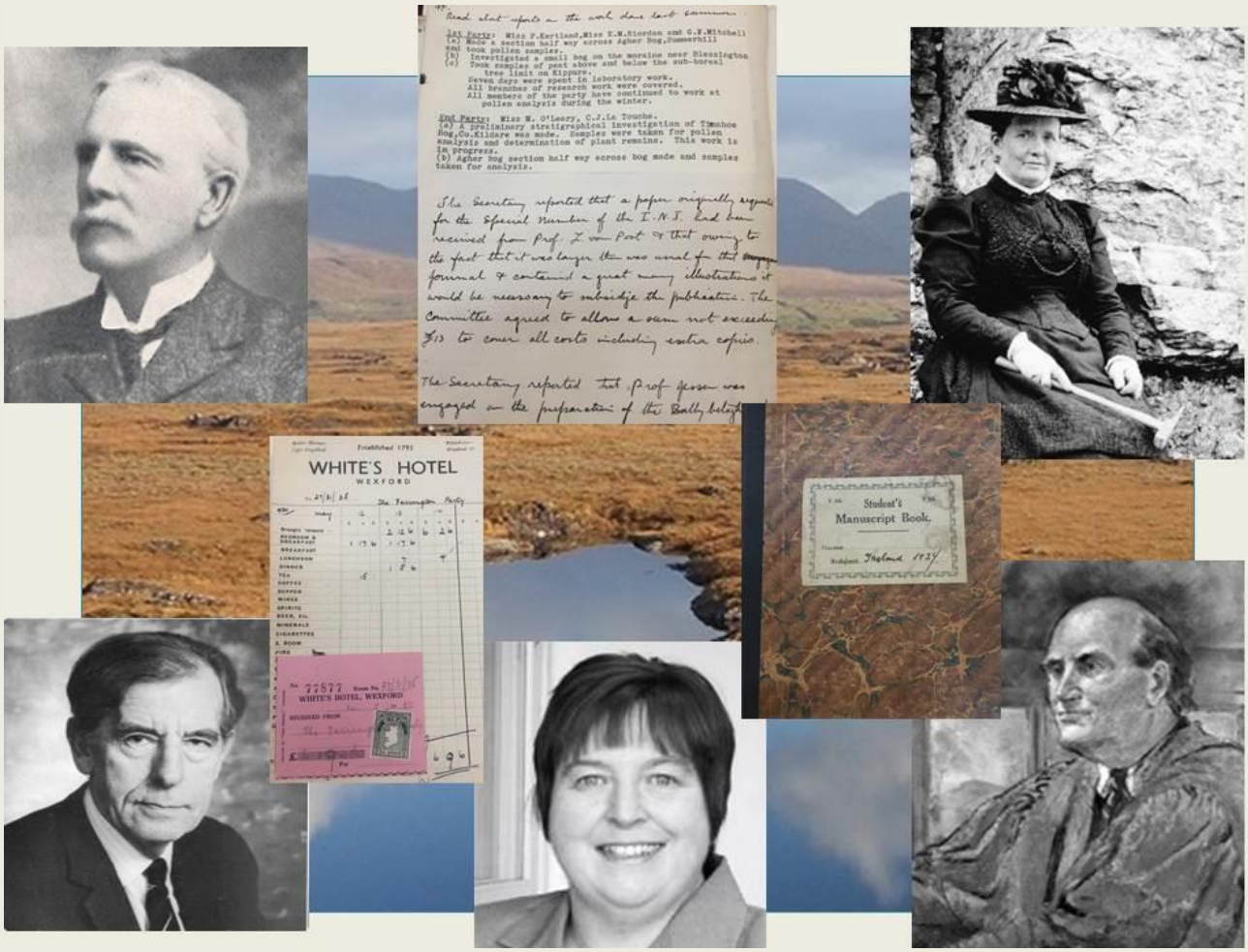
IQUA

Irish Quaternary Association
Cumann Ré Cheathartha na h-Éireann

"If I have seen further it is by standing on the shoulders of Giants" (Isaac Newton)

'Standing on the shoulders of Giants';
A Quaternary Science Retrospective
Hunt Museum, Limerick
Saturday April 21st 2018



Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Queen's University Belfast
14 CHRONO
Centre for Climate, the Environment, and Chronology

