS map (1942) of the townland included a depiction of the above two ringforts. Today, there are no extant ringforts in this townland, with CO096-011 recorded by the Cork Archaeological Survey (Power *et al.* 1992, 152) as levelled around 1980. Recent aerial photographs indicate a circular crop mark, *c*.34m in diameter, at the location of CO096-049 (Google Earth 2015).

Garranes

This townland and the adjacent townland of Moneen have the highest concentration of recorded ringforts in the study area. That contrasts with townlands closer to Bandon, particularly those upstream of the town. For the latter, better soil quality due to limestone geology, as well as proximity to the town itself, encouraged more intensive agriculture with an increased risk to ringfort survival. The distance of Garranes and Moneen from that central market may have influenced the type of farming practiced there, with a greater emphasis of pastoralism. The concentration of ringforts in those townlands may be explained by an enduring association with the 'royal' ringfort of Lisnacaheragh. It is notable Scalé recorded six ringforts of varying size in his 1775 survey of Garranes townland (map 29).

Lisnacaheragh (CO084-084) is the most imposing of these ringforts in Scalé's map. The adjacent enclosure of Lisnamanroe (CO084-083) is also depicted. To the south-east of these is an un-named ringfort (CO084-085001) in the environs of Garranes House, while further east two other ringforts (CO084-088 and CO084-136) are shown. Almost directly south from Lisnacaheragh, the ringfort of Lisheenagreine (CO084-090) is also depicted. The field in which this ringfort in located is shown with the furrows continuing over the faint outline of the ringfort. This suggests the latter had already been subjected to a significant amount of damage and possibly survived only as a low relief feature. Another example is the ringfort of *Lisnaboul* (CO096-010), which is not recorded on Scalé's map. The field where it is located is shown as having been ploughed, which suggests that by 1775 it was disturbed to such a degree that it could be considered as fully levelled.

On the first edition OS map (1842, sheet 84), Lisheenagreine (CO084-090) is not depicted at all, nor is an un-named ringfort (CO084-136) in the same townland. The location of the latter is indicated by a curved field boundary. In contrast, Lisnaboul (CO096-010) is shown as a circular feature. By the time of the OS second edition (1903), only Lisnacaheragh (CO084-084) and an un-named ringfort (CO084-085) near Garranes House are shown as extant. Further south, the ringfort of Lisheenagreine (CO084-090) is named and shown as a semi-circular feature. A cross and the label 'site of' indicate the locations of Lisnamanroe (CO084-083) and Lisnaboul (CO096-010). The possible locations of the two other ringforts (CO084-088 and CO084-136) are indicated by the presence of curved field boundaries.

The third edition OS map of 1942, however, included a representation of two ringforts not shown on the second edition (1903). Lisnamanroe enclosure (CO084-083), and another unnamed example (CO084-088), are shown as dashed line drawings on this map. Garranes was surveyed in 1983 by the Cork Archaeological Survey, who noted that Lisnacaheragh is the only surviving example of seven ringforts recorded in this townland (Power *et al.* 1992, 174).

Aerial photographs reveal a distinctive circular crop mark, approximately 40m in diameter, at the location of Lisheenagreine (CO084-090). There is another

possible crop mark at the location of CO084-088, where a curved field boundary may mark the southern extent of this monument (DG 2011–3). There is, however, no obvious indication as to the location of the other ringforts recorded by Scalé (1775). A 2015 aerial survey undertaken by Bluesky Ireland Ltd. confirms the location of Lisnaboul (CO096-010). This shows a circular feature, c.32m in diameter, with a darker band at its exterior that may correspond to the site's external ditch. That aerial survey also shows a large semi-circular crop mark, approximately 70m in diameter, at the location of Lisnamanroe (CO084-083). Further south, a vague outline that differs from the surrounding ground is visible at the location of Lisheenagreine (CO084-090). A curved field boundary may mark the southern boundary of ringfort (CO084-088). There may be some form of disturbance on the ground at the possible location of the nearby ringfort (CO084-136).

Kilbarry

Scalé (1775, map 27) includes a single ringfort in his survey of this townland. This monument is recorded in the Archaeological Survey of Ireland (CO096-003). On the first edition OS map, this monument is depicted on the western side of the main north–south road, and is also included in the revised second edition (Sheet 96). In his survey of this barony, Ó Ríordáin (1931, 61) remarked upon the 'remains of a large circular earthwork about 57 yards [52m] in diameter' at this location, concluding it 'was probably a lios'. This is supported by the presence of a souterrain (CO096-081) in the interior of the enclosure. The third edition OS map (1942) of the townland also depicts this monument. The Cork Archaeological Survey recorded in 1983 the enclosure had been levelled (Power *et al.* 1992, 180). Recent aerial imagery shows a well-defined circular crop mark at this location (DG 2011–3).

Moneen

This townland is divided between the parishes of Templemartin and Brinny, though Scalé (1775, map 30) displays it as a single unit. He records nine ringforts in the townland, seven in Templemartin and two in Brinny. All are recorded in the RMP, the seven in Templemartin parish being CO084-095, CO084-096, CO084-097, CO084-098, CO084-099, CO084-137 and CO084-138, while those in Brinny are CO096-017 and CO096-086. One of the ringforts in Scalé's map, CO084-095, is depicted as a square enclosure, which might indicate a moated site of later medieval date. The first edition OS maps (1842) depict three of the ringforts in Templemartin as circular features, namely CO084-096, CO084-098 and CO084-099. The *Archaeological Inventory of County Cork* (Ronan *et al.* 2009, 166–7) records the discovery of a souterrain during agricultural development during the 1980s, approximately 200m to the south-east of one of these ringforts (CO084-137). Souterrains are frequently associated with ringforts, but can also occur separate from those sites. The discovery of that souterrain might indicate the site of a levelled ringfort, though no such enclosure was noted by Scalé (1775, map 30) at this location.

The two ringforts noted by Scalé in Brinny parish are also depicted on the first edition OS maps (1841, Sheet 96), though they are both represented as sub-rectangular features. CO096-017001, named as Moylelisheen, is recorded as being in Brinny though the parish boundary appears to run outside its southern edge, thus placing it in Templemartin. The other ringfort, CO096-086, is noted on the first edition OS map as a 'killeen', which may indicate later use as a children's burial ground.

Only two ringforts (CO084-096 and CO084-097) are depicted on the second edition OS in the Templemartin part of this townland (OSI 1903, Sheet 84). CO084-097 is not shown on the first edition OS map (1842), which raises a question regarding its state at the time and why it was subsequently included in the revised edition. CO084-095 is shown as a rectangular field that juts outward at the western boundary of the townland. By that time, the ringfort noted as a 'killeen' (CO096-086) was apparently removed, while Moylelisheen (CO096-017001) is shown as a circular feature with a souterrain (CO096-017002).

Ó Ríordáin (1931, 60) could locate only three of nine recorded ringforts in this townland. He noted that two of these were bivallate (CO084-096 and CO084-097), while the third, *Moylelisheen* (CO096-017001), was incorporated into a field boundary. The third edition OS map (1942) also depicts three ringforts in the townland. In contrast to the second edition OS, the outline of ringfort CO084-097 is shown as a dashed line, indicating the poor condition of the site. In 1983 the Cork Archaeological Survey recorded only one extant ringfort (CO084-096), which may have survived as it is the largest example depicted on various map sources. Aerial photographs confirm this is the only ringfort to survive in the townland (DG 2011–3). A nearby example (CO084-095) is shown as a three-sided enclosure, defined in part by a field boundary. Further north, the location of ringforts CO084-097 and CO084-098 are indicated by circular crop marks (DG 2011–3; GE 2012). Further south, the location of ringfort CO084-099 is confirmed by aerial photographs (DG 2011–3; GE 2012–5), though these do not show the location of other recorded ringforts that are now levelled.

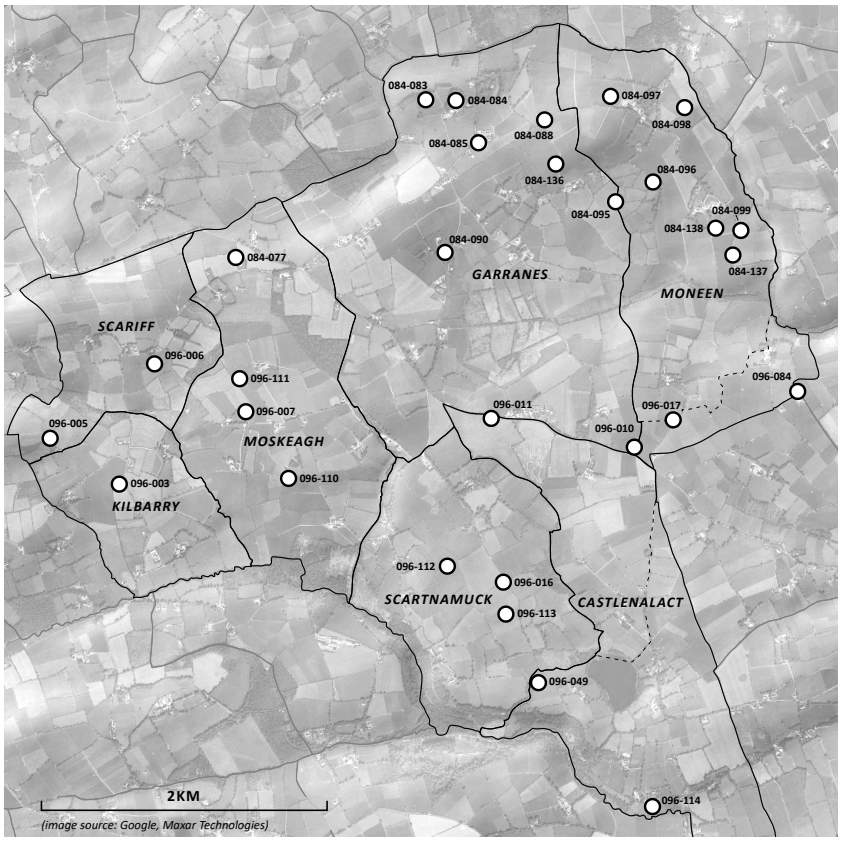


Figure 9.18 Distribution of ringforts ('Danes Forts') on Scalé's estate map of 1775. Refer to Figure 9.22 for further details. (RMP number abbreviated, i.e. CO084-084 becomes 084-084.)

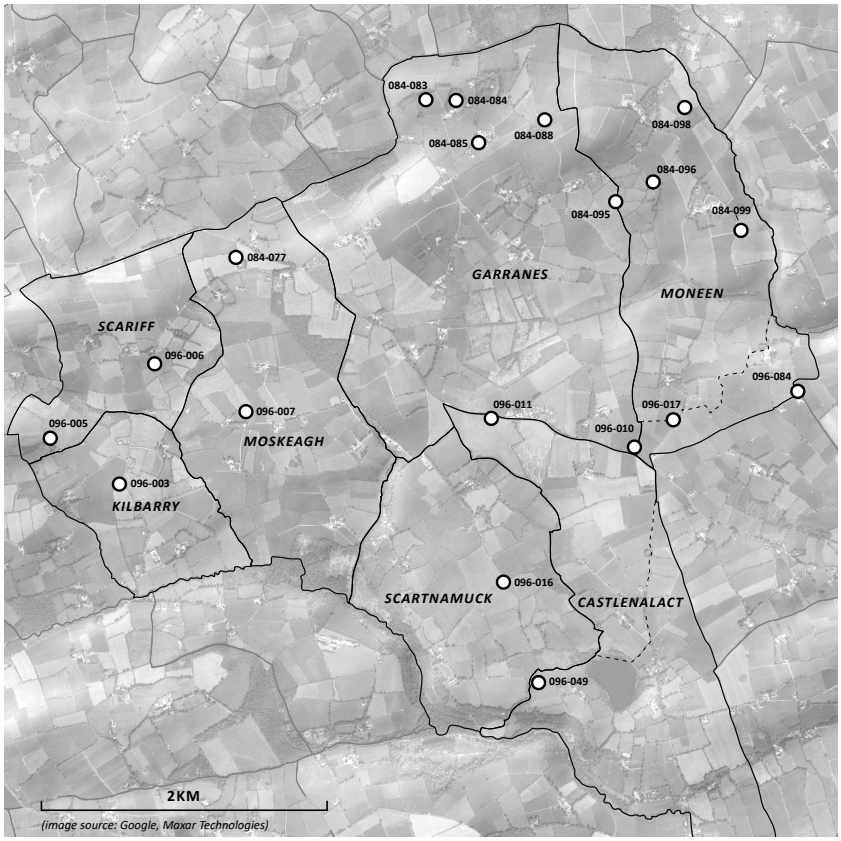


Figure 9.19 Distribution of ringforts recorded by the Ordnance Survey in 1841–2 (OS1).

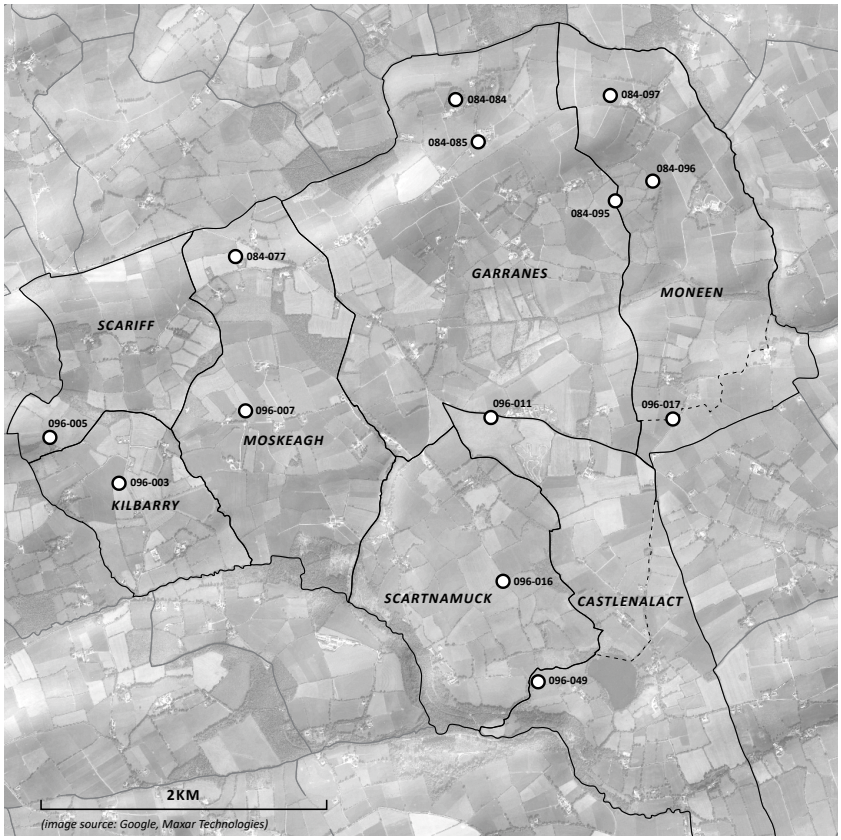


Figure 9.20 Distribution of ringforts recorded by the Ordnance Survey in 1903–4 (OS2).

