Kodikologie und Paläographie im digitalen Zeitalter 2

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Codicology and Palaeography in the Digital Age 2

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Irish Script on Screen: the Growth and Development of a Manuscript Digitisation Project

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Abstract

Irish Script on Screen (ISOS), a project of the School of Celtic Studies at the Dublin Institute for Advanced Studies, was initiated in 1998, with the stated aim of the high-resolution digitisation of entire Gaelic manuscripts and of making the digital images freely available on the World Wide Web (www.isos.dias.ie). The growth and development of ISOS has therefore paralleled, and in some cases informed, the evolution of awareness of digital matters in Ireland over the last ten years. This paper describes the history and structure of ISOS, its public reception, its impact on research, and the varying uses that are made of the site. The questions of further potential and future direction are also addressed.

Zusammenfassung

Irish Script on Screen (ISOS), ein Projekt der School of Celtic Studies am Dublin Institut for Advanced Studies, war im Jahre 1998 mit dem Ziel initiiert worden, hochauflösende Digitalisate der gesamten irischsprachigen handschriften Überlieferung anzufertigen und diese im World Wide Web frei zugänglich zu machen. Das ISOS Projekt hatte dadurch in den vergangenen zehn Jahren maßgeblichen Anteil an einer erstarkenden computergestützten Forschung in Irland. Dieser Beitrag beschreibt Geschichte und Struktur von ISOS, öffentliche Wahrnehmung und Auswirkungen auf die Forschung sowie unterschiedliche Nutzungsformen der Website. Darüber hinaus werden Fragen zu dem Entwicklungspotential und den und Zukunftsperspektiven behandelt.

1. Origins and Objectives

Irish Script on Screen (ISOS) is a project of the School of Celtic Studies at the Dublin Institute for Advanced Studies (DIAS). It was initiated as a web-delivered digitisation project in 1998 in collaboration with the Department of Computer Applications (now the School of Computing) at Dublin City University (DCU), with DIAS as lead partner. This partnership came to an end in 2003, and the project is now run by DIAS alone.

DIAS is a statutory institute, and one of the primary functions of the School of Celtic Studies as laid down by law is 'the investigation, editing, and publication of extant manuscript material in the Irish language' (Institute for Advanced Studies Act 1940 §5.1a). Previous to the advent of digital technology, the School of Celtic Studies discharged this statutory obligation primarily through the publication of catalogues and editions, critical and diplomatic. The opportunities presented by the development of digital media in the 1990s for further prosecuting this duty were recognised at the time by Professor Pádraig de Brún (DIAS), an expert in Irish manuscript studies. If exploited properly and effectively, a new dimension could be brought to the study of Irish palaeography and codicology, a vision which anticipated very much the objectives and interests of the present publication. Irish philology in general would benefit in a dynamic way, as the whole package would be placed before an audience that could not have been imagined heretofore.

At a philosophical level, two principles were implicit in the project from the beginning. One was the right of everyone who wished to do so positively to have access to Ireland's manuscript heritage. As DIAS is a public-service, supra-university research institution, it was agreed, in the spirit of enlightenment that informs the Institute's operations and research, that access to the ISOS website and to its contents should be free and without unreasonable restriction; given the status of the Institute, and the nature of the subject matter, it was also agreed that the site should be bilingual (Irish and English), in so far as that was practicable. The second principle was one of partnership and collaboration. Collections of Irish manuscripts in libraries vary in extent and in antiquity: from small collections of nineteenth-century books representing products of the end of the scribal tradition, to large collections representative of both vellum and paper traditions. For ISOS to carry out its objectives, the project would enter into contractual collaborations with these libraries in a spirit of partnership, whereby the libraries would make materials specified by ISOS available for digitisation, in return for having those materials and their contents disseminated virtually through the website and for receiving copies of all images generated. From the outset, therefore, there was a feeling of shared purpose—reinforced by mutual generosity—in the creation of high-quality surrogates and in the sense of excitement that this important aspect of Ireland's culture was suddenly being released from relative concealment.

The collaboration in the early years with DCU meant that, in addition to shared funding responsibilities, the work of the project was, at that time, divided between image-capture and description (DIAS), and processing, display and storage (DCU). In addition, it allowed the ISOS staff at the School of Celtic Studies to concentrate on the primary materials for the project, while technical questions of processing and storage were generally dealt with elsewhere. The good relations that were fostered between the collaborating partners, as well as the modalities of the day-to-day management of

the project, ensured that when the collaboration came to a natural conclusion in 2003, DIAS was well-positioned to assume all the functions of the project.

The objective of ISOS was, and remains, to digitise Irish manuscripts—that is manuscripts in the Irish language—cover to cover, and to make these digitised artefacts freely available to all through a dedicated website: www.isos.dias.ie. It was also intended, as a secondary consideration, that in time the digital images should be accompanied by ancillary material such as catalogues, commentary and transcripts, but that the capture and display of manuscript images would be the project's priority. It remains a basic principle that in a digitisation project which involves the creation of manuscript images, primary attention should be directed to the quality of those images. Websites can be upgraded again and again; digital text may be corrected, encoded and laid out in different ways over time; but the opportunity to digitise a given artefact may present itself only rarely.

