

7. The M3 Research Framework and the Lismullin discovery in County Meath

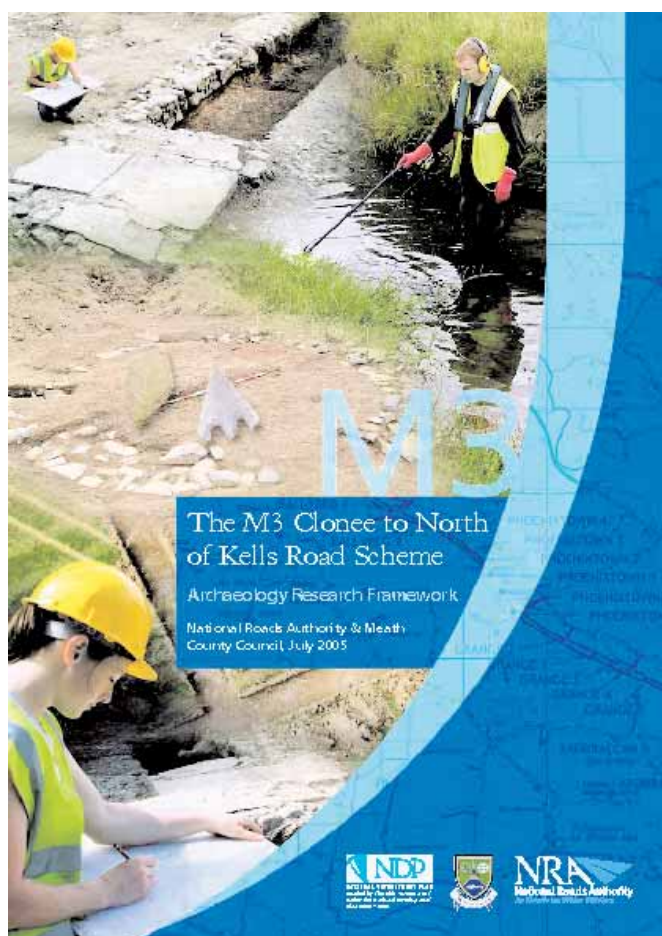
Mary B Deevy

The archaeological discoveries made on the M3 Clonee–North of Kells motorway scheme in County Meath have been widely published in the media in recent years. Yet the insights into our past from an extensive programme of research, geophysical survey and archaeological excavation have been comparatively neglected in public debates. The scale of the M3 scheme as an infrastructural development, travelling 60 km north–south through County Meath from the border with Dublin to the border with Cavan, and covering an area of approximately 700 ha, has resulted in an archaeological project of unprecedented scale. In particular, the large-scale archaeological investigations carried out on behalf of Meath County Council and the National Roads Authority in advance of the M3 scheme comprise the most intensive investigations of aspects of the archaeological heritage of Meath ever carried out. All of these archaeological discoveries, ranging in date from earliest prehistory to the post-medieval period, will now be analysed, studied in scientific detail and published in a range of formats, but already it can be seen that many of the individual excavations will be of some significance in interpreting past lives and times in the Irish landscape. This paper focuses on how this work was carried out within an archaeological research framework and on the discovery of a new National Monument at Lismullin.

M3 Research Framework

All investigations of the past landscape are a form of research, but traditionally development-led archaeological projects have not adopted formal research questions, methodologies and techniques. In order to ensure that the maximum knowledge would be extracted from the information being generated by the M3 excavations, and in order to communicate how this was to be achieved, a formal research framework was developed in consultation with experienced professional and academic archaeologists. The framework was published at the beginning of the excavations on the scheme in July 2005 (National Roads Authority & Meath County Council 2005b) (Illus. 1). A key element of the M3 research framework is to ensure that the newly uncovered archaeological data are placed into their archaeological, palaeoenvironmental and historical context.