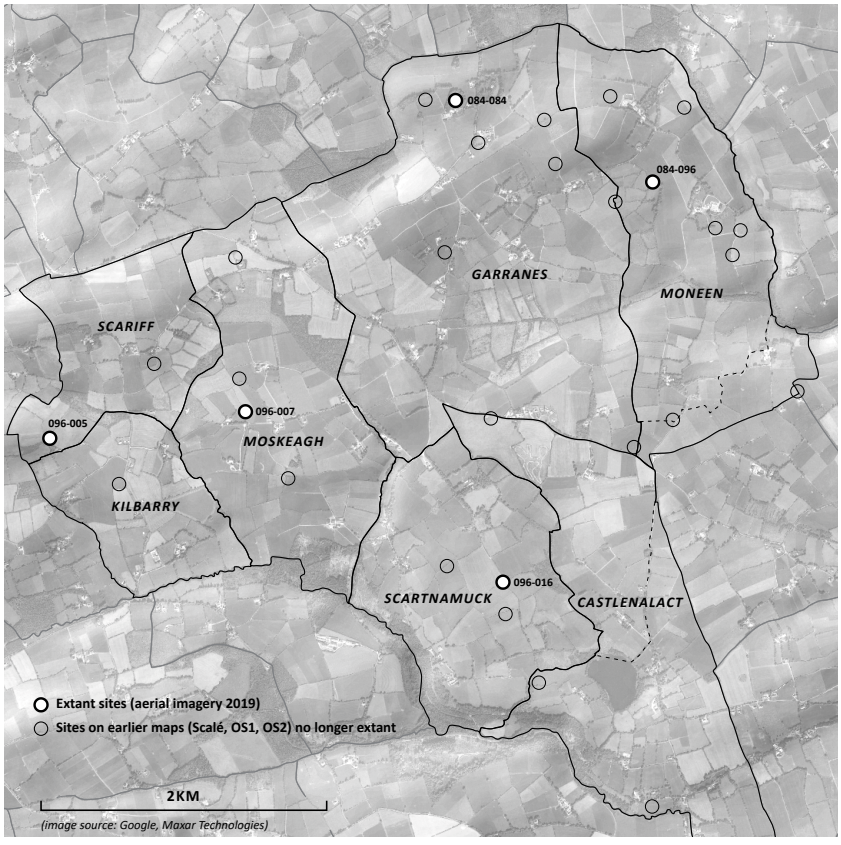


Figure 9.21 Distribution of extant ringforts in 2019 (based on aerial imagery). Also shown are non-extant ringforts depicted on earlier maps (see Figures 9.18–20).

Townland	RMP Number	Scalé 1775	OS1 1841–2	OS2 1903–4	SPÓR1 1931	OS3 1942	CAS 1983	AP 2019
Castlenalact	CO096-011	Y	Y	Y	Y	Y	N	N
	CO096-049	N	Y	Y	N	Y	N	N
	CO096-114	Y	N	N	N	N	N	N
Garranes	CO084-083	Y	Y	N	N	Y	N	N
	CO084-084	Y	Y	Y	Y	Y	Y	Y
	CO084-085	Y	Y	Y	Y	Y	N	N
	CO084-088	Y	Y	N	N	Y	N	N
	CO084-136	Y	N	N	N	N	N	N
	CO084-090	X*	N	N	N	N	N	N
	CO096-010	N	Y	N	*noted*	N	N	N
Kilbarry	CO096-003	Y	Y	Y	*noted*	N	N	N
Moneen	CO084-095	Y	Y	Y	N	N	N	N
	CO084-096	Y	Y	Y	Y	Y	Y	Y
	CO084-097	Y	N	Y	Y	Y	N	N
	CO084-098	Y	Y	N	N	N	N	N
	CO084-099	Y	Y	N	N	N	N	N
	CO084-137	Y	N	N	N	N	N	N
	CO084-138	Y	N	N	N	N	N	N
	CO096-017	Y	Y	Y	N	Y	N	N
	CO096-086	Y	Y	N	N	N	N	N
Moskeagh	CO084-077	Y	Y	Y	Y	Y	N	N
	CO096-007	Y	Y	Y	Y	Y	Y	Y
	CO096-110	Y	N	N	N	N	N	N
	CO096-111	Y	N	N	N	N	N	N
Scarriff	CO096-005	Y	Y	Y	Y	Y	Y	Y
	CO096-006	Y	Y	N	N	N	N	N
Scartnamuck	CO096-016	Y	Y	Y	Y	Y	Y	Y
	CO096-112	Y	N	N	N	N	N	N
	CO096-113	Y	N	N	N	N	N	N

Figure 9.22 A list of ringforts in the seven townlands of the study area, compiled from Scalé's survey of 1775, the three editions of the Ordnance Survey six-inch mapping, Ó Ríordáin's barony survey of 1931, field inspection in 1983 by the Cork Archaeological Survey, and visibility today on aerial photographs. Ó Ríordáin's 1930 survey did not number sites, but used ringfort name or farm location. Y signifies present on map; N signifies absent. X* signifies the depiction of Lisheenagreine as a watermark feature on Scalé's map. Refer to Figures 9.18–21 for location maps.

Townland	Scalé 1775	OS1 1841–2	OS2 1903–4	SPÓR1 1931	OS3 1942	CAS 1983	Extant 2019	*Townland total*
Castlenalacht	2	2*	2	1	2	0	0	***3***
Garranes	6	5*	2	3	4*	1	1	***7***
Kilbarry	1	1	1	1	1	0	0	***1***
Moneen	9	6	4*	2	3	1	1	***9***
Moskeagh	4	2	2	2	2	1	1	***4***
Scariff	2	2	1	1	1	1	1	***2***
Scartnamuck	3	1	1	1	1	1	1	***3***
Map total	***27***	***19***	***13***	***11***	***14***	***5***	***5***	***29***

Figure 9.23 Table of ringforts in the study area, compiled from cartographic sources and recent aerial surveys (* includes a ringfort not shown on earlier map).

Moskeagh

Scalé (1775, map 26) depicts four ringforts ('Danish Forts') in his map of this townland. All four are recorded in the RMP, including CO096-110, CO096-111, CO096-007001 and CO084-077. An association with a souterrain (CO096-007002) supports the identification of CO096-007001 as a ringfort. At the time of the first edition OS map (1841, Sheet 96 and 1842, Sheet 84) two of these ringforts (CO096-110 and CO096-111) are no longer visible, though on the second edition map (1904, Sheet 96) their location is indicated by a curved field boundary to the south and south-east. Two other ringforts (CO096-007001 and CO084-077) are depicted as extant on this map, and on the third edition OS map of 1942. The Cork Archaeological Survey noted in 1983 that only one ringfort (CO096-007001) was extant in this townland, which is confirmed by recent aerial survey. The location of CO084-077 is indicated by the presence of a curved field boundary to the west, while a soil mark depicts the eastern half of its enclosing bank (GE 2009–2018; DG 2011–3).

Scarriff

Scalé (1775, map 28) depicts two ringforts in this townland, both of which are recorded in the RMP (CO096-006 and CO096-005). Each are depicted on the first edition OS map (1841, Sheet 96), though by the time of the revised second edition (1904) only one example (CO096-005) is shown. Ó Ríordáin (1931, 58) recorded the remains of the other monument as a 'single ramparted lios ... 29 yards in diameter [26.5m]'. The third edition OS map (1942) also depicted this ringfort (CO096-005). The Cork Archaeological Survey noted the extant nature of this monument in 1983. While the ringfort, CO096-006, is no longer extant, an examination of aerial images indicates a circular crop mark at that location (ITM grid coordinates 545175, 562229; GE, 2012–3). The other ringfort within this townland (CO096-005) remains extant (DG 2011–3).

Scartnamuck

There are three enclosures ('Danish Forts') depicted on Scalé's map (1775, map 31) of this townland, listed in the RMP as CO096-112, CO096-016 and CO096-113. Scalé depicts two of these as circular in plan, and the third (CO096-112) as elliptical. Only one (CO096-016) is included in the first edition OS map (1841, Sheet 96). It is also depicted in the second edition of 1904 and the third edition of 1942. It was noted as extant by the Cork Archaeological Survey when they visited the site in 1983 (Power *et al*, 1992), and survives today. The south-west and south-east sections of the enclosing bank have been incorporated into field boundaries and a ring of tree growth defines the remainder of the enclosure (DG 2011–3). A study of aerial images (GE 2009–18; DG 2011–3) provides no indication as to the location of two other ringforts noted by Scalé in this townland.

Comparative destruction rates

Seven ringforts are recorded in various map sources for the townland of Garranes. Six of these are included by Scalé (1775, map 29), while five are depicted on the first edition OS map (1842, Sheet 84), including one (CO096-010) that it not shown on the earlier map. This represents a loss of two ringforts over the intervening period of 67 years. On the second edition OS map (1903, Sheet 84) just two ringforts are depicted, indicating a loss of three examples over the intervening period of 60 or so years. However, the third edition OS map of 1942 indicates the presence of four ringforts, as it included the outline of two ringforts (CO084-083 and CO084-088) not shown on the earlier map. Ó Ríordáin (1931) noted in his survey that these monuments had been levelled at the time. In 1983 the Cork Archaeological Survey recorded only one extant ringfort (CO084-084; *Lisnacaheragh*) in this townland, which is the situation today.

There was a similar trend of destruction in the adjacent townland of Moneen during the same period. Scalé depicts nine 'Danish Forts' on his map and by the time of the first edition OS map (1841 Sheet 96 and 1842 Sheet 84) this number had declined to six, representing a loss of three monuments from 1775 to 1842. In the second edition OS map (1903, Sheet 84 and 1904, Sheet 96) the number of ringforts has further fallen to four, representing a loss of two sites, though one site (CO084-097) was not shown on the first edition. Ó Ríordáin (1931) noted the presence of three ringforts in Moneen during his survey. The third edition OS (1942) also depict three ringforts in this townland, although one of these (CO096-017) may have been seriously degraded at this time. In 1983, the Cork Archaeological Survey recorded the presence of a single ringfort (CO084-096), which is extant today.

Comparable rates of ringfort destruction are apparent in other townlands in the study area, though the periods of greatest decline vary from place to place. An example of this is a group of three ringforts in the townland of Castlenalact. Two of these (CO096-011 and CO096-114) are shown on Scale's map (1775, map 30). CO096-114 is not shown on the first edition OS map (1841, Sheet 96). However, an example unnoticed by Scalé, (CO096-049) is depicted on this edition. These two ringforts (CO096-011 and CO096-049) are marked on the second edition OS map (1904, Sheet 96), but neither are now extant. CO096-011 was levelled only in recent decades, prior to 1983 when visited by the Cork Archaeological Survey. The levelling of a particular ringfort in modern times

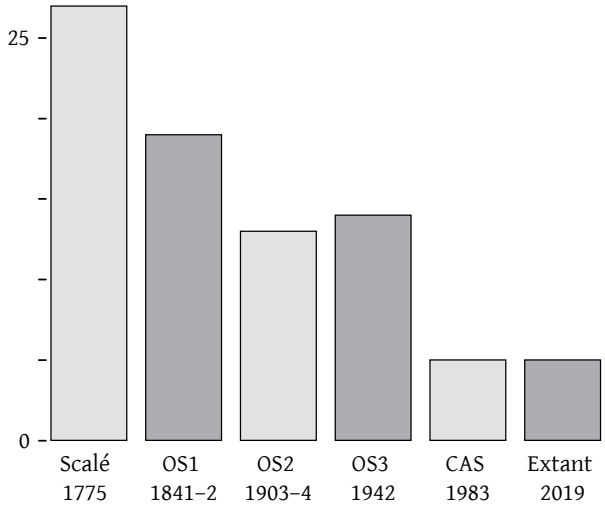


Figure 9.24 Bar chart showing the rate of decline for ringforts in the study area from 1775 to the present day.

is also apparent in Kilbarry townland. Scalé (1775, map 27) depicts a single example of a ringfort (CO096-003) in this townland and this also shown on both editions of OS maps (1841 and 1904, Sheet 96). This is no longer extant, but was recorded as an eroded ringfort by Ó Ríordáin (1931, 61).

Data from other townlands in the study area further emphasises the level of ringfort destruction. In Moskeagh four ringforts are included on Scalé's map (1775, 26) map, two of which (CO096-110 and CO096-111) had been removed by the time of the first edition OS map (1841 Sheet 96 and 1842 Sheet 84). The two remaining ringforts (CO0084-077 and CO096-007) are depicted on the second edition OS map (1904) and the third edition OS map (1942). By 1983, just one ringfort (CO096-007) remained and this enclosure is still extant. In the nearby townland of Scarriff, Scalé (1775, map 28) depicts two ringforts (CO096-005 and CO096-006). These are also in the first edition OS map, although one (CO096-006) had been levelled by the time of the second edition of the OS map. The remaining ringfort (CO096-005) was noted by Ó Ríordáin (1931, 61), and by the Cork Archaeological Survey in 1983, and is extant today (DG 2011–13). In the townland of Scartnamuck the period of greatest ringfort destruction appears to have occurred at an early date. Scalé records three ringforts there, but only one example is depicted on the first edition OS map. That ringfort (CO096-016) has survived to the present day.

These destruction rates highlight the drastic reduction of ringfort numbers in the study area over a period of almost two and a half centuries. Today, some examples are classified as 'enclosures' in the *Record of Monuments and Places*. It was decided to include these in the overall numbers of ringforts if their destruction took place between Scalé's 1775 survey and the first edition of the Ordnance Survey (1841). For many of these enclosures, Scalé used the term 'Danish Fort' suggesting they should be regarded as ringforts. If this is accepted, the total number of ringforts in the study area maybe as many as twenty-nine. Of these, just five survive to the present day and no townland has more than a single example extant. This gives a destruction rate of almost 83%.

That level of destruction seems to have been spaced evenly over time. There is a loss of eight ringforts between 1775 and 1841, a further loss of seven between 1841 and 1904 and a loss of eight ringforts during the twentieth century. However, when the situation in individual townlands is examined the period of greatest site destruction differs in each case. For instance, the low numbers of ringforts in both Castlenalact and Kilbarry remain stable until the twentieth century, while the period of greatest destruction in the townlands of Moskeagh and Scartnamuck occurred between 1775 and 1841. The destruction of one of two ringforts in Scariff took place between 1841 and 1904, while the decline of ringforts in the townlands of Moneen and Garranes took place over a longer period. The number of ringforts in Garranes were reduced from six in 1775 to just two by 1904, and there are clear indicators on Scalé's map that destruction was already underway in this townland prior to his survey.

Folklore

The most important record here is a project undertaken in 1937–38 by the Irish Folklore Commission, known as the Schools Collection (NFCS). That scheme involved organising the senior pupils in participating primary schools, under the direction of their teachers, to question their families and neighbours on a weekly topic chosen from a booklet provided by the Commission (Briody 2007, 264). This information was then transcribed into a standard notebook supplied by the Department of Education to each school. Information on supernatural elements associated with ringforts can be collated into three major themes that tend to be consistent throughout the country. These include the potential consequences of damaging or destroying these monuments. Tales concerning interactions between humans and the supernatural inhabitants of ringforts are also included, as well as the possibility of recovering buried treasure in and around these structures.

In the submission from Garranes National School, the teacher, Miss Nora O'Halloran, apologised for the fact that she could not collect any information from the children (NFCS, 315, 61). She explains that the children of the migratory labourers have no stories and that the farming families are nearly all recent arrivals in the district. She recounts that 'with the exception

of the Collins family, all the families had located to the area in the previous 20 to 30 years'. However, the Collins children were excused from the project for Miss O'Halloran notes that they were too young, and that 'their Grandmother was in America for a great part of her life and remembers few of the old stories' (*ibid*.).

Also telling is the response received by one young girl when she attempted to collect information. She was admonished that 'long enough we were believing in these old superstitions the people have more sense now and its time they were forgotten' (*ibid.*). Miss O'Halloran's account concludes with the remark that Professor Ó Ríordáin had recently 'opened' Garranes fort and that the children had visited the excavation at the time. This archaeological development may provide an explanation for the reticence of the local families in relating any stories they may have known. The campaign to collect folklore was organised primarily as a rescue mission, in a period of cultural flux between tradition and modernity, when it was felt that with the passing of the older generation traditional information would be lost. This information may no longer have been of interest to members of a generation looking to the future. Being reminded of a positive technological aspect of modernity through Ó Ríordáin's excavations, the local community may have been concerned not to appear too traditional or backward.