2. Irish Manuscripts

Complete Irish manuscripts range in date from the early 12th century to the end of the 19th century. They are written in insular or Gaelic script—a remarkable continuity over eight centuries—and represent, in the texts that they contain, the full linguistic range from Old Irish to Modern Irish, including tracts on the *ogham* script that survived from the pre-literary period. Earlier manuscripts such as the Book of Armagh and the Stowe Missal (available on ISOS) contain prose material in the Irish language embedded in the otherwise latinate context of liturgical and ecclesiastical writings, while glossarial material and marginal verses in Irish occur in Latin manuscripts such as the St Gallen Priscian.[1] With some notable exceptions, manuscripts prior to 1600 were written on vellum; thereafter paper became the predominant material in Irish manuscripts. In all, it is estimated that about 5,000 Irish manuscripts survive today, the majority of them dating from the 17th century and later.

A word may be said at this point about the physical condition of these manuscripts, because the condition of the materials to be digitised has a bearing on the approach required for digitisation. In contrast to many other traditions, the amount of time spent in the comfortable custody of libraries by manuscripts of the Irish tradition is quite negligible. In other words, on account of their poor physical condition, these manuscripts are more in need of digitisation than most. Many manuscripts that were written in the vellum era, before the 17th century, were destroyed and lost in the wars and natural disasters of that period, and what survives represents a fraction of what once existed. The condition of many of these books betrays the poor treatment that they have been subjected to, by man and by the elements, throughout their history.

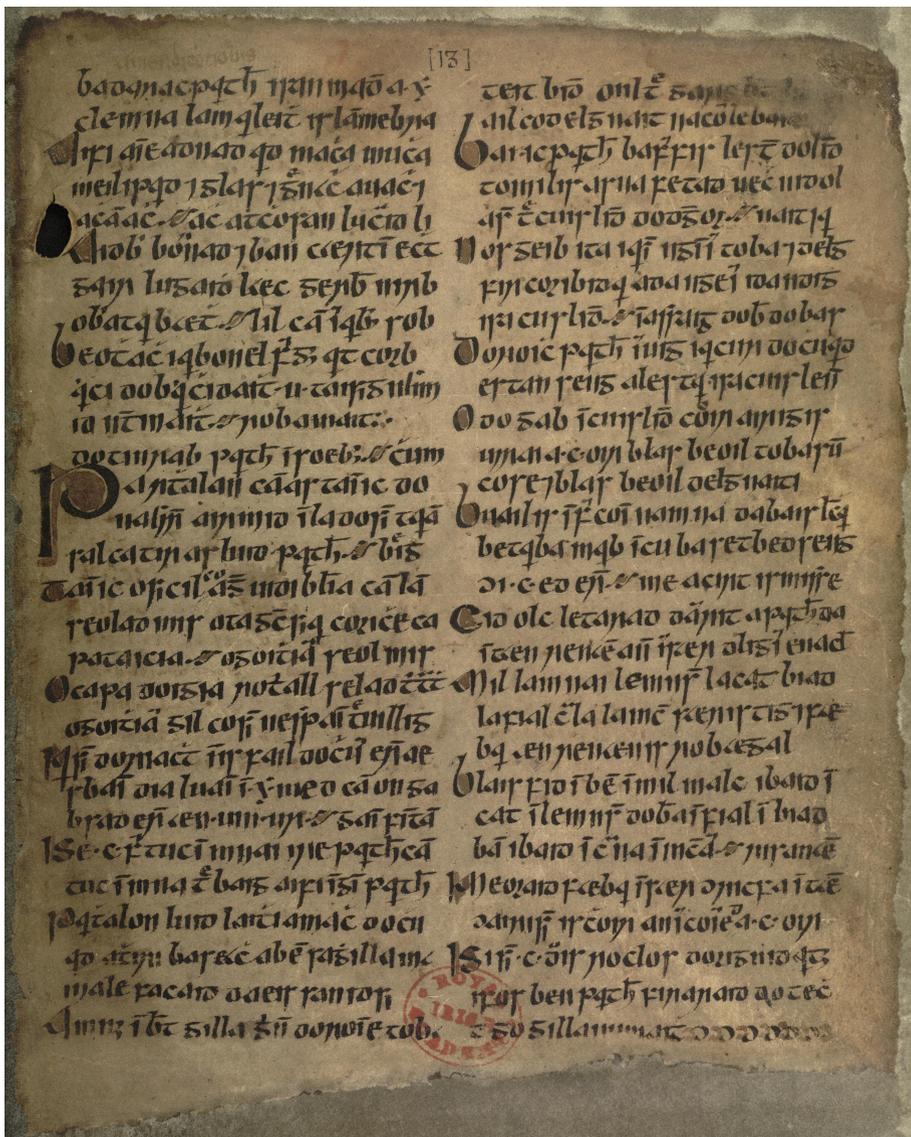[1]   Stiftsbibliothek, Cod. Sang. 904, available online at Codices Electronici Sangallenses (CESG).

