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Introduction.

It was from *Cruáchu*, according to the legendary tale *Táin Bó Cuailnge* (The Cattle Raid of Cooley), that queen *Medb* conspired with her husband *Ailill* to lead a raiding party into Ulster in a quest to seize by force the prized brown bull of Cooley. This story, of course, like so many of the Ulster Cycle of tales, is based on real places, if not verifiably real individuals or historical events.¹ The *Cruáchu* of early Irish literature, however, has long since been equated with Rathcroghan (*Ráth Cruáchan*) in modern-day county Roscommon. Today, the impressive concentration of well-preserved ritual monuments that populate this remarkable place comprise the visible remains of a once thriving ‘royal site’ and pre-Christian cult centre.² It was a place set aside as sacred ground, royal cemetery and symbolic political powerbase. A substantial number of the sites constituting its ritual landscape can be classified as ring-barrows, burial mounds, enclosures or standing stones, for example, but many of these are of atypical size or unusual morphology.³ Such unusual examples include the large bivallate ring-barrow known as Rathbeg, for instance, or the substantial univallate enclosure of Rathnadarve which encircles a prominent but entirely natural dome-profiled ridge. Others are more enigmatic still, such as the pair of parallel linear earthworks known as the Mucklaghs, the souterrain leading to the natural water-hewn cave of Oweynagat or, indeed, the great mound of Rathcroghan itself, which lies at the very heart of the ritual landscape. It is an intriguing fact, too, that the wealth of ancient myth and legend has become imbedded, over time, in the very fabric of the landscape and the nomenclature of some of its monuments. Similarly diverse ritual landscapes have been identified at the other major ‘royal sites’ of Tara (*Temair*), Navan Fort (*Emain Macha*) and Knockaulin (*Dún Ailinne*).⁴

The preliminary field research conducted by the ArchaeoGeophysical Imaging Project, NUI Galway, identified Rathcroghan Mound and a cluster of surrounding features and earthworks as the ritual and ceremonial focus of this extensive complex.⁵ A more expansive programme of geophysical and topographical survey has since demonstrated that this mound, in addition

to nearby standing stones, ring-barrows and low-relief earthworks, were once subsumed within a large circular enclosure measuring some 360m in diameter.⁶ Similarly, the apparently featureless nature of this large flat-topped, grass covered mound belies a monument of considerable internal complexity. A summary of the principal features in and on Rathcroghan Mound and the surrounding features contained within the great enclosure, along with a comparison to correlate archaeological features identified at the other major royal sites, are detailed below.

The ceremonial mound

The ridge-top location of Rathcroghan Mound and the undulating topography of the surrounding fields reveal something of the glacial history of this landscape. A sinuous series of gravel ridges, aligned north-northwest/south-southeast are the remains of moraine material that was deposited here during the retreat of the ice sheets at the close of the last Ice Age.⁷ Rathcroghan Mound, in the townland of Toberrory, appears to have been deliberately positioned on the summit of a prominent ridge in order to exploit this naturally elevated and dominant position in the landscape (fig. 1). It is a broad, steep-sided, mound, averaging 88m in basal diameter and rising to a height of about 7m above the surrounding fields (fig. 2). It has two distinct ramps set into its eastern and western flanks which allow access to its flat, if very gently domed, summit.

Both electrical resistivity tomography (ERT) and ground penetrating radar (GPR) have confirmed that the mound is substantially of artificial construction.⁸ More extraordinary still, however, is the fact that both of these surveys independently identified the presence of two distinct concentric rings of hard, electrically resistive material lying deep within the core of the mound, perhaps the remains of buried internal walls (fig. 3). These average 22m and 34m in diameter respectively and appear to extend through the depth of the mound, from close to the surface, where the inner wall displays some topographic expression, to a depth of *c.* 2.5m below. These internal features, therefore, might originally have been built on the crest of the natural glacial ridge before being subsumed beneath the mantle of the artificial mound. It is also interesting to note that evidence of what might be a partially rock-cut fosse, 75m to 80m in diameter, buried beneath slippage around the flanks of the mound was also revealed in the fluxgate gradiometer survey (fig. 4). This feature may be related to one of the earlier phases of the mound construction, perhaps a composite element of the perimeter revetment, or alternatively it might be contemporary with the construction of the buried concentric walls. If

the latter is the case, it would suggest that the mound was built over a multivallate or multi-ringed monument of considerable size. The mound, of course, could also cover any number of other hidden internal complexities; smaller features such as pits, posts or voids, which otherwise remain beyond the scope and limitations of the current suite of geophysical techniques.

Some indication of the internal complexity of the mound, however, is reflected in the subtle topography of its gently-domed summit (fig. 5). A series of low-relief radiating depressions noted in the detailed topographical survey around its periphery appear to sub-divide the surface into an irregular, wedge-shaped or segmental pattern, like the spokes of a great wheel. This may have been done simply to consolidate the mound or improve drainage but there is compelling comparative evidence from Waterman's⁹ excavations of Navan Fort Site B to suggest an alternative explanation.

Site B is a substantial dome-profiled mound, 50m diameter, situated on the drumlin summit encircled by Navan Fort's great earthwork enclosure. It became evident that the internal matrix of this extraordinary monument had been segmentally subdivided for symbolic purposes during the Early Iron Age as an integral part of a predetermined and closely-consecutive series of ritual activities (Phase 4) at this already ancient site.¹⁰ This involved the erection of a substantial multi-ring timber structure, 40m diameter, within whose interior a segmentally partitioned, flat-topped, cairn of stones (Phase 5) radiating from the hub of a large centrally-placed post was carefully constructed.¹¹ The preserved remains of the stub of this post have been dated by dendrochronology to 95/94BC.¹² This partly cairn-enveloped timber structure was subsequently burned to the ground and shortly afterwards its remains, along with the cairn, deliberately sealed beneath several layers of clay, gravel and turves derived from various environments to form a mound (Phase 5). The possibility of additional structures built on the summit of the resulting mound cannot be entirely ruled out but all traces of these, if ever existed, would have long since been removed by cultivation and erosion over the centuries.¹³ Though dome-profiled today, there is evidence that a perimeter revetment of stacked turf originally delimited the edge of the mound.¹⁴

It is likely too that the perimeter of Rathcroghan Mound was originally defined by a more steeply-inclined revetment of dry-stone walling, some of which can be seen exposed in places. It is possible that this was further reinforced by a timber-laced or palisaded retaining

wall. It is probable, therefore, that this composite mound may originally have presented a rather squat, drum-like profile in contrast to the shelving perimeter that it presents today¹⁵ (figs 2, 5 & 6). Perhaps, then, a sequence of predetermined ritual events, similar to those revealed at Navan Fort Site B, might also account for the burial of the concentric walls during the course of the ceremonial fabrication of Rathcroghan Mound.