Economic developments

The destruction rates of ringforts in Garranes and adjoining townlands demonstrate that neither traditional, social, nor later legal, sanctions served to protect ringforts once it was of greater benefit to remove them from the landscape. The destruction of ringforts was primarily due to farming or related activity. Where ringforts are preserved, it could be because they had a practical function as animal enclosures or garden plots. At a national level, farming practices changed several times over the period from the eighteenth century onwards. One important development was the growth of commercial tillage farming. This received government support in 1759, with the granting of bounties for the overland transportation of grain and flour to Dublin (Feehan 2003, 98). That assistance was put in place as a response to the industrial revolution in England and the attendant growth in its urban areas, which encouraged the growth of agricultural markets. The economic, and perhaps social, benefits of tillage were further evident in Foster's Corn Law of 1784. This legislation subsidised the export of grain from other ports besides Dublin and restricted the import of grain, except in times of scarcity (Connolly 1998, 204).

Feehan (2003, 98–9) maintains that within twenty years of the passage of the 1784 Corn Law 'a million and a half extra acres was in tillage' in Ireland. He suggests this increase in the amount of land devoted to tillage was not at the 'expense of good grass ... but on newly acquired wastes'. Records support this assertion, as there was a substantial growth in the level of grain exports to England in the later eighteenth century. Murray (1907, 152) states that grain exports from Ireland expanded from 589 thousand barrels in 1787 to 872 thousand barrels by 1791, while exports of wheat had risen from 62 thousand barrels to 154 thousand barrels over the same period. By 1799, these numbers had declined slightly, with 695 thousand barrels of grain and 46 thousand barrels of wheat being exported. Overall, it is suggested that exports in general, although mostly agricultural goods, rose by 40% in volume from 1792 to 1815 (Cullen 1972, 100).

Another indication of the attraction of tillage farming is evident in the price of such commodities. Cullen (1972, 100) noted that between 1792–1815 overall exports rose by 120% in value. Kennedy and Solar (2007, 57) indicated that the price of wheat rose from 12s/cwt in 1796 to 22s/cwt in 1800. Clearly, this was a boom time to be involved in grain production. The longevity of this boom, in production and pricing, was a direct result of the Napoleonic Wars, from 1793–1815. Soon after the outbreak of war, both sides imposed blockades on imports (Findlay and O'Rourke 2003, 32–3); restrictions that afforded Ireland privileged access to the British market.

The expansion of arable farming in West Cork at this time can be confirmed by a contemporary account. General Charles Vallancey's conducted a military survey in 1776 that included the Bandon river valley. He observed that 'the valleys abound with, corn and potatoes and the mountains are covered with black cattle'. He further states that, in contrast to twenty years earlier, 'the face of the country now wears a different aspect: the sides of the hill are under the plough, the verges of the bogs are reclaimed' (in Andrews 1966, 59). The capacity for ploughing to disturb field monuments is suggested in Arthur Young's account of how farmland was prepared for planting. Writing in 1776–79, he noted that ground would usually be ploughed four times before planting wheat, once across previous furrows, and this in addition to two harrowings, for barley the ground was ploughed only twice and harrowed once, while for oats and potatoes the ground would be usually only ploughed once (Young 1892, 98). Local information also provides an indication of the potential damage caused by ploughing. A story collected in 1938 from an 88-year-old man mentions that the banks of ringforts were made of loose earth and he admitted that he 'often ploughed the sides of the ditches' (NFCS 314, 144–5).

Young did not visit the Bandon area, but provides information on the system of arable crop rotation practiced elsewhere in Co. Cork, noting that the cycle began with a crop of potatoes and continued with a crop of wheat the following season (1892, 295). There then followed several plantings of oats, perhaps until the soil was exhausted, after which the land was left fallow for three years to recover (*ibid*.). Such fallow land also served as grazing for animals, which contributed to the revitalisation of the ground. However, the barony of Kinalmeaky, in which the study area is located, was included in the later *Statistical Survey of the County of Cork* (Townsend 1810, 359–376), where it was noted that crop rotation included an initial crop of potatoes, followed sometimes by a crop of wheat but more often by oats and barley. Townsend also emphasised that the upland areas are 'for the most part poor, shallow, and stony' (*ibid*., 359).

Scalé's 1775 survey of the study area contains detailed maps, each accompanied by an index. The latter recorded the acreage and farming activity (arable, pasture or meadow) of each numbered cultivated field, as well as including any areas of wasteland and poor unproductive land. This data allows a calculation to be made of the level of land use and dominant farming activity in each townland. The largest townland in the study area is Garranes, which according to Scalé contains a total area of 1188 acres, three roods and six perches, corresponding to 481.09 hectares. Of this overall area, 223 acres, one rood and 21perches [90.40 hectares] were classified in the index as poor unimproved land (*ibid*., 29R). This left the amount of productive land at 965 acres, one rood and 25 perches [390.69 hectares], comprised of 357 acres, two roods and 14 perches [144.71 hectares] devoted to arable farming, 402 acres [162.68 hectares] used as pasturage, and 72 acres, three roods and 14 perches [29.48 hectares] set aside as meadow for the cultivation of hay.

With this information, the area devoted to the cultivation of each crop may be determined. Arable crops constituted just over 37% of the productive land in this townland, while pastoral farming accounted for over 49% of the available land. That high level of arable farming reinforces Vallancey's comments on land use in the region, and must have influenced the survival of ringforts, as confirmed by the rate of destruction between Scalé's mapping of 1775 and the first edition OS (1842). The remainder of the productive land was composed of either gardens or coarse meadow. Interestingly, several fields, totalling 22 acres, one rood and 34 perches [9.09 hectares], seem to have been used to grow furze. This highly versatile plant was widely used as fodder throughout the country in the pre-modern period (Lucas 1958). Contemporary evidence for this practice in Cork is contained in a report published in *The Munster Farmers Magazine* (Townsend 1812).

Scalé's index for other townlands indicate differing levels of activity. For example, the townland of Scarriff (Scalé 1775, 28R) contained a total of 651 acres and 22 perches [263.98 hectares] and a large portion of this, 82 acres, two roods and 24 perches [33.44 hectares], was described as 'furze'. It seems unlikely this amount of land would be left revert to a wild state, which suggests that this plant was subject to cultivation. Another 148 acres and 33 perches [59.97 hectares] were noted as 'boggy pasture and heathy mountain', though it seems likely that this relatively poor land would still be used for grazing. On the more productive land, just over 95 acres and 31 perches [38.51 hectares] was devoted to arable farming, while just 13 acres and 27 perches [5.32 hectares] was used as meadow, for the cultivation of hay. The remainder of the land, 245 acres, one rood and 19 perches [99.29 hectares], was classified as pasture for the grazing of animals. These figures indicate that pastoral farming was prevalent in this townland at the time. This may well be a factor in the survival of the ringforts there until at least the mid-nineteenth century.

Two ringforts were levelled in the townland of Scartnamuck in the period between Scalé's survey (1775) and the first edition of the Ordnance Survey (1841). This townland was the only one in the study area where arable farming was the dominant agricultural activity at the time of Scalé's survey. His index records that Scartnamuck covered an area of 544 acres and 22 perches [220.20 hectares], of which 172 acres, two roods and 31 perches [69.89 hectares] may be described as poor and unimproved land. Of the remaining productive land, 181 acres and nine perches [73. 27 hectares] was devoted to arable farming, while 143 acres, one rood and 39 perches [58.07 hectares] and 4 acres, two roods and 25 perches [1.88 hectares] were used as pasture and meadow. Here, as in Garranes townland, there appears to be a correlation between the amount of land devoted to arable farming and an increased risk to ringforts. Scalé recorded the townland of Moneen as having a substantial level of arable farming, over 199 acres, one rood and 27 perches [80.70 hectares], or just over 30%, of a total area of productive land of 652 acres, one rood and 23 perches [264.01 hectares]. This may explain the removal of three 'Danish Forts' in the townland in the period between Scalé's 1775 survey and the 1841 Ordnance Survey.

It should be noted that Scalé's survey presents an image of a countryside where arable and pastoral farming co-existed. In addition, with the system of crop rotation, it is likely that fields devoted to each activity changed over time in each townland. In those areas reserved

for pastoral farming, ringforts could be used as tillage plots. The recent programme of excavation in Garranes townland revealed evidence of 'lazy-bed' cultivation in the interior of Lisnacaheragh, Lisnamanroe and the CO085-085 ringfort. The use of ringforts as garden plots served to protect these monuments, even if this resulted in significant disturbance of their interiors.

The focus of this article concerns the eventual destruction of these monuments and its likely causes. It is clear that arable farming continued to remain an important element of agriculture in the Bandon valley until at least 1837. Lewis (1840, 179) wrote that the town of Bandon contained several breweries and distilleries, as well as several flour mills. He also noted that one of these distilleries had recently been founded and consumed '5800 barrels of oats and barley'. His account of these industries concluded with the remark that because of their requirements, 'very little grain is exported'. This account confirms a theory espoused by J. H. von Thünen (1826), that the presence of an urban centre influenced the economic development of the surrounding countryside.

Despite this, the Bandon valley was eventually affected by other national trends. One of these was a reversion to pastoral farming due to economic factors during the early decades of the nineteenth century. Another local factor was the decline in population numbers in the parish of Templemartin. Census return data shows a gradually decreasing population level between 1821 and 1841: from 2854 people in 1821, to 2730 in 1831, to 2362 in 1841, in years leading to the Great Famine. This represents a decline of almost 20% over twenty years. Ten years later, after the devastating Famine, the population level was recorded at 1550 (Census 1821–51). This corresponds to a decline over a thirty-year period of 45% of the parish population. This decline continued beyond 1851, and may have contributed to the arrival of new groups as mentioned by Miss O'Halloran in the Schools Folklore survey. Another consequence was a need to consolidate land and simplify its use, most visible through the enlargement of fields and the removal of boundaries.

That alteration of field patterns led in some instances to the destruction of ringforts. This is evident on later maps; for example, in the townland of Garranes where a comparison of the first and second edition OS maps show that the field boundary to the west of Lisnamanroe (CO084-83) was removed in the intervening period. In the neighbouring townland of Moneen a field boundary abutting the ringfort (CO084-138) was also removed in the intervening period. The destruction of a nearby ringfort (CO084-137) also seems to have been associated with agricultural improvements.

The consolidation of farmland continued into the modern era. An examination of the second edition OS map (1903) of Garranes shows that woods where a ringfort (CO084-088) was located have also been removed. In 1842, in the neighbouring townland of Moneen, a ringfort, (CO084-098) is shown in a landscape of small fields; however, by 1903 six of those field boundaries had been cleared. In Scarriff townland, the fields surrounding a ringfort (CO096-006) were also subjected to consolidation between 1841 and 1904. In addition to the removal and in some places the rebuilding of field boundaries, two nearby groups of houses also disappeared during this period.

After 1904, the increased mechanisation of farming facilitated the removal of field boundaries and enclosures. Between 1904 and the present day in the townland of Castlenalact, the area surrounding a ringfort (CO096-011) was subject to this activity, when seven field boundaries were removed, as were a house, shed, and connecting laneway. This ringfort was finally levelled around 1980. A contemporary article observed that the enlargement of fields had recently caused the destruction of a number of ringforts in this general area (Hurley and Hurley 1979). This was a process that continued unchecked until the legal registration of these monuments in the 1980s by the Archaeological Survey of Ireland.

Conclusion

This study has examined the rate of destruction of ringforts in seven selected townlands of Templemartin parish, Co. Cork. It is estimated that twenty-nine possible ringforts were extant in 1775, based on Scalé's detailed survey of those townlands. This is now reduced to a total of five monuments, a decline of almost 83%. Cartographic evidence allows the rate of decline to be calculated for different periods. While there are some peaks of destruction, the evidence indicates these monuments were removed from the landscape in a gradual manner over the past two centuries.

It is notable that relatively little destruction occurred in the modern period, with just a single example recorded in recent decades. The most likely explanation is that by modern times much of the valuable land had already been cleared of monuments, and those that remained posed less of a hindrance to agriculture. This contradicts a commonly held assumption today that monument destruction is a modern phenomenon. The study also indicates that the highest levels of ringfort destruction occurred when traditional beliefs associated with these monuments was apparently still strong. This can be seen in the study area through information collected as late as the 1930s. The continued influence of such beliefs may be evident in the reluctance of local people

to recount such tales. It is likely that such traditional knowledge was even more deeply embedded in rural communities in earlier times.

Nevertheless, the inability of traditional social sanction to protect ringforts is not surprising. Until the Land Acts of the late nineteenth century, the most traditional section of Irish society exercised little or no control over land, while those who did had a different cultural understanding of ringforts. Once it was decided by members of this dominant group to remove such monuments from the landscape, it would have been a brave or foolhardy tenant that refused to participate. Furthermore, after the Great Famine, and compounded by centuries of propaganda concerning Irish 'fecklessness', the influence of traditional belief declined sharply in sections of the Gaelic community. As ringforts occupied a prominent role in Irish tradition, any progressive 'modern' farmer may have viewed these monuments as an unwelcome reminder of failure and past subjugation; conversely, the levelling of ringforts could show evidence of a productive and enlightened attitude to farming practice.

Another aim of this study was to investigate what land use practices posed the greatest risk to the survival of field monuments such as ringforts. Because the destruction rate was spread evenly in recent centuries no single activity was responsible, as the types of land use throughout the area, and indeed in individual townlands, varied during that time. All of the agricultural activity that occurred had the potential to affect ringfort survival rates. This ranged from the expansion of tillage farming in the late eighteenth century to a reversion to pastoral farming that followed a fall in demand for Irish grain in the early nineteenth century. The return to pastoralism was accelerated by a decline in rural population from the mid-nineteenth century onwards. However, the driving force in land use was the economic desire to extract as much benefit as possible, achieved through the improvement of farmland and the application of modern methods. The psychic shock of the Great Famine, and an attendant fear of future scarcity, may also have encouraged the rapid adoption of modern farming methods, which included a rationalisation of land use that required a fundamental transformation of the landscape.

In conclusion, this study has shown that ringforts in the small study area of Templemartin were levelled and destroyed in large numbers in the period 1775 to 1980. It is clear that traditional superstition attached to those monuments did not serve as protection in all instances. A desire, or perhaps the necessity, to make practical use of the land was a stronger factor than traditional belief, and it was this process of improvement that posed the greatest risk to the survival of ringforts. Once economic factors became important, neither social disapproval nor legal sanction were sufficient to protect the majority of these monuments. The fact that some ringforts survive across the study area indicates these sites were not evenly subjected to the same pressures. It is notable that no ringforts were levelled in this parish following the Cork Archaeological survey of 1983 and the subsequent compilation of the *Record of Monuments and Places*. The cultural outlook and personal sensibilities of modern landowners, combined with stronger legal constraints, have a direct bearing on the preservation of archaeological monuments today.

– 10 –
GARRANES:
A ROYAL LANDSCAPE?

This concluding chapter examines how high-status residence at Garranes during the fifth and sixth centuries informs an understanding of 'royal sites' in early medieval Ireland.

The choice of that location as a central place is considered in relation to prehistoric settlement in the area. The design and material wealth of Lisnacaheragh and Lisnamanroe are assessed as potential signifiers of kingly residence. The evidence of imported goods in both enclosures is considered in relation to mercantile and other contacts with the late Roman world, which in turn had important implications for the spread of literacy and Christian conversion. The significance of Garranes in the later first millennium AD is explored, as is any historical connection between this landscape and the legendary *Raithliu* of medieval bardic poetry. The chapter concludes with a discussion on the importance of Garranes in terms the origins of the Irish ringfort.