Figure 1. Page 13 of the Book of Fermoy (RIA 23 E 29), a fifteenth-century vellum manuscript, containing verse from *Leabhar Gabhála*.

The effects of damp, cockling, staining, and attacks by animals and man, are evident in many cases. As the codicological unit in medieval and late medieval Ireland was in many cases the *caidirne* (the quire or gathering), as opposed to the 'book', the practice of compiling manuscripts out of largely autonomous gatherings was widespread. The end folios of such gatherings often betray the fact that they were exposed, or even functioned as wrappers in addition to bearing text. Digitisation of vellum leaves, therefore, presents a challenge, particularly where the depth of field of the camera has to be fine-tuned to accommodate the uneven plain of the manuscript page: establishing a stable and uniform focus takes time and patience. By contrast, paper manuscripts are relatively easier to photograph, although, again, the condition in which such books were maintained in Irish tradition, prior to their reception in libraries in the 19th and 20th centuries, in addition to the varying properties of the inks used, means that the digitisation of such items presents its own challenges.

Prior to the advent of ISOS, access to Irish manuscripts was gained through the individual holding library, or through consultation of surrogates such as facsimiles (in a small number of cases only), transcripts, Photostat copies, or microfilm copies in black and white, and often of indifferent quality. When the ISOS project was initiated, the application of digital technology within the humanities was in its infancy. ISOS was the first web-delivered manuscript project in the digital humanities in Ireland, and, in the absence of any local precedent or template that might be followed, the project looked to the recently-established Celtic Manuscripts Project (now known as Early Manuscripts at Oxford University), which had been initiated in the Bodleian Library at the University of Oxford by David Cooper. In consultation with Cooper, the founder of ISOS, Pádraig de Brún, had begun the task of assembling the various components of the project prior to his departure from DIAS at the end of 1998, at which point planning and management of the project became the responsibility of the present writer. It is to the credit of de Brún that one of his many legacies to Irish scholarship will be the creation of this core research site in the field of Celtic Studies.

3. Protocols and Modalities

Taking account of the condition of the artefacts, and of the twin objectives of image-capture and web-delivery, it was decided that the optimum resolution for the digitisation of Irish manuscripts should be 600 dpi. This decision has proved over the years to be a sound one, and one that has stood the project in good stead. One consequence of this has been the consistency in image-quality from the beginning of the project to the present day.

Another decision taken during the test-stage of the project, and from which ISOS has benefited over the years, was that of two-tier delivery of the images to the users. It was

perceived that a balance needed to be struck between the requirements of the holding libraries and those of the users, and also between those of the general or casual user and the academic researcher. It was a salient and vital feature of ISOS from its inception that the project was user-driven: the principals who ran ISOS in DIAS were users of Irish manuscripts, and were thus able to envisage at first hand what would be needed and expected by those whom the website would ultimately serve. The primary requirement would be that of access to images that would, in the first instance, replicate as closely as possible the experience of viewing the manuscript page in its holding library. This type of access should be unhindered and, as far as the user's PC would allow, it should be immediate. Depending on the size of the manuscript page, a TIFF file—the file created in the first instance by the photographic process—might have a size of 130MB, which clearly would not be conducive to quick download and viewing by the end-user. It was also recognised that closer scrutiny of the manuscript text would be required, mainly by those with a scholarly interest and expertise in such matters. To cater for these two circumstances, a two-tier delivery system was devised, which is still in place.

Headers and footers are placed on the raw TIFF files, the header identifying the manuscript and the page or folio, the footer containing a copyright statement identifying the holding library. From these processed TIFFs, two JPEG files are created. The first is a 20% scaled version of the original image, with an average size of 200–400KB. This image can be downloaded quickly, and serves to represent the manuscript page as one might expect to see it in a library situation; it is accessible by everyone who visits the ISOS website, via a menu of GIF thumbnails. Feedback and experience show that, in practice, these small JPEGs are adequate for everyday use.

The upper tier consists of higher resolution images in the form of true JPEGs, the full-size, high-quality image which is designed for access by those engaged in scholarly research. These full-sized JPEGs can be in excess of 5MB. Access to these files is via the lower-tier images, with a username and password facility freely granted to applicants who download, complete and post by snail-mail a registration form available on the site. This is a mildly though deliberately inconvenient non-digital registration process, which implicitly demands that the user establish his or her bona fides by taking the trouble to register with the project in this way. All users are permitted to make a copy of the images for their own private use; they may also import the web-files into image-management software for the purpose of enhancing or otherwise manipulating an image, again for personal use only. ISOS does not involve itself in image enhancement, but tries to ensure that the image is a close representation of the appearance of the manuscript page in reality. It goes without saying that the magnification available through the high-resolution JPEGs, together with the potential for enhancement and manipulation through the agency of the end-user's image software, are what gives the digital image a life of its own.

