



IRISH ASSOCIATION FOR QUATERNARY STUDIES

IQUA NEWSLETTER

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Edited by Ronnie Creighton.

Introduction

This edition of the Newsletter contains the abstracts from the Research Seminar held at the Geological Survey of Ireland, Dublin in conjunction with the A.G.M. There was a range of subjects covered in the presentations and all were of a high standard. Some 25-30 people were in attendance. Willie Warren led a field trip to south Dublin and Wicklow. Again attendance was good and the trip was very interesting on a fine if cool day.

I would renew my appeal for contributions to future Newsletters. There is a lot happening in the Quaternary science area, and this newsletter provides a vehicle for short reports on work being done, meetings etc.

Ronnie Creighton.

Large-Scale Deformation of Glacial and Proglacial Sediments near Newtown Mountkenedy, Co. Wicklow.

Temporary excavations for the Kilmullin Lane underpass 1.5km east-southeast of Newtown Mountkenedy provided cross-sections c. 50m long by 6m high, through deformed sediments ranging from massive dark grey clay to clean gravel. Visible vertical to overturned fold limbs in graded gravels and cross-laminated sands suggest a fold amplitude of at least 20m. Interbanded clay, silt and sand are crumpled into ancillary folds and small thrusts. Large-scale thrusts are probably present, but structural interpretation is incomplete, because the succession is only partly known. Folds trend c. 130° and are overturned towards the southwest, apparently due to ice-push from the northeast. Timing is uncertain. The structures have been truncated, and appear to be overlain by a widespread sub-horizontal silty diamict, suggesting glacial overriding. Present topography gives no hint of underlying structures.

A gravel pit 0.5km south of the underpass includes an open-folded, laminated silt-clay unit c. 1.0m thick within a predominantly gravel sequence. The fold trend is nearly parallel to those in the underpass, suggesting a single deformation belt at least 0.5km wide. In the axial region of the main fold the laminae are contorted into numerous tight recumbent folds of 20-30cm amplitude, overturned towards the southwest. The location and orientation suggests an element of southwestward thrusting during folding.

M.E. Philcox, Dept. of Geology, T.C.D.

W.P. Warren, Geological Survey of Ireland.

Deglaciation in Counties Longford and Westmeath

This paper discusses the glacial sediments of an area immediately east of Lough Ree in Cos. Longford and Westmeath, along the postulated line of the Drumlin Readvance Moraine. Glacial deposits take the form of uncontrolled

hummocky moraine and eskers. Examination of several small sections throughout the area indicates that hummocky moraine was formed in a number of ways: subglacially in ice tunnels, ice marginally both subaerially and subaqueously, and as a function of differential melting of stagnant ice. Deposition of the esker ridges occurred both in ice tunnels and marginal to the ice sheet.

Little evidence of active ice is seen; deposition was in a zone of ice stagnation during the final melting of the Midlandian ice sheet.

Catherine Delaney, Geology Dept., Trinity College, Dublin.

Irish Pleistocene Mammals and a Wild Moose Chase

The National Museum of Ireland has an extensive collection of bones of various Quaternary mammals. Most of these are Irish and include remains of about two hundred individuals of giant deer Megaloceros giganteus, and bones of various deer, bear and domestic mammals catalogued by William Wilde in 1860. This century the work of the Cave Excavation Committee of the Royal Irish Academy resulted in thousands of bones being added to our collections.

These collections and their associated archive are a valuable research tool awaiting proper use. Contact with the public has allowed the addition of elk Alces alces to the Irish fauna and provides opportunities to discover many late-glacial fossiliferous sites.

Nigel Monaghan, National Museum.

Irish Stone Axes: A Preliminary Distribution Map and a Programme of Research.

A preliminary distribution map has been compiled to establish the broad pattern of the distribution and density of stone axes in Ireland. The map is not exhaustive and is based primarily on investigation of the collections in the principal Irish museums, particularly the National Museum of Ireland in Dublin and the Ulster Museum in Belfast.

The map is based on the Irish National Grid and shows the density of axes within 100 square kilometre blocks. The density interval range was deliberately designed to emphasise the lower end of the pattern of axe density. Our research indicates a preliminary total of c. 8,000 axes in Ireland. Represented on the map are about 65% (roughly 5,200) of these axes which can be located to at least townland level. This enables the allocation of a rough four digit National Grid Reference to them but exact findspots are available for a significant proportion. The map does not include those axes only located to a county or with an even less specific provenance. The initial total figure is likely to be considerably augmented but even as it stands it illustrates that stone axes are by far the most commonly occurring prehistoric artefact type in Ireland. It is expected that the overall patterns of axe distribution and density represented on the present map may remain largely unaltered by further research but the investigation of local collections will doubtless have an impact on regional patterns.