10.1 ROYAL SITES

Long regarded as a 'dark age' in archaeological terms, recent discoveries on roads, pipelines and other developments have greatly expanded our understanding of the Irish Iron Age (Becker 2009; 2012; Cahill Wilson 2012). There is a growing number of sites of first to fourth-century AD date, from large ceremonial monuments such as the Rath of the Synods at Tara (Grogan 2008), to open and enclosed settlements, burials, cereal kilns, pits and burnt spreads (see Corlett and Potterton 2012 for an introduction to recent discoveries; also Becker, Ó Néill and O'Flynn 2008). While this new archaeology of the Irish Iron Age has been a focus of current research, the significance of large regional centres termed 'royal sites' continues to engage academic interest in the period. These legendary places – Emain Macha, Crúachain, Dún Ailinne, and most notably Tara – are presented in early texts as centres of Otherwordly power, and as places of royal residence, assembly and inauguration connected to an ancient sacral kingship. Today, they are associated with well-known archaeological landscapes, with focal monuments connected to public ceremony and funerary ritual, dating from prehistoric times to their 'abandonment' early in the Christian era. How relevant the 'royal' epithet is in terms of kingship in the late prehistoric period is uncertain. Newman suggests these places are better understood as 'developed ritual complexes', which he defines as 'a large, compound ritual complex, including both burial and communal ceremonial monuments, the protracted development of which began in the early prehistoric period and continued, with the addition of significant new ritual monuments, into the Iron Age, and possibly the later Iron Age' (1997, xv).

This understanding of late prehistoric 'royal sites' as ritual and ceremonial space has influenced perceptions of kingly residence in the early medieval period. How valid is any comparison between Tara and a petty kingdom in Mid Cork during the fifth and sixth centuries? One estimate suggests there were as many as 150 *túatha* in Ireland at any time during the early medieval period, each potentially having a mean size of about 500 square kilometres and an average population of around 5000 (Byrne 1973). Each *túath* had a local king (*rí túaithe*) at its head; where these grew in power to control other *túatha* they became over-kings (*rí túath* or *ruiri*), with the highest grade being the provincial king (*rí cóicid),* sometimes referred to as a 'king of great kings' (*rí ruirech)*. Each of these local or regional kings had a principal residence, and more than one in many cases. That implies there were hundreds of royal sites across Ireland during the early medieval period, the location of which changed over time, with likely variability in size and form corresponding to differences in those grades of kingship.

There are numerous references in literary sources to royal places in early medieval Ireland, often in relation to events connected to individual kings. The historical accuracy of those texts can be questioned, as most were written with considerable embellishment and archaisms in much later periods. An absence of geographical detail in most instances makes it difficult to identify the royal sites in question to particular archaeological sites and landscapes. As Warner observed, '...a high-status site may certainly be recognizable from archaeological evidence alone by using various "ranking" models. It may even be claimed to be "royal compatible". But the conclusion that it was actually the residence of a king can only be proved from historical sources' (1988, 48). A further difficulty is that '...a king might well have constructed or used a number of places and we may not be sure which named place was his main residence. Also, as the kingship moved between rival dynasties within the tribe it was not unusual for the place of royal habitation to move also' (*ibid*., 53). To complicate matters further, 'In the laws a king was expected to have three forts, between which his property was divided. It seems probable that they would have been spread around the *túath,* to be visited at some time during the year... only one of these would be the royal fort in the true sense, the place with which the king was identified, his residence and the place of his hospitality' (*ibid.,* 61; also

Warner 2000, 43). The royal site was where the rituals of kingship occurred, from inauguration to feasting, law-making and political alliances, and other royal duties. As with many stipulations in the law tracts, this is an idealized situation, with much variability in practice likely in local and regional kingdoms over the period AD 400–1100.

Well-known examples of early medieval royal sites include Clogher, Co. Tyrone, seat of the kings of *Ui Chremthainn*, of the chief kingdoms of the Airgialla, possibly from the fourth century to the ninth century (Warner 2000). Lagore crannóg in Co. Meath was a royal site of the kingdom of Brega from the eighth century (Bhreathnach 2014, 46), while Downpatrick, Co. Down, was the seat of power for the *Dál Fiatach* branch of the Ulaid in the ninth century (Byrne 1973, 87). These identifications are supported by strong historical evidence, and by distinctive features in the archaeology of those places.

Identifying royal sites

Ever since John O'Donovan and the Ordnance Survey explored the toponomy of Tara in the mid-nineteenth century, the archaeological search for 'royal sites' in Ireland has focused on distinctive landscapes where impressive or unusual monuments, generally earthworks, can be attributed to historically named places. This is what Warner (1988, 52) termed 'outstanding-site tendency', which he suggests has led to a great deal of misidentification or unproven identification of early medieval centres. While there is a tendency among archaeologists to interpret places with high status signifiers as 'royal sites', the aforementioned number of *túath* suggests these centres were common across Ireland, albeit at different levels of complexity. A more significant problem may be that archaeologists are overly influenced by an understanding of a royal site as applied to the 'big four' (Tara, Emain Macha, Crúachain, and Dún Ailinne), which may have little relevance to kingly residence in local *túath* in the early medieval era.

There have been several attempts to establish archaeological criteria for the identification of royal sites. Wailes (1982) lists the following features as distinctive of these important places:

1. Places of unusual function and importance should imply monuments of unusual form or size, or both.

2. Sites of similar status might be expected to be archaeologically similar.

3. They should provide evidence of both ritual and residence, accepting that activities such as assembly and inauguration might leave few archaeological traces.

4. There should be material evidence of high-status residence and possibly burial.

5. The site should date from the Iron Age and continue in use into the Christian era in some instances.

Warner (1988, 52) suggested these monument complexes might contain a large circular enclosure, defined by a massive bank with an inner ditch. Ritual monuments are often a feature of royal sites, a prominent mound in or near the large enclosure, an embanked roadway, and concentrations of funerary barrows. Multivallation is a good indicator of status, but complexity of earthworks, unless some are of a ritual nature, is not necessarily. He cautions that such sites may be indistinguishable from others in the locality, in many instances an internally small, but defensible, ringfort, crannóg or cashel. Excavation evidence is essential to establish the status of these sites, in terms of the size of residential buildings, material wealth and evidence of specialist craftworking. Warner recognized the variability that can occur between royal sites, noting also that '...these sites retain a local tradition of early importance' (*ibid*.).

Campbell (2007, 110–1) considered this question in terms of the status of sites with imported Roman goods, applying criteria such as the size of the enclosure, the labour required for its construction, the presence of weapons, gold and silver, and the manufacture of high-quality personal ornaments. There is a broad correlation, but he cautions that not all high-status sites had significant amounts of imported pottery, an example being Moynagh Lough crannóg, Co. Meath.

As warrior kings are prominent in early Irish legends, it might be expected that fortification and weapon finds are obvious criteria for royal sites. That is not immediately evident at the prehistoric royal sites, where weapon finds are rare in locations that could not be described as strongholds. This is possibly because military strength in the Iron Age was represented more by warrior culture than fortifications, a view that resonates with the heroic society portrayed in the epic, *Táin Bó Cúailnge*. Early law texts state that a royal residence should be a fortified *dún* (Kelly 1988, 30), but those defences may be more symbolic than real. Warner notes that the early annals contain few references to sieges at these centres in comparison to the frequent mention of their destruction, concluding that'... any idea that these royal sites provided a defensive

centre for the local people or for the tribe cannot be entertained' (1988, 59).

Textual evidence for the sacral nature of early kingship (Byrne 1973; Jaski 2000; Bhreathnach 2005) indicates the likelihood of designated ceremonial space in a royal site, be it an inauguration mound, cemetery or an older monument of special significance. On the latter, '...the use of these prehistoric complexes during the medieval period as places of inauguration might have derived simply from a desire to concord the sustaining role of the divine in early kingship with the medieval tradition that ancient burial mounds were otherworld dwellings (*side*) (Byrne 1973: 20), and a desire to associate, legitimately or otherwise, with ancestral territorial markers' (Newman 1998, 130). While ritual space was a central element of prehistoric royal sites, a separation of religious and secular authority in the Christian era had implications for how royal sites were conceived in ritual terms.

House size is a potential indicator of high status at individual ringforts, as early heroic texts often refer to great halls and banqueting areas in royal residences. There is a tendency to hyperbole in those medieval sources, as the descriptions do not match the excavated evidence from ringforts and other early medieval settlements (O'Sullivan *et al.* 2014b; Breathnach 2014, 108–117). That said, some correlation between house size and high-status settlement can be shown at a number of sites in Ireland.

The same law tracts confirm the social standing of blacksmiths (*gobae*), silversmiths (*cerd*) and coppersmiths (*umaige*) in early medieval Ireland (Kelly 1988, 62–3). On that basis, excavation evidence for those particular crafts is an important indicator of high-status residence. A difficulty here, however, is this does not always distinguish the residence of a king from that of a *nemed* craftsman. The former is likely where there is evidence of more than one specialist craft at a site, along with other indicators of high status, such as imported goods and high-value personal ornaments.

While we should be wary of a check-list approach, it is plausible that royal ringforts should display a greater level of material wealth than those of lesser status. However, Warner cautions that while fine and exotic objects might be expected at royal sites their presence alone will not distinguish the different grades of society (1988, 65). The majority of ringforts were protected homesteads of land-owning classes, from the wealthy noble classes (*nemed*) to free farmers (*boaire* and *ocaire*). When excavated, most yield only a limited amount of material culture, the discarded tools and lost items to be expected in a working farmstead. In some instances the quality of finds indicates *nemed* residence, but separating the material possessions of different grades of lord (*aire)* from those of a *rí* is difficult, notwithstanding all of the variables in the record.

Archaeologists have long been interested in correlations between the size and material wealth of ringforts and the social hierarchy in early medieval Ireland. Stout's analysis of ringfort distributions has been particularly influential in this regard (Stout 1991; 1997; Stout and Stout 2011). Using methods of spatial geography, he explored a possible correlation between ringforts and grades of society in early medieval Ireland (see Chapter 8.5). Central to this is the idea that ringforts can be associated with different grades of nobility, with multivallate examples at the higher end of the social scale, while small univallate ringforts were the residential sites of the free non-noble classes of *boaire* (strong farmer) and *ocaire* (small farmer). There is a social landscape context to this, as ringforts were residential sites of the *muintir*, extended families connected by blood ties, marriage, fosterage and economic dependency. These households were part of wider kin groups (*fine*), who worked common kin-land (*fintiu*) and had many legal and social obligations to one another. As discussed in Chapter 8, the most important of these was clientship, a contractual relationship between people of different rank which conferred benefits and obligations on both parties (Kelly 1988, 29–33).

While generally persuasive in its correlation of archaeology with historical sources, Stout's approach has its difficulties in terms of the palimpsestic nature of these historic landscapes. The difficulty with nearest neighbour, central-place theory and other methods of spatial analysis is the underlying assumption of contemporary occupation. The results from Garranes are a reminder that these enclosures range considerably in date, which is why no direct correlation can be made between Lisnacaheragh and many of the small univallate ringforts of potentially later date in the same landscape.

A further concern is that the social and economic organization described in early law tracts reflects society of the seventh and eighth centuries, as understood by legal scholars and educated elites of that era (O'Sullivan *et al.* 2014a, 328). Whether this applied to society from the ninth century onward is not clear given the significant centralisation of power that occurred with regional kingdoms of that period. The same might be asked of nascent kingdoms of the fifth and sixth centuries, such as that associated with Lisnacaheragh and Lisnamanroe at Garranes.

10.2 GARRANES: A LANDSCAPE OF POWER?

How does Garranes fit into an understanding of royal sites based on criteria established for the prehistoric centres? While each is distinctive in its own way, Tara, Emain Macha, Crúachain and Dún Ailinne have a number of features in common. There are unusual types and configurations of monuments connected to high-status residence and burial, and public displays of ritual and ceremonial space. There is evidence for the inhabitation of a place that became more and more special as layers of meaning accrued over time. This raises the question of what significance the Garranes landscape held for the builders of Lisnacaheragh and Lisnamanroe in the fifth century.

Before Garranes

At a site level, there is no evidence of activity at Lisnacaheragh or Lisnamanroe prior to the creation of those enclosures. No prehistoric artifacts were found in the various excavation campaigns, nor in the vicinity of these sites at Garranes. With one exception, the radiocarbon record confirms activity at both sites during the fifth and sixth centuries (see Chapter 7.3). An earlier date (3180±30 BP; Figure 3.23) for charcoal from a layer in Trench 4 of the 1990–2 excavation at Lisnacaheragh does not indicate Bronze Age activity. That charcoal is of unknown origin, recovered from what is interpreted as a layer of 'introduced boulder clay' (Cleary 2009).

The absence of older monuments at Garranes is notable when compared to prehistoric royal sites. Those are places where an explicit referencing of the past occurred through the physical incorporation of older monuments into new ritual space, as part of the legitimization of power in a sacral kingship. There are no prehistoric ritual monuments at Garranes to suggest that ancestral memory influenced the decision to build large enclosures there in the fifth century. The absence of barrows, ring-ditches and other forms of burial monument is notable when compared to Tara and Crúachain. While geophysical survey has identified possible levelled examples at Garranes (see Chapter 2.3), none of these are particularly convincing and remain to be proven by excavation. Barrows and ring-ditches are not common in Mid Cork, though some examples are known (see O'Brien 2012c, 185–8, fig. 224). Excavated sites include a ring-barrow of Late Bronze Age date at Knockatreenane, 5km to the east/north-east of Garranes (O'Brien 2010), and a ring-ditch of Iron Age date at Curraheen, 12km to the north-east (Hurley in Cleary 2015, 274–6).

The only recorded prehistoric sites at Garranes, are a few *fulachtaí fia*, part of a dense distribution of prehistoric burnt mounds in Mid Cork (Figure 10.1).

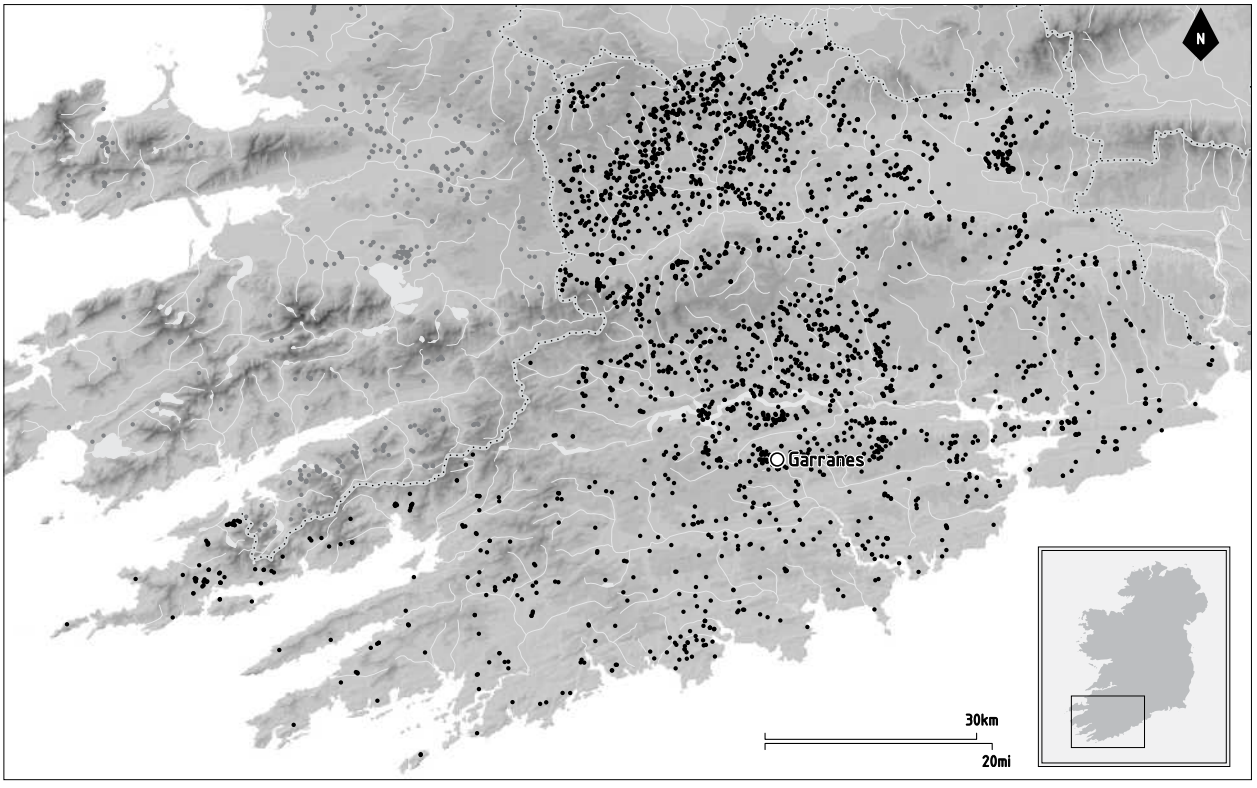


Figure 10.1 Distribution of prehistoric burnt mounds (*fulachtaí fia*) in Co. Cork
(source: National Monuments Service, Sites and Monuments Record; accessed 01/02/2020)

These include two examples (CO084-081001 and -081002) one kilometre south-west of Lisnacaheragh; a concentration of up to nine examples (CO084-091001 to -091006, CO084-092001 to -092003) 1.3km to the south; and a single site (CO084-093) 1.4km to the south-east. There are recorded *fulachtaí fia* 1.5km to the west of Lisnacaheragh in the townlands of Rathfelane and Kilbrenan. While none of these sites have been excavated, studies elsewhere in Cork and beyond indicate that they are probably water-boiling sites of prehistoric date (see Hawkes 2018 for review). Though undated, the Garranes examples may be part of a later Bronze Age settlement in Mid Cork, represented in many areas by monuments of the 'Stone Circle Complex' (O'Brien 2012c, 155–184). In Garranes townland there is an impressive boulder-burial (CO096-009) 2.3km south-east of Lisnacaheragh, with another example (CO096-012), now destroyed, in the neighbouring townland of Castlenalact, where there is also an impressive stone row (CO096-015). Though not excavated, these stone monuments are likely to be Middle to Late Bronze Age in date (*c.*1500–1000 BC), and so significantly older than the Garranes ringforts.

