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BALLINDERRY CRANNÓG NO. 2, CO. OFFALY: THE LATER BRONZE AGE

CONOR NEWMAN

ABSTRACT

This paper presents a re-consideration of the later Bronze Age horizon at Ballinderry Crannóg No. 2 where the Harvard Archaeological Mission uncovered a substantial rectangular wooden building. A case is made for the former existence of a second such building and for the re-dating of ten circular wicker structures to the 6th century AD.

INTRODUCTION

Ballinderry Crannóg No. 2, Co. Offaly, was the second of three crannógs excavated by Dr Hugh O’Neill Hencken of the Harvard Archaeological Mission to Ireland (Hencken 1942). The crannóg first came to light around 1847 when Ballinderry Lough and neighbouring Moyvougly Bog (Pl.1) were partially drained for the passage of the Midland and Great Western Railway (Sheehan 1978; Doyle and Hirsch 1983). For the decade or so following its discovery, the site was pillared for bones for fertiliser and for artefacts which were sold to collectors. The crannóg itself probably dates from the 8th century AD and the discovery below it of later Bronze Age deposits was an unexpected bonus.

It is a measure of the rarity of settlement sites of the later Bronze Age that in the sixty-four years that have elapsed since the excavation of the lakeside site of Ballinderry 2, less than a dozen have come to light. Such is the quality of the structural remains and material assemblage, however, that Ballinderry still ranks as one of the more important Irish sites thus far excavated and consequently, a re-evaluation of the evidence is appropriate.

SUMMARY OF HENCKEN’S INTERPRETATION OF THE EVIDENCE

On a small arm of land projecting into Ballinderry Lough a crannóg had been built on the site of a later Bronze Age settlement. The main features of the later Bronze Age site consisted of a rectangular building to the west (hereafter the Western Rectangular Structure), evidenced by regularly-spaced, mortised plank foundations and post-surround (part of which was covered by a roughly oval-shaped layer of brushwood), and nine circular wicker ‘huts’ (hereafter the Circular Wicker Structures) to the east associated with, but evidently earlier than, a substantial deposit of stone and brushwood (hereafter the Stone and Brushwood Feature). The remarkable preservation of structural timbers gave an almost complete picture of the size (approximately 11.5 m square) and shape of the Western Rectangular Structure. The horizontal timbers were of oak (20 cm to 60 cms wide by 5 cm to 10 cm thick) and were perforated at regular 50 cms intervals by what Hencken describes as ‘squarish holes’ (ibid, 8), each hole containing the remains of a wooden post 6 cm to 7 cm in diameter which fixed the planks horizontally and parallel to its neighbour. From the mass of posts surrounding these planks, two lines are distinguishable. While evidently part of the structure, they must have performed a slightly different function from the planks and the posts fixing them to the ground.

The later Bronze Age stratum linking the Western Rectangular Structure and the Circular Wicker Structures stratigraphically consisted of a distinctive and uninterrupted thin black deposit averaging 10cm thick, (hereafter the Black Layer) lying on chalk-white sandy marl. In places it consisted of decaying brushwood. The artefact assemblage included a range of diagnostic bronzes (dated originally to the last four centuries BC, but redated by Eogan (1964) to about 700 BC) and a large quantity of pottery from which Hencken distinguished eight or nine individual pots. Subsequently, the water level of the lake rose, covering these deposits with a thick layer of homogenous white calcareous mud, leaving exposed only the Stone and Brushwood Feature to the east. Following another drop in the water levels during the Early

![Figure 1](image.jpg)

*Figure 1. The Late Bronze Age Stratum (the Black Layer) is sealed by sterile, white chalk mud. (detail of Section O-S, Hencken 1942, pl. 3)*

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Plate 1. Bog Map of circa 1818 showing the size and shape of Ballinderry Lough (arrow) before it was drained around 1847 (pace Hencken 1942 who suggests a date of 1844) for the Mullingar to Athlone extension of the Midland and Great Western Railway. In 1847 Sarah Kelly secured a government grant of £1,126, under the Landed Property Improvement Scheme, to drain her land (Sheehan 1978). That this piece of financial help was planned to save the Railway company a considerable amount of money is attested by the fact that in 1854 Kelly invested £134,000 in the company (Photo courtesy of the National Library of Ireland).
Historic Period, a crannóg was built on the site, consisting of layers of redeposited peat, brushwood and general occupation debris surrounded by a roughly circular palisade about 33m in diameter.

