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A reappraisal of the archaeological remains in the vicinity of the great passage tomb and manorial village of Dowth, *Brú na Bóinne*, Co. Meath.

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Abstract

This paper presents the results of a programme of archaeological and geophysical field investigation in the immediate environs of the great passage tomb and nearby medieval manorial village of Dowth in Co. Meath. Based on this fieldwork, against a backdrop of documentary research, it proposes a reappraisal of the archaeological remains from the Neolithic period to the present day, in the light of parallel phases of human activity at nearby Newgrange and Knowth, which, together with Dowth, collectively comprise the core area of the Brú na Bóinne World Heritage Site. A number of new features of potential archaeological significance have been identified. These include the disturbed remains of two possible passage tombs to the northeast and southeast of the great mound and traces of a D-shaped terraced platform attached to its north-eastern quadrant, bolstering the traditional belief that the mound had been remodelled during the Anglo-Norman period to serve as a motte-and-bailey. The results of the geophysical survey do not support previous assertions that traces of the manorial village of Dowth lie in the field between the mound and the medieval graveyard. The majority of these earthworks, it would seem, are related to medieval and post-medieval agricultural activity, with the pattern of subsequent spade-dug cultivation possibly dating to as late as the nineteenth century.

Introduction

This paper is the second of two concerning the archaeological heritage in the townland of Dowth, which comprises the eastern sector of the *Brú na Bóinne* UNESCO World Heritage Site in Co. Meath. A broad, elongated, shale-capped glacial ridge, oriented west-southwest/east-northeast, runs the length of the townland, with the great passage tomb of Dowth occupying the crest of its eastern summit (Fig. 1). The first paper (Fenwick 2015), presented a reassessment of the prehistoric archaeological remains of the townland against a backdrop of the wider *Brú na Bóinne* and surrounding landscape. This second article will focus on the results of a more detailed programme of non-invasive archaeological and geophysical survey confined to fields in the immediate environs of the passage tomb and manorial village of Dowth.

Within this area, an irregular strip of rough pasture, situated between the mound and the medieval graveyard to its southeast, was chosen for a more detailed programme of field

research (Fig. 2). This area preserves one of the few remaining vestiges of successive landscape development in the townland of Dowth and so provides a narrow keyhole through which to observe the wider prospect of the rich archaeological and historical heritage of *Brú na Bóinne*. Notwithstanding the significant prehistoric remains, it is the activities associated with Early Historic settlement, the establishment of an Anglo-Norman manorial village, and more particularly, the radical reordering of demesne lands during the eighteenth and nineteenth centuries that are primarily responsible for the form and layout of the cultural landscape as it is perceived today.

In addition to the great mound, the two fields to its immediate east are in State ownership. The various earthworks in the field adjacent to the mound were believed to preserve the hollow-ways and houses associated with the manorial village of Dowth and the nearby church glebe lands (Stout 2002, 96, 99, 178-9; Kenny 2008, 143, 146-148). It was envisaged from the outset of this project that the programme of focused archaeological field research might illuminate some details of the nature and layout of the medieval settlement pattern preserved beneath an overprint of post-medieval and more recent disturbance. It was also anticipated that it might shed some light on the potential of this area for the survival of underlying prehistoric remains, albeit in a successively disturbed context. With these goals in mind, a schedule of archaeological and geophysical field survey was conducted episodically over the course of three years commencing in the summer of 2012 (Licence Nos. 12R67, 13R47 and 14R0054).

An overview of the field survey results

The archaeological field investigations at Dowth consisted of a comprehensive walkover survey in advance of targeted topographical, magnetic susceptibility, fluxgate gradiometer and electrical resistance surveys. An overview of the results is detailed below, which will, in turn, inform a reappraisal of the archaeologies of Dowth, with a particular focus on the fields surrounding the great mound, some fragmentary elements of the nearby medieval manorial village, and the Netterville Charitable Almshouse (latterly 'Netterville Manor').

Local topography and surface features

Prior to the commencement of archaeological investigation, survey control was established on site and a geophysical survey grid of 20m x 20m panels was set-out to align to 20m multiples of Irish National Grid (Fenwick 2004). A total station was used to map the visible kerbstones of the passage tomb and other selected features in the adjacent fields.

In addition to Dowth mound (ME020-017) and the upstanding remains of the medieval church (ME020-019) and tower house (ME020-018), situated *c.* 100m to its east-southeast, a significant number of low-relief surface features of potential archaeological significance, including a field system (ME020-016001), had been identified in the strip of rough pasture lying between the mound and graveyard (ME020-019001) (Figs 3 and 4). The principal topographical features in this area have been assigned individual numbers with the prefix ‘T’ in Figure 5 (Table 1).

One particularly intriguing feature of this field that is not immediately apparent in aerial photographs or lidar images is the presence of a number of large boulders. Several of these remain firmly embedded in the ground while others are clearly in disturbed contexts. These occur in two separate diffuse clusters (see Fenwick 2015, 32-34, figures 14a-d, 15a-f). Boulder Cluster 1 (T1) is situated 85-100m to the north-east, and Boulder Cluster 2 (T2) between 60m and 90m to the south-east of the mound respectively (Fig. 5).

Despite evidence of a more recent pattern of spade-dug cultivation ridges (T3), it is clear that the field was originally sub-divided by a number of low earthen banks and escarpments into a series of broad rectangular plots. For example, a terraced, relatively level, sub-rectangular platform (T4) adjoins to the north-eastern quadrant of the mound. The north-eastern side of this platform is defined by a prominent linear escarpment (T5), which marks a step in the topography to an area of lower-lying, occasionally waterlogged, flat ground to its east (T6). A large pit (T7), likely to be the result of modern disturbance, occurs at the northern end of this flat ground, adjacent to the field boundary. The southern end of the sub-rectangular platform (T4) is traversed by a prominent linear embankment (T8), aligned approximately east/west and crossing the width of the field. This embankment pre-dates the cultivation ridges, which clearly overrun it (T3), and extends perpendicularly from a smaller angled terrace (T9) tucked against the eastern flank of the mound. Some 20m further south of this embankment, and approximately parallel to it, are the ploughed-out remains of a field boundary (T10), which appears to have once bisected the field. This low-relief feature extends from the extant east/west field boundary, situated to the south of the mound, to join with the northern graveyard boundary wall.

The ground rises to a low eminence (T11) approximately 50m to the northeast of the mound. About 30m to its east, a section of wall-footing (T12) has been partially exposed along the edge of the field boundary drain and to its immediate north are traces of a low-relief escarpment or bank (T13) traversing the width of the field in a west-south-west/east-north-east direction. Parallel and just 13m to the north of this escarpment or bank is a low-relief

linear depression (T14) marking the edge of a series of small cultivation plots (T15) lying adjacent to the road. The remains of a curving earthen bank (T16) occupies the north-western corner of the field, some 30m to the north of the mound, and this can be traced sweeping north-east/south-west over a distance of *c.* 60m.

The ground within the field to the southeast of the mound appears to have suffered considerable disturbance in the distant past. A number of broad, shallow depressions and pits (T17) can be observed in this area today. At the southern extremity of the field is a more substantial, steep-sided pit (T18), 'St Bernard's Well' (ME020-016003), at the base of which are the remains of a concrete housing with iron fixtures, likely to have been the footing for a water-pump (Fig. 4). In the opposite corner of the field, just 20m south of the graveyard wall, is a small, slightly elevated, rectangular earthen platform (T19), measuring *c.* 7m northwest/southeast by 5m southwest/northeast.

One notable feature, all but invisible to the observer on the ground, is the presence of a slightly bowed track-way (T20), measuring *c.* 5m broad, which runs diagonally across the field from its north-western corner towards the graveyard. Its surface profile, a narrow channel between two low-relief parallel earthen banks, has been reduced substantially by later spade-dug cultivation (T3). It is aligned north-west/south-east and appears to traverse the other extant earthworks in the field at an oblique angle. This suggests that it post-dates many, if not all of these features, with the exception of the cultivation ridges.

The pattern of spade-dug cultivation (T3) appears to be superimposed over both the diagonal track-way and the earlier earthworks mentioned above and must therefore be relatively late in the sequence of surface disturbance at Dowth. It is evident from this patchwork pattern of ridge-and-furrow, set parallel or perpendicular to the extant field boundaries, that this field was once divided into a series of smaller cultivation plots. In addition, a narrow linear depression (T21) can be observed running the length of the field, parallel to its eastern margin, to terminate on the eastern side of the probable water-pump pit (T18). This feature clearly cuts through all the earthwork and spade-dug cultivation ridges noted above and is, therefore, one of the most recent surface alterations to the field. Perhaps this marks the line of a trench dug for a pipe leading from the putative water-pump towards the road.

Magnetic susceptibility survey results

A Bartington MS2 employing an MS2D search-loop was used to take volume-specific magnetic susceptibility measurements across the surface soils of the site (Dearing 1999). Readings were taken at 2m intervals along north/south transects set 2m apart over an irregular

area measuring 200m north/south by 160m east/west in maximum extent. This sample interval was employed to record general trends in the susceptibility values across the site (Gaffney *et al.* 2005, 33-34; Gibson and George 2003, 88-9; Waddell *et al.* 2009, 19-21).

The processed data is presented as a colour-ramp in Fig. 6. The principal magnetic susceptibility anomalies have been numbered with the prefix 'S' (Table 1). The apparent 'holes' in the image mark the location of particularly high values of magnetic susceptibility (S1), which have been clipped from the dataset in order to reveal fainter anomalies trending across the site. Most of the high point-source anomalies represent a scattering of ferrous material in the topsoil, the majority of which are unlikely to be archaeologically significant. It is apparent; however, that some of the larger excluded anomalies, most notably one lying 20m to the north-west (S2) and another 25m to the east-northeast (S3) of the mound, are dispersed over a number of adjacent sample points and these might be indicative of spreads of intensively heated or burnt material.

