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Contents

Prelude to Disaster: The Arrival of 'Captain' Charles Boycott on Achill Island in 1854 and the fire in the 'Iron House'

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When 'Captain' Charles Cunningham Boycott arrived on Achill Island in 1854, he was just 22 years old, but he was already married and had left a short army career behind him to become a tenant farmer on a remote holding at the western tip of Ireland's largest offshore island. Born into a clerical family in Burgh St. Peter in Norfolk in 1832, Boycott joined the 39th Regiment of Foot in Preston in 1850 and held the rank of Ensign from then, through postings to Belfast, Newry, Dublin and Clonmel, until he resigned his commission in Clonmel in 1852 (Boycott 1997, 89–94). Military records[2] indicate that he never achieved the rank of Captain during his time in the army, yet this rank is consistently applied to his name in contemporary accounts of his actions in the Ballinrobe area in 1880, when he became an infamous figure in the Irish Land War.

His arrival on Achill Island in 1854 was closely linked to the establishment of a Protestant mission on the island some 20 years earlier and Boycott leased 2,000 acres of land from Murray McGregor Blacker, this being a portion of the larger holding of 4,071 acres which McGregor Blacker had earlier leased from the Irish Church Mission Society (*ibid*., 1997, 150). McGregor Blacker's holding encompassed the entirety of Keel West townland, the largest townland on Achill Island, and he appears to have taken over this holding after the death of his uncle, the noted agriculturalist William Blacker, who is listed as the holder of Keel West in Griffith's Valuation[3].

It is unclear if Boycott's move to Achill was intended to lend support to the proselytising efforts of the Achill Mission or whether he simply sought a new beginning after his unsuccessful army career, but it is worth noting that he leased 2,000 acres at the western tip of Achill and built his first house there overlooking Keem Bay, a move which thus positioned him at some remove from both the Mission headquarters at Doogort and from the general populace of the island. It is also worth noting that the Achill Mission was, by 1854, in terminal decline following the departure of the principal instigator of the project, Rev Edward

[1] Director of Fieldwork, Achill Archaeological Field School.
[2] See Army Lists for 1849–50, 1850–51, 1851–52 and 1852–53 in the National Archives at Kew — these are available online (http://discovery.nationalarchives.gov.uk/SearchUI/details?Uri=C14273) under the references WO 65/117, WO 65/119, WO 65/121 and WO 65/123 respectively.
[3] Available online at http://www.askaboutireland.ie/griffith-valuation/details.xml?action=showImage&mysession=2313070407984&ID=956547&rs=19&width=900&height=680.

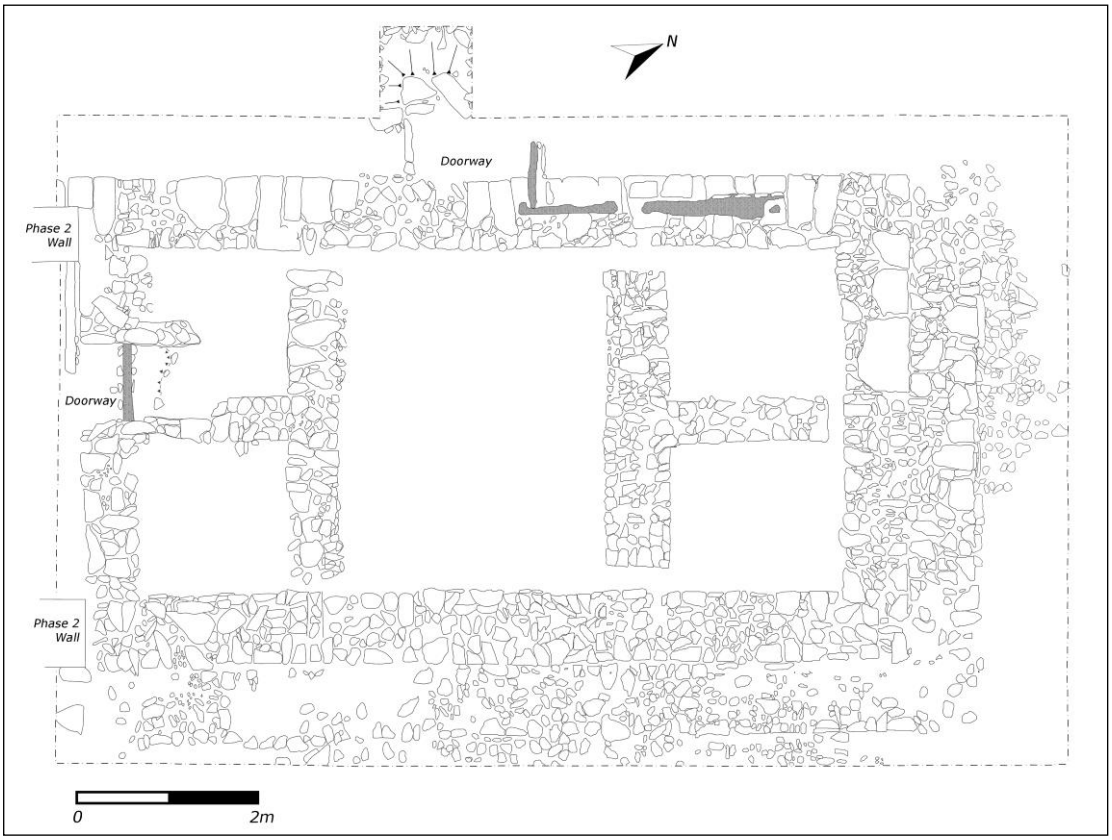
Nangle, in 1852. The Mission had also suffered financially following its purchase of most of the island from the Encumbered Estates Court in 1851, since the post-Famine tenantry could not have produced enough rent to give a profitable return on the investment (Ní Ghiobúin 2001, 60), and so it appears that Boycott was far more concerned with agricultural improvement than religious conversion, particularly since he was a close friend of Murray McGregor Blacker and so must have been aware of the writings of Blacker's uncle, William Blacker, on agricultural matters.

The ruins of Boycott's House, as it is still known today, overlook Keem Bay from a sheltered, levelled site with extensive sea and mountain views and while Keem is now easily accessible via a modern roadway, it was, in the nineteenth century, accessible only by sea or via a rough track over the high ground above the cliffs. The house stands as a roofless, single-storey stone-built house of L-shaped plan. The short section of the 'L' was originally longer, however, as the walls of this part of the building terminate abruptly and were clearly built against a pre-existing element. In this way, it is clear that the missing component of the structure represents the earliest phase of construction and the building was subsequently extended in two further phases; a second phase involving the construction of the short section of the 'L' on the same alignment and a third phase comprising the longer part of the 'L' set at right angles to the two earlier phases (Plate 1). The site of the first phase building was, at the commencement of the research project, a grass-covered mound which clearly contained a considerable amount of stone, but local folklore suggested that Boycott lived in an 'iron house' when he first came to Achill.

Plate 1: Boycott's House after excavation with the foundations of the Phase 1 structure in the foreground and the Phase 2 and 3 structures behind.

The excavation (Figure 1) of the site of the Phase 1 structure exposed a low, rectangular wall which surrounded a hollow internal area and this feature, essentially a stone plinth, was 76 cm wide and appears to have acted as a foundation for a timber-framed structure which once rested upon it. The plinth measured 9.06 m long by 5.24 m across and was up to 47 cm high and the internal area was originally spanned by two large joists which were set into the longer walls of the plinth and which carried the timber floor of the building, though these were later replaced by a series of internal sub-walls. The superstructure of the building was clearly timber-framed, as the remains of charred horizontal beams lie *in situ* on the plinth in places, and two sockets in the plinth, which still hold the remains of upright corner posts, were also noted. From this evidence, we can conclude that the plinth extended outwards from under the superstructure on at least three sides and the superstructure, which was therefore smaller than the plinth, appears to have measured 8.65 m long by 4.62 m wide. The building was clad externally with corrugated iron and some of this material, sealed in a thick deposit of heavy tar, remains *in situ* on the upper surface of the northern plinth. Further evidence for the use of corrugated iron in the structure may be found on the eastern ends of the walls of the Phase 2 structure, since the mortar on the ends of these walls retains the imprint of the corrugated iron and thus corroborates the suggestion that these walls were built against a pre-existing, iron-clad structure.

Figure 1: Plan of Phase 1 of Boycott's House after excavation showing foundation plinth, internal sub-walls and charred timbers (grey).



The excavation, undertaken by the Achill Archaeological Field School in 2012, produced clear evidence to support the local folk memory that Boycott's House burnt down at some time in the 1860s and this event, a personal disaster for Boycott and his wife, ensured that a broad range of material culture would remain on the site, albeit much of it damaged by the fire. The excavation produced 1,034 sherds of pottery and 1,655 fragments of glass which included 114 fragments of glass vessels, 401 sherds of window glass and 1,140 other glass fragments of uncertain origin, most of which had been melted by the heat of the fire. The artefactual material also includes over 600 metal items, most of which are corroded iron nails, but this assemblage also includes a thimble, a safety pin and a series of buttons, one of which is decorated with a crown and the number '39', suggesting it is a regimental button from Boycott's army tunic. Five pieces of amethyst found along the southern wall of the house suggest that a small collection of these stones had been gathered from the nearby amethyst quarry and placed together in a display near a window overlooking Keem Bay. While Charles and Annie Boycott had no children, five small porcelain limbs were found on the site and these, which appear to have belonged to children's dolls, lend support to the published account of the fire which suggests that a couple from Sussex, with their young daughter, were visiting the house at the time (Boycott 1997, 162–3). The Boycott's did not repair the house after the fire, but instead moved to Corrymore House overlooking Dooagh village for a few years (*ibid*., 163) and later left Achill and moved to Lough Mask House near Ballinrobe in 1872.

It seems likely that Boycott built the house at Keem which still carries his name, though we cannot be sure of this and it may have been built by William Blacker or Murray McGregor Blacker before Boycott arrived on the island. We can, however, suggest that it was Boycott who extended the 'iron house' twice between his arrival in 1854 and the destruction of the building in the 1860s. It is interesting to note that, while constructing the extensions in stone, he continued to utilise the original timber-framed, iron-clad structure as an integral part of his house until the entire building was destroyed by the fire and indeed it seems, if he did build the Phase 1 structure, that he fully intended from the outset to extend it in due course. In the 1850s, the manufacture of timber-framed, iron-clad houses in prefabricated form for export was growing rapidly in British industrial centres such as Manchester and Glasgow and while many of the kit houses were shipped to Australia to accommodate settlers seeking to establish farms in remote areas (Thomson 2011, 9–13), it is possible that Boycott brought such a kit house to Keem by sea. We cannot, from the excavated evidence, determine the internal spatial arrangements which existed in the Phase 1 structure, but clear evidence for a doorway in the centre of the north wall was found. Another doorway, which later provided access to

the Phase 2 extension, existed in the west gable and this seems to have been offset to one side to allow the gable's central framing post to run uninterrupted from the ground to the apex of the roof. The house also seems to have featured a stone-built chimney, probably set in the southern wall, but this collapsed during or after the fire and so its original form is difficult to establish. A wider landscape study of the Keem Bay area is on-going, in an effort to identify the surviving evidence for the pre-Famine settlement nearby and the changes made to the landscape by Boycott in his efforts to bring modern agricultural practice to this remote and rugged area.

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Saintfield 1798: an anatomy of disaster…

Gavin Hughes [1]

This brief article stems from wider research into the United Irishmen's 1798 military campaign and, in particular, expands upon a war grave investigation first presented at the Mass Graves conference at Brandenburg in 2011[2]. Since then, a number of interesting and possibly quite pertinent issues have arisen concerning the redevelopment and potential future recovery of a Revolutionary Wars era mass grave site at Saintfield in County Down.