RE-INTERPRETING THE PREHISTORIC STRATA
The contextual integrity and later Bronze Age date of the Western Rectangular Structure are not in question. It was sealed beneath a thin layer of white lake marl (Fig. 1) and had an associated assemblage of typically later Bronze Age artefact types. Dating of the Stone and Brushwood Feature and the associated Circular Wicker Structures to the east, however, is more problematic.

Hencken’s proposition that the Stone and Brushwood Feature dates from the later Bronze Age rests on three observations:
(1) that it was deposited directly on to the later Bronze Age Black Layer - there was no intervening white lake marl;
(2) the stones around the southern edge of the feature were partially overlain by the same white marl that covered the Black Layer;
(3) the pile of stones was overlain around its edges by brushwood of Early Historic date (ibid. pl. III, section 0-N).

The Circular Wicker Structures were likewise dated by Hencken to the later Bronze Age because:
(1) part of the wall of one of them (wicker structure G) was found crushed between the Black Layer and the Stone and Brushwood Feature;
(2) with the exception of circular wicker structure G, none of the walling of the seven others (namely A; E; F; G; H; I; J) that occurred in the area defined by the Black Layer extended above it (although there is no specific information relating to this aspect of wicker structure A). Hencken’s point here is that if the walls of these structures did not extend above the layer then they must be contemporary with it;
(3) five of the Circular Wicker Structures were found stratified below the brushwood component of the stone and brushwood feature (ibid., annotation pl. II).

In short, Hencken’s thesis is that everything below the white lake marl is of later Bronze Age date and the fact that there is no marl below the Stone and Brushwood Feature indicates that it too must have been constructed during the later Bronze Age. There are, however, three independent strands of evidence which, when considered together, suggest that the Circular Wicker Structures and the Stone and Brushwood Feature date, not from the later Bronze Age, but from the Early Historic Period. They can be discussed under three headings: (1) the natural component; (2) the Hearth Outside the Palisade; (3) posts beneath the Stone and Brushwood Feature.

(1) The Natural Component
There are two related factors that must be taken into account in any consideration of the lake muds, and in particular those that seal the archaeological deposits.

(1a) It is clear from the section drawings that the Stone and Brushwood Feature was constructed on the highest part of the site, on what was in fact a slight knoll. The decreasing thickness of the lake marls indicates that this knoll may have been effectively above the water-line for some considerable time following the abandonment of the later Bronze Age

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*Figure 2. Details of Sections O-E and O-N across the Stone and Brushwood Feature. (from Hencken 1942, pl. 3)*
settlement, even if the weight of the stones has since compressed this area. Knowledge of the existence of this exploitable, natural knoll is surely what attracted people here in the first place and may explain why six of the Circular Wicker Structures (i.e. E; F; G; H; I; J) are concentrated in this area and why this is more or less at the centre of the crannóg. Again, judging from the section drawings, this knoll appears to centre on the north-eastern quadrant of the site (Fig. 2).