In addition to standard analyses of plant, animal and insect remains contained in soils on site, a focused programme of palaeoenvironmental research, including studies of pollen and testate amoebae, was undertaken by Birmingham Archaeo-Environmental (Illus. 2). (The study of fossil pollen can be used to reconstruct past vegetation and thus infer past environmental and climatic conditions. Similarly, the study of fossil testate amoebae—microscopic single-cell animals that are highly sensitive to hydrological conditions—can be used to reconstruct the ancient climate.) Six areas were identified throughout the scheme as having the potential to provide palaeoenvironmental data that could be used to reconstruct the past environment of the sites being excavated (Gearey 2007; Gearey & Hill



Illus. 1—M3 Clonee to North of Kells Road Scheme Archaeology Research Framework.

2007). Compared to other counties in Ireland, Meath is relatively lacking in wetland deposits. Consequently, only limited palaeoenvironmental work has been carried out elsewhere in the county. Therefore palaeoenvironmental research on the M3 will not only add greatly to our understanding of the M3 sites themselves but will also contribute to our understanding of environmental change in this region since the earliest human occupation there.

One of the areas identified as having high potential for palaeoenvironmental work was a small bog at Clowanstown (Illus. 3), adjacent to an archaeological site (Clowanstown 1) that is now known to have been occupied in the Late Mesolithic and Neolithic periods (periods associated with Ireland's earliest hunter-gatherers and first farmers).¹ This bog would have been a shallow lake 7,000 years ago when the site was first in use, and has preserved one of the archaeological highlights of the scheme in the form of a group of rare wooden fish-baskets. The baskets are some of the oldest archaeological finds on the scheme, dating from the Late Mesolithic period (c. 5000 BC). With their unusually good state of preservation, they make a significant addition to a very small assemblage of such finds from Ireland and, indeed, Europe (FitzGerald 2007a; 2007b; O'Connor, this volume). Their delicate nature necessitated their being lifted within blocks of the peat in which they were discovered. The long and painstaking process of conservation of the baskets is proceeding successfully and will eventually enable them to be put on public display (Illus. 4). (Conservation of the baskets is being undertaken by Arch Con Labs and Karina Morton for



Illus. 2—Dr Tom Hill, Birmingham Archaeo-Environmental, University of Birmingham, wrapping cored palaeoenvironmental samples on the M3 (Maria FitzGerald).



Illus. 3—Location of the excavated sites discussed in this paper (based on the Ordnance Survey Ireland map).



Illus. 4—Clowanstown wooden fish-basket preserved in a block of the peat in which it was discovered (John Sunderland).

Margaret Gowen & Co. Ltd, in consultation with conservator Roly Reid, National Museum of Ireland [NMI].)

Clowanstown is only one of many significant archaeological sites that have been discovered and investigated. A total of 167 archaeological sites of varying size and date were excavated on the M3 by two archaeological consultancies—Archaeological Consultancy Services Ltd (ACS Ltd) and Irish Archaeological Consultancy Ltd (IAC Ltd). Instead of waiting until the end of the programme of archaeological works to reflect on the results of these excavations, the M3 project employed two full-time archaeological researchers—Eimear O’Connor and Jonathan Kinsella—to carry out archaeological research on the rapidly emerging results and to provide support to the excavation directors in the form of research papers to assist them in their interpretation and understanding of their sites as the excavations proceeded.

While the majority of the sites date from the prehistoric period, it is arguably the results of research on the early medieval sites that will prove most exciting. These excavations of early medieval sites on the M3 are among the most important in the country since the work of the famous Harvard Archaeological Mission in the 1930s, and they will provide unique insights into how early medieval people lived and worked in this landscape. The archaeology of historic periods requires an engagement with the documentary sources of the period, and hence the M3 research framework has also led to the appointment of two consultant historians—Anne Cannon and Margaret Murphy—who were commissioned to provide early medieval and late medieval historical overviews and, where possible, site-specific historical backgrounds to the excavation directors. The preliminary results of some of this work are presented in this volume by the researchers.

An important strategy of the research framework was that the potential of the information generated should be maximised. External specialist and academic input ensured that any gaps in existing knowledge that could potentially be explored through the

investigations were identified. Much of this specialist advice was provided directly to excavation staff on site. Advanced scientific techniques were employed where possible.

