

Final Report Excavations at Clonard, Balbriggan



MCGLADE 05/09/2019

LICENCE 15E586

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VOLUME 1

archaeology plan
HERITAGE SOLUTIONS

SITE NAME

Clogheder/Clonard or Folkstown Great, Balbriggan, Co. Dublin

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ABBREVIATIONS USED

| | |
|------|---|
| DHCG | Department of Culture, Heritage & the Gaeltacht |
| NMI | National Museum of Ireland |
| NMS | National Monuments Service |
| OS | Ordnance Survey |
| RMP | Record of Monuments and Places |
| NIAH | National Inventory of Architectural Heritage |
| LAP | Local Area Plan |

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Section 1 Introduction

Report summary

The development site at Clonard or Folkstown Great has now been archaeologically resolved. Three zones were left unexcavated and have been preserved in situ within the site due to the presence of archaeology.

The excavation uncovered an intriguing prehistoric landscape possibly informed and influenced by the wetlands located on the site and by a very early pathway that survived as a route through this landscape for millennia. Ceremonial and burial monument from throughout the prehistoric period were uncovered between the pathway and the wetlands along with features associated with the exploitation of the natural resources of this environment.

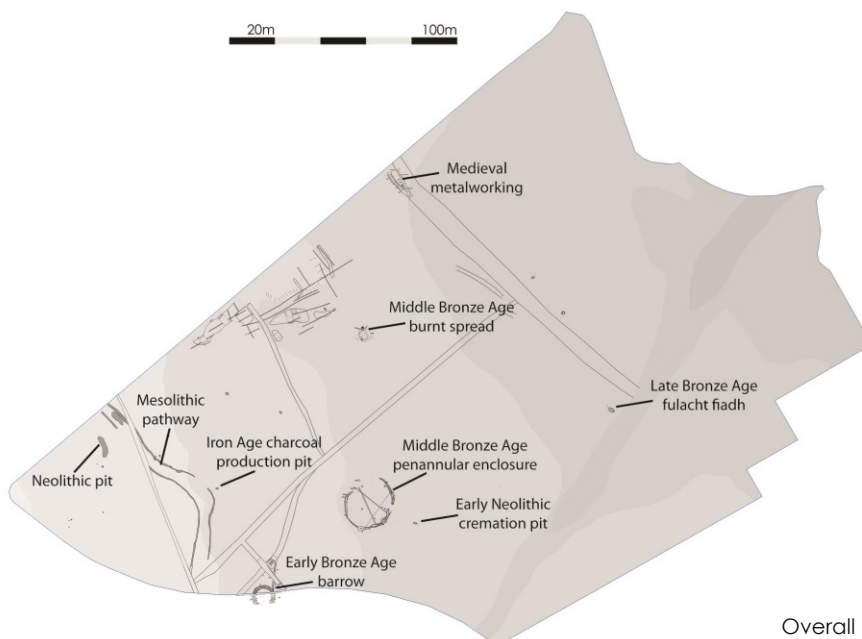
A pollen core of organic material from one of the wetland pools revealed a snapshot of the local environment throughout the Neolithic period.

The excavation has added to our understanding of the prehistoric archaeology of this part of North Dublin, as well as hinting at the potential for further archaeological discoveries in the immediate vicinity.

A later phase of medieval land division was also identified with evidence for small-scale metal-working using coal.

Site Location

The site is located to the north of the Clonard Road, Balbriggan (R122), northwest of the existing St. George's School, and west of the Hampton Garden development. The site is located 1.28km from the centre of Balbriggan at the western edge of the town, and east of the M1. Prior to the school development the lands were undeveloped and span the townland boundary of Clogheder and Clonard or Folkstown Great townlands, though the construction works are solely located in Clonard or Folkstown Great townland.



Overall plan of the features identified during the excavation

The site is located in the parish of Balrothery and the barony of Balrothery East.

Development

The archaeological works were carried out in advance of the construction of a new school building in two phases on a site of c. 5.538 hectares. Phase 1 of the project comprised the construction of one 2-storey post primary school building with a physical education hall, special need unit, support teaching spaces and ancillary accommodation. Phase 2 comprised the construction of a 2-storey extension of the school comprising teaching spaces and ancillary accommodation. The total floor area space for both phases is c. 9,400 sq.m.

Site works to the school ground consist of the provision of 140 cycle spaces, bin stores, ball courts, secure play area, 50 sq.m. external storage building, covered work area, landscaping, ESB substation, boundary treatments, and other associated site development works. A total of 60 car parking spaces, drop-off and pick-up facilities, and a new access road were also proposed.

All construction works are located within Clonard or Folkstown Great townland. Only spoil storage and landscaping works were carried out within the small portion of Clogheder townland to the southeast of the site.

Planning

The development has been granted planning permission (Fingal County Council Ref. F15A/0242). Condition 9 of the Grant of Planning Permission requires that a programme of pre-development archaeological test-trenching and an archaeological desktop assessment be carried out on the site.

The site was previously part of a grant of planning permission in 2007 for land designated in the Balbriggan North West Local Area Plan for development (Fingal Co. Co. F07A/1249). The proposed development was on a large site of 36.08 hectares (90.2 acres) and comprises 1057 no. dwelling units within 5 development



Site location shown on Urban Place map (top)

Site location shown on modern Ordnance Survey map (centre)

Development plan for the school (bottom)



Plan of the areas covered in the geophysical survey (yellow), test trenches excavated (red) and archaeology encountered during the 2007 assessment, after Elliott 2007 (top)

Field names used in the 2007 and subsequent reports (bottom)



areas. As part of this planning application it was proposed to facilitate the construction of the pump station by Fingal County Council, which has now been completed. Also as part of this planning application, a site of 1.8 hectares was reserved for a primary school site. While the majority of this development has not yet gone ahead, the planning permission is still outstanding as it was granted for 10 years.

A large programme of archaeological assessment was carried out in 2007 advance of these works including geophysical surveying by Target Geophysics Ltd. and Joanna Leigh Surveys, and testing by Ruth Elliott and Terry Connell. During this project the large development was divided into 23 numbered fields for descriptive, reference and recording purposes. The current development site lies within parts of six of these fields, Fields 12, 13, 16, 17, 19 and 21, with the site taking up the majority of Field 17. For cross-referencing purposes this report carries on the field number system of the previous reports.



Testing prior to the current development was carried out by the author in 2015 (McGlade 2015). A number of test-trenches were excavated across the site and archaeology was encountered in a number of places, with subsequent monitoring and excavation recommended.

The main construction works on the site were

in Fields 16 and 17. Monitoring was carried out within Field 12 as the southern portion of this field was stripped prior to being used for spoil storage during the development. Fields 13 and 19 were tested during the previous phase of the works, however as no construction works were proposed within these fields they were not included in the monitoring or excavation phase. No stripping was carried out to the south of the townland boundary within Field 21 as archaeology had previously been identified within this part of the site and was to be preserved in situ. This part of the site was used for temporary spoil storage prior to landscaping above the built up ground level, with the original topsoil being left in situ to protect the underlying archaeology.

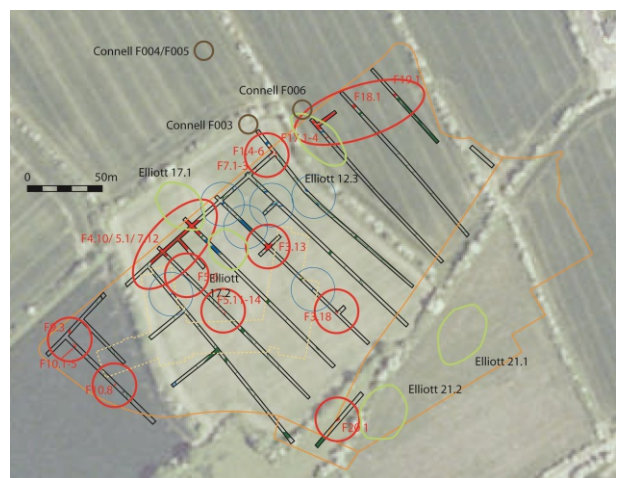
Works in the eastern part of the area were underway during the testing programme and this development, or some variation of it, may be carried out in the future.

During the excavation road building works relating to the adjacent development to the southwest were being carried out at the same time. The continuation of the ring barrow identified in Area 2 into this site was excavated by Gill McLoughlin under Licence No. 15E558. This project also included a trench along the northern side of the townland boundary within the boundary of the current site for the insertion of a waste water pipe. These works were carried out under Licence No. 15E558.

The lands of the current school development, as well as the two schools to the south fronting onto the main road, are all constructed within the boundary of the Balbriggan North West Local Area Plan lands.

Topsoil and Subsoil

Topsoil across the site was a mid-greyish brown silty clay and was 270-500mm in depth, being deeper to the south. The topsoil in parts of the northern end of the site was highly organic, likely a result of ploughing over the underlying wetlands. At the southern end of the site a light grey 80-190mm in depth was apparent below the topsoil. This related to the wetlands along the northern side of the Bremore River, which



Composite of the previous test-trenching programmes within the site with Elliott 2007 in purple, Connell 2008 in brown and McGlade 2015 outlined in black. Areas of archaeological potential identified by Elliott (green) and Connell (brown) are also marked (top)

Results of the 2015 testing programme with archaeological features in red, potential archaeology in blue, combined with areas of archaeological potential identified by Elliott (green) and Connell (brown; bottom)

forms the southern boundary of the site.

The natural subsoil was found to vary greatly across the site. To the southwest dark brownish grey stony clay and stony silty clay layers were found to overlie a greyish white sandy silt at a depth of 1m below the top of the subsoil. In the central portion of the site the natural was a

yellowish brown stony boulder clay with occasional grey silt patches. When excavated this was found to overlie a number of additional natural layers. To the west multiple layers were identified with a dark grey to black clayey silt overlying a black stony boulder clay, in turn overlying a yellow boulder clay, which overlay a light greenish grey stony sand.

Archaeology beyond the site

A number of features extended beyond the limits of excavation of the site, particularly to the north, where the two near-parallel curvilinear gullies defining the Mesolithic trackway extend beyond the site to the north of Area 1 and the medieval ditch extends beyond the site to the north of Area 5. The gullies were not identified within the adjacent development to the southwest, possibly as they had been truncated away by an earlier service trench, however they may be present beyond this to the southwest of this service trench. It is possible that the pits and postholes recorded in the western end of Area 1 continue to the west and north also, though again none were encountered during the adjacent excavation for the road construction to the west.

Three archaeological areas within the development site were preserved in situ as no sub-surface groundworks were required in these areas. The northern zone preserved in situ included a ditch containing medieval pottery and evidence for metalworking, and an associated metallised surface and a second ditch. Part of this area of medieval activity was previously identified in testing (Site 12.3, Elliott 2007; McGlade 2015b, 36). It is possible that further medieval industrial activity is located in close proximity. The central zone preserved in situ contained two undated ditches that, given their location, may relate to the medieval ditch further to the north. The southeastern zone preserved in situ contained two possible archaeological sites (Site 21.1 and 21.2, Elliott 2007) uncovered during testing (Elliott 2007) including a fulacht fiadh and other possibly prehistoric features. The ground level has been increased in all of these areas with the addition of topsoil from elsewhere on the site.



View of the varying layers of natural subsoil in the western end of the site (top)

Plan showing the areas of the site preserved in situ in orange and locations where features extend beyond the limit of the site in blue. The barrow is not included as the central portion of it was excavated in 2015 (Licence No. 15E558) while the southern end was truncated during the laying of previous services (bottom)

While significant quantities of soil were added over the three areas to be preserved in situ, any subsurface works within these areas in the future should be archaeologically assessed to ensure works do not encroach on the archaeological material below.

Both the avenue and the medieval ditch were found to extend beyond the limit of excavation to the north. Any subsurface works to the north of the site boundary should be archaeologically

monitored. It is unknown whether the avenue extends further to the south beyond the service trench identified there. Any subsurface works in this area should be archaeologically monitored.



Ordnance Survey aerial image from 2005-2012 showing the site location (top)



Google Earth satellite image of the site from 2017 showing the completed school (bottom)

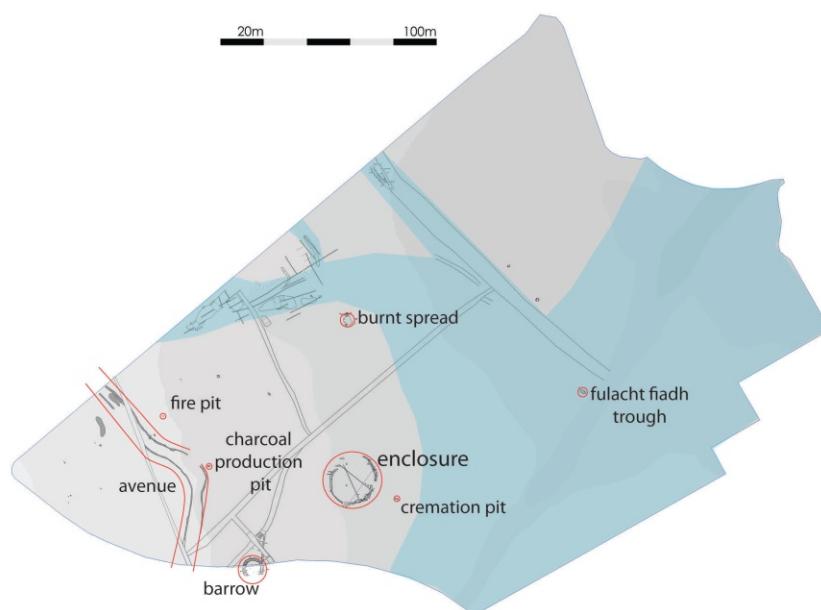
Section 2 Background

The excavation of the site at Clonard was conducted from the 5th January until the 11th March 2016. Archaeological features had been identified during two phases of testing on the site (Elliott 2007 & McGlade 2015b), however more was revealed during the monitoring phase at the beginning of the excavation. To allow for comparison with earlier testing results the same field names as outlined in the previous archaeological programmes has been used in this report (Elliott 2007, Connell 2008, McGlade 2015b & 2016). The development site includes portions of Fields 12, 13, 16, 17 and 19 in Clonard or Folkstown Great townland, with Fields 21 and 22 lying to the south of the townland boundary in Clogheder. The portions of the site requiring archaeological monitoring and excavation all lay within Clonard or Folkstown Great townland to the north, with construction focussing in Fields 16 and 17 and some additional works required to the east in Field 12 for construction traffic and spoil management. The excavation divided the site into five areas. For the purposes of this report the site will be referred to as Clonard.

For the purposes of this report the features excavated will be discussed chronologically. Radiocarbon dates for the site were acquired from 14Chrono Laboratory, Queen's University Belfast (Hoper 2017; Appendix I). Other comparative radiocarbon dates used in the report were identified using the catalogue of radiocarbon determinations and dendrochronology dates (Chapple 2019) or from individually referenced texts. All radiocarbon determinations are calculated to 2-sigma with an accuracy of 95.4% unless otherwise stated.

Landscape setting

The site at Clonard is located near the base of the northern side of a small valley orientated northeast-southwest, 1.7km inland from the coast at Balbriggan, and is between 30m and 35m above sea-level. A small stream runs along the base of the valley, which flows towards the sea to the north of Balbriggan town immediately south of Bremore Castle. A hill rises up to the northwest of the site at Flemingtown and Balscaddan, with two small hills rising up on



Location of the features identified during the excavation in relation to the wetlands, highlighted in blue

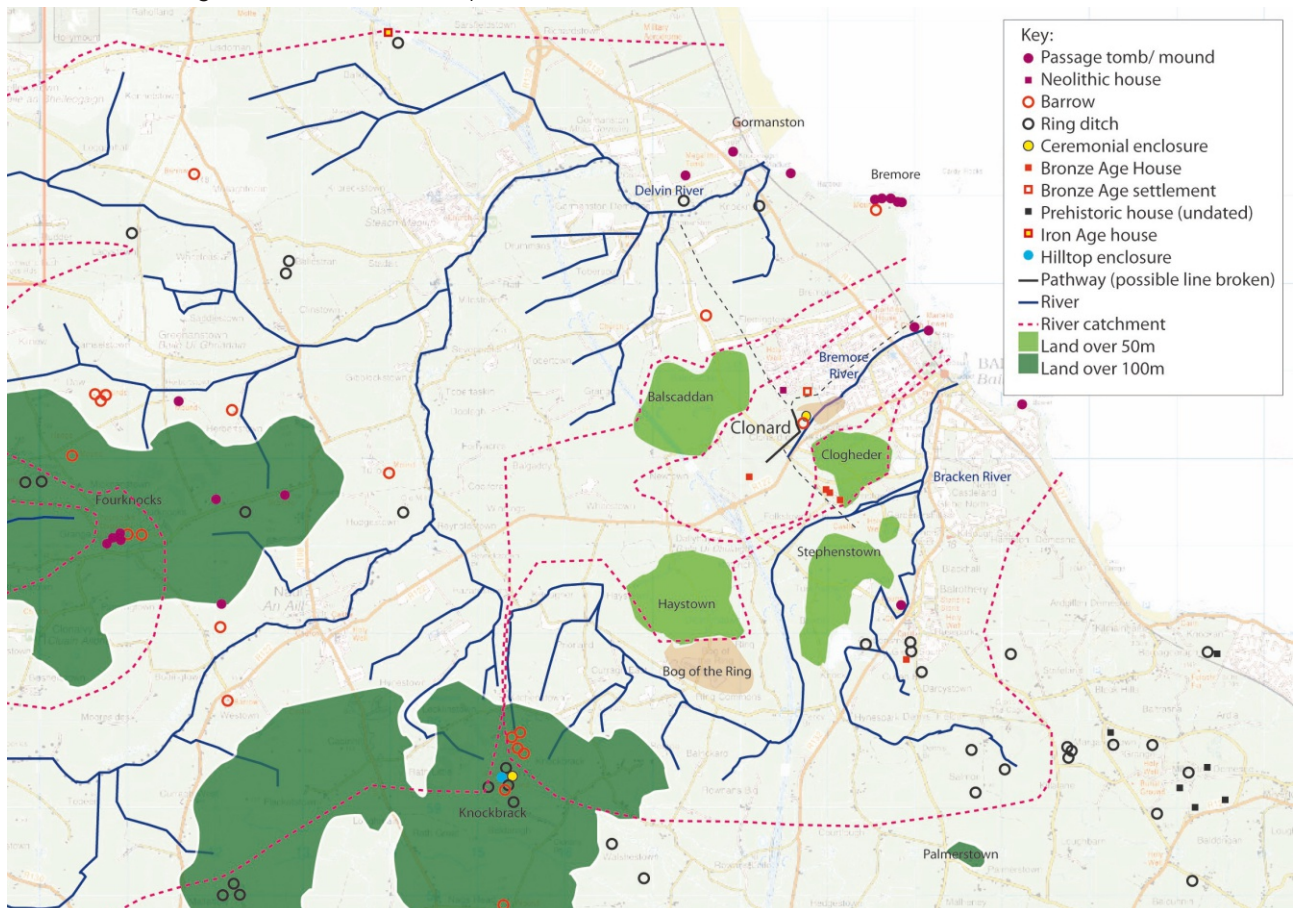
the opposite side of the valley at the southern end of Clogheder townland.

Evidence encountered during the testing and excavation of the site indicated that the ground on either side of the stream had been wetland for a considerable length of time. Drainage possibly improved when the stream was formalised and a number of ditches were excavated across the site in the medieval and post-medieval period. Prior to this improvement, the lower-lying portion of the site would have been marshy wetland. A slight rise in the ground level towards the middle of the site impacted drainage further to the north and a further swath of marshy ground was identified running across the northern end of

the site, at the break of slope at the base of the valley. This was visible on the ground as a band of organic-rich material, with deeper sections in parts representing former pools along the drainage trend. This formed a series of small watercourses and pools at times, and a marshy band of wet ground at others. A radiocarbon date for the earliest levels of the largest of the pools along this trend indicated it began to fill up with organic matter c. 3600BC. Post-medieval drains cut through the material indicate that drainage was still an issue in this part of the site into relatively recent times. Further wetland sites such as possible fulachtaí fia and burnt mounds have been identified to the north of the site also suggesting this trend of poorly drained ground continued up the hillside also, possibly forming a barrier to movement in the past.

As has been seen repeatedly along the eastern seaboard of Ireland, the stretch of higher ground above the low coastal plain has for millennia attracted settlement and repeated occupation. For example at Donacorney, Co. Meath to the north where a prehistoric

Map showing some of the archaeology in the area surrounding the site, highlighting site-types mentioned in the report, areas of higher ground and wetlands. Note the cluster of Bronze Age settlement in the vicinity of the site



landscape starting in the Neolithic was repeatedly occupied, interacted with and altered by successive peoples from the Neolithic to the medieval period (Giacometti 2010). At Clonard the story begins somewhat earlier, with the stream likely to have been an influencing factor.

It is interesting to consider the features identified on the site in regards to this landscape. The penannular enclosure, cremation pit and barrow located on the slightly higher ground towards the west of the site, sit on the edge of the former wetland. The burnt spread and fulacht fiadh to the east are typical features of this environment as these monuments require a water supply.

Placename analysis

The name of the townland, Clonard, meaning high meadow in Irish (Joyce 1996, 29), relates to the small valley of the stream now forming the townland boundary to the south of the site, with the name suggesting a pastoral usage. Indeed the shape of the townland appears to reflect the catchment area of the Bremore River, perhaps relating to the high meadow above the wetlands further downstream. The alternate townland name of Folkstown is translated as Baile an phúcaigh (www.logainm.com). This translates as town of the spirits or ghosts, possibly indicating a survival in local consciousness of a funerary site, or perhaps an abandoned settlement, though it is possible that it derives from a more recent family name.

Section 3 The Mesolithic pathway

The pathway

Two curvilinear gullies ran for 90m in length, parallel to each other and 4-4.5m apart, across the western end of the site. The gullies were flat bottomed and steep sided and of similar proportions measuring up to 0.9m in width and 0.45m in depth. The gullies appear to define a path or track that ran downhill towards the wetland area in the vicinity of the stream at the base of the small valley. At the break of slope in the hillside the gullies separated slightly enclosing a broader space. A gap in the eastern gully at this point measuring 7.58m appears to have provided access to a tract of ground to the east, into the wetlands. Beyond this broader section, the path turned south, possibly to run along the higher ground to the north of the stream, or to an appropriate fording point to the southwest.