(1b) The lake marls at Ballinderry are calcareous sedimentary deposits which are normally formed under shallow water conditions. In this instance they consisted largely of the shells and bones of molluscs, snails and fish, that accumulated, possibly episodically, over a long period of time. The upper part of Jessen and Mitchell's pollen diagram (Fig. 6) also indicates the presence of 'chalk mud' which probably equates to lake marl, formed when submerged plants and algae use dissolved CO2 in the water for photosynthesis and carbonate precipitates out of solution. Thus, the marl that directly overlies the Western Rectangular Structure is likely to be considerably older than that which covers the fringes of the Stone and Brushwood Feature. Hencken's mistake, therefore, was to treat of the marl as though it was an homogenous archaeological layer, deposited in one event of relatively short duration. The fact is, we do not know when or at what rate the lake marls accumulated, except that it is normally a slow and protracted process. One thing of which we can be quite certain, however, is that no marl was deposited over the knoll upon which the Stone and Brushwood Feature was heaped and the most likely explanation for this is that the water level simply did not cover the knoll for periods of sufficient duration to result in an accumulation of calcareous marls. Consequently, the absence of white lake marl between the Black Layer and the Stone and Brushwood Feature does not prove that these two episodes are co-terminus and neither does it prove that the Stone and Brushwood Feature is contemporary or near-contemporary with the Western Rectangular Structure.

These considerations also explain why none of the Circular Wicker Structures extended above the Black Layer, namely because they were constructed around a knoll which, though probably damp, was, at the time of their construction and use, above the water-line. At the time of the construction of the Circular Wicker Structures, the surface of this knoll was, to all intents and purposes, the Black Layer. The walls of these structures were set into the Black Layer and consequently only the sub-surface elements survived.

(2) The Hearth Outside the Palisade (Fig. 3)

No dating material was found associated with any of the ten Circular Wicker Structures and they are ascribed by Hencken to the later Bronze Age solely on the basis of his stratigraphic analysis outlined above. However, an identical structure, referred to as the 'Hearth Outside the Palisade' (located about 20m to the south-west of the knoll), proved upon excavation to be stratigraphically above the later Bronze Age Black Layer (i.e. it was constructed on the surface of the white lake marl). Directly associated with it were sherds of E ware and a composite stick pin, types which are indicative of an Early Historic date. Bound by the logic of his analysis of the stratigraphy and by the date of the associated artefacts, Hencken was obliged to conclude that this was a feature identical to the other Circular Wicker Structures only that it was built some 1300 to 1400 years later. It is here suggested that the date of Hearth Outside the Palisade should be applied to all of the Circular Wicker Structures.

(3) Posts beneath the pile of stones - a second Bronze Age building (Fig. 4)

Included on the drawing of the later Bronze Age features is a group of posts found underneath the Stone and Brushwood Feature. Whilst these posts clearly conformed to a regular, grid-like arrangement, Hencken could devise no satisfactory method of ascertaining what that might mean (ibid. 7). If, however, these posts are isolated on tracing paper it becomes immediately apparent that they have exactly the same spacing, layout and general axis of orientation as the posts of the Western Rectangular Structure, suggesting that they once belonged to another rectangular timber structure (hereafter the Eastern Rectangular Structure), similar, as we shall see below, in size and design to the western one. Therefore, I am suggesting that there were two, neighbouring, rectangular buildings here during the later Bronze Age.

Re-constructing the Eastern Rectangular Structure (Fig. 5)

The excavated area was divided along the cardinal compass bearings into four quadrants. Most of the Stone and Brushwood Feature falls into the north-eastern quadrant, with part of it extending into the south-eastern quadrant. Two field plans were made of the south-eastern quadrant but only one was published. The unpublished drawing records all the posts found below the level of a timber floor of Early Historic date associated with the crannóg. By replacing the published plan with the unpublished one, a composite plan of all of the posts can be generated. If a template made from the ground plan of the Western Rectangular Structure is overlain on the composite plan and orientated according to the grid lines of the posts recorded beneath the Stone and Brushwood
Figure 4. Detail of Stone and Brushwood Feature showing geometric arrangement of later Bronze Age posts (rendered as black dots). (from Hencken 1942)
Figure 5. The existence of an Eastern Rectangular Structure is postulated on the basis of the regular arrangement of posts, which conforms very closely to the size, layout and orientation of the Western Rectangular Structure. The curving 'path' emanating from the southern side of the Western Rectangular Structure turns suggestively towards the postulated Eastern Rectangular Structure.
Feature, an excellent correlation of aligned posts is produced (Fig.5) giving a far clearer indication of the design and possible size of the Eastern Rectangular Structure.