The conjoined earthwork of *An Forrad* and *Tech Cormaic* dominates the summit of the Hill of Tara. *An Forrad*, at whose centre lies a substantial flat-topped earthen mound measuring 36m in basal diameter, might yet prove to be the archaeological equivalent of Rathcroghan Mound and Navan Fort Site B.¹⁶ In support of this conjecture and despite evidence of substantial surface disturbance, the fluxgate gradiometer survey of this monument tentatively identified some traces of a potential annular feature circumscribing part of the flat summit surface of this mound.¹⁷

It is curious that Knockaulin does not appear to have a prominent mound equivalent to those identified at Rathcroghan, Navan Fort and Tara, though a relatively featureless low-relief earthen mound, some 20m in diameter and up to 0.8m high, evidently sealed some features of the Mauve phase structure at a time when parts of its large-scale timber circle were still up-standing.¹⁸ Wailes¹⁹ also noted the presence of an arc shaped embankment some 40m long, demonstrably post-dating the Iron Age phases, with two large granite boulders nearby. These features are the same as those described and illustrated by O'Donovan²⁰ who recorded the presence of 'another fort, now much effaced, but from the segment of its circle remaining, I could calculate it to have been 100 feet in diameter' in a letter dated December 1837. Within this feature he also recorded the remains of a square structure of very small dimensions with the two boulders placed on its western side.

Occupying the central summit of Rathcroghan Mound is a sizable low-relief circular platform, the shelving edge of which coincides with the innermost buried concentric wall. This platform constitutes the central part of what appears to be a poorly-preserved, almost levelled, ring-ditch, composed of a central low-relief earthen mound encircled by traces of a fosse and external bank. It appears that this feature was deliberately positioned with respect to the inner wall buried deep within the mound and is likely, therefore, to be among the first of many phases of construction that were to occur on the 'flat' summit of the mound after its completion.²¹ It may also explain why this surface feature is so poorly preserved.

Various electrical resistance and fluxgate gradiometer surveys conducted over the summit of Rathcroghan Mound suggest that the central ring-ditch is associated with a complexity of near-surface concentric, conjoined and overlapping arcuate and annular features, likely to represent numerous overlapping sediment-filled, slot-trenches and post-pits (figs 7 & 8). On the basis of geophysical survey alone, however, the relationship between the ring-ditch and the various under- or overlying features on the mound summit cannot be determined definitively. Moreover, attempting to disentangle the relationship between these various features is made all the more difficult by the fact that the edge of the central area marking the ring-ditch, or perhaps the underlying inner concentric wall, displays a particularly strong magnetic response, which all but overwhelms the lesser magnetic features in its vicinity. The apparent concentricity of some features on the mound summit, however, strongly suggests that a number of these are related or broadly contemporaneous.

In addition to those of the mound summit, the fluxgate gradiometer survey has revealed the clear sub-surface signature of another large circular feature, *c.* 26m in diameter, situated on the elevated spur of ground flanking the north-eastern shoulder of the mound.²² This ‘northern enclosure’ appears to be composed of an outer penannular ring with enlarged terminals marking an eastern-facing entrance, which encircles a least one other internal circle of *c.* 17m in diameter (fig. 9). More intriguing still are the sub-surface remains of a pair of elongated, double-palisade trenches adjoining to the southeast and northwest quadrants of the 26m circle to form an eastern-facing, funnel-shaped approach avenue, aligned directly on the entrance to the northern enclosure. The axial symmetry and formal monumentality of this remarkable composite structure is readily apparent in the fluxgate gradiometer image (fig. 4).

The series of features identified on the summit of Rathcroghan Mound and those of its ‘northern enclosure’ bear close comparison to the excavated slot-trench, figure-of-eight and post-built timber structures identified at the other major royal sites of Navan Fort, Knockaulin and Tara. There are some compelling similarities with the pre-mound structures unearthed at Navan Fort Site B, for instance. Here, during Phase 3, a circular ditch and a ring of pits were dug, within which a complex sequence of conjoined, figure-of-eight, timber structures were later erected. This, in turn, was followed by the construction of the multi-ring timber structure (Phase 4) mentioned above. The summit features on Rathcroghan Mound and its ‘northern enclosure’ also bear a close resemblance to those features internal to the large ring ditch

comprising Navan Fort Site A, which are composed of a series of concentric annular, slot-trench building foundations,²³ in addition to the multiple concentric slot-trenches that constitute Navan Fort Site C.²⁴

There are also striking similarities with the series of successive figure-of-eight and circular structures built on the summit of Knockaulin, most especially the White, Rose and Mauve phases of activity.²⁵ At Tara the various slot-trenches unearthed near the basal layers of the Rath of the Synods (Phase 2) also broadly correlate in terms of form and scale with those on Rathcroghan Mound, though the archaeological parallels that have been proposed for some of these features are open to reinterpretation.²⁶

Among the various near-surface features revealed in the fluxgate gradiometer survey of Rathcroghan, it is the largest circle, comprised of a double-ring of equi-spaced, discrete magnetic anomalies, which stands out as being of especial significance.²⁷ The rings measure 32m and 28m in diameter respectively, with both circuits composed of what appear to be upwards of 42 radially-opposed post-pits set approximately 2m apart centre-to-centre (fig. 7). There are also hints, in the fluxgate gradiometer and the electrical resistance survey results, of at least one other smaller internal concentric circle within the double-ring of paired post-pits (figs 7 & 8). This raises the possibility of a composite, multiple-ringed structure of considerable sophistication and complexity. It is also notable that this double-ring of post-pits breaks the pattern of concentricity with respect to the underlying buried walls and ring-ditch features of the mound described above. One can infer, therefore, that the 32m diameter pit-structure probably belongs to a later episode of building on the mound's central summit. Again the archaeological comparisons are compelling. In terms of ground plan, it accords well with certain aspects of the Navan Fort Site B multi-ring timber structure (Phase 4) and also with the Knockaulin Mauve Phase structure.