The fills of the gullies were largely sterile with rare charcoal noted and sampled from three locations. Two of these were of sufficient quality to date. Both samples were ash and were from the western gully, one from the northern end of the gully and the



Mid-ex view of gullies F35 and F38, looking north (top right)

Mid-ex view of gullies F35 and F38 to east of field boundary, looking south (centre right)

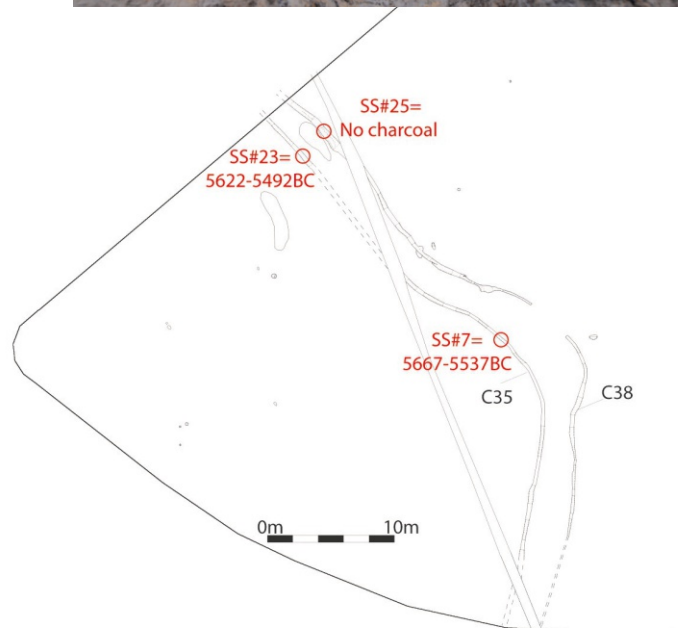
Mid-ex view of northern end of gullies F35 and F38, looking south (bottom right)



Views of sections through the western gully (C35) from north (top left) to south (bottom left). Note the numerous lenses of sand and silt forming the fill

Views of sections through the eastern gully (C38) from north (top right) to south (lower centre right). The fill within the southern two sections was a more consistent grey silty clay. The presence of the entrance along this side would have hampered drainage on this side seeing pooling of water and the rapid silting up of the gully. The northern end has a clear re-cut along one side

Plan showing the locations of where samples were taken from and their dates (bottom right)

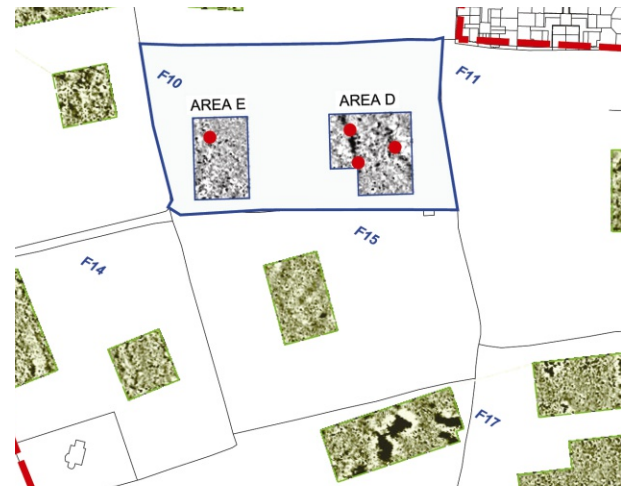


second from the central section to the west of the entrance in the eastern gully, with the sample locations separated by over 50m. The northern sample returned a date of 5622-5492BC while the central sample returned a date of 5667-5537BC. The similarity of the two Mesolithic dates from the gully, from two separate locations, strongly suggests that the feature dates to this period, and that the charcoal is not residual.

There is some evidence that the gullies extended beyond the limits of the site. Firstly, they were seen to run north and south of the site at the two edges of the excavation. Secondly, geophysical surveying and testing to the northwest of the site (Nicholls 2005, Leigh 2007, Elliott 2007) identified further linear features that may relate to the gullies. This suggests that the feature may measure significantly more than 90m in length.

While the gullies may have provided some drainage, this does not seem to have been their main purpose as the gap in the eastern gully at the base of a slope would have been a poor drainage solution. The primary purpose of these gullies appears to be to mark the route of the track.

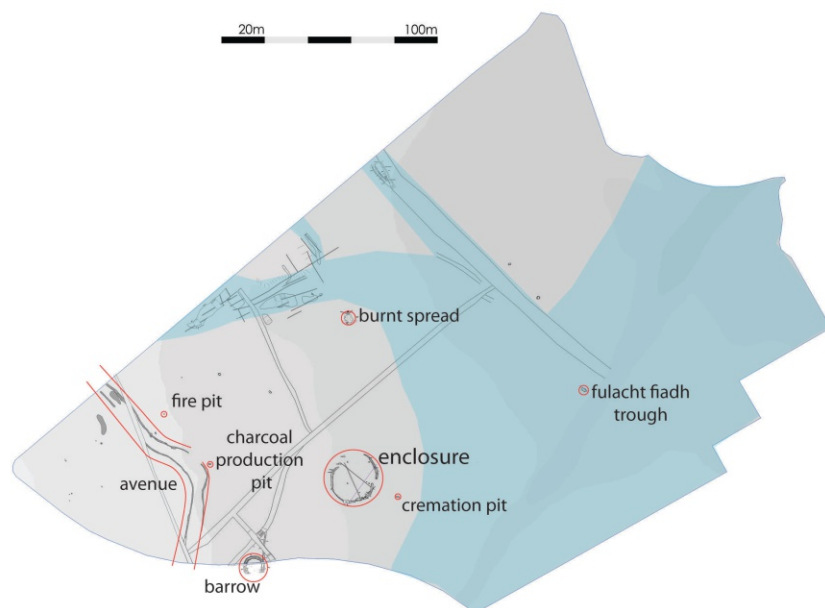
The interpretation of the feature as a pathway or track is based on a number of factors. Firstly, the long and linear nature of the two gullies.



The gullies run approximately parallel for much of their length. Secondly, no cut features were identified in the space between the two gullies, which suggests this space was used for a specific purpose, such as walking. Thirdly, the route of the path in this location make sense with respect of the local topography: the northern end is running downhill from the local highpoint at Balscaddan/ Flemingtown and the broader section lies at the base of the slope as the ground levels off. The opening to the east opens onto the slightly higher ground between the track and the wetlands, while the southern end of the track turns to avoid the wetlands, possibly following the along the higher ground north of the Bremore River. Overall, the track appears to have provided a prescribed route

Extract from the geophysical surveying carried out by Joanna Leigh in 2007 showing two roughly parallel linear features in 'Area D' within Field 10, which may be a continuation of the pathway. This area was tested by Ruth Elliott, who identified a number of linear features, possible enclosures and pits in this area (top)

Location of the pathway in relation to the other features identified on the site overlaid on a contoured baseplan with the higher ground being paler grey. The wetlands are highlighted in blue (bottom)

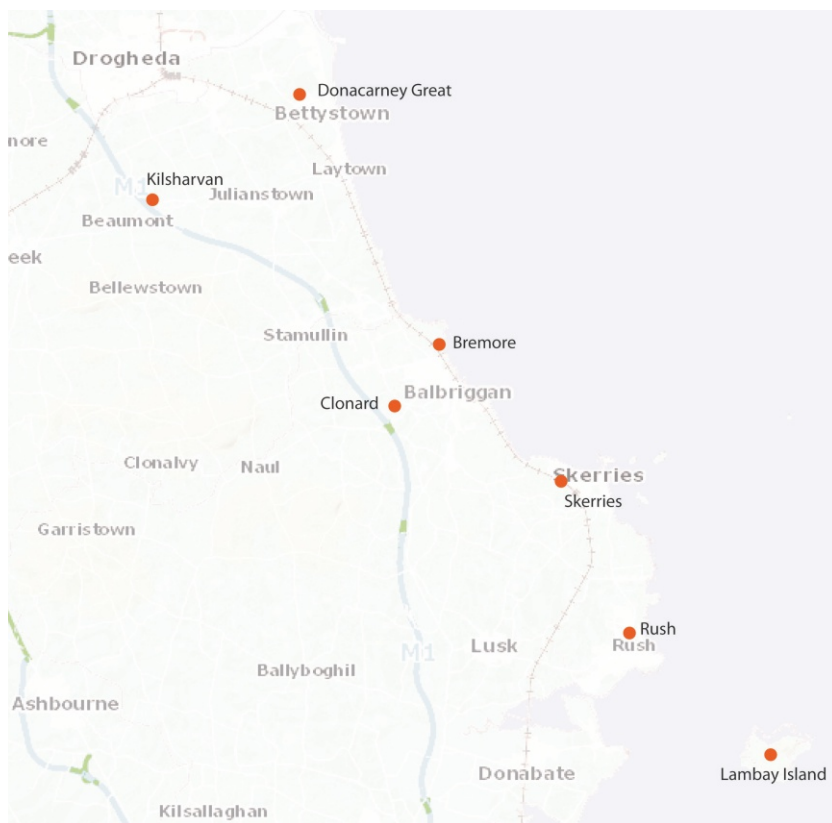
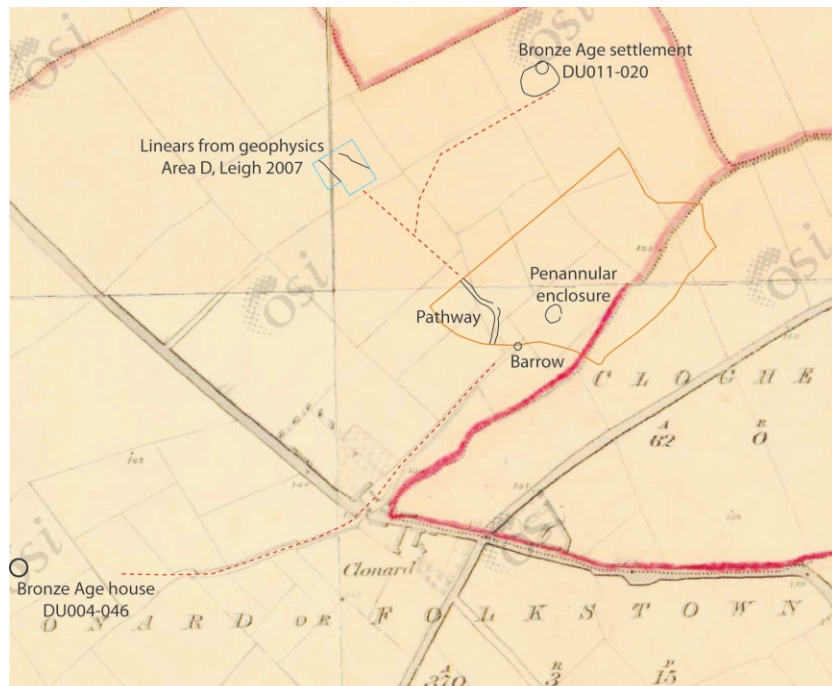


through wet and boggy ground in the vicinity of the Clonard site. This, combined with the later Mesolithic date of a feature near the pathway, demonstrates an investment in a locality, implying that Mesolithic people returned to this area frequently. This evidence contrasts with widely held views of Mesolithic people as widely roaming (Preston and Kador 2018).

Longevity of pathway

The most surprising aspect of the pathway at Clonard is its potential longevity. The pathway has its origins in the Mesolithic period. There is no evidence that it was ever abandoned or decommissioned during the prehistoric period. It was truncated by field boundary ditches that were definitely present during the post-medieval period but appear to have been laid out in some form during the medieval period. This land improvement and parcelling activity appears to mark the end of the trackway following the arrival of the Anglo-Normans. Interestingly a field laneway is depicted in this exact location on the First and Third Editions of the Ordnance Survey, which curves directly towards a Bronze Age roundhouse excavated in the same townland to the west (Byrnes 2007a, 218). This may well be a coincidence, however it is possible that this is the last vestige of the pathway.

Few other Mesolithic sites have been excavated locally. The Mesolithic period has long been linked with the development of the post-glacial forests in Ireland (Driscoll 2009, 110). In the past this forestation has been seen as an inhibiting factor to settlement, however Driscoll argues that Mesolithic communities in Ireland were woodland dwellers that would have



Extract from the First Edition map of the site dating to the 1830s with the location of the pathway and some of the possibly associated features mentioned in the text. The linears indicated in the geophysical survey in 2007 to the northwest are also depicted. Possible projected lines of the pathway are marked in red with the southern line potentially following a field lane to the north of the Bremore River (top)

Mesolithic sites in the vicinity of Clonard (bottom)

understood their environment intimately, and points out that there is a growing corpus of Mesolithic sites that would not have been at the water's edge (*ibid.*). However, to date much of the Mesolithic activity in north Fingal largely consists of flint scatters near the coast, such as at Skerries and Rush to the southeast, and shell middens, such as the one to the east at Bremore (Baker 2017, 9; Collins 1997, cited in Smyth 2014, 132). Flint artefacts dating to the Mesolithic period were also uncovered during the excavation of Donacarney Great, Co. Meath (Giacometti 2010), which again is close to the coast. Further afield at Lambay Island a stone axe manufacturing site has been identified, with evidence for activity dating from the Mesolithic to the Neolithic period A Mesolithic fire-pit dating to 5060-6800BC excavated at Kilsharvan, Co. Meath (Chapple 2019) to the north, is located inland, though along the line of the River Nanny

Later prehistoric monuments were identified during the excavation and their location appears to have been influenced by the route pathway. A barrow and a penannular enclosure were situated at strategic locations along the pathway, in positions that relate to lines of sight from the pathway. The construction of both of these monuments has been dated to the Bronze Age, however, Late Mesolithic and Early Neolithic dates were returned from features associated with the penannular enclosure, suggesting the origins of these monument locations had been marked from a much earlier date. Based on the spatial relationship between the burial monuments and the pathway, it seems probable that the trackway remained in use during the Bronze Age. Furthermore, both monuments also have Iron Age phases, which may suggest that the pathway remained in use until the end of the prehistoric period.

How could features such as the shallow gullies defining the edges of the pathway have existed for such an extended period of time? It is not known whether the avenue would have had an above ground element. The gullies were relatively narrow and of no great depth; this would not have produced quantities of soil to create banks of any great scale, though admittedly the feature is likely to have been reduced through agricultural activity over the

years. The fills within the gullies indicated that they had been deposited during a number of natural seasonal flooding events. It is possible that the gullies were maintained for a period, however it is more likely that the gullies relate to one aspect of the pathway, which would have been defined at a minimum by a cleared strip of ground through the woods and forests. The maintenance of this cleared pathway is likely to have been more important than the maintenance of the gullies themselves, which filled in over time. Indeed, the survival of only Mesolithic charcoal within the fills of the gullies indicates they filled in early in the lifetime of the route way. In the early medieval period there are references to both the construction and maintenance of roads, with this activity being highly planned, requiring skilled workers divided into teams working under a leadership structure, with ongoing maintenance at certain times of the year (Doherty 2015, 22-4). The construction of this pathway in a much earlier time must have required similar planning and cooperation.

As the landscape evolved over time and clearances were created for agriculture the pathway may have been defined by vegetation along either side preserving the line of the pathway. Once the pathway had been established there would be no reason to abandon it, providing it still served a purpose such as accessing the meadow at the head of the valley and circumnavigating and accessing the wetlands. Additionally, an established route may have influenced the boundaries of later land ownership, constraining options for choosing new routes at a later time. Once established a route or path becomes the obvious template for future movement, maintaining and prolonging the pathway beyond the use of its original constructors. There is usually a good reason for following in a particular direction linking places in a serial trajectory, and the more people who have shared in the purpose of the path the more important it becomes (Tilley 1994, 31).

Comparisons and sources

While rare, other paths or trackways have been uncovered in Ireland dating to the Mesolithic period. A pine trackway excavated at Lullymore



Location of sites mentioned with Mesolithic trackways in black, Bronze Age in blue and Iron Age in red (top)

Bog, Co. Kildare constructed of transversely laid and radially split pine measuring 1.8m in width returned dates of 6209-5881BC and 6071-5929BC (Driscoll 2006, 69). A wooden structure or platform identified on Inch Island in Lough Gara returned a date of 4230-3970 BC, while an Early Mesolithic date of 7330-7050 BC was returned from a brushwood sample also from Lough Gara (Fredengren 2002, 120). This has led Driscoll (2009, cited in Cummings 2017, 20) to the suggestion that wooden architecture was widespread by this time (Driscoll 2009, cited in Cummings 2017, 20). Mesolithic communities actively engaged with their landscape, working large trees and creating social arenas in the landscape (Driscoll 2006, 113). At Lullymore and Lough Gara the trackways may have been used to access valuable resources from wetlands, which was also the case at Clonard. The Mesolithic trackways at Lullymore and Clonard can be seen as a response to the demands of a particular environment, being of sufficient importance to be defined either by gullies or road surface, and their presence hints at a much greater level of significance given to travel and communication during the Mesolithic (Brindley and Lanting 1998, 58).

In raised bogs across the country numerous wooden and brushwood trackways or toghers have been identified dating from the Mesolithic to the early medieval period, built to traverse and access these wetland areas (Moore 2008, 2). At Edercloon, Co. Longford a complex series of toghers classed as primary, secondary and tertiary were uncovered during excavation, with the large-scale concerted effort required to create the large primary toghers beginning in the Bronze Age and peaking in the Iron Age (ibid.). The discovery of the remains of three wooden wheels associated with the toghers indicates that trackways were robust enough to allow for transport of vehicles across the wetlands (ibid, 8). The seven primary toghers identified at Edercloon averaged 3.5m in width, and were suggested to be entering the bog only, perhaps to gain access to its rich resources (ibid, 10). The Iron Age Corlea trackway, Co. Longford was found to be 3-4m in width and due to its grandiose scale was interpreted as a highly significant road, possibly serving as part of the routeway between the cult centre of Uisneach and the royal site of Rathcroghan (Raftery 1997, 104).

Large linear earthworks have been identified at a number of the major ritual centres such as The Banqueting Hall at Tara, the Mucklaghs at Rathcroghan, the Knockans at Teltown, at the Late Neolithic ceremonial site at Ballynahatty, Co. Down, the parallel ditches in Creeveroe townland in the Navan complex, Co. Armagh and the Friar's Walk, Kiltierney, Co. Fermanagh (Waddell 1998, 350-8). These monumental earthworks are varied, defined by banks, ditches or banks-and-ditches on either side of a sunken walkway (O'Brien and Waddell 2018, 54). Conor Newman has offered an interpretation of the Banqueting Hall as forming part of a processional way, possibly associated with inaugurations, winding through a ritual landscape and accessing the royal sites on top of the hill via appropriate and pre-understood alignments (Newman 2007). The earlier phases of The Knockans have recently been dated to the Late Bronze Age (806-431BC) and continued in use until the early medieval period, which indicates that these long linear monuments had complex and protracted histories (O'Brien and Waddell 2018, 53-4).

Other large linear earthworks have been investigated across the country. These features are again on a grand scale, running for long distances. Two excavated sections excavated across the Cliadh Dubh, Co. Cork identified that a trackway was present along with the bank and ditches forming the monument, and a date of AD 139-250 was obtained for the material overlying the trackway, indicating its likely use in the later prehistoric period (Doody 2008, 565). These earthworks appear to relate to territorial boundaries, with the pathway at the Cliadh Dubh perhaps improving access along the boundary. While other examples of linear earthworks, such as the Black Pig's Dyke in southern Ulster, dating from the Bronze Age to the Iron Age (Ó Drisceoil & Walsh 2018, 78), have been suggested as territorial defences and markers (Waddell 1998, 360), they also show a prehistoric world where control of access and movement was important, and territorial markers were required.

Driscoll (2006, 113) notes that the Mesolithic trackway at Lullymore, at 1.8m in width, is wider than many later prehistoric pathways. At over 4m in width, the pathway at Clonard is the widest currently identified in Ireland, over double the size of the Lullymore trackway. It is of a similar scale to the Iron Age road at Corlea, and the Bronze Age larger primary toghers at Edercloon. While less imposing than the two later examples, the pathway at Clonard could cater for the same traffic as the large toghers running through the bogs to the west. The size of the Clonard trackway would have been large enough to handle human and animal traffic.

Doherty has listed the five road types present in early medieval Ireland: *sligí* or high roads, where two chariots can pass one another; *ród* or roads, where a chariot and two horsemen can pass one another; *lamraite* or by-roads, which connected two highways; *tograide* or curved roads, which were privately owned toll roads; and *bother* or cow tracks, where two cows could fit, one lengthways and one sideways (Doherty 2015, 25). These early medieval road hierarchies may have been based on late prehistoric social structures. While we obviously cannot project these back into the Mesolithic period, the persistence of the Clonard trackway into the Iron Age suggests this source can be useful.

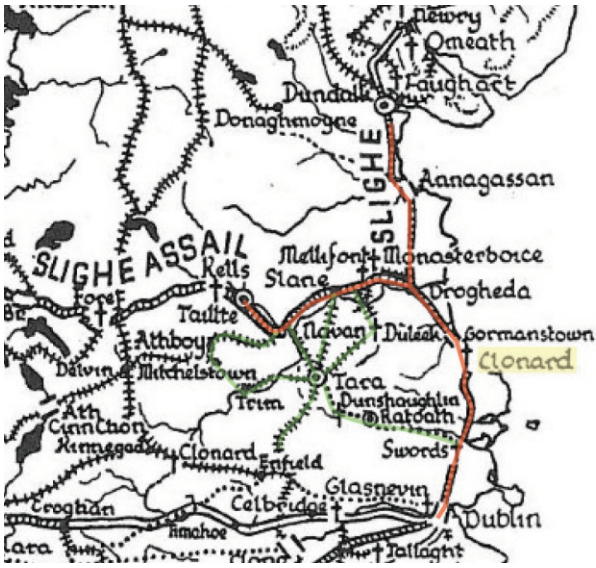
Roman carts or chariots were less than 2m in width (Knapton 1996, 30), with Irish examples likely to have been of similar proportions. This would suggest that the trackway at Clonard could fall into the upper two classifications of road. The creation of such a substantial routeway at Clonard would have provided a significant artery for communication from an early period. It may also have served a similar role to the ceremonial or territorial routes mentioned above, but on a more local level.

Routes through the wider landscape

As discussed above, in the immediate area of Clonard the pathway would have provided a route through a wetland area and provided access to natural resources such as the wetlands, high meadow and river. In the wider area of north County Dublin, this pathway may have linked with larger prehistoric routeways including both road and riverine navigation systems.

One of the five major historical routeways through Ireland, the *Slige Mhídhluachra*, is depicted by O Lochlainn as running through Clonard on its way from Dublin towards the Boyne (O Lochlainn 1940). Doherty (2015, 26) has argued that this road, which ran from Dublin through Swords, Clonard, Gormanstown, Dundalk and on as far as Dunseverick on the north coast of Antrim, was perhaps 10th century in date as Dublin is to the fore. Dublin would not have had such primacy before the Viking settlement was established there. As such the line of this routeway passing through Clonard may be a reflection of the rising power and influence of Dublin and its trade network rather than an indicator of a more ancient routeway (*ibid.*). This routeway is depicted on the 1650s Down Survey parish and barony maps, and later maps by Rocque in 1760 and Taylor and Skinner's in 1777, being the main Dublin to Drogheda road.

Joyce (1906, 481) notes that in earlier times the *Slige Mhídhluachra* would have originated in Tara, crossing the Boyne near Slane. While the line of the *Slige Mhídhluachra* depicted by O Lochlainn may be 10th century in date, it may



Extract from O Lochlainn's 1940 map of Ireland showing the ancient routes of Ireland. Doherty (2015, 26) argues that this shows a Dublin-centric road system, which is likely to date from the 10th century or later after the Viking settlement of Dublin had increased the importance of the city, however it is possible this route occupies an earlier coastal route between the Slige Cualann and the Slige Mhidluachra, running from the crossing point of the Liffey and bypassing Tara (top)

Extract from the Down Survey map of the parish of 'Ballruderdy' in the Barony of 'Ballruderdy' showing the approximate location of the site and the highlighted highway to the west (bottom)

also have been an earlier route between the Slige Mhidluachra and the Slige Chualann, which crossed the Liffey at the Ford of the Hurdles (now Dublin) bypassing Tara. The pathway at Clonard may have connected the area to this major communication artery.

As well as over-land roads, rivers would have acted as routeways, particularly in the earlier

prehistoric period (Haughey 2009, 283). The Bremore River which runs through the Clonard site is too small to be used for navigation, and this is likely to be the case in the past also, despite the difficulty in reconstructing early prehistoric river systems (Brophy & Sheridan 2012, 58). Low-gradient rivers, such as the Bremore River, would naturally have been anastomosing systems, with many thin channels threading their way through dense riparian woods (Brown & Keough 1992) and as such not useful for overland travel along the river banks. Thus, travel along the Bremore River would have been difficult, along the banks or by boat, and furthermore, the wetlands at the eastern end of Clonard would have been a further impediment. This is precisely where the Mesolithic pathway was uncovered, and the pathway would have allowed travellers to circumnavigate these wetlands on their way to or from the sea, or between the larger river systems. As at Mesolithic trackways at Lullymore and Lough Gara, the Clonard trackway provided access to wetlands which contain valuable resources. At Clonard, the access to the wetland was marked by a distinct broadening and opening in the path. Its route also provided access to other local natural resources in the forms of the high meadow and Bremore River.