The primary objective of the presented paper was to examine the ambush of the York Fencibles (and Newtownards Yeoman Infantry and Cavalry) at Saintfield and locate its archaeological presence within the landscape where possible. As space is limited here, however, the intention is to succinctly summarise the importance of the site and provide a basic assessment of the battlefield area as it can be traced today. Whilst the outcome of the engagement at Saintfield as a 'disaster' for Crown Forces may be debateable, it remains one of the few 1798 battles in Ulster which saw an apparently significant – although brief - United Irish victory. Indeed, the apparent military historical mechanics of the battle shed a far more interesting light on its events and archaeological methods can easily demonstrate the site's and campaign's rich potential for further research (Hughes forthcoming).

Battlefield Topography

Whilst the centre of Saintfield has changed considerably since 1798, there remains a discernable continuity in the landscape. Although it may not be as easily recognisable today, we can still just make out where the main thrusts of the fighting took place. The parish churches within the town, all built within a twenty year period from 1776–1796, are little altered, as is the street plan and, indeed, the graveyard area of Saintfield First Presbyterian. Pivotal in the mapping of the battle's landscape is Reverend Birch's First Presbyterian which, at the time, was at the town's limit at Comber Street. In 1798, fields ran down from its graveyard to the small stream at its foot, crossed by the bridge which led to both the Comber Road and the Squire Price's demesne. The gate lodge and demesne of this large estate is still

[1] Centre for Medieval and Renaissance Studies, Trinity College Dublin.

[2] 'Mass Burial and the 1798 United Irishmen's Rebellion: history, folk memory and archaeology' [Proceedings forthcoming 2013] with my colleague, Mr. Jonathan Trigg (Centre for Battlefield Archaeology, Glasgow University) at the 'Battlefields and Mass Graves – a range of interdisciplinary analyses of sites of conflict' conference at Brandenburg State Archaeological Museum, 21st–24th November 2011, Brandenburg an der Havel.

a visible feature in the military landscape of the area. Although the road where the Government troops were ambushed can still be followed on the ground, the hedgerow field boundary on the Saintfield side, where the insurgent pike attempted to surge up towards the Crown canon, is mostly under modern development. The stream which saw much of the fighting still exists but has been much developed and landscaped in recent decades. According to tradition, the lower site of the battle (where the United Irish pike were most probably positioned) is at Doran's Wood. Its remnants still extend along the stream by the Belfast road and Saintfield High School. Equally, outside Saintfield, we can locate Oughly Hill (where the rebels positioned their camp) and John Shepherd's farm, where Colonel Stapylton of the York Fencibles halted on his approach to the town and where, following the battle, several wounded soldiers were apparently left to recover. As is usual with similar sites, the area where fighting occurred at Saintfield was cleared of debris and dead by the locals over the course of the following days. Anecdotal evidence, however, suggests that many items from the battle have been recovered, especially in a patch of boggy ground along the Comber Road (Robb 1971). This significant area lies at the bottom of Saintfield First Presbyterian cemetery and, until recently, remained relatively untouched.

Burials, memorials and the site today

According to contemporary sources, Government losses were surprisingly well-documented and Ensign Sparks' account (combined with the Muster Roll for the survivors) appears to provide reliable figures. This indicated that 43 York Fencibles, 9 Newtownards Cavalry and 4 Newtownards Yeoman Infantry were killed during the engagement (Sparks 1798), a figure which is almost the same as a contemporary United Irish source (Patton 1798). It seems likely that Crown dead were stripped of useful equipment and arms before they were collected together and buried near to the First Presbyterian Church. In local folklore, this burial site was commonly referred to as 'York Island'. One anonymous source related that upon arriving into the town on the morning of 'Pike Sunday', as it came to be known, the 'country people' (the rebels) had already been interred. As he entered Saintfield, the witness saw the soldiers being buried but, watching the '…number of my fellow men thrown on a car like dead dogs and cast carelessly into a large pit, filled my mind with gloomy reflection' (McComb 1861, 128). Sandy Brown of Greyabbey confirmed this practice, adding that the United Irishmen were buried in 'Saintfield Meeting House Green' whilst they '…put some of the Yorks down where they fell in the island in the mill dam' (Robb 1971).

The bodies of the three Fencible officers killed, Captain William Chetwynd, Lieut. William Hawe Unite and Ensign James Sparks, were presumably dumped together with their comrades in this pit[3]. Consequently, it is interesting to note the subsequent individual burials of notable United Irishmen in Saintfield First Presbyterian Churchyard. At the bottom of the graveyard are two headstones associated with United Irishmen killed during the battle on the 9th June 1798. These sandstone gravestones are to John Lowry of Killinchy and James McEwen of Ballymacreeny. In 1996 they were screened by a row of pine trees (O'Duifin 1998) which have very recently been removed in modern renovations. However, the actual grave sites have apparently not been repositioned or tampered with and a 'park' area is now landscaped around them. Information boards are present on the site, effectively turning it into a 'remembrance garden' (Rev. J. Hyndman[4] pers. comm.). Equally, there is at least one other United Irishman's grave within First Presbyterian's cemetery; John Skelly of Creevy was executed at Downpatrick Gaol on the 21st July for having 'a command in the Rebel Army' (Belfast News Letter, July 27th 1798[5]).

Near the suspected mass grave site, a small memorial plaque was erected in the mid-twentieth century. This simply states that the area behind it was where the dead from the battle, both rebel and Government, were buried. The plaque was a well-known feature of the graveyard - which makes the next part of the archaeological story of Saintfield even more perplexing. This important area now appears to be under houses and the new church riverbank walkway. The stream which saw much of the fighting still exists but has been heavily developed and landscaped. Due to the nature of the ground, any interference in this water-logged area could produce fascinating archaeology. However, from 2010 onwards, significant renovation work to the graveyard site continued on - or at least very near to - the area which, according to local tradition and documentary sources, is tantalizingly close to, if not actually upon, the site of the burial of Government troops. It appears that those concerned with the renovation and development work were satisfied that the burial site would be unaffected. There were however, unofficial and unconfirmed reports of some form of skeletal material being recovered during this work.

Since then, the lack of an appropriate archaeological investigation on the site has been noted. The DOENI were only asked to inspect the drainage work on the site once it was already

[3] A contemporary plaque dedicated to their memory is within St. Mary's Parish Church, Comber.
[4] Minister of Saintfield First Presbyterian Church [pers. comm. 01/03/2010].
[5] Accessed in the Linenhall Library, Belfast.

underway (L. McQuillan[6] pers. comm.). As part of this later inspection, part of a femur was found adjacent to a newly completed manhole excavation, thought to be on top of the 'York Island' site. It could not be confirmed whether this skeletal material came from 'York Island' or from a 'tidying up' area at the foot of the graveyard (*ibid*.). Obviously, if human remains were extant somewhere within the precincts of the development area, the opportunity to learn - and perhaps establish a more coherent understanding of the battle - may have been lost.

Conclusions

The Historic Monument Unit still considers Saintfield to be an important site in their care and regret that, due to lack of apparent notification, proper archaeological testing was not undertaken. However, it is also possible that significant archaeological material could still survive. It may seem remarkable, but evidence from 'York Island' may still lie relatively undisturbed underneath the redevelopment, modern debris and building work. In conclusion, perhaps the archaeology of Saintfield's mass grave is an urgent lesson in the need to be vigilant to our threatened historical landscapes. 'York Island' may not be archaeologically 'lost' to us yet - or it may have already been destroyed many times over; but there is still a hope that part of it remains undisturbed for future archaeologists and historians to examine. If anything, Saintfield reinforces the huge battlefield resource potential in both Northern Ireland and the Republic of Ireland. Yet, it also challenges our perception of what constitutes an endangered archaeological landscape and the danger of letting such a valuable and unique resource disappear forever.

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Change and adaption in the Barnesmore Gap, Co. Donegal

Shane Delaney [1]

The excavation at Croaghonagh, Lough Mourne, was carried out by Irish Archaeological Consultancy Ltd. (IAC) for URS on behalf of Donegal County Council in advance of construction works associated with the expansion of the Lough Mourne and Letterkenny Water Supply Scheme. The remains of a suspected megalithic tomb[2] were the focus of the investigation and were located within the footprint of the proposed northern dam, and partly within the area that would be flooded by the raised water level. The excavation was the final phase of investigation and recording and followed a process of desktop study, geophysical prospection and test excavations. The site was located in the townland of Croaghonagh[3] at 165.5 m Ordnance Datum (OD). The excavation was undertaken between 8th August and 20th October 2011.

Lough Mourne is located in the Donegal Highlands. To the north-east of the lough the land falls down to the Finn River Valley and Ballybofey town. The lough is situated in mountainous terrain and is fed by the Mourne Beg River and several streams. The area surrounding the lough is covered in blanket bog with extensive areas of conifer plantation. The lough is surrounded by hills including Croaghnageer (571 m OD), Croaghnagawna (326 m OD), Barnesmore/Croaghonagh (451 m/433 m OD) to the south-west and Croaghbrack (401 m OD) to the west. The terrain to the north and north-west is less dramatically mountainous, with Croaghanierin (274 m OD) situated to the north-west. To the north-east, the terrain becomes more low-lying and increasingly agricultural while to the south it rises towards an extensive conifer plantation at Killeter Forest.

The site was located at the north-eastern end of the lake and was situated approximately 40 m from the present shore. Its position allowed a clear view south-west across the lake and towards the Barnesmore Gap (Plate 1). The site was situated on a natural raised area with the ground sloping down from it on all sides and would originally have appeared more elevated and visible prior to the growth of the surrounding peat. The valley through the Barnesmore Gap has been an important strategic route throughout history for crossing the Blue Stack

[1] Irish Archaeological Consultancy Ltd.
[2] RMP DG086-002/01.
[3] NGR 20780/39021.

Mountains, a natural boundary between Connaught and Ulster (Lacy 1983, 5). The path of the current N15 follows this route.

Plate 1: Lough Mourne looking west to the Barnesmore Gap (AirShots).

Excavation revealed the footprint of a cairn with two internal cists/chambers and evidence for pre-cairn activity in the form of hearths and areas of burning (Plate 2). Dates of 3783–3659 cal. BC[4] (UBA-19994; 4951+/-28 BP) and 3703–3536 cal. BC (UBA-19993; 4852+/-32 BP) were returned from hazel (*Corylus avellana*) charcoal for two of these areas of burning. The Croaghonagh cairn may have been placed on an already important or significant location to increase the potency of the monument or location. The cairn was comprised of a deposit of mixed size stone and the cairn appeared to have three main construction elements including:

- the establishment of a level foundation deposit and construction of the two primary cist/chamber features,
- the construction of an enclosing bank demarcating the edges of the cairn and
- the deliberate deposition of smaller stones within the bank and in time over that bank.

Plate 2: Croaghonagh Cairn and Wedge Tomb looking east (AirShots).

Birch (*Betula* spp) charcoal from the base of one of the cist/chambers produced a date of 3695–3535 cal. BC (UBA-19992; 4844+/-28 BP). A small assemblage of lithic artefacts was retrieved from the cairn, which included hollow scrapers, plano-convex forms, blades, retouched flakes and blades and a quartz blade and flakes which are all Neolithic in type. No pottery, animal or human bones were identified at the site.

Plate 3: Cobbled cist or chamber looking north-west.

A previously unknown wedge tomb was identified immediately south-west of the cairn. There are approximately 500 known wedge tombs on the Island of Ireland (Waddell 2000, 92). Twenty-two are listed in the megalithic survey for Donegal (Cody 2002, 230).

Plate 4: Croaghonagh Wedge Tomb (AirShots).

An amorphous spread of clay and sand surrounded and was sealed by the tomb and may represent a trampled sod layer disturbed during the construction of the tomb. It produced five flint artefacts including an elongated *petit tranchet* derivative dating to the Neolithic period (Driscoll 2012).

