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THE OGHAM IN 3D PILOT PROJECT: A REPORT ON WORK IN PROGRESS

THE Ogham in 3D Pilot Project was formally inaugurated at a conference held at the Dublin Institute for Advanced Studies on 24 May 2008.¹ This conference was jointly organised by Werner Nahm, Director of the School of Theoretical Physics, and Fergus Kelly, Director of the School of Celtic Studies. Through the good offices of Professor Nahm, support was obtained for the project from Barbara W. Fash of the Peabody Museum of Archaeology and Ethnology, Harvard University. Professor Fash is Director of the Corpus of Maya Hieroglyphic Inscriptions Program, and has supervised the laser-scanning of a hieroglyphic stairway at Copán, Honduras. Her assistant, Alexandre Tokovinine, described to the conference the technical and other aspects of scanning this fragile stairway, which is the longest inscription surviving in the New World. It was completed in 743 AD, and covers approximately 300 years of Mayan history. Coincidentally, this period corresponds roughly to the era of the Ogham inscriptions in Ireland, which date mainly from the 5th and 6th centuries AD.²

The conference also heard accounts of laser-scanning projects from Colin Muir of the Historic Scotland's Conservation Centre, Edinburgh, and from Annemarie La Pensée of the Conservation Centre of the National Museums, Liverpool. Dáibhí Ó Cróinín and Thierry Daubos described the work being carried out under the aegis of the Moore Institute, National University of Ireland, Galway, on the stone crosses at Clonmacnoise, Co. Offaly. The perspective of the professional archaeologist was provided by Fionnbarr Moore (Senior Archaeologist, National Monuments Service), who kindly agreed to be on the Advisory Panel of the Ogham in 3D Project. He has worked for many years on an inventory of the Ogham inscriptions, and has published a study entitled 'Munster Ogham stones, siting, context and function'.³ The other members of the Panel are Werner Nahm, Fergus Kelly, and Damian McManus, who is Professor of Early Irish at Trinity College Dublin, and author of *A Guide to Ogam*.

The conference supported the long-term aim to laser-scan the approximately four hundred Ogam inscriptions which survive in Ireland, Wales, the Isle of Man, England and Scotland, and to make the images freely available on the website of the Dublin Institute for Advanced Studies. The project would

¹We employ the Modern Irish spelling *Ogham*. The early Irish spellings *Ogam*, *Ogom*, *Ogum(m)* are equally correct: see E. G. Quin et al. *Dictionary of the Irish language, based mainly on Old and Middle Irish materials* (hereafter *DIL*) (Dublin, Royal Irish Academy, 1913–76; repr. in compact ed. 1983) s.v. *ogum*.

²Damian McManus, *A Guide to Ogam* (Maynooth Monographs 4, Maynooth 1991) 40 § 3.17.

³Mick Monk and John Sheehan (ed.), *Early Medieval Munster: archaeology, history and society* (Cork 1998) 23–32.

thus complement the highly successful Irish Script on Screen project (ISOS) which commenced in 1999, and now provides images of over 250 complete Irish manuscripts on its website (www.isos.dias.ie). It is envisaged that where possible a three-dimensional image of the entire Ogham stone will be displayed.⁴ The viewer will be able to refer instantly from the image to the suggested reading with both Ogham symbols and their equivalent in roman script. It will also be possible to rotate the image, and enlarge it as required. Each image will be accompanied by a translation (where possible), and a full discussion of the inscription, with reference to points of linguistic, historical, genealogical and archaeological interest. There will be cross-references to previous discussion by R. A. S. Macalister, Eoin MacNeill, Damian McManus, and other scholars. In cases where the original site of a stone is known, information on the archaeological environment will be provided.