The immediate impact of the present map is to confirm some of the suspected trends of stone axe distribution, principally the major concentration in the north-east of the country. Here in the counties of Antrim, Derry and Down there are approximately 3,500 axes (of which at least 2,800 are from Antrim alone). Other areas of relatively high density, that is with more than 10 axes recorded from a 100 square kilometre block, include concentrations at Lough Gur, Co. Limerick, in the vicinity of the River Shannon at Killaloe, Co. Clare and at the head of Galway Bay. The map does not generally include the location of

concentrations of river finds such as the very large numbers from the Shannon at Killaloe (700+) and from the River Bann (300+), particularly at Portglenone and Toomebridge, Co. Antrim.

This distribution map represents the first stage in a systematic programme of research. This project will be centred on the establishment of a data-base of all known Irish stone axes. It will encompass a detailed assessment of the sources utilised, the morphology, context, dating and distribution of the axes. A related topic will be the attempt to identify production sites/centres. The petrological survey will involve the surface examination of all specimens allied to the microscopic analysis of an extensive, problem-orientated sample of the axes.

Gabriel Cooney and Eoin Grogan, Dept. of Archaeology, U.C.D.

Climatic change in the post-glacial: the pollen evidence

Plant distribution patterns, present and past, are influenced by several factors, one of which is climate. The possibility of detecting climatic change in the post-glacial by studying the pollen record was first highlighted by Iversen (1944) in his classic paper 'Viscum, hedera and llex as climatic indicators'. On the basis of the relative frequencies of Hedera and llex in Irish pollen diagrams, Jessen (1949) suggested that the post-glacial climatic optimum in Ireland may have been in the Subboreal rather than the Atlantic period. The validity of using selected pollen taxa as indicators for climatic change in the past will be discussed in the light of fresh data from western Ireland.

Michael O'Connell, Department of Botany, University College, Galway.

Comparative palynological and historical studies of some sites in north east Ireland.

Palynological studies of a range of deposits from numerous sites throughout Ireland have contributed to our understanding of vegetational and climatic change throughout the last 10,000 years but little interest has been shown in similar studies of deposits which have developed during the historic period. During this time landscape change has often been rapid due to changes in agriculture practices and advancing technology. Studies which compared the palynological and the historical documentary evidence for sites in upland Co. Armagh and lowland Co. Down have demonstrated that many of the assumptions about these landscapes in the recent past were erroneous. Comparative studies of this type are useful to archaeologists, palaeoecologists and conservationists as well as historical geographers. Further work at sites in the Lower Bann valley, which apparently has a recent history of deforestation and developing industry, may also be of importance to environmentalists.

Valerie A. Hall, Institute of Irish Studies, Queen's University, Belfast.

Glacial erosion and patterns of ice movement in the uplands of Kerry

The ice cap that sculpted the classic features of glacial erosion in the highlands of the peninsula of Iveragh and Dunkerron had its main centre of dispersion over the low ground around Kenmare and Templenoe to the south of MacGillycuddy's Reeks. The northern part of the radially extending ice sheet

found its exit to the Laune valley through the trough of the Killarney lakes to the east and Glencar to the west. Extensive polished and striated rock surfaces (many of which feature crescentic gouges, crescentic fractures and lunate fractures) in addition to roches moutonnées and ice moulded whaleback forms indicate complexity within the overall simple pattern. Tracer erratics and moraine patterns help refine the ice sheet thickness parameters in the interpretative model.

The pattern of ice direction indicators suggests radically differing ice flow patterns at different altitudes and significant changes in direction of ice movement at some localities. Interpretations indicate strong topographic controls on direction of ice movement, particularly during deglaciation, when emerging topography caused radical changes in direction of ice movement. In addition there is some indication that while basal ice flow was controlled by both subglacial and emergent topographical constraints upper flow was less so and, particularly in Glencar, took a very different direction. This may suggest that while strong diffluent and confluent ice-flow across former watersheds may draw off surplus ice from the upper levels of an ice sheet and change the overall direction of surface and upper level flow, at lower levels the flow direction may be much more constrained.

Thus it would appear that at the glacial maximum, particularly along the western outlet to the north, basal ice flow was largely controlled by the trend of the underlying topography while at upper levels flow direction was controlled only by emergent topographic features and in a broad sense was independent of topographic control.

W.P. Warren, Geological Survey of Ireland.

Aspects of Quaternary landscape evolution in the Falkland Islands

Preliminary results derived from recent fieldwork in the Falkland Islands will be presented. The research themes include the well-documented and still controversial stone runs of the quartzite mountains, the previously undocumented Holocene sand deposits at both coastal and inland locations, and contemporary patterned ground forms at low altitude.