The tomb was constructed on a deliberately cut and levelled terrace to the south-west of the cairn. This cut missed the edge of the cairn and there was no evidence for it cutting the cairn material. The inner upright stones or orthostats of the gallery or central passage were not placed in sockets but rather placed on the prepared terrace and held in place by a foundation deposit. The gallery was formed using large orthostats on both sides, with one large back stone, and measured approximately 5.20m long and 2m wide at the entrance but narrowed to 1m at the rear, forming the characteristic wedge-shaped gallery. The entrance was framed by two large triangular-shaped stones which would have originally covered the entire façade flanking both sides of the entrance. Both were slumped forward and the northern one had split. A thin layer of fine white sand collected from the nearby lake shore formed the gallery floor surface. Oak (*Quercus* spp) charcoal from this deposit returned a date of 2458–2205 cal. BC (UBA-19996; 3848+/-30 BP) placing the floor surface in the Chalcolithic period, however taking into consideration the old wood effect the date cannot be definitive.

The Croaghonagh tomb would have been D-shaped in plan like the examples at Boviel in Co. Derry and Island in Co. Cork (Shee Twohig 1990, 55), which all had a straight façade of stones running form the front of the tomb to the outer end of the sides. Most wedge tombs have an identifiable portico formed where a septal stone separates the western end of the gallery from the rest of the gallery (*ibid.*). There was no septal stone or portico in the Croaghonagh tomb. The Croaghonagh tomb faced west-south-west. Typically the tomb produced few lithic finds and no burnt bone, pottery or artefacts.

Alder (*Alnus glutinosa*) charcoal from a small hearth or fire to the south-east of the area investigated produced a date of 1726–1523 cal. BC (UBA-19990; 3332+/-32 BP). Another spread of burnt material that sealed a pit was identified immediately to the south-east of the cairn and associated alder charcoal was dated to 1436–1309 cal. BC (UBA-19991; 3107+/-28 BP). A small flint and quartz lithic assemblage of flint cores, debitage and flakes, and quartz and flint scrapers suggest it may have been a knapping area.

A burnt mound or *fulacht fiadh* with two troughs and a crescent-shaped mound of heat-affected stone was excavated to the north of the tomb. Alder wood from the timber-lined

trough was dated to 1109–897 cal. BC (UBA-19997; 2820+/-32 BP) placing it in the Late Bronze Age. Oak, alder, hazel and *Pomoideae* were identified from the charcoal assemblage (OCarroll 2012a). The trough was primarily constructed of alder and woodworking facets indicate a narrow bladed metal axe was used (O Carroll 2012b).

Plate 5: Excavating the *fulacht fiadh* looking south-west.

Palaeoenvironmental research was carried out on a peat core from the site (Stefanini 2012). Analysis of pollen and microfossils from the core showed evidence for wood fires throughout the prehistoric period indicating a long duration of human activity at the site. *Coprophilous* fungal spores were identified indicating local grazing as they don't disperse well and a lack of plantain pollen was noted suggesting a herding system rather than formal fields somewhere under the unexcavated peat, as plantain is characteristic to trampled areas like fields or paths. Heather pollen indicated blanket bog initiation at around the same time as elsewhere in Ireland in the Early Bronze Age.

The excavation of the prehistoric complex at Croaghonagh has illustrated activity over millennia at one location overlooking Lough Mourne. It is a formidable and exposed highland location on a natural routeway to the west (or east). The site may represent the marking of a special or ceremonial place along the route or at least in the Bronze Age possibly the outlying

boundary of an upland community. This upland region was likely to have been crisscrossed with route ways which would have been identified with landmarks such as cairns, standing stones and probably megalithic tombs. On the upland zone that the Croaghonagh complex is situated there are numerous markers of unknown date within the area. A wedge tomb has recently been identified 2 km to the north in Meencargagh townland which is likely to be related to the community that built the Croaghonagh tomb. A portal tomb is located 1.75 km to the south-east in Carrickmagrath townland. A number of standing stones are located within 3 km of Croaghonagh at Dooish, Goland, Meenbog, and Kinletter. Standing stones have also been recorded in the upland area and on the western approach to the Barnesmore Gap at Clogher, Ardeevin, Tawnawolly and Barnesyneilly. A possible but unidentified megalithic structure has been recorded at Tawnawully Mountains townland in the Barnesmore gap, approximately 6 km to the west. Wedge tombs are located at Ballybobaneen 8 km to the south and to the east at Lurganboy, Windy Hill, Evish and Glasmullagh in Tyrone, where the distribution increases across the lowlands and to the east of that county. It is likely that there are many more as yet unidentified monuments within the surrounding area buried beneath the blanket bog and obscured by the adjacent conifer plantations.

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'Keep going, sure it's grand': understanding the Irish Late Neolithic-Early Bronze Age

Neil Carlin[1]

The introduction of the suite of novel material culture and foreign practices including the first metals, Beaker pottery, stone wristguards, arrowheads, and v-perforated buttons (known collectively as the Beaker phenomenon) from Europe to Ireland at the beginning of the Bronze Age (2450–2050 BC) is often depicted as a time of great social change (e.g. Cooney and Grogan 1999, 83–93; Waddell 1998, 121; O'Kelly 1989, 71–72).

Traditional characterisations of the Beaker phenomenon in Ireland have regarded the Irish manifestation of this as being radically different from elsewhere in Europe, where Beaker vessels are typically found as part of funerary assemblages (e.g. Clarke 1976, 472–3; Burgess 1979, 213; Vander Linden 2006; Needham 2007, 44). Ireland is generally depicted as being rich in Beaker-associated settlement evidence with a minor funerary component consisting primarily of collective burials in primary and secondary contexts in megalithic tombs. Most notably, the classic Beaker burial seems to be totally absent and crouched inhumations only appear in graves with Food Vessels and a range of other objects after 2200 BC (see Case 1995, 19; 2004; Needham 1996, 128; Cooney and Grogan 1999, 87). However, it is increasingly recognised that while widely shared aspects of the Beaker phenomenon occur across Europe, these have a distinctive manifestation in each region (Barrett 1994; Vander Linden 2006; 2007).

The author's doctoral thesis synthesised the large body of data from new and old discoveries of Beaker artefacts in Ireland to produce the first in-depth regional study of the character and context of Beaker-associated social practices on this island (Carlin 2011). This showed that the long-standing view of the Beaker phenomenon in Ireland does not match the complexity of the Irish material and that there is more evidence for Beaker-associated funerary practices than previously recognised.

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Figure 1: The distribution of Beaker pottery in Ireland.

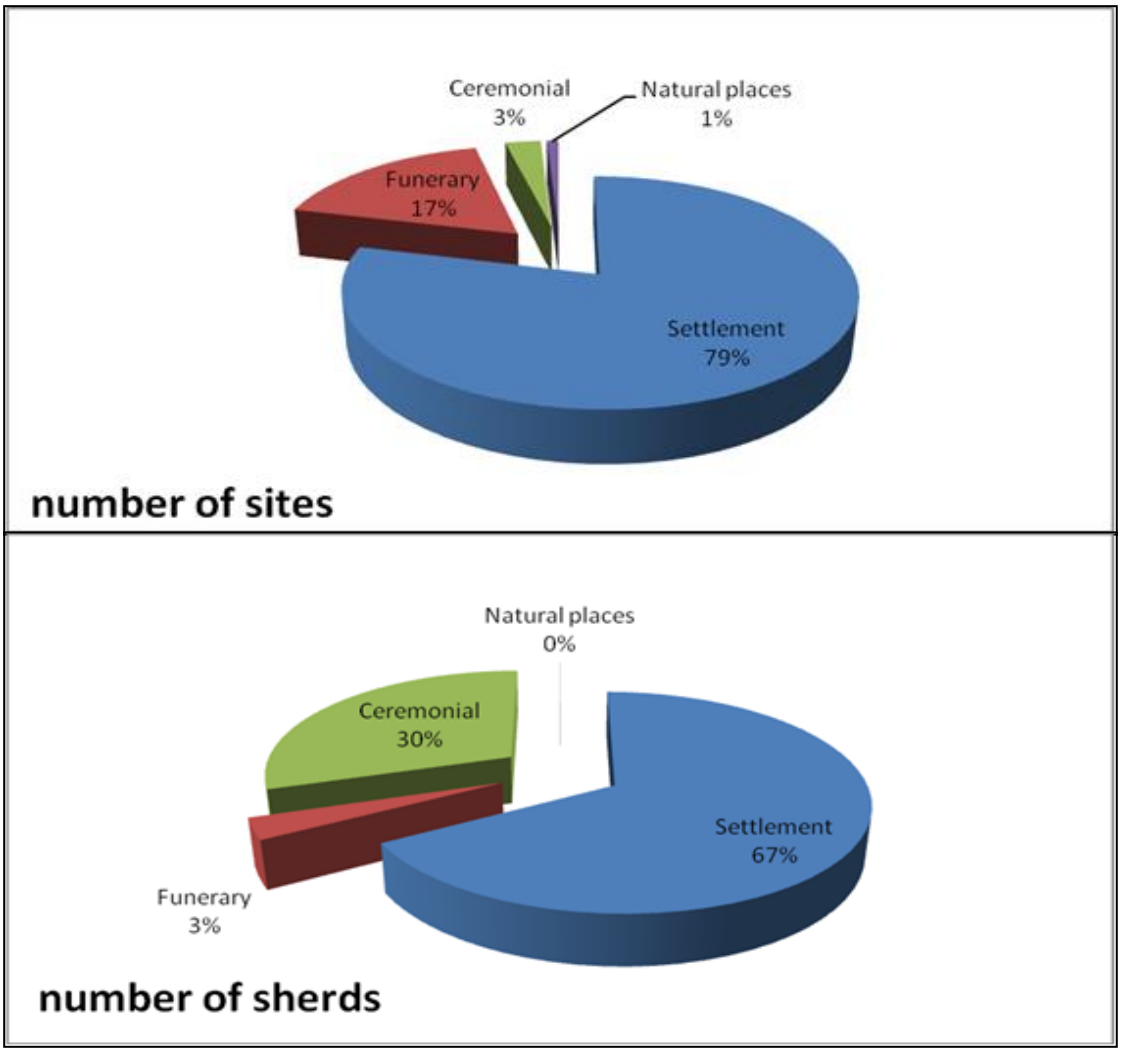
This paper briefly summarises some of the findings of that research on Beaker-associated depositional practices and highlights how this raised significant questions about Late Neolithic Ireland that are now being tackled by the author in a new project examining the depositional context of Grooved Ware and associated objects. Unfortunately, it will not be possible to discuss this in detail due to the short nature of this piece.

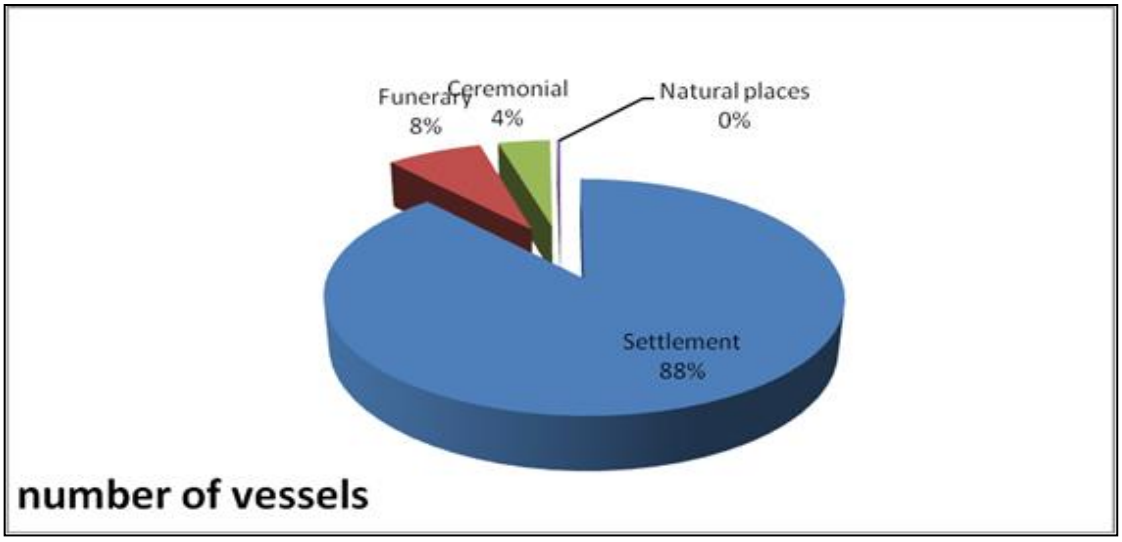
Unlike other European Beaker studies which are almost exclusively based upon findings from the funerary domain, the author's research examined the depositional treatment of Beaker-associated artefacts within a much wider range of contexts including settlements, funerary

monuments, ceremonial settings and natural places. This analysed the places in which these artefacts are present and absent, as well as the objects that they are found with and without. By examining the patterning in these choices, it was revealed that the deposition of Beaker objects formed part of a highly structured interlinked system of social practices that were conducted in accordance with long standing traditions.