On 27–29 January 2010, work commenced on scanning the Ogham stones in the National Museum of Ireland, of which there are approximately thirty. Due to shortage of space, only three are currently on display in Kildare Street. It is therefore particularly desirable that 3D images of as many as possible of these stones be made available online. Unstinting assistance was provided by the Museum staff, and particular mention must be made of Patrick Wallace (Director), Éamonn P. Kelly (Keeper of Irish Antiquities), Andy Halpin (Assistant Keeper of Irish Antiquities), and Margaret Lannin (Senior Technical Assistant). On this occasion, the scanning was carried out by Thierry Daubos of the Moore Institute, National University of Ireland, Galway,⁵ assisted by Nora White of the School of Celtic Studies, and by Kaaren Moffat, who is working on a survey of the Ogham stones of Ireland for her doctoral thesis under the supervision of John Sheehan, Senior Lecturer in the Department of Archaeology, University College, Cork. Seven complete stones and four fragments were scanned during these three days:⁶ Ahaliskey III, Co. Cork (*CIIC* 71); Ballyhank IV, Co. Cork (*CIIC* 100); Ballyhank VI, Co. Cork (*CIIC* 102); Ballineanig, Co. Kerry (*CIIC* 146); Derrygariff, Co. Kerry (*CIIC* 205); Whitefield II, Co. Kerry (*CIIC* 216); Parknasilla, Co. Kerry (*CIIC* 223); Colbinstown II (fragment), Co. Kildare (*CIIC* 20); Rathcanning (fragment), Co. Cork (*CIIC* 80) and Monatagart II (first fragment), Co. Cork (*CIIC* 119). Among the fragments scanned was an undocumented fragment from Kilgrovan, Co. Waterford. It is not clear whether this fragment originated as part of the Kilgrovan stone (McManus, no. xii) also now in the National Museum, but it is hoped that examination by Museum geologists may establish whether this is likely to be the case.

⁴This will obviously not be possible in the case of Ogham stones which have been used to form part of a structure, such as a souterrain or the wall of a church.

⁵We are much indebted to Professor Dáibhí Ó Cróinín, Director of the Irish Inscribed Stones Project at the Moore Institute, National University of Ireland, Galway, for enabling us to avail of the unique expertise of Dr Daubos.

⁶The numbering of the inscriptions is that of R. A. S. Macalister, *Corpus Inscriptionum Insularum Celticarum* i (*CIIC*) (Irish Manuscripts Commission, Dublin 1945). Inscriptions discovered since the publication of Macalister's *Corpus* are listed in McManus, *Guide to Ogam*, 68–77, numbered i–xxi.

An attempt was made to scan Ballinvoher, Co. Kerry (*CIIC* 166), but it was found that this stone is too dark to be scanned effectively. Further work in the Museum was carried out by Nora White on 20 April, using the Institute's own Polyhemus scanner. On this visit, the second fragment of the Monataggart stone was scanned. It was later processed so that there is now a 3D image showing the two parts of the stone as a single unit, bearing the inscription DALAGNI MAQI DALI 'of Dallán son of Dall'. To our knowledge, this is the first complete image—other than line-drawings—which has ever been taken of this stone: see Plate 1.

In July scanning continued in the National Museum on stones from Ardmore, Co. Waterford (*CIIC* 264); Whitefield IV, Co. Kerry (*CIIC* 218); Killorglin I, Co. Kerry (*CIIC* 253) and Ballyhank III, Co. Cork (*CIIC* 99).

Preliminary work was also carried out in March–May 2010 on a small selection of Ogham stones in Counties Wicklow and Carlow. The object was to gain experience in the scanning of stones of various sizes and in different locations and weather conditions. The first stone visited provided the team with a foretaste of the type of unexpected problem which may occur during the course of the project. The inscription is on one of a pair of standing stones at Rathglass, Co. Carlow. This stone (*CIIC* 16) is of particular interest because the inscription DUNAIDONAS MAQI MARIANI contains a Latin personal name (*Marianus*).⁷ The team arrived to find that the stone had fallen over on its side, presumably resulting from the extreme cold of early January. Luckily no damage had been caused to the stone, but scanning was not possible. However, the team made a successful scan of the fragment of an Ogham stone (*CIIC* 15) in the graveyard at Clonmore, Co. Carlow. A visit was also made to the very impressive Ogham stone (*CIIC* 51) sited in Knickeen wood, in the Glen of Imaal, Co. Wicklow (see Plate 2). Because of its large size (approximately 7 1/2 feet x 6 feet at the top, narrowing at the base) the scanning of this stone will be a major undertaking. Macalister took the reading to be MAQI NILI.⁸ However, examination of the individual letters led the team to consider the possibility that there are four rather than five notches between the N and the L, and that the reading should be MAQI NELI. If this is correct, it would be the earliest attestation of the personal name **Néll*, Classical Old Irish *Níall*. A form with archaic *é* is attested in the nominative singular *Neel* in Tírechán's late seventh-century *Collectanea* on Saint Patrick in the Book of Armagh.⁹ Laser-scanning would be of great assistance in cases of doubtful readings such as this, as it would allow minute measurements to be made from all angles.