One innovative technique used on the scheme has been described by ACS Ltd excavation director Stuart Rathbone (Rathbone 2007). Towards the end of his excavations at Garretstown 2 (Illus. 3) he faced the dilemma of how to date an extensive multiperiod site in the absence of datable artefacts or ecofacts suitable for radiocarbon dating or other types of standard dating.² Although he was able to hypothesise dates based on comparisons with other sites of similar form and size, there would always have been lingering doubts in the absence of artefacts or scientific dating—until he decided to use Optically Stimulated Luminescence (OSL) dating. This technique measures when microscopic quartz crystals in the soil were last exposed to light. The OSL dating results from Garretstown (carried out by Oxford University) confirmed his theory that the two main groups of undated features were Bronze Age and early medieval in date. To our knowledge, OSL dating had never been carried out on an archaeological site in Ireland before, although it is relatively common in the UK. The use of this technique in such circumstances will undoubtedly enhance future dating of sites in Ireland, particularly the many ditches, pits and atypical features that archaeologists tend to encounter on large-scale landscape investigations.

Disseminating the results of the ongoing work was also an important aim of the research strategy. With this in mind, an information pack was produced and widely circulated (National Roads Authority & Meath County Council 2005a), and a dedicated website (www.m3motorway.ie) provided illustrated updates throughout the project. With the excavations extending over two and a half years, many opportunities were provided for site visits from schools, colleges, local societies, professional archaeologists and members of the public during National Heritage Week. One of the more unusual visitors to the M3 sites was a television 'superhero' who accompanied a schoolboy and made his dream of working on an archaeological site come true, as described in the NRA's annual archaeology magazine, *Seanda* (Deevy 2007). In addition to numerous public presentations of the results, two leaflets were produced as part of the NRA Archaeological Discoveries Series, and numerous other articles were published in *Seanda* (Cagney 2006b; Clarke & Carlin 2006a; Deevy 2006b; 2006c; FitzGerald 2007a; Linnane & Kinsella 2007; Martin 2007; Nichols & Shiel 2006; O'Connell 2006; 2007b; Rathbone 2007) and *Archaeology Ireland* magazine (Cagney 2006a; Clarke & Carlin 2006b; Deevy 2005a; 2006a; FitzGerald 2007b; O'Connell 2007a). Two papers were also published in the NRA archaeology seminar proceedings (Deevy 2005b; O'Hara 2007). Post-excavation analysis and research on all of the sites discovered are ongoing, and plans are well under way for a series of publications in the NRA scheme-specific monographs series.

Lismullin discovery

The professionalism, skill and dedication of what was at times a very large number of archaeologists working on the scheme, assisted by a wide variety of specialists, have led to very exciting and significant archaeological results. Undoubtedly the best-known discovery on the M3 was made at Lismullin in spring 2007 (Illus. 5), during the closing months of the on-site archaeological works, when a rare Iron Age post enclosure was revealed.³ It is less widely known that the story of the discovery of this ceremonial Iron Age enclosure



Illus. 5—Lismullin enclosure post-holes (marked with red and white tags) partly uncovered, from under protective plastic, for cleaning in spring 2007 (Mary Deevy).

goes back as far as 2000, when an archaeological geophysical survey was carried out as part of the Environmental Impact Assessment of the proposed motorway scheme. This survey, carried out by GSB Prospection for Margaret Gowen & Co. Ltd, identified a series of anomalies of archaeological potential on a natural ridge in a large ploughed field (Illus. 6). Archaeological test-trenching by ACS Ltd in 2004 confirmed that these were a series of pits with no discernible pattern. Additional, apparently isolated pits were found in the surrounding area and, because of this, it was decided to open a very large cutting in order to uncover all of the dispersed pits and any other archaeological features in the field.

In June 2005 Ministerial Directions were issued to commence excavations on this section of the scheme. These included extensive requirements for the assessment of the topsoil from all of the excavation sites. This involved metal-detection survey, field-walking and test-pitting in advance of topsoil removal. The purpose of the topsoil investigations was principally to assess the potential for artefacts that might have been disturbed by ploughing and become detached from archaeological features beneath the ploughsoil.

