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From Spoken Word to Digital Corpus: The Calum Maclean Project

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The Calum Maclean Collection (http://www.calum-maclean-project.celtscot.ed.ac.uk) is a searchable, standards-based catalog of a collection of Scottish Gaelic oral narrative that was developed between 2005 and 2009 with major research funding from the Arts and Humanities Research Council (AHRC, http://www.ahrc.ac.uk). It is one of a series of projects begun early in the past decade to make folklore materials in Scotland more widely available to the public through the usage of digital technology. Implicit in such initiatives has been the intention to develop multiple social applications of archived folklore materials; during such development, two primary aspects of the technological applications have been a wider promotion of folklore materials through technology and the enhancement of Scotland's main folklore archives. The major share of the various projects' activities and funding has gone toward the institutional, social, and promotional aspects, but the size and value of the archival collections themselves have presented a strong case for the applications of technology for research purposes. Ways in which such archival collections in Scotland could be further developed became clear during a visit in 2002 to the National Folklore Collection at University College Dublin (UCD) aimed at assessing the research potential of their extensive collection by the Scottish folklorist Calum Maclean (1915-1960). The importance of the collection to ethnologists is uncontested, but until that time very little of it had been made available to researchers. Maclean's transcriptions were meticulous and written out in a clear hand that gave rise to the possibility that the entire collection would not only be useful in a digitized form, but could be made searchable, with additional information and comments for the use of researchers in a range of disciplines. Subsequent negotiations with UCD secured their full support for a project to develop the collection, and funding was awarded by AHRC late in 2004.

The bulk of the research materials at the center of the project were collected in the West Highlands and the Islands of Scotland (primarily in the Outer Isles) between 1946 and 1951 by Maclean during his employment as a full-time field collector with the Irish Folklore Commission (later to become the National Folklore Collection) in Dublin and then when he was at the School of Scottish Studies, University of Edinburgh, from 1951 until 1960 (cf. Maclean 1975 [1959]). The main collection consists of Maclean's written transcriptions from wax-cylinder field recordings that in the course of his fieldwork were shaved and re-used as an economy measure. The Collection is bound in 24 volumes (10,511 handwritten pages, approximately 2.1 million words), of which 19 contain Scottish Gaelic transcriptions, with the recording information provided on a standard form at the beginning of each recording session. The remaining volumes (about 1,850 pages) are Maclean's field diaries covering this period and written in Irish and Scottish Gaelic. They furnish a valuable context and commentary for the ethnographic materials in the main collection, as well as his own illuminating observations on ethnology and ethnologists. In addition to the materials made available by UCD, a smaller collection of transcriptions from audiotape (ten volumes; 2,224 pages, approximately 440,000 words) from the School of Scottish Studies (SSS) Archives, University of Edinburgh (http://www.ed.ac.uk/schools-departments/literatures-languages-cultures/celtic-scottish-studies/archives) was also incorporated into the project. Individual reciters' names are listed by volume and page number in both collections, but no information (for instance, Aarne-Thompson/ATU international tale-types) is accessible through a catalog. The contents are primarily long folktale texts along with more than 300 song texts, as well as full-length autobiographies of two major Scottish Gaelic storytellers. The greater part of the items were recorded in the Outer Hebridean islands of South Uist, Benbecula and Barra, strongholds of Gaelic tradition and a primary focus for field collectors since the mid-nineteenth century. In addition to being the most prolific collector in the history of Scottish ethnology, Maclean was a highly-trained ethnologist and a competent, careful worker. Taken together, the collections (including six bound volumes of Irish material from Connemara) constitute the entire known corpus of Maclean's field transcriptions, amounting to around 4,000 items, or 2.5 million words.