Figure 6 presents a number of trends across the field, many of which are likely to have an anthropogenic source. Overall however, the general range of values is relatively subdued, although a number of distinct and well-defined zones display marginally enhanced values. The most apparent of these is a large sub-rectangular zone (S4) measuring *c.* 80m north-west/south-east and extending some 40m north-eastwards from the base of the mound. It coincides broadly with the terraced, sub-rectangular platform of ground noted in the surface topography (T4). Other than where adjoining the mound, this zone is surrounded on all sides by a broad band of lower susceptibility values (S5). Additional distinct zones of enhanced magnetic susceptibility values (S6) occur to the north of the low-relief linear depression (T14), which runs east/west across the northern part of the field. These zones appear to correspond in extent to the individual spade-dug plots lying adjacent to the public road (T15). Some more significantly elevated values of magnetic susceptibility (S7) occur along the line of the field boundary situated to the southeast of the tumulus. These are most likely spurious readings related to wire fencing and other ferrous materials cleared to the edges of the field and, as such, are unlikely to have any archaeological significance.

Fluxgate Gradiometer survey results

A Bartington Grad601 dual-sensor fluxgate gradiometer was employed for the magnetometer survey (Aspinall *et al.* 2008, 106-107; Gaffney and Gater 2003, 66-7; Oswin 2009, 180-6). Values of magnetic gradient were recorded at 0.25m intervals along north-south parallel transects set 0.5m apart. The survey covered an irregular area measuring 140m north/south by 160m east/west in maximum extent (Fig. 7). The majority of the field to the north and east of

Dowth mound was investigated but coarse vegetation and scrub precluded extending the survey over the southern part of the field.

The principal features identified have been numbered with the prefix 'G' in Figure 7 (Table 1). The processed data, presented as a grey-scale image, displays a number of anomalies, many of which reflect visible surface features and spade-dug cultivation, while others have no appreciable surface expression and might therefore represent earlier underlying features.

The putative water-pipe trench (T21) is clearly visible as a linear anomaly of negative magnetic gradient (G1) running north-northwest/south-southeast along the eastern edge of the surveyed area and parallel to the field boundary. The spade-dug ridge-and-furrow cultivation pattern (T3) exhibits an alternating pattern of parallel lines of positive and negative magnetic gradient. These are most clearly defined in the small cultivation plots (G2; T15) lying immediately to the south of the road and also to the east (G3) of the mound.

The remainder of the linear and curvilinear features evident in the gradiometer image are likely to predate the cultivation pattern (T3). The most obvious of these are the narrow, slightly bowed, parallel lineaments of positive magnetic gradient (G4), correlating with the track-way (T20) traversing the field diagonally north-west/south-east. A rash of other fragmentary features of positive magnetic gradient, too numerous to itemise individually, probably represent the sub-surface remains of substantially truncated ditches, pits, drains or wall-footings of various types and antiquity but, beyond that, do not lend themselves to simple interpretation. A number of these, however, also exhibit a response in the electrical resistance survey (described below) and are therefore worthy of comment. A distinct, broad, curvilinear feature of positive magnetic gradient (G5) situated 30m north-north-east of the mound appears to predate both the cultivation ridges (T3) and the low-relief escarpment (T13) that traverses the field to the north of the mound. It is possible too, that the southern part of this feature, if originally forming a circle, might have been buried, truncated or removed by the superimposition of the terraced sub-rectangular platform (T4; S4) adjoining to the north-eastern quadrant of the mound. A sinuous, somewhat disjointed lineament of positive magnetic gradient (G6) extends north-east for a distance of *c.* 80m from the base of the mound. It predates the cultivation ridges (T3) and very possibly the sub-rectangular platform too (T4). A well-defined oval anomaly of positive magnetic gradient (G7) occurs 20m to the north of the mound and along the line of the low-relief track-way (T20). It displays no surface expression and is likely, therefore, to predate the track-way.

Other disparate features, again apparently predating the pattern of cultivation (T3) include some linear anomalies (G8) and more discrete, localised zones of positive magnetic gradient (G9). These probably represent sediment-filled ditches and pits respectively. An igneous boulder (G10) serving as a kerbstone of the mound, in addition to an outlying igneous boulder (G11) in the field to its north-east, also exhibit significant magnetic responses (Clarke 1990, 65, 92-94). Such igneous stones may, for example, exhibit a similar magnetic signature to that of a large sediment-filled pit, and if buried, it may become all but impossible to distinguish between the two. In addition to these, the various sharp, point-source dipolar anomalies (G12) dispersed throughout the surveyed area are likely to represent stray pieces of ferrous material in the topsoil, the majority of which are unlikely to be archaeologically significant. The two somewhat noisy, yet constrained zones of magnetic disturbance (G13; G14), situated 20m to the north-west and 25m to the east-northeast of the mound respectively, correlate with the two irregular areas of elevated magnetic susceptibility values (S2 and S3).

Electrical Resistance Survey Results

A Geoscan RM85 configured as a twin-probe array with electrode a-spacing of 1m was used for the electrical resistance survey (Gaffney and Gater 2003, 26-34; Gibson and George 2003, 140-42; Oswin 2009, 11-17, 32-40, 157-64; Schmidt 2013; Waddell *et al.* 2009, 22-23). As the surface soils had been considerably disturbed and truncated by ridge-and-furrow cultivation, this wider electrode a-spacing was chosen in order to sample a proportionately greater depth and volume of soil. Sample readings were taken at 1m intervals along parallel north/south transects set 1m apart. The completed survey covered an irregular area measuring 140m north/south by 160m east/west in maximum extent. The processed data have been presented as a grey-scale image in Fig. 8 with some of the more noteworthy features assigned numbers with the prefix 'R' (Table 1).

Similar to the gradiometer survey, many of the features revealed using this survey technique reflect the myriad low-relief surface features, although a number of other underlying trends and anomalies are also evident. The putative water-pipe trench (T21; G1) is visible as a low-resistance linear feature (R1) running alongside the field boundary to the east. Likewise, the pattern of spade-dug cultivation (T3; G2 and G3) can be observed as faint, closely-set bands of high and low electrical resistance (R2). The terraced, sub-rectangular platform (T4; S4) adjoining to the north-eastern quadrant of Dowth mound also registers as a zone of marginally elevated electrical resistance values (R3) in comparison to the surrounding ground, most especially the lower terrace of flat ground to its immediate east (R4; T6). The prominent linear embankment (T8) that traverses the southern part of this elevated platform manifests as a broad diffuse band of high electrical resistance values (R5), perhaps reflecting a hard, stony

component within its matrix. Similarly, the small, angled terrace (T9) tucked against the eastern flank of the mound also exhibits relatively high resistance values (R6). The parallel banks defining the curving track-way (T20), aligned diagonally north-west/south-east across the field, exhibit a higher electrical resistance (R7) than that of the surrounding ground. This feature can be traced as far as a distinctive area of low resistance (R8) located towards the southern end of the lower-lying flat ground (T6) and east of the sub-rectangular platform (T4).

The various low-relief linear features in the northern part of the field also register electrical resistance responses. The low escarpment/bank (T13), for instance, which crosses the width of the field east/west, displays as a high resistance lineament with a low resistance flanking shadow to its north (R9). These probably represent a bank and adjacent ditch respectively. The parallel linear depression (T14) lying 13m to its north displays a very faint intermittent low resistance signature (R10). In contrast to these, the curving earthen bank (T16) traversing the north-western corner of the field exhibits a more distinct, high-resistance arcuate signature (R11), likely to indicate a greater stone component at its core. It is evident, too, that the broad curvilinear feature, the disjointed sinuous lineament and the oval anomaly noted in the gradiometer image (G5; G6 and G7 respectively) also exhibit high electrical resistance signatures (R12; R13 and R14 respectively), perhaps reflecting a stony element at the heart of these features too.

The periphery of Dowth mound exhibits a particularly high electrically resistive response (R15) but other significant amorphous zones of high electrical resistance, which otherwise display little or no topographical expression, also occur in various parts of the adjacent field. It may be significant that two of these zones (R16 and 17) occur in the general vicinity of the clusters of exposed boulders (T1 and T2). Although the possibility of a shallow geological source cannot be entirely excluded, this pattern seems indicative of the presence of additional, sub-surface stony material within the immediate vicinity. As well as these, another notable area of high electrical resistance (R18) occurs in one of the cultivation plots (T15; G2) lying adjacent to the road, again reflecting an underlying stony matrix or similar hard, compacted surface.

An interpretation of the geophysical survey and reappraisal of the archaeological remains in the vicinity Dowth passage tomb and manorial village.

The Prehistoric Period

A detailed reassessment of the prehistoric remains in the townland of Dowth was advanced in Fenwick (2015) and so it is intended here to provide a summary account of those features of potential prehistoric significance that have been identified in the immediate environs of the mound and manorial village.

The great mound of Dowth (ME020-017) is amongst the earliest extant archaeological monuments thus far identified in the townland. Its commanding location on the summit of the ridge ensured that it remained an important focal landmark for subsequent human activity over the course of the succeeding millennia (Figs 3 and 4). As with Newgrange and Knowth, it has also been proposed that the finalised form of the great passage tomb at Dowth was of multi-phase construction, with the likelihood that two, or possibly three free-standing tombs, may ultimately have been incorporated into its western flank (Eogan 2009). The amassing of this great cairn in its finalised form would have required substantial quantities of earth and stone. Perhaps then, the series of broad, shallow depressions and irregular pits (T17), situated some 60-120m to the south-east of the great mound could have been the source for some of this building material.

On first inspection, the great mound of Dowth appears to occur in relative isolation. The National Monuments Service database (2017) has positively identified only one other passage tomb within the townland, but it is likely that a number of others in the area have been assigned less definitive classifications as ‘mounds’ or ‘barrow mounds’ (Fenwick 2015, 22-38). Unlike Newgrange and Knowth, the general area surrounding Dowth has not been subject to extensive scientific excavation and so it is possible that other smaller tombs might remain preserved, or partially preserved, below the surface of the surrounding fields. Indeed, Lewis (1837 i, 146) recorded the presence of “a cromlech, consisting of four large upright stones, with several others lying near” in the vicinity of the church and tower house at Dowth. Wilde (1849, 210) also mentions the existence of “some remains of one of those structures denominated Giants’ Graves” to the southeast of the mound. Though no longer extant, it is conceivable that these stones represented the denuded remains of an outlying passage tomb.