INQUA 2019
DUBLIN
IRELAND
25th - 31st July 2019

MIC
MARY IMMACULATE COLLEGE
COLÁISTE MHUIRE GAN SMÁL

Programme

9.30-10.00	***Registration***
10.00-10.10	***Welcome and house keeping***

10.05-10.30	**The challenges faced by Women Quaternary Scientists** Dr. Bettie Higgs (University College Cork)
10.30-11.00	***Sydney Mary Thompson (1847-1923)*** *Antoinette Madden (Natural History Museum) &* *Dr. Catherine Dalton (Mary Immaculate College)*
11.00-11.30	**Robert Lloyd Praeger (1865-1953)** Timothy Collins (NUI, Galway)
11.30-12.20	**Frank Mitchell (1912-1997)** Prof. Fraser Mitchell (Trinity College Dublin)

12.00-1.30	***Lunch***

13.30-14.00	***Bill Watts* (1930-2010)** Prof. Keith Bennett (St Andrews University)
14.00-14.30	***Valerie Hall (*1946-2016*)*** *Dr. Gill Plunkett (Queens University Belfast)*

14.30-15.00	***Coffee***

Other Talks

15.00-15.15	**Exploring the submerged landscapes of Ireland**: Eoin Mac Craith (GSI)
15.15-15.30	**Short term climate oscillations in the late Pleistocene in the Mediterranean sea**: Margaret Browne (MIC-UL)
15.30-15.45	**An update on the Roughan Hill wedge tomb project: Dating prehistoric tombs on the Burren** Ros Ó Maoldúin (IT Sligo)

16.00	***IQUA AGM***

Title: The challenges faced by Women Quaternary Scientists

We're standing on the shoulders of giants - but are these all male shoulders? Historically, where are the women in Quaternary Science? If they exist, were their challenges any different to those of their male contemporaries? Examples will be used, from the 1600s onwards, to illustrate common themes in the day-to-day experiences of women geoscientists. The characteristics of the women who succeeded will be discussed, and their achievements highlighted. The objective of this presentation is to celebrate the contributions of women over the centuries and to gain some insights into what it was like for them and whether there is a legacy to this day. The presentation will set a broad context for the remainder of the talks at the Symposium.

Dr. Bettie Higgs (University College Cork)

A native of the NE of England and a graduate of University of Sheffield, Dr Higgs worked for the Geological Survey of Ireland in Dublin before joining UCC almost 30 years ago and at present is a senior lecturer in geology in the School of Biological, Earth and Environmental Sciences (BEES). Dr. Higgs is also the Co-Director of Ionad Bairre, UCC's Teaching and Learning Centre and since 2002 has coordinated activities designed to support staff in their teaching and learning role in UCC. A past recipient of a UCC President's Award for Teaching and later, in 2012, the recipient of a President's Award for Enhancing the Student Experience, Bettie is interested in the nature of learning, and the public understanding of science. Bettie was a 2005 Carnegie Scholar at the Carnegie Foundation for the Advancement of Teaching

NOTES

Time: 10.30 – 11.00

Title: Sydney Mary Thompson (1847-1923)

Sydney Mary Thompson was born in Co Antrim into an upper middle-class family. She became a prominent member of the Belfast Naturalists' Field Club (BNFC) and pursued interests in botany, natural history and geology. She was the only female committee member of the BNFC in the 1890s and the first secretary of the Geological Section which was set up to help trace the path and direction of the ice across Britain and Ireland. She wrote many significant papers that were presented at Club meetings and published in the Club's Proceedings. Her work contributed to revising geological maps of Co Antrim and the conception of a vast ice sheet from various confluent sources moving over the landscape, transforming the surface of the country by erosion and deposition. Her most important contribution to Irish Quaternary geology was the finding of Ailsa Craig microgranite at Moys, Co Derry, which pushed the limit of penetration of the Scottish glacier some 20 miles further west than previously designated.

Writer: Antoinette Madden (Natural History Museum)

Antoinette trained as an archivist in Paris where she worked for many years for the UN Educational, Scientific and Cultural Organisation (UNESCO). Since returning to Ireland, she has been involved in many projects, including working as a regular volunteer in the archives of the Natural History Museum. She was inspired to join IQUA on participating in the field trip "Wicklow in the grip of an Ice Age" organised by IQUA in May 2012 as part of "Dublin City of Science". She is also a member of the Irish Geological Association (IGA).