The topsoil assessment at Lismullin took place over seven weeks between September and November 2006 and over two weeks in January 2007, covering an area of over 12,500 m². A total of 810 objects were recovered, and the majority of these were modern objects in the form of nails, bolts and other agricultural debris. A large number of square-sectioned nails of indeterminate date and a small number of medieval and post-medieval artefacts were also retrieved, including knife blades and handles, two coins, two buckles, buttons, hinges, a prick spur, a pot leg and a possible book-clasp. Subsequent excavation has

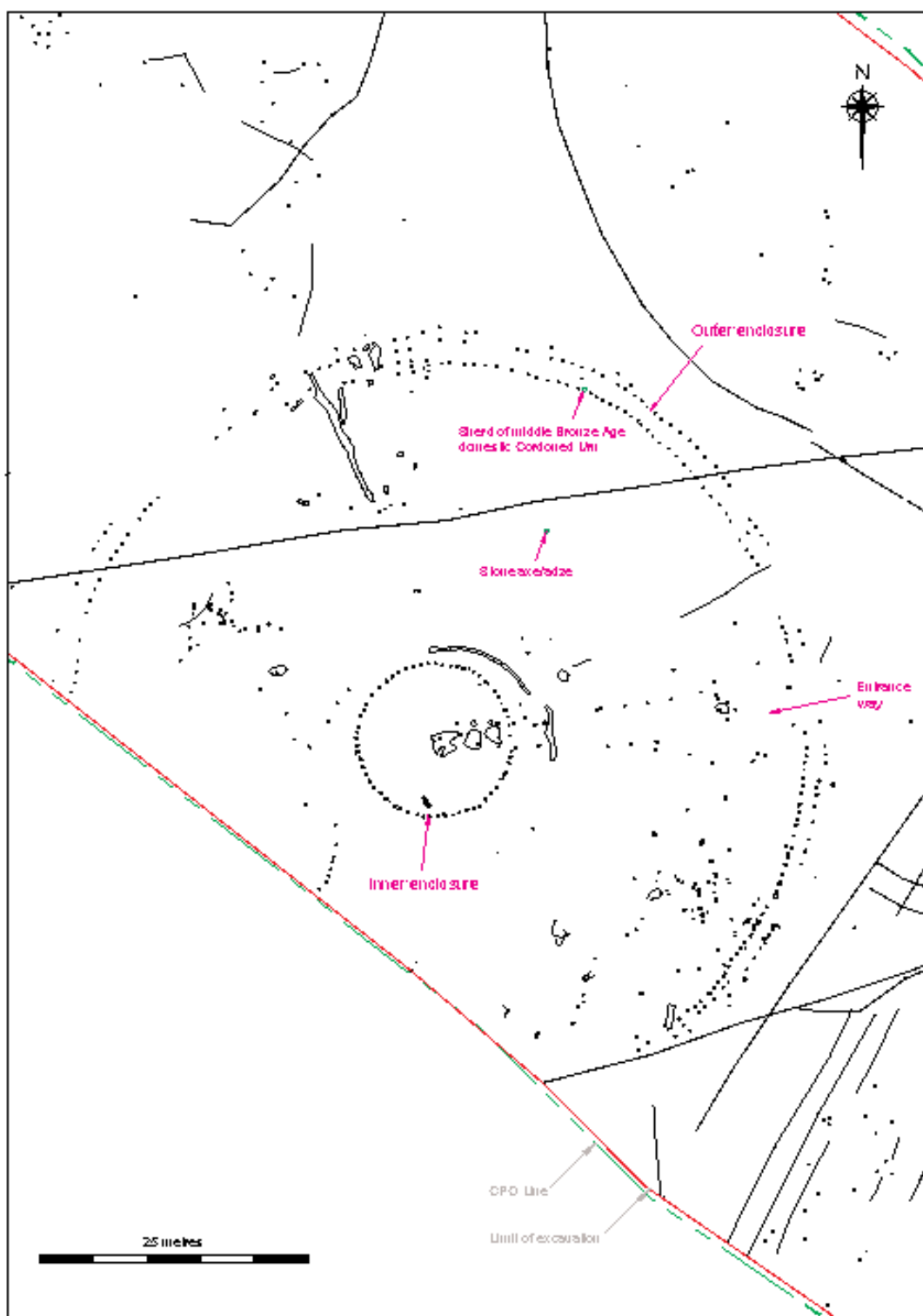


Illus. 6—Aerial view of location of Lismullin site prior to discovery (Studio Lab).