Navan Fort's multi-ring timber structure, at 40m in diameter, is considerably larger than its equivalent at Rathcroghan. True to its name, it is composed of a series of four concentric rings of upright oak posts averaging 3m apart, which are confined within a perimeter of an additional 34 paired posts set in large pits 3.5m apart.²⁸ Though the fluxgate gradiometer survey conducted over the summit of Rathcroghan Mound is remarkably clear by geophysical standards, it cannot compare to the clarity of detail and unambiguous stratigraphical relationships revealed during Waterman's meticulous excavation of Navan Fort Site B.

Moreover, the limitations of the geophysical survey resolution, in addition to the background noise produced by the succession of building and rebuilding on the summit of Rathcroghan Mound, might preclude any realistic possibility of detecting smaller internal features such as post-pits of a scale unearthed at Site B, for instance. Neither, for these same reasons, can the original entrance to Rathcroghan Mound's 32m pit-structure be positively identified, but on the balance of probability it seems likely to have faced the ramp and broad, funnel-shaped approach avenue to the east. At Navan Fort, the circular arrangement of posts in the multi-ring timber structure gives way to four parallel rows of posts forming an aisled 'ambulatory' which led, in this instance, from the western side of the structure towards the central post.²⁹

The Mauve phase of activity at Knockaulin, like that of Site B Phase 4, also occurred towards the end of a series of successive structural phases which occupied the same spot on the crest of the enclosed hilltop throughout the course of the Iron Age. In this instance, a large timber structure, 43m in maximum diameter, was erected on the hilltop. This may originally have been composed of three concentric elements: a set of double palisade trenches with entrance to the east-northeast, inside of which was a 20m circle of free-standing posts, which in turn encircled a buttressed circular structure, 6m in diameter, at its centre.³⁰

The suggestion of at least one internal concentric circle within the 32m pit-structure on Rathcroghan Mound raises the intriguing possibility that it too had internal structural elements. If this proves to be the case, then, in theory, these might have supported a superstructure or possibly a low-pitched temporary roof, as has been proposed in the case of the multi-ring timber structure at Navan Fort.³¹ Roofed or unroofed, there is no question that Rathcroghan's great timber structure was intended to be an imposing and spectacular monument, conspicuously placed on its artificial platform to command attention from all vantage points in its immediate and wider surroundings (figs 2 & 6). Its function too must have had an elevated and central significance to the ritual and ceremonial activities of Rathcroghan. It comes as little surprise, then, to find that the great mound and the surrounding concentration of nearby archaeological features was originally encircled within the perimeter of a great ritual sanctuary, 360m in diameter.

The ritual sanctuary

The broad low-relief arcuate depression to the south of Rathcroghan Mound hinted at the existence of a large encircling enclosure, but all surface traces of it elsewhere had long since

disappeared.³² The fluxgate gradiometer survey, however, confirmed that the ritual complex was contained within a large circular enclosure, with the great mound placed a little to the south-southeast of its centre³³ (fig. 4). It measures approximately 360m in diameter, over 1km in circumference and some 10 hectares in area. This enclosure, defined as a broad band of negative-positive-negative magnetic gradient, correlates with a sediment-filled, ostensibly rock-cut fosse of approximately 5m in width. No traces of an internal or external bank have thus far been detected in either the topographical or geophysical surveys. It is probable, however, that this fosse was originally bounded by an external bank, comparable to the equivalent 'reversed' earthwork enclosures of Navan Fort, Tara and Knockaulin. Navan Fort's earthwork enclosure, like Rathcroghan, is also circular in plan with an overall diameter of 286m, which encloses a dome-profiled internal area of 4.23 hectares.³⁴ Tara's great enclosure, *Ráith na Ríge*, covers an oval area measuring 318m north/south by 264m east/west, reflecting the north/south alignment of the hilltop ridge.³⁵ Its internal area measures approximately 5.5 hectares. Knockaulin's oval hilltop enclosure is particularly massive, extending 470m north/south by 385m east/west, which bounds the entire dome-crested hilltop to encompass an area of some 13 hectares.³⁶

The construction of these great ritual sanctuaries seems to have occurred during the latter centuries of the first millennium BC. Oak timbers preserved near the base of the Navan Fort ditch, dated through dendrochronology, indicate that this cutting was exposed after 95BC and suggests that the digging of this ditch and the erection of the Site B multi-ring timber structure were part of a 'single horizon' of construction.³⁷ Radiocarbon determinations from wood and bone samples within the basal layers of the rock-cut ditch and sealed beneath the bank of *Ráith na Ríge* would also suggest that this feature was dug around the same time or a little earlier than its equivalent at Navan Fort, sometime towards the end of the 2nd century or beginning of the 1st century BC.³⁸ At Knockaulin, a single radiocarbon sample taken from the ancient sod layer that had been sealed beneath the earthen bank was dated to around the 5th century BC.³⁹