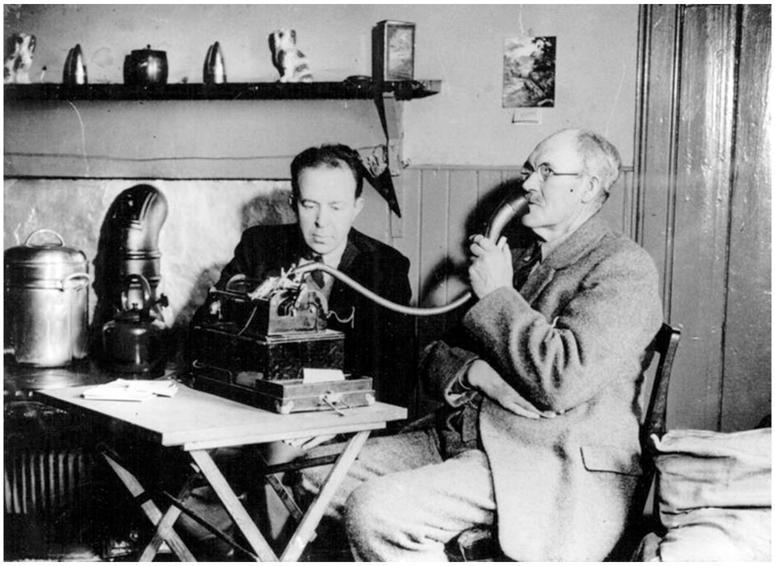


Fig. 1. Angus MacMillan, Moss Cottage, Griminish, Benbecula, recording on the Ediphone for Calum Maclean in 1947. National Folklore Collection, University of Dublin.

The primary *aims* of the AHRC-funded project were to convert the collection of field transcriptions by Calum Maclean, as well as his diaries, into a format compatible with modern research methods in order to serve as an effective and flexible resource for future research within a number of disciplines and to ensure that his vast legacy would be available to a wider audience. In this connection, the following *objectives* were identified:

- to create a digitized *literatim* electronic corpus based on the entire transcribed collection
- to create the largest searchable, digitally-based collection of Gaelic oral narrative and concurrently the largest known written electronic corpus of oral Gaelic prose
- to provide an online, searchable catalog designed to accommodate diverse research needs, and to provide secure and managed access to the resource

- to make the collection more widely accessible to researchers in ethnology (particularly folktale specialists), Celtic studies, linguistics, anthropology, and oral history, including those without knowledge of Gaelic
- to encourage research collaboration with other research institutions through developing the resource

Following consultation with University of Edinburgh technical staff, the development of the Collection was set out in four consecutive stages: *pre-project* (incorporating a pilot project), *training and orientation*, *digitization/markup/cataloging*, and *dissemination/maintenance.*

The first stage of the digitization process was to scan images either from microfilm of the original field transcriptions or from the original notebooks to TIFF (Tagged Image File Format). These images were then used for the production of texts that were rekeyed (using a double-entry method to reduce errors) into an XML template. Preliminary pilot work had confirmed that rekeying of the texts could be carried out to an accuracy of 99.95%. In the following stage, TEI-Lite (an internationally recognized standard for the production of electronic texts) markup was added to the texts in two distinct phases. During the double rekeying process a minimal but valid document instance was produced, with a TEI header incorporating generic elements and defining the structure of the body of the text from the headings and paragraphs in the handwritten source. Such files formed the raw data that acted as the foundation for more detailed analysis and work. In the subsequent phase, further markup was carried out in Edinburgh by two Gaelic-speaking researchers. The researchers were required to possess a thorough knowledge of the Gaelic language and Scottish ethnology, a practical acquaintance with the School of Scottish Studies (University of Edinburgh) folktale archive and tale classifications, a familiarity with international academic literature on the folktale, and finally the requisite level of computer skills. Their responsibility was to add markup to the TEI header to categorize the text, and to add to the body text improved interpretative and analytical markup of the material itself based upon their academic and cultural knowledge. Specifically, markup of the text involved insertion of tags for names, places, titles, contractions, foreign words, emendations, notes, and so on; replacing entities such as accents, contractions, and special symbols to accord with their ISO equivalents; assigning motifs where they occur in the main text and to the summary; assigning a genre to a given text; assigning a taxonomic classification to a text if it had been identified as either an International Tale (AT/ATU), a Migratory Legend (ML), a Witch-type (Wi), or a Fairy-type (Fa) legend; assigning keywords to the text; and parsing all marked up documents against the TEI Lite-DTD (Document Type Definition) to ensure they were valid and well-formed.