Speaker: Dr. Catherine Dalton (Mary Immaculate College)

Catherine is a Lecturer in Environmental Geography at Mary Immaculate College, University of Limerick She teaches courses in 'Biogeography', 'Reconstructing Past Environments' and 'Global Environmental Change'. Her research focuses on microfossils and lake sediment reconstructions. Catherine was appointed Chair of the Irish Quaternary Association (IQUA) (http://www.iqua.ie/) in 2014 and she is also Vice-Chair of the International Paleolimnology Association (http://paleolim.org) since 2013.

NOTES

Time: 11.00-11.30

Title: Robert Lloyd Praeger (1865-1953)

From the 1880s to the 1950s, Robert Lloyd Praeger dominated the world of Irish natural science, with a unique combination of an unparalleled breadth of knowledge, organising skill, considerable literary gifts, a prolific output and an unwavering intellectual purpose. An engineer by graduation, a librarian by profession and a botanist by inclination, it was as a Quaternary geologist and later as a naturalist and writer that he made his mark in Ireland. A gifted organiser, Praeger was at the forefront of the amateur naturalist field club movement which reached its peak in the years running up to the advent of the Great War. Today he is best remembered for his many books and articles extolling the virtues of exploring the countryside of Ireland for the benefit of body and soul alike.

Speaker: Timothy Collins (NUI, Galway)

Timothy Collins is a chartered librarian, recently retired, from NUI, Galway. He is co-founder and Director of the Centre for Landscape Studies in NUI, Galway and has written much on the history and bibliography of Irish natural history since his first book 'Floreat Hibernia: a bio-bibliography of Robert Lloyd Praeger' was published by the RDS in 1985.

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Time: 11.30 – 12.00

Title: Frank Mitchell (1912-1997)

Frank Mitchell entered Trinity College Dublin in 1930 to read modern languages but soon realised that his true interests lay in the natural sciences. He went on to study Botany, Geology and Zoology and excelled academically. In his final year he took on a position of field assistant to Professor Knud Jessen from Copenhagen who was researching the vegetation history of Ireland with the support of the Royal Irish Academy. This set Frank up for his career in deciphering landscape evolution. He published widely through scientific journals and books. His most significant publication was his book, Reading the Irish Landscape which ran to three editions. He is recognised nationally and internationally as the giant of Irish Quaternary research and this is reflected in many honours including President of the International Quaternary Association (1969-73), Fellow of the Royal Society (1973) and President of the Royal Irish Academy (1976-79). This paper will briefly review his career and then go on to explore how his legacy still has a major influence on Quaternary research today. This will be explored through the relevance of vegetation history to concerns about future climate change and the conservation of biodiversity.

Speaker: Prof. Fraser Mitchell (Trinity College Dublin)

Professor Fraser Mitchell is a palaeoecologist with research interest in long term environmental change as well as contemporary ecosystems. This has included investigating the impacts of human activity, grazing and climate on temperate forest succession and the drivers of contemporary forest biodiversity as well as investigation of long term climate impacts on peatland ecosystems. The results of this research feed into contemporary conservation management, restoration ecology and climate modelling.

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Time: 13.30 – 14.00

Title: Bill Watts (1930-2010)

Bill Watts was a Quaternary palaeoecologist, based at Trinity College Dublin for nearly all his career. He became TCD's Provost and, concurrently, President of the Royal Irish Academy, so one of Ireland's leading academics of his day. His scientific work included early and pioneering studies of plant macrofossils, a substantial series of papers on the long record of lake sediments at Monticchio (Italy), as well as some of the first late Quaternary records from Iberia, Mexico and Florida (USA), and Irish interglacial deposits. He was also influential in promoting the interpretation of pollen data as records of plant populations and their dynamics, being among the first to point out that pollen sequences are the outcome of ecological processes.

Speaker: Prof. Keith Bennett (St Andrews University)

Prof. Keith Bennett's main interests are the response of organisms to environmental changes on timescales of millenia and longer. Much of this response involves the movement of populations on sub-continental scales, investigated by means of analyses of the abundance of microfossils in the sediments of small lakes. He is increasingly involved in investigations of ancient DNA from microfossils and sediments as part of understanding both population movements and evolution of populations and species in relation to environmental change.