The orientation of the original entrances to these great ritual enclosures is not always evident but can sometimes be deduced indirectly. The entrance to Rathcroghan's 360m enclosure, for instance, has not been conclusively identified, but the circuit of the fosse exhibits an unbroken arcuate lineament of positive magnetic gradient clockwise from the southeast to the north (fig. 4). The original entrance to the enclosed area must therefore lie somewhere to the

east or northeast. It would seem, however, that its true location is further betrayed by the eastern-facing funnel-avenues which lead directly to Rathcroghan Mound and its adjacent 'northern enclosure'. Indeed, a programme of recent geophysical investigations to the east of the mound seems to corroborate this inference and suggests that the funnel-avenues and the 360m enclosure are related, possibly constituting part of a single phase of construction.⁴⁰ Navan Fort is more problematic. There is no clear evidence to indicate which, if any, of the present gaps in its rampart represents an original entrance.⁴¹ Though not contemporaneous, it is nonetheless interesting to note that the approach entrance to the Site B northern-ring-slot enclosure was strewn with cobbles and flanked by linear palisade trenches aligned eastwards. The multi-ring timber structure, by contrast, appears to have had a westerly orientation, as noted above. *Ráith na Ríog*, likewise, presents a number of gaps in its circuit, to the south, northwest and east, none of which is entirely convincing as an original entrance.⁴² Geophysical evidence, however, tentatively suggests the presence of splayed palisade trenches or funnel-shaped avenue, radiating east-north-eastwards from *An Forrad*⁴³ (fig. 10). If this proves to be the case, then an easterly facing entrance to *Ráith na Ríog* seems likely. The original entrance to Knockaulin's earthwork enclosure is marked by an east/west aligned road leading to and from a distinctive causewayed gap in its eastern rampart and towards the summit.⁴⁴ It is also noteworthy that the funnelled avenue leading to the Mauve phase structure is also aligned directly eastwards towards this entrance gap. Taken as a whole, it would seem that a predominantly east/west axis underlines the form and layout of these royal sites, one which remained a consistent and pervasive influence throughout successive phases of their development.

The presence of two clearly-defined palisaded, funnel-shaped avenues leading to Rathcroghan Mound and the northern enclosure seems indicative of a formal spatial segregation within the 360m ritual enclosure (figs 4, 6 & 9). Again, it is difficult, on the basis of geophysical evidence alone, to propose a water-tight chronological phasing to the various overlapping and intersecting sub-surface features but it is possible to infer some relationships in certain instances. The broad band of positive magnetic gradient circumscribing the mound, for instance, appears to flatten adjacent to the northern enclosure, and in so doing acknowledges the pre-existing presence of this structure (fig. 4). Likewise, the apparent asymmetry of the palisaded, funnel-shaped avenue attached to the eastern side of Rathcroghan Mound is skewed somewhat awkwardly southwards of east. For this approach to have been truly symmetrical, the northern arm of the funnel would have had to be

realigned significantly to the north.⁴⁵ In so doing, though, it would have traversed the southern arm of the funnelled-avenue leading to the northern enclosure, which it clearly does not. This seems to indicate, therefore, that the funnelled easterly approach to Rathcroghan Mound, possibly flanked by a substantial palisade, was carefully positioned to avoid interfering with the pre-existing monument to its north (fig. 4). One can surmise, then, that certain structural phases of the mound post-date or are broadly contemporaneous with elements of the northern enclosure and its funnelled approach avenue. It may also be significant that the conjoined ring-barrows to the east of Rathcroghan Mound are neatly framed between the arms of the skewed funnel. This may have been a deliberate incorporation on the part of those constructing these monuments or alternatively the barrows post-date the avenue as a functioning monument.

There are also some indications that Rathcroghan Mound might once have been enclosed by a number of widely-spaced concentric enclosures, demonstrating, perhaps, that there was another level or phase of spatial segregation within its ritual sanctuary. A broad sweeping arc, roughly concentric with the 360m enclosure, can be traced in the fluxgate gradiometer image for a distance of some 80m to the north of Rathcroghan Mound, where it overlaps with the northern enclosure (fig. 4). It can also be traced as a very shallow topographical depression to the north and east of the mound and so is likely to represent part of a sediment-filled fosse (fig. 1). If projected as a complete circle it would have a diameter in the order of 160m.

It is also interesting to note that a squat natural limestone boulder, known as *Milleen Meva*, and another larger prostrate pillar stone, named *Miosgan Meva*, lie 105m to the north-northwest and 100m to the north-northeast of Rathcroghan Mound respectively.⁴⁶ These are likely to have served a ritual purpose, perhaps marking nodal ceremonial points or thresholds between internal subdivisions of the ritual sanctuary. It might also be significant that the base of two possible pillar stones occur on the upper edge of Rathcroghan Mound's summit, set diametrically on its northern and southern extremity.⁴⁷

With the exception of a number of relatively modern field boundaries, which had subdivided the internal area of Navan Fort into three unequal parts, indications of any ancient internal spatial organisation is not evident, excluding, of course, the palisaded avenue leading to the Site B Phase 3 structure. This site, however, has been subject to significant episodes of cultivation in the past which could have removed or significantly truncated near-surface

features, should any have existed. The geophysical evidence from Tara and Knockaulin, however, despite an overprint of cultivation here too, reveals a remarkable complexity of concentric and overlapping palisaded enclosures, some of which predate the hilltop earthworks.

The initial geophysical surveys on the hill of Tara had hinted at the existence of a number of palisaded enclosures within *Ráith na Ríg*⁴⁸ but it was only with more extensive fluxgate gradiometer survey of its interior, conducted in 2002⁴⁹ and again in 2014,⁵⁰ that the full extent and complexity of these features was revealed. The existence of a palisade trench on the internal fosse-edge of *Ráith na Ríg*, identified originally during Ó Ríordáin's 1953 excavation, was demonstrated through geophysical survey to continue around the full circuit of the hilltop enclosure, though this structural element may not necessarily be contemporary with the digging of the earthwork⁵¹ (fig. 10). Other large-scale circular and curvilinear sub-surface features also displaying as narrow lineaments of positive magnetic gradient (like that of the *Ráith na Ríg* palisade), are evident within the otherwise topographically featureless parts of the interior. A number of these appear to overlap one another while others clearly abut or are overlain by later monuments (fig. 10). Collectively, therefore, these internal features represent multiple phases of building activity. The largest of these, a broadly circular enclosure approaching 170m in diameter, appears to encircle the conjoined earthworks of *An Forrad* and *Tech Cormaic*. Internal, and concentric with this, is an arcuate feature that appears to join to the south-western quadrant of *An Forrad* and the southern sector of the *Tech Cormaic* earthwork respectively. Alternatively, it might be part of another circular enclosure, approaching 100m in diameter, which was partially overlain by the subsequent building of these conjoined earthworks. The faint outline of another large elliptical enclosure of similar scale to the 170m enclosure, but evidently overlapping with it, appears instead to be broadly concentric with the rampart of *Ráith na Ríg*. Additional narrow arcuate features within the interior of *Ráith na Ríg* reveal the presence of still more large-scale but partially ploughed-out palisaded trenches, some of which hint at an underlying widely-spaced concentricity. It might be of significance too, that the phallic-shaped pillar stone popularly identified as the *Lia Fáil*, is said to have originally stood within the northern interior of *Ráith na Ríg*, close to the passage tomb known as *Duma na nGiall*.⁵²

An extensive fluxgate gradiometer survey was conducted within the hilltop earthwork of Knockaulin and also included a smaller area immediately outside its eastern entrance⁵³ (fig.