Classification of items—other than those under recognized international systems—was carried out in consultation with similar or parallel digital folklore projects (see below). The most suitable genre classification for each item, generated from an in-house created list of hierarchical descriptions, and moving gradually from the general to the particular, was identified. All the metadata—such as the information

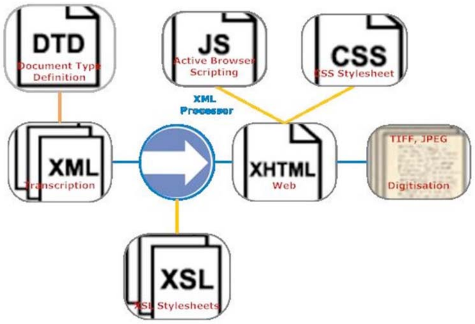
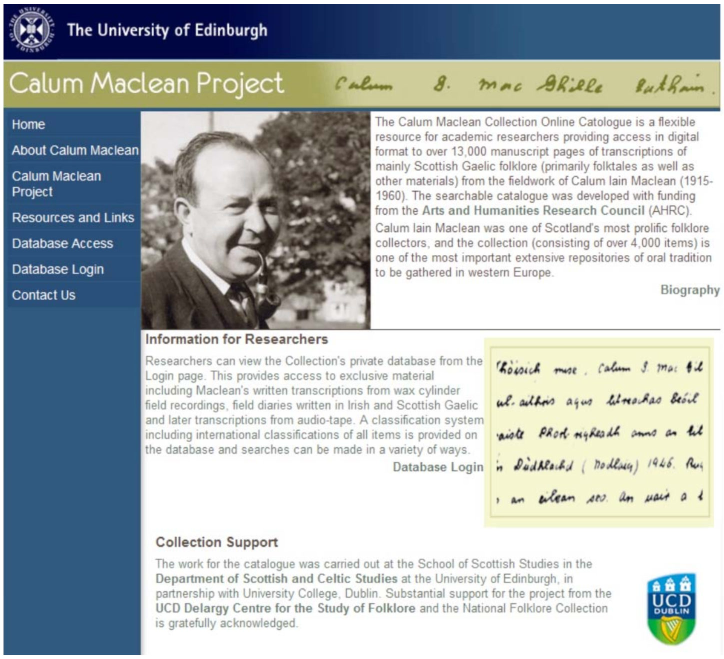


Fig. 2. Data Flow Diagram.

concerning the informant's details, date, place, provenance (of the material if available), and so on—were then added to the header. A proforma used by the IFC was the source for metadata creation that, in most cases, had been appended to each section of the manuscripts for each of the individual informants. All such metadata are vital for information retrieval and thus searches may be based on title, name of reciter, location, recording date, classification, or keywords. Work on the project involving the two researchers was carried out entirely in Gaelic. A guiding principle of the markup procedure was to approximate as faithfully as possible the original documents in order that each notebook could be maintained along with its content. The features of XML are such that they provide flexibility in order to convey emendations such as deletions, supralinear additions, marginalia, and so on that reflect, to some extent, the immediacy of the original transcriptions.

Once completed, the marked up texts were served up to an application built by University of Edinburgh technical staff. This process involved loading and storing the texts in files on an XML-capable database. A web interface was then developed that was *specifically* designed to query the texts stored in the database, and the results of any given search were then rendered for display using a CSS (Cascading Stylesheet) that published the resultant files in a web browser. As stated, the process of digitization began with the production of TIFF images, and the resultant derived JPEG (Joint Photographic Experts Group) file format was used to make the fieldwork transcription images available alongside the edited texts.



The Calum Maclean Collection Online Catologue is a flexible resource for academic researchers providing access in digital format to over 13,000 manuscript pages of transcriptions of mainly Scottish Gaelic folklore (primarily folktales as well as other materials) from the fieldwork of Calum Iain Maclean (1915-1960). The searchable catalogue was developed with funding from the **Arts and Humanities Research Council** (AHRC).