The undated mounds located at the mouth of the Bremore River may be navigation guides marking the beginning of an over-land route inland. This function has been argued for the small Middle Neolithic passage tombs cemeteries of Gormanston, Co. Meath at the mouth of the River Delvin (Van der Noort 2011, cited in Cleary 2016, 143-4), albeit for a riverine route. While no mounds or tombs currently survive at the mouth of the River Bracken to the south, the discovery of a boulder decorated with prehistoric art at the foot of a cliff of the headland to the south of the river has been suggested to the last remnants of a passage grave that has been completely destroyed by coastal erosion (Buckley 1992, 21). An assemblage of flint retrieved from ploughsoil during an archaeological assessment on the headland (Shanahan, Licence No. 01E0951, Excavations Ref. 2001:325), hints at further prehistoric activity on the headland, which has eroded by

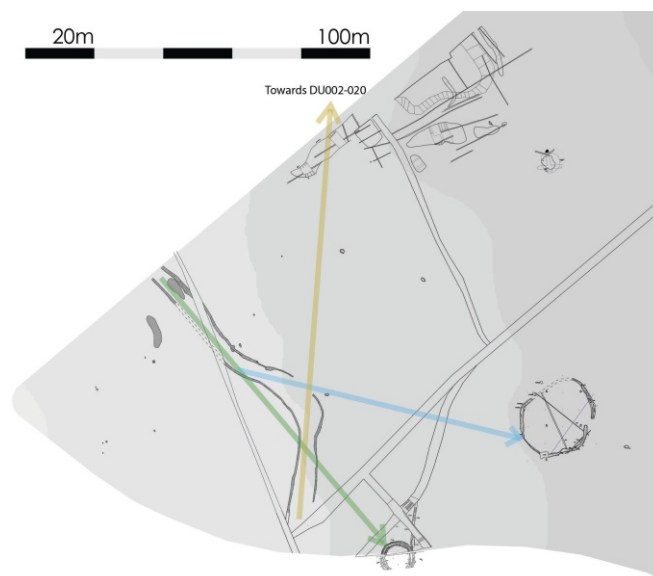
up to 70m since the Neolithic period (Buckley 1992, 21).

The large river systems of the Delvin and Bracken to the north and south of the site area were navigable, at least up to a point. These river systems appear to have provided access from the coast inland to the uplands from the early prehistoric period. By the Neolithic period the River Delvin appears to have been used to access the uplands at Fourknocks to the west, with a small passage tomb cemetery created at the mouth of the Delvin at Gormanston, Co. Meath, possibly to mark this important access, as well as in the interior in the vicinity of Fourknocks. Along with the lost passage tomb at its mouth, another mound is present along the line of the River Bracken and a cluster of mounds are present at the head of the river at Knockbrack. Knockbrack stands above the Bog of the Ring, one of the last remaining freshwater marshes in Dublin (Goodwillie & Fahy 1973, 62), which is part of the catchment area of the River Bracken and would have been a similar environment to the wetlands to the east of the site at Clonard. Knockbrack is also an important ceremonial centre with a large hilltop enclosure of probable Iron Age date with mounds and ring-ditches recently identified through geophysical survey suggesting earlier activity, possibly dating to the Neolithic or Bronze Age (Dowling 2015, 5). Thus as well as providing access from the coast inland along the Bremore River, the pathway could also (or alternatively) have provided an overland north-south access between the two larger and navigable river systems of the Delvin and Bracken.

Ritual landscape

The evolution of the landscape at Clonard throughout the prehistoric period is likely to have been influenced by this longstanding route way. In particular, a later prehistoric ritual landscape defined by Bronze Age monuments marking key points along the trackway evolved along the route.

The curving route of the pathway offers changing views of prehistoric features within the site and in the wider landscape. If

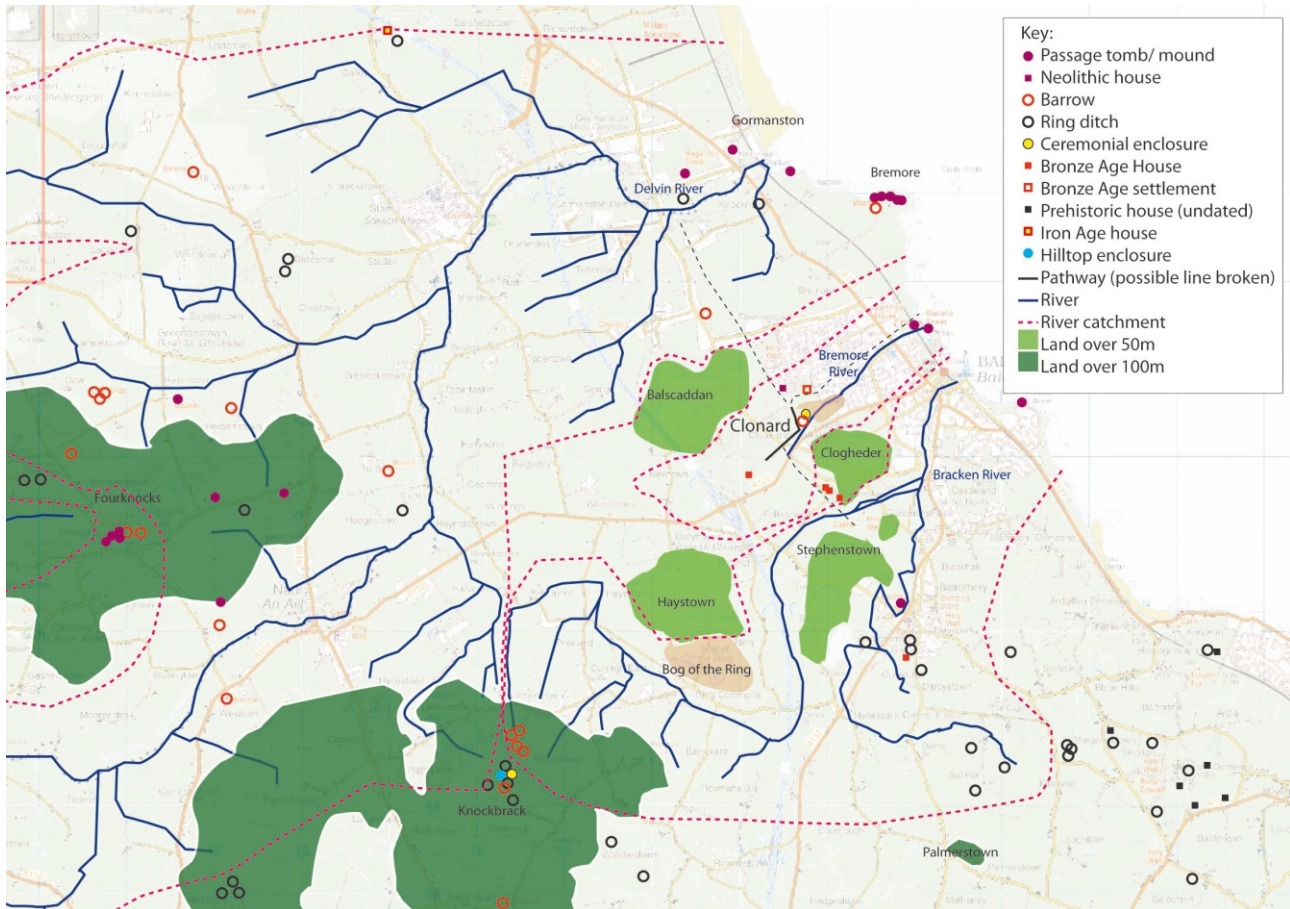


Potential views of the later Bronze Age monuments from the pathway

approaching from the north, the pathway runs downhill from the northwest, running directly towards the barrow to the southeast, before turning slightly at the base of the slope to run to the east-southeast. At this point the trackway is facing towards the Bronze Age penannular enclosure. The distance between the gullies widens here, and there is a gap in the eastern gully opening to the northeast off this widened section. This gap opens onto the area of higher ground that was surrounded by wetlands. The avenue then turns again to run to the south and would have passed c. 28m to the west of the Bronze Age barrow.

If approaching in the opposite direction, the avenue is facing north where an oval enclosure measuring 50m x 40m surrounding a smaller 15m diameter circular enclosure or structure was identified during geophysical surveying in 2005 (DU002-020), possibly representing a settlement. This site was tested in 2017 with Late Bronze Age pottery retrieved from the fill of the smaller internal enclosure, which returned a radiocarbon date of 895-802BC (McLoughlin 2019).

The pollen core taken from one of the wetland pools to the north of the site indicates that by the Middle Neolithic when material began to accumulate within the pool there was little tree



Map showing the landscape surrounding the site at Clonard with some of the archaeology highlighted. Note the mounds or passage tombs near the mouths of the rivers and the cluster of activity on the high ground at the head of the Delvin and the Bracken Rivers. Also shown is the concentration of Bronze Age houses and settlement evidence in the vicinity of Clonard.

cover in the immediate vicinity. The lack of tree cover in the vicinity of the wetland marsh would have improved the visibility of sites and monuments from the pathway over this open and low-lying area.

When inferring meaning behind the spatial patterns observed in the ‘cemetery’ groups in the Wylve Valley in England, Howarth (2009, 112) points out that visibility and intervisibility seem to have been a measurable concern for monument builders when they designed the prehistoric landscape, just as they were to the cemetery builders situated near Stonehenge (Bradley 1989, 97-8). Lawson (2007, 209) has also pointed out that the location of round barrows was influenced by the ability to see earlier monuments, and similar interpretations

have been made on Irish sites (e.g. Newman 2007).

Computational analyses of movement have been carried out in relation to barrows. The approach to these monuments by means of hidden paths, scenic paths, strategic paths and withdrawn paths have been used to assess the visibility, efficiency and inter-visibility of routes between the monuments (Lock et al 2014, 28). At Clonard the pathway is present prior to the monuments established along its route, based on the dating evidence. This is the opposite of some other ceremonial routeways, for example the avenue at Stonehenge as interpreted by Bradley (1989, 97-8) or Irish ceremonial routeways as interpreted by Gleeson (2012, 29), both of whom argue that the ceremonial routeways evolved through a landscape of pre-existing prehistoric monuments. At Clonard, by contrast, the locations of the monuments appear to have been carefully selected based on their visibility from the established Mesolithic trackway.

As with the Avenue at Stonehenge, which leads from the River Avon, there is an interesting correlation between cursus monuments in Scotland and water in the form of rivers and streams (Brophy 1999, 239). Waddell notes that the Banqueting Hall and the Mucklaghs both curve slightly and terminate near ponds (Waddell 1998, 330). The pathway at Clonard also has a watery connection, running alongside the wetland area to the west and to the south associated with the Bremore River. Perhaps the wetlands and stream informed where the path should be in the first place, or proximity to the stream was a driving force itself.

In the Netherlands, alignments of barrows dating to the Late Neolithic period have been suggested to have been positioned along roads (Bakker 1976) with some indication that the alignments had been established prior to the construction of the barrows, and that other factors influenced their positioning (Fontijn 2011, 20). It has been argued that the barrow alignments in the Netherlands relate to a shared sense of community, places where people time and again returned to carry out a barrow choreography (Bourgeois 2013, 205). In the Dutch examples the barrows are interpreted as transforming the landscape into a mortuary landscape (ibid., 20-21), possibly along linear routes. Such an interpretation would be simplistic to apply to the Clonard landscape, and it is likely that the meaning and the function of both the pathway and the wider landscape evolved over time and meant different things to different people.

The ritual monuments of the burial area along the pathway at Clonard are put on display for those passing by. In this light it is interesting to note that the single entrance from the avenue to the east does not lead directly towards the monuments of the burial area. This might suggest that people walking down this avenue were encouraged to view but not physically access the monuments. This may mark a distinction between the public realm of the pathway, and a claimed or circumscribed realm marked by monuments.

Conclusion

Paths establish and maintain social linkages and relations between individuals, groups and political units (Tilley 1994, 30). They are essential structures of the human landscape, weaving together the disparate elements of daily lives, bridging distance and obstacles to connect people to each other (Snead et al 2009, 1). Trails, paths, route ways and other related phenomena represent landscapes of movement, and their physical structures engage such diverse fields as engineering, knowledge systems, aesthetics, historical memory and cosmology (ibid.).

In the case of the Mesolithic pathway at Clonard, this section has interpreted the path as providing access across and between riverine systems (the Bremore, Delvin and Brackan) in the early prehistoric period, and connecting these systems with the coast and local natural resources, in particular the wetlands. The pathway may also have connected with the Slige Mhídhluachra. The relationship between the pathway and surrounding ritual landscape has also been discussed, along with the evidence for the routeway's longevity throughout the entire prehistoric period.

The creation and maintenance of the pathway must have been driven by a need to connect areas of bountiful resources, settlements or places of significance. Warren (2005, 73-4) has argued that learning these traditional paths, their names and the names of the features of the landscape visible from these routes were a vital part of socialisation. The continued existence of the pathway from the Mesolithic period to the later prehistoric period – perhaps as late as the Iron Age, indicates that the significance of the evolving ritual landscape surrounding it, as well as the original driving factors in establishing the routeway, remained important. These later generations continued to use the path, leaving markers indicating territorial possession, ceremonial zones or places of the dead.

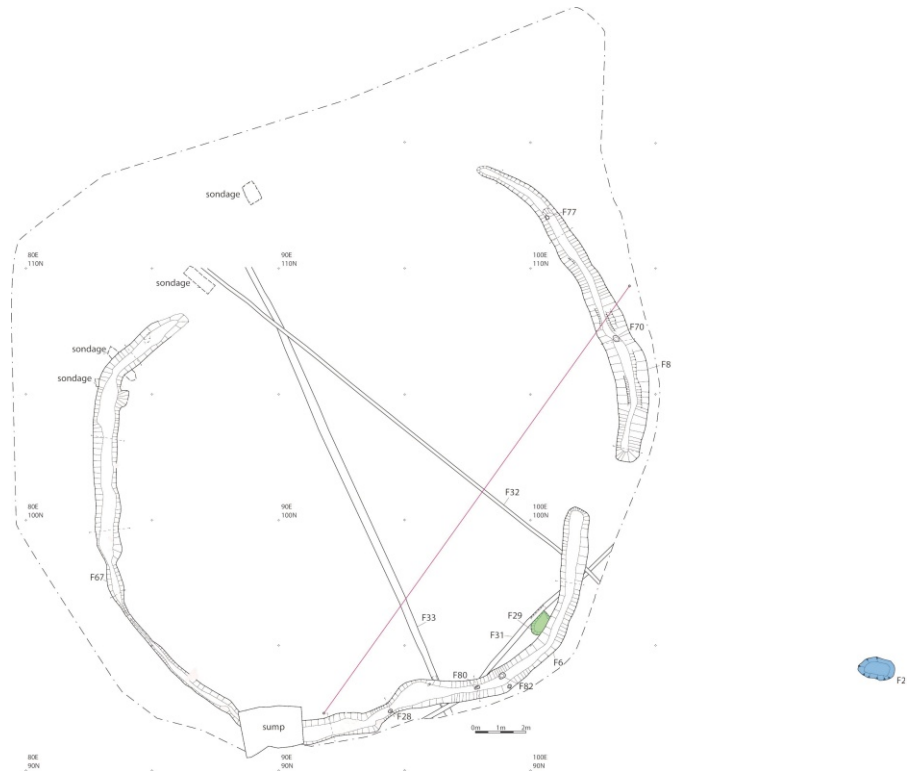
Section 4 Markers along the way

Mesolithic pit

As well as the Mesolithic trackway, a second feature was dated to this period. This was a small sub-oval pit, which was truncated by the penannular enclosure ditch. The pit contained a single fill, which contained four pieces of flint and occasional lumps of charcoal. Only elm charcoal was identified within the pit, which may indicate a single episodic burning event in this pit (O Carroll 2018a, 11). A date of 4367-4252BC was returned for the charcoal, placing it in the Late Mesolithic, a millennium years after the pathway had been established.

In the wider area of North Fingal very little Mesolithic activity has previously been documented. Where it has been recorded it comprises mainly of flint scatters and shell middens near the coast. The presence of two features dated to the Mesolithic period on the site at Clonard is of some significance.

Elm pollen was completely absent from the pollen core of the wetland pool taken to the north of the pit, the earliest levels of which dated to 3636-3377BC in the Middle Neolithic. This is occasionally seen as an indicator of anthropogenic activity and elm is thought to have declined due to either human influences and population increases or disease during the Neolithic periods (Hall 2011, cited in O Carroll 2018b, 11). The elm charcoal identified from the Mesolithic pit may indicate land clearance of



Plan of the ceremonial enclosure showing the location of the truncated Mesolithic pit (F29) highlighted in green and the Neolithic cremation pit (F3) highlighted in blue (top)

Mid-ex view of the Mesolithic pit with a stone-filled drain cutting it towards the background and the ditch of the ceremonial enclosure cutting it in the foreground, looking northwest (bottom)



primary woodland trees at this time (ibid.).

The purpose of the pit is unknown, however the fact that this approximate location was selected for the Early Neolithic cremation burial and again for the Middle Bronze Age enclosure may indicate that this location had significance for an extended period of time. Warren (2005, 73-4) argues that some pathways through the dense woodlands were long established in the Mesolithic period, and that particular routes through the trees created certain views and vistas, in a subtle way structuring a community's experience of the local world. Driscoll (2006, 113) has suggested that Mesolithic communities

were actively engaging with their landscape, working large trees and creating social arenas in the landscape. It is possible that some above ground marker survived here that informed or encouraged subsequent generations to return to this spot for various purposes. This location lies at the edge of the former wetlands, between the wetlands and the pathway, and at a strategic location along the route of the pathway, which may have been an influencing factor.

Neolithic cremation pit

During the Early Neolithic period a cremation burial was deposited in a pit c. 11.5m to the east of the Mesolithic pit. The surrounding landscape at the beginning of the Neolithic period was quite an open one with relatively low tree cover (O Carroll 2018a, 9). A radiocarbon date of 3781-3652BC was returned from fruit tree charcoal from the pit. The cremated material from the pit represents the partial remains of an un-urned burial, presumably human. While the partial modern truncation of the feature may account for some loss of the expected yield for a cremation burial, the quantity of cremated bone from this feature appears too low to fit within the normal

Pre-ex view of Early Neolithic cremation pit F3, looking west (top left)

Mid-ex view of Early Neolithic cremation pit F3, looking west (bottom left)

Burnt flint chips from cremation pit F3 (top right)

Bone-tempered Neolithic pottery from cremation pit F3 (bottom right)



variation (Keating 2018, 4). It is likely that only a representative portion of the cremation was ever deposited in the pit. Sherds of undecorated bone-tempered Neolithic pottery were identified within the cremation pit along with fragments of baked clay. The baked clay may have been gathered for pottery production and accidentally fired, or have been used in the firing process (Cleary 2018, 1-2). It appears the sherds were deposited with the burial as opposed to a complete vessel. A number of fragments of burnt flint were also retrieved from the fill. There was no evidence that any of these were worked (Sharpe 2016, 1-2), however they may be fire-shattered and represent a piece or pieces of flint that accompanied the body during cremation.

Oak charcoal was almost exclusively identified from the cremation pit, though some pomoideae or fruitwood charcoal was also present (O Carroll 2018a, 9). Oak charcoal is frequently associated with cremation rites in the Neolithic period as it burns for a considerable time and can reach temperatures high enough to cremate a human body efficiently (O'Donnell 2009, cited in O Carroll 2018a, 9). Very few oak pollen grains were recorded from the pollen monolith taken on the site (O Carroll 2018b, 17), suggesting the oak required for the cremation pyre was sourced from slightly further afield. The use of pomoideae or fruitwood charcoal has been encountered in other cremations of the period, such as at Faughart Lower, Co. Louth, where oak and pomoideae charcoal dominated the represented species, and hazel was also present (Stuijts 2006, 55), and Manusmore, Co. Clare, where a variety of taxa were identified (Gannon 2006, 33).

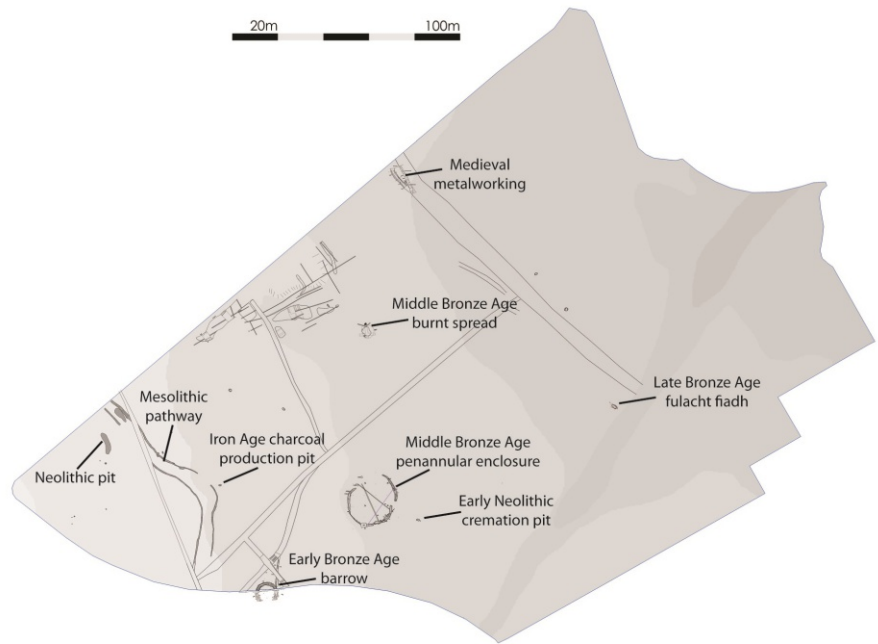
Isolated Neolithic cremation pits are not uncommon in the archaeological record in Ireland (e.g. Cross, Co. Galway Licence No. A024/7, E2069 and Glenshane Road, Clagan, Co. Derry, Licence No. AE/16/038). However, as mentioned above, the location of the pit may have been influenced by the existing Mesolithic pit and by the proximity to, or visibility from, the trackway to the west. By the time the initial deposits were being laid down in the wetland pool to the north the surrounding landscape indicated in the pollen core was largely devoid of large trees, with copses of shrubland trees

and wetland sedges. Woodland clearance appears to have already taken place and suggests the cremation burial was associated with a dominant Neolithic culture that had already shaped and altered the landscape during the earlier 4th Millennium BC (O Carroll 2018b, 12). While woodland clearance had taken place, the lack of micro-charcoal from the earliest deposits in the wetland pool suggests settlement was somewhat removed from the immediate vicinity of the site, and a limited amount of grass and grassland pollen suggests that at during the Early Neolithic the woodland clearance in close proximity to the site (ibid., 9) had yet to be converted for agricultural use. Just over 600m to the northwest in Flemingstown townland an Early Neolithic house dating to 3642-3387BC was uncovered (DU001-014) during excavations in 2005 (Bolger 2009, 26). While this is slightly later than the cremation pit, it indicates settlement was present further up the hillside to the north around the same time as the cremation burial was interred at Clonard.