The recent programme of field research has tentatively identified the footprint of two passage tombs in the elongated field to the east of Dowth mound (see Fenwick 2015, 31-38). During the course of field reconnaissance, two boulder clusters were recorded situated 85-100m to the north-east (T1) and 60-90m to the south-east (T2) of the mound respectively. These display an unusual diversity of rock types, many of which appear to be exotic to the locality (*ibid.*, 33-34 figs 14 and 15). The presence of Lower Palaeozoic greywacke among them, however, is particularly significant as this stone only occurs naturally some several kilometres

to the north of Dowth, in a tract that extends north-eastwards as far as Clogher Head, on the Co. Louth coastline. It was imported into the *Brú na Bóinne* area in significant quantity as large slabs for the purposes of passage tomb construction during the Neolithic period (Corcoran and Sevastopulo 2017; Eogan 1986, 113-5). It is conceivable that the exposed boulders at Dowth might once have constituted kerbstones or other structural components of passage tombs, as these compare well in terms of composition and size with equivalent structural material from the smaller passage tombs at Knowth (George Eogan and George Sevastopulo pers. comms.).

The periphery of the great mound exhibits a high electrical resistance (R15) in comparison to surrounding ground, no doubt reflecting the hard, stony nature of its encircling kerb, the internal cairn material and its overspill. Amorphous zones of high electrical resistance (R16 and R17) also occur in the general vicinity of the exposed boulder clusters (T1 and T2). These localised high resistance responses might very well represent an underlying stony matrix, perhaps the disturbed sub-surface remains of passage tombs. It is possible that Boulder Cluster 2 (T2) and its associated electrical resistance anomaly (R17) represent the footprint of cairn material coincident with the ‘cromlech’ that was recorded by both Lewis and Wilde. Additional corroboration, albeit indirect, for the former presence of passage tombs in the area can also be found in the building material of some of the nearby medieval and post-medieval buildings and monuments (see below).

There is a steadily growing body of archaeological evidence in support of the premise that ritual tradition, although subject to change, continued uninterrupted from the Neolithic period through to the Early Bronze Age at *Brú na Bóinne* (Fenwick 2015, 38-46). In the townland of Dowth, the impressively large, embanked enclosure (ME020-010/Site Q), situated some 1,000m to the east-northeast of Dowth mound, in addition to a number of other possibly contemporaneous or related monuments and features (Fenwick 2015, 41), bear testament to a significant Early Bronze Age presence in the eastern sector of the *Brú na Bóinne* numinous precinct (Figs 1 and 3). Few diagnostic features or artefacts that might be attributed to Late Neolithic Grooved Ware or to Beaker activity, however, have been identified in or around the great mound at Dowth (O’Kelly and O’Kelly 1983, 178-182). It must be conceded, however, that various excavations conducted over the years have been focused primarily on the great mound and its surrounding kerb and have not ventured to any great extent into the surrounding fields (Harbison 2007; Herity 1974, 148-50; Leask 1932-4; Lynch 1990; O’Kelly and O’Kelly 1983, 141-4). Despite this, Lynch (1990) recovered a barbed-and-tanged arrowhead and also noted a number of prehistoric post-pits beneath the slumped cairn material close to the original entrance to the northern tomb.

Beyond the ancillary evidence of two potential ‘satellite’ passage tombs discussed above, the geophysical survey has not identified any other features or monuments that can be confidently ascribed to the prehistoric period, although the likelihood is, of course, that some do. A number of geophysical anomalies (e.g. G5-6 and R12-14), however, do superficially appear to predate the overprint of medieval and later earthworks.

The Early Medieval period

Although the great tumuli at Knowth, Newgrange and Dowth are of similar size, some marked differences in their morphology have been observed, which can be largely explained by the nature of subsequent human activity on and around these monuments over the millennia (O’Kelly and O’Kelly 1983, 149). Prior to their excavation, both Knowth and Dowth had acquired a similar rounded profile and a narrow berm circumscribing the inner edge of their kerb line.

Newgrange, by contrast, seemed to have altered little since the collapse of cairn material around its perimeter in early prehistory (O’Kelly 1982, 68-78; 85-92). It had gained a renewed sacred significance as a cult shrine during the later Iron Age, at which time high-status votive offerings were deposited close to the most conspicuous stones comprising the great stone circle (Cahill Wilson 2014, 43-45; Carson and O’Kelly 1977; Janiszewski 2011). There is no evidence of settlement during this, or subsequent phases of activity at Newgrange (Carson and O’Kelly 1977, 48).

Knowth also exhibits evidence for Late Prehistoric ritual activity, but of an entirely different kind. In this instance, the great mound was used as a cemetery during the Later Iron Age, from around 100BC to AD300 and this continued into the Early Christian period until as late as the ninth century AD (Eogan and Weekes 2012, 13-44). Sometime between the seventh and ninth centuries AD, a substantial double-ditched enclosure was superimposed on Passage Tomb 1C (Eogan, O’Brien and Weekes 2012, 45-83). This represents the beginning of what was to become an important Early Medieval settlement at Knowth, the place of residence of the *Síl nÁedo Sláine*. It would later evolve into a more substantial and increasingly prosperous open settlement on and around the great mound, continuing in use up until the twelfth century AD (Eogan 2012, 85-170). During these centuries the kings of Northern Brega (*Rí Chogba*) resided at Knowth and became a particularly powerful presence both locally and regionally (Swift and Byrne 2008).

The area around Dowth also exhibits an interesting mix of sacred and secular activity during these centuries. There is some historical evidence of the presence of an early church settlement at Dowth prior to the arrival of the Anglo-Normans. The *Annals of Ulster*, for instance, record the murder of Oengus, the *airchennach* (monastic manager) of Slane, by the *airchennach* of Dowth (*Dubad*) in the year 1012 (Kenny 2008, 141; O’Kelly 1982, 86; O’Kelly and O’Kelly 1983, 150; Stout 2002, 75; Stout 2007, 335). The *Annals of the Four Masters* also identify a church at Dowth amongst those burned by Diarmait Mac Murchada when he led an army, supported by Anglo-Norman horsemen, into Meath in 1170 (Kenny 2008, 14; O’Kelly 1982, 86; Stout 2002, 75; Stout 2007, 335). The existence of the twelfth century *Dowth Missal* and records of a nearby holy well known as *Tobar Seannchain*, provide additional indirect evidence (Herity 2001, 43; Kenny 2008, 141, 165; Stout 2007, 336). This well could have been located at, or near the impressive shaft-well that lies to the immediate east of Dowth tower house, although two other wells, the ‘Mount Well’ to the west of the graveyard (possibly correlating with R8) and a holy well, ‘St Bernard’s Well’ (ME020-016003), seemingly coinciding with the pit containing the putative pump-house footing (T18), are both marked on the Co. Meath Ordnance Survey first-edition 6-inch map. The location of these wells is shown in Fig. 4. More tangible evidence of an earlier church, however, includes some architectural fragments that have been built into the fabric of the extant fourteenth to fifteenth century church and the graveyard wall (Stout 2002, 75; Stout 2007, 342).

Of the range of features that have been identified in the geophysical surveys, few if any can be definitively identified as relating specifically to Early Medieval activity, but that is not to say that none are present.

More robust evidence of an Early Medieval settlement at Dowth, albeit on a lesser scale than that at Knowth, is witnessed by the presence of a substantial souterrain (ME020-017001) incorporating two large bee-hive chambers, which was built into the western flank of the great mound (O’Kelly and O’Kelly 1983, 154-6, fig.7) (Figs 4 and 5). It joins with the passageway of the northern tomb to provide a convenient, ready-made subterranean extension (O’Kelly and O’Kelly 1983, 144, 151, fig.6). It is interesting to note that both the *Annals of Ulster* and the *Annals of the Four Masters* refer to Norsemen plundering the ‘cave’ of Dowth (*Dubhad*) around the year AD862 (Herity 1974, 148; Stout 2002, 81; Wilde 1849, 202). It is likely that this very souterrain is the one to which they refer, although at least one other example occurs in the townland (Fig. 3).

It is also particularly noteworthy that the capstones of the souterrain in the Dowth mound are almost without exception composed of greywacke slabs, undoubtedly acquired by dismantling

a nearby megalithic tomb or tombs. It would appear therefore, that much of the destruction of prehistoric monuments occurred during the Early Medieval period. A similar pattern of destruction was also noted at Knowth, where many of the stones comprising the smaller passage tombs had been reused in the construction of Early Medieval houses and souterrains (Eogan 2012, 85). It might also be significant that the souterrain was deliberately inserted into the eastern flank of Dowth mound. At first sight, this would appear to represent a considerable and seemingly unnecessary investment in labour as it was necessary to excavate through both cairn material and subsoil. It is possible however, that a ditch was already extant internal to the delimiting kerbstones at Dowth at this time, as was the case at Knowth when some of the souterrains associated with its open settlement were built there (Eogan 2012, 85-170). As described above, the profile of the mounds at both Knowth and Dowth exhibit a distinct berm just inside the kerb, which support the hypothesis that Dowth too could have had an encircling fosse (O’Kelly and O’Kelly 1983, 149). It is conceivable therefore, that Dowth mound might once have served as some form of raised ringfort into which a souterrain was later inserted, prior to further modifications to the mound during the Anglo-Norman period. Such a scenario might not be unexpected given the extensive evidence for Early Medieval settlement that has come to light throughout *Brú na Bóinne* in recent years, all of which reflect the political dominance and agricultural wealth of the area (see for instance: Davis *et al.* 2013, 226; Fenwick *et al.* 2009; Fenwick *et al.* 2012; Stout 2002, 77-78; Stout and Stout 2008). In addition, the string of strategically located enclosures/ringforts commanding the high ground on the southern banks of the River Boyne from Dowth to Crewbane appear to have provided the royal settlement at Knowth and its related outlying farmsteads and settlements with a defensive southward-facing bulwark. These were ideally positioned to control traffic, transport and riverine resources along this important communication corridor.

Anglo-Norman and later medieval periods

In 1142, to seal the collapse of the Northern Brega, the Cistercians of Mellifont were granted vast swathes of land in Meath, along with most of what is now identified as *Brú na Bóinne* (Kenny 2008, 140-49; Swift and Byrne 2008, 40). The lands around Dowth, however, were to remain a secular ‘island’ surrounded by church-administered granges (Jenkins 2008, 177-183, 191; Stout 2007, 336-8). It ‘island’ of land was granted to an Anglo-Norman lord, Herbert de Rushebury, shortly after de Lacy had acquired the territory of Meath in 1172 (Seaver 2005, 70). Around the year 1220 de Rushebury granted the tithes of the church and some land at Dowth to the Augustinian priory of Llanthony Secunda in Gloucestershire (Stout 2007, 336). Not long afterwards, the lordship of Dowth, with the exception of the church and its glebe lands, came into the possession of the de Pitchfords, before finally being acquired by the

Netterville family at the beginning of the fourteenth century, and was to remain in their possession until the nineteenth century (Jenkins 2008, 191).