There was another reason why this two-tier system was chosen over one of unrestricted access to an image of incrementally increasing magnitude. While most managers of repositories and most keepers of manuscripts are now accustomed to digital presentation as a desideratum and a fact of life, in the closing years of the 20th century such presentation was very much an untested innovation, particularly in Ireland. This gave rise to an understandable uneasiness among some library and archive professionals with regard to the exposure to a world-wide public of high-resolution images of hitherto concealed treasures. In those years, therefore, the two-tier system offered the re-assurance that access was not to be wholly unrestricted.

With the passage of time, the proliferation of digital delivery, and the promulgation of the benefits of mass digitisation, such apprehensions have waned to a great degree, and fear of the unknown is no longer a factor in decision-making. In addition, the obstacles of protectionism and elitism among custodians are nowadays encountered only very rarely. Nevertheless, the two-tier system has proved useful in allowing ISOS to form an impression of the public reception of the project, and of the types of use its images are put to among the scholarly community from whose ranks, virtually exclusively, the applicants for high-resolution usage are drawn. The communication between the project and the registered users also creates a conduit for valuable feedback.

Also surviving from the early days is another worthwhile feature of the project. This is the contractual basis which underlies each collaboration that is entered into. Again, in the early stages of the project, this held the extra value of re-assurance for potentially apprehensive curators. The true and lasting function of the contract, however, is the important and obvious one of setting out the modalities of the work (time-scale, manuscripts to be digitised), and the respective responsibilities of the partners with regard to practical matters such as insurance and copyright. In the case of the latter, copyright in the images is vested in the holding library, while that of ancillary material (texts, commentaries, catalogues) is vested in the author(s) of that material.

Finally, the important question of storage had to be addressed. It was decided that processed TIFF files should be stored on 40GB tape-cartridges, and that multiple copies of the tapes be created for storage in different locations. Because of the newness of the technology, however, manufacturers' claims regarding the capacity of these cartridges for long-life (30 years) storage were unverifiable, and at best were merely prognostic. It was decided that the tapes should be rewritten at three-year intervals, as a means of reviewing their ongoing well-being. In time, the project decided to move away from tape-storage (see below). The store of processed TIFF files constitutes the deep archive of the ISOS project.

4. Collaborations and Project-sets

Within a short time, collaborations were established with three of the primary
repositories of Irish manuscripts in Ireland: Trinity College Dublin (TCD), the Royal
Irish Academy (RIA), and the National Library of Ireland (NLI). Each of these projects
was conducted in situ. This presented the perennial problem for all collaborating
institutions: that of digitising-space. The ISOS work station requires an optimum space
of 4 x 3 metres in order to accommodate camera, lights, book-cradle, computer and
monitor, and to allow a measure of comfort to the digitising technician. Space is at a
premium in all institutions, and only with difficulty have some institutions been able to
allocate optimum space to the project.

The identification of target manuscripts is the responsibility of ISOS, after consultation
with the holding library, and subject especially to the physical state of any given book.
From the very beginning, certain project-sets suggested themselves, arising from areas of
expertise within the School of Celtic Studies and from an understanding of the interests
of the scholarly public. These project-sets influenced the selection of manuscripts in the
early stages of the project. Three sets in particular were prioritised.

The first was the Great Books: the late-medieval and early-modern codices consisting
of miscellanies of traditional learning and literature compiled from the 12th to the 15th
centuries. Many, but not all, of these manuscripts carry identifying names, other than
their library shelf-marks, names that have perpetuated their fame in the modern period.
Among these are Leabhar na hUidhre (the earliest book written completely in Irish), the
Book of Leinster, the Leabhar Breac, the Book of Lecan, and the largest format book
that ISOS has digitised to date, the Book of Ballymote. Untitled manuscripts in this
category include NLI MS G 2–3, one of the earliest manuscripts to survive from the
post-Norman period.

The second project-set was the *duanaireadha*. These are manuscript anthologies
of bardic court poetry composed by hereditary, professional poets in honour and in
memory of members of prominent families in Ireland. The earliest such anthology to
survive is the Book of Magauran (NLI MS G 1200), containing bardic poetry from the
13th and 14th centuries in honour of the family of Mág Shamhradháin of present-day
Co. Cavan. One of the latest is a retrospective anthology of poems composed for
the Ó Domhnaill family of Co. Donegal, compiled in the early 18th century (NLI MS
G 167). Other *duanaireadha* which have been digitised include books containing poems
addressed to the families of Ó Néill, Mac Suibhne, Ó hEadhra, Nugent, and De Róiste.