11). Similar to the hill of Tara, this royal site has also revealed sub-surface evidence of a number of large-scale palisaded enclosures that had once circumscribed the hilltop. The largest of these enclosures, which has been traced as a faint narrow lineament over much of its circuit, appears to be oval in outline, measuring approximately 390m west-southwest/east-northeast by 290m north-northwest/south-southeast (marked '9' on fig. 11). Its long axis is aligned differently to that of the hilltop earthwork, which it clearly predates, as its north-eastern quadrant is overlain by the bank and ditch. The most clearly defined enclosure, however, is sub-circular in plan, and is broadly concentric with the hilltop earthwork. It measures approximately 240m north/south by 200m east/west with a clearly defined entrance to the east, aligned on the 'inner roadway' leading from the earthwork entrance (marked '6' and '18' respectively on fig. 11). More interesting still, is the fact that this enclosure is integrated with the funnelled-approach avenue to the Rose phase structure which occupies the summit of the hill (marked '6', '7' and '5' respectively on fig. 11) and so demonstrates that both are contemporaneous and of Iron Age date. As mentioned above, two large granite boulders were recorded in association with some denuded earthworks on the summit. O'Donovan⁵⁴ further suggests that one of these could be the *Ail* mentioned in the *Dindshenchas*, the stone placed in the mound by the hero *Buirech*.

Cult, Cosmogony and Kingship

On emerging into the light of history, Ireland's earliest chroniclers make reference to a time when the island was ostensibly divided into five provincial kingdoms known as the *cóiceda*, each with a prehistoric royal capital at its heart.⁵⁵ Despite these apparent regional political divisions, the common archaeological themes beginning to emerge from the major royal sites seem to indicate a significant degree of accord in terms of ritual activity and religious belief across much of the island during later prehistory. Key to advancing an interpretation of the physical evidence and its underlying ideology is an understanding of the concept of 'sacral' kingship, which had a formative role in the nature of ceremonial activity, ritual layout and architectural expression at these great ritual sanctuaries.⁵⁶ Chris Lynn⁵⁷ has proposed some compelling hypotheses to explain the extraordinary sequence of predetermined building phases which were part of the construction and apparent deliberate destruction of the multi-ring timber structure at Navan Fort Site B, drawing upon descriptions of otherworld hostels in the early literature, the mythological and cosmological symbolism of this and other sacred places, the nature of Celtic religious practices of Britain, Gaul and beyond, in addition to parallels with ancient Indo-European concepts of kingship and religion. Charles Doherty⁵⁸

largely accords with Lynn's conclusions and interprets such archaeological complexities as the 'physical expression of a sophisticated philosophical reflection of the cosmos', with creation myths and the concept of a 'world king' as the central driving force and motivation behind some of the seemingly bizarre ceremonial events that occur at these exceptional places. Similar reasoning may be applied to the series of the ritually-related features unearthed at Knockaulin and Tara, but more especially to the curious matrix of materials and events that created Rathcroghan Mound and the series of large-scale timber structures that were erected on its summit and to the immediate north of the mound.

Sacral kingship combines both human and divine attributes, melding the functions of worldly political power with that of otherworldly religious authority, a higher order of human being or living deity who acts as an intermediary between his earthly realm and that of the gods.⁵⁹ The major royal sites, in turn, functioned as the communicating portal between the tribal territory and the otherworld. Each of these sites represented a sanctuary of sacred space, a potent expression of tribal power and unity. It is likely that a singular focal point within each great ritual sanctuary represented the *axis mundi*, the symbolic centre of the cosmos. The multiple concentricity of posts and the western-oriented aisled ambulatory of Navan Fort's multi-ring timber circle were set-out with ritual precision to focus attention on its centrally-placed pillar, perhaps a literal representation of the *axis mundi* for the people of the *Ulaid*.

Lynn⁶⁰ has argued cogently that the composite structure of Site B represented a microcosm of the universe, heaven and Earth, as its builders perceived it, built and sacrificed in honour of a specific deity. It was an evocation of Celtic cosmogony written in stone, timber and earth. The multi-ring timber structure emulated an idealised otherworld hostel, the stone cairn represented a wheel or radiating solar symbol facing skywards, and the covering mantle of layered earth was an embodiment of the tribal territory. He further proposed that the god in question might have been an insular counterpart of Taranis 'the Thunderer', a Gaulish cosmic deity, the god of the sky, whose associated symbol, the wheel, was itself a representation of the sun.⁶¹ Indeed, the chief deity of the ancient Irish, one affiliated with sovereignty, appears to have had both cosmic and meteorological attributes.⁶² Waddell⁶³ similarly recognised an underlying association between kingship, tribal territory and solar imagery, but suggests that the construction of Site B might instead have been a survival of Indo-European wheel and pillar symbolism. It would seem entirely fitting, therefore, that a skyward-facing sun symbol and its central pillar marking the axis of the world might have provided an appropriately

elevated platform for royal ceremony. Might it be the case, then, that the stone, earth and wooden components of Rathcroghan's composite mound and the segmental ordering of its skyward-facing surface might also have reflected a similar set of cosmogonical beliefs and royal ceremonial events? Might it be the case too, that the Ulster cycle of tales, the *Táin Bó Fraích* (The cattle raid of Fraích), *Tochmarc Emire* (The wooing of Emer) and *Fled Bricrend* (The feast of Bricriu), although written from as late as the 8th century AD, preserve some underlying sense of the ritual and architectural requisites for such pagan structures in their formulaic description of otherworld hostels?⁶⁴