Further Neolithic activity in the wider area is seen along the coast where a small passage grave cemetery survives at Bremore, with other mounds at Tankardstown, Knocknagin and Gormanston suggesting an extensive burial area extending along the coast during the latter part of the Neolithic period. The introduction of passage tombs to the east coast was much later than the early 5th Millennium BC origins on the west coast and reached a peak in the final centuries of the 4th Millennium BC (Smyth 2014, 140). Activity on the ridge at Fourknocks to the west has also been identified from the Late Neolithic period, where a cluster of tombs and later barrows are known. As previously mentioned, access to the interior may initially have been along navigable sections of rivers, such as the Delvin to the north. The pathway may have connected the small valley of the Bremore River with that of the more navigable Delvin to the north and possibly linking it to the valley of the Bracken River to the south. Some Neolithic flint was uncovered during the excavations at Stephenstown to the southwest and an Early Neolithic pit was uncovered in Darcystown to the south. No Neolithic settlement activity was identified within the excavated site at Clonard, however this area would have been connected to wider region via

Plan of the site showing the location of the barrow to the south (top)

Plan of the barrow showing location of the sections drawn (bottom)

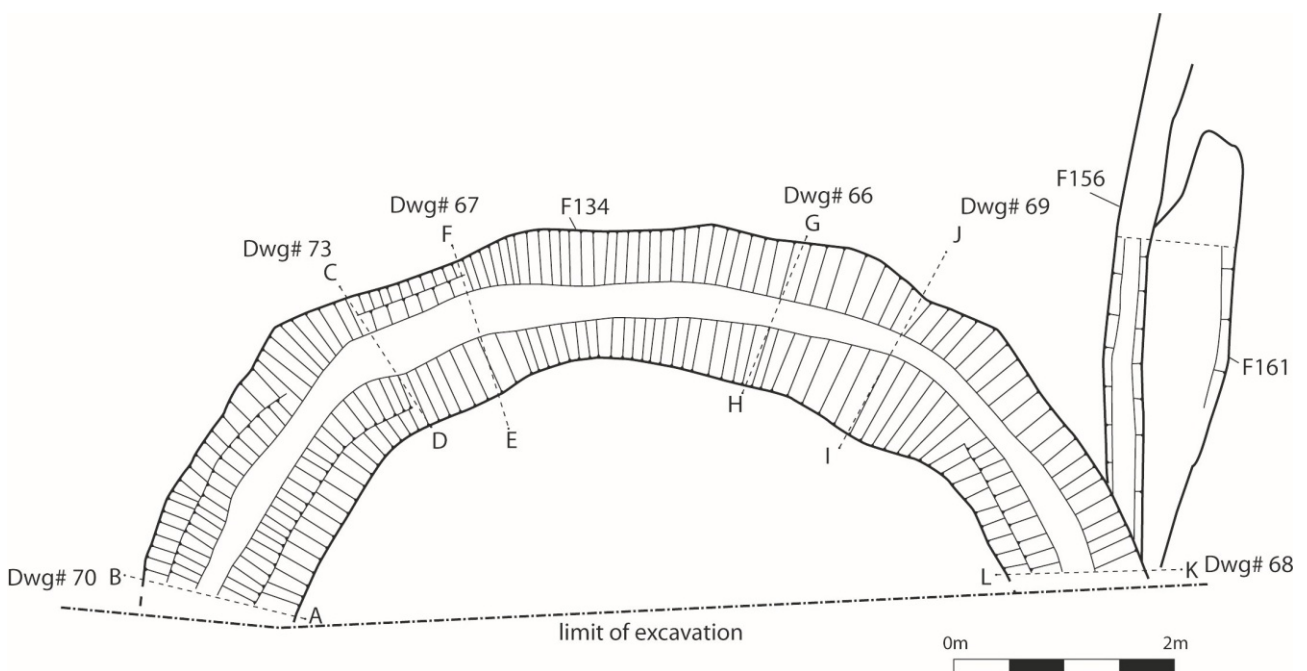


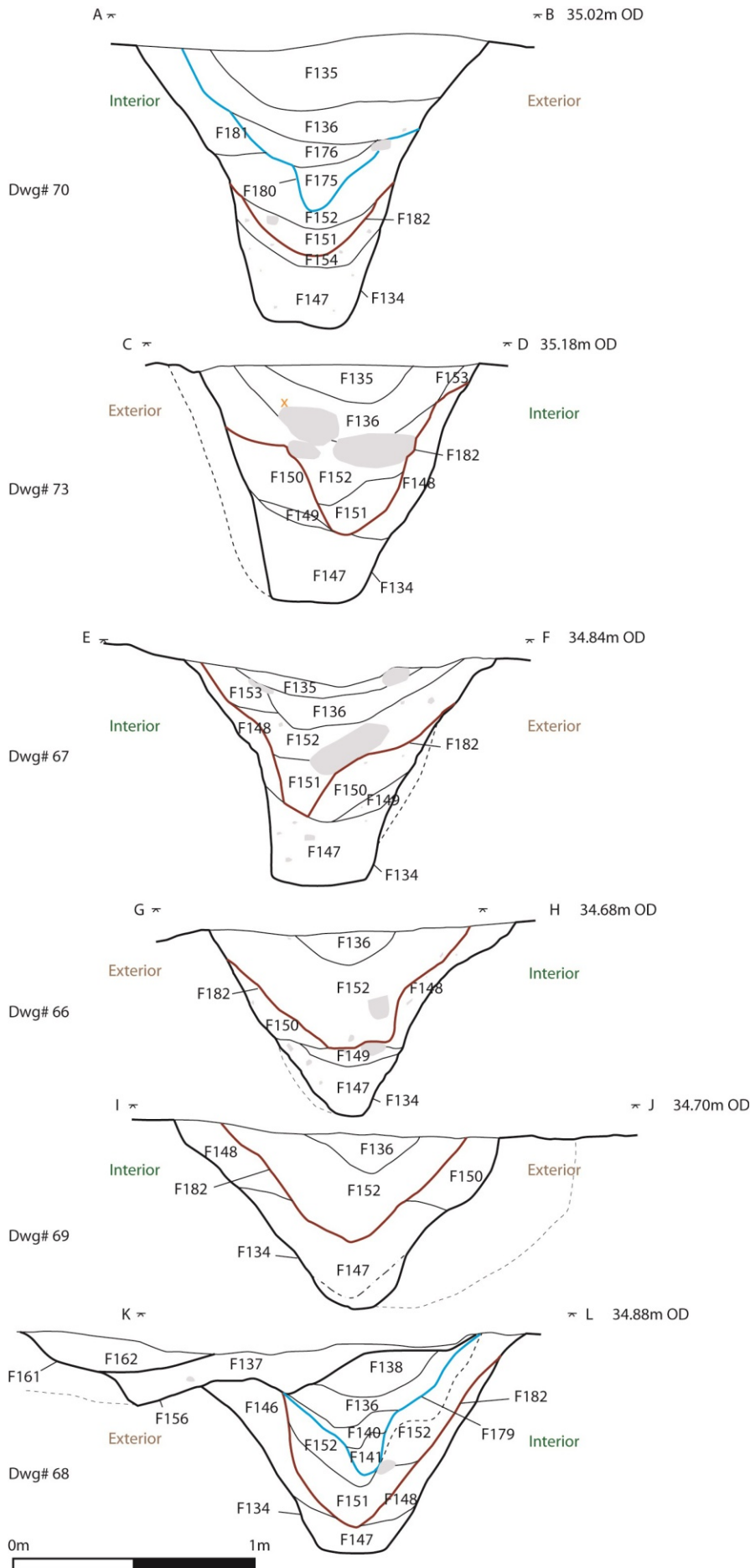
the pathway. A Neolithic house was excavated in Flemington to the north, towards the top of the valley and would have overlooked the site at Clonard, and it is possible the occupants were involved with activities on the site at this time.

The ring barrow

The first large monument to the dead to be created in the land between the pathway and the wetlands was a ring barrow, the earliest fill of which dated to 2144-1941BC (93.1% probability). This places the original construction of the monument at the end of the Chalcolithic period (2500-2000BC) and the start of the Early Bronze Age in Ireland (2000-

1600BC). The central portion of the monument was excavated by Gill McLoughlin (McLoughlin 2016, 2018), however the southern arc had been truncated away during previous service laying. The monument is defined by a circular ring-ditch c. 7.2m in internal diameter and 9.88m in external diameter, with no evidence for an entrance causeway. The ditch was substantial which would have allowed for a significant amount of up-cast for use in the creation of an external enclosing bank and an internal mound. The surviving ditch ranges from 1.25-1.45m in width and was 1.07-1.8m in depth. Taking an approximate circumference of 27.3m, an





Sections of barrow from west (top left) to east (bottom left). The red line marks the recutting event F182 and the blue line marks the postholes F179 and F180 dug into the partially backfilled ditch. The orange X on Section #73 marks where the small pocket of cremated bone was identified. Also note the large rounded boulders within fill F152, which appear to have originally been located on the exterior of the barrow

average width of 1.5m and an average depth of 1.14m, the excavation of the ditch would have created over 46 cubic metres of spoil, which could easily have been used in the creation of a central mound and surrounding bank. The findings from the northern arc of the ring barrow indicated that there was significant slumping of material from both the interior and exterior into the ditch, suggesting the monument originally had an external bank and possibly a central mound. No features survived within the area enclosed by the ditch. The former presence of a central mound that had subsequently been ploughed out would also explain the lack of features within the interior of the barrow.

A number of phases were identified within the ditch. An initial phase of silting was followed by a phase of slumping and deterioration. This may have been the result of neglect, or natural erosion of the bank and mound. After this the ditch was re-cut at least once and possibly twice.



Section #70 through barrow, looking southwest (top left)

Section #73 through barrow, looking northeast (centre left)

Section #67 through barrow, looking west-southwest (bottom left)

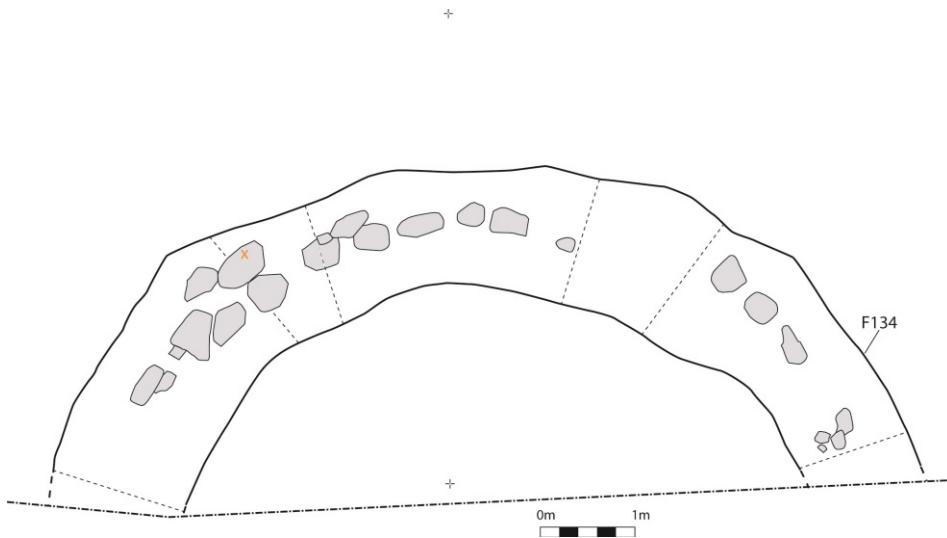
Section #66 through barrow, looking east-southeast (top right)

Section #69 through barrow, looking northwest (centre right)

Section #68 through barrow, looking south (bottom right)

It was again left open to silt up over time before an intentional backfilling event. This suggests a repeated pattern of a circular ditch dug, left open for a period, then destroyed or partially destroyed. It is possible that this repeated cycle of digging and destruction may have been part of the ritual (including potentially burial ritual) carried out at this site.

Large water-rolled boulders were deposited within the ditch at the same time as the intentional backfilling event. These were also noted in the southern portion of the monument (McLoughlin 2018, 13). The position and

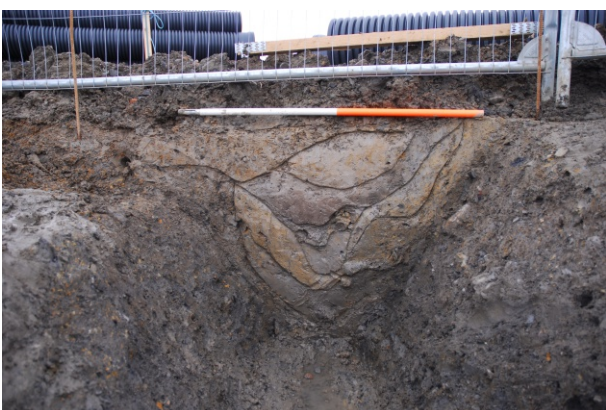


Mid-excavation plan of the barrow showing the location of the rounded boulders within the fill (top)

Mid-excavation view of the rounded boulders within the barrow to the west, looking northwest (upper centre)

Mid-excavation view of the rounded boulders within the barrow to the north, looking north (lower centre)

View of section #70 with posthole F180 clearly visible cutting the pale orange fills of the barrow and filled with grey and brown silt (bottom)



number of the boulders led to the interpretation that they may originally have stood on the encircling bank. A ring of boulders standing on a potentially substantial bank would have made the monument stand out in the landscape despite its low-lying location. These boulders were water-rolled and larger than any noted within the subsoil in the vicinity of the monument. It is likely that they were moved to the monument from the Bremore River to the south.

Two postholes were cut into the largely backfilled ditch to the east and west. These may have been added to mark the location of, and reinterpret, the now largely levelled monument. A similar example has been excavated at Ballybrone South, Co. Tipperary, where the final phase of a ring-ditch had been rendered almost invisible and at least one post was driven into the fill of the ditch on the southern side (Eogan and Finn 2000, 10). This was interpreted as a marking of the former monument (*ibid.*). Bradley (1998, 153) discusses how the use of upright posts used to define the edge of round barrows in some cases may have symbolised houses (Bradley 1998, 153).

The posts within the barrow at Clonard may have been added to mark the location of the barrow following the deposition of the above ground elements of the monument into the ditch. These transformations of the monument, as well as potentially re-establishing land claims (see below) could also have occurred due to a

change in belief system or political change in the area, or possibly because the barrow was no longer needed for the purpose it originally served. The formal marking of the barrow's backfilled ditch with posts shows it was commemorated and maintained even after it was largely in-filled.

Following the removal of the posts, the barrow was finally filled in, with a radiocarbon date from the upper fill returning a date of 804-507BC (94.4% probability). A cremation deposit possibly originating in the external bank and relating to deposition of bank material into the ditch was identified in the southeastern portion of the barrow was radiocarbon dated to 934-807BC (94% probability, McLoughlin 2018, 15). The final activity at the barrow dates to the transitional period between the Late Bronze Age and the Early Iron Age. In all the monument was in existence for a minimum of 1,137 years and possibly up to 1,637 years, which is an exceptional span of survival.

Archaeological indicators for the transformation of monuments over time has been seen elsewhere. For example at Craigmole Hill, Co. Armagh, a timber circle was constructed over a backfilled Neolithic penannular ditch (Licence No. AE/08/04, Excavations Ref. 2008:059). The changes to the ring barrow at Clonard perhaps reflect the redefining and evolution of the monument over time, perhaps influenced by societal change, either in land ownership or belief system, with its prominent location along the pathway being an influencing factor.

The use of the term ring barrow and its occasional interchangeability with ring-ditch depending on surviving above ground elements have been discussed before (see Corlett 2005; McGlade 2018a, 15). The Clonard monument can be classed as a ring barrow based on the evidence for the bank and internal mound, and the presence of cremated human bone. Ring barrows such as the example at Clonard, where



Mid-excitation view of the barrow, looking southeast (top)

Mid-excitation view of the barrow, looking west (centre)

Mid-excitation view of the barrow, looking south (bottom)

the burial remains are sparse for such a long-lived monument, have led to the suggestion that it is the enclosing element of the ditch that is the key feature of these monuments (Corlett 2005, 64). At Clonard, this circularity may have been accentuated by a ring of boulders around the enclosing bank. This would have created a prominent marker along the pathway. It has also been suggested that the enclosing element may have surrounded a location already charged with meaning, possibly an earlier monument or focal point in the landscape (Giacometti 2010, 69). At Clonard, the pathway frames and pinpoints this location within the landscape and it is possible an earlier feature, manmade or natural, occupied the location of the barrow as was indicated with the locating of the penannular enclosure to the northeast.

The early date for the ring barrow is notable, however other examples such as Kilgobbin (McGlade 2108, 14) and Kilmahuddrick (Doyle 2005, 59) are known from Co. Dublin. The latter example was also associated with later phases of burial activity in the Late Bronze Age with the final fills of the ditch dating to the Iron Age (ibid, 59-61). At Ardsallagh, Co. Meath a number of ring-ditches were uncovered dating from the Iron Age to the early medieval period and were placed over a flat cremation cemetery dating to the Early Bronze Age (Clarke and Carlin 2009, 7). The return to certain locations for burial activity over an extended period of time implies the memory of these locations as places associated with the dead.



Post-excitation view of the barrow, looking east (top)

Post-excitation view of the barrow, looking south (centre)

Post-excitation view of the barrow, looking north (bottom)

Location in relation to the pathway and other nearby sites

Perhaps the most significant feature of the ring barrow is its location. The barrow was constructed at a point between the pathway and the stream at the edge of the wetland area. When descending the hill along the pathway the monument would have been directly in front of

those approaching. This seems to be a well selected and significant location for a monument, which despite its low-lying position would have been highly visible in the landscape. The creation of the burial monument here saw a continuation of the Neolithic burial activity in this strip of land between the pathway and the wetlands. The initial creation of the monument may have marked a claim over territory, or perhaps the pathway itself, as well as a commemoration of the dead. The setting of the ring barrow, low-lying near wetland, is not unusual and it has also been suggested that the concentration of barrow and ceremonial enclosures along river floodplains (areas unsuitable for settlement sites) reflects a division of the landscape into domestic and ritual spheres (Grogan 2005b, 142). While the position in relation to the pathway appears to be a primary concern in the locating of the barrow, the proximity to water is also likely to have been important, as water is frequently seen to have had ritual connotations during the Bronze Age, whether in the siting of ceremonial sites or the deposition of hoards and votive offerings in rivers, lakes and bogs. Some of the fills within the ditch were water-laid silts, possibly relating to periods of higher water levels when the monument was inundated by the nearby wetlands. In addition, the Bremore River, now forming the townland boundary, may have been an early territorial boundary, and the placement of the barrow may have been to mark the edge of this territory.

Giacometti (2010, 70) has suggested that ‘the transformation of a space into a burial monument associated with a single individual, and thus perhaps with a single kin group or corporate group (whether newly established or not), crystallised existing (and perhaps competing) land or status claims into the historical landscape - and in this way perhaps intentionally subverting an earlier more fluid system of land organisation and ownership’. It is conceivable that the barrow formed a territorial marker, establishing the land claims of the buried individual’s kin-group. The repeated cycle of digging and backfilling of the monument may represent times of establishing or re-establishing these land claims. These may have been periods of stress for the local kin-group, perhaps associated with the death of a

significant member, flooding, or disease. The framing of this marker in the view-line of the approaching avenue may have warned travellers they were entering lands held by a specific group of people.

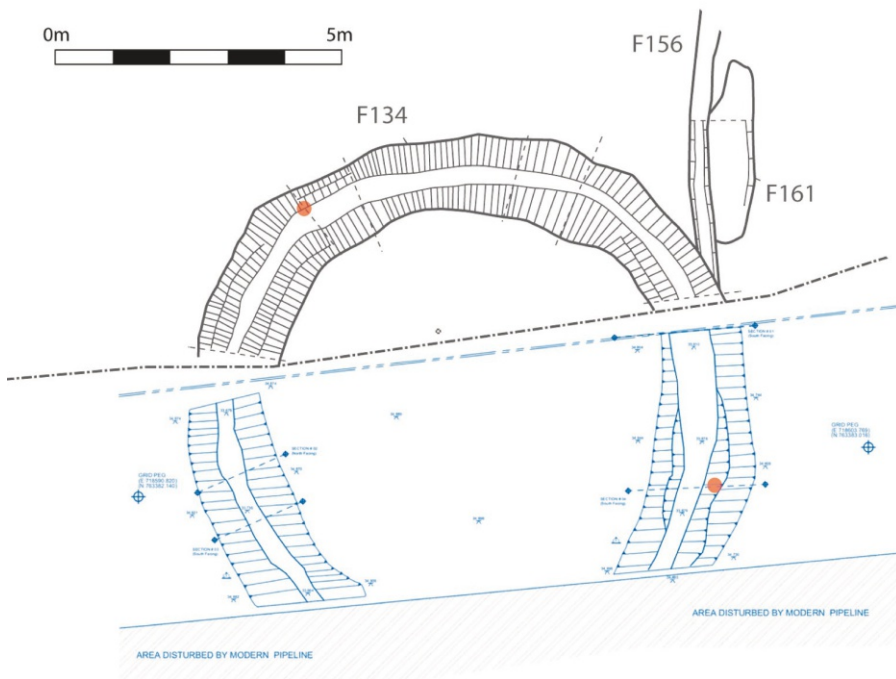
Findings from the barrow

Cremated remains

A tiny quantity of cremated bone was retrieved from the earliest phase of the barrow ditch, while further small quantities were retrieved from upper fills of the ditch. These deposits can be defined as ‘cremation-related deposits’ (McKinley 2001, 10, cited in Keating 2018, 3) as they do not appear to represent what could be defined as a burial. The largest concentration of cremated bone was retrieved from the southeastern portion of the barrow, and was radiocarbon dated to 934-807BC (94% probability, McLoughlin 2018, 15). This is over a millennium after the initial creation of the monument and indicates it had been in use for a substantial period of time. The deposit consisted of the partial remains of an adult with 78% of the identified fragments deriving from the skull (McLoughlin 2018, 15). The small quantities of cremated bone from the upper fills of the barrow were also skull fragments (ibid.). There may have been a focus on the head area in the collection of cremated bone for burial within the barrow (ibid.). One of the fragments from the upper fill of the barrow to the north had not been burnt to sufficient temperatures to fully oxidise, a finding that was also noted with several of the fragments from the southern portion of the barrow (Keating 2018, 5).

The cremated remains within the barrow may be disturbed deposits from the bank or the central mound. Two of the concentrations in particular are likely to have come into the ditch with bank material given their position within the fill. This suggests that the Late Bronze Age cremation-related deposits ended up in the ditch, either intentionally or accidentally during the partial destruction of the monument, a phase that included the deposition of the boulders that originally encircled the bank.

Pebble offerings?

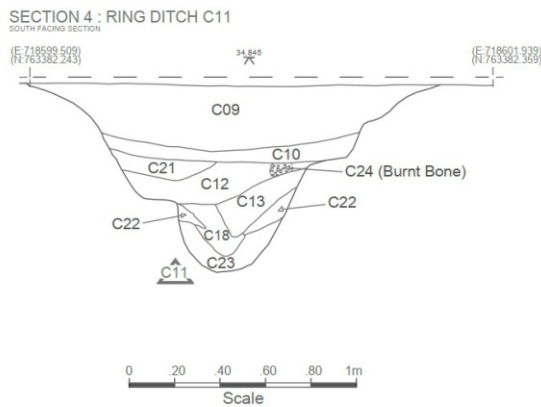


Composite plan of the barrow including the results of the 2015 excavations by McGlade (15E586) in black and McLoughlin (15E558) in blue. The location of the small cremated deposit to the northwest and the larger deposit to the southeast are highlighted in red (top)

South-facing section showing the cremated bone deposit identified to the southeast (McLoughlin 2016; upper centre)

Water-rolled quartz pebbles from the northern section of the barrow ditch (lower centre)

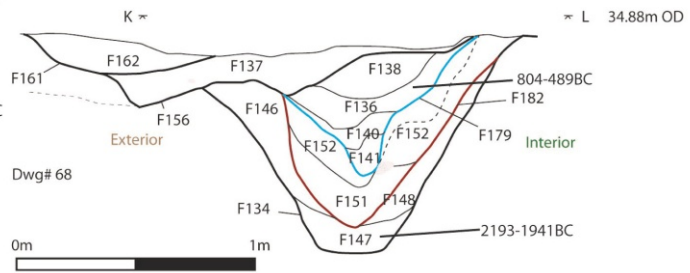
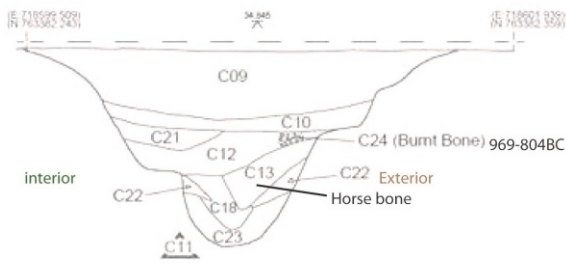
Water-rolled white quartz and flint pebbles associated with the cremation deposit to the southeast (same scale as image above; McLoughlin 2016, 22; bottom)



Two off-white, smooth water-rolled quartz pebbles were recovered from the same fill as one of the cremation-related deposits to the north. McLoughlin's excavation of the southern portion of the barrow identified six tiny off-white quartz and flint water-rolled pebbles associated with the cremation deposit to the southeast (McLoughlin 2018, 13). It would appear that these were intentionally collected and deposited with the cremation, possibly as part of the burial rites. Unworked quartz has been found in ring barrows dating to the Early Bronze Age, for example at Kilgobbin, Co. Dublin (McGlade 2015a, 94) and the Iron Age at Donacarne Great, Co. Meath (Giacometti 2010, 31).