The team scanned the small Ogham stone (*CIIC* 50) in Boleycarrigeen, near Kilranelagh Hill, Co. Wicklow, in an area extraordinarily rich in pre-historic monuments. This stone is to be found in an unusual location, on a

⁷The use of Latin names is uncommon in Ogham inscriptions: see McManus, *Guide to Ogam*, 113 § 6.20.

⁸*CIIC* p. 55.

⁹Ludwig Bieler (ed.), *The Patrician texts in the Book of Armagh* (Dublin 1979; repr. 2004) 132 (12, 2). For a discussion of the spelling of *ee* for *é*, see 'Notes on Irish Words', *ibid.* 245.

bank within an unexcavated rath in forestry belonging to Coillte. The inscription contains only the letters VOTI. An *o* in Ogham may be long or short, so the form could be genitive of a personal name VÖTAS or VÔTAS. The former would correspond to an Old Irish *o*-stem *Foth*, and the latter to an Old Irish *o*-stem *Fúath* (earlier *Fóth*). No such names have been identified in manuscript sources.¹⁰ The Latin personal name *Votus* is rare, and not attested in Irish contexts. The team also scanned the Ogham stone (*CIIC* 48) at Donard, Co. Wicklow (see Plate 3), where the partially preserved inscription IAQINI KOI MAQI MUC ... contains the rare form KOI, probably an adverb meaning 'here'.¹¹

The Pilot scheme has indicated the great benefits of the use of portable, high-precision 3D scanning technology to record the Ogham inscriptions, which of their nature cannot effectively be captured by two-dimensional imaging. The technology is totally non-contact, and therefore preferable to traditional invasive methods of capturing inscriptions on stones, such as rubbings or squeezes. The data can then be used to make a 3D digital image of the Ogham stone, or even a reconstruction of a broken or damaged stone. The digital data can also be shared easily on the computer network and used to create a database. As well as offering new opportunities for the manipulation of the inscriptions, this provides the potential for improved interpretations. These detailed 3D images may also allow for analysis of tool markings and the techniques of individual stone masons. In some cases scanning can even highlight inscriptions no longer visible to the naked eye. 3D technology also allows for the creation of accurate replicas. Particularly vulnerable outdoor Ogham stones could be moved indoors to a safer environment, and replicas put in their place, which would have the advantage of preserving the archaeological landscape.

The encouraging progress already achieved by the Pilot project was noted by the Governing Board of the School of Celtic Studies on 10 June 2010, and by the Council of the Dublin Institute for Advanced Studies on 15 June 2010. It is generally recognised that there is an urgent need to record the surviving Ogham inscriptions before further deterioration due to weathering, atmospheric pollution, and vandalism takes its toll. The recent Stone Monuments Decay Study, which assessed the degree of erosion and degradation of stone monuments in Ireland, has stressed the fragility of dressed stone and its susceptibility to weathering.¹² These vulnerable Ogham inscriptions are particularly crucial for the study of the early development of the Irish language, and consequently of great importance for Celtic linguistics. However, their preservation is not only desirable for their scholarly significance. The importance of these monuments to Irish heritage in general, as well as to local communities and schools is immense, and largely undervalued. It is intended

¹⁰*DIL* s.vv. *foth*, *fuath*.

¹¹McManus, *Guide*, 51 § 4.6.

¹²Sara Pavia and Jason Bolton, *Stone Monuments Decay Study 2000: Assessment of the degree of erosion and degradation of stone monuments in the Republic of Ireland* (The Heritage Council, Kilkenny 2001).

that the Ogham in 3D Project will for the first time bring together, and make accessible to all, the knowledge of the various disciplines associated with the Ogham inscriptions. Rather than presenting the inscriptions in isolation, the aim is to put each inscription in context by including all known information on both the stone itself, and the site on which it was found, as well as photographs and maps. The fully searchable archive would be accessible worldwide to anyone interested in Irish culture, language, history or archaeology.

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