The presence of large circular or sub-circular enclosures, displaying the ritually decreed reversed earthwork rampart, composed of external bank and internal fosse, is a feature of the 'royal sites' of Tara, Navan Fort and Knockaulin and is likely to have been a feature of the 360m enclosure at Rathcroghan too. In addition to various phases of overlapping enclosure at these royal sites, in some instances demonstrably pre-dating the digging of the earthwork enclosures, there is also a growing corpus of evidence to indicate that the internal areas of these great ritual sanctuaries were originally sub-divided into an ordered hierarchy of internal space. These sub-divisions were largely demarcated by concentric palisaded enclosures and eastward facing avenues, punctuated by sacred totems or standing stones marking ritual thresholds and ceremonial nodal points, with the holiest of holy ground occupying a centrally elevated space or platform within the sanctuary. This spatial order conceivably mirrors a social hierarchy within the sanctuary too, with only the most elevated stratum of society and its religious officials permitted access to the centrally placed timber structures. During significant events, the multitudes were perhaps relegated to witnessing the pageantry of ceremonial procession, leading to and from these most sacred structures, from behind the palisaded arms of the funnel-shaped avenues (figs 4 & 6).

Conclusions

Despite variable degrees of preservation, it would appear that the great 'royal sites' of Rathcroghan, Tara, Navan Fort and Knockaulin share a number of defining ritually-prescribed themes and architectural features. These include:

- a commanding elevated location in the landscape
- a large ritual sanctuary defined by a circular or sub-circular earthwork with distinctive 'reversed rampart' of internal fosse and external bank

- large-scale, and commonly widely-spaced concentric, palisaded enclosures
- a substantial artificial mound of composite construction
- large figure-of-eight and circular timber structures with foundations composed of concentric slot-trenches or rings of post-pits
- a preference for an east/west alignment and eastern facing funnel-shaped avenues leading towards significant circular timber structures
- ring ditches or similar circular earthwork features
- the presence of standing stones and/or boulders within the ritual sanctuary

Furthermore, each of these royal sites are associated with sizable ritual landscapes containing a preponderance of ritual or ceremonial monuments, predominantly mounds, ring-barrows and enclosures some of unusually large scale or atypical morphology, in addition to other exceptional monument types, including artificial ponds, caves and enigmatic earthworks.

These common themes appear to underscore a general accord in the intertwined concepts of religious belief and sacral kingship across much of the island of Ireland during later prehistory. Rathcroghan, like the other great royal sites, served as a nexus of political power and religious potency. It was the symbolic centre of regional identity and tribal unity. It was here that the ‘world king’ came to intercede with the gods of the otherworld on behalf of his people and to reaffirm and exert his divine right to both sacred and secular authority. Rathcroghan Mound, it would seem, served as the ‘axis mundi’, a great ritual and ceremonial hub, around which both kingdom and cosmos revolved.

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Figures

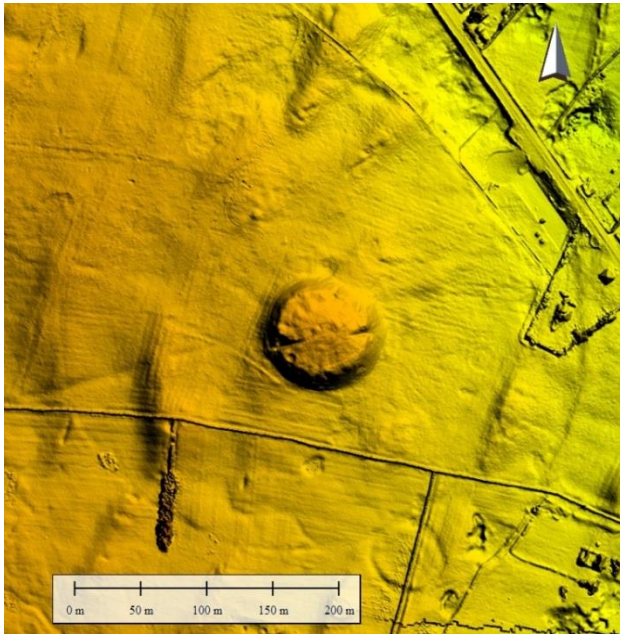


Fig. 1 Photogrammetrically-generated topographical image of Rathcroghan Mound including the area encircled by the 360m enclosure. The 360m enclosure can be observed as a low-relief depression sweeping across the fields to the south and west of the mound. Very faint traces of a smaller, possibly concentric enclosure of *c.* 160m in diameter can be discerned encircling the great mound, which is placed eccentrically, a little to the southeast of centre relative to both enclosures (image reproduced by permission of Gary Dempsey and Paul Naessens © Rathcroghan Field System Project).



Fig. 2 Aerial view looking westwards over Rathcroghan Mound and the undulating landscape of *Machaire Connacht* (photo: Joe Fenwick).