The association of quartz as a material reserved for the dead from the Neolithic to the medieval period has been discussed previously (O'Brien 1999; Thompson 2004, cited in Driscoll 2010, 73; Cooney 2000, 117). Ethnographic studies by Taçon (1991) into the use of quartz suggest that the aesthetic and symbolic characteristics of stone influenced their use, noting the iridescence and brightness of the material (ibid., 74). When considering the inclusion of water-rolled quartz pebbles with burials from the Irish Bronze Age, Waddell's 1990 burial catalogue reveals ten similar examples, indicating these are not coincidental inclusions but rather a



dedicated rite associated with at least some burials during this period (Kelly 2016, 3).

The presence of both water-rolled quartz and flint pebbles, some clearly associated with a cremation deposit, within the ring barrow at Clonard may suggest that it is not the material that is important, rather the pale tone and the smoothness of the stone. In Britain it has been noted that white was a favoured colour during the Neolithic era, with mounds commonly being constructed of chalk or other pale rocks (Hutton 2013, 155). At Thornborough in North Yorkshire, gypsum was used to coat the large henges there to lighten them (ibid.). It could be suggested that the use of quartz and light-coloured pebbles in later burial practices is a continuation of this tradition and ritualisation of the colour white.

The water-rolled pebbles retrieved from the barrow offer an insight into the burial rites carried out here. The objects would have been locally available. Indeed, there is every possibility that they were retrieved from the nearby stream. They are portable, unlike some of the large boulders forming the around the outer side of the monument, which may have required more than one person to move to the barrow. They are also mundane objects so would have been available to all, unlike more elite offerings such as metal, which was not identified within the barrow. These are non-elite offerings, yet ones that tactilely and visually stand out. The archaeologists excavating the ring barrow immediately spotted these smooth and pale pebbles, and they were in sharp contrast to the other stones present within the fills. Whilst white quartz is frequently found in ritual contexts in Ireland, the combination of off-white quartz and flint pebbles here at Clonard is unusual, and may indicate a local variation of a shared belief.

South-facing section of barrow to southeast (McLoughlin 2016) showing the location of the dated cremation deposit C24 and location of fill C13 in which the horse bone was found (bottom left) and north-facing section of barrow to east showing locations of dated fills F136 and F147. The basal fill F147 is likely to correspond with C23 in McLoughlin's excavation, while F136 may correspond with C09 or C10. The cremation appears to correlate with fill F152 with the horse bones relating to F151

Faunal remains

Small quantities of animal bone were found in all phases of the fill of the barrow ditch. This included cattle and sheep foot and ankle bones and cow tooth, non-meat-bearing bones that are disposed of early in the butchery process, and horse bone (Beglane 2016, 53; McLoughlin 2018, 1-2). These bones are robust and survive well in unfavourable conditions, and it is possible that less robust bones may not have survived (ibid.). The concentration of bones from animal legs may reflect a conscious selection process: were these bones selected specifically for deposition in the burial monument, or are they the remains of butchery and animal processing accidentally incorporated into the ditch fills? The context of the monument would imply the former, however the long period of the monuments existence would not discount the latter.

Horse bones

Horse bone was also retrieved from the fill of the barrow and has been dated stratigraphically to between 969-804BC (McLoughlin 2018, 1-2) and 2144-1941BC (93.1% probability), a broad Bronze Age date. If the bones are closer in date to the earlier period, they would be the earliest identified in Ireland to date.

Horses are not present in the archaeological record prior to the Late Bronze Age and may have been introduced to the country at that

time. Previously horse bones retrieved during the excavation of Newgrange were taken to indicate the presence of horses in Ireland in the Late Neolithic period (McCormick 2007, 86), however subsequent direct dating of the bone showed that these were much more recent than expected, dating to the Iron Age (Bendrey et al 2013, cited in McLoughlin 2018, 18). Horse bone has been identified in later Bronze Age contexts from nine sites in Ireland: Haughey's Fort, Mooghaun, Lough Gur and Ballyveelish (McCormick 2007), as well as on more recent excavations such as Round Island, Co. Down, Ratooth, Co. Meath, Roughan Hill, Co. Clare, Haggardstown, Co. Louth and Kilbelin, Co. Kildare (Beglane 2018 pers. comm.). Some of these may be dated by association rather than directly dated, so the accuracy of their dating may be questionable as seen at Newgrange. An attempt to directly date the horse bone from the Clonard barrow failed as too little collagen survived (McLoughlin 2018, 16).

Horse remains from the Late Bronze Age have been found intermixed with food remains of other species (McCormick 2007, 89). They are generally broken, implying marrow removal and cut marks have been noted where the bone preservation is good (ibid.). The quality of the horse bone from the Clonard barrow was poor and there was no evidence for butchery or marrow removal was noted (ibid). It is not thought that horse meat was a preferred food choice and it is likely that it was only consumed during periods of food shortage (McCormick, 2007, cited in McLoughlin 2018, 18).

So why here? One possible reason could be the nearby pathway. The pathway and its association with communication and movement may have influenced what was being deposited within the barrow. Perhaps the association of leg and feet bones with the barrow was influenced by this. Waddell (2018, 5-15) has outlined the ritual importance of the horse in later prehistory in the Celtic speaking world, arguing for the survival of aspects of a prehistoric equine cult in the literary and archaeological record. Perhaps the horse bone at Clonard, given its find location within a burial monument is an aspect of this equine cult.



Map showing the locations of the Late Bronze Age horse bones identified in Ireland to date. Note the two distinct concentrations, one to the west in Clare and Limerick and the second, which includes Clonard, along the east coast

Charcoal and bark

Very little charcoal was identified associated with the fills of the barrow, and where present it was identified as ash in association with the cremation deposit (McLoughlin 2018, 14) and hazel elsewhere. The ash charcoal is likely to relate to pyre material, and while not the most common fuel used for cremation rites has been recorded at other barrow sites, for example Kilgobbin, Co. Dublin (McGlade 2018a). The small quantities of charcoal present within the fills of the barrow could indicate that efforts were made to ensure that pyre material did not end up in the barrow ditch. This suggests that the cremated remains and pyre material were intentionally deposited outside of the ditch, with only some of this material ending up in the ditch through erosion.

Charred bark was also identified within the barrow. The wood species cannot be identified from the bark. The only other feature on the site to contain this was a nearby undated pit, which was entirely filled with charred bark. Bark can be burnt to create dye (Stuijts, 2005) and tar (Pollard & Heron 1996, 258). Alternatively, bark can be used unburnt to create containers (Fielding 2015, 7), or woven to create textile (Harris 2019), matting (Downes 2012, 89) or cordage (Myking et al. 2005, 67). The charred bark from Clonard may be derived from the burning of an object that was burnt and later deposited in the barrow.

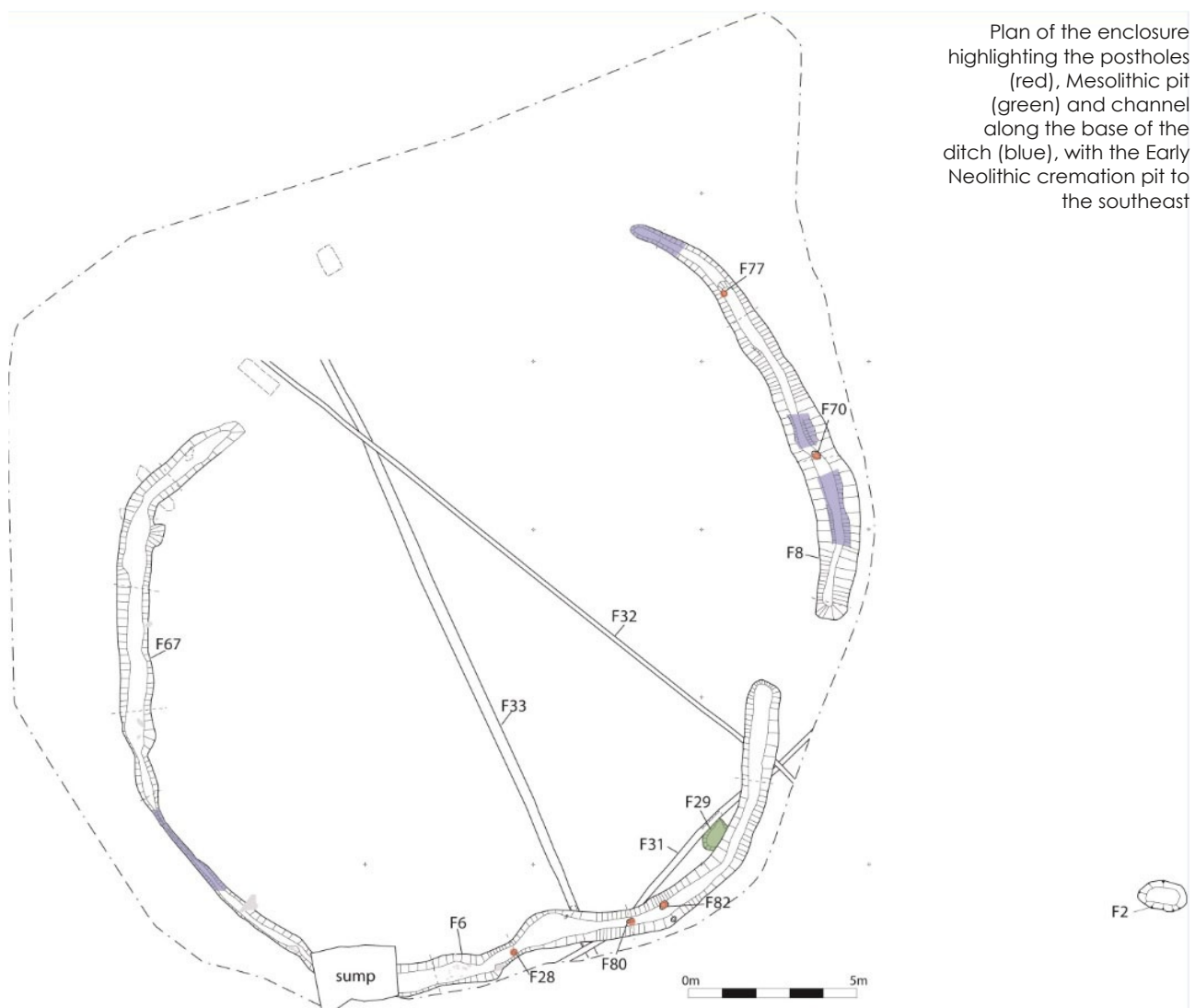
The evidence from the excavation suggests that materials retrieved from the excavation of the barrow ditch were not originally deposited within the ditch. It is likely that the cremation deposits, pale smooth pebbles, selection of animal legs and burnt bark (perhaps from a

container) and charcoal were originally deposited within the bank and central mound of the monument, and that it was through the destruction of the monument that they ended up in the ditch, along with the bank material and the encircling large water-rolled boulders.

Penannular enclosure

A penannular enclosure was located on the southern side of a low rise in a wetland environment. Marshy ground was present to the north and east of the enclosure and the stream now forming the townland boundary lay to the south.

The earliest phase of the enclosure was dated to 1498-1303BC, in the Middle Bronze Age, however as noted above it replaced an earlier Mesolithic feature. The enclosure was oval in shape and measured 23.08m by 18.46m



internally. An entrance in the form of an undug causeway measuring 2.46m was located to the east-southeast. It is possible that the location of the entrance was influenced by the Early Neolithic cremation pit, which was located directly in front of it. The entrance termini of the enclosure were deeper and more substantial than the rest of the ditch, particularly the northern one. The entrance termini of the ditch were aligned at an angle, with the southern terminus curving distinctly inwards. The ditch originally held an upright fence or palisade. This was indicated by postholes and a narrow slot along the base of the ditch.

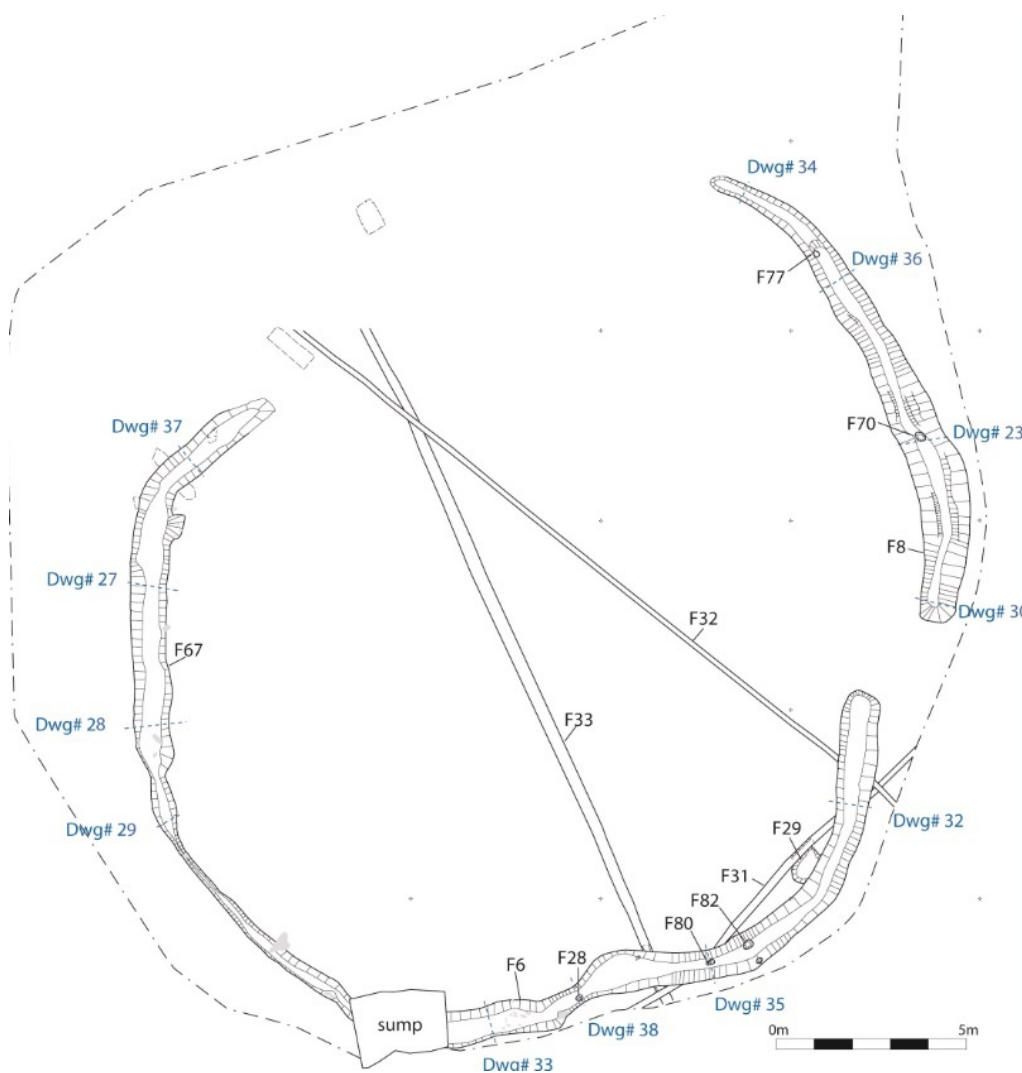
A discrete deposit of dense blackthorn charcoal, the upper fill of the ditch near the entrance, returned a radiocarbon date of 399-210BC. This indicates activity occurring at the enclosure in the Iron Age. It may have been an intentional deposit of charred material into the partially infilled ditch as there was no evidence

of in situ burning. A very similar date range (389-205BC) was returned for a charcoal production pit to the west near the entrance from the pathway. This similarity in date from both burnt deposits supports the argument that both the penannular enclosure and the trackway continued to be used into the Iron Age.

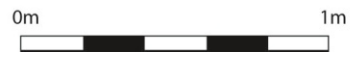
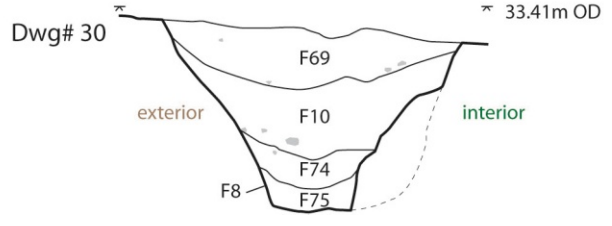
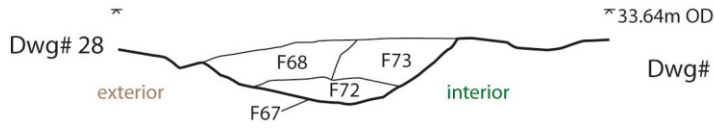
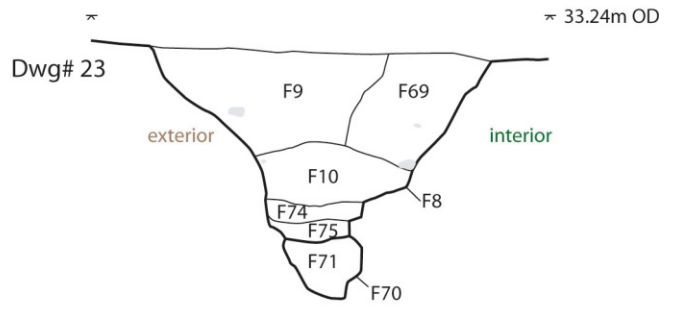
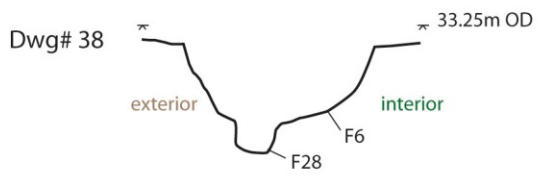
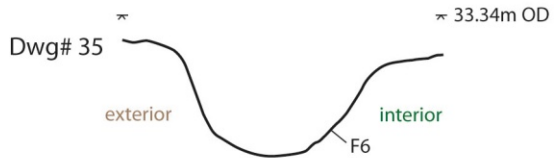
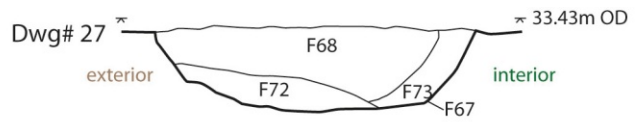
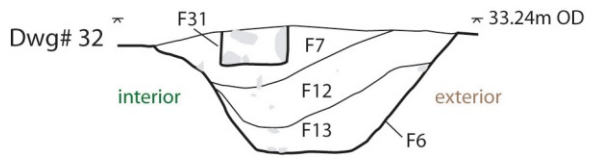
Finds within the enclosure ditch

Middle Bronze Age pottery was retrieved from the lower fills of the enclosure, in a concentration to the southeast. The sherds may all have come from a single vessel (Cleary 2017, 2). The pottery had soot accretions on the inside and is likely to have been a storage vessel. Variable abrasion of the sherds indicate that some of the sherds were exposed on the surface for longer than others.

Sherds of a crucible, richly tempered with finely crushed granitic stone, with ground quartz on the internal surface (Cleary 2017, 4) were found



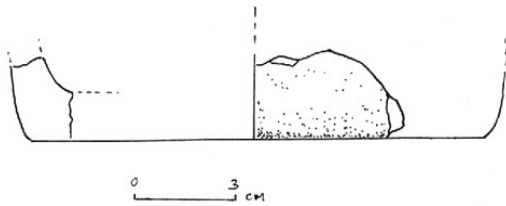
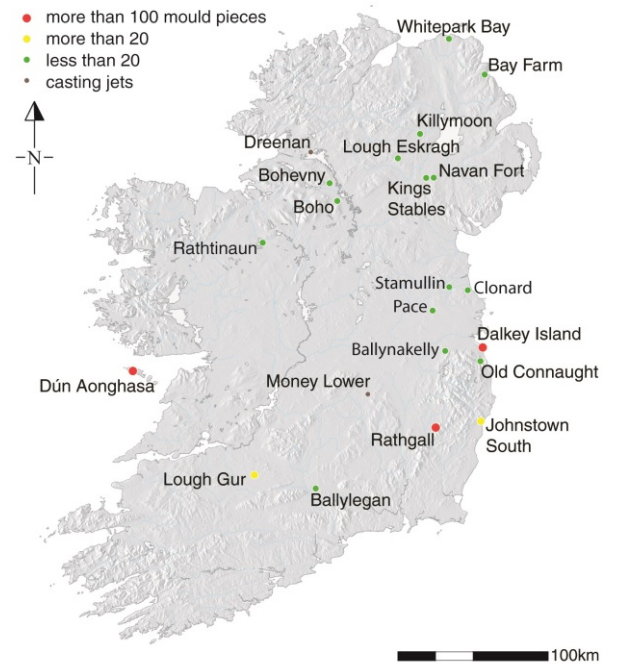
Plan of the enclosure showing the locations of section drawings



Sections and profiles through the enclosure:

- Dwg# 32 southwestfacing section of F6
- Dwg# 35 profile through F6 looking southwest
- Dwg# 38 profile through F6 and F28 looking west
- Dwg# 33 eastfacing section of F6
- Dwg# 29 northwestfacing section of F67
- Dwg# 28 southfacing section of F67

- Dwg# 27 southfacing section of F67
- Dwg# 37 profile through F67 looking southwest
- Dwg# 34 profile through F8 looking southeast
- Dwg# 36 profile through F8 looking southeast
- Dwg# 23 northnorthwestfacing section of F8 and F70
- Dwg# 30 northfacing section of F8



Sherds from the base of the Bronze Age vessel from the enclosure ditch (top and upper centre left)

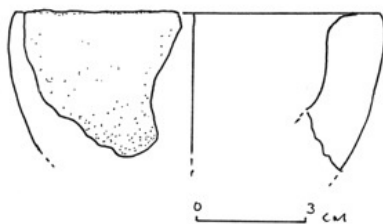
Illustration of the base of the Bronze Age vessel from the enclosure ditch by Rose Cleary (centre left)

Fragments of Bronze Age crucible from the enclosure ditch lower centre left)

Illustration of the Bronze Age crucible from the enclosure ditch (bottom left)



Composite image of the clay mould from the enclosure ditch showing the side profile (top right) and top of the fragment (centre right). The clay adhesion on the back of the fragment can be seen in the side profile image.