Calum Iain Maclean was one of Scotland's most prolific folklore collectors, and the collection (consisting of over 4,000 items) is one of the most important extensive repositories of oral tradition to be gathered in western Europe.

Information for Researchers

Researchers can view the Collection's private database from the Login page. This provides access to exclusive material including Maclean's written transcriptions from wax cylinder field recordings, field diaries written in Irish and Scottish Gaelic and later transcriptions from audio-tape. A classification system including international classifications of all items is provided on the database and searches can be made in a variety of ways.

Collection Support

The work for the catalogue was carried out at the School of Scottish Studies in the **Department of Scottish and Celtic Studies** at the University of Edinburgh, in partnership with University College, Dublin. Substantial support for the project from the **UCD Delargy Centre for the Study of Folklore** and the National Folklore Collection is gratefully acknowledged.

Fig. 3. Screenshot of the Calum Maclean Project website (http://www.calum-maclean-project.celtscot.ed.ac.uk/home/).

The website through which the collection is accessed is bilingual and hosted by the University of Edinburgh. It consists of a universally accessible homepage that provides information on the resource and the project, a short biography of Calum Maclean, and useful links. The second section of the website contains the database, with options and instructions for simple or advanced searches, a taxonomy guide, a contents list of manuscripts, a handbook, and background and technical information.[1] The materials available online make up one of the most important and extensive folklore collections in existence for Scotland, or indeed for northwest Europe. The only transcribed Scottish folktale collection to rival it in size and quality is the work of the pioneering nineteenth-century collector John Francis Campbell of Islay (now in manuscripts at the National

[1] Requests by researchers for access to the database section can be directed to project staff (j.w.shaw@ed.ac.uk).

Library of Scotland; cf. Campbell 1890 [1860-62]) followed by the Dewar Manuscripts Collection (also nineteenth-century and containing some 1.3 million words and housed at Inveraray Castle). With the demise of storytelling in the Outer Hebrides and in the West Highlands over the last half-century and more, the materials are now irreplaceable. Given its size, content, and centrality to Gaelic tradition, the Calum Maclean Collection is of fundamental importance to future research and publications in the field of Scottish ethnology. The wealth of international tales provides extensive material for comparative research; the hero-tales contribute toward a knowledge of storytelling from late medieval times; and the two full-length autobiographies transcribed from twentieth-century reciters of international standing provide a unique source for researching the contexts of oral narrative.

The advantage of the present online resource is to allow the application of modern research methods to an extensive body of ethnographical data. Digitization of the transcripts using the Text Encoding Initiative's TEI-Lite XML Schema (http://www.tei-c.org) provides the basis upon which keyword, subject, genre, and contextual information searches can be constructed, and the English tale summaries provide effective access for folktale comparatists worldwide. The resulting digital corpus is suitable for rigorous analysis by computer, enabling a variety of research projects. The primary groups of users include those with an interest in the following subject-related areas: ethnology (especially from a Scottish and Irish perspective), narrative studies, Celtic studies, linguistics, anthropology, and oral history. It is envisaged that the corpus will be used in a variety of ways, providing up-to-date tools for interdisciplinary research such as analysis of stylistics, folklore register, oral formulae, word frequency, or dialectology; discourse analysis; geographic distribution analysis of folktales and motifs; historical/comparative studies; and lexicography. Additional benefits of the developed corpus may include aspects such as providing an up-to-date tool for interdisciplinary research by allowing access to an electronic catalog where researchers can compare materials through an easy-to-use web interface and an adaptable search tool. The flexible format of the texts provides an effective point of departure for a vastly increased output of research and related publications based on a central but hitherto largely unused collection. An electronic resource such as this can also be easily replicated for any other folklore collections.