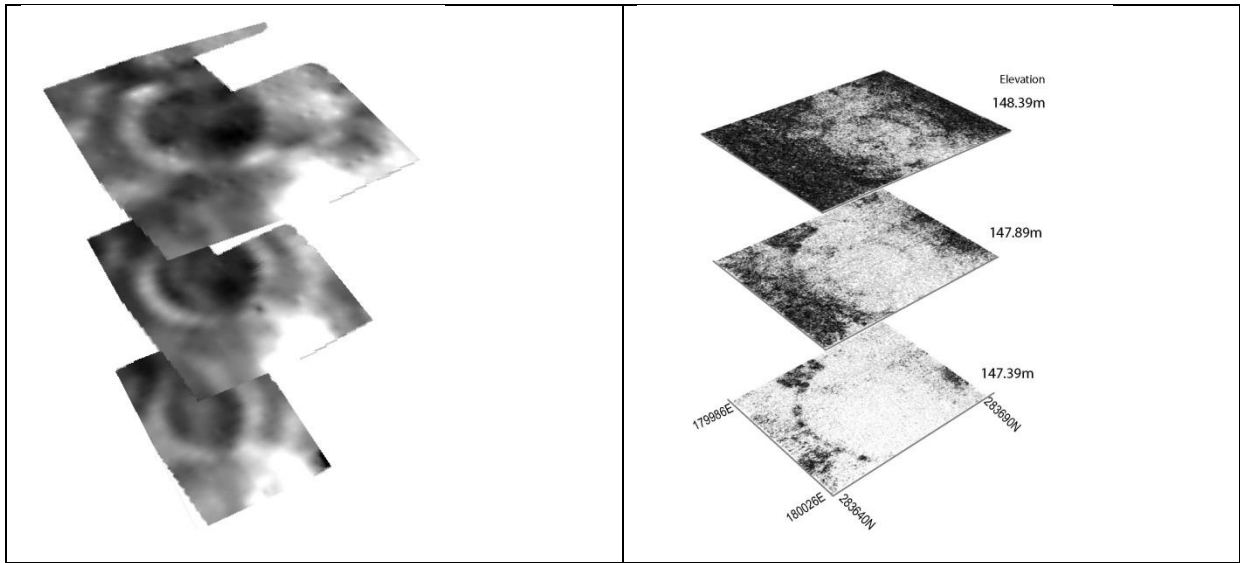


Fig. 3 Stacked electrical resistivity tomography (ERT - left) and ground penetrating radar (GPR - right) images of the concentric ‘walls’ at incremental depths through the central core of Rathcroghan mound.

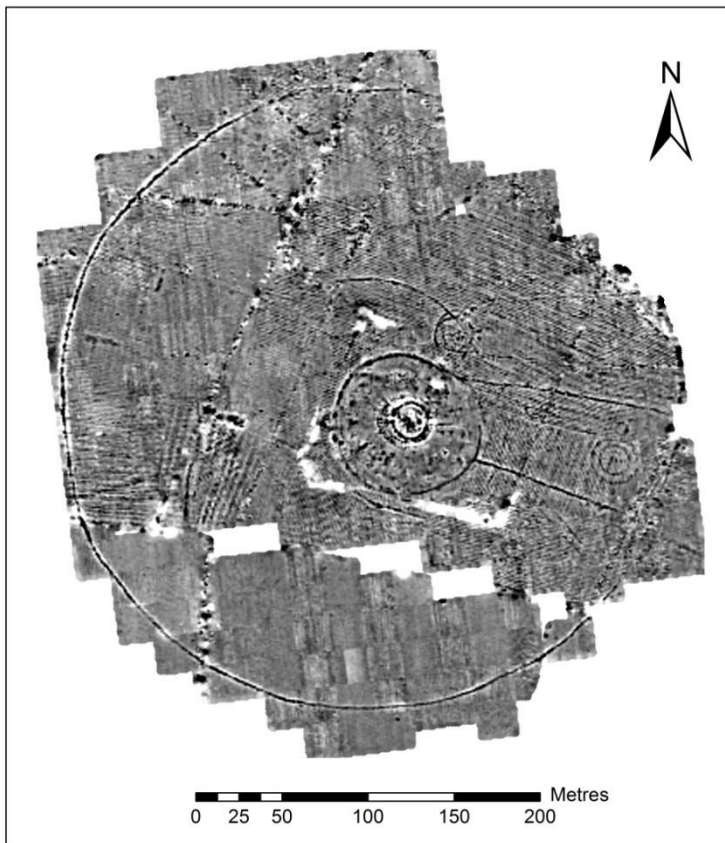


Fig. 4 Fluxgate gradiometer survey of Rathcroghan Mound and surrounding area encircled by the 360m enclosure.



Fig. 5 Surface shaded topographical model of Rathcroghan Mound.



Fig. 6 Conjectural reconstruction of the ceremonial centre of Rathcroghan, by artist J.G. O'Donoghue in collaboration with Joe Fenwick, as it may have looked during a significant ceremonial event in the Late Iron Age. Rathcroghan Mound, the northern enclosure, the eastern-facing funnel-shaped avenues, and the encircling 360m enclosure are depicted from an elevated vantage point to the northeast (reproduced by permission of J.G. O'Donoghue/Roscommon County Council/Rathcroghan Visitor Centre ©).

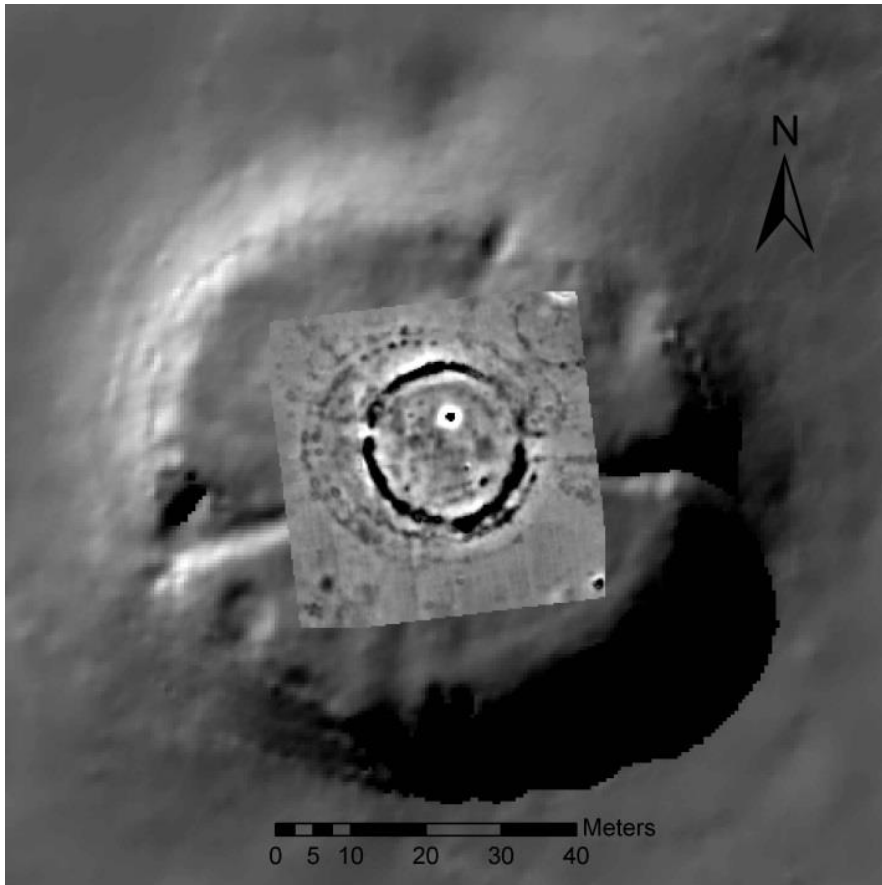


Fig. 7 Detailed fluxgate gradiometer survey confined to a 40m x 40m square on the summit of Rathcroghan against a surface shaded topographical backdrop.