Late Bronze Age metalworking sites / locations where evidence for late Bronze Age metal production (clay mould method) has come to light. Of the total number of Irish mould pieces currently on record (c. 4790), 84% come from Rathgall. As found at Clonard, at the majority of the remaining find sites the quantity of broken mould pieces recovered is extremely small with over a third of the sites having produced less than five pieces (after Cotter 2012, 252, Fig. 13.12 and Cotter 2013 App. table 7.1; bottom right)

within the main concentration of ceramics. The fabric would be suitable for the smelting of copper, though no visible trace of metal residues were noted on the internal surface. Crucibles of similar shape and size were recorded at Knockadoon Hill, Lough Gur, Co. Limerick and at Dun Aonghasa on the Aran Islands (ibid.).

A small fragment of a clay mould for a pin shank or awl was also retrieved from a layer dating to 1498-1303BC, in the Middle Bronze Age, and represents one of the earliest examples of Bronze Age clay mould fragments uncovered in Ireland to date. A small clay adhesion on the back of the mould may relate to a clay binding material used to hold the two parts of the mould together. Bronze Age clay moulds are relatively rare in the Irish archaeological record having been identified from seventeen sites, with casting jets retrieved from a further two. Stone moulds are also rare, having been retrieved from a further sixteen locations, with the majority of these typologically dated to the Early and Middle Bronze Age (Boutoille 2012, 8). Previous examples of clay moulds have generally been dated to c. 1000-900BC, with only one site, Lough Eskragh (1520-1161BC), definitively falling outside of the 1000-900BC bracket (Cotter 2013, 245-6). Although composite stone and clay moulds have been recorded in Middle Bronze Age contexts, such as at Site D in Lough Gur, casting in clay moulds was previously thought to have been introduced at the end of the Middle Bronze Age around 1200BC (Grogan & Roche 2009, 6).

Bronze casting from the majority of other sites where clay moulds have been retrieved was short term and small scale (with the exception of Rathgall, Co. Wicklow), supporting a model where experienced smiths were brought in as required (Cotter 2013, 248). This is also applicable at Clonard. At Clonard the penannular enclosure does not appear to have had a residential function, perhaps being utilised intermittently for ceremonial functions, with small scale metalworking being carried out during one of these. Only a portion of the crucible and clay mould were retrieved from the fills of the ditch and may indicate that the objects were broken prior to deposition.



Grinding stone 15E586:12:1 retrieved from the southern end of the enclosure (top)

Possible pecked stone 15E586:7:1 retrieved from the southern end of the enclosure (bottom)

A grinding stone and possible pecked cobble were also retrieved from the penannular enclosure close to the mould fragment. The grinding stone is not diagnostic of a date as these objects were used throughout prehistory, however it fits comfortably within the Middle Bronze Age date for the initial phase of the penannular enclosure (Kelly 2016, 2). A number of struck flints were also retrieved from the fills, three of which were dual-platform or core trimming fragments, likely to be controlled bipolar-on-anvil cores, a technology diagnostic to the Early-Middle Neolithic period (Woodman et al. 2006, cited in Sharpe 2016, 2-3). These pieces predate the construction of the enclosure and suggest that some flint reduction was being carried out in the vicinity, possibly associated with the nearby cremation pit. Their presence within the penannular enclosure may indicate

that the earlier cremation pit was being manipulated in the Middle Bronze Age.

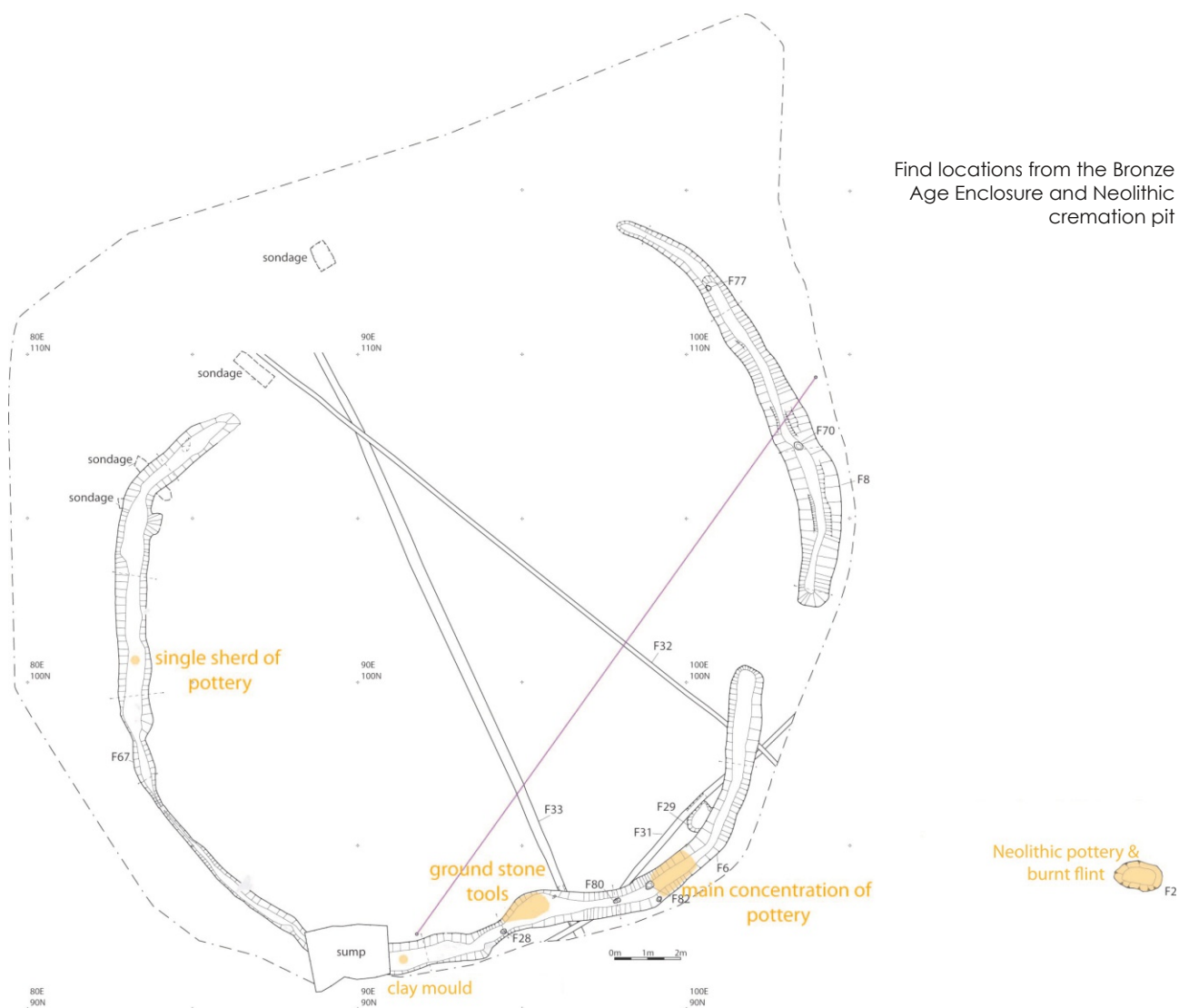
Cremated bone fragments from the penannular ditch were widely dispersed and only a very small quantity was retrieved from the fills and can be defined as ‘cremation-related deposits’ (McKinley 2001, 10, cited in Keating 2018, 3) as they do not appear to represent what a complete burial. It was not possible to identify the remains as human or animal. It is possible that small quantities of bone were used for functions that were not associated with burial, or were sprinkled as an offering related to the activities taking place within the enclosure.

Cattle teeth and a goat/sheep tooth were retrieved from the penannular enclosure ditch. Teeth tend to survive better than bone, so the lack of non-tooth bone may be a preservation issue (Beglane 2017, 3).

The localised nature of the ceramic finds within the ditch imply intentional deposition within specific locations rather than ad-hoc and unintentional deposition. It is conceivable that both relate to a single metalworking event at the enclosure, which may also have seen the breaking of a ceramic vessel, and that they were originally deposited together.

Function of the enclosure

Only a small assemblage of finds were retrieved from the enclosure and while animal bone survival was poor in general across the site, only a very small quantity was retrieved from the enclosure. Charcoal was rare in the basal deposits, though some birch and pomoideae charcoal was identified (O Carroll 2018a, 10). There is no evidence that this enclosure functioned as a settlement. Its position surrounded by wet and marshy ground may not have been appealing as a habitation site. The



Find locations from the Bronze Age Enclosure and Neolithic cremation pit



Post-excitation view of the penannular enclosure, looking southwest (top)



Post-excitation view of the penannular enclosure, looking northwest (centre)



Post-excitation view of the penannular enclosure, looking east (bottom)

enclosure is located amongst other prehistoric funerary monuments and at a strategic location in relation to the trackway.

On this basis, the enclosure is interpreted as a ceremonial monument. Bronze Age ceremonial ditched enclosures generally have an external bank. The form of enclosure at Clonard, with its internal bank and palisade fence running along the base of the ditch, does not conform to this model.

Metalworking took place at the enclosure, and is likely to have been both highly ritualised and controlled during the Bronze Age. Metalworking areas are generally separate from domestic areas on Irish Late Bronze Age sites (Leonard 2014, 163). It has been argued that prehistoric metalworking should be understood as a practice associated with magic and ritual, developed over time through a process of trial and error, similar to other mediums and materials

(cloth, pottery, leatherworking, tattooing, etc.), whereby the production of an object would be accompanied by social activities that may or may not be archaeologically discernible (Budd and Taylor 1995, cited by Leonard 2014, 59). Alternative arguments have been made for metalworking to be an everyday activity, with knowledge of metal production being widespread by the Middle to Late Bronze Age (see Kuijpers 2008, 66). The association of metal with social status would have required control over its acquisition and creation as well as the procurement of the raw materials required for its production (ibid.). The metalworking that took place here was the production of bronze, an alloy of copper and tin. Natural deposits of copper are known from the coast near Drumanagh (Wilson 2014, 34), though it is unknown whether mining was taking place here during this period. Tin would have had to be sourced from Cornwall. This suggests that those using and in control of the ceremonial enclosure at Clonard had the ability to acquire the raw materials required for metal production. It could be argued that the conspicuous display of the monuments of the barrow and enclosure monuments reflect this, visible markers of the importance of the people whose territory this was.

The deposition of the crucible, clay mould and possible associated storage jar, likely to have been intentionally broken prior to deposition, within the enclosure ditch may have been a ritualised act. The idea of ritually breaking something prior to deposition is seen elsewhere in Bronze Age Ireland and Europe (Leonard 2014, 62). Ritual deposition in the Bronze Age is frequently associated with liminal and watery places (Leonard 2014, 72). Given their proximity to the wetlands it is possible that the monuments at Clonard were inaccessible or flooded during certain times of the year, a factor noted elsewhere at similar monument types (Grogan 2005b, 143). Perhaps the deposition of these artefacts in the enclosure ditch at Clonard relates to this phenomenon of deposition in watery places as well as at a place of cultural significance.

For example, clay mould fragments were interpreted as being ritually deposited in an artificial pool at the King's Stables, Co. Armagh

(Cotter 2013, 252). This phenomenon of ritually depositing clay moulds has also been recorded from elsewhere in Europe (see Kuijpers 2008, 63). Clay mould and crucible fragments have also been found in dry ceremonial contexts, for example at the Late Bronze Age funerary pit at Ballynakelly, Co. Dublin (McCarthy 2010, 110), and were interpreted as grave goods. These examples support the interpretation of the Clonard enclosure as ceremonial.

Relative to the size of ceremonial enclosure analysed during the North Munster Project, the size of the enclosure is small (Grogan 2005a, 49). Grogan (ibid.) notes that the North Munster enclosures avoided prominent locations, and that while their setting varied, examples were recorded from terraces overlooking wet or marshy ground and river edges. He suggests that the concentration of barrow and ceremonial enclosures along the river floodplains reflects a division of the landscape into domestic and ritual spheres, possibly also indicating a desire for these sites to be associated with water (Grogan 2005b, 142). At Clonard, the barrow and penannular enclosure, which were in use at the same time for at least part of their lifespans, occupy the liminal space between the ancient pathway and the wetland. This liminal space may have been viewed as a place for the dead.

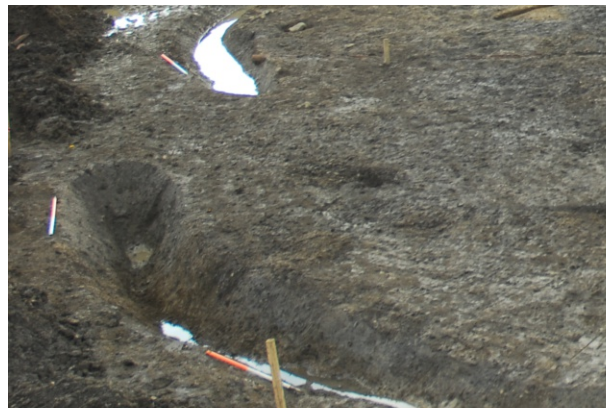
Interaction and movement

How people interacted with the circular enclosure and barrow should be considered. Were people supposed to walk around them, or in the case of ones with a break in the bank and ditch, were you supposed to enter? At the Clonard enclosure, the off-set entrance termini appear to direct a specific route around and into the monument. The location of the monument at the edge of the wetland area would also have influenced access to the monument, inhibiting access from the south and east.

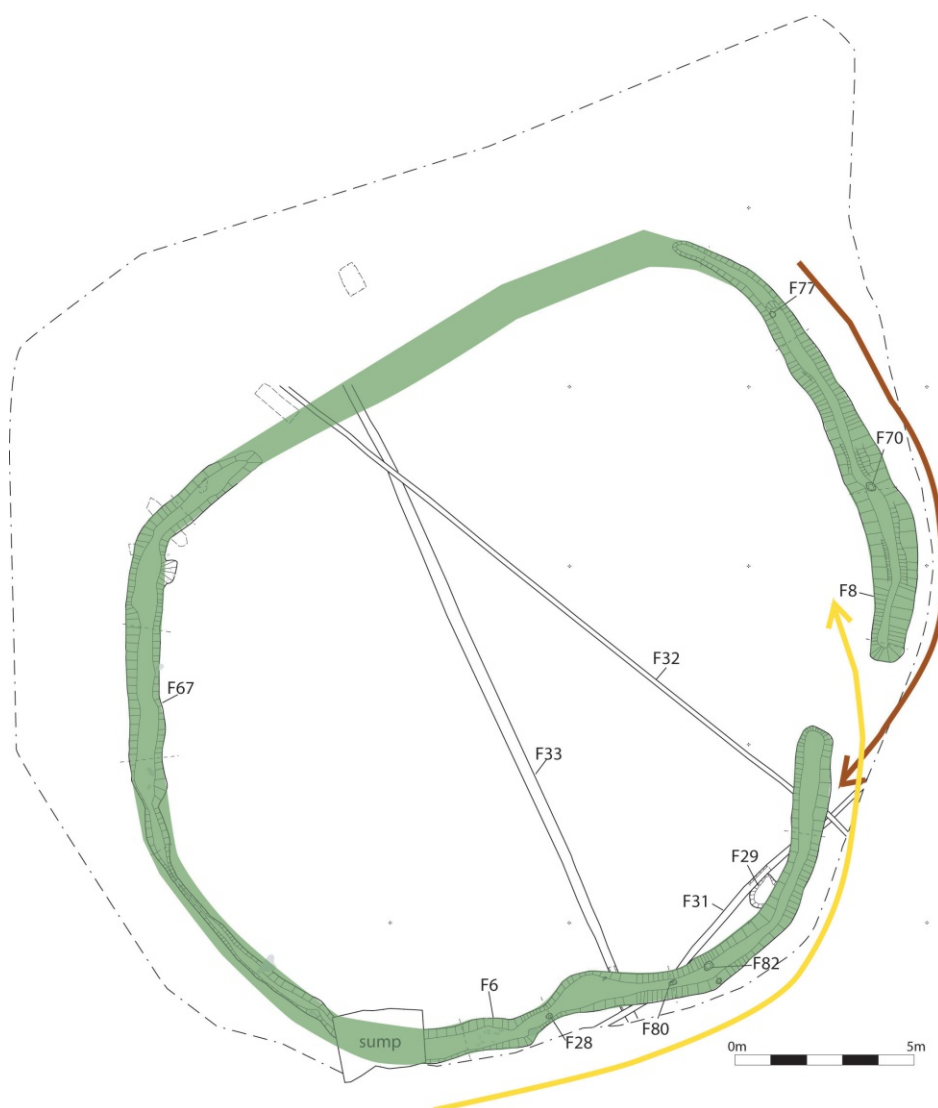
As has been argued above, the monuments were located in relation to the pathway. It is also likely that they were accessed via the pathway. The entrance to the penannular enclosure does not point towards the pathway or the nearby barrow, suggesting there may have been a specific way of approaching the monument.

The off-set entrance makes most sense if the monument was approached from the west, and walked around anti-clockwise before entering. This route from the opening in the pathway would have passed between the barrow and the enclosure. The off-set entrance also directs the route out of the monument. From inside, someone leaving the monument would be facing straight towards the location of the cremation pit identified 11.5m to the southeast. This raises the possibility that the cremation pit was marked above ground in some way, perhaps by a tree, cairn or a standing stone.

This suggests that there was a specific direction of approach and rotation associated with barrow, the ceremonial enclosure, and associated features. Many religions have rituals relating to specific routes or ways to interact with religious monuments and prescribed directions that this should be done in. This



circumambulation is frequently carried out a prescribed number of times. Gleeson (2012) discusses prescribed routeways and specific directions of access at Irish Royal sites, suggesting that certain directions of access had deep-set meaning and connotations associated with inauguration and royal ceremony. The proposition is that the enclosure was approached from the west, circumambulated



Close-up of the off-set entrance, looking southwest (top)

Possible direction of access suggested by the angle of the entrance to the enclosure. The anticlockwise (yellow) route appears to direct you inside the enclosure, while the clockwise (red) route would not (bottom)

anti-clockwise and entered from the southeast, and that this anti-clockwise rotation may have had specific meaning to those that interacted with the site. As anti-clockwise movement is seen as taking a course of motion opposite to the sun, perhaps this direction was significant, as it is sometimes associated with the dead, darkness, winter and banishing negativity (e.g. Manwaring 2011 etc.).

As previously mentioned, the location of the Neolithic cremation pit may have informed the positioning of the entrance to the much later penannular enclosure. The persistence of a localised funerary tradition over many centuries has been seen elsewhere, such as at Ardsallagh, Co. Meath, (Clarke and Carlin 2009, 7) and Ask Hill, Co. Wexford (Stevens 2007, 36). The earlier burial pits at these sites, and the example at Clonard may have been marked by some form of above ground marker that has since been removed, such as a cairn, or repeatedly planted tree, or through story-telling and tradition passed down from generation to generation.

Another influencing factor in the positioning of the entrance may have been the layout of contemporary houses. Irish Late Bronze Age houses frequently had their entrances at some point between south and east, which is also noted in Britain in contemporary roundhouses (O'Driscoll 2013; Mallory 2013, 136). The consistency of this orientation, irrespective of prevailing wind conditions, has been suggested to indicate a shared ideological vision of how a house should be oriented, and was different to the orientation of houses earlier in the Bronze Age that tend to have their entrances to the north (Mallory 2013, 136). For a number of examples in Britain, Bradley (1998, 153) makes a comparison between Bronze Age house and hut sites and nearby barrows, noting the similarity of organisation of space. A number of sites identified as ring-ditches have been found to have their entrances somewhere between south and east such as Ballydavis, Co. Laois (Licence No. 95E111, Excavations Ref. 1995:173); Ballybronoge South, Co. Limerick; Lehinch, Co. Offaly and Duntryleague, Co. Limerick (Eogan and Finn 2000, 8). As with the postholes recorded in the later phase of the barrow at Clonard, five postholes were recorded driven



Post-excavation view of posthole F70 in the base of the enclosure ditch to the east, looking west (top)

Pre-excavation view of the narrow slot trench for the palisade fence that would have been on the base of the ditch to the southeast, looking north. The remainder of the ditch was truncated in this part of the enclosure (bottom)

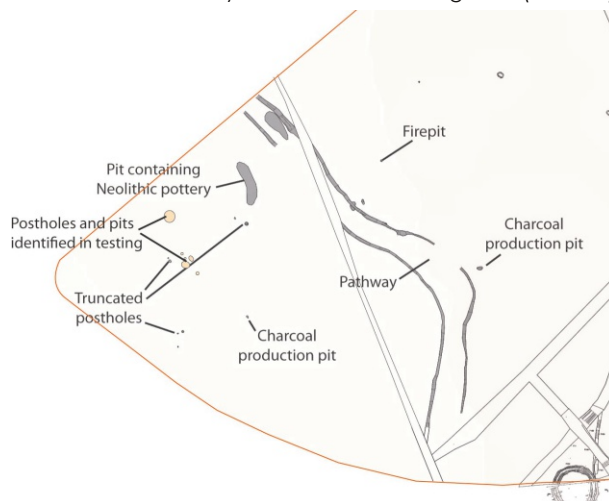
into the base of the ditch of the penannular enclosure. This would be an unusual location for a fence-line or palisade, however the presence of a narrow slot along the base of the ditch in places also suggested a fence was present. Perhaps there was some attempt to replicate the positional layout of a house or settlement here, with the entrance of the enclosure placed to the southeast to replicate the location of the typical entrance of houses at the time.

Equally, the palisade fence present within the ditch may have served a screening function, obscuring views of activities being carried out within the enclosure from certain areas, with visual access only gained upon entry to the enclosure.

Section 5 Settlement

Pits, postholes and firepit identified along either side of the pathway, which may be the truncated remains of settlement (top)

Pre-excitation view of firepit F50, which was found to contain mainly charred bark, looking west (bottom)





View of posthole F91, located to the west of the pathway, looking southwest (top)

Mid-excavation view of slot excavated through spread F172, a silt build up in a natural hollow, which contained Neolithic pottery (bottom)

Temporary settlements along the pathway?

Two possible structures were identified just off the pathway. Clusters of pits and postholes were identified on either side of the pathway, in areas of the site that were heavily truncated. One of the pits produced two sherds of Neolithic pottery and another was interpreted as a fire-pit. Whilst too little survives here to suggest any specific activity, it is possible that the postholes identified in this part of the site may relate to a largely truncated structure or structures, with only the deepest elements surviving.

The location these possible structures just off the avenue and on the higher ground may have been appealing for travellers to stop at, as well as offering a spot to shelter for those

participating in the rituals at the burial site, or involved in the resource exploitation of the wetlands. Analysis of the charcoal within the fire-pit identified that the majority of it was charred bark, with some hazel also present. Burnt bark was also identified in the barrow and possible connections between these features has previously been mentioned. The Neolithic pottery suggests that some of these temporary structures were in use in the Neolithic period, both the pathway and the cremation pit were in use in this period.

It is also possible that these are the remains of temporary settlements along the pathway. These temporary settlements could have been used at certain times of the year, and may have left little in the archaeological record to indicate their presence. In this way they are similar to booleying huts. Booleying, transhumance activity where animals were moved from in-and-around the farm out to summer grazing in the hills, is associated with intermittently used structures and settlements. While it was recorded in Ireland from the 16th century, there is no way of identifying how old the practice is, and it is possible, or even probable that it occurred in some way from Neolithic times onwards (O'Sullivan and Downey 2003, 34). It is possible that the feature on either side of the pathway represent a temporary occupation site used whilst extracting the resources from the wetland area, or participating in the ritual ceremonies associated with the barrow and enclosure.

The Bronze settlement at Clonard

Many of the features on the site date to the Bronze Age, marking an intensification of activity on the site. The ring barrow at Clonard marks the initial activity during this period, perhaps intended to claim (or reclaim) the territory by a specific group. To the west within the same townland a small inverted basket structure, possibly an animal trap, was contemporary with the creation of the barrow (Byrnes 2007, 217). To the north similarly dated Bronze Age habitation has been identified at Gormanston, though little else is known in the immediate vicinity until the large waterhole and



Aerial image of the surrounding area with prehistoric RMP sites highlighted in red, medieval sites in blue and undated sites in yellow. The Late Bronze Age sites discussed are labelled

fulacht fiadh troughs (DU005-118) to the south dating to 1886-1746BC. A Bronze Age house in Glebe East (DU005-140), c. 2.7km to the south is contemporary with this.