Clashanimud hillfort

This immense Bronze Age enclosure is the most important prehistoric monument in the vicinity of Garranes. It is located on a prominent ridge (179m OD) at Knockavilla, 5.6km south-east of Lisnacaheragh, and is visible clearly from the Lisnamanroe enclosure. There are two concentric oval enclosures, spaced 48m apart, over an area of 8.8ha (Figure 10.2). The outer enclosure was originally protected by an earthen bank with light timber fence, and an external ditch. The inner enclosure is enclosed by a bank built with earth and stone from an external rock-cut ditch. The bank was originally faced with stone walling on the outside and a timber revetment on the inside, with a central palisade of several thousand oak posts. The palisade, bank and ditch combined to create a 6–7m high barrier protecting the inner enclosure. There is an original entrance on the western side of the inner enclosure, where a ditch causeway leads to a narrow stone-faced gap in the bank, with postholes on either side for a wooden gate. The scale and ambition of construction suggests this hillfort was an important central place in the Cork region, approximately 1500 years before Lisnacaheragh was built in the same area (O'Brien 2016).

Radiocarbon dating of the inner palisade confirms the hillfort was built around 1100 BC, at the beginning of the Late Bronze Age. This was connected to the emergence around that time of chiefdom societies in different parts of Ireland. At various times the warlords who controlled those regional polities were in conflict, often with devastating consequences for their respective centres of power. Excavation confirms that a few centuries after Clashanimud hillfort was built, it was deliberately destroyed by fire and subsequently abandoned. This was probably connected to hostilities in the wider landscape, followed by punitive destruction of this central place of power (see O'Brien and O'Driscoll 2017 for discussion).



Figure 10.2 *(right)* Aerial view of Bronze Age hillfort at Clashanimud, Co. Cork. (source: Google Earth, Maxar Technologies). *(left)* Amphora sherd found in adjacent field to north-east (marked X in aerial view).

Many Bronze Age hillforts in Ireland were re-occupied during the early medieval period, when ringfort-type enclosures were built in their interiors (*ibid.*, 41). Examples include Mooghaun, Co. Clare, Rathgall, Co. Wicklow, and Rahally, Co. Galway. There is no evidence from recent excavation of early medieval occupation inside Clashanimud hillfort. Geophysical survey has identified what are probably two small levelled ringforts 300–400m from the north-west and south-west sides of the hillfort (*ibid*., fig. 3.71), while a souterrain was recently found 700m to the east/north-east. Also notable is the discovery during fieldwalking of a body sherd of Bi amphora (Figure 10.2); 100m from the eastern side of the hillfort in the townland of Russel Hill (*ibid*., 118, fig. 3.72; Doyle 2009, 56). This is only the second find of imported Roman pottery in Mid Cork, and is of similar type to some of the amphorae at Lisnacaheragh.

Following the abandonment of Clashanimud hillfort in or around the ninth century BC, there is little evidence of later Bronze Age activity in the vicinity of Garranes. The visibility of the Iron Age that followed is also poor, with no sites, monuments or artefact finds dating to *c.*600 BC–AD 400 from the general vicinity of Garranes. This is a problem in terms of understanding the background to political developments there in the fifth century.

Late Iron Age/early medieval transition

In comparison to the preceding Bronze Age the Iron Age is poorly understood in Ireland, with the period from 700–300 BC especially elusive in archaeological terms (Raftery 1994). A small number of artifacts dating around 700 BC provide evidence of early contact with iron-using Celts on the Continent. From 300 BC onwards, there was a transmission of many elements of Celtic culture to Ireland, including a new art style, ornament types and technical skills. For a long time this was associated with military incursions or some large-scale population movement from the La Tène culture zone. That 'coming of the Celts' idea is no longer accepted, with an emphasis now on the acculturation of the indigenous Bronze Age population, where elements of La Tène culture were selectively adopted in Ireland as the prestige objects of an elite. While the latter have a high visibility, it is widely accepted that non-La Tène cultures constituted the majority population of Ireland from 300 BC–AD 400 (Raftery 1994). This was not, however, a homogenous culture, with the complexity of the social landscape during the Iron Age into the early medieval period reflected in the diversity of funerary practice across Ireland (McGarry 2009; O'Brien, E. 2003; 2009).

The Iron Age is a difficult period in south-west Ireland, with a sparse distribution of characteristic monuments and material culture across the region. Recent research has focused on the possibility of a non-La Tène Iron Age, marked by significant continuity from the indigenous Late Bronze Age with a low archaeological visibility in material culture (Raftery 1998; Woodman 1998). Warner suggested that the failure of La Tène groups to intrude into Munster might be explained by the presence of a strong local aristocracy from Late Bronze Age times. He went on to argue that this society succumbed, at least in part, to Romanised intruders in the later part of the Iron Age (Warner 1998). How relevant that is to the establishment of a new power centred on Garranes in the fifth century remains to be established.

In recent years knowledge of the Munster Iron Age has improved as a result of a significant number of discoveries on road projects, gas pipelines and other developments. These include habitation sites, features connected to iron production, and a number of funerary/ritual sites, mostly ring-ditches (see McLaughlin and Conran 2008). The paucity of material culture in these sites is notable, in particular the absence of pottery and any objects with connections to the continental Celts. There is also growing evidence of coastal Iron Age settlement in the peninsulas of Cork and Kerry (see O'Brien 2009a for details). This includes a recent investigation of early farmscapes in the hill valleys of the Beara Peninsula in West Cork. Archaeological and palaeoecological records from the Barrees valley near Eyeries provide details of subsistence farming during the first half of the first millennium AD. The building of a large stockade and a small ceremonial enclosure there during the first century AD coincided with an expansion of animal pasture and some arable farming over subsequent centuries. The main phase of field construction at Barrees occurred AD 300–500, connected to intensified farming into the early medieval period, with an emphasis on animal pastoralism (O'Brien 2009b).

The results from Barrees confirm the presence of small, self-sufficient, farming communities across south-west Ireland during the Late Iron Age. These settlements have a low archaeological visibility, with no distinctive monuments types or use of pottery. The circumstances of blanket bog preservation in the upland valleys of Beara is absent in inland areas of lowland agriculture in Cork, such as the Garranes landscape. The possibilities there centre on archaeological discoveries on roads, pipelines and other developments. There have been a number of recent finds of Iron Age sites in Cork, including habitation sites with house structures, iron smelting locations, corn-drying kilns and a small number of burials (Hanley and Hurley 2013; Cleary 2015). Two Iron Age house sites were recorded, one at Ballinaspig More 5 near Ballincollig (Danaher in Hanley

and Hurley 2013, 160–3) and the other at Muckridge near Youghal (Noonan in Hanley and Hurley 2013, 165–6). A circular, post-built house with central hearth was found close to a pit dated 20–350 AD at Muckridge. Finds include iron slag and a blue glass bead. Two timber structures are recorded at Ballinaspig More 5, the largest of which is a probable roundhouse dated 360–60 BC. A second structure at this site, dated 790–390 BC, has no obvious function. Two figure-of-eight grain-drying kilns of Late Iron Age date were recorded at Rath-healy 1 near Rathcormack, one of which is radiocarbon dated 240–420 AD, associated with barley and oats (Linnane in Hanley and Hurley 2013, 156–8). Four sites with evidence of iron production were discovered on road projects in north Cork, evidence of a rapid adoption of the new technology after 300 BC. These have a combined total of eight smelting furnaces, while two locations have possible smithing hearths (Hanley and Hurley 2013, table 4.4.1). These discoveries suggest small-scale iron production involving local farmers, producing enough metal for their own needs rather than any industrial output for trade. This was essentially non-specialist production, with farmers having a basic knowledge of iron smelting and an ability to forge and repair iron objects.

Iron Age burials are scarce in the Cork region. Recent road scheme finds include the cremated remains of at least one adult, dated 349–43 BC, in the infilled fosse of a ring-ditch at Ballybrowney Lower 3 near Rathcormack (Danaher in Hanley and Hurley 2013, 158–160). Two separate Iron Age burials are recorded in the Curraheen area on the western side of Cork city, 16km east of Garranes. The first was found in 2002 during road scheme excavations at Site 1 Curraheen, with a pit containing the cremated remains of an adult male, dated 430–660 AD (Danaher in Hanley and Hurley 2013, 220–1) This burial is broadly contemporary with the Lisnacaheragh/Lisnamanroe settlement at Garranes. A second site at Curraheen was excavated in 2008 during archaeological monitoring of a gas pipeline route from Ballynora to Lehenaghmore. It consists of a circular ditch enclosure, 11m in overall diameter, with a narrow opening on the eastern side. The 0.8–1.6m wide and 0.24–0.35m deep ditch contained charcoal that is radiocarbon dated 196–50 BC. Excavation of the south-east side of the ditch uncovered a possible child cremation accompanied by eight tiny blue glass beads, a possible yellow glass bead and a blue and white glass bead (Hurley in Cleary 2015, 274–276).

The Iron Age sites recorded on these road schemes, and in coastal sites such as the Barrees valley, present a picture of small-scale agricultural settlement in the Cork region. This was almost certainly organized within larger tribal territories, however there is no clear evidence for the power relations of that period. These settlements were largely self-sufficient and there is nothing to indicate significant trade or other contacts with the outside world. This is consistent with other Iron Age sites in Munster, which indicate only sporadic contact with Iron Age groups in Britain and on the Continent. Those contacts did not significantly transform Iron Age communities in the Cork region, whose indigenous world remained remarkably resistant to change until the arrival of Christianity and other influences from the late Roman world that mark the beginning of the early medieval period.

Fit for a king?

As discussed above, Garranes does not fit into the standard definitions of royal sites in Ireland. The absence of prehistoric ritual monuments and evidence of Iron Age settlement is notable. There are no unusual earthworks to indicate kingly inauguration or burial, and no finds of weapons or special objects to indicate that this was a distinctive place in later prehistory. The seat of a *túath* or even *mór túatha* in south Munster cannot be compared to a major symbolic centre such as Tara in respect of the relative status of their kings. Instead of searching for a mini-Tara, Garranes should be considered as a different type of 'royal site' in the changing political landscape of Ireland during the fifth and sixth centuries (see Lacey 2011 for similar comments on medieval royal sites in Donegal).

This might explain the absence of royal burials in a locale where there were no Iron Age monuments. The first occupants of Lisnacaheragh may have been newcomers to the area, which is possibly why their choice of site was not influenced by an affinity with ancestral burial grounds or older ritual monuments. Strategic, economic and other considerations were to the fore, consistent with a new polity establishing itself in Mid Cork, as echoed perhaps in Eóganacht origin legends (see Chapter 1.2).

What then makes Garranes a 'royal site'? The excavation records from Lisnacaheragh and Lisnamanroe provide clear evidence of high-status occupation, consistent with the central place of a petty kingdom of the fifth and sixth centuries. This includes the size, design and proximity of the two enclosures, and the evidence of material wealth, overseas trade and specialist crafts. These enclosures are 110m and 84m in overall diameter respectively. Their internal diameters of 69m and 60m exceed an interior size range of 20–40m for most ringforts (after Stout 1997, 15). Excavation confirmed that Lisnacaheragh had an elaborate entrance with multiple gates, a feature not usually found in the average ringfort. What distinguishes Lisnacaheragh most as a high-status settlement are the multiple enclosing elements. A multivallate ringfort, enclosed by

two or three (rarely four) bank-and-ditch combinations arranged close together, is generally regarded as a residence of kings and nobles (*nemed*) in early medieval Ireland. The much quoted eighth-century law tract, *Críth Gablach*, contains the following observation:

> 'What is the proper fortress for a king who is in constant residence at the head of his *túath*? Seven score feet of full measure the size of his fortress in every direction. Seven feet [the width of] its ditch; twelve feet its depth. It is then that he is king when ramparts of base clientship surround him. What is the rampart of base clientship? Twelve feet the width of its opening and its base and its distance from the fortress, Thirty feet its length on the outside' (in Byrne 1973, 32).

One interpretation of this statement links the size and number of banks around a ringfort to the status of its occupants, insofar as they testify to the number of clients that could be called upon to build such an enclosure. As discussed in Chapter 8, this cannot be explained in purely defensive or other practical terms, but was more to do with social display and political status, with a nod to ancestral memory and cosmological order.

The origins and significance of multivallation in Ireland have been considered by Dowling (2006; 2011). This type of enclosure had a long history in Europe, with various forms dating back to the Neolithic. In Britain these are particularly associated with Iron Age hillforts and coastal promontory forts, which were interpreted in the past as a defensive innovation against the use of projectiles. The earliest examples of closely-set multivallation in Ireland were not hillforts, but large funerary and ceremonial monuments of the Bronze Age and Iron Age. The earliest known use of multivallation at non-funerary enclosures is possibly the Rath of the Synods at Tara, Co. Meath. That site was excavated in the early 1950s, also by Sean P. Ó Ríordáin, revealing a complex sequence of funerary and ceremonial activity, with finds of Roman and Romano-British luxury glass and pottery dated to the first and second centuries AD. This was followed by the construction of a trivallate embanked enclosure with external ditches, 90m in diameter, sometime between the second and fourth centuries (Grogan 2008). The evidence points to a high status residence, the special character of which is evident from its design, material culture, and location on the by-then sacred ground of Tara.

Dowling considered the religious and ideological significance of multivallation in terms of liminality and the role of multiplication in religious iconography of the insular Iron Age (2011, 223–224). For the former, he suggests the use of closely-spaced multivallation and long entrance passages served to emphasize the boundary between the enclosed area and the outside world. He suggests the sacral significance attached to the boundaries of burial/ritual monuments in late prehistory was intensified by the act of multiplication. The internal ditches in those sites are interpreted as features designed to separate the sacred from the profane, to prevent the spirits of the dead from intervening in the world of the living. Some of those cosmological meanings were transferred to the boundaries of large settlement enclosures during the fourth and fifth centuries, but there were new priorities. The use of closely-spaced banks with external ditches at the Rath of the Synods on Tara, and at early multivallate ringforts like Lisnacaheragh, should be considered in terms of outward self-conscious display of political power in high-status settlements.