It has long been assumed that the footprint of the manorial village of Dowth lay preserved in the myriad furrows and embankments, including part of an ancient field system (ME020-016001) to the east of the great mound (Stout 2002, 97; Stout 2007, 338-9). Indeed, Kenny (2008, 143) confidently asserts this view. The results of the recent survey however, might suggest a slightly more nuanced interpretation, one in which a number of successive phases of medieval and post-medieval activity over the course of several centuries can be proposed.

The pre-existing Early Medieval church settlement and the strategically defensive capabilities of the great mound are likely to have influenced the decision to establish a manorial village at Dowth. There is a tradition that the mound was modified to function as a motte during the early years of the Anglo-Norman colonisation, similar to that at Knowth (Kenny 2008, 142; Stout 1997, 34; Stout 2007, 336). Moreover, the steep-sided, rounded profile, basal berm and level platform with its low central mound at the summit, as illustrated by Beranger in 1775 (Fig. 9) and also by Wakeman in the years prior to Frith's RIA-sponsored excavations of 1847-8, appears to support this assertion (Fenwick 2015, 33- 35, fig. 16; O'Kelly and O'Kelly 1983, 140-141, 149-150). The recent programme of geophysical survey seems also to have identified what might be the remains of a rudimentary bailey or curtilage attached to the north-eastern side of the mound. The ground here is divided into two relatively level terraces forming a sub-rectangular platform (T4). Its edge is demarcated by a prominent escarpment (T5) that falls away to lower-lying, often water-logged ground to its east (T6). This platform (T4) exhibits a noticeably enhanced magnetic susceptibility response (S4) in contrast to that of the surrounding ground (S5), indicative perhaps, of more intensive human activities associated with its occupation and use. Furthermore, a more pronounced anomaly within this area (S3; G14) may correspond with a contained zone of industrial or domestic activity involving intensive, localised burning. The platform (T4) also manifests as an area of marginally higher electrical resistance values (R3) surrounded by a broad, irregular zone of lower values (R4). These contrasts are likely to reflect the localised topography consisting of slightly elevated and therefore marginally better drained soils, surrounded on three sides by lower, more water-retentive ground, or, very possibly, vestiges of a broad, sediment-filled fosse.

A defended manor appears to have been established very soon afterwards in the shadow of the putative motte-and-bailey. An insight into the nature of the settlement and its inhabitants is recorded in an itemised inventory, or 'Extent', undertaken in 1252 as a result of a legal

dispute on the death of Ralph de Pitchford (Kenny 2008, 143-4; Stout 2002, 98; Stout 2007, 336-7). It lists the measure and quality of the late lord's land holdings, the area devoted to his demesne lands, including garden and dovecote, in addition to various mills and a fishery. The Extent also lists the presence of nine fee-farm tenant families, six of which were English and three Irish, along with a retinue of resident cottiers and labourers. Collectively, this represents a sizable village. An entry in the cartularies for the year 1317 confirms that the church at Dowth, some adjoining land, and various associated cottages and courtyards continued to remain in the possession of the canons of Llanthony Secunda (Stout 2002, 99; Stout 2007, 336). Indeed, this priory would continue to hold title to these lands until the confiscations of the Reformation. The additional buildings and ancillary structures are likely to have been located in the present townland of Glebe, extending south towards the river.

The Civil Survey confirms that the manor was still partially occupied into the mid-seventeenth century, noting the presence of a tower house, a stone house, and various ancillary buildings including a stable, outhouse and malt-house. Based on architectural comparisons to Derryhivenny castle in Co. Galway, it appears that the tower house at Dowth (ME020-018) might also represent a particularly late example of its type (Galway 1995-6, 58; Stirland and Coldrick 2002; Stout 2007, 346-9) (Fig. 10). It is notable too, that its mortared masonry walls contain only a handful of recycled greywacke insertions, used primarily for window, door and fireplace lintels.

The ruins of the medieval church (ME020-019), consisting of a nave and chancel with a double-belfry built into the western gable, dates largely to the late fourteenth or early fifteenth centuries, although, as described above, it also assimilates some features of an earlier church (Fig. 11) (Stout 2002, 99; Stout 2007, 338-346). There is no apparent use of greywacke in its structural fabric, suggesting that sources of this stone type were not chosen or readily available to its builders at this time. It seems likely therefore, that it was the earlier rather than the later medieval building activity that was substantially responsible for the destruction of nearby passage tombs. By the mid-seventeenth century the church had fallen into disrepair and thereafter its open chancel was used as a convenient cemetery for the Netterville family (Lewis 1837 i, 496; Stout 2007, 340). The upper part of an earlier coffin-shaped grave slab, probably dating to the thirteenth century, bearing traces of an elaborate, low-relief, ringed cross was rediscovered during recent renovations to the grounds of 'Netterville Manor', formerly the Netterville Charitable Almshouse (James Flynn pers. comm.) (Fig. 12). This appears to be the cross-inscribed slab drawn by du Noyer in the 19th century, which was thought to have been lost (Stout 2007, 342, 346, fig. 6).

The extent and limits of the medieval manor of Dowth and the nature of the associated earthwork remains in the field between the mound and medieval graveyard has been the subject of comment and speculation in recent decades, but relatively little dedicated field research (Figs 2, 4 and 12). A document in the Sites and Monuments Record (SMR) files for 'ME020-016001 Field System' archived at the National Monuments Service is likely to be the source of some of the information that has subsequently found its way into various publications and reports (Kenny 2008, 143; Stirland *et al.* 2004, 5; Stout 2002, 97). It remains untitled and undated, although its content seems to suggest that it is part of a thesis or dissertation chapter and the name 'Peter Moore' hand-written on the top margin of the opening page, is possibly that of the author. This individual is not the Belfast-based archaeologist, author and motorcyclist blogger of the same name (Peter Moore pers. comm.). It contains a descriptive survey of the earthworks at Dowth subdivided into 21 zones, numbered in sequence from the modern road at the north of the field to the 'quarry' at the south. In addition, it contains some details of a limited phosphate and electrical resistance survey that is reproduced as an early computer-generated trace plot. Sadly, neither the methodology nor the 'alidade' or plane-table survey that recorded field boundaries, stones and nettle clumps are reproduced and the text is all but impossible to follow without them. In conclusion, however, it states that "The field of earthworks shows two definite houses, several possible structures, and the sites of several houses as seen by large rectangular nettle clumps, there is also a hollow-way, several possible paths and many gardens or separate areas of cultivation ridges (not large fields)".

Many of these assertions, however, are not fully supported in the results of the recent and more detailed archaeological surveys. It is readily apparent, for instance, that the background magnetic susceptibility values recorded throughout the field in question are noticeably subdued, with the exception of the putative bailey (S4) and a number of other localised anomalies (S1; S3; S6; S7). This might suggest that the earthworks are associated more closely with outlying agricultural activity than with an extended domestic settlement or village. There is also a noticeable absence of features that might be interpreted as medieval house sites, related structures or burgage plots in either the gradiometer (Fig. 7) or electrical resistance (Fig. 8) surveys, although it is likely that if such existed, these would have been significantly disturbed by episodes of later ridge-and-furrow cultivation. Indeed, definitive archaeological evidence for such buildings are limited to a wall footing (T12) exposed in the field-boundary drain 90m to the north-east of Dowth mound, and a house platform abutting a field wall to the south-west of the graveyard (T19). It would appear, therefore, that the majority of linear and curvilinear earthworks that pre-date the ridge-and-furrow pattern (T3) are related to relict field boundaries and cultivation (e.g. T8; T10; T13; T14; T16; G8; R5)

rather than to hollow-ways, burgage plots or house platforms. Stout (2002, 97, fig. 22B) observed too that these irregularly shaped plots of various sizes are atypical of a medieval three-field system, but given the longevity of human activities at Dowth, perhaps such a pattern might be hard to distinguish from the confusion of overlapping earthworks of various dates.

The presence of hollow-ways and paths contemporary with this field system are not readily apparent in any of the recent surveys either, although the configuration of curvilinear and linear earthworks in the northern sector of the field (T13; T14; T16) is suggestive of an informal east/west corridor. More convincing, however, is the presence of a low-relief bowed track-way (T20), which also displays a geophysical signature (G4; R7). This traverses the field, the putative bailey and the underlying field plots diagonally (north-west/south-east) and in so doing, demonstrably post-dates all of these features. This feature is likely to represent a track-way of late medieval or post-medieval date that once led towards the graveyard and tower house at a time before the imposition of the ridge-and-furrow cultivation pattern (Figs 4 and 5). The low resistance feature (R8) noted towards its south-eastern end might represent a backfilled, water-saturated pit or disused well, possibly the 'Mount Well' mentioned above (Fig. 4). At the opposite end of the track-way, to the northeast of the mound, is a discrete oval anomaly noted in both the gradiometer (G7) and electrical resistance (R14) surveys. Although it seems probable that this feature might be related to industrial or domestic activities underlying the track-way, perhaps the remains of a kiln or furnace, it does not preclude the possibility that it could also represent a large, buried, igneous boulder of a type similar to the kerbstone (G10) noted above.

Geophysical survey conducted by Archaeological Consultancy Services Ltd. in advance of building works to the north of 'Netterville Manor', suggested the presence of a sub-surface, north/south oriented track-way, flanked by a wall to either side (Stirland *et al.* 2004; Stout 2007, 339). By coincidence, its location closely corresponds to the new driveway leading to 'Netterville Manor'. This survey also identified various ditches and 'occupational features' none of which materialised in subsequent monitored excavation (Russell 2007). Indeed, all exposed stratigraphy and recovered finds to the north of the former almshouse, tower house and graveyard were found to be post-medieval in date.