Further evidence in support of the existence of an Eastern Rectangular Structure comes from the finds register which records that by far the majority of later Bronze Age artefacts come from this area, including two-thirds of the Coarse Ware (over half of the remaining sherds come from the immediate vicinity), eight of the ten bronze artefacts, all three amber beads and all nine lignite bracelet fragments. Again, it is worth emphasising that none of this material was associated with any of the Circular Wicker Structures. Finally, it is noteworthy that a double row of posts—a path perhaps—was found to emanate from the south side of the Western Rectangular Structure. This feature curved towards the east. With this new evidence we can now postulate that it once linked the two buildings together.

Summary
In summary, the three strands of evidence outlined above suggest that the absence of lake marl between the Black Layer and the Stone and Brushwood Feature does not mean that the Western Rectangular Structure is contemporary with the Circular Wicker Structures and the Stone and Brushwood Feature. In fact, these two sets of features could have been separated from one another by a considerable period of time. Just how long is possibly indicated by the fact that about 50cm of lake marls had accumulated over the later Bronze Age Black Layer before the so-called 'Hearth Outside the Palisade' was built during the Early Historic Period (an interval of about 1300 years). Finally, there is strong evidence to suggest that there was a second rectangular structure of later Bronze Age date centred on the knoll where most of the Circular Wicker Structures were found.

Interpreting the evidence outlined above one can postulate four structural phases. The first of these (dating from the later Bronze Age) saw the construction of two rectangular structures of similar size and design, possibly connected by a wooden walkway, and the related generation of a habitation stratum (the Black Layer). In time, following their abandonment, the more low-lying of these two structures (the Western Rectangular Structure) was sealed beneath a layer of white lake marl deposited during what we can refer to as the first extended inundation; the other (the Eastern Rectangular Structure), being built on a slight knoll, was not. The second phase saw the construction of the Circular Wicker Structures, eleven in all if we include the Hearth Outside the Palisade. Some of these were erected on the knoll where formerly stood the Eastern Rectangular Structure and consequently were built, effectively, directly on the later Bronze Age occupation layer (the Black Layer). Artefacts associated with the Hearth Outside the Palisade indicate an Early Historic date and this can be applied to the other Circular Wicker Structures as well, indicating that a period of at least thirteen hundred years elapsed between the later Bronze Age activity and the construction of the Circular Wicker Structures. The third phase saw the deposition of the Stone and Brushwood Feature, evidently to create some form of raised platform. Following a second period of extended inundation which resulted in the accumulation of more lake marls around the northern and eastern fringes of the Stone and Brushwood Feature, a crannog was built and occupied, probably sometime during the 8th century AD.

THE NATURE OF THE LATER BRONZE AGE ACTIVITY
According to the stratigraphical re-interpretation set out above, the main structural elements at Ballinderry during the later Bronze Age may have consisted of two quite large rectangular wooden buildings. In terms of their architectural form, the remains are without immediate parallel. The broad range in the material assemblage, however, suggests a domestic rather than a specialised, industrial function (e.g. fish drying racks) which might otherwise explain the curious narrow-aisled ground plan which would be totally unsuitable as a living space. Instead, the surviving remains are more likely to represent the foundation levels or sub-structure of a raised floor which, in any case, would have been virtually essential in such a damp/wet environment.

There is at present no way of knowing whether the two structures were contemporary or not (though the material assemblage suggests general contemporaneity), but it is interesting to observe that the 'path' leading from the Western Rectangular Structure appears to be heading towards the eastern one. The idea that there might be two neighbouring buildings is given even greater credence following the discovery of two probably coeval neighbouring buildings, also of later Bronze Age date and also in a lakeside location at Clonfinlough, Co. Offaly (Moloney 1993), about 15km West of Ballinderry.