This is reinforced by the many indicators of high-status residence at Garranes during the fifth and sixth centuries. The size of the excavated roundhouses at Lisnacaheragh and Lisnamanroe are consistent with noble residence. These excavations also provide strong artefactual evidence of high-status (*nemed*) occupation in both enclosures. This includes high-quality personal ornaments (bronze dress pins and chains, glass beads, enamelled buttons), and imported fine tableware and glass from the Roman world, connected also to the consumption of wine. Evidence of specialist crafts, notably bronze, glass, millefiori and enamel production, also testifies to the social standing of the residents. While it has been argued that 'Garranes is more likely to have been the hub of high-class craftsmen, who were nobles in the social hierarchy as prescribed by early Irish law' (Bhreathnach 2014, 163), the multiple indicators of aggrandizement and social display are more consistent with kingly residence. This is supported by evidence of high-status residence at Lisnamanroe in the same period, as site where no evidence of specialist craftworking has been uncovered.

Comparable ringforts in Cork

The special character of Lisnacaheragh is also apparent when the site is compared to other trivallate ringforts in Co. Cork. A review was undertaken of 3686 confirmed or possible earthen ringforts (raths) listed in five volumes of the *Archaeological Survey of Co. Cork* (Power *et al.* 1992; 1994; 1997; 2000; Ronan *et al.* 2009). This identified 15 definite and 13 possible trivallate ringforts across the county (Figures 10.3 and 10.4). Confirmed trivallate ringforts represent only 0.4% of the total recorded number, or 0.8% when combined with possible examples. This low incidence of trivallate sites, probably under one percent of all ringforts originally, is further evidence of their special status in early medieval settlement. Morphological variation is also likely consistent with their relative status. Only four

of the confirmed examples in Cork have an internal diameter greater than 50m, the largest of those being Lisnacaheragh, Garranes.

These trivallate ringforts occur in three regional concentrations. The first of these is in mid Cork, from Garranes area extending south to the coast (sites 1, 2, 7, 10, 11, 15 and 21). The second is in north Cork north of the Boggeragh mountain range, in an area from south of Mallow going north to Charleville, with outliers in the Millstreet area (sites 3, 4, 5, 6, 12, 14, 18, 19, 20, 22, 23, 24, 25 and 27). The third concentration is towards east Cork, from the Rathcormack area east towards Youghal (sites 8, 9, 13, 16, 17 and 28). The absence of trivallate ringforts in western parts of the county is notable, and cannot be explained by survival or a lack of archaeological survey.

After Garranes, the next largest trivallate ringfort in Cork is Ballycatteen, also excavated by Ó Ríordáin. This large trivallate earthen ringfort (RMP CO124-034) is near the village of Ballinspittle in south Cork, 21km south-east of Garranes (Figure 10.3, no. 2). The circular enclosure has a level interior, *c.*60m in diameter, surrounded by three closely spaced bank-and-ditch combinations with an outer counterscarp bank, to give an overall site diameter of *c.*119m (Figure 10.5). There is a single causewayed entrance on the south-east side, where excavation in 1941–2 uncovered postholes from a series of three or possibly four wooden gates (Ó Ríordáin and Hartnett 1943). The innermost of those gates was the most elaborate, joining to a substantial wooden palisade built on the inside of the inner ringfort bank. Excavation of the interior recorded evidence of two phases of occupation during the later first millennium AD. The earliest occupation is represented by a black layer that contained items of bronze and iron metalwork, a few glass and amber beads, and some stone tools. The excavator dates some of the bronze ornaments to c.AD 600, consistent with the discovery of E ware pottery similar to that found at Lisnacaheragh (see Chapter 7.4). The discovery of a few crucible fragments indicates bronze casting, though no moulds were found. A small number of postholes and twelve hearths are recorded, but no discernible house plans. Some of these features and finds may also be associated with a second phase of occupation, represented by three stone-built souterrains that were originally constructed with wooden roofs.

Ó Ríordáin connected the building of Ballycatteen ringfort to an expansion of the *Uí Eachach* into territory of the Corcu Loígde, probably in the late sixth century. This is consistent with the dating evidence from the site, which lacks the Mediterranean imports of the Garranes enclosures, but does have small quantities of E ware, though not enough to regard it as an import centre (*cf.* Campbell 2007, 110). Ó Ríordáin connected

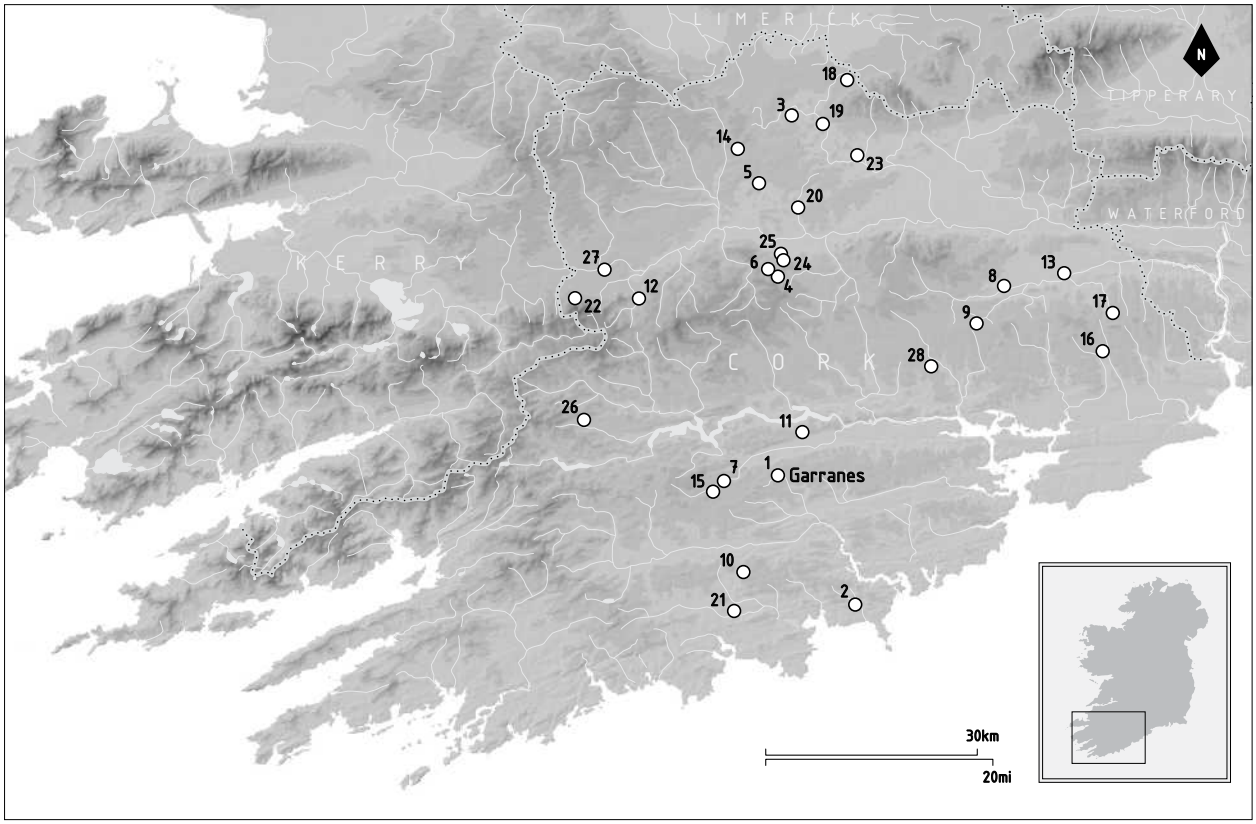


Figure 10.3 Distribution of trivallate ringforts in Co. Cork (see Figure 10.4, overleaf, for site detail).

No.	Status	RMP	Townland	Internal Diameter	Source
1	Confirmed	CO084-084	Garranes	69m	Ó Ríordáin 1942; Power *et al.* 1992, site 1529; this volume
2	Confirmed	CO124-034001	Ballycatteen	60m	Ó Ríordáin 1943; Power *et al.* 1994, site 4329.
3	Confirmed	CO007-113001	Rath	58m	Power *et al.* 2000, site 12827.
4	Confirmed	CO041-080001	Garrane	56m	Bowman 1934, 544; Power *et al.* 2000, site 12492.
5	Confirmed	CO024-068	Ballyrusheen	45m	Power *et al.* 2000, site 12166.
6	Confirmed	CO041-011001	Laharan	45m	Bowman 1934, 573; Power *et al.* 2000, site 12723.
7	Confirmed	CO083-104	Poularick	39m	Power *et al.* 1997, site 8546.
8	Confirmed	CO044-029	Ballybrowney Lower	38m	Power *et al.* 1994, site 4364.
9	Confirmed	CO053-005	Tinageragh	33m	Power *et al.* 1994, site 4650.
10	Confirmed	CO109-061001	Cashel More	32m	Power *et al.* 1992, site 1297, fig.28.
11	Confirmed	CO072-108001	Ballineadig	26m	Hartnett 1939, 112; Power *et al.* 1997, site 8006.
12	Confirmed	CO039-063001	Liscahane	26m	Power *et al.* 1997, site 8469.
13	Confirmed	CO045-019	Ballyrobert	22m	Power 1980–4, excavation 0045; Power *et al.* 1994, site 6352.
14	Confirmed	CO015-066	Curraghs	20m	Power *et al.* 2000, site 12401.
15	Confirmed*	CO095-032001	Bengour East	n/a	Hurley and Hurley 1979; Power *et al.* 1992, site 1209.
16	Possible	CO055-030	Ballydonagh More	50m	Power *et al.* 1994, site 4375.
17	Possible	CO055-007001	Ballyknock North	45m	Barry 1890; Power *et al.* 1994, site 4389.
18	Possible	CO008-008	Ardskeagh	45m	Power *et al.* 2000, site 12055.
19	Possible*	CO016-079	Kilbroney	40m	Power *et al.* 2000, site 12589.
20	Possible*	CO024-144	Rathnee	40m	Grove-White 1905, 128; Power *et al.* 2000, site 12840.
21	Possible	CO122-086001	Lisselane	36m	Power *et al.* 1992, site 1737.
22	Possible	CO038-037	Caherbarnagh	35m	Power *et al.* 1997, site 8108.
23	Possible	CO017-077001	Carrigeen	35m	Jones 1910; Power *et al.* 2000, site 12254.
24	Possible	CO041-046	Glantane	35m	Power *et al.* 2000, site 12508.
25	Possible*	CO032-079	Brittas	30m	Bowman 1934, 584; Power *et al.* 2000, site 12223.
26	Possible	CO069-048	Cloontycarthy	27m	Power *et al.* 1997, site 8177
27	Possible	CO038-016	Coolanarney	24m	Power *et al.* 1997, site 8185
28	Possible*	CO063-036	Coole East	n/a	Power *et al.* 1994, site 4814.

Figure 10.4 List of confirmed or possible trivallate ringforts in Co. Cork (numbered on Figure 10.3). Some of the possible examples may be bivallate ringforts with a later bank added (* denotes sites entirely levelled today).

the displacement of the Corcu Loígde by the Eóganacht Raithleann to the building of Ballycatteen as 'an outpost in the conquered territory' (*ibid.*, 43).

There are other examples of high-status ringforts in Cork, including a well-known example at Garryduff near Midleton, 50km to the north-east of Garranes. Two ringforts in that townland were excavated in 1945 and 1947 by M.J. O'Kelly, one of Ó Ríordáin's assistants at Garranes (O'Kelly 1962). Garryduff 1 is a sub-circular earthwork (RMP CO055-002), *c.*20m in internal diameter, enclosed by a large stone-faced bank



Figure 10.5 Aerial view of Ballycatteen ringfort, Co. Cork from the north.

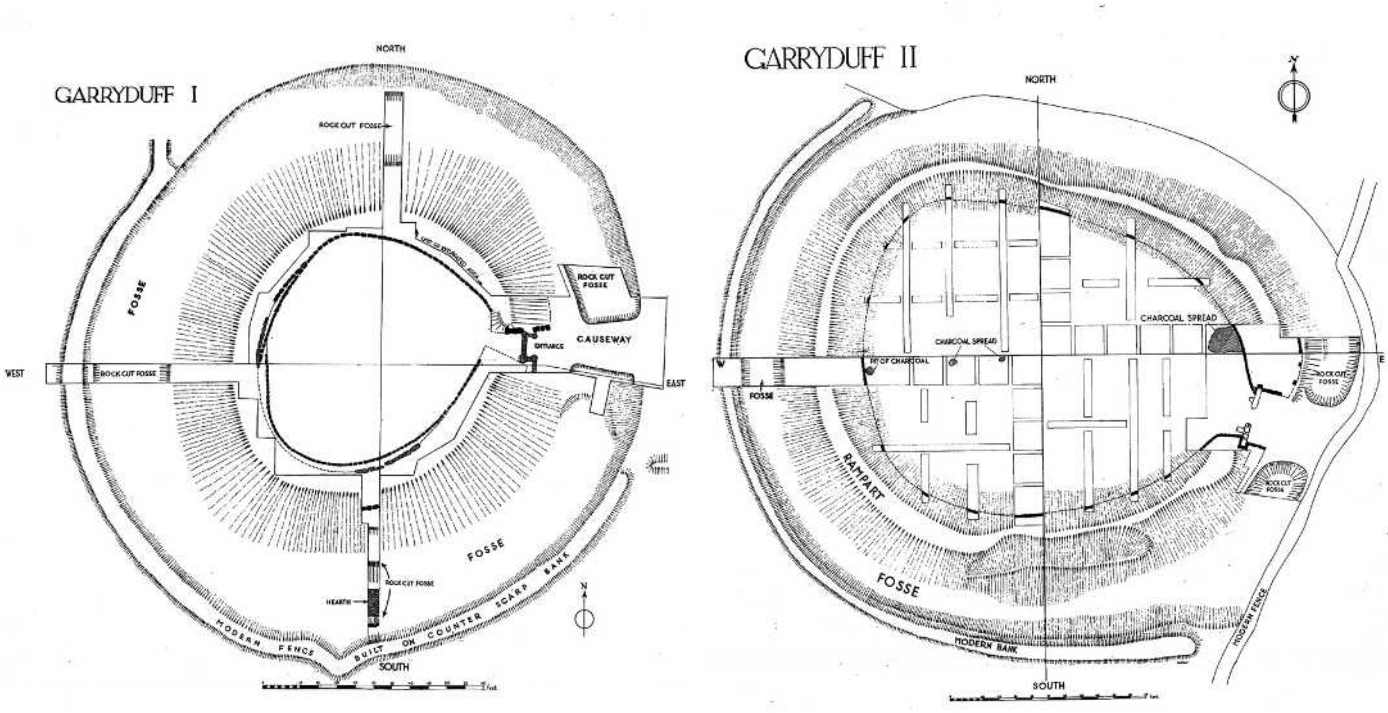


Figure 10.6 Excavation plans of Garryduff 1 and 2 ringforts, Co. Cork.
(source: O'Kelly 1962, plates I and XVII)

with an external rock-cut ditch and a gated entrance (Figure 10.6). Excavation confirmed two phases of occupation dating from the sixth to eighth centuries AD, the earliest associated with two sub-rectangular houses. There is evidence of iron-working and bronze casting, as well as finished objects such as iron knives, ladles and locks, bronze and iron pins, glass beads, and spindle whorls. The early occupation layer contained a tiny gold ornament in the form of a stylised bird, dated stylistically to the late sixth or seventh century. Garryduff 2 is also a univallate ringfort (RMP CO055-002), 165m north of the smaller Garryduff 1 example. It is of similar design, *c.*32m in internal diameter, enclosed by a single stone-faced bank and rock-cut ditch, also with a gated entrance (Figure 10.6). No structures, finds or other evidence of occupation were found in the interior, suggesting the ringfort was possibly used as an animal enclosure (O'Kelly 1962, 124–5).