The penannular enclosure was established 1498-1303BC (1498-1374BC 78.2% probability). The closest Bronze Age roundhouse to the site, c. 750m to the west within the meadow at the head of the Bremore River valley, also dates to this period (1449-1319BC, Byrnes 2007, 218). This is the first definitive settlement evidence from the immediate vicinity of the site since the Early Neolithic house in Flemingtown and the contemporaneity with the penannular enclosure at Clonard may indicate a connection between the sites. This may be further inferred by the orientation of the southern end of the pathway, which leads toward the west along the northern side of the stream suggesting there was a route way connecting the locations. As previously noted, a field laneway is depicted here on the First Edition Ordnance Survey, which curves directly towards the roundhouse and may be the

last traces of the prehistoric pathway. It is likely those dwelling at the house were at least aware of the penannular enclosure, and were involved, either in its creation or in ceremonies carried out there. A further three Bronze Age houses are known from the southern side of the valley, two in Clonard or Folkstown Great townland (DU005-119001 and DU005-119002) dating to 997-843BC and 978-831BC respectively, and one further south in Stephenstown townland (DU005-123) dating to 1020-830BC. These are contemporary with the cremation burial within the barrow at Clonard, which dated to 934-807BC (94% probability). In Flemingtown townland to the northwest, a ring-ditch

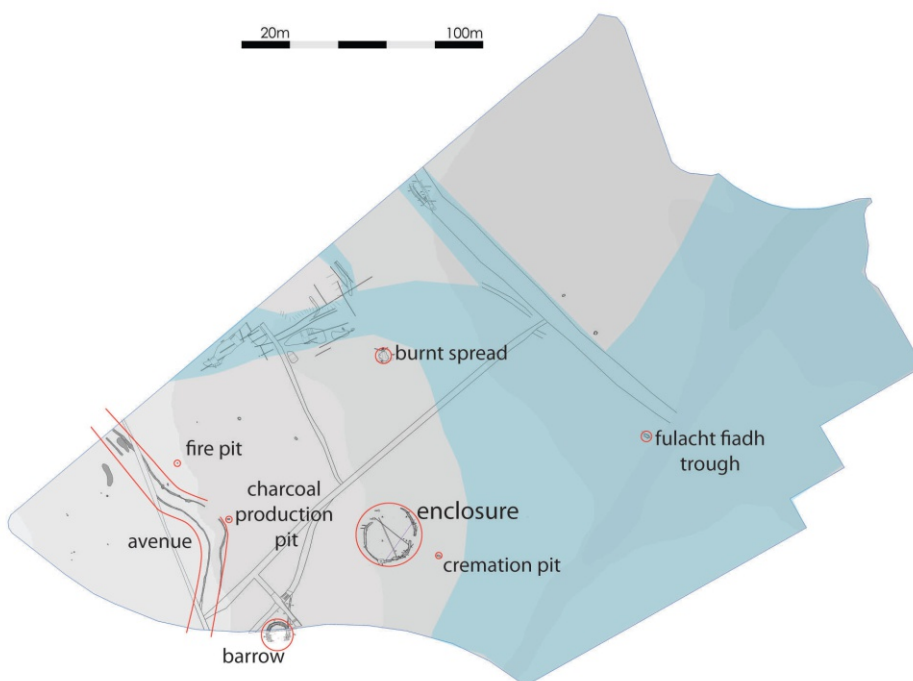
Section 6 The wetlands

produced a date of 985-817BC (Byrnes 2007b, 220), again contemporary with the burial in the barrow and the houses near the meadow at the head of the valley. The pathway may have been an influencing factor in connecting these locations, with the ring-ditch at Flemingtown directly along the projected line of the path to the northwest.

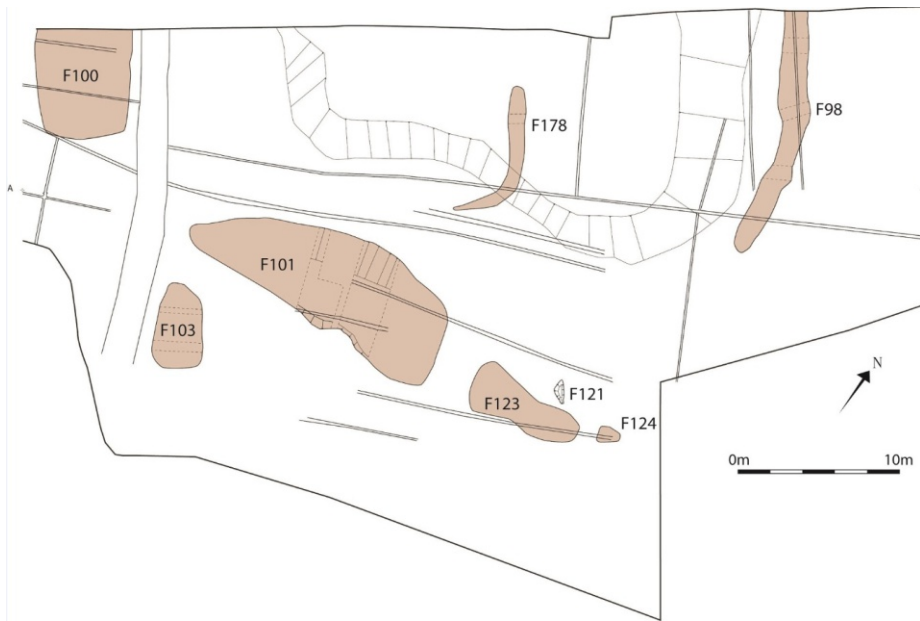
Added to this is the oval enclosure with a 15m diameter internal circular enclosure c. 100m to the north of the site (DU002-020), where recent investigations have recovered Late Bronze Age pottery from the fill of the internal enclosure ditch (McLoughlin 2019). A sample from the ditch has been radiocarbon dated to 895-802BC (*ibid.*). This site has been preserved in situ within a green space in the development to the north of the school. The inter-visibility of this site with the pathway has previously been discussed, and it is possible this enclosure represents an important feature in the Late Bronze Age landscape of Clonard.

This gives us three houses, two burial monuments, a probable settlement enclosure and the ceremonial enclosure within 1.5km of the site that all date to roughly the same period. Combined with the earlier Middle Bronze Age house they account for over half of the Bronze Age houses identified in Dublin to date. These may represent the local landscape of the kin-group or kin-groups living here at this time. Previous large-scale research projects such as the North Munster Project (Grogan 2005b) were mostly survey-based and it was not possible to assess contemporaneity based on dating evidence at many sites. Here in the vicinity of Clonard we now have a number of sites that can be seen as relatively contemporaneous, with their use or continued existence recorded within a 200 year period.

Additional prehistoric activity including two enclosures identified in testing (Elliott 2007) to the south on the opposite side of the Bremore River remain undated, however may be added to this cluster of activity should they be excavated in the future.



Plan of the wetlands identified within the site in relation to the other features uncovered during the excavation



Plan of the organic pools and channels uncovered at the northern end of the site, with F101 being the feature the pollen core was taken from (top)

View of the wetland area at the northern end of the site, looking north (upper centre)

View of the wetland area at the northern end of the site, looking east (lower centre)

Mid-excavation oblique view of the section excavated through natural pool F101, looking north-west (bottom)



Introduction

The gap in the gully defining the pathway opens to the east onto an area of land almost surrounded by wetlands. These wetlands are likely to have been present from at least the Mesolithic period, where wetter conditions prior to the Early Neolithic period are known (Bevan et al 2007). This suggests that from the time that the pathway was established in the Mesolithic period effort was made to avoid travelling through the wetlands themselves, however access to them was maintained. While not suitable for farming and not ideal for habitation, the wetlands would have been a perfect habitat for gamebirds and small animals. Bog plants like heather and moss make primitive but effective building materials for use as insulation and bedding, and a variety of wild berries and herbs such as cranberry and bog myrtle flourish in this environment (Moore 2008, 7).

The funerary monuments may represent the claiming of this wetland area by a particular kin group. The charcoal production pit, fulacht fiadh and burnt spread at Clonard represent exploitation of this wetland.

The Neolithic wetlands

A pollen core through a natural hollow provided a fascinating insight into the wetlands during the Neolithic period. The core was taken from a

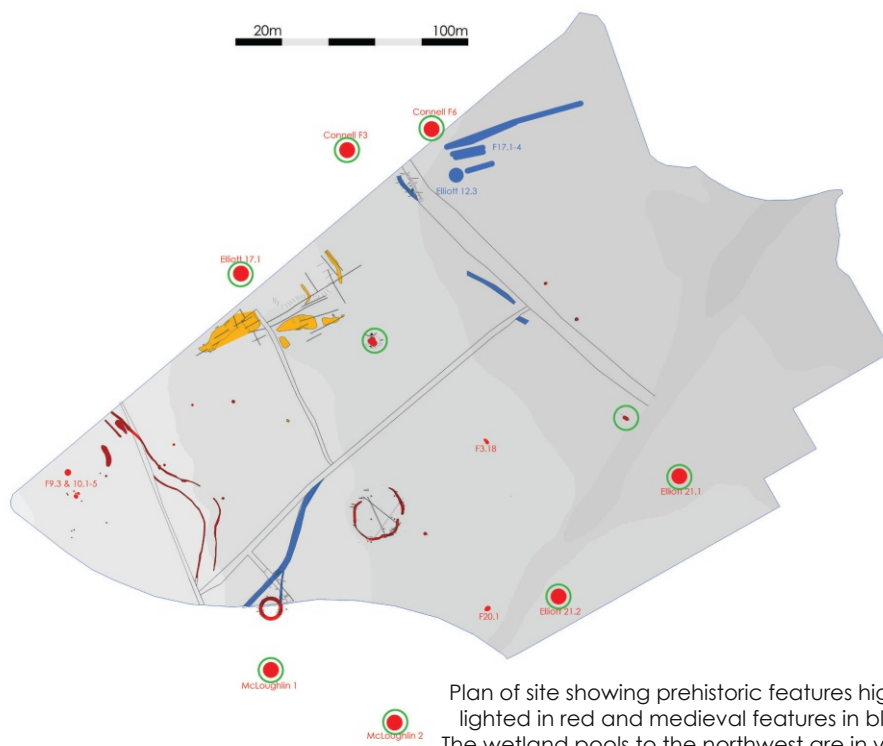
pool in the north of the site that formed in 3636-3377BC. It was one of a series of former pools and channels that previously ran down the slope from the hill at Balscaddan and was partially trapped by the slight rise upon which the penannular enclosure was created. This raised area blocked a direct flow for water to run to the Bremore River to the southeast and poorly drained marshy swathe across the level ground to the northwest of the stream. The area was also fed by an additional stream further east, now formalised as a field boundary. This poorly drained ground extended up the hillslope to the north, with a fulacht fiadh trough identified as far upslope as the crest of the hill in Flemingtown, indicating that the local soil conditions are likely to have added to the drainage issues, and combined with the geology and low-lying aspect of the site at Clonard to create a substantial wetland area.

The period before the pollen core, and thus the formation of the pool, was a boom period during the Early Neolithic. This saw a significant rise in activity across Britain and Ireland associated with a period of improved climatic conditions (ibid.). It is during this boom period that the Early Neolithic house at Flemingtown to the north was established (3642-3518BC 94.7% probability, Bolger 2009, 26) as well as the cremation pit on the site at Clonard (3781-3652BC). Woodland clearance appears to have already taken place suggesting the cremation burial an house to the north were associated with a dominant Neolithic culture that had already shaped and altered the landscape during the earlier 4th Millennium BC (ibid.). Before the climatic improvements at the beginning of the Neolithic period wetter conditions are likely to have exacerbated the wetland trend running

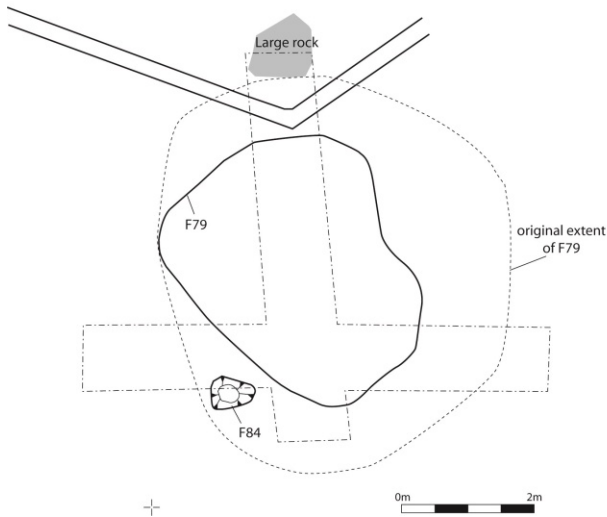
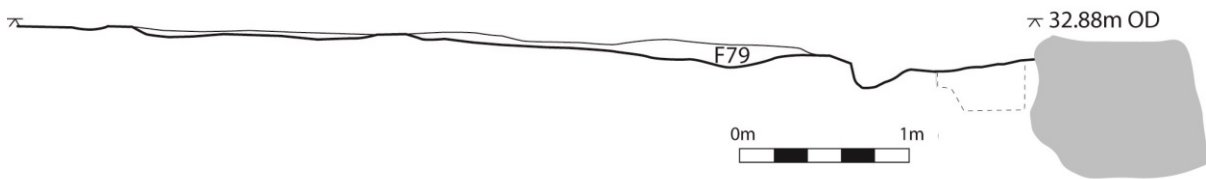
downslope from the north and the poorly drained river valley at Clonard, possibly also creating the need for the pathway in the earlier Mesolithic period.

The date range for the pollen core was from 3636-3377BC to 2572-2470BC. Pollen analysis of the core indicated that at the end of the Early Neolithic period, c. 3600BC, the immediate vicinity was dominated by wetland plants and sedges, and formed marshy ground. The wider landscape was already open with a low level of closed canopy tree cover and occasional copses of shrubland trees (O Carroll 2018b, 12). This provides a snapshot of the environment in the period immediately following the cremation burial further to the south. The wetland pool investigated at Clonard developed during the period of poorer climatic conditions from c. 3500-3000BC, which would have seen colder winters and wet summers (Bevan et al 2017, E10525).

At c. 3200BC there was a reduction in the immediate marshy environment and an increase in willow, with anthropogenic indicators indicating open pasture may have been present nearby, as well as micro charcoal suggesting settlement may have been taking place in the



Plan of site showing prehistoric features highlighted in red and medieval features in blue. The wetland pools to the northwest are in yellow and the additional nearby sites associated with wetland exploitation are included



East-facing section through burnt spread F79 (top)

Plan of burnt spread F79 showing original extent of feature as identified in the testing (upper centre)

View of the intersection of Trenches 3 and 8 from testing programme (15E507), indicating the better survival of the spread at that time (lower centre)

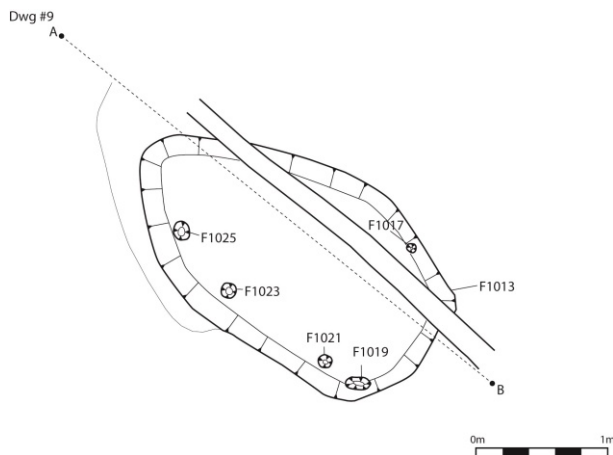
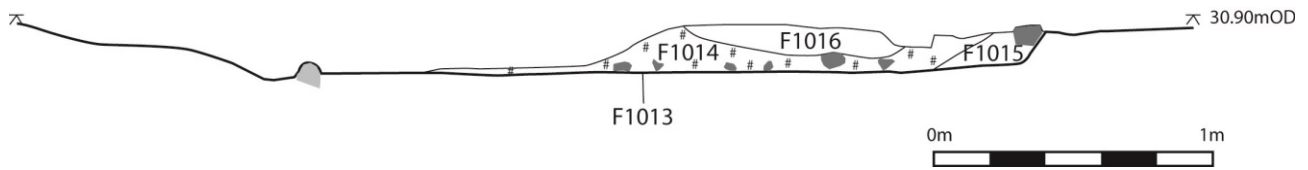
View of slot through spread F79, looking north (bottom)

vicinity. From around 3100-2700BC there was a substantial increase in grasslands in the vicinity and further indicators of human activity, though a reduction in micro charcoal was noted. This represents a period of agricultural expansion in the area. At around 2700BC pools of standing water had formed within the wetlands, perhaps indicating the flow of water through the area was decreasing and an improving climate. The final surviving levels of the pollen core (2700-2500BC) indicate a return of sedges and marshlands and an increase in trees and shrubs. Whilst this would normally suggest a decrease in anthropogenic activity and the expansion of the wetlands during this period, the contemporary increase in micro charcoal, and presence of cereal, indicates settlement and arable agriculture.

Overall this gives a history of subtle environmental changes throughout the millennium represented by the core with wetter climatic conditions at the beginning and end. An expansion of grasslands in around 2800BC is followed by a drier period when stagnant pools formed in the marsh, perhaps combined with less free-flowing water through the area. The end of the Neolithic period saw a return to wetter marshy conditions in the area as well as subtle evidence for arable farming nearby, though unlikely to have been in the immediate vicinity. While the pollen core did not give us an indication of the environment around the time of the construction of the barrow or penannular enclosure, it did indicate that there were fluctuations within the wetlands, with wetter and drier periods.

Exploitation of the wetlands

The concentration of Bronze Age fulachtaí fia in the immediate vicinity of the wetlands at Clonard provides the first evidence for



Southwest-facing section of fulacht fiadh trough F1013 (top)

Plan of fulacht fiadh trough (bottom left)

Mid-excavation view of fulacht fiadh trough, looking northeast (bottom right)

substantial human interaction with this environment during the Bronze Age. Burnt spreads were identified along both sides of the Bremore River during previous testing and monitoring programmes as well as to the north of the trend of pools and channels at the north of the site (Elliott 2007, Connell 2008, McLoughlin 2018). A further two burnt mounds were identified on either side of the existing townland boundary to the northeast, implying that this was a formalising of an earlier watercourse. Towards the top of the hill a burnt spread and a fulacht fiadh trough located indicate that poor drainage continued towards the north of the site as these features would have required access to water and no nearby streams were evident (Bolger 2009).

Middle Bronze Age burnt spread

Above I have argued for the use of the wetlands in the Mesolithic and Neolithic periods, on the basis of the pathway and the burial. The earliest

feature directly associated with the exploitation of the wetlands at Clonard was a Middle Bronze Age burnt spread, which was radiocarbon dated to 1658-1498BC. The remains consisted of a spread of burnt stone and charcoal located at the edge of an area of higher ground near the marshiest part of the site to the north. No pits or troughs were identified in the vicinity of the spread to suggest it was a fulacht fiadh, however it is likely that some form of processing involving the heating of water using hot stones was carried out here. This feature falls into Hawkes Type 5 category – burnt mounds without pits or troughs (2018, 112-3). It has been suggested that portable boiling troughs may have been used at these sites (ibid.). A large natural earthfast boulder was located beside the spread, which possibly served as a marker of the location of the burnt spread site. Sandstone was the predominant stone used at the burnt spread, with the use of this stone type being the most efficient as the stone could be heated and cooled around five times before splitting into unusable fragments (Buckley 1990, 171).

Blackthorn was the only charcoal identified associated with the spread. Rosaceae pollen, a family that includes hundreds of species including blackthorn, was identified quite frequently from the pollen monolith taken from the nearby wetland pool (O Carroll 2018a, 10). Blackthorn typically grows in clearings and at the edges of woodlands and is a strong wood. While not commonly associated with fulachtai

fiadh or burnt spreads, it has been recorded at these sites elsewhere (e.g. Kilgobbin/ Newtown Little Phase 3, Co. Dublin, Licence No. 03E717).

Late Bronze Age Fulacht fiadh

A Late Bronze Age fulacht fiadh trough was identified to the southeast of the site and was radiocarbon dated to 1233-1036BC (93% probability). The trough consisted of a sub-rectangular pit with five stake holes around the edges indicating it was originally lined. The presence of a similar range of taxa from the fills of the stake-holes associated with the trough indicates that the fills do not represent the remains of the wood lining, which must have been removed prior to abandonment. This feature falls into Hawkes Type 1 category – mounds with single troughs (2018, 111).

A wide variety of taxa were present within the fulacht fiadh trough, with the range of species identified including scrub-like trees, as well as tall woodland canopy trees (O Carroll 2018a, 10). This indicates that in the Late Bronze Age there was a mosaic of woodland habitats in the vicinity to the fulacht fiadh.

The fulacht fiadh trough was located near the junction of the Bremore River and a stream running downhill from the north, which was later formalised by medieval and post-medieval field boundary ditches. The limited size of the spread of burnt stone associated with the trough suggests the feature was not used over a long period of time, however it is possible that part of the mound associated with the trough was truncated in the past. The low-lying location of the trough, well into the wetlands, may have been an influencing factor in this as this part of the site may have been too wet for the location to be used often, possibly only offering seasonal access. The placement of a trough here may also be indicative of a change in the wetlands themselves, with a drier period of time allowing the feature to be constructed and used. Sandstone was the again the predominant stone used at the fulacht trough at Clonard.

Traditionally, fulachtaí fia have been interpreted as temporary prehistoric cooking/feasting sites,



Annotated mid-excitation view of fulacht fiadh trough showing location of stake-holes, looking southeast (top)

Post excavation view of fulacht fiadh trough, looking southeast (bottom)

with experimental work, most notably by O'Kelly at Ballyvourney, Co. Cork in the 1950s, confirming that the typical features of an excavated burnt mound could relate to aspects of the cooking process (O'Kelly 1954). This interpretation is preferred by Hawkes in his

recent publication on prehistoric burnt mounds in Ireland (2018, 156-166). Alternative suggestions for the use of fulachtaí fia have also been postulated, with some being replicated in experimental archaeology, such as the brewing of beer (Quinn & Moore 2009) and the processing of textiles, such as washing, dyeing and fulling (Denvir 1999). The general lack of animal bone from fulacht fiadh sites, including those at Clonard, is one of the reasons put forward for questioning the traditional cooking place interpretation for all fulachtaí fia. Recent studies on the environmental evidence from fulachtaí fia have indicated that in some cases, textile production was carried out at these sites (Brown et al. 2016, 285-6).

What can be said with more certainty is that they were places where stones were heated and used to heat water, which could then be used for a variety of functions – perhaps more than one at each site – and that they were frequently returned to and used over time. Hawkes proposes that the revisiting of fulachtaí fia, and specifically the reuse and relining of individual troughs, shows that the locations of these sites were an enduring element in the landscape, even if the activity at each site was episodic (Hawkes 2018, 197). He also discusses the importance of the social contexts, along with the socialising component of these gatherings, and notes that food played an essential role in assemblies, as it does in social circumstances today, and would not have been eaten simply for sustenance (Hawkes 2015, 23). Social groups select foodstuffs and organise meals in accordance with cultural norms, and the process may involve historically determined social patterns, such as how the food is prepared (ibid.).