Increased excavation over the last 15 years has led to the discovery of Beaker pottery in many more parts of the island than previously known, though the Midlands remain a notable exception to this and seem to have been sparsely populated at this time (Figure 1). This pottery has predominantly been found in so-called settlement contexts (79% of 219 sites), less so in funerary settings but never in natural places (Figure 2). While this ceramic was widely used as an everyday pottery throughout Ireland, there are few if any recognisable 'domestic' buildings associated with Beaker pottery. In general, houses from the mid-third millennium do not appear to have been substantial or to have left a lasting trace, and a distinct architectural form cannot be identified (Carlin 2011).

Figure 2: The proportion of sites of different categories to produce Beaker pottery, as well as the proportion of Beaker sherds and vessels found in each category.





The overwhelming majority of Beaker pottery in Ireland has been recovered from pits (100 of the 219) or spreads (14% of 219), containing occupational debris (Figure 3). These pits vary from those with a single sherd to examples containing more 'formalised' or special deposits, including very large amounts of pottery as well as other deliberately selected or arranged artefacts (Table 1). In many cases, these pits were specially created to receive deposits and were filled in very soon after being dug. However, the often very partial and fragmentary nature of the pottery within these pits indicates that a significant time-lapse occurred between the original breakage of these vessels and their final deposition. The condition of the pottery also suggests that these had been temporarily stored in larger repositories, most likely the spreads or middens identified in the study.

Figure 3: The proportion of Beaker vessels to have been deposited within a range of specific features.

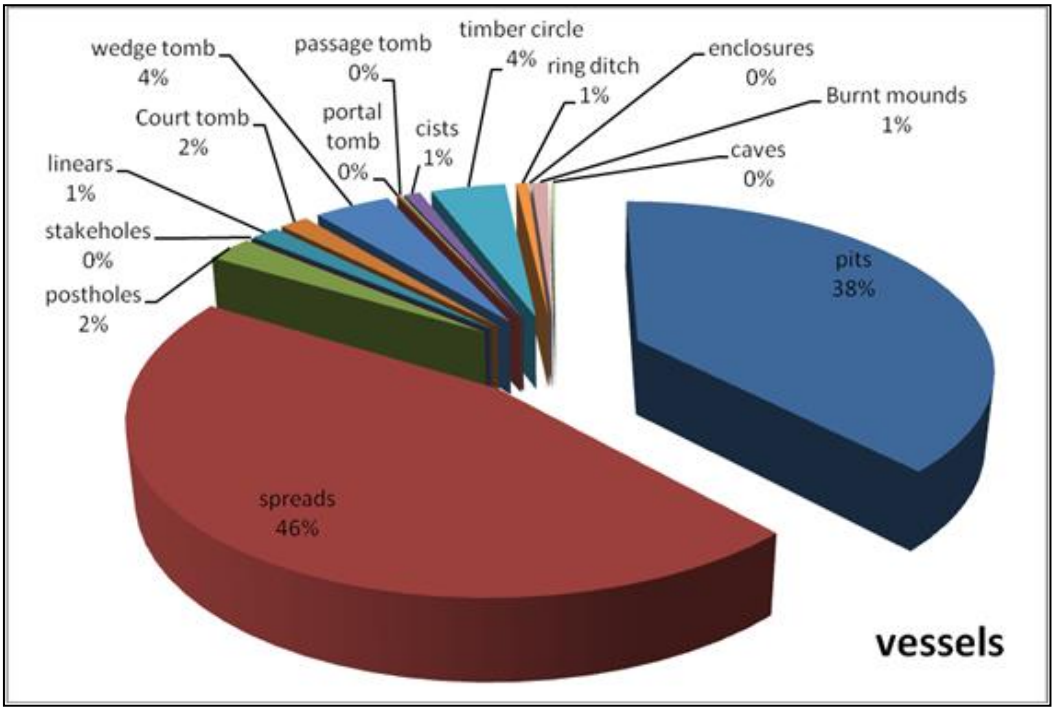


Table 1: The numbers of artefacts found in Beaker pits.

ARTEFACT TYPE	Arefact Total	Pit Total
Convex scrapers	80	21
Barbed and tanged arrowheads	7	6
Polypod bowls	3	3
Disc beads	23	1
Quern stones	2	2
Hammer stones	9	7
Polished stone axes	6	6

It is often difficult to demonstrate that the artefactual material within these contexts represents on-site debris generated directly from settlement in these places because many of the deposits seem to have been the product of ideologically significant activity that deliberately emphasised 'domestic' aspects of life. Very similar deposits of Beaker-associated occupational debris have also been found in megaliths such as court tombs, portal tombs and wedge tombs and also within Late Neolithic timber circles. It is therefore difficult to distinguish a purely 'domestic' or 'ritual' component to Beaker pit deposition. This raises the question of whether such categories would have been meaningful to the people who performed these actions (see Brück 1999). It seems that these depositional activities were conducted as part of a spectrum of practices occurring across a range of different contexts.

In contrast to other parts of Europe, where many classic Beaker objects such as daggers and bracers are often found accompanying burials with Beaker pottery, in Ireland such artefacts predominantly occur as single finds or in one-type hoards within natural places, particularly bogs, and to a much lesser extent in secondary contexts in Middle Neolithic passage tombs (Figures 4 and 5; Table 2). Clearly, there were characteristic ways of treating particular artefacts in Ireland which were selective, type-specific, contextually-specific and place-specific (see Carlin 2011). This resulted in many objects being kept apart from each other, particularly from Beaker pottery (Figure 6). This is a direct reflection of the manner in which people on this island adopted and adapted these cultural innovations (see Needham 2007).

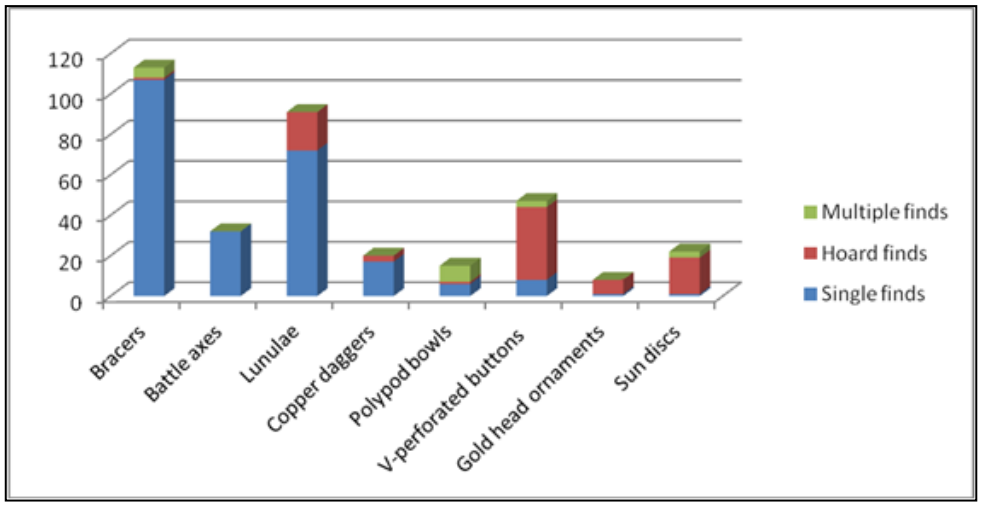


Figure 4: The numbers of various Beaker objects occurring as single finds, multiple finds or in hoards.

The distinctive ways these new ideas and objects were incorporated into pre-existing social practices on this island strongly suggests that they were adopted/adapted as part of a long sequence of on-going alterations in strategies of identity formation which fulfilled the distinctive needs of local communities (Carlin and Brück 2012; Carlin 2011). Indeed, the context for the advent of Beakers and early metallurgy in Ireland lies in the new developments in inter-regional contacts and major social transformations that occurred in the first half of the third millennium BC, when people adopted a new flat-bottomed pottery type known as Grooved Ware, which was first made on the Orkney Islands *c.* 3100 BC (e.g. Schulting *et al*. 2010). This spread across Britain and Ireland alongside a complex of novel material culture and social practices including quarried flint, steeply retouched end-of-blade-scrapers and petit-tranchet-derivative arrowheads, as well as distinctive architectural elements and monuments, typified by timber circles.

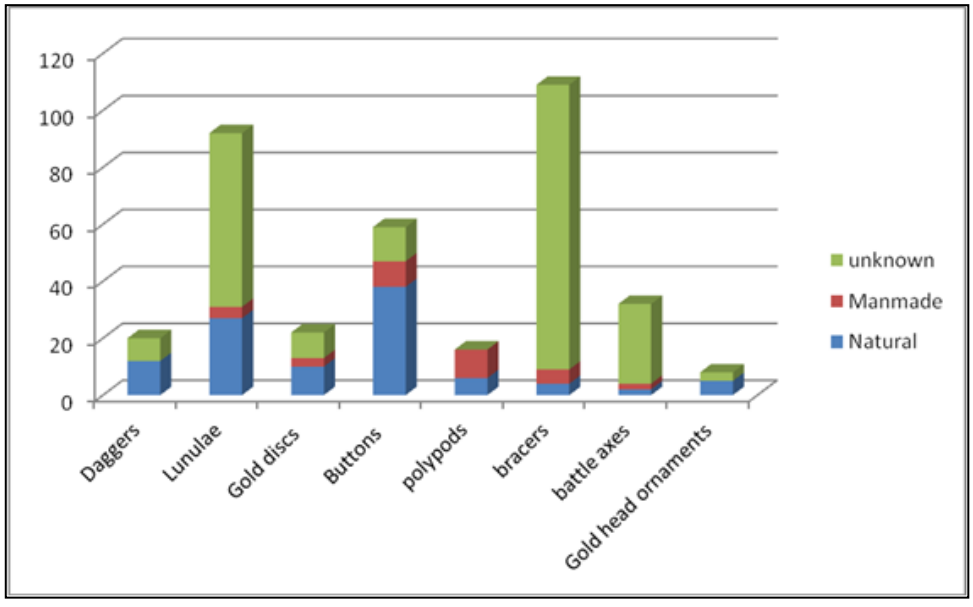


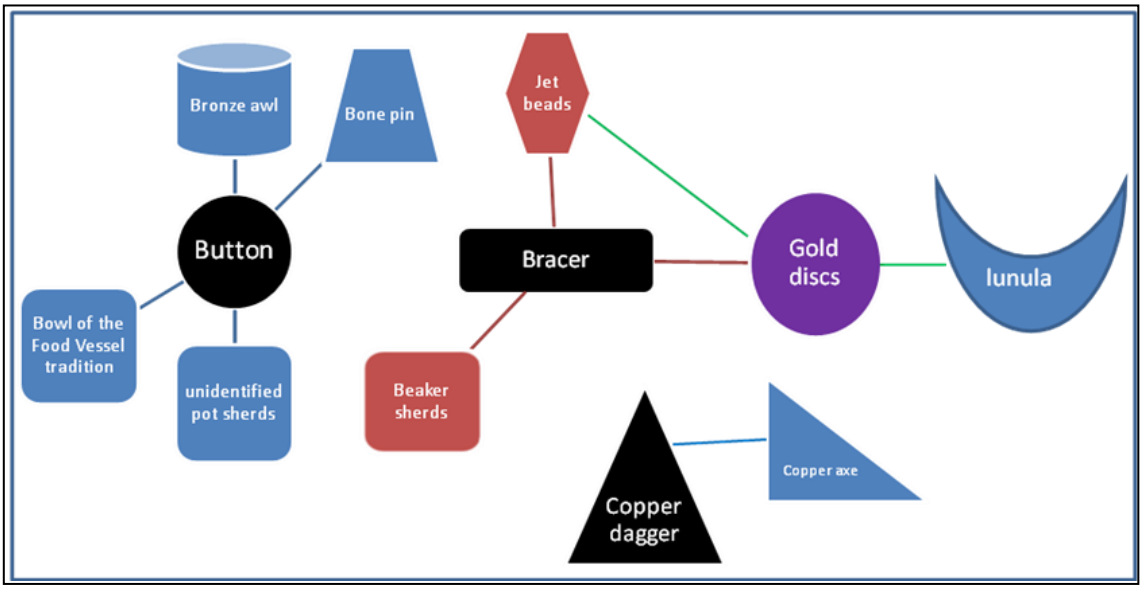
Figure 5: The frequency of occurrence of various objects within natural compared to manmade contexts including the unknowns.