The quality of material culture at Garryduff 1 is consistent with a high-status settlement of a noble or minor king. This confirms that univallate ringforts could also be of high status in the early medieval period. Those finds include E ware dated to the sixth or seventh century, similar to that from Lisnacaheragh and Ballycatteen. The presence of this and other types pf imported pottery from the Late Roman world is highly significant in the recognition of royal sites in Ireland.

10.3 GARRANES AND THE ROMAN WORLD

> 'From the 5th to the 8th centuries AD there was a flourishing trade network linking the Atlantic coasts of Britain and Ireland to the Mediterranean and north-west Europe, bringing imported pottery and glass as well as new ideas from those areas' (Campbell 2007).

Following his excavation at Garranes, and no doubt influenced by the finds from that ringfort, Ó Ríordáin compiled a corpus of Roman artifacts in Ireland (Ó Ríordáin 1947). In 1945 his assistant at Garranes, Michael J. O'Kelly, discovered imported pottery called E ware at Garryduff I ringfort in east Cork (O'Kelly 1962). Ó Ríordáin found the same type of pottery in his 1941–2 excavation of Ballycatteen ringfort on the south coast of Cork (Ó Ríordáin and Hartnett 1943). Today, an estimated 50 sites are known in Ireland with imports of Roman pottery and glass from this period, though only three, Clogher, Garranes and Dalkey Island have these in substantial quantities (Campbell 2007, table 18; Doyle 2009; Kelly 2010). Lisnacaheragh at Garranes has the largest recorded assemblage, including Phocaean Red Slipware from Turkey and Late Roman amphorae (LRA 1 and LRA2) from the east Mediterranean dated to the late fifth to mid sixth centuries, as well as E ware from Atlantic France dated to the later sixth to seventh centuries (Figure 10.7; see Doyle, Chapter 7.4). This trade in wine and other luxury foods, accompanied by imports of fine tableware and glassware, indicates a desire by emerging Irish elites to acquire Roman material culture.

These finds follow several centuries of intermittent contact with the Roman world between the first and the fifth centuries AD. While Ireland was never invaded, there is a significant amount of Roman material culture in Ireland from that period. These include single finds and hoards of Roman coins, hack-silver, jewellery and other items, from many regions with a concentration along the east coast (catalogued by Bateson 1973, 1976; also Dolley 1976). This material has been attributed to Roman traders and slavers, mercenaries and deserters, piracy, Irish raiding in Britain and military reprisals, and refugees fleeing the Roman conquest (see Warner 1976; Raftery 1994, 200–19). By the fifth century, those contacts included the first Christian missionaries from the Roman world.

In the past these Roman finds were regarded as intrusive to Ireland, connected to external events and largely incidental to the development of native society. That interpretation has changed in recent years, with this material now viewed as evidence of direct engagement between Ireland and the Roman provinces (Cahill Wilson 2014, 20–2 for history of research). While a military presence is still not credible (see Warner 1995 for possibilities), Roman influence on developments in art, religion, economy and society in Ireland in Late Antiquity is now recognised. While this was not 'Romanisation' such as occurred in subject peoples of mainland Europe, several centuries of sustained Roman contact with Ireland, involving exchange of material

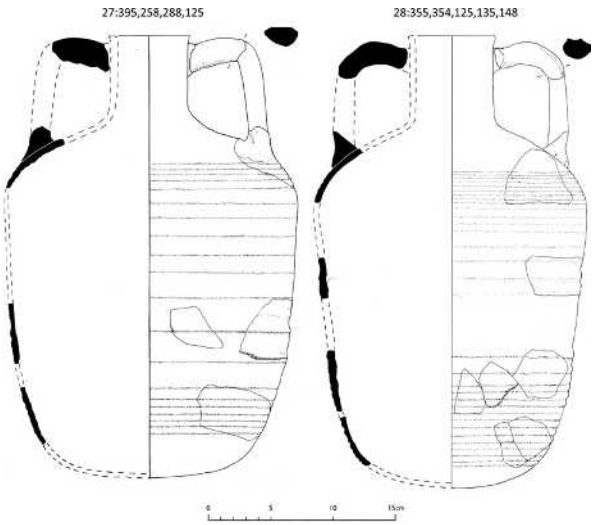


Figure 10.7 Imported Roman amphorae from Lisnacaheragh ringfort, Garranes. (source: Doyle 2009)

culture, technology and literacy, represents a process of gradual acculturation that opened the way for the adoption of Christianity.

The political context of these contacts is uncertain, as contemporary sources are lacking in detail. The Cork region may have been outside the political and military reach of the Empire, but was not isolated from its cultural forcefield. While political alliances with local kings are unlikely, it is uncertain how petty kingdoms in the Irish *barbaricum* engaged with the Roman world. Not all of those contacts were peaceful. Contemporary Roman sources confirm that Irish raids on Britain intensified during the fourth and fifth centuries, probably leading to the return of coin and silver booty, with the possibility of military reprisal. These raids were also responsible for the return of Christian slaves to Ireland, as a first exposure to the new religion. With the further decline of Roman power in the fifth century, this raiding culminated in the establishment of Irish colonies in north and south Wales, and south-west England (Charles-Edwards 2013, 175–185; Richards 1960). Some of those contacts involved groups from south Munster, including the Déisi of Waterford and, closer to Garranes, a branch of the Eóganachta, the Uí Liatháin, who were based in the environs of Cork harbour (MacNeill 1926; 128–130).

The impact of Irish raiding may be over-stated, with the coastal distribution of many Roman finds in Ireland more indicative of trade. The Roman writer Tacitus, writing in the late first century AD, records that Ireland's 'approaches and harbours are tolerably well known from the merchants who trade there' (discussed in Raftery 1994). Roman contact with Ireland increased greatly after the invasion of Britain in AD 43, reflected in a map compiled around AD 150 by the Alexandrian geographer, Claudius Ptolemy. This indicates a knowledge of the Irish coastline, rivers, harbours and islands, as well as tribal groups and royal centres (discussed by Tierney 1976; Toner 2000; Freeman 2001). While some of that information was based on earlier sources, Ptolemy was probably informed also by Roman merchants and traders familiar with *Hibernia*.

Finds from excavation confirm there were two successive trading systems bringing fine goods to import centres of high status in western Britain and Ireland (Thomas 1959, 1988; Campbell 1991, 2007). The earliest of these were imports of Late Roman amphorae and fine red-slipped wares from the eastern Mediterranean and north Africa from the late fifth to mid-sixth centuries (Figure 10.8). That trade demonstrates direct links with Byzantium, possibly under Imperial direction to obtain supplies of tin, lead and silver from mines in western Britain. This may explain the focus on south-west England and Wales where large enclosed high-

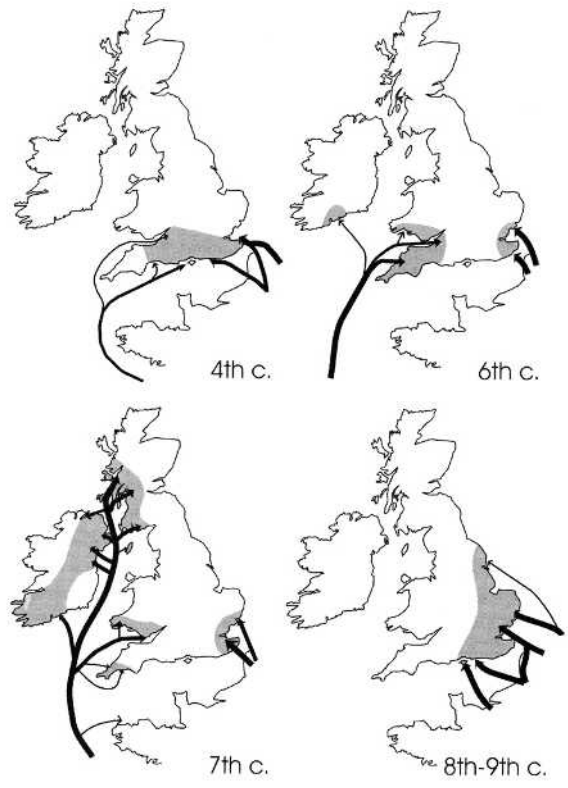


Figure 10.8 Patterns of imported continental pottery to Britain and Ireland, fourth to ninth centuries. (source: Campbell 2007, fig. 80)

status centres, such as Tintagel, Cadbury Castle, Dinas Powys and Cadbury Congresbury, were major import centres from where goods were re-distributed to other locations, including royal sites in Ireland such as Clogher and Garranes. The possibility of direct supply into Ireland by Mediterranean traders operating in the Irish Sea cannot be excluded (Thomas 1990).

The Mediterranean system overlapped with a second import horizon bringing fine and coarse pottery and glass vessels from western France to western Britain, Scotland and Ireland in the later sixth and seventh centuries (Figure 10.8). This included E ware and glass vessels, but also possibly wine and salt, dyestuffs and exotic foods. This exchange network avoided the earlier centres in south-west Britain, distributing directly from Merovingian Francia to high-status centres such as Dunadd and Dumbarton Rock in Scotland, and Clogher, Lagore and Garranes in Ireland (Campbell 2007). These were centres of political power with various indicators of wealth, specialization and high-status residence.

Both trade systems were probably initiated from the Continent and sustained over long periods, raising the question as to what goods were exchanged in return. There are several possibilities, including animals, hides and other agricultural products, metal in raw

or finished form, and slaves, none of which are easily verified in historical or archaeological sources. The limited volume of goods exchanged reflects their value, with those imported foodstuffs, wine and tableware having a restricted circulation in high-status contexts. The import centres themselves did not depend on this trade in economic terms, but the material culture in question did contribute to the prestige of those settlements (Campbell 2007). Material expressions of *Romanitas* were important in Irish society of the fifth to seventh centuries, '...not least as a means of creating and maintaining relationships through gift-giving and in affirming the social position and identity of those who engaged in this international trade' (Doyle 2009, 36). This is also illustrated in the adoption of Roman dining customs and personal ornament by those same elites.

These imports were used by rulers to bolster their status by controlling the supply and redistribution of luxuries to noble clients and possibly other kingdoms (Thomas 1988, 1990; Campbell 2007, 114). Goods were landed at coastal trading sites, such as Dalkey Island, Co. Dublin (Doyle 1998), examples of which have not yet been identified on the Cork coast. They quickly moved inland to high-status settlements, such as Clogher and Garranes, where some of the imports were consumed. Campbell suggests that 'from these royal centres small quantities of the imports were redistributed to royal kin or clients who occupied settlements of lesser status, usually at some distance from the centre, in return for renders of surplus produce, which the ruler could use to exchange for the imports' (2007, 114). Garranes '...could have acted also as a distribution centre for imported goods that were transferred to places such as the provincial royal capital of Cashel, Co. Tipperary' (Bhreathnach 2014, 163). Control over the supply of these goods, and the reciprocal obligations they generated, contributed to the enhancement and centralization of power in Ireland and Western Britain in the sixth and seventh centuries, and the gradual development of larger kingdoms out of the many tribal divisions of the post-Roman era (Campbell, 2007, 139).

Finally, there is a notable absence of Roman objects in the Cork region compared to some other parts of Ireland (Bateson 1973, maps 1–4). Examples include ten coins of third/fourth-century date found in 1898 at Cuskinny, east of Cobh, as well as individual coins found at Ballyphehane in Cork city, and elsewhere in the county at Berrings, Buttevant and Castlelyons. These lack archaeological contexts, and some are likely to be modern imports. That may be true of the Cuskinny hoard, and possibly a bronze fibula brooch dated to the second century AD from the Bantry area (*ibid.*, fn 14). The paucity of early finds suggests that Roman contacts with the Cork region were not significant until the fifth century when Garranes emerges as an important import centre. The trade connections identified by the large amounts of imported pottery at Lisnacaheragh suggest that settlement may be '...the Irish equivalent of the western littoral Roman *villula* from which Patrick came, and its culture hints at a community open to the reception of Christianity and literacy' (Bhreathnach 2014, 163).

Garranes and Christianity

It is widely recognized that Christianity was a catalyst for major social change in Ireland during the fifth and sixth centuries. The introduction of the new religion probably commenced in the late fourth century, through trade contacts with Late Roman Britain and mainland Europe. These contacts paved the way for missionary work, including that of the bishop Palladius, sent by Pope Celestine 1 in AD 431 to minister to 'the *Scotti* (Irish) believing in Christ', followed soon after by the mission of St Patrick. Small communities of believers were soon established in different parts of Ireland, co-existing with pagan beliefs that were accommodated in different ways (de Paor 1993). The conversion of local kings was central to the rapid spread of the new religion, which in some instances led to the establishment of church sites in proximity to centres of royal power.

While there is no historical detail, the establishment of a new kingdom at Garranes in the early fifth century must have been influenced by the Christian conversion of that period. Warner (1988, 57) refers to a significant change at that time, represented by a move from a quasi-divine warrior-kingship to a secularized client-holding kingship. Christianity encouraged this separation of royal and sacred, which is why there is often a close association of royal sites and early churches in the landscape.

No early church site has been identified at Garranes. Some possibilities include St Martin's Church, Templemartin (CO096-008), located 1.7km south of Lishnacaheragh and 700m south of Lisheenagreine. While the extant remains are those of an early modern church and graveyard, the presence of a bullaun stone and a cross-inscribed stone (Figure 10.9) suggests earlier activity, as does the proximity of at least two souterrains (see Chapter 6.3). Another early church site is Kilbrenan (CO084-074), 1.9km west of Lisnacaheragh, recorded as 'an abbey of regular canons, founded by St Aedus, in the eighth century' (Smith 1750, 198). There are inaccuracies here, as St Aedus was a sixth-century saint, who according to Lanigan (1829, 189) established a monastery in Tipperary (Muscrige-Thire in Ormond) not Cork (Muskerry) (Michelle Comber pers. comm.).



Figure 10.9 Stone cross (CO096-008002) of possible early medieval date at St Martin's Church, Templemartin, 1.7km south of Lisnacaheragh, Garranes.

The significance of Kilbrenen is uncertain, with the likelihood it is of later medieval date.

A number of potential early church sites have been identified in the wider landscape. These include an impressive 300m by 200m enclosure at Bawnatemple (C0019-154), 10km to the north-west of Garranes. This contains the remains of a medieval parish church, as well as two recorded souterrains, a well and a cross-inscribed pillar stone of seventh or eighth century date (Hurley and Flaherty 1981; Hurley 1980, 53). Bawnatemple is one of several church sites in Mid Cork with place-name elements connected to the early Church in Ireland. These include Aglish (CO072-092), 6km north of Garranes, Ballineadig (CO072-110), 8km to the north/north-east, and Desertmore (CO085-005) in Ballygroman Upper in the valley of the river Bride, 6.5km north of Garranes. The *Dísert* element in the place-name is indicative of an early hermitage. This and other church sites in Mid Cork, including Kilnaglory, Kilnacloona and Inishkenny, have an association with St Bairre. Another church site at Inniscarra, where the Lee and Bride waters meet, is associated with St Senán (Hurley 1980, 58).

Further consideration of the Garranes connection to early church settlement is beyond the scope of this study, but should be a priority for further research.

10.4 GARRANES IN THE LATER FIRST MILLENNIUM AD

Excavation records suggest that the construction and use of earthen ringforts (raths) in Ireland was in decline from the eighth century onwards, with few examples built after the tenth century (O'Sullivan *et al.* 2014a, 329). This coincided with a new emphasis on more explicitly fortified forms of settlement, namely the crannóg, cashel and raised rath. Such changes in settlement reflect political, social and economic developments in those centuries (Graham 1993; Ó Cróinín 1995). The political geography of Ireland changed with the emergence of strong regional kingdoms and a corresponding decline of petty kingdoms based on *túath* (Byrne 1973). Whereas the economy of earlier centuries was dominated by gift-exchange and clientship, a greater proportion of the population now belonged to a lower social class that had a feudal-type relationship with a lord on whose land they worked. This gradual intensification of agriculture was part of a wider trend in northern Europe in that period, away from subsistence farming in largely self-sufficient household communities to an economy based on redistribution of surplus, market economy and regional trade (O'Sullivan *et al.* 2014a, 329–332).