confirmed that most of this material does not derive from archaeological features disturbed by ploughing but was introduced into the topsoil, probably through manuring. From the 13th to the 16th century this land formed part of the nearby Augustinian Holy Trinity Priory (Record of Monuments and Places no. ME032-024).

In February 2007, on completion of the topsoil assessment, careful mechanical topsoil removal commenced at the northern end of the site in order to reveal the archaeological features beneath. This was carried out using flat-bladed machine buckets and under constant archaeological supervision and control. A series of small sites was revealed across a large area, of varying dates, from Neolithic to early modern. When additional archaeological features became apparent at the southern edge of the proposed cutting, the excavation area was enlarged to establish the full extent of the features—as was required by the Ministerial Directions. These additional features, skilfully identified by the supervising archaeologist Chris Kmiecik, consisted of a series of arcs of small post- and stake-holes—i.e. residual traces of where wooden uprights had once been placed. As the topsoil was peeled back, what gradually emerged was a large circle, approximately 80 m in diameter, formed by a double row of these small post- and stake-holes. Centrally placed inside this circle was another smaller circle, 16 m in diameter. The whole area was then trowelled by hand to identify all the archaeological features present. This work took place in March, after which a preliminary plan or scale drawing of the site was made in order to assist in assessing the nature and significance of the enclosure (Illus. 7).

The experience of seeing the preliminary plan of the enclosure for the first time was



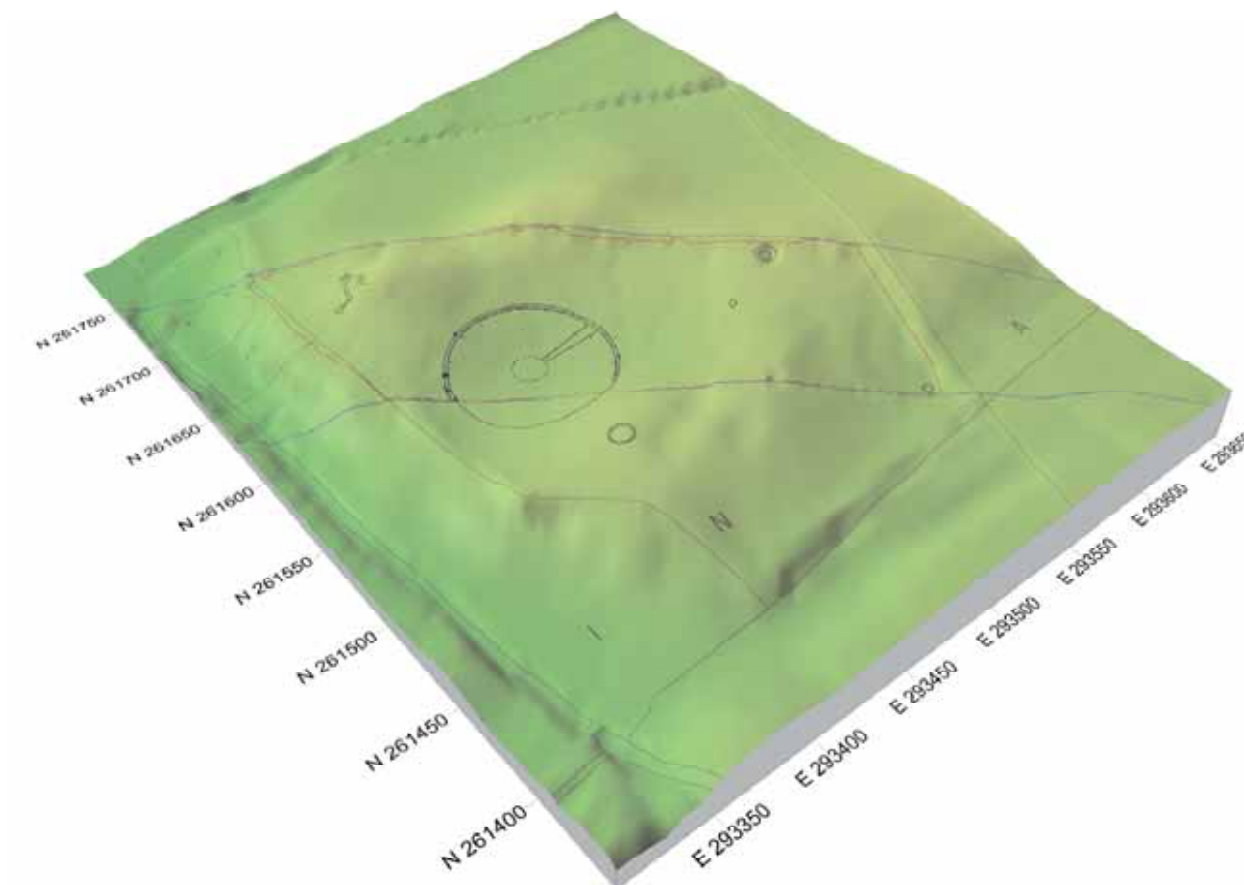
Illus. 7—Preliminary plan of Lismullin enclosure (Archaeological Consultancy Services Ltd).