The third category was the scientific (mainly medical) manuscripts of the early-
modern period. These books comprise a significant portion—roughly one quarter—of all
extant vellum manuscripts in Irish, with some surviving also from the paper tradition.
More than any other genre of Irish learned tradition, the contents of these manuscripts
bear witness to the contact of Irish scholars of this period with European learning.

Most of the works are compilations and adaptations in translation of texts by the great authors of the time, such as Ibn Jazlah, Thaddeo Alderotti, and Bernard of Gordon. Of the three sub-categories established by the project, this was the one of which least was known among the general public, prior to digitisation.

While these project-sets were being undertaken, other partnerships were being formed among some of the constituent colleges of the National University of Ireland: University College Dublin (UCD), NUI Galway, and NUI Maynooth. Some very important books are housed in the college libraries, and it was important for the project to begin work in these repositories. Target manuscripts included a 17th-century medical manuscript in Galway (LSB 175), an early paper manuscript in the Russell Library at Maynooth (MS C 97), Mac Fhir Bhisigh's Book of Genealogies in UCD Library (Additional Irish MS 14), and the priceless Franciscan Collection of manuscripts held in the Department of Archives in UCD. Having identified primary target-manuscripts, the project was then in a position to work on other manuscripts from the collections in which those targets were to be found. In NUI Galway, for example, we were able to digitise the work of the important eighteenth-century scribes Labhrás Ó Fuartháin (LS 18) and Pádraig Ó Pronntaidh (LS 20). So too in Maynooth where, for instance, ISOS was enabled to digitise autograph manuscripts of poetry by Donnchadh Ruadh Mac Conmara (MS M 85) and Piaras Mac Gearailt (MS M 58(a)).

One of the natural results of the broadening of the collaborative base of the ISOS project was that further thematic categories began to emerge, some of which remain to be fully exploited. For example, digitisation of the recensions of the early-Irish saga *Táin Bó Cuailnge* in Leabhar na hUidhre and the Book of Leinster (RIA and TCD respectively) has led to the aspiration that manuscripts representative of all recensions of this text may yet be digitised and presented together on ISOS. A similar aspiration exists with regard to the manuscripts of the Annals of the Four Masters, of which the copies in the RIA and UCD have been digitised by ISOS. So too with manuscripts containing autograph copies of poetry. This is a particular feature of the later tradition, and, as indicated already, a number of books written by Irish poets and containing their own work survive from the eighteenth century, for example. In addition to the poets referred to above, the work of poets such as Aindrias Mac Cruitín and Seán Ó Murchadha is also represented in autograph manuscripts available on ISOS. It is envisaged that this sub-group will be augmented in the future.

The digitisation of the Franciscan manuscripts at UCD demonstrated further the capacity for the emergence of sub-projects within an open-ended, mass digitisation project. These manuscripts represent the core collection of the library of the Franciscan College of St Anthony in Leuven, Belgium.[2] Some of the manuscripts were written by

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[2]   A number of manuscripts from this source are also housed in the Bibliothèque Royale de Belgique in Brussels.

Irish exiles in Spanish Flanders and elsewhere, while more of the manuscripts were brought from Ireland by those exiles as they fled the country in the wake of the English conquest of Ulster at the beginning of the seventeenth century. Thus they range in date from the late 11th century to the 17th century and, in the case of later additions, the 18th century. The collection has had an interesting and precarious history: it was removed from Leuven to Rome in the wake of the French Revolution. From there the manuscripts made their way to Ireland in the nineteenth century, and were for many years housed at the Franciscan house of studies in Killiney, Co. Dublin. Their recent transfer to UCD and their digitisation by ISOS have brought their story full circle in a physical sense and also in a textual sense. Just as some of the manuscripts were studied at Leuven, and others created there, the possibility for further textual analysis and dissemination is now enhanced by their presence on ISOS. So too a sense of closure has been brought by this sub-project to the concern for preservation which caused the urgent movement of many of these books from Ireland and then across Europe.

Identifying target manuscripts among new collaborations and new sub-projects, in addition to those already established, took place in tandem with ISOS settling into a fruitful, long-term partnership with one of our early collaborators, the library of the Royal Irish Academy. Having digitised many of the great books in this collection, as well as the *duanaireadha* and medical manuscripts, it has become possible, due in no small part to the enlightened attitude of the Librarian, Siobhán Fitzpatrick, to begin working on a chronological basis with the Academy's manuscripts, the richest collection in existence. This work is in progress and it is envisaged that it will continue for some time.

The progress and growth of the project have recently encouraged us to enter into partnerships with institutions further afield. In 2009 the project concluded discussions with the National Library of Scotland. This library holds in excess of 70 Gaelic manuscripts, many of which originated in Ireland, and many more of which were written in Scotland. They date from the late middle ages to the modern period, and as a collection they have the extra significance of symbolising the closely shared heritage and cultural commerce of Ireland and Scotland. All the familiar categories previously prioritised by the project are present here: medical manuscripts, *duanaireadha*, and great books, perhaps the greatest of which is the Book of the Dean of Lismore, written in Scottish secretary script in Perthshire in the early sixteenth century. This manuscript is now on display on ISOS in conjunction with a new catalogue description by Ronald Black, who has spent a lifetime working on this collection.