Table 2: The quantity of different types of objects from various 'natural' contexts.

	Beaker vessels	Wooden polypod bowls	Wrist bracers	V-perforated buttons	Arrowheads	Copper daggers	Gold discs	Gold head Ornaments.	Lunulae
Bogs	0	6	4	25	yes	6	4	0	14
Rivers	0	0	0	0	0	4	0	5	0
Dryland	0	0	0	13	0	2	6	0	11
Lakes	0	0	0	0	0	0	0	0	1
Caves	4	0	0	0	0	0	0	0	0

Just like Beaker pottery, Grooved Ware is also predominantly found in pits and spreads and it is equally difficult to distinguish a purely domestic or ritual component to these deposits. Evidence for houses is just as hard to identify, but this is complicated by the presence of timber circles. These buildings also received deposits of occupational-waste and appear to represent monumentalised representations of people's homes (Bradley 2005, 53–6; Thomas 2007).

Figure 6: The associations between different Beaker objects. Coloured lines leading out from object indicates an association, e.g. a bracer was found with Beaker sherds and another bracer was found with jet beads and gold discs.



The similarities in the depositional treatment of both Grooved Ware and Beaker pottery, particularly common emphasis on celebrating and commemorating the domestic through the structured deposition of occupational debris, strongly suggests that the adoption of Beaker materials in Ireland was influenced by pre-existing traditions. Undoubtedly there is much more continuity between the so-called stone and metal ages than previously appreciated and we need to consider Beaker-associated activities as part of a longer-term historical trajectory. This requires an improvement in our knowledge of the Late Neolithic.

The existence of an Irish post-passage tomb Late Neolithic was only recently recognised, when Grooved Ware was more widely identified — at 13 different sites — in Ireland during the 1990s, predominantly from the Boyne Valley (Roche 1995; Eogan and Roche 1999; Brindley 1999). Since then, due to development-led archaeology, over 60 new sites including over 25 Late Neolithic wooden circular structures have been found, but it is clear from the literature that our knowledge of this period has not advanced to take account of these discoveries and so our understanding remains poor. Questions such as how, why and when the Grooved Ware complex came to Ireland remain unanswered.

The author has recently obtained funding from the Irish Research Council to conduct a new research project in the School of Archaeology at UCD entitled "Understanding the Irish Late Neolithic: Grooved Ware in Context". This study of the character and context of deposition in the Irish Late Neolithic examines the social role of Grooved Ware and associated objects to create a better understanding of how and why these were adopted, their key influence as drivers of change and the nature of contemporary international interaction. I would ask anybody who has excavated sites with Grooved Ware or dating from 3000–2500 BC to contact me at neil.carlin@ucd.ie. I would be delighted to receive site summaries or reports or to discuss new findings and am happy to provide information that may help in the contextualisation or interpretation of these discoveries.

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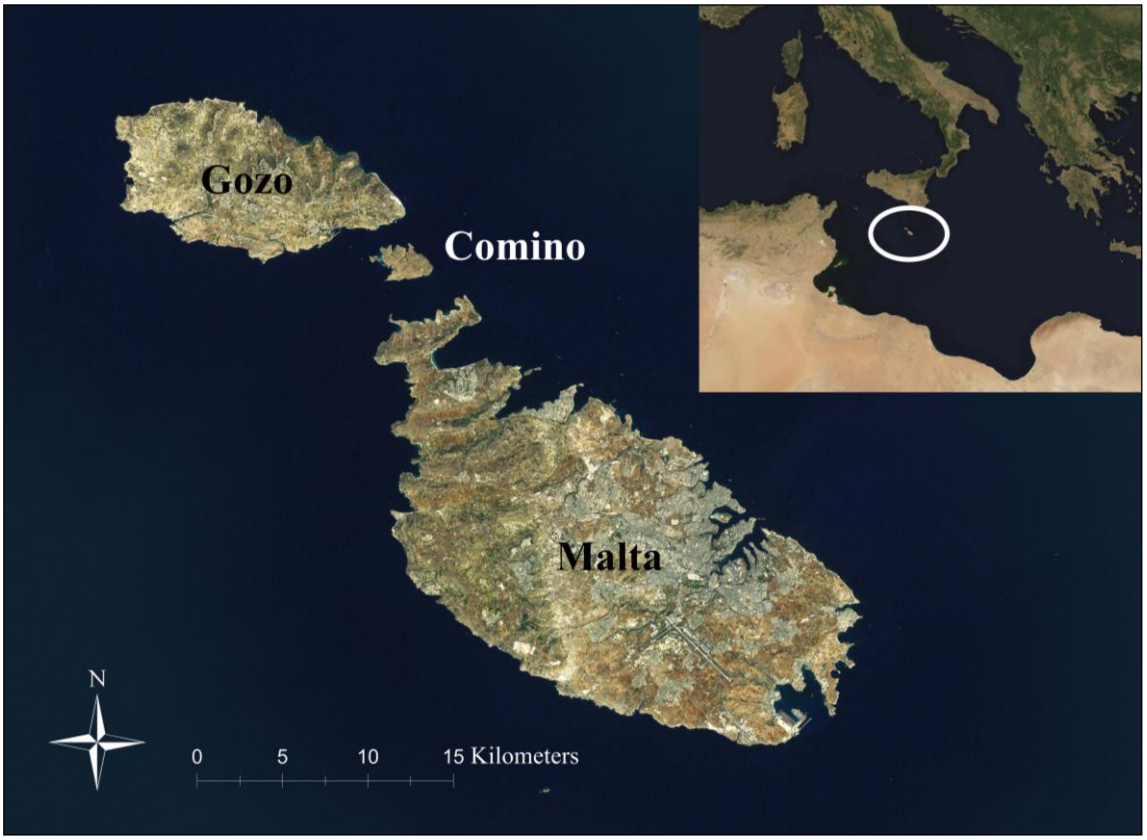
Beyond the Map: Exploring the Settlement Dynamics of Prehistoric Gozo through GIS Analysis

Sara Boyle [1]

Introduction

The Maltese Islands are a group of small, low-lying islands located in the central Mediterranean, some 96 km south of Sicily and 290 km north of Libya (Figure 1). Consisting of three inhabited islands, Malta (246.5 km²), Gozo (65.8 km²) and Comino (2.9 km²), they are amongst the most remote islands of the Mediterranean and have been seen as potentially unstable for long-term social development due to their small size, isolation and aridity. Yet, they are home to some of the oldest freestanding megalithic monuments in the world whose grandeur and complexity can be rivalled by few others. It may come as no surprise that most studies have focused upon these monuments, leaving the wider prehistoric landscape poorly understood and disconnected from the impressive archaeology of the major sites.

Figure 1: Location map of the Maltese Islands (© ESRI Basemaps).



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The author's current PhD research hopes to change this biased view of prehistory and reconnect with the domestic aspects of the islands' prehistoric cultures by exploring the nature of prehistoric settlement activity on Gozo. The use of Geographical Information Systems (GIS) technology has allowed the author to go beyond the conventional distribution map and investigate the spatial and temporal aspects of Gozo's prehistoric cultures in much greater depth than traditional approaches to landscape archaeology. This short paper presents some early interpretations of Neolithic, Temple Period and Bronze Age settlement activity on Gozo based on the spatial analysis of evidence derived from the Gozo Survey and other known prehistoric sites on the island. The short nature of this paper means that discussion is limited and the statistical analysis of emerging patterns will not be considered here.

Background: The Islands in Prehistory

Table 1: Early cultural sequence of the Maltese Islands (after Malone *et al*. 2009, 1).

Period	**Phases**	**Approximate Date**
Neolithic	Għar Dalam	*c*. 5000–4300 BC
	Grey Skorba	*c*. 4500–4400 BC
	Red Skorba	*c*. 4400–4100 BC
Early Temple Period	Żebbuġ	4100–3700 BC
	Mġarr	3800–3600 BC
Full Temple Period	Ġgantija	3600–3100 BC
	Tarxien	3100–2400 BC
Break in Dated Cultural Sequence		**2400–2000 BC**
Bronze Age	Tarxien Cemetery	2000–1500 BC
	Borġ in-Nadur	1500–700 BC

The prehistoric period is thought to begin around 5000 BC when the islands are first colonised, ending around 700 BC when the Phoenicians conquer the islands (Table 1). Of particular interest is the fall of the Temple Culture at *c*. 2400 BC when all traces of the highly complex Tarxien society disappear. The reasons for this collapse have been much debated (*e.g*. Clark 1998; Pace 2004; Stoddart 2007; Trump 2008; Carroll *et al*. 2012), and it is likely that an increasingly ordered and restrictive ritual environment, alongside a period of climatic downturn, were major contributing factors. What follows is a 400-year break in the dated cultural sequence of the islands when they are thought to have been abandoned. The first

evidence of human activity following this break occurs around 2000 BC and marks the beginning of the Maltese Bronze Age which was to last until 700 BC.

The Settlement Dynamics of Prehistoric Gozo: A GIS Approach

The Neolithic (c. 5000–4100 BC): New Beginnings

The distribution of Neolithic sites on Gozo (Figure 2a) indicates that the majority are found in hilltop regions where caves are common and a lesser number occur in more central, strategic locations in open areas and at lower elevations. This confirms the suggested model for Neolithic settlement activity on the islands which consists of the exploitation of natural caves and the establishment of open villages in strategic locations (Malone *et al.* 2009; Skeates 2010). Point pattern analysis techniques, such as nearest neighbour analysis and Ripley's K, can delve further into site distributions by looking for structure within them (Figure 3). Nearest neighbour analysis is a traditional technique which investigates how sites are distributed within the landscape. As Figure 3a shows, Neolithic sites are shown to be significantly clustered which may indicate a strategy of early establishment that comprised 'safety in numbers'. While useful, nearest neighbour analysis does not account for variations in patterning over different scales whereas Ripley's K, a multi-distance spatial cluster tool, does. Deviation of the observed line above the expected indicates that the data is clustered while the opposite indicates dispersion. As Figure 3b shows, Neolithic sites exhibit clustering at all distances, confirming the results of nearest neighbour analysis (Hodder and Orton 1976; Wheatley and Gillings 2002; Conolly and Lake 2006).

Figure 2: Selective GIS spatial analysis results for Neolithic domestic sites.