How relevant these developments were to later ringfort settlement at Garranes is uncertain. There are no obvious lordly residences in this landscape from the later first millennium, though some larger unexcavated ringforts may have had that role; for example, a bivallate ringfort (RMP site CO084-096) 1.4km south-east of Lisnacaheragh. Most ringforts in the area are likely to be small family farmsteads with no obvious aggrandizement. Compared to the great enclosures of the fifth and sixth century, the absence of equivalent sites suggests the political importance of Garranes was diminished by the eighth century and onwards.

What type of royal sites might we expect to find in Mid Cork in that era? One site that stands out is Cahirvagliair, a bivallate earthen ringfort (RMP CO094-060) in the townland of Cappeen West, near the village of that name, 17km west of Garranes. This large circular enclosure has a level interior, 40m in width, surrounded by two closely-spaced, bank-and-ditch arrangements, giving an overall diameter of 75m (Figure 10.10). The inner bank is up to 1.7m high, with traces of external stone facing. This is surrounded by a shallow ditch, outside which there is a low bank. The outer enclosing element is an impressive steep-sided ditch, up to 7m wide and 2.5–3m in depth. The ringfort



Figure 10.10 Stone entrance to bivallate ringfort at Cahirvagliair, Co. Cork (see Figure 1.5 for aerial photograph).

entrance is located on the eastern side, where a stone passage was built using dressed blocks on two sides, and roofed with large slab lintels. The quality of this coursed stonework is exceptional for the period, and unique to this ringfort in Co. Cork. Excavation in 1983 identified posthole evidence for up to three wooden doors along the passageway. Outside this entrance, there must originally have been a wooden bridge across the outer ditch where there is no causeway today. In the absence of finds or excavation results from the interior, the dating of this ringfort relies on an estimate of AD 800–1200 for the style of masonry used in the entrance, supported to some extent by a nineteenth-century record of a souterrain there (Manning 1987/8).

Even without excavation, the impressive size of the bivallate defences at Cahirvagliair suggests a settlement of high-status. This is emphasized by the monumental stone entrance, a unique feature among the earthen ringforts of Co. Cork, and more associated with stone-built (cashel) chiefly residences of the ninth century and later. This entrance represents a visual display of power consistent with kingly residence towards the end of the first millennium AD.

Garranes and Raithliu: a historical connection?

> 'The looseness of the Éoganacht hegemony over Munster has often been commented on...their own stories say they started from Cashel, but most implausibly tell us that the first branches thrown out were to the far west (Éoganacht Locha Léin) and to the extreme south (Éoganacht Raithlenn). The organic spread of a sept rising in power, however, is seen in the pattern presented by the eastern Éoganachta, those of Cashel, Glendomain and Airthir Chliach (Uí Maic Láire) and the Éoganacht of Áine – their reputed relations in the south and west may in reality have been their partners in a successful genealogical fiction' (Sproule 1984, 37).

Toponymic research is often used to identify important places mentioned in early place-lore texts (*dindsenchas*) and bardic poetry. None of the names associated with individual monuments at Garranes can be proven to pre-date the Ordnance Survey mapping of the mid-nineteenth century. Consideration must also be given to the names of ten townlands adjoining or very close to Garranes townland, including (clockwise from north): Rathculleen, Curragheenbrien, Moneen, Kilnagnady, Castlenalact, Scartnamuck, Moskeagh, Kilbrenan, Rathfelane and Parkmore. Of these, Rathculleen and Rathfelane are of most interest, the former identified by Canon Lyons (1896, 451) as *Rat Cuilcinn*, named after a harper in the court of the eleventh-century king, Cian Mac Maolmuadh, mentioned in bardic poem *Ráth Raithleann* as Ráth Chuilchín (Cuilchín's stronghold) (see Chapter 7.1). Canon O'Mahony suggested that Rathfelane refers to the *Rath of Maolan*, named after one of Cian's attendants (O'Mahony 1907, 29–30).

Rathculleen, variously spelled Rathcullin, Rathcullen, Rahulleen, Raheleen, Rachulleen in nineteenth-century sources, is marked as such on Scále's estate map of 1775. The name does feature in earlier sources extending back to the Downe Survey of 1655 (Rathcullin) and the 1620 Inquisition records for Cork (Rathcullen). Rathfelane, variously spelled Rathfealane, Rathfelon,

Raphelane, Rafelane and Ráith Faoláin (Phelan's Rath) in nineteenth-century sources, is marked as Rathnaglanne on Scále's map. The name appears in the Downe Survey of 1655 (Rathfelane) and the 1620 Inquisition (Rathwellane) (source: logainm.ie). The earlier history of those two townland names is uncertain, but both are likely to be of some antiquity.

The identification of Garranes as the legendary *Raithliu* of later medieval bardic poetry is contentious. This centres on whether the long-held association of the Uí Echach Muman with Lisnacaheragh ringfort is historical or a later folk reimagining of the Garranes landscape. Canon Lyons observed that the general area of Lisnacaheragh '...was known by the old people as Ráth Raithliu' (1896, 451). In his study of bardic poetry, Ó Cionnfhaolaidh suggests this may have been part of local folklore as early as 1705, when a prologue to the poem *Ráth Raithleann* from that date states this fort was 'near Bandon' (see Chapter 7.1). The extent to which this folk tradition preserves memories of historical events and persons is unclear. The same applies to the *Rath Raithleann* poem with its *dinnshenchas structure,* which is central to the toponomy of the Garranes landscape. The protagonists, Cian mac Maolmhuaidh and his wife Sadb, daughter of Brian Boruma, are genuine historical figures, but it is clear the poem was written many centuries after their death.

The poem recounts the legendary founding of that fort by Corc mac Luighdheach, named after his foster mother, and its subsequent association with Cian. It is essentially a lament for the fall of Cian's house, highly embellished to serve a political agenda of later times (Fischer, Chapter 7.2). There are few topographic details in the verses that can be connected directly to the Garranes landscape. Of significance, however, is a reference to two large forts 'side by side', namely Ráth Céin (Cian's fortress) and Ráth Shaidhbhe (Sadhbh's fortress). The poem places these forts in relation to each other (*Ráth Raithleann, the stronghold in the east yonder where the grandson of victorious Bran used to dwell; Dún Saidhbhe, this fort in the west*). That is consistent with the siting of Lisnacaheragh and Lisnamanroe, and with the size, design and material culture of these two enclosures.

There is, however, a fundamental difficulty in establishing that connection. The evidence of high-status residence at Lisnacaheragh and Lisnamanroe dates from the fifth to early seventh centuries, at least 300 years before the time of Cian and Sadb. There are no high-status ringforts known at Garranes that can be connected to Cian, though some large unexcavated ringforts in the area offer possibilities in this regard. It is more likely that Cian and his royal house were located elsewhere in the political territory of the Eóganacht Raithleann, but through this poem are associated with an historical memory of an earlier royal site at Garranes. This is alluded to in the first line of the poem *Ráith Raithleann, Chuirc is Chéin*, which refers to the legendary founder of Raithliu in the fifth century, Corc mac Luighdheach. That suggests a strong desire to connect the house of Cian to a legendary place founded by Corc (or perhaps by Eachach (Eachu) mac Cais; Ryan 1942, 145–6). While Garranes may not have been the actual residence of Cian mac Maolmhuaidh, it was his spiritual home, with ancestral memories for his people, the Uí Echach Muman. However real in historical terms, that connection through Corc to the origin legends of the Eóganachta was important in affirming the position of the Uí Eachach/Eóganacht Raithleann in that tribal federation.

With no evidence of royal residence at Lisnacaheragh in the early eleventh century, does this mean the great fort was abandoned at that time? One possibility is that this had become a place of great symbolic importance, possibly to the extent that it was a contested landscape between those quarrelsome factions of the Uí Echach Muman, the Ceinéal Aodha and the Ceinéal Laoghaire.

A place of assembly?

The óenach was an important institution in early Irish society, a political assembly of a *tuath* or kingdom, called by a king on royal land (*mruig rígh*) and essential to the exercise of his power. Originally a sacral gathering of a tribe, often in an ancestral cemetery, these were gatherings with legal and judicial functions, where political alliances, treaties and related marriages were concluded (Byrne 1973, 30). With later changes in the nature of kingship and the growing influence of the Church, the óenach became a market or fair, also significant for festivals and sporting occasions (see Gleeson 2015 for recent review).

The possibility that Garranes was a óenach location has been discussed by Gleeson (2014). This is suggested by a reference to *agon Raithlind* in the Life of Fintan of *Brí Gobhan* (Hogan 1910, 574). Gleeson interprets this as a place of assembly, based on Tirechan's use of the Greek term 'agon' as a synonym for óenach (after Bieler 1979). He links this to the adoption of an early tribal centre, possibly that of the Caltrige, by the Uí Eachach of the later Eóganacht federation (2014, 872). He also suggests that Garranes may have been a regional assembly place of the emerging Desmumu polity, as some early texts indicate that the Ui Cairpre lord of west Munster held royal demesne at Cúl mBrochell, believed to be in that part of Cork (Hull 1947 and Daly 1975, cited in Gleeson 2014). However, with such limited sources, any attempt to interpret Garranes as an óenach site remains speculation.

There is also no evidence that Garranes was an inauguration site in later medieval times (AD 1100–1600). A political context here is the expansion of the MacCarthy lordship across south-west Ireland in that period. The MacCarthy of Muskerry branch would not have been disposed to regard an ancestral place of the O'Mahonys, descendants of the Cenél nÁeda princes of Eóganacht Raithlind, in those terms (see Fischer, Chapter 7.2).

10.5 GARRANES AND THE IRISH RINGFORT

The chronology of Irish ringforts has been contentious in the past, from 'Danish' associations in the antiquarian era, to debate around prehistoric origins and later medieval survival (Caulfield 1981; Lynn 1975a, 1975b, 1983). The picture is much clearer now, due to a large number of scientific excavations in the modern era (O'Sullivan *et al*. 2014a). The origins of the ringfort remain uncertain, not helped by the fact that relatively little is known of settlement archaeology in the fourth and fifth centuries compared to the period that followed. A surge of new excavation discoveries also raises questions as to the relationship of ringforts to the increasing diversity of enclosed settlements in early medieval Ireland.

A recent analysis of radiocarbon results suggest that earthen ringforts in Ireland were built and occupied from the sixth century through to the tenth century (Kerr and McCormick 2014). The study suggests a start date in the sixth century and a rather abrupt abandonment of these sites around AD 1000 (*ibid*., fig. 11). This is consistent with other studies that place the main period of ringfort use at AD 600–900 (Stout 1997), AD 600–1000 (Lynn 1975b), and AD 600–850 (Kerr 2007). The building of ringforts is unlikely to have been consistent across Ireland during what was a period of significant political upheaval, which included the Viking incursions of the ninth and tenth centuries. O'Sullivan *et al.* (2014a) suggest that multivallate ringforts had earlier origins, potentially before AD 500, with univallate ringforts slightly later, and raised raths later again.

Despite the large number of excavations in recent decades, it remains the case that no earthen ringforts in Ireland definitely date to the prehistoric period. Where did the idea of building large enclosures such as Lisnacaheragh and Lisnamanroe come from? With no obvious foreign influences, consideration must be given to enclosed settlement of the Late Iron Age. The design of Lisnamanroe may derive from ditched enclosures of that period. The essential ringfort form may have emerged during the fifth century AD, when a small number of multivallate examples were built, of which the few excavated examples include the Rath of the Synods, Tara, and Lisnacaheragh, Garranes. The prestige of those sites established a social convention around the ringfort as an idealised form of high-status settlement.

The building of ringforts across almost all parts of Ireland reflects a significant growth in population, which was supported by intensified agriculture, trade and technological innovation. Other forms of enclosed settlement in this period included crannógs, palisaded enclosures, cemetery settlements and other types. This might be explained by widespread insecurity as the annals present a picture of recurring war and violence. Even if they have no military function, ringforts were a response to growing concerns by the seventh century around the protection of life and property (discussed in Chapter 8.1). McCormick (1995) proposed that ringfort enclosure played an important role in the protection of livestock, in a period when cattle raiding was particularly prevalent (see Lucas 1989). He connects the expansion of ringfort settlement in the sixth and seventh centuries to the growing importance of dairying in food production. This meant that those who owned cattle began to develop 'an elevated social and economic position' (McCormick 1995, 35). The ringfort was in part a response to increased cattle raiding at a time when there were significant pressures on food supply connected to strong population growth.

Their proliferation points to fundamental changes in the organization of society and economy, a fragmentation driven by clientship arrangements within a proliferation of minor kingdoms, and by changes in kinship and inheritance (O'Sullivan *et al*. 2014a, 325). Mytum (1992) connected the origins of the ringfort to a fundamental shift in land tenure in the fifth and sixth centuries, connected in part to Christian conversion. He suggested that a move away from communal holdings to individual ownership of land led to a greater dispersal of settlement in the landscape This is difficult to assess given current levels of knowledge of Late Iron Age settlement, nor does his view have obvious support from early text sources (O'Sullivan *et al*. 2014, 325).

Environmental factors may be relevant to ringfort origins, as the later first millennium AD was a period of climate deterioration, with annalistic references to crop failure and famine at different times in the sixth and seventh centuries (Baillie and Brown 2011, 562). The same sources record outbreaks of plague and other disease, which could explain the widespread desire to protect homesteads though physical enclosure and legal restraint (Charles-Edwards 2000, 152; Lynn 2005; see McCafferty 2018, appendix 1).

The origin of the ringfort has been linked to increased contacts with Roman and post-Roman Britain during the fourth and fifth centuries (Lynn 1983; Mytum 1992). Garranes is relevant here, given the date range of Lisnacaheragh and Lisnamanroe, and their association with imported Roman goods. While multivallation with internal ditches was a feature of late prehistoric monuments in Ireland, it was only after the Roman conquest of Britain that the first large non-funerary enclosures with externally ditched ramparts were built (Dowling 2011, 228). As discussed above, Roman finds in Ireland indicate prolonged contact with the Empire, which must have exposed the travelling Irish to military innovations in Britain. Dowling argues that such Roman contacts were the catalyst for this new form of extravagant display at prestigious monuments, best illustrated in that large multivallate enclosures built at or near Tara in the fourth and fifth centuries.

In conclusion, the results of this study confirm that Garranes was an important settlement in south-west Ireland during the fifth and sixth centuries. The status of this minor royal residence (*rígraith*) is indicated by the size and design of two large adjacent enclosures from that period, both consistent with *nemed* residence, most probably that of a *rí túaithe*. This is supported by the presence of specialist craft workers at Lisnacaheragh who produced high-quality ornaments in bronze, glass and enamel under the patronage of that king. The wealth of this settlement is further emphasized by the large quantity of imported pottery and also glass vessels from the Mediterranean region and Atlantic France, associated with the importation of wine and other exotic goods. That trade began in the fifth century, at a time when Roman merchants were familiar with the Cork coastline. The demand for such goods at Garranes indicates a desire to acquire the material culture of the Roman Empire, an expression of *Romanitas* also visible in the adoption of ogam writing. Those connections paved the way for the spread of Christianity in south-west Ireland during the fifth century. One early convert is likely to have been the king of a powerful *túath* in Mid Cork, a tribal group whose name survives in later records as the Calliti or Uí Eachach. The royal seat of that petty kingdom was Raíth Ua nEchach, or Rath Raithleann, an historical memory of which is recounted in bardic poetry of the later medieval period. Based on archaeological evidence presented by this project and earlier work, that legendary place can now be securely associated with the two great enclosures of the Garranes landscape.

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