Further still afield, ISOS has begun to pursue another sub-project, one which has the potential to develop in other directions in the future. This sub-project is neither text- nor genre-based, but rather seeks to emphasise the importance of the manuscript to the Irish emigrant. Wherever the Irish travelled—in the middle ages, the early modern period, or in the nineteenth century—they brought their books. In addition to the medieval

manuscripts of Irish origin or association scattered throughout Europe, we also find significant late manuscripts in holdings in the New World and in Australia. These books are testimony to the value placed by emigrants on the book as a cultural relic, and ISOS has begun to enter into collaborations with institutions in Australia so that some of these items may be digitised and displayed. Manuscripts from Newman College at the University of Melbourne and from the Benedictine Monastery of New Norcia are already on display.

The sense of purpose and mutual generosity that has informed these collaborations has led, naturally, to tangential work wherein, for example, ISOS has been pleased to facilitate the creation, on request, of digital copies of manuscripts not aligned with the core palaeographical concern of the project. In this way books such as the National Library's Cambrensis manuscript (MS 700), and the RIA's Icelandic medical manuscript (RIA MS 23 D 43) have found their way into the ISOS site. ISOS is also happy to act, when required, as a conduit for queries from publishers in other media regarding the use of ISOS images, and to supply those images once permission has been received from the copyright holders. Images generated by the project appear regularly in book and journal publications, in film documentaries, and as material in exhibitions.

5. Digital Developments: Technology

The speed of change over the last decade has affected ISOS in different ways. Filming times have improved, for instance. At present the project uses a single-shot digital back (Phase One P45+) with a large format 4 x 5 viewing camera (Sinar p2, with Sinaron lens). The first digital back used by the project, a Dicomed Studio Pro XL, worked as a scanner, which, depending on the size and nature of the manuscript page, might mean a significantly slower capture-time for a given image than would be the case today. Fortunately, capture-time does not affect image-quality, and the quality of the work that was done ten years ago compares very favourably with that of today's work.

Far and away the greatest advances, however, have been made in the area of digital storage, both in terms of cost and capacity. When the project began to generate data in 1999, a 10GB hard-drive was considered an object of wonder, and cost in the region of IR£145. Ten years later a 1TB hard-drive is commonplace and costs about €100. In 1999, if the project was working on a collection in situ, the raw images were conveyed from work stations to processing and storage stations on 1GB and 2GB JAZZ disks. These disks, and their drives, are now obsolete. The project has also witnessed and benefited from progress in the matter of bandwidth capacity over the years. In 1999 the capacity at DIAS was 64 Kbps. With the acquisition of a Digital Subscriber Line (DSL) this increased to 4Mbps, and the capacity is currently at 1Gbps via fibre-optic

cable. Users of ISOS have also seen an improvement in their own capacity to download and study images, as the now obsolescent dial-up connection gave way to DSL and 3G.

At present (January 2010), the ISOS archive consists of 4.5TB. Storage on 40GB tape-cartridges has not always proved satisfactory when reviewed and rewritten at the 3-year intervals which was established as a protocol when the project was at planning stage (see above). The archive has therefore been completely transferred to hard-drives, copies of which are contained on three separate servers, one of which is off-site. The ISOS website currently stands at 135GB. The working copy and the active site are both stored at different locations within DIAS, and a back-up copy is also housed off-site. When DIAS took over the exclusive management and operation of the project in 2003, two 2TB servers, costing €10,000 each, were purchased to store the project's archive. In 2009, hard-drives of 2TB capacity, using a fraction of the power and involving easier maintenance, cost €150 each. As developments in storage technology are taking place at a quicker pace than the generation of data within the ISOS project, it is likely that in a few years' time the complete ISOS archive may be accommodated on a single hard-drive.

6. Digital Developments: Attitudes and Perceptions

ISOS has grown in parallel with the development of digital awareness throughout the world, and particularly in Ireland. From a position where the project was innovative in conception, the ten years of its existence have witnessed an explosion in digital awareness and in digital thinking, and many libraries now have their own digital units. In many such cases the ISOS project has proved the guinea-pig for digital developments of this nature, and the project has often been requested to provide advice and guidance—which we have given freely—to other institutions and projects. This has happened in tandem with general technological—and behavioural—developments in areas such as the cell-phone and internet access. It has also been paralleled by the acceptance of digital technology as a conventional rather than an alternative medium for the dissemination of knowledge and information. In the context of Irish studies, this has been supported by the growth and development of important open-access public-service textual resources such as CELT (*Corpus of Electronic Texts*) and the electronic version of the Royal Irish Academy's *Dictionary of the Irish Language* (eDIL), and has led to the late flowering of many other similarly-minded enterprises such as the 1901 and 1911 Census of Irish Population, digitised from microfilm by the National Archives of Ireland, and the placenames database from the Placenames Commission.