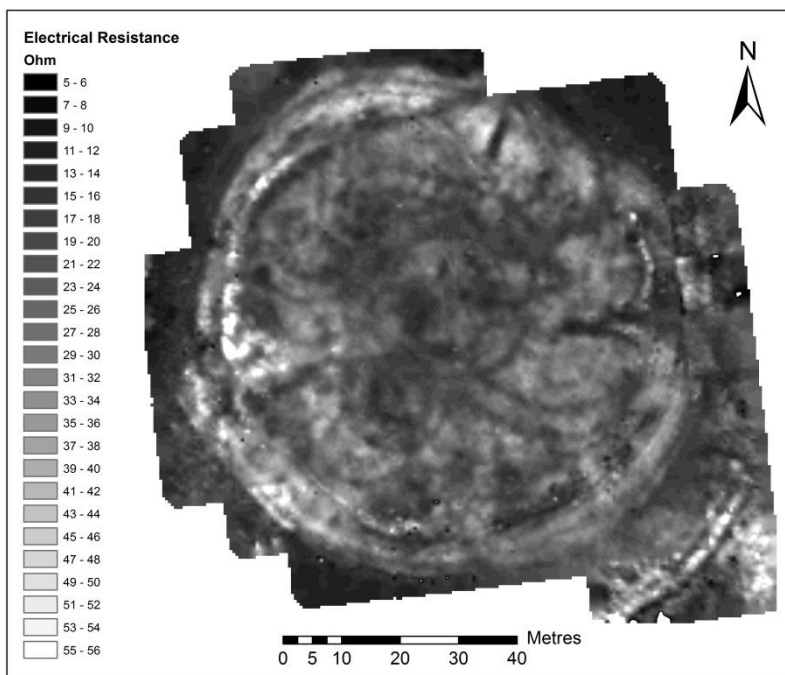


Fig. 8 Electrical resistance survey of Rathcroghan Mound (reading taken at 0.5m apart).

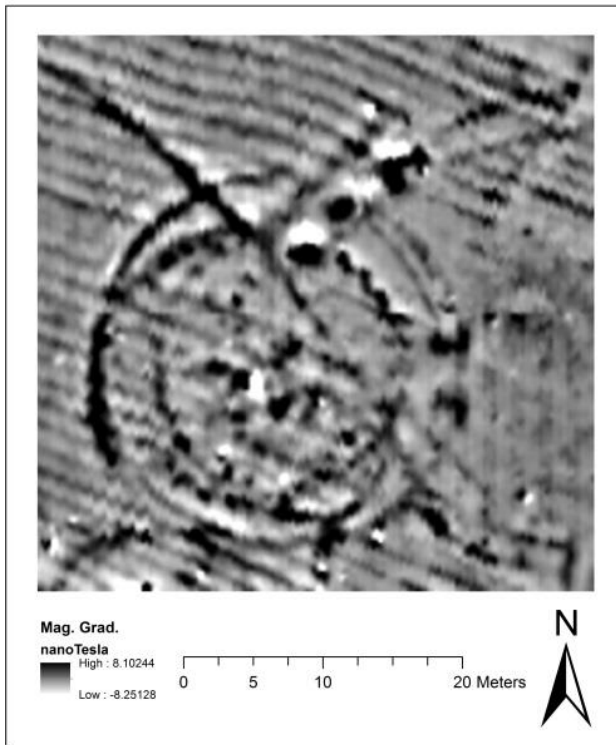


Fig. 9 Detailed fluxgate gradiometer survey of the northern enclosure (individual reading of magnetic gradient taken at 0.25m apart).

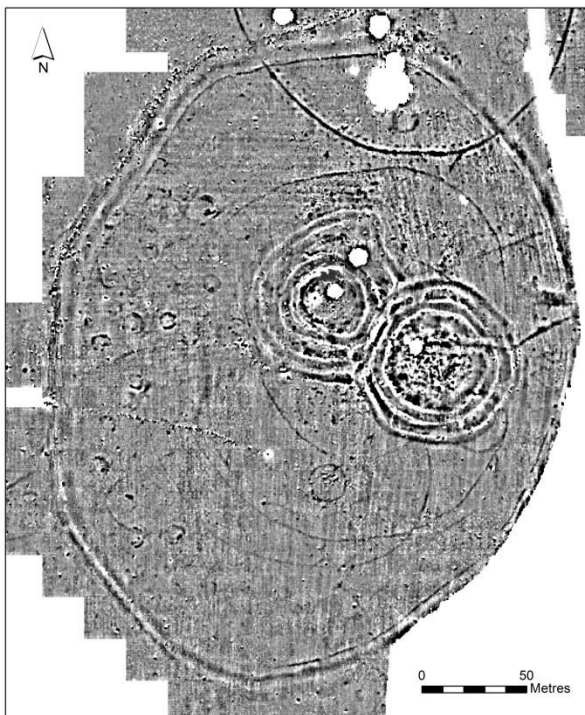


Fig. 10 Fluxgate gradiometer Survey of *Ráith na Ríg*, Hill of Tara, Co. Meath (reproduced by permission of The Discovery Programme/School of Geography and Archaeology, NUI Galway ©)



Fig. 11 Annotated fluxgate gradiometer survey of Knockaulin (*Dún Ailinne*), Co. Kildare (taken from Johnston, Campana & Crabtree 2009 and reprinted by permission of the publisher, Taylor and Francis Ltd, <http://www.tandfonline.com> ©).

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