It seems probable, in the absence of evidence elsewhere, that the bulk of the manorial settlement of Dowth occupied the ground somewhere to the south of the tower house. It might be significant therefore, that a number of linear and curvilinear, ditch-like features can be observed as crop-marks to the south of the extant medieval buildings in aerial photographs

taken in 1969 (Fig. 13). Unfortunately, much of the walled garden situated to the south of the tower house and Almshouse (latterly 'Netterville Manor') was extensively remodelled in the earlier part of the present century as part of refurbishment works by its then owners (Flynn 2012, 117). It is unlikely therefore, that any trace of medieval remains within it will have survived (Fig. 14).

It is particularly significant, however, that Stout (2002, 177) had tentatively identified a 'sunken way', aligned south-west/north-east, coincident with the Dowth/Glebe townland boundary to the south of the earthwork field (Figs 4 and 12). The alignment of this feature may have been influenced by the presence of a possible pre-existing linear earthwork marking a thoroughfare between the prehistoric monuments of Dowth and those in the flood plains to the south of Newgrange (Fenwick 2015, 20 fig. 1, 41). The National Monuments Service database (2017) cites an unpublished, and currently unavailable report by Ní Lionáin and Davis (2016) in which the results of a gradiometer survey in Glebe townland in the field to the south of this sunken way, had identified a series of burgage plots and a number of house platforms aligned to it. This has since been classified as 'Settlement deserted – medieval' (SMR No. ME020-082). These features might very well constitute part of the elusive manorial village of Dowth or might alternatively be related to the dwellings, ancillary buildings and farming activities associated with the church glebe lands mentioned above.

Post-medieval and modern periods

Prior to the mid-eighteenth century the sixth Viscount Netterville had already vacated the tower house for the comforts of a far grander stately residence with landscaped demesne grounds, which was situated some 500m to the east (Fig. 3). Their new home, 'Dowth Hall', effectively turned its back on its manorial ancestry, choosing instead the panoramic vistas eastwards over rolling pastures, authentically ancient garden 'follies' and the Irish Sea in the far distance (Fenwick 2013; Fenwick 2015, 25, fig. 4; Jenkins 2008, 198-202; Stout 2002, 125-7). It was during these years that the demesne grounds were also radically transformed, with the addition of a race course, deer park, enclosed courtyards and estate buildings. Land divisions and laneways were also substantially revised for estate tenants and a road, running east/west along the northern side of the demesne grounds and immediately to the north of the great mound, provided a new avenue of communication through the landscape.

During the early eighteenth century Viscount Netterville also transformed Dowth mound with the building of a pagoda-like prayer house on its summit (Harbison 2004, 26-7). Beranger's water colour of 1775 clearly shows that it was approached via a ramp that spiralled around the side of the mound (Fig. 9). This structure is believed to have been erected at a time when the

Nettervilles still resided in the tower house, prior to the completion of their stately home to the east (O’Kelly and O’Kelly 1983, 138). Sadly, the prayer house had fallen into disrepair by the early nineteenth century and was eventually removed during the course of Frith’s excavations of 1847-8 (Harbison 2007; Herity 1974, 248-250; O’Kelly and O’Kelly 1983, 141-4; Wilde 1849, 205-6). Despite the disturbance to the monument, which remains un-reinstated to this day, part of the original ramp can still be observed ascending anticlockwise around the north-eastern side of the mound (Fig. 2). This suggests that the mound was originally approached from the south-east, at the point closest to the tower house, in order to facilitate ease of access. Indeed, the slightly raised linear embankment (T8) of high electrical resistance (R5), which traverses east/west across the southern part of the putative bailey appears to mark the northern shoulder of a ‘sunken way’ identified by Stout (2002, 97, fig. 22AB; 2007, 341, fig. 3) and this path may originally have connected the two. This linear feature appears to join to the small angled terrace (T9) tucked against the eastern flank of the mound at the point where the ramp begins its ascent.

The last Viscount Netterville, who died in 1826, bequeathed the tower house, 60 acres of land including the great mound, and a recurring annual fund towards the upkeep and maintenance of widows and orphans (O’Kelly 1982, 92; Stout 1997, 35; Stout 2007, 338; Jenkins 2008, 214). As a consequence, the Netterville Trust was founded and in 1877 a purpose-built institute, the Netterville Charitable Almshouse, was erected along with an adjoining schoolhouse and chapel (Netterville Synnott n.d., 12; Stout 2002, 179).

It is recorded that Dowth mound had already been quarried for road-building materials in the decades prior to Frith’s excavations, however stones were again plundered from the mound subsequent to this, which brought the offender to court in 1873 under threat of eviction (Jenkins 2008: 220-4; O’Kelly and O’Kelly 1983, 136-148; Stout 2002, 162). Following this, in 1885, the Netterville Trust granted the custody of the mound to State care under the Ancient Monuments Protection Act of 1882. During most of this time, the mound appears to have stood centrally in a large, square field as depicted on the first edition Ordnance Survey 6-inch map of 1837. This field was later divided north/south by a zig-zagging field boundary sometime prior to the third edition map of 1909. This new boundary traverses the western and southern sides of the mound, with Glebe House and its outbuildings occupying what formerly was the north-western quadrant of the square field (Fig. 4). The various earthworks remain preserved in what was formerly its eastern sector, but all traces of similar features that may once have existed in its western sector have disappeared.

The last episode of spade-dug cultivation within this elongated field is believed to pre-date the 'new', eighteenth century road to its north, on the basis that the three plots along its northern edge appear to be truncated by the road (Stout 2002, 35; Stout 2007, 339). This, however, may not necessarily be the case. It is notable, for instance, that in all cases the cultivation pattern runs orthogonal or parallel to the existing field boundaries, including the three plots adjacent to the road. Of course, this could be coincidental, but if a pre-existing cultivation pattern had been cut by the new road, it would have been more likely to have done so at an angle. Furthermore, if this blanket cultivation pattern was already extant in the field prior to the 'new' road, its presence would, in effect, have already severed direct communication between the prayer house on the mound and the tower house, at a time when the Nettervilles still resided there. An alternative scenario might suggest that this final episode of cultivation is relatively late, perhaps reflecting the greater population pressure on the land in the decades prior to the Great Famine (Jenkins 2008, 204-7). Indeed, parallel with this, the early decades of the nineteenth century reached a 'high tide of arable activity in Co. Meath' (Stout 2002, 147). On account of the preponderance of large stones and unaccommodating topography, the relatively marginal land to the east of Dowth mound seems only to have been suitable for spade-dug cultivation. Given its proximity, there is more than a possibility that this farming activity might have been associated with the nearby Netterville Charitable Almshouse. Conversely, following the population decline in the wake of the Great Famine, there was a marked decrease in tillage and cultivation in the area, reflecting national trends during the second half of the nineteenth century (Jenkins 2008, 216-7, 226). This decline might therefore account for the subsequent preservation of this last episode of spade-dug cultivation to the present day.

The landscape around Dowth was subject to more change throughout the twentieth century and its evolution has again gathered pace in the opening decades of this century. Part of the Dowth/Glebe townland boundary, for instance, was removed to create larger tillage units (Stout 2002, 177) (Figs. 4 and 12). The pump-house and pipe are also likely to have been a twentieth century initiative, prior to the installation of water mains. The Netterville Charitable Almshouse closed its doors in the early 1960s and its buildings and lands were subsequently sold (Netterville Synnott n.d., 16-17). Although somewhat neglected for a time, the Victorian structure was later refurbished and functioned as a guest house for some years. From 2002, the more recent owners embarked on a major programme of renovation and reinvention (Flynn 2012, 117). The former almshouse, now renamed 'Netterville Manor', has been extensively refurbished, the tower house modernised and its adjacent chapel lavishly reinstated (Stirland and Coldrick, 2002) (Fig. 10). A drive and railings were added to the frontage and the secluded walled-garden to the rear was extensively redesigned (Fig. 14).

Similarly, the new owners of Dowth demesne, who acquired ‘Dowth Hall’ along with some 170 hectares of surrounding land in 2013, have also initiated a major programme of rehabilitation, with a view to the timely restoration of the house and gardens. In addition, a reordering of the estate grounds is underway in order to conform to the demands of contemporary farm management practice and the ideals of twenty-first century landscape aesthetic. In reality, the challenges of landscape management today are not that far removed from those encountered by the earlier farming communities of *Brú na Bóinne*, whose very existence was dependent on implementing, maintaining and sustaining a viable economic system in close harmony with the ever-evolving environmental, cultural and ideological constraints of their times.

Conclusions

The range of sites and monument in the vicinity of the great passage tomb of Dowth present a microcosm of the archaeological, historical and social development of the *Brú na Bóinne* landscape from distant prehistory to the present day (Fig. 3). During the course of archaeological and geophysical survey a number of new features of archaeological significance were identified (Fig. 4). In parallel with the programme of field research, a perusal of documentary sources has enabled a more detailed and contextualised reassessment of the archaeological remains to be advanced.

The disturbed remnants of two passage tombs have been tentatively identified to the northeast and southeast of Dowth mound. Several geophysical anomalies that display no appreciable surface expression might also be indicative of additional prehistoric activities surrounding the great mound, but more abundant evidence of human activities can be attributed to the historic period. The presence of a souterrain built into the western flank of Dowth mound might suggest that it once served as a raised ringfort. The traditional belief that the Anglo-Normans remodelled the mound as a motte is given additional support in the various surveys which identified the presence of a D-shaped curtilage; a possible bailey, attached to its north-eastern quadrant.

The results of the field survey do not support previous assertions that traces of Dowth manorial village lie in the elongated field between the mound and the graveyard. On the basis of absence of evidence elsewhere, it is probable that the greater part of the settlement was originally situated to the south of the church and tower house, in the area currently occupied by a walled garden (Figs 4, 13 and 14). Additional evidence for medieval settlement has been identified in Glebe townland, to the south of the ‘sunken way’ (Fig. 4).

Most of the earthworks between the mound and graveyard relate to medieval and post-medieval agricultural activities. The bowed track-way leading towards the graveyard traverses the putative bailey and the later field plots at an oblique angle and demonstrably post-dates these underlying features. The pattern of ridge-and-furrow cultivation, in turn, is superimposed over both the track-way and the agricultural earthworks. This pattern of cultivation appears to date to a period after which the tower house had been vacated by the Netterville family for the modern comforts of ‘Dowth Hall’, sometime during the earlier part of the eighteenth century (Fig. 3). In all probability, the final episode of ridge-and-furrow cultivation is associated with the Netterville Charitable Almshouse and reflects a time of greater population pressure on the land in the years immediately prior to the Great Famine.