memorable. It was immediately clear that this was a site whose closest parallels were a series of rare prehistoric ceremonial enclosures at important royal sites such as Emain Macha, Co. Armagh (Waterman 1997), Dún Ailinne, Co. Kildare (Johnston & Wailes 2007), Rathcroghan, Co. Roscommon (Fenwick et al. 2006), Raffin, Co. Meath (Newman 1993a; 1993b), and Ráith na Senad at Tara, Co. Meath (Newman 1997, 96). A description of the enclosure, and an account of what it was likely to be, was immediately sent to the National Monuments Service (NMS) of the Department of the Environment, Heritage and Local Government (DEHLG) and the NMI. Within days an on-site meeting took place between representatives of the NRA, the NMS and the NMI. All concurred with the emerging site interpretation, and it was agreed that limited works would proceed in order to gather sufficient evidence for scientific dating and additional information for a formal submission to the Minister for the Environment, Heritage and Local Government. On 18 April the NRA formally reported to the Minister that a potential National Monument had been identified and ceased works on the enclosure.

The site was intriguing in many ways. While large in overall plan, the component post- and stake-holes themselves were very small, shallow and widely spaced. On site the individual features were difficult to distinguish from the surrounding subsoil. They contained no finds and only small quantities of charcoal. This lack of differentiation is the reason why the features were not 'visible' in the geophysical surveys carried out over the enclosure in 2000. Similarly, the unusual small-scale nature of the individual features of the enclosure—small, widely spaced post- and stake-holes—militated against its identification through preliminary testing. Prior to test-trenching and full excavation there were no archaeological features visible above ground on the site. As the site was investigated, it became clear that centuries of ploughing had disturbed and removed the original ground surface, leaving only heavily truncated features. It is a lesson that while the majority of low-visibility sites with little or no surface expression can be found through a combination of aerial survey, geophysical survey and test-trenching, some rare sites, such as this, can only be discovered by carefully peeling back large areas of topsoil.

There was a general election in May 2007. Following further consultation with the Director of the National Museum of Ireland, Dick Roche, the outgoing Minister for the Environment, Heritage and Local Government, determined that the enclosure at Lismullin was a National Monument (in terms of the National Monuments Acts 1930–2004) and directed that it be 'preserved by record' via a fully recorded archaeological excavation. The new Minister, John Gormley, appointed an Advisory Committee comprising senior staff from his own department, Chief Archaeologist Brian Duffy, NMS, Director of the National Museum of Ireland Patrick Wallace, Rónán Swan, acting head of the NRA Archaeology Section, Professor Gabriel Cooney, UCD School of Archaeology, and Conor Newman, Department of Archaeology, NUI Galway, and former director of the Discovery Programme's Tara Survey. Their remit was to advise the Minister on the excavation strategy.