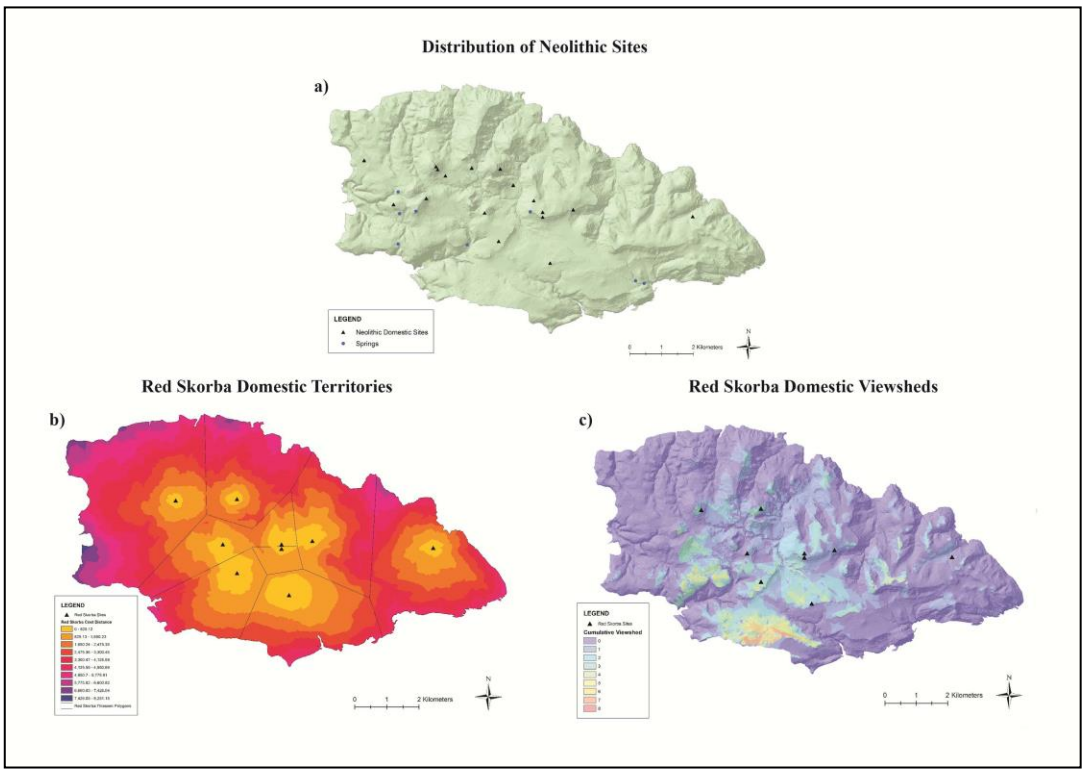


Figure 3: Point pattern analysis results for Neolithic, Temple Period and Bronze Age domestic sites.

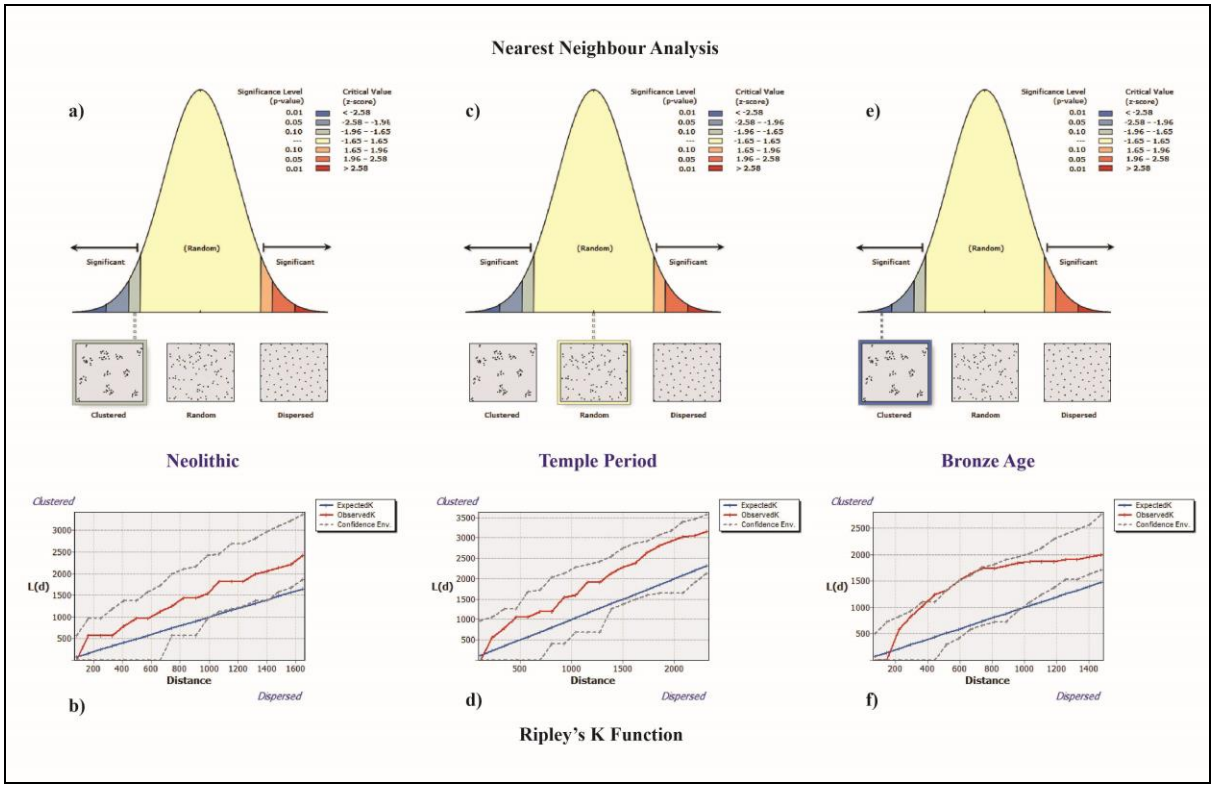


Table 2: Environmental contexts for domestic sites on Gozo.

Environmental Context	Dominant Attribute(s)		
	Neolithic	**Temple Period**	**Bronze Age**
Geology	Blue Clay	Blue Clay	Blue Clay
Modern Soil	Carbonate Raw Soil	Carbonate Raw Soil	Carbonate Raw Soil
Geology-Derived Soil	Terra Soil	Carbonate Raw Soil	Terra Soil
Elevation	400–500 feet	300–400 feet	400–500 feet
Aspect	East, West	West	East
Slope	Nearly Level	Sloping, Strongly Sloping	Very Gently Sloping
Plan Curvature	-2.99–0.00 z-units	0.01–3.00 z-units	-2.99–0.00 z-units

The environmental contexts of Neolithic sites can be used to further explore their distribution (Table 2). The majority of sites are found on nearly level slopes and at high elevations. Aspect is varied, although the negative plan curvature values indicate that shelter was important. While there is little relationship between sites and modern springs, the majority of sites are found within Blue Clay zones. This is significant since Blue Clay is a likely source of natural springs which could supply nearby areas with water. The islands' soil has undergone much disturbance over the millennia and it is important to consider the contexts of

modern and geology-derived soils, the latter thought to be more representative of prehistoric soil conditions. Modern soils indicate that sites are located on the poorest carbonate raw soils, while geology-derived soils suggest that they are on the more productive terra soils. This demonstrates that reliance on modern soils can significantly alter interpretations and should be viewed with caution.

Moving away from individual sites, GIS can be used to explore broader aspects of regionality. Thiessen polygons have traditionally been used to define site territories, with geometrical regions modelled by the intensity of interaction and intervening distance between sites. Critics of this approach (e.g. Conolly and Lake 2006) highlight that Thiessen polygons do not incorporate the varying topography of regions. A way of resolving this is to create cost distance models in GIS which calculate the effort to traverse different terrain, account for the cultural influences of ritual sites, and define territories at a variety of scales. Figure 2b shows thiessen polygon and cost-distance territories for Red Skorba phase sites. These methods do correspond with each other in a number of instances and it is useful to compare and contrast the results of both approaches. Another spatial tool, viewshed analysis, can be used to explore the phenomenological significance of space and place. This defines areas which can be seen from one or more observation points. The cumulative viewsheds of Red Skorba sites (Figure 2c) indicate that the central valley of Gozo, the main agricultural zone today, is a significant area with the most visible region towards the south coast. This may highlight the importance of agriculture on Gozo and the vital connection with the main island of Malta to the south (Wheatley and Gillings 2002; Conolly and Lake 2006).

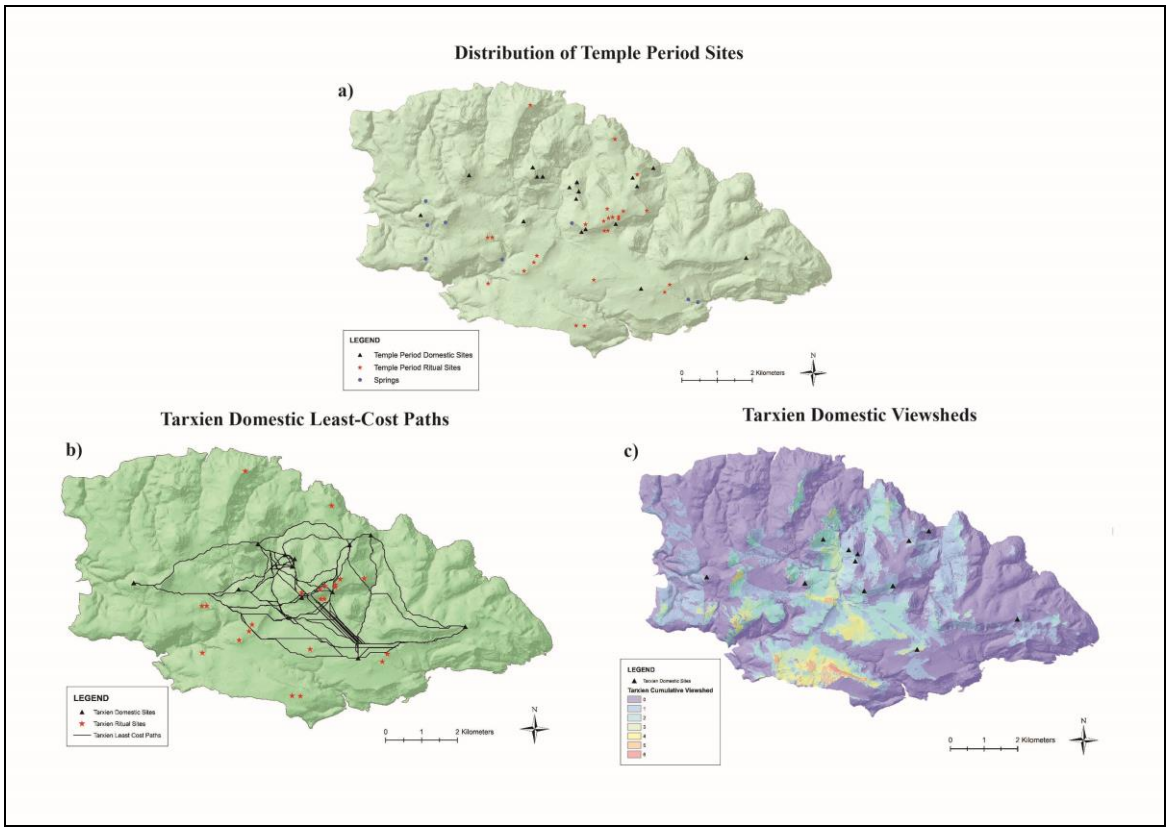
The Temple Period (4100–2400 BC): Cult and Catastrophe

During the Temple Period, the island landscape is thought to have been highly structured with distinct zones of domestic and ritual activity (Stoddart 2007; Malone *et al.* 2009). This division can clearly be seen in the distribution of Temple Period sites (Figure 4a). While nearest neighbour analysis concludes that the distribution of domestic sites is random (Figure 3c), Ripley's K indicates that they are clustered at greater distances (Figure 3d). The same analysis carried out on ritual sites also highlights discrete ritual clusters which enforce the idea of a highly structured landscape. As Table 2 shows, Temple Period sites are more often located within Blue Clay zones which may highlight the continued importance of water. There are now, however, a number of significant changes which may signal strain on Temple Period society. The majority of domestic sites are now located on poor carbonate raw soils,

sloping ground and in more exposed areas. This may suggest that productive, good quality land was now at a premium, to the detriment of more desirable domestic locations.