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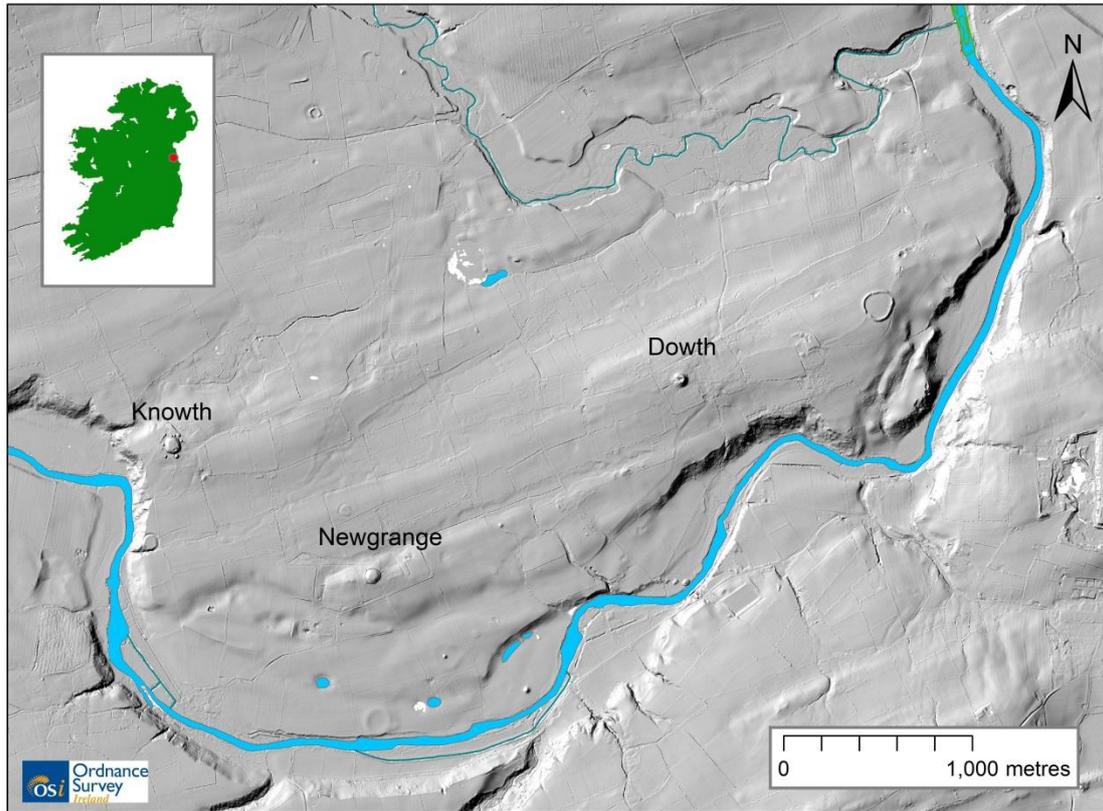


Fig. 1

Surface-shaded topographical model of the *Brú na Bóinne* landscape generated from lidar data, with the location of the great passage tombs of Knowth, Newgrange and Dowth indicated. The meandering loop of the River Boyne can be observed to the south with the River Mattock, one of its tributaries, to the north (© Ordnance Survey Ireland. All rights reserved. Licence number NUIG230615; © Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).



Fig. 2

Oblique aerial photograph of Dowth mound and various earthworks in the field to its east, as viewed from the north-east. Glebe House and grounds can be observed to the right (north-west) of the mound, with Ballinacrad House in the distance (to the southwest). The ploughed-out remains of the Dowth/Glebe townland boundary can be observed as a cropmark traversing the field diagonally on the far left (south of the mound) (photo: J. Fenwick).

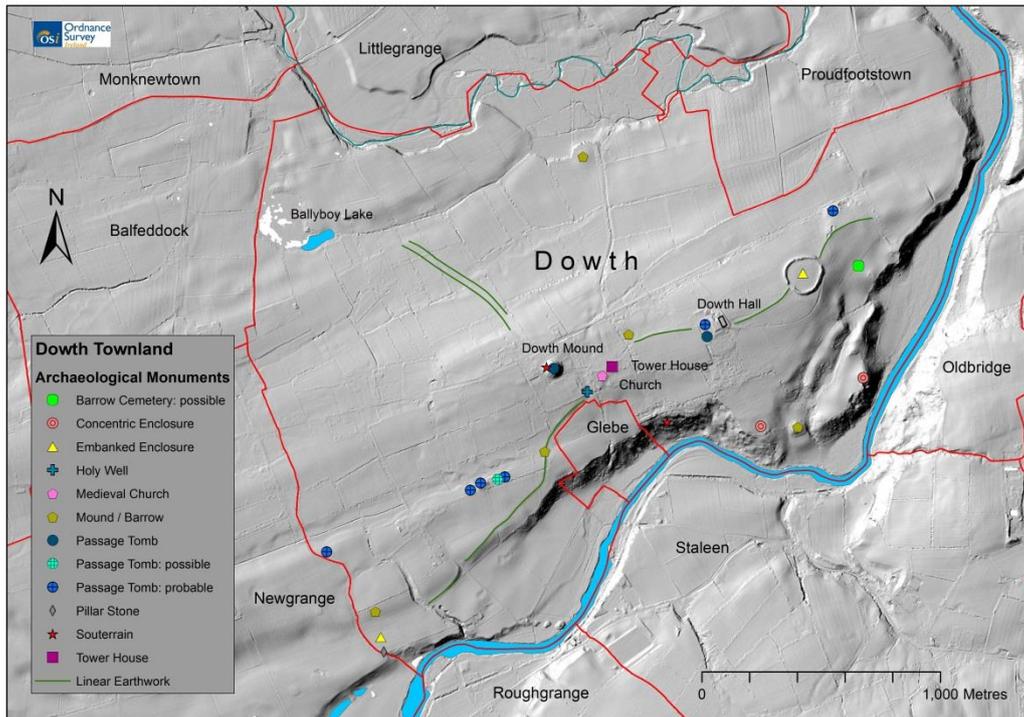


Fig. 3

Distribution map of archaeological sites and monuments in the townland of Douth (© Ordnance Survey Ireland. All rights reserved. Licence number NUIG230615; © Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).

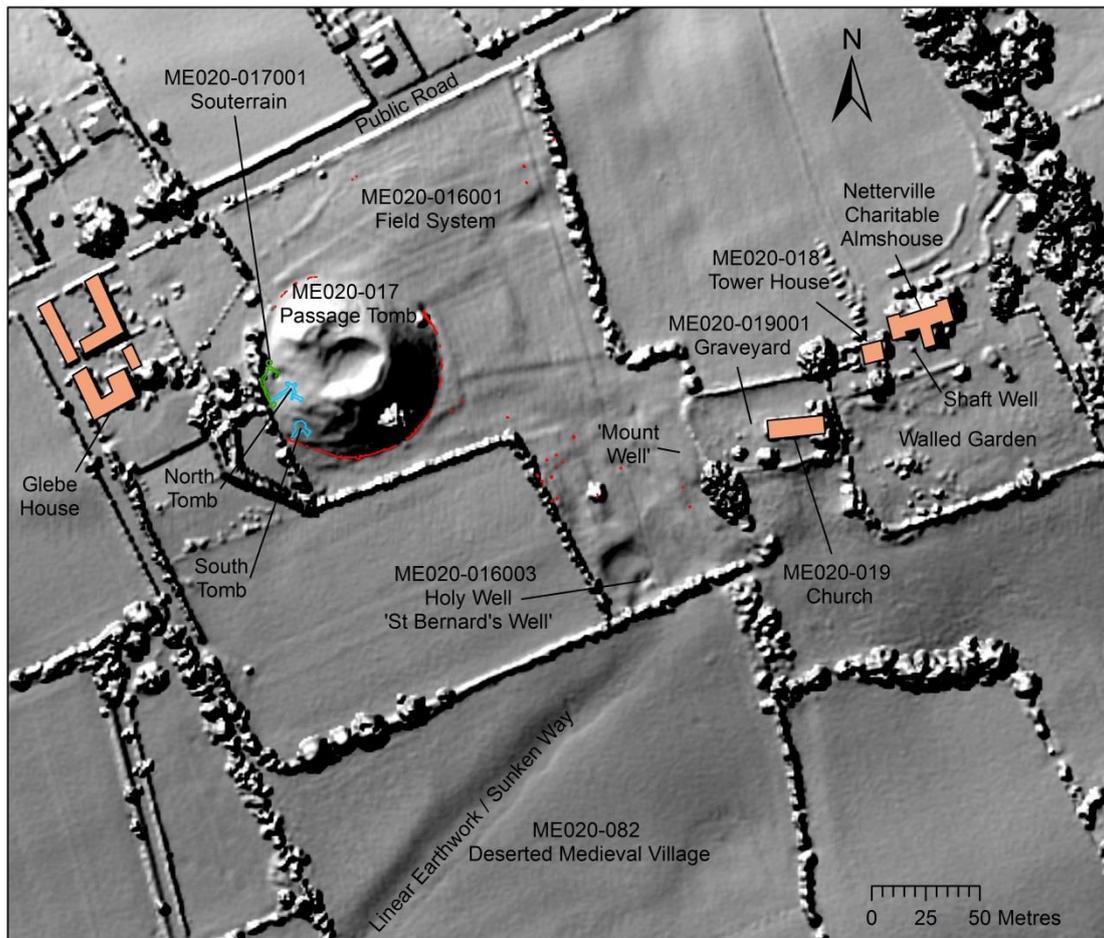


Fig. 4

General map of the area surrounding the great passage tomb and the medieval manor of Dowth, with the principal archaeological sites and monuments indicated. Visible kerbstones surrounding the great mound and other large boulders in the adjacent field are marked in red. The souterrain and passage tombs are outlined in green and blue respectively. (© Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).