In consultation with the Lismullin Advisory Committee, and in advance of commencing full excavation, a programme of further recording and non-invasive investigations was carried out, including topographic survey and geophysical surveys. The topographic survey was largely carried out from the air by BKS Surveys Ltd, supplemented by survey on the ground by ACS Ltd. The results of the survey graphically illustrate how the enclosure was situated at the lowest point within a natural basin in the undulating landscape, thus providing a natural amphitheatre (Illus. 8).



Illus. 8—Digital terrain model created using an aerial topographic survey by BKS Surveys Ltd overlaid by a preliminary plan of the enclosure, souterrain and ring-ditch. Also shown is a projection of the part of the enclosure preserved outside the roadtake and a ring-ditch newly identified through geophysical survey by ArchaeoPhysica (Archaeological Consultancy Services Ltd).

Two companies using a range of techniques participated in the geophysical survey of the enclosure, both inside and outside the landtake for the motorway and the surrounding area. ArchaeoPhysica Ltd carried out a caesium magnetometer survey over the exposed subsoil surrounding the enclosure and in the field outside the landtake. (Caesium technology is considered to be more sensitive than other magnetometer technologies, which detect buried archaeological features whose magnetic properties differ from the surrounding soil, and can sometimes detect smaller anomalies.) This survey discovered a previously undocumented ring-ditch beyond the roadtake; however, it was unable to detect the enclosure. Earthsound Archaeological Geophysics carried out a magnetic gradiometer survey over the enclosure itself, both inside the excavation cutting and outside in the adjacent field. They also carried out a magnetic susceptibility survey over the enclosure within the excavation cutting. Even with the advantage of having the enclosure visibly exposed on site and previously recorded on scale drawings, the geophysical surveys could not independently identify the features of the enclosure.

To further augment available evidence from the site, a programme of soil sampling for



Illus. 9—Elevated view of eastern section of outer enclosure post-holes (marked with white labels) during excavation (John Sunderland).

geochemical analysis was developed by Dr Stephen Lancaster, Headland Archaeology Ltd, in consultation with Dr Helen Lewis, UCD School of Archaeology. Ideally, such studies will identify chemical residues of past activities that may or may not be visible to the naked eye. For example, bone and excrement should leave phosphorus residues. Owing to its truncated nature, the site was not considered to be a good candidate for such studies, and in normal circumstances this detailed level of work would not have been carried out. In the case of Lismullin, however, the relative absence of the objects on site that normally enable interpretation—artefacts and ecofacts—combined with the significance of the site made it worthwhile to attempt such a study.

The excavation director, Aidan O’Connell, and his team of 30 archaeologists excavated the site between August and December 2007 (Illus. 9). Preliminary discussions of the monument, its parallels and significance have already been published (O’Connell 2007a; 2007b) and are included in Eimear O’Connor’s paper in this volume. Post-excavation analysis and research are ongoing, and it is anticipated that Lismullin will be published as a stand-alone volume in the NRA scheme-specific monograph series.

Acknowledgements

Thanks to Dr Aidan O'Sullivan, Donald Murphy and Aidan O'Connell for comments on the text, and to ACS Ltd for providing data and images.

Notes

1. Clowanstown 1; NGR 295518, 257771; height 118 m OD; excavation registration no. E3064; ministerial direction no. A008/011; excavation director Matt Mossop, ACS Ltd.
2. Garretstown 2; NGR 296021 254807; height 120 m OD; excavation registration no. E3061; ministerial direction no. A008/008.
3. Lismullin 1; NGR 293437, 261602; height 77 m OD; excavation registration no. E3074; ministerial direction nos A008/021 & A042; excavation director Aidan O'Connell, ACS Ltd.