Peter Wilson, University of Ulster, Coleraine.

Annual Field Meeting: North Co. Antrim, 6th/7th October 1990.

The meeting will be based in Portrush and accommodation is available at: The Mount Royal, 2 Mount Royal, Portrush, Co. Antrim (Telephone 0265 823342). The proprietor, Mrs. L. Hoy, is offering a discounted price to IQUA members of £26 stg. per person (sharing) for bed & breakfast on Friday and Saturday with a three course meal on Saturday evening. Packed lunches will be available at an extra charge and will be required for Sunday. Lunch on Saturday will be taken in one of the many cafes or bars. Please book your own accommodation and mention that you are attending the IQUA meeting. Mrs. Hoy requires a £5 deposit with all bookings and advises you to book early.

The meeting will begin with an introductory talk at the University of Ulster, Coleraine, on Friday 5th October at 8pm. Directions to the lecture room will be displayed in the University foyer. The programme for Saturday is: Portstewart - Holocene sea levels, aeolian sands and buried soils, raised marine sediments; Portrush - inter-tidal peats and sand deposits; Portballintrae - raised marine sediments and glaciomarine deposits; White Park Bay - Neolithic archaeology; Ballintoy - raised beach and cave archaeology. On Sunday the

programme will include: Carey Valley - glaciomarine delta: Tievebulliagh - Neolithic axe factory and palaeoecology; Antrim Plateau - peat erosion; Garry Boy - palaeoecology and Irish oak dendrochronology; Bann Valley - esker and glaciolacustrine sediments.

I would appreciate knowing if you intend to be present at the introductory talk.

Peter Wilson, Dept. of Environmental Studies, University of Ulster at Coleraine, Cromore Road, Coleraine, Co. Londonderry BT52 1SA.

Some recent papers on Quaternary Research in Ireland.

Condé, A. 1989. Comparative study of three drumlin fields in western Ireland: geomorphological data and genetic implications. *Sedimentary Geology*, 62, 321-335.

Eyles, N. & McCabe, A.M. 1989. The Late Devensian (22,000 BP) Irish Sea Basin: the sedimentary record of a collapsed ice sheet margin. *Quaternary Science Reviews*, 8, 307-351.

McCabe, A.M. & Dardis, G.F. 1989. A geological view of drumlins in Ireland. *Quaternary Science Reviews*, 8, 169-177.

McCabe, A.M. & Dardis, G.F. 1989. Sedimentology and depositional setting of late Pleistocene drumlins, Galway Bay, western Ireland. *Journal of Sedimentary Petrology*, 59, 944-959.

Compiled by Peter Wilson

Register of Clay Scientists in Ireland

David Doff of the Geology Department, Trinity College Dublin is compiling a register of clay scientists in Ireland. He would like to hear from anyone who would like their name to go on this register. If so they should write to him at T.C.D. giving their name, address and area of interest. Also the Clay Minerals Group of the Mineralogical Society would like to hold a research meeting in Ireland in 1991. Dr. Doff would like to hear from those who would be willing to attend or give a paper. Again, contact Dr. Doff with the general topic on which you would be prepared to speak.

Dr. David Doff, Department of Geology, Trinity College, Dublin 2.

Connemara, 1990.

Paul Mohr wishes to draw members attention to the two-day meeting 'Connemara 1990' to be held in University College Galway on September, 24th and 25th 1990. It is an inter-disciplinary meeting covering pure and applied geology and geophysics. It follows immediately after the IAEG Conference in Galway. A newsheet on 'Connemara 1990' is included with this Newsletter.

Irish Association for Economic Geology

The Irish Minerals Industry - A review of the Decade. 21-23 September, 1990. Great Southern Hotel, Eyre Square, Galway.

This major conference will review the progress and development of the Irish Minerals Industry during the 1980's including the activities of Irish companies overseas and the development of the service companies.

IQUA Committee 1990.

At the AGM held on Saturday 10th March in Dublin, the following were elected to the committee for the incoming year.

Chairman:	Willie Warren	GSI
Hon-Secretary:	Michael O'Connell	UCG
Hon-Treasurer:	Michael Healy	UCC
Newsletter Editor:	Ronnie Creighton	GSI
Ordinary Members:	Peter Wilson	UU
	Barbara Mill	UCD
	Ned Culleton	
	Paul Mohr	UCG

Subscriptions

Subscriptions for 1990 are now overdue. £3 should be despatched to Michael Healy, Department of Geography, University College, Cork. At the AGM it was agreed that in 1991 the subscription will increase to £5 for a full member.