The direction taken in the future development of the collection will be determined significantly by opportunities to interact with similar or parallel collections in Scotland and possibly further afield. Examples of online resources that contain relevant material for those studying Scottish ethnology include *Tobar an Dualchais/Kist o Riches* (http://www.tobarandualchais.co.uk) that gives access to a wide variety of original fieldwork recordings drawn together from the archives of the School of Scottish Studies, BBC Scotland, and the National Trust for Scotland's Canna Collection, as well as *Pròiseact MhicGilleMhìcheil MhicBhàtair/The Carmichael Watson Project* (http://www.carmichaelwatson.lib.ed.ac.uk) that makes available the collection of the pioneering folklorist Alexander Carmichael (1832-1912). Similar projects outside Scotland that are of an ethnological interest include *Struth nan Gàidheal/Gael Stream* (http://www.gaelstream.stfx.ca), containing archival sound recordings and hosted by Saint Francis Xavier University at Antigonish, Nova Scotia; *Cainnt mo Mhàthar/My Mother's Tongue* (http://www.cainntmomhathar.com); and a recent innovative project, *An Drochaid Eadarainn/The Bridge Between Us* (http://www.androchaid.ca), that provides an interactive, online social space specifically (though not exclusively) aimed at the Gaelic community of Nova Scotia. This last resource invites users to participate actively and share knowledge about ethnological materials, thereby embracing their social dimension. Taken together, the sources complement one another in serving from their various perspectives to conserve and disseminate hitherto difficult-to-access or culturally marginalized materials.

Since the Collection went online, it has provided an effective point of departure for the study of the folktale and folktale collecting in Scotland. Maclean's field diaries contain descriptions of his first reactions to communities where he carried out so much of his work, achieved against a background of his constant awareness that the recording of Gaelic folklore was a race against time. We are also able to observe firsthand his relationships with colleagues in the Hebrides that formed the point of departure for the politics of access and ownership that emerged by the 1950s around the active interest taken by folklore collectors—some of them commercial—from outside of Scotland. There is also valuable information taken down from the reciters themselves regarding the transmission and spread of tales in Gaeldom. The apparently prodigious ability of Gaelic reciters to acquire a lengthy folktale orally has been a perennial area of interest for folklorists, together with the ways in which such major tales were (and are) capable of being absorbed into the repertoire from neighboring cultures. In 1950 Calum Maclean transcribed an internal account that portrays a remarkable instance of how swiftly and adeptly individual storytellers could master these tales, and how easily in recent times they could be introduced into the Gaelic repertoire through re-oralization. It is taken from the life story of the prolific Gaelic reciter Angus MacMillan (Aonghas Barrach) of Benbecula, held in the National Folklore Collection at UCD (NFC 1180:301-548) and extending to 247 pages. MacMillan, who had only a smattering of English, describes going to hear a tailor in a neighboring township, whose performance consisted of translating a story from an English book into spoken Gaelic for his audience. Calum Maclean in an aside hazards that the book was *Five Weeks in a Balloon* (first published in 1863) by Jules Verne. If he is right, what follows is an impressive feat indeed: the 1926 English translation of the work entitled *Five Weeks in a Balloon: Around the World in Eighty Days* is 374 pages in length. Angus MacMillan continues,

> It took the tailor a week to read it [aloud]. When the book was completed I knew the story and returned home early, around nine o'clock . . . My father inquired whether I was poorly and I replied that I was not. He knew very well that I had been listening to the story and he asked me to recite it until it came time to retire for the night. When we had taken our evening meal I started on the story. There was no one at home except for myself, my father, my mother and two sisters. As I continued with the story my sisters grew sleepy and retired. Soon after, my mother became sleepy and went to bed, but my father didn't even wink—he had been constantly berating me every night for being so late in coming home. The sun was rising before I stopped reciting—it was a winter's day—and I told him that would have to do for today . . . I just kept on and went out to feed the cattle without going to bed at all.

Angus' father rose early that evening and expected to hear the rest of the story, but Angus declined and went to rest. In the meantime his father was filling in the others on the story he had heard the night before. The following evening, after he had completed his chores and eaten, Angus took up where he had left off "and I continued until five the next morning. And when I was finished I said to him [my father], 'Now I hope you won't be so hard on me for being so late coming home. You yourself are just as late as I was two nights ago.'"

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