Such strain is also reflected in the least-cost paths of domestic sites which define the easiest route between a source and destination based upon a calculated cost surface. The Tarxien phase least-cost paths (Figure 4b) indicate that movement is focused within the main agricultural zone of Gozo and the Xagħra plateau, the ritual centre of Gozo. The focus on central Gozo and the main island of Malta is also highlighted by the cumulative viewsheds of Tarxien domestic sites (Figure 4c). This may signify the insular nature of the Temple Period and follows other evidence that the islands were culturally and physically isolated during this time (*e.g.* Bonanno *et al.* 1990; Stoddart 1999). This isolation, alongside great pressure on the islands' resources, driven by an increasingly ordered and restricted ritual environment, and exacerbated by a period of climatic downturn, is likely to have brought about the demise of the Temple Culture at around 2400 BC: from ritual boom to catastrophic bust.

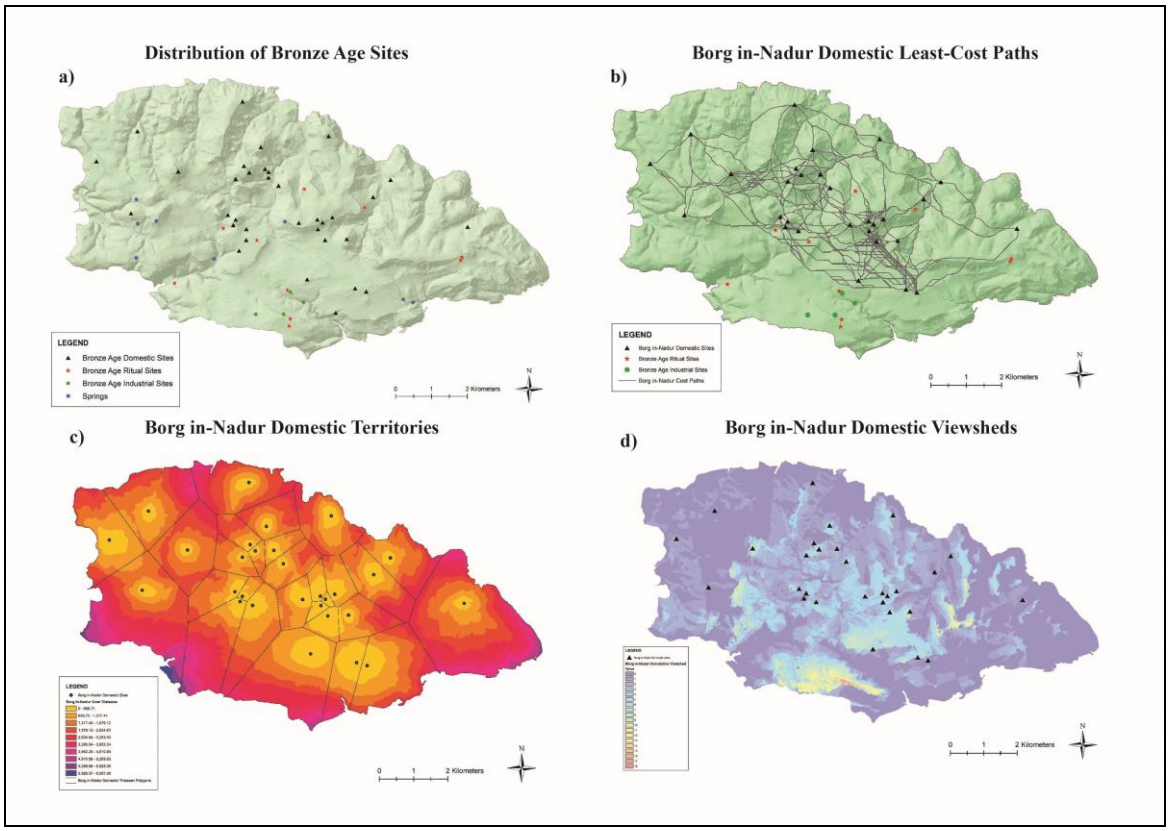
Figure 4: Selective GIS spatial analysis results for Temple Period domestic sites.



The Bronze Age (2000–700 BC): An Island Revisited

After a period of probable abandonment, the islands are thought to have been recolonised in the Bronze Age (Figure 5a). Both nearest neighbour analysis (Figure 3e) and Ripley's K (Figure 3f) indicate that Bronze Age domestic sites are significantly clustered. This is similar to the level of clustering exhibited during the Early Neolithic and may again suggest a strategy of early establishment with defence of paramount importance. Interestingly, the environmental contexts of Bronze Age sites (Table 2) also mirror those of the Neolithic, with the majority located on Blue Clay, in high elevations, with gentle slopes, easterly aspects and in sheltered areas. This gives strength to the theory that the islands were indeed abandoned after the collapse of the Temple Culture, and recolonised in the Bronze Age (Evans 1971; Trump 2010).

Figure 5: Selective GIS spatial analysis results for Bronze Age domestic sites.



During the later Bronze Age the archaeology becomes much more domestic in character when the first fortified townships appear on the islands. This defensive nature is evident when examining the least cost paths of Borġ in-Nadur phase domestic sites (Figure 5b) which show three core zones in central Gozo surrounded by a ring of satellite sites situated particularly close to the coast in the north, west and east of Gozo, areas most vulnerable to

attack. This pattern is reflected in the territories derived from Thiessen polygons and cost distance analysis (Figure 5c). The viewsheds of Borġ in-Nadur domestic sites (Figure 5d) are also much more extensive than previous periods and may reach right to the coast, further emphasising the defensive nature of Bronze Age settlement. Despite such safety measures the islands were taken by the Phoenicians at around 700 BC, leaving the legacies of prehistory a distant memory.

Conclusion: 'There and Back Again'

GIS analysis has shown that prehistoric settlement activity on Gozo is both dynamic and cyclical in nature. From the new beginnings in the Neolithic, to the ritual boom and bust of Temple Period Malta, and recolonisation and rebirth in the Bronze Age, the islands have undergone great change, experiencing episodes of disaster and recovery. Despite the brief nature of this paper, what the author hopes is clear is the fundamental role which GIS has played in the exploration of prehistoric domestic activity on Gozo.

Acknowledgements

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Abstracts Submitted

Drumclay, Cherrymount: A Crannog in Crisis

Matthew Seaver, Jean O'Dowd and Robert Chapple[1]

A relief road (A32) east of Enniskillen was routed through a bog containing an early medieval crannog whose position had been mapped since the seventeenth century. Archaeological deposits were found in monitoring of boreholes in 2010. A previously unavailable and incomplete report shows that archaeological testing in January 2011 revealed extensive and well preserved deposits. The Northern Ireland Environment Agency requested that it be preserved *in situ*. They subsequently agreed to an engineering proposal which would not result in preservation in 2012 and licensed a 6 weeks excavation on an intact waterlogged crannog. Members of the excavation crew expressed concern at the resources and time allocated and after repeated attempts to seek clarification went public through a blog. Those supplying information were dismissed and a number of the remaining crew were not re-employed when their short contracts elapsed. A subsequent measured campaign by a large number of archaeologists, some local politicians and interested members of the public led to a decision by Minister Alex Atwood to extend the time limit, employ wetland specialists, ensure adequate post excavation and publication and hold a review of the planning process. Both the Institute for Archaeologists and the Institute of Archaeologists of Ireland sought clarification and the latter requested inclusion on the review.

Despite the difficulties around this site there are extremely important issues which relate to the professional archaeological practice. There are issues about design, planning, transparency of process, whistleblowing and professional ethics. This paper will present the available facts behind the archaeological and engineering decisions and is designed to inform and provoke debate. This would allow the Institute to properly represent the views of its members on any review.

[1] Crannog in Crisis group.

Confirming Gaps and Depletions in the Irish Tree-ring Record

David Brown[1]

In the course of building the 7000 year Belfast long oak chronology a series of depletion problems were encountered. These problems were overcome by 1984 when the completion of the Long Chronology was announced. The solution to the bridging of the various 'gaps' in the Irish chronology lay in the use of long sections of oak chronology from Britain. Now that a quarter of a century has elapsed and large numbers of additional oak samples, and site assemblages, have been accumulated it seems reasonable to review the 'gaps' in order to see if the Irish chronology could now be constructed without the use of British material. That is, are the depletion periods in the Irish chronology still evident, and if so, what might they imply about past conditions and human populations? The perhaps surprising conclusion is that the original depletions are still evident after 25 years of quasi-random sampling by archaeologists and palaeoecologists throughout Ireland.

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Can population crises be identified in pollen records?

Dr Gill Plunkett and Lisa Coyle McClung[1]

That disasters happen cannot be denied, and the literary and historic evidence from the last two millennia provides us with ample examples of social and economic calamities that have befallen societies in Ireland by one means or another. How significant were such catastrophes in terms of influencing contemporary social developments; did they leave an enduring mark that we, as archaeologists today, can discriminate and use as a yardstick for identifying similar catastrophes in the deeper past? One possible outcome of any major catastrophe will be an impact on the economic system, whether through an environmentally-driven disruption of the subsistence base (e.g. extreme weather, pathogens) or a demographically-determined constraint on agricultural output (e.g. population crash, migration). Pollen records can serve as a proxy for changing land-use activities, and features such as the Late Iron Age Lull, defined by an apparently widespread and broadly synchronous re-expansion of woodland in many parts of Ireland, have previously been interpreted as an indication of population collapse in response to an environmental disaster. Such a conclusion depends heavily on establishing strong evidence for land abandonment across large areas over a relatively short time interval. This paper considers whether demographic crises can indeed be discerned within pollen records, examining the challenges that underlie this approach. We critique the dating of the Late Iron Age lull, and explore potential ways forward in identifying and understanding social and economic crises using pollen records from recent to prehistoric times.

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"Legacy of Titanic" – From disaster to recovery

Susan Heaney[1]

The story of RMS Titanic is renowned worldwide. The most luxurious liner of all time, the largest man-made moveable object on the planet, was built in the biggest shipbuilding yard in the world, Harland & Wolff. In the early hours of April 15th, while on her maiden voyage, she collided with an iceberg just 300 miles southeast of Newfoundland with the loss of over 1,500 souls. It was the largest loss of human life at sea during peacetime. To say that the loss of Titanic was a disaster is an understatement – not only were families devastated, but the shipyard workers, the owners, and indeed the city of Belfast along with thousands of others across the world all felt the grief of this tragic loss.

Although an unarguable tragedy, in hindsight the loss of Titanic and over 1,500 lives has led to the saving of thousands of lives since. The inquiries conducted immediately after the sinking resulted in major improvements to how passenger ships operated - excluding wartime, no lives have since been lost due to icebergs.

Attempts to locate the wreckage of the great ship inspired many to pioneer new techniques to explore our oceans. It was in 1985 that the inspirational oceanographer, Dr. Robert Ballard, finally located the remains of Titanic. Co-leading a French-American expedition, they examined a search area predominantly south and east of the ship's last reported position and eventually intersected the theoretical debris field.

Despite the discovery of the wreck, there are many lessons which Titanic has yet to reveal. New species and communities of bacteria have been discovered in the rusticles which now decorate the ship. Some of these species have many future applications e.g. bioremediation. With the construction and opening of Titanic Belfast, the city of Belfast has experienced a renaissance and has regained the pride once felt in those glory days of the 1900s.

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The Impact of the 1st November 1755 Tsunami on Ireland and Records of other Irish earthquake and tsunami events

Dr Kieran Hickey[1]

> 1755 (Nov 1) 'The remarkable earthquake which destroyed a large portion of the city of Lisbon was sensibly felt at Cork, and in the south of Ireland, particularly along the Shannon, on Saturday, the 1st of November, the sea rose to an extraordinary manner in the bay of Kinsale, thirteen feet higher than usual. Great agitation of the sea at Portsmouth, and in the lakes of Holland, Sweden, and Norway' (GBCO, 1852)

The two recent enormous tsunami which caused immense loss of life and destruction in SE Asia in 2004 and Japan in 2011 has caused a substantial increase in public understanding of these fairly rare events and has helped to generate a huge upsurge in both research and interest in tsunami.