The Excavated Assemblage
The associated artefact assemblage is the largest and most varied from any Irish site of the period. There are, for example, ten bronzes, representing both tools, such as knives, awls and a flesh hook, and ornaments including a possible sunflower pin stem. Though Hencken (1942) identified eight or nine pots from the three hundred-plus sherds of coarse, flat-bottomed ware, re-examination suggests that in fact thirteen (or possibly as many as seventeen) individual pots are represented on the basis of rim profiles alone. The discovery that some are decorated with lightly incised cross-hatching or zig-zaging adds yet another dimension to this otherwise aesthetically-challenged ceramic tradition. Stone objects include spindle whorls, a saddle quern and a host of faceted abrading stones and the survival of organic remains augments the remains with wooden artefacts, including part of a bowl, and leather, both discarded finished pieces (some possibly shoe parts) and off-cuts.

Apart from the excavated assemblage, material of later Bronze Age date has also been found in the general area around the settlement. In 1944 a hoard of nine Dowris Phase bronze objects was found during turf-cutting (probably in Moyquively bog), about 2.50m below the surface of the bog (NMI 1944:228-36; Eogan 1983, no. 146). These include a looped socketed spearhead, 2 socketed gouges, a socketed and a tanged chisel, a socketed and three large rings. More recently, two Dowris Phase bronze were found associated in a possible burial context about 400m to the north of Ballinderry Lough. The objects, which are in private possession, consist of a cup-headed pin and a bronze ring. These were found in a creamy-white material, possibly cremated bone, in a low, circular mound (information courtesy of the National Museum of Ireland. The writer was unable to locate this mound). This is possibly a burial. In addition to these Dowris Phase artefacts are also found individually but in those other cases the exact provenancing
is quite poor. These include a tanged knife (NMI W.282), a looped socketed axehead (NMI 1945:153), four spearheads (two plain leaf-shaped specimens (NMI 1932:6640* & 1968:286), a socket-looped, ribbed, kite-shaped specimen (NMI W.264) and a plain, socket-looped, leaf-shaped specimen (1932:6641*); a tanged dagger. Items of personal adornment were also found including a disc-headed pin (NMI 1882:9) and a very fine amber necklace of forty-six beads (* denotes objects apparently found on the site of the crannóg).

LIFE ON THE LAKESHORE

Drainage and the construction of the substantial railway embankment across the north of Ballinderry Lough in 1847 have altered substantially the appearance of this area since prehistoric times. It is evident, however, that the settlement at Ballinderry was originally located on a knoll or knolls close to the southern shore and yet near the deepest part of a lake (similar to the location of the settlement at Moynagh Lough). Hencken (op. cit. 6) reports that during the exceptionally dry summer of 1933, the lake level fell to 2.18 m below site datum, that is to around the level of the southern and eastern fringes of the Black Layer, suggesting that the lake was at around the same level, or slightly lower, during the later Bronze Age. The lake is bounded on its southern side by a drumlin ridge which is part of the Escir Riada or Sligh Mór, consisting of a chain of drumlins and eskers traversing the country from east to west. Proximity of the later Bronze Age settlement to this important natural artery was no doubt deliberate and contributed to the material wealth of its inhabitants.