In the context of professional scholarship, a digital component is now, tacitly or explicitly, the *sine qua non* of most government-funded third-level projects in the humanities. While this component, however, may be to the forefront in terms of

funding application and project presentation, in practice, in some cases at least, it has the status of a veneer. More than one project which received funding on the basis of a significant digital component, via the Irish government's Programme for Research in Third-Level Institutions (PRTLI) or from the Irish Research Council for the Humanities and Social Sciences (IRCHSS), or indeed through a direct Government budgetary provision designated 'digitisation', has either prioritised delivery of its results in hard-copy format, or delayed the implementation of the digital commitment until the project-span and the funding have expired. Finding themselves in such a situation, some projects have sought help, on a *pro bono* basis, from public-service projects to execute belatedly the digital element of their work. The irony of such cases is that the funding for the nominally digital projects was granted after competition in which the public-service projects themselves were unsuccessful participants.

The perception of digitisation as peripheral, in certain quarters of the scholarly community, is one of the problems which has retarded the progress of the digital humanities in Ireland. Another area of concern is that of the allure of digital technology and digitised material for exhibition or 'front-page' purposes. In theory, this phenomenon should go hand in hand with and advance the cause of mass digitisation. In practice, the funds which might be directed towards facilitating such digitisation are instead diverted to sourcing turn-key and publicity-catching display technologies—touch-screen page-turners for instance—when a portion of this funding would have secured the digitisation of material the long-term value of which would exceed the short-term results accruing from the 'bells-and-whistles' display.

The issue is clearly one of balance. ISOS itself might be thought to be behind the times in its static display of images and catalogue material. Even though the current display-template for the project was established at a time when the progress and future of ISOS could not be predicted, nevertheless it still succeeds in achieving and delivering its objectives. Now that it has become settled and established, and that far more material continues to be added than was ever thought probable, it is not difficult to see that the potential shortcomings of static display are entirely rectifiable without prejudice to the digital content. Such re-organisation and upgrading tasks are among the desiderata for the project outlined at the conclusion of this paper.

The passing years have also witnessed the creation of what appears to be the parallel universe of European Union digitising theory and formulations, with their own set of acronyms and protocols. At a seminar organised by ISOS on the subject of 'Digital Image, Digital Text' in 2004, it came as a surprise to the personnel from the various projects in attendance to learn that Ireland had Nominated Representatives on the EU National Representatives Group for the Coordination of Digitisation Programmes and

Policies.[3] The modicum of consultation and communication with the many digital projects in Ireland, which might be expected from such officials, has yet to materialise but will doubtless become apparent eventually.

It is regrettable that in attracting funding, short-term, all-inclusive, projects will undoubtedly be more successful than open-ended, infra-structural ones. Again, there is a balance to be struck between recognising the respective merits of projects that promise to deliver final results within a fixed period, and those that are laying down the basis for long-term research, the results of which, in so far as they can be predicted in any specific way, will be seen in areas—such as teaching, research and publication—over time rather than instantly. In the eyes of funding assessors, a digitisation project, the results of which are more likely to be external to itself, and to occur at an unspecified time in the future, is not going to outshine a self-contained short-term project with finite and verifiable deliverables.

7. Research

The research component of a project such as ISOS is generally potential rather than kinetic, and it increases as material is added. It is also accepted that time is required for the influence of a project such as ISOS to enter the public domain. Logfiles show that 27% of the visits to the ISOS site emanate from the .ie domain, and that there is also strong British, European and American interest in the project. One of the advantages of the registration mechanism for access to the high-resolution images is that we know, for example, that 48% of users who registered in 2009 were university postgraduate students, most of whom were working on studies of textual or palaeographical subjects; 37% of the registered users for the same twelve-month period were university staff. In addition, the availability of the mass of digitised material on ISOS has facilitated on-going research on binarisation, and on word and character segmentation, and the project is at present developing partnerships in this research area.

Some important research benefits are obvious within the site itself. Chief among the codicological benefits has been the virtual re-unification of manuscripts that became disturbed and fragmented over time, the separated parts now being housed in different institutions. For instance, Aoibheann Nic Dhonnchadha has identified the single leaf which is TCD MS 1398/71 as originally belonging to the sixteenth-century Maynooth MS C 110, and the two are now re-united on ISOS. The case of the Book of Leinster may also be cited. At least ten folios of this twelfth-century manuscript became separated from the codex at the end of the 16th century, and were conveyed to St Anthony's in Leuven, and hence ultimately to UCD, where they are now UCD-OFM MS A 3.

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[3] Since 2007 known as the Member States' Expert Group MINERVA, on which Ireland has four representatives.