The question asked by many since then is whether Ireland has even been affected by a tsunami and what are the potential risk going into the future. Remarkably we don't have to go far back into the historical record to discover that Ireland has been affected by tsunami. The last one of any significance and which caused considerable damage along the coastline is that of 1st November 1755. This was caused by an earthquake of between magnitude 8.7 and 9 on the Richter Scale and occurred roughly 200 km SW of Portugal. This earthquake and at least three large tsunami waves caused the virtual complete destruction of Lisbon and all along the Portuguese and even the North African coastline. Somewhere between 60,000 and 100,000 people lost their lives as a result. Both the earthquake and tsunami were experienced in Ireland particularly in the case of the tsunami. This paper will explore the impact of the 1755 tsunami on the coast of Ireland.

In addition current on-going research has identified other less well known tsunami on Ireland's coastline, throughout Ireland's recorded past and some idea of the future risk from these type of events will also be outlined.

Contemporary woodcut of the destruction of Lisbon in 1755 showing both the firestorm that engulfed the city and one of the tsunami waves in the bay.

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‘With fatal mouths gaping...’ Some Archaeological Evidence for the Confederate Wars

Damian Shiels[1]

The Confederate Wars in Ireland which ran from 1641 to 1653 were a period of protracted and bloody violence. The protracted conflict engulfed much of the island and as a result has left behind a significant archaeological imprint. Many excavations that have taken place over recent years have uncovered evidence for this violent period, often realised in the form of destruction layers, the recovery of projectiles and occasionally bodies with evidence of violent trauma. The specific analysis of military assemblages from such sites has much to teach us about the way warfare was conducted in Ireland at this time, and can often help to fill in the gaps left by history.

This paper will examine military material from two sites. The first, Castledonovan Castle in Co. Cork, was destroyed by Parliamentarian troops in 1650. There is little historical detail regarding this attack, but archaeological excavations revealed substantial evidence for military activity and the destruction event itself. Equally, historical details relating to the siege that took place at the island castle of Clogh Oughter, Co. Cavan are scant. It fell to Parliamentarian forces in 1653 following a negotiated surrender, agreed after a bombardment of indeterminate length. Excavations at Clogh Oughter have revealed a remarkable military assemblage relating to both the defenders and besiegers, which goes some way to unpicking events during the castle’s final days.

Castledonovan and Clogh Oughter are just two sites that have produced evidence of military activity from this period. The paper will conclude by noting some of the other evidence that survives in Ireland, such as the physical scars that can be seen on some of Ireland’s buildings to the mass graves that contain the remains of the war’s unfortunate victims.

[1] Company Director, Rubicon Heritage Services Ltd.

Phoenix from the flames: Coleraine's historical archaeology

Nick Brannon[1]

Coleraine's Borough Council has successfully applied 'Peace III' funding in anticipating the forthcoming 400th anniversary of the granting of borough status by King James I in 1613. On the north coast of Ireland, Coleraine has Early Christian period and medieval roots, but today's Renaissance town plan was drawn up by the Irish Society before 1611 and survives remarkably intact. Uniquely, amongst the various Plantation towns of Ulster, most of walled Coleraine's intramural housing was constructed using green-wood timber-framing, much of which is known to have survived into the 1930s.

Urban redevelopment and 'Troubles' bombings have provided opportunistic windows for archaeological evaluation (as with many urban centres in Northern Ireland). The medieval St Patrick's parish church, refurbished by the Irish Society by 1613, the 1244 Dominican friary and its successor mid-17th century 'citadel', and Ulster's 'oldest surviving town house' (built 1674) feature in this paper.

'Peace III' archaeological tours of Coleraine and related sites have helped to challenge and confront perceived and received 'histories'. The known and familiar becomes complicated and contradictory, and participants recognise the contribution of historical archaeology to the legacies of the Ulster Plantation.

[1] Archaeological Consultant.

The Boom and Bust of early farming communities; linking archaeological and environmental change in the Neolithic

Dr Nicki Whitehouse[1], ***Dr Phil Barratt***[1]; ***Dr Rowan McLaughlin***[1]; ***Dr Rick Schulting***[2]; ***Dr Meriel McClatchie***[1,5]; ***Dr Amy Bogaard***[2], ***Dr Sue Colledge***[3]; ***Dr Rob Marchant***[4], ***Prof. Paula Reimer***[1]; ***David Brown***[1]

Archaeology has much to contribute to our understanding of the responses of communities to the consequences of climatic change. Here, we present results from the Heritage Council's (Republic of Ireland) INSTAR-funded research project (2008–2010) '*Cultivating Societies: assessing the evidence for agriculture in Neolithic Ireland'*. The project has been concerned with examining the timing, extent and nature of Neolithic farming in Ireland, against its wider palaeoclimatic and environmental backdrop. Bayesian analyses of palaeoenvironmental and archaeological C^{14} data have allowed us to examine linkages between environment, climate, farming and settlement within a much stronger chronological framework – sometimes at generational time intervals – allowing us to explore the temporal and spatial character of this highly resolved dataset.

There is a coincidence between climatically-driven hydrological changes during the mid-Holocene, 4100–3200 cal. BC, inferred from Irish bog oaks (Barratt *et al.* submitted) and other records, and the onset and development of agriculture in Ireland. The early stages of agricultural development occurred during a period of ameliorated climatic conditions; however, major environmental changes in the middle of the 4th millennium BC apparently impacted the progression of agricultural and archaeological activities at this time. We see changes in landscape use and hints of a decline of agricultural activities. Coincident with these events are potential changes in the Neolithic archaeological record, with far fewer signals of human settlement for the Middle and Late Neolithic, a lull in radiocarbon dated settlement activity from around 3300 cal. BC to just after 3000 cal. BC, when the archaeological record is almost completely dominated by burials of the passage tomb tradition. This may be at least partially related to low archaeological visibility of settlement structures, but this may not be the whole explanation. These changes are not just evident

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across Ireland but also further a field, suggesting wider impacts. It thus seems possible that environmental changes in the 4th millennium may have had cultural consequences.

A slow recovery: population histories in Ireland from the Middle Neolithic to the Early Bronze Age

Dr T. Rowan McLaughlin[1]

Archaeologists are often asked to estimate prehistoric population levels, but the answers are usually highly speculative and based on inadequate data. The last twenty years of archaeological fieldwork and research in Ireland have yielded a greatly expanded dataset, especially with respect to the number of radiocarbon dates now available, and archaeological signals of settlement. Of particular value are the results from developer-led excavation of random landscape samples such as roads and pipelines, as these have less intrinsic biases than research-focussed excavations. Indeed, the sheer volume of data presents its own problems when attempting syntheses of the dataset. However, geography and chronology can be used as powerful tools to progress towards achieving an overview of the available data. This paper investigates the fluctuating evidence for human settlement in Ireland during the third millennium BC, a timeframe ranging from the Middle Neolithic world of the developed passage tomb, to the introduction of successive waves of cultures, ideas and (perhaps) people during the Bronze Age transition. Landscape analysis is used as an attempt to differentiate the ceremonial and domestic settings of the various sites. Comparisons are made with theoretical models, the settlement history of earlier and later phases of Irish prehistory, and with other geographic areas. In this way, some new absolute population level estimates are made. Although still highly speculative, these new guesses are at least better informed by recent fieldwork, and the manifold biases and sources of error in the data can be controlled for.

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New insights into the cremation process in prehistoric Ireland

Dr Lorna O'Donnell [1]

Templenoe, Co. Tipperary is one of the largest Bronze Age flat cemeteries ever excavated in Europe. A multi-proxy approach was used to analyse the cemetery including charcoal, plant macro remains, osteological analysis and the use of the relatively new technique of reflectance, the first time it has been applied to cremation deposits. Charcoal analysis provided an exciting opportunity to examine temporal and spatial changes in pyre fuel throughout the cemetery over hundreds of years. A particular wood signature is evident in the cremation burials, a mixture of oak and pomaceous fruitwood (which includes crab apple, wild pear, rowan/whitebeam and hawthorn). Overall, charcoal results in the cemetery remain extremely homogenous from the Early to the Middle Bronze Age, appearing to be unaffected by time or demography. This multi-proxy approach has provided a deeper understanding of the cremation process during prehistory.

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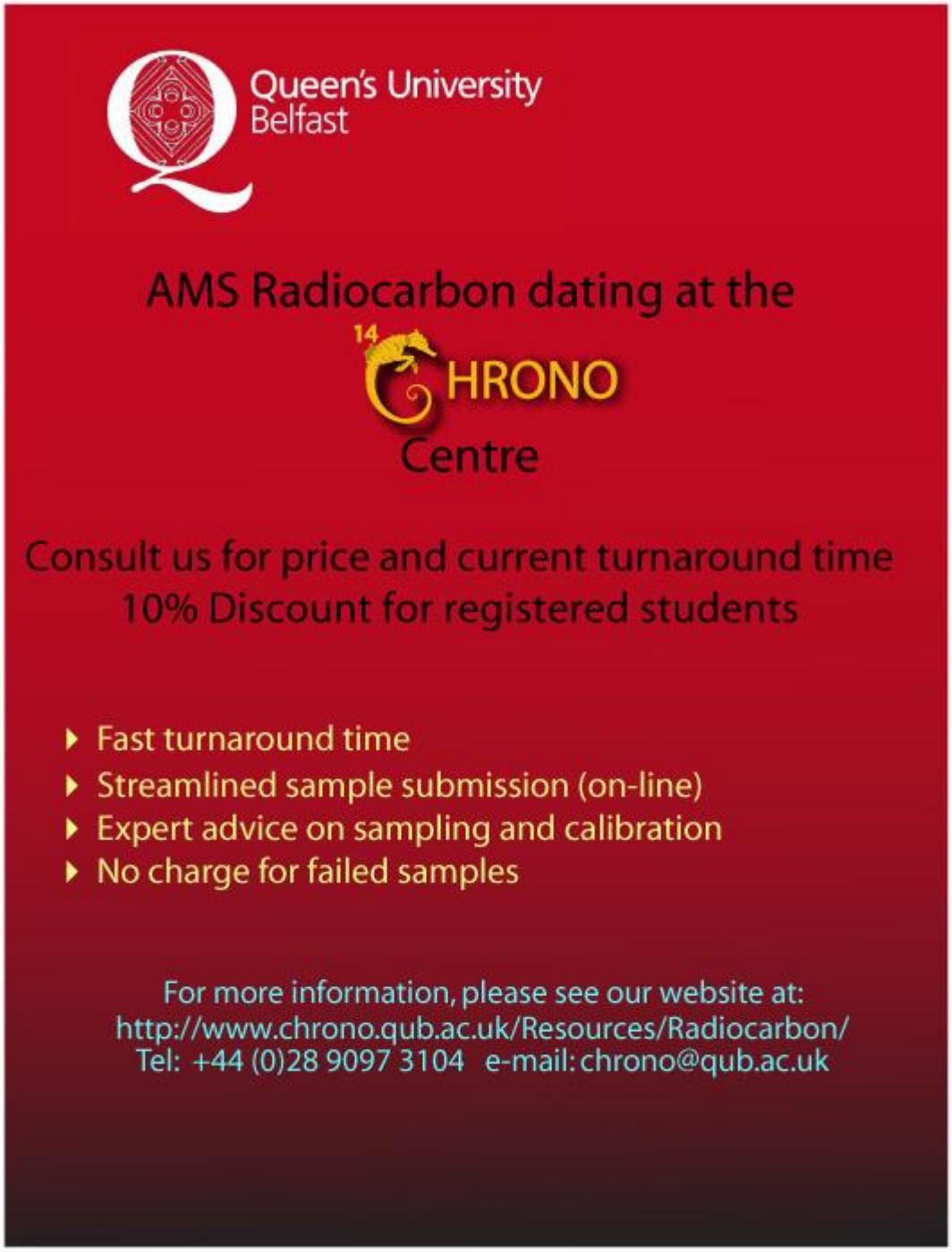

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