Although we are fortunate with Ballinderry in having one of the earliest pollen-diagrams from an Irish archaeological site (Fig. 6), since only arboreal taxa are represented the information is of quite limited value. The main taxa contributing to the pollen rain were alder and oak. The former could be envisaged as growing near to the lake whereas the latter would have been confined to better drained soils. Other trees present in the landscape were hazel, birch and elm and, to a lesser extent, willow. Pine, a taxon which produces a large quantity of pollen, is poorly represented, indicating that it was not a component of the woodland in the immediate vicinity of the site in prehistory, even though it now is. Settlement during the later Bronze Age, represented by the Black Layer seen in the pollen core at around 60cm below the surface, appears to have had little impact on arboreal taxa in the vicinity of the lake, the only variation of note being a decline in the representation of elm pollen to almost half its former values, and to a lesser extent a decline in alder representation. A corresponding increase in oak pollen is recorded. This is more likely to reflect increased pollen production or an increase in the amount of pollen reaching the site due to woodland disturbance, rather than a real expansion of oak in the landscape, given that the major structural timbers of one - and in all probability both - of the rectangular timber structures, are of oak and their procurement ought to have involved felling at least some trees. The disappearance from the record of pine, the least represented species throughout the profile, some time before the later Bronze Age settlement is unlikely to be directly related to the settlement. Hencken (1942, 21) also notes that numerous cherry stones (Prunus sp.) were found during the excavation, but says that there was no direct evidence of deliberate cultivation. The failure to record cereal pollen is mitigated somewhat by the discovery of one saddle quern which suggests that even if the residents at Ballinderry were not growing cereals themselves, they were at least grinding their own flour.

Around 620 lbs of animal bone were also found associated with the Bronze Age occupation. Over half of this assemblage comes from the southwestern area, a part of the site that is effectively single-period. Analysis of the assemblage is severely compromised, however, by the fact that it is no longer possible to distinguish bones that were associated with features previously considered to be of later Bronze Age date but which are now suggested to be of later 6th century AD date. The problem is compounded by the fact that the Bronze Age bone assemblage does not receive separate treatment in the report. Instead, we must contend with the statement that there was relatively little change, both in species range and ratios, between the Bronze Age and Early Historic levels and that anything that has been said about the early Historic faunal assemblage applies also the Bronze Age one. Taking these caveats as read, we can see that domesticated species represented include cattle, pig, sheep/goat and horse. Game included red deer, badger, otter, crane, wild duck and possibly scapu duck. Cat is represented but not, apparently, dog. The proportions of each species appear to have been calculated on the basis of bulk, rather than according to the principal of the minimum number of individuals, with the result that larger boned species predominate at the expense of smaller boned mammals and fish. This bias may also be exacerbated by the sampling strategy, which is unlikely to have included sieving. Meat, nevertheless, was clearly an important part of the diet and this is corroborated to some extent by the finding of two bronze flesh-hooks and a bronze knife. It is also quite evident that the occupants were not slow to take advantage of animals for whom the lake and its shore provided a natural habitat and, although not represented in the faunal assemblage, fish was probably also eaten.
DEATH ON THE LAKESHORE
There is a growing awareness that ritual concerns probably figured in every aspect of daily life in the prehistoric period, even if the archaeological record is blind to any other than its most overt manifestations, such as burials, communal ritual monuments and, where they can be identified, votive offerings. I have alluded to the possibility of a later Bronze Age burial near Ballinderry and to the existence of a modest hoard of bronzes which may represent an offering to a water or marsh/bog deity. More enigmatic, however, are three human skulls found at the base of the Black Layer. The skulls have been identified as those of a middle aged female (skull 803) and two middle aged males (skulls 804 and 805), (see Howells in Hencken 1942, pp 17-20). The female and one of the males (skull 804) had their faces cut off, probably with a knife, from the top of the nasal ridge. The second male (skull 805) suffered similarly, except in this case the top half of the skull, including the brow ridges, was separated. All three were found at the base of the Black Layer, and Hencken (ibid., 18) suggested that they may represent a ritual deposit, such as a foundation sacrifice. The end when it came was, without doubt, traumatic for these three people who could have derived little comfort from knowing what was about to happen to them was a relatively common fate in later prehistoric Ireland.