The remainder of the book eventually became the property of TCD. These separated sections may now be viewed together on the ISOS site. The case of the Book of Leinster also illustrates the capacity for digitisation to prompt fresh scrutiny of a manuscript. An examination of the digital images from this codex led to the discovery of over 60 previously unnoticed marginalia (Manning 2003). Palaeography is also an obvious beneficiary from the ISOS images: John Carey's recent work (2009) on Leabhar na hUidhre (RIA MS 1229) is indebted to access to the digital images of that manuscript on the ISOS site, as is Pádraig A. Breatnach's forthcoming book on the work of the 'Four Masters'.

Many of the palaeographical and codicological advantages of digitisation are crystallized in a recent sub-project, the imaging part of which is already completed and on display. This involves the manuscript known as the Book of the O'Conor Don. This is an anthology of over 350 bardic poems that were composed in the period between the 12th and 17th centuries. The manuscript was written by an Irish soldier at Ostend in 1631. It extends to over 800 pages and is the most important and most comprehensive collection of this type of verse extant today.

In contrast to most other codices on display on ISOS, this manuscript is not housed in any national institution or educational library. It is one of the most important Irish manuscripts still to rest in private possession. Because of this, up to now access to the texts that it contains has been confined usually to a surrogate transcript made in 1848, or through a set of negative Photostat copies which were made in the first half of the 20th century. The owners always facilitated access, but few scholars ever journeyed to the heart of the Roscommon countryside to examine it in detail.

With the good will and agreement of the owners, ISOS was able to digitise the Book of the O'Conor Don in 2008, and to have the images on display by early 2009. Having a digital copy available of this manuscript has therefore immediately resolved and revolutionised the question of access to this important book. The most immediate result was that it enabled us, for the first time, to do such basic things as produce a catalogue of the contents of the manuscript: an alphabetical list of contents had been published in 1915. In the course of this work, other information became available for the very first time: previously unnoticed colophons by the scribe; other scribal features such as decoration, rubrication, and ruling; and extensive annotations and marginalia by later readers and owners of the 17th and 18th century.

As well as recording these new details and displaying them in conjunction with bibliographical information, work has begun on producing transcripts of each text and of displaying them side by side with the relevant images. This display is a feature additional to the usual two-tier display of the images. In this way a framework for diverse functions such as a palaeographical teaching-tool or a digital edition of some or all of the texts in the manuscript is being put in place gradually. Already a sample

digital edition of one of the texts is in preparation, as an ancillary feature of the ISOS site.

The Book of the O'Conor Don also illustrates the lateral properties of the ISOS site. The soldier-scribe of this manuscript, Aodh Ó Dochartaigh, is also the scribe of one of the Franciscan manuscripts (UCD-OFM A 20), a collection of less formal material telling the history of one of Ireland's greatest legendary figures, Fionn mac Cumhaill. This manuscript was written in 1626–7, also in Ostend, four years before the Book of the O'Conor Don. Now, for the first time scholars are enabled to study these two manuscripts side by side, from various aspects of codicology, palaeography, textual and literary history.

One of the more occasional features of the ISOS project has been the convening of seminars on various topics connected with digitisation. Over the years invited speakers have addressed topics such as presentation and storage of digital materials, text encoding, and digital editions. These seminars provide a forum for formal and informal interaction between those involved in digital studies in Ireland, and are also a means for ISOS to avoid the isolation that can beset many endeavours. Realising the importance of the digitisation of the Book of the O'Conor Don, ISOS convened a colloquium in 2009 on the subject of this manuscript, and of the numerous features and themes emerging from its sudden availability. This colloquium brought together many experts in the field of Irish manuscript studies and Irish classical poetry. The result was a completely new evaluation of this single source. It is intended to make the proceedings of this colloquium available in hard-copy and online in the very near future (Ó Macháin 2010).

8. The Future

In some respects, ISOS has become a victim of its own success and also of its venerable age. Neither the longevity of ISOS nor its enthusiastic reception and popularity could have been predicted when it was founded. As the oldest and consequently the longest-running project of its kind in Ireland it has seen the growth and the demise of better-endowed ventures, both within and without the academic environment. The project has made the most of every available opportunity to carry out its modest ambitions and to digitise manuscripts as they and the collections of which they form part became available. At any one time there have never been more than four personnel working on ISOS, and for many years now it has had just two persons: a digitising technician and the present writer.

For the future, the organisation of the website as a database is an obvious desideratum, and one which it is hoped can be attended to soon. Other aspects of the site are waiting for their potential to be realised. The static presentation of the material will, some time in the future, doubtless be exchanged for a more interactive facility. Another

requirement is the development of a schools' compartment in the site, which has been a personal ambition of this writer. A site such as ISOS is an ideal location to cultivate the next generation of Irish palaeographers by telling, without prejudicing scholarly standards, the story of the book, of vellum, parchment and paper, of ink and calligraphy, and of the descent of texts. As we look forward to such developments, we also anticipate new collaborations and sub-projects, and especially further additions to our digital collection of these unique and extraordinary hand-made books.

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