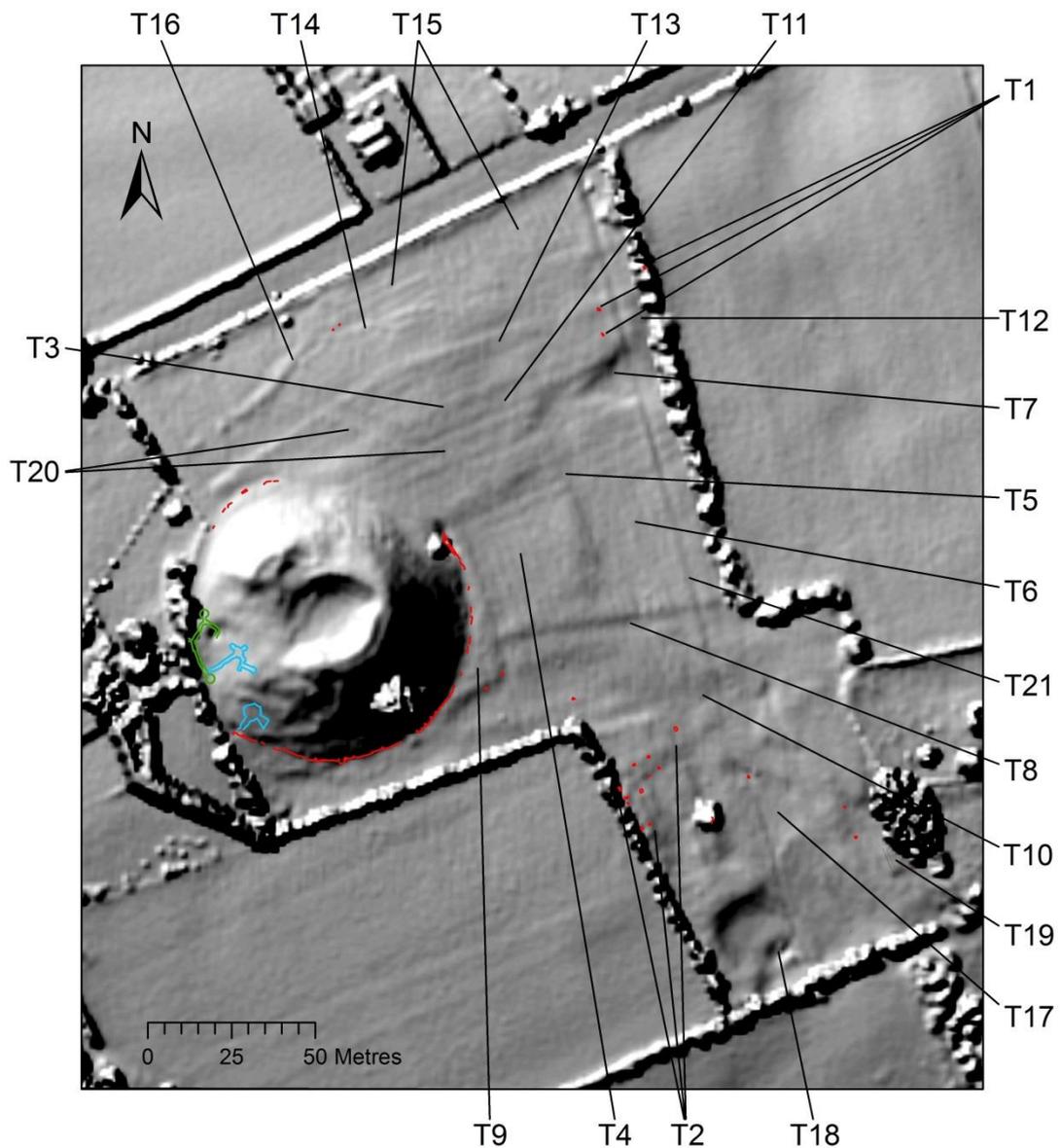


Fig. 5

Topographical map generated from lidar data of the field to the north and west of Dowth.

Visible kerbstones surrounding the great mound and other large boulders in the adjacent field are marked in red. The souterrain and passage tombs are outlined in green and blue respectively. The principal surface features are numbered with the prefix ‘T’ in order to aid cross-referencing with the text (© Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).

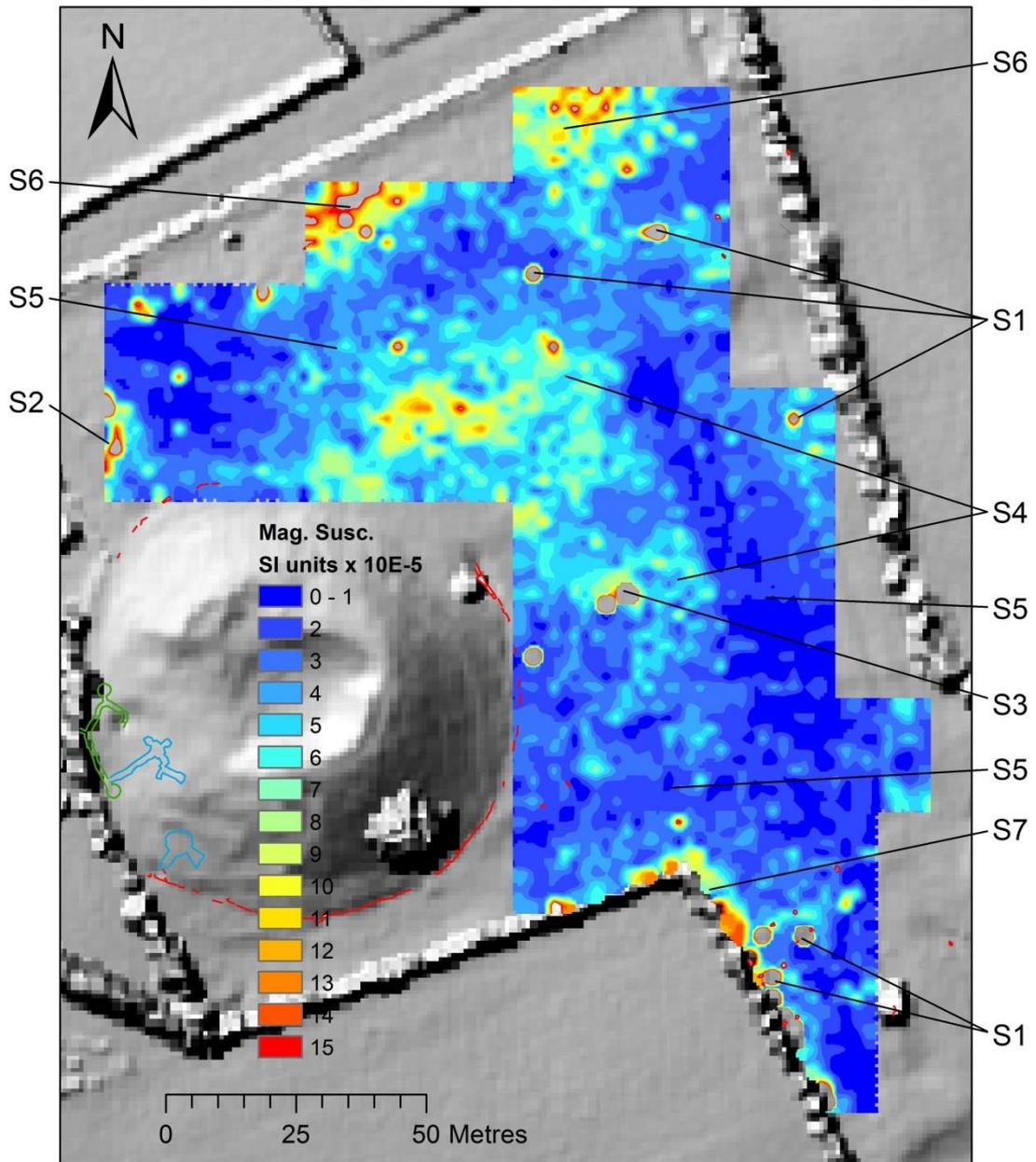


Fig. 6

Magnetic susceptibility survey of the area to the north and east of Dowth mound presented as a colour-ramp image and superimposed over a surface shaded model generated from lidar data. Principal anomalies are numbered with the prefix 'S' to aid cross-referencing with the text (© Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).