Decapitation and veneration of the human skull is a recurrent feature of ritual behaviour throughout prehistoric Europe, reaching something of a climax during the later prehistoric period (see Ross 1967, 126), and carefully butchered skulls, though rare, are an integral and clearly specialised facet of this tradition. Moreover, as Ross (op. cit. 104 ff) observes, the practice of depositing skulls in water (including in wells) is a common and obviously important motif. The skull fragments recovered from an artificial ritual pool of the later Bronze Age known as the King's Stables, near Navan Fort, Co. Armagh (Lynn 1977, 54-5; see also specialist report by Delaney, op. cit. 59-61), one from Raffin Fort, Co. Meath, and another from Moynagh Lough, Co. Meath, (Bradley, pers comm.) are of particular relevance in the context of the Ballinderry skulls. The skull fragment from the King's Stables consisted only of the face (minus the mandible) which appears to have been cut away from the rest of the skull and may have been of some antiquity before being thrown into the pool. The Raffin Fort specimen, which was found under a small standing stone, comprised only the forehead (including the brow-ridges) and top part of the skull and is radiocarbon dated to around the Birth of Christ (Newman 1993; 1995). Divergent dates for the skull and for the pit in which it was found, suggest that like the King's Stables skull, the Raffin Fort fragment may have been in circulation for some generations before it was buried, having been handled only occasionally during the intervening period between the death of the individual and the burial of the cranium. The Moynagh Lough specimen consists of only the top-half of the cranium, stratified in a later Bronze Age context (Bradley, pers. comm.). Ethnographic parallels suggest the possibility that skulls such as these may have been worn as ceremonial headgear and masks. However, the material assemblage from Ballinderry, as has been noted, has a more domestic flavour than these latter two sites, suggesting that these skulls are more likely to be propitiatory offerings than potentially long-serving ritual objects, though what became of the facial portions we can only speculate.

The fact that the skulls do not appear to have been gnawed by dogs or rodents suggests that they were probably submerged from the outset which would in tum indicate that the buildings may have stood in open water. In this regard, it is noteworthy that one of the skulls (no. 805) was found in the area covered by the proposed Eastern Rectangular Structure.

WETLAND SETTLEMENT IN THE LATER BRONZE AGE
That wetland settlement is a dominant feature of later Bronze Age Ireland is attested by sites such as Clonfinlough, Co. Offaly (Moloney 1993), Moynagh Lough, Co. Meath (Bradley 1992), Killymoon, Co. Tyrone (Hurl 1995) - which, coincidentally, is sited on a tributary of the Ballinderry river - Lough Eskragh, Co. Tyrone (Collins and Seaby 1960) Knocknalappa, Co. Clare (Raftery 1942), and Rathinhaun, Lough Gara, Co. Sligo. In addition, Aidan O'Sullivan's innovative intertidal surveys (O'Sullivan 1996) have brought to light other important aspects of the exploitation of wetland environments. The conventional explanation that wet, marshy or boggy ground was chosen for settlement because what it offered in the way of natural defences outweighed the day-to-day problems of living in a constantly wet/amp and 'soft' place, may be over simplifying the situation. In contrast to their Early Historic counterpart, the ubiquitous crannog, many of the later Bronze Age wetland settlements appear to have been unenclosed and thus it can be postulated that defence was not a primary concern. Furthermore, nothing in the archaeological or palaeoenvironmental records, such as they are, from these sites indicates seasonal occupation. So, we must consider that occupation, or use, was year-round.

O'Sullivan suggests that some intertidal features, such as fish weirs, can be connected with and are a strategic extension of dryland settlements. Full-scale wetland settlement, however, is not necessarily a second-preference alternative to living on terra firma; it was clearly the first choice of many. Indeed, life in such an environment would have required and fostered specialised skills that only come from generations of experience and, consequently, it is quite possible that there was a particular element of the population that traditionally and habitually lived in wetlands — O'Sullivan's 'marshlanders' (O'Sullivan 1995). Be that as it may, the material assemblages from Irish wetland sites of the period is not typologically distinct and, so, in spite of living in wetlands, these people enjoyed the same material culture as everyone else.

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