Bolger notes that historical texts for the early medieval period indicate a distinct level of control and complexity in where various features are located in relation to the main settlement core suggesting that a complex and ordered system of how land was divided up, owned and managed was in place at that time (Bolger 2009, 32). This is likely to be true of earlier periods also. The location of sites where specific activities were carried out, particularly ones that involve heat and fire, is likely to have been controlled and organised, for safety reasons at a minimum. The observation that



Pre-excitation view of charcoal production pit F96, looking west (top)

Mid-excitation view of charcoal production pit F96, looking north (bottom)

burnt mounds are virtually never found within settlements but are typically in the vicinity though at least 200m distant (Grogan et al. 2007) suggests a common practice but one which was not desirable within the close proximity of dwellings. Fulachtaí fia may have served as local feasting sites used in communal seasonal rounds of social festivities and bonding within and between neighbouring families (Grogan 2005b, 138). This could also be true if the sites were used for processing or textile production of some sort. Either way these were places and activities suitable for local social interaction. At Clonard, this social interaction was taking place adjacent to the burial monuments to the southwest of the site. The communal aspect of cooking, with feasting connotations is also interesting when taking the location of the example at Clonard into

consideration, particularly in relation to the burial monuments in the southwest of the site.

The fulacht fiadh was radiocarbon dated to the Late Bronze Age, and was in use at the same time as the ceremonial enclosure and barrow. It can therefore be argued that feasting, cooking or alcohol production was carried out at the fulacht fiadh associated with the activities at these monuments. Is it equally possible that processing of specific textiles or offerings was important to the participants at these burial or commemorative rites.

Iron Age Charcoal production

Charcoal production pits are sometimes situated on the edge of wetlands, which were exploited for suitable wood (Lyne 2009, 26). An Iron Age charcoal production pit was identified at Clonard near the gap in the pathway to the west, and is of typical shape and size (Giacometti 2016, 26). Charcoal kilns are generally recognised in the archaeological record when they fail and the charcoal is left in situ (Lyne 2009, 7). The charcoal would have been removed from a successfully fired kiln leaving only the heat-scorched pit and small quantities of charcoal (ibid.). The kiln at Clonard had frequent charcoal, indicating it had been abandoned prior to the removal of the charcoal.

Charcoal was the primary smelting fuel of the Bronze and Iron Ages, and onwards through the medieval period, with a peak in its use during the 17th and 18th centuries (O'Sullivan and Downey 2009, 22). Charcoal would have also have been used in the production of tar, wood oils and dyeing (Kelley 2002, cited in McQuade et al 2009, 200).

A radiocarbon date from the pit returned a date of 389-205BC indicating use in the Early Iron Age. This is contemporary with the charcoal deposit at the top of the penannular enclosure ditch, however the charcoal within the two contexts varied. The shallow remains of a second charcoal production pit were identified to the west of the pathway. A contemporary hearth was identified during the excavation of the roundhouse within the same townland to the west (Byrnes 2007a, 218), while a slightly later Iron Age date was returned for disturbance within the ring-ditch in Flemingtown (Byrnes

2007b, 220). This indicates a phase of Iron Age activity in and around previous settlements and burial monuments in the vicinity of Clonard.

Hazel and holly charcoal were identified within the Iron Age charcoal production pit (O Carroll 2018, 10). While oak charcoal was the preferred choice of fuel for metalworking in the Iron Age, examples of metalworking sites with a range of taxa are known, such as Derrygarriff 2, Co. Galway (Nunan 2009, 4), Knockcommane, Co. Limerick (McQuade et al 2009, 370) and Rathwilladoon, Co. Clare (Lyne 2009, 3). At these sites the other taxa present were interpreted as the remains of kindling. Hazel charcoal was used for metalworking in the 11th century AD at Kilgobbin, Co. Dublin (McGlade 2018a), while holly was frequently identified in charcoal production sites in Glendalough, Co. Wicklow (McDermott et al 2012, 4).

At Clonard, the charcoal production pit was located in the ritualised landscape of the kin-group that used it. This ritualised landscape would have extended to more than the burial monuments themselves, and would have included all aspects of life that required social control. The production of, and exploitation of resources would have required social controls determining who used them, who benefitted from them, when they were used, and for how long.

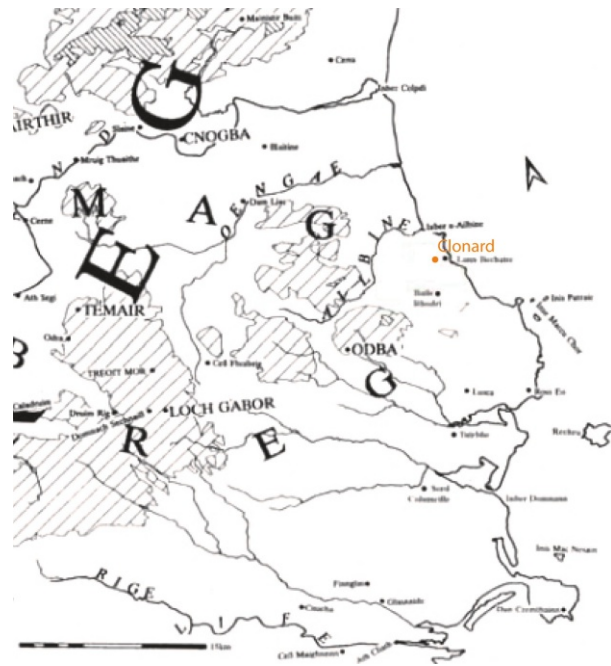
Section 7 Medieval industry

Early medieval period

At the start of the historic period the site lay in the over-kingdom of Brega, with the coastal zone initially being controlled by the Ciannachta Breg (Bolger 2009, 27). Throughout the early medieval period political upheavals. Different groups rose to prominence including the Saithne, who grew in power following the decline of the Ciannachta Breg (ibid.), and whose lands may have formed a buffer between the territory controlled by the Norse of Dublin (Fine Gall) and the main sub-kingdoms of Brega (Breathnach 1999, 5-6). No evidence of early medieval activity identified during the excavation, despite the substantial complex excavated in Flemington towards the top of the hill c. 700m to the northwest, and the bivallate ringfort identified in Stephenstown just under a kilometre to the south on the opposite side of the valley. The main settlement at Flemington is likely to lie slightly further to the north where numerous linear and curvilinear anomalies (DU001-023) were identified during a programme of geophysics in 2005 (Bolger 2009, 34).

The manor of Bremore

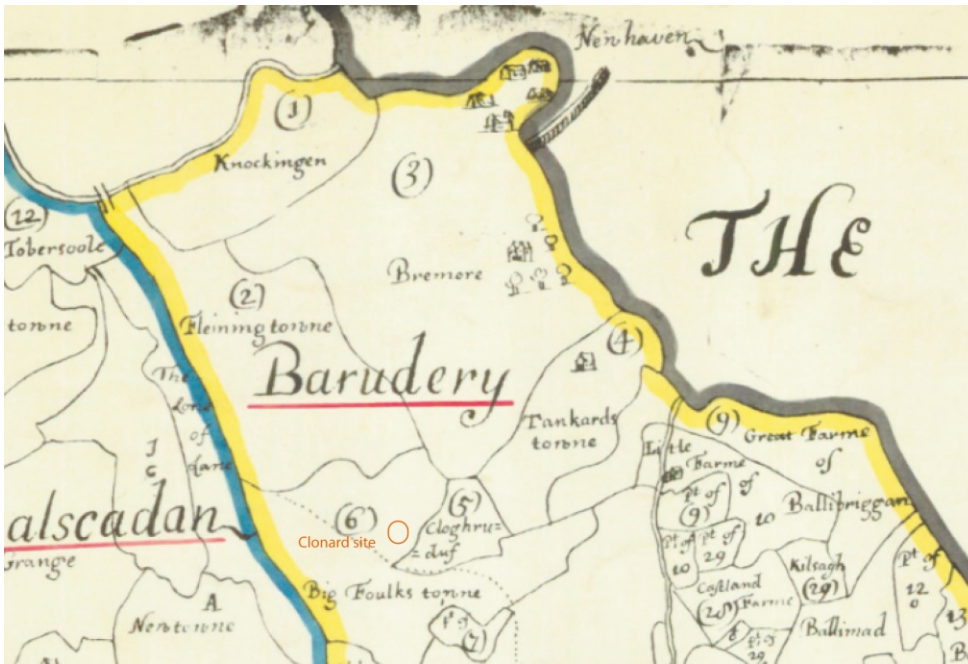
Evidence for new divisions of the land during the later medieval period was found at Clonard. The arrival of the Anglo Normans in the 1170s disrupted land ownership across the country. The two primary manorial centres locally were Balrothery and Bremore. Both of these sites have some pre-Norman Welsh connections. At Bremore there are Welsh connection to the saints associated with St. Mologa's Church - the early medieval site of Lann Bechaire (RMP files). A former landowner is listed by Geoffrey de Constantin in the vicinity of Balrothery under various spellings as Rhytherid Machanan, who is of the family of Owain ap Cynan, part of a royal Welsh dynasty, who appears to have



Map of eastern Brega showing the site location and key known sites in the vicinity (after Bolger 2009, 27; top)

Hypothetical outline of the kingdoms and petty kingdoms of Southern Brega from c. 950-1200 AD (after Breathnach 1999, 4; bottom)

inherited the lands through the marriage of Cynan, king of Wales and Ragnailt, daughter of Olaf, king of Dublin (Baker 2010, 46). There is a strong possibility that Balrothery was named after this 'Rodhri' (Connell 2007, 2). There is also a possibility that Cloghrudduf or Cloghrudery, the former name of Clogheder townland as given on the Down Survey, refers



Extract from the Down Survey map of the Barony of 'Barudery' showing the location of the site at Clonard. The former name of Clogheder is given as 'Cloghruduf', perhaps implying an association with Balrothery to the south. This may suggest the boundary between the manors of Bremore and Balrothery ran along the Bremore River

to the same individual, possibly indicating that this townland also formed part of the territory held by Rodhri. The impression is that before the arrival of the Anglo-Normans, Norse and Welsh population groups were amongst the players that had an influence on this area.

The site at Clonard may have been located within the manor of Bremore, as the stream forming the townland boundary to the south of the site continues on to the sea to the south of Bremore and would have been a natural landmark to use as a territorial marker. The former name of the townland to the south, Cloghrudery, suggests it may have had connections to Balrothery to the south.

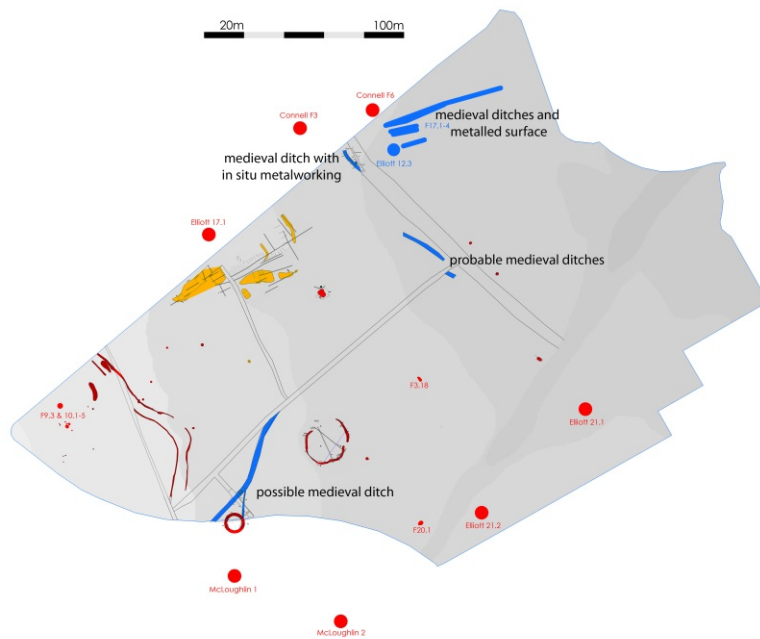
Bremore is associated with the Russell family from the latter years of the 13th century, and they may have owned a castle there (O'Carroll 2009, 79). Bremore passed to the Barnewall family in the early 14th century, with the family also acquiring substantial other holdings in north County Dublin, including Balrothery (ibid.). The settlement at Balrothery appears to have been more successful, as Rocque depicts it as a town on his map of County Dublin in 1760, while Bremore (and neighbouring Balbriggan) is depicted as a small hamlet. The terroir of the Down Survey of the 1650s mention a 'towne of Bremore' in which there was a 'towne called Newhaven', while Balrothery is mentioned as a 'faire town'. During the late medieval period, settlements

such as the one excavated at Stephenstown to the south of the site, which covered several acres, would have been dotted throughout the manors and formed centres of crop-processing and animal husbandry, as well as providing shelter for agricultural workers (Baker 2010, 54-5).

In a similar manner to Newhaven within Bremore, additional small settlement clusters may have been present elsewhere in the manor. The medieval activity on the site at Clonard largely reflects agricultural activity associated with new divisions of the land. These new divisions reflect the new landowners placing their own ideas of order on their lands. The medieval field boundary ditches would have improved the drainage on the site, so the former wetland may no longer have been a disincentive to settlement.

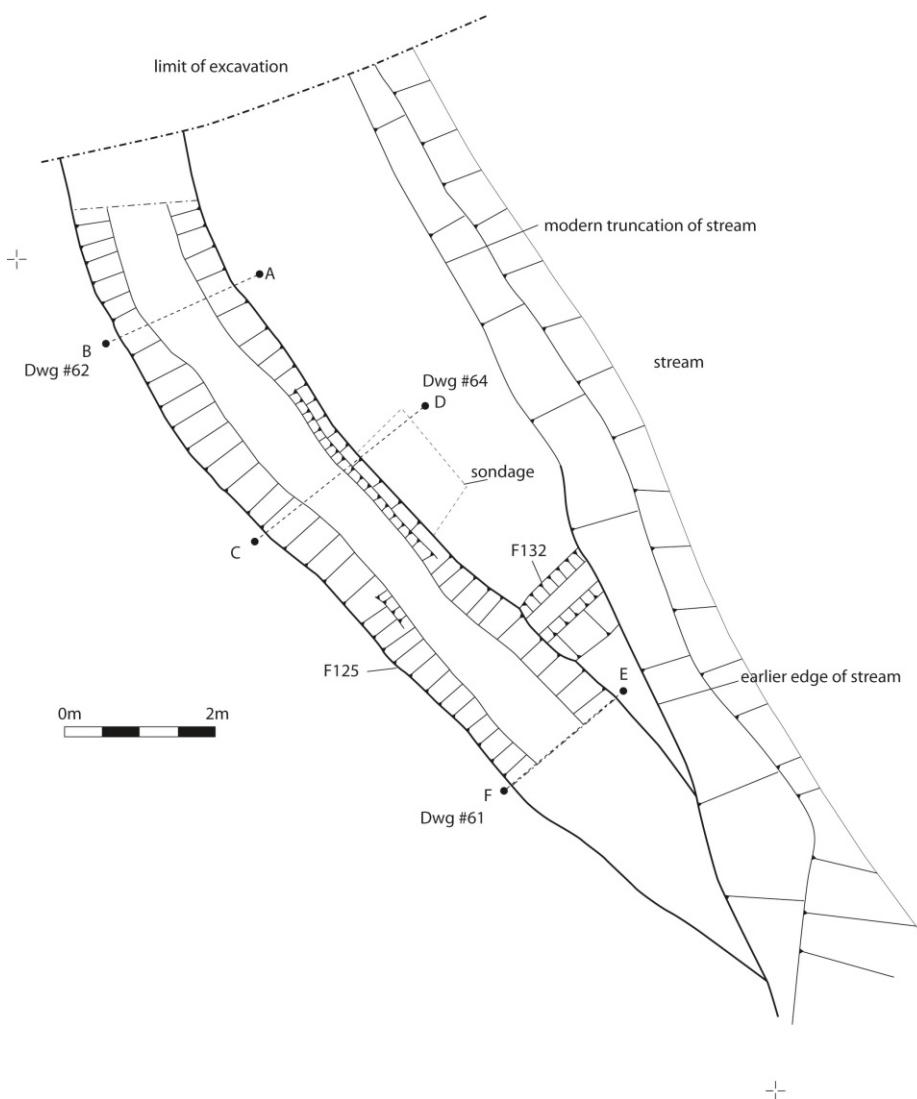
Coal-fired ironworking

Portions of medieval field ditches were identified across the site. A modern field boundary in the west of the site was shown to have its origins in this period, when it formalised an existing stream. These medieval features cut through the prehistoric landscape without regard to the earlier monuments, reflecting a break with old traditions. The human landscape had altered significantly from a prehistoric local kin-group settlement to a



Location of the medieval features identified on the site highlighted in blue (top)

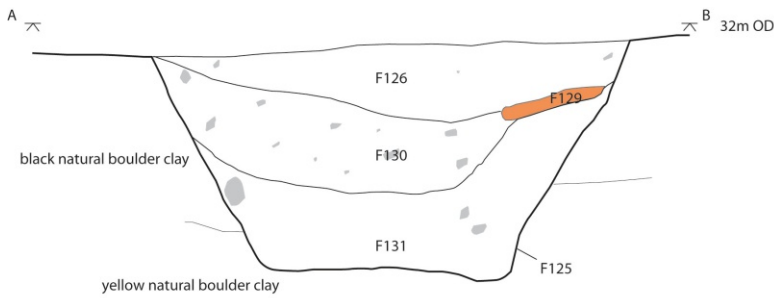
Post-excavation plan of the medieval ditch at the northern end of the site where the metalworking took place (bottom)



landscape of agriculture and small-scale industry forming part of a larger manor.

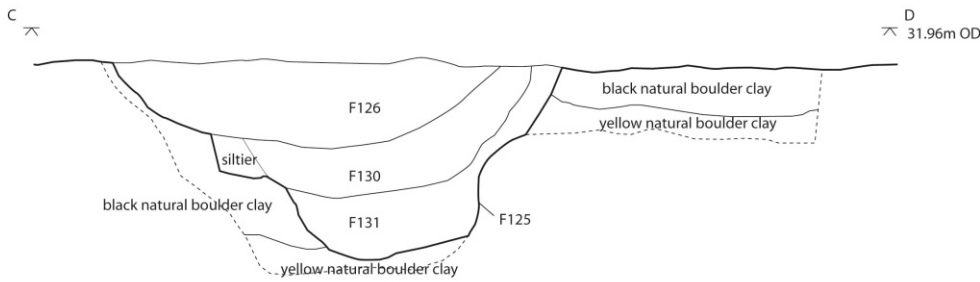
All the medieval pottery retrieved during the excavation came from a localised area close to where two medieval ditches at the northern end of the site converged. An iron tongs was retrieved from the eastern ditch (McGlade 2018b, 2) while a number of metalworking waste products such as hearth cakes, fragments of furnace lining and slag were recovered from the same localised area of the western ditch. One of the hearth cakes (F129) was identified directly overlying one of the fills within the ditch. This indicates that some smithing was taking place within the ditch after it had partially in-filled, and possibly gone out of use. This location provided shelter from the wind and shade in the working area enabling the smith to assess the state of the worked metal by colour.

Smithing in such locations is

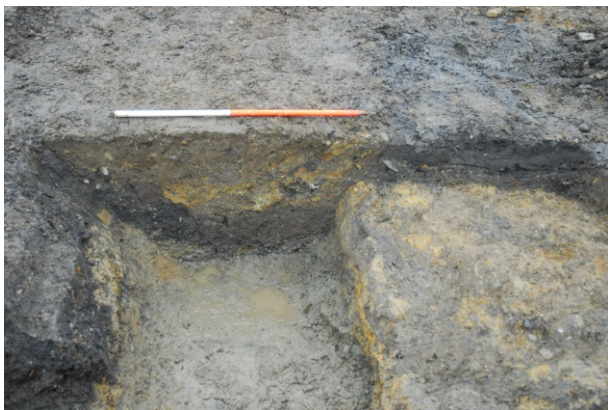
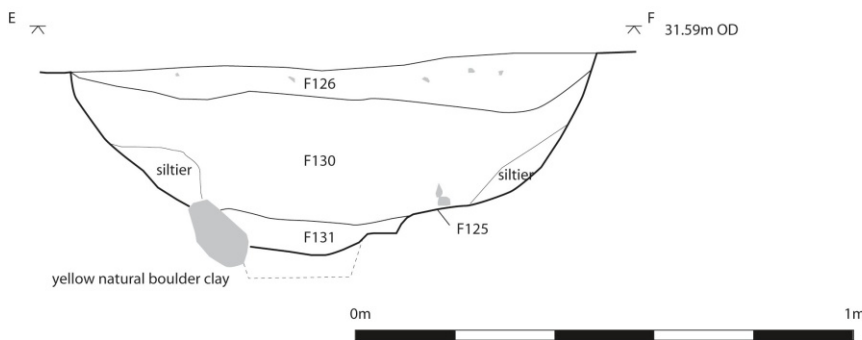


Sections through medieval ditch F125 (top)

Mid-excavation view of southeast-facing section C-D through medieval ditch F125, looking northwest (centre)



Mid-excavation view of northwest-facing section E-F through medieval ditch F125, looking southeast (bottom)



known from other sites such as Moathill in Navan, where small-scale blacksmithing remains dating from AD 668-784 were uncovered within a partially filled ditch (Giacometti 2011, 51). At Clogher hillfort, Co. Tyrone, there was evidence for metalworking having taken place within the hillfort ditch dating from AD 400-610 (Kelly 2010, 46). An in situ furnace was recorded at Woodstown 6, Co. Waterford located within a sheltered portion of one of the outer ditch terminals and dated to AD 426-600 relating to the pre-Viking phase of the site (Kerr et al. 2012, 1144).

A primary point of interest relating to the hearth cakes is that they derive from coal-fired smithing. Analysis of the hearths and furnace cakes has shown that only coal was used in the metal-working at the site (Young 2016). This is unusual in Ireland during the medieval period, yet is known from Anglo-Norman Wales (ibid.). The smithing is likely to have been carried out within the manorial setting, with Bremore likely to have been in control of the land at this time.



Coal may have been imported into the country to Bremore or Balbriggan, both of which were listed (admittedly somewhat later) separately by Richard Stanihurst in 1577 among the eighty-seven haven towns in Ireland (Murphy and Potterton 2010, 402). Coal is a heavy fuel source and it would not have been efficient to move it too far from the port for small-scale industrial activity, yet it may have been desirable to carry out this activity at a distance from the main settlement due to the waste, noise and fumes produced. A completely isolated location for this metalworking activity is unlikely however, and further settlement may be identified nearby in the future. An attempt was made to obtain a radiocarbon date from animal bone within the ditch to closely date the metalworking waste, however there was insufficient collagen surviving to date the bone. As the fuel used was coal charcoal from the metalworking residues themselves was unavailable. As such the metalworking must be dated using the associated ceramic material, which dates to the late 13th-14th century (McCutcheon 2016, 1).

Providing a way for the fuel and finished products to be transported would have been important and it is possible that the metallised surface identified to the east within Field 12 and

Two smithing hearthcakes in situ near the top along the western side of ditch F125, looking west (top left)

Portion of smithing hearthcake from the medieval ditch F125 (bottom left)

Iron tongs from the medieval ditch preserved in situ to the northeast of ditch F125 (top right)

Selection of medieval pottery retrieved from ditch F125 (bottom right)

associated with the perpendicular medieval ditch may have provided this. A largely ploughed out section of metallised surface was identified further to the east in Field 13 during previous testing (Elliott 2007, 28), possible indicating that a laneway may once have stretched off to the east from this point. Intriguingly the First Edition Ordnance Survey depicts a field access lane running to the west from the southwest of the castle and church at Bremore, likely to have been the manorial centre. While this stops well to the east of the site, it is possible that previously there may have been a laneway running from Bremore towards the northeastern part of the site, and possibly

beyond. The quantity of medieval pottery within the ditch here also suggests there may have been some settlement, possibly for the blacksmiths, in the immediate vicinity. No medieval pottery was identified elsewhere on the site indicating a focus of activity in the northeastern part of the site during this period.



Medieval ditch F125 mid-excavation, looking southeast (top)

Medieval ditch F125 post-excavation, looking southeast (bottom)

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