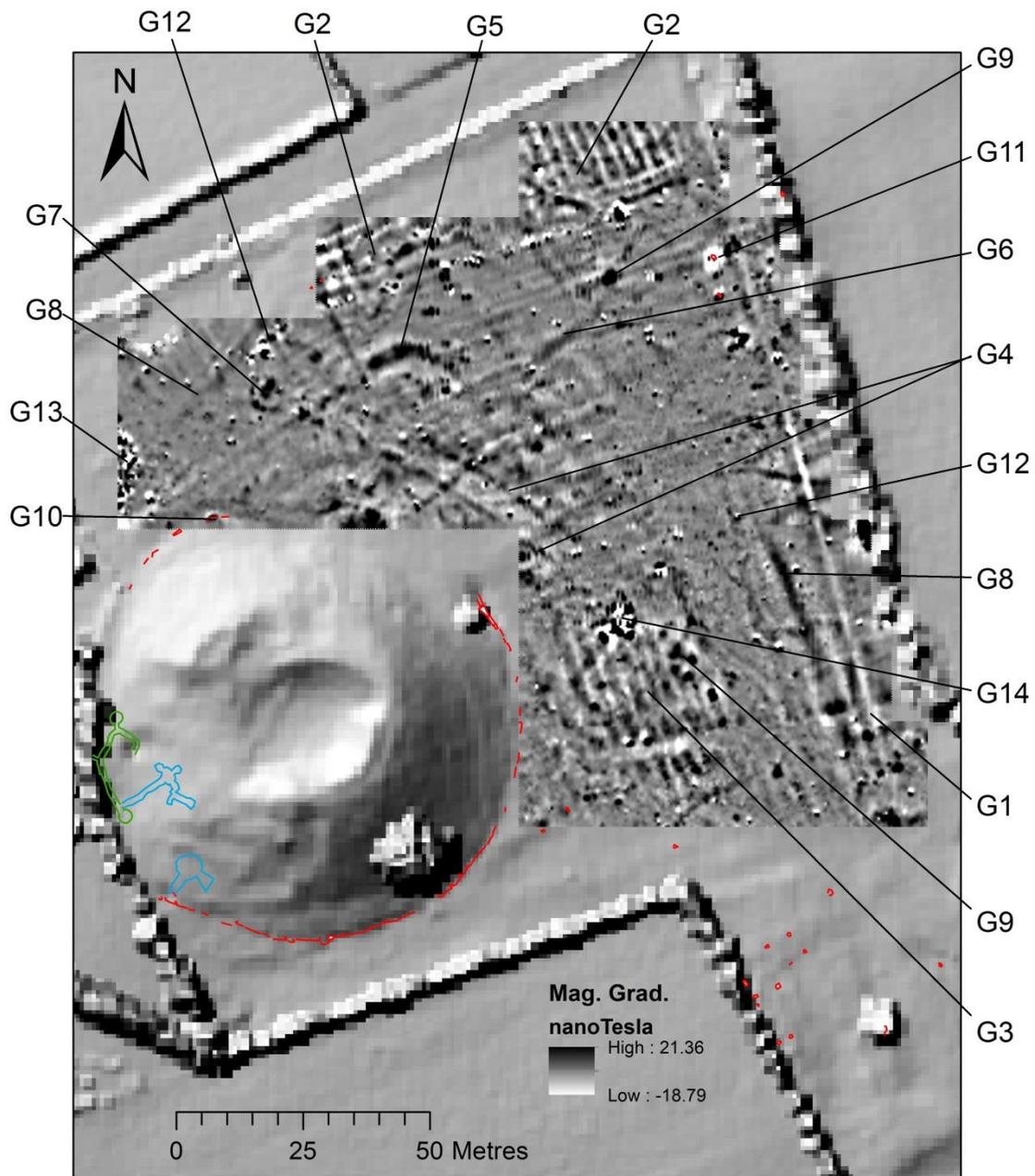


Fig. 7

Fluxgate gradiometer survey of the area to the north and east of Dowth mound presented as a grey-scale image and superimposed over a surface shaded model generated from lidar data.

The principal features are numbered with the prefix ‘G’ to aid cross-referencing with the text

(© Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The

Heritage Council and Meath County Council).

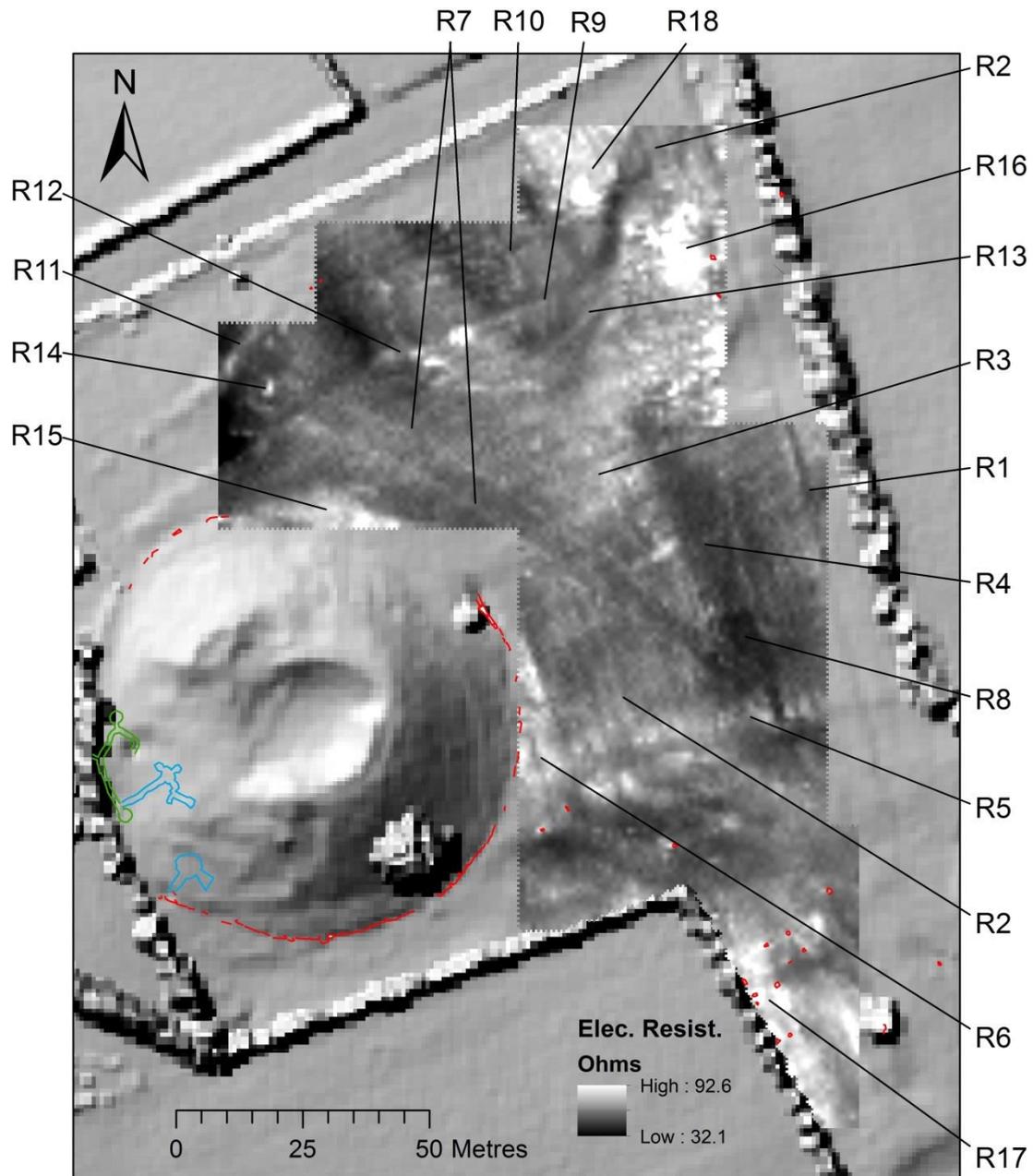


Fig. 8

Electrical resistance survey of the area to the north and east of Dowth mound presented as a grey-scale image and superimposed over a surface shaded model generated from lidar data. The principal features are numbered with the prefix 'R' to aid cross-referencing with the text (© Geo-referenced lidar image reproduced courtesy of The Discovery Programme, The Heritage Council and Meath County Council).



Fig. 9

Gabriel Beranger's signed and annotated watercolour of Dowth tumulus (1775). The inscription reads 'The Moat of Barrow at Dowth 2m [miles] from Slane County of Meath. This mount is said to contain a cemetery but has not yet been opened, & a modern temple is built on its summit' (reproduced by permission of the Royal Irish Academy © RIA).



Fig. 10

Refurbished chapel and tower house of Dowth viewed from the southwest (photo: J. Fenwick).



Fig. 11

Ruin of Dowth medieval church during the course of conservation works in October 2012, with tower house visible in the background to the left (photo: J Fenwick).



Fig. 12

Photogrammetric composite image of the upper fragment of a medieval coffin-shaped grave-slab bearing a ringed cross in low-relief, which was rediscovered during recent improvements to the house and grounds of Netterville Manor (formerly the Netterville Charitable Almshouse) (image: J. Fenwick).



Fig. 13

Oblique aerial photograph looking north-eastwards across the grounds of the Netterville Charitable Almshouse, with the tower house, church and graveyard visible in the foreground. Traces of the Dowth/Glebe townland boundary can be observed as a cropmark in the bottom left of the photograph as can several linear and curvilinear ditch-like features extending to the south of the graveyard and walled garden (Reproduced by permission of Cambridge University Collection of Aerial Photography ©CUCAP AYM085 Dowth 1969-07-09).



Fig. 14

Aerial view (2014) looking southwards towards Dowth medieval church and graveyard, with the renovated tower house and recently landscaped grounds of Netterville Manor (formerly the Netterville Charitable Almshouse) to its east (photo: J. Fenwick).

Topo.	Mag. Susc.	Flux. Grad.	Elec. Resist.	Feature/Anomaly
T1			R16	Boulder Cluster 1/amorphous zone of high elec. resist. displaying no topo. expression
T2			R17	Boulder Cluster 2/amorphous zone of high elec. resist. displaying no topo. expression
T3		G3	R2	ridge-and-furrow cultivation pattern/bands of alternating pos. and neg. mag. grad./high and low elec. resist.
T4	S4		R3	sub-rectangular: platform/mag. susc. zone/marginally elevated elec. resist. values
T5				linear escarpment
T6			R4	flat waterlogged ground/zone of lower elec. resist.
T7				large pit
T8			R5	linear embankment/band of high elec. resist.
T9			R6	small angled terrace/area of high elec. resist. values
T10				ploughed-out field boundary
T11				low eminence
T12				section of exposed wall-footing
T13			R9	low-relief escarpment-bank/lineament of high & low elec. resist.
T14			R10	low-relief linear depression/faint intermittent lineament of low elec. resist.
T15		G2	R18	small cultivation plots/alternating pattern of pos. and neg. mag. grad./ zone of high elec. resist.
T16			R11	curving earthen bank/arc of high elec. resist.
T17				broad depressions or shallow pits
T18				steep-sided pit (St Bernard's Well)
T19				rectangular earthen platform (house platform)
T20		G4	R7	bowed parallel, low-relief banks (track-way)/lineaments of positive mag. grad./higher elec. resist.
T21		G1	R1	narrow linear depression (water pipe trench)/anomaly of neg. mag. grad./low elec. resist.
	S1			high mag. susc. values clipped from dataset
	S2	G13		discrete, localised zone of elevated mag. susc. (clipped) and noisy mag. grad. values
	S3	G14		discrete, localised zone of elevated mag. susc. (clipped) and noisy mag. grad. values
	S5			lower mag. susc. values defining sub-rectangular zone
	S6			zones of enhanced mag. susc. values
	S7			significantly enhanced mag. susc. values (largely ferrous material)
		G5	R12	broad curvilinear feature: of positive mag. grad./high elec. resist.
		G6	R13	sinuous disjointed lineament of: positive mag. grad./high elec. resist.
		G7	R14	oval anomaly of positive mag. grad./ high elec. resist.
		G8		linear anomalies of positive mag. grad.
		G9		discrete zones of positive mag. grad.
		G10		strong magnetic response from an igneous boulder (Dowth mound kerbstone)
		G11		strong magnetic response from an igneous boulder (Boulder Cluster 1 stone)
		G12		sharp, point-source dipolar anomalies (largely ferrous material)
			R8	area of low elec. resist.
			R15	high elec. resist. response marking periphery of Dowth mound

Table 1

Topographical features, magnetic susceptibility, fluxgate gradiometry and electrical resistance anomalies noted in the elongated field between Dowth mound and medieval churchyard.