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Time: 14.00 – 14.30

Title: Valerie Hall (1946-2016)

Valerie Hall was a botanist, palynologist and tephrochronologist, with a love of the natural world, culture and people. Introduced in the 1960s to palynology by Alan G. Smith during her botany degree at Queen's University Belfast, Valerie returned as a mature student to undertake a PhD in the late 1980s, having raised a family and overcome cancer. Her research brought together her interest in plants and folk life, as she as she combined palynology with historical records to reconstruct landscape development in Ulster during the historic period. From there, Valerie teamed up Jonathan Pilcher to pioneer the application of distal tephrochronology, and together they revealed yet another gem in Irish bogs in the form of many invisible layers of volcanic ash. Publishing prolifically and hosting many esteemed colleagues and up-and-coming PhD students through the 1990s and 2000s, Valerie rapidly developed an international reputation as much for her research as for her warm hospitality and keen sense of humour. Sadly, early in her retirement, Valerie succumbed to a complicated return of cancer. She continued to work on her latest research project, an environmental history of her native Belfast, when she could, demonstrating unfailing stalwartness. Her defining legacy remains as much in the work she pioneered and produced as in the lasting personal impression she made on all who knew her.

Speaker: Dr. Gill Plunkett (Queens University Belfast)

Dr Gill Plunkett is an archaeologist and palaeoecologist whose work specialises in the study of past human-environment interactions. In particular, she uses pollen records to identify periods of land-use and land-abandonment as a back-drop to understanding past cultural change. Through reconstructing past bog surface wetness in Irish peatlands, she also examines if and how climate change impacted on past populations, and specifically if climate change was a driver of major cultural change. Her work also includes the study of distal volcanic ash (tephra) in bogs and Greenland ice cores, enabling an evaluation of volcanic impacts on past climate and societies.

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Time: 15.00 – 15.15

Title: Exploring the submerged landscapes of Ireland

Eoin Mac Craith (Geological Survey of Ireland)

The European Marine Observation and Data Network (EMODnet) was established by the European Commission to collate valuable existing marine environmental information across all European seas. Through collaboration, over 200 partner agencies deliver marine data, metadata and data products on 7 key themes of environmental importance, including geology. These data are merged and published online in standardised, interoperable formats free of restriction on use. For each of the environmental themes, a project is established that facilitates data sharing.

The project EMODnet Geology is now in its third phase. Through this project, 38 partner agencies across Europe work on standardising marine geological maps and information, including information on submerged landscapes. As a partner in the EMODnet Geology project, the Geological Survey of Ireland will contribute existing information on submerged landscape features from the inner continental shelf of Ireland.

It is envisaged that by collating these data for the Irish shelf and investigating new seabed data acquired by the INFOMAR, the national marine mapping programme, a submerged landscape on the scale of "Doggerland" in the North Sea will be established offshore Ireland. A revised overview of submerged landscapes offshore Ireland will inform Marine Spatial Planning activities and help to protect potential submerged archaeological sites dating back to the Last Glacial Maximum (LGM).

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Time: 15.15 – 15.30

Title: Mediterranean sea surface temperatures & planktonic foraminifera palaeoecology during short-term climate oscillations of the Late Pleistocene

Margaret A. Browne & Dr. Angela Cloke-Hayes (Mary Immaculate College)

The Mediterranean Sea is a semi-enclosed marginal sea of the North Atlantic, and marine deep-sea sediments from the region are an excellent archive of the intensity and evolution of Late Pleistocene climatic fluctuations. In general, the Mediterranean is a warm oligotrophic sea, with steep thermal and salinity gradients from west to east. However, the NW Mediterranean is unique in that it is both one of the coldest regions of the Mediterranean Sea and an area of deep water formation. This research is based on an analysis of the planktonic foraminiferal assemblage of a high-resolution sediment core (M40/4 82-2SL) from the Gulf of Lion. The core extends back to the end of Heinrich Stadial 1 (HS1) (~15.5kyr), providing a detailed record of the Bølling-Allerød (BA), Younger Dryas (YD) and Holocene in this region. Using Artificial Neural Networks, the average annual sea surface temperatures (SST) during the BA (15.08 ± 0.55˚C) were ~3˚C lower than modern SST in the W. Mediterranean. During the YD, SST decreased to an average of 8.2 ± 0.49˚C, approximately 10˚C lower than today and 3.5˚C lower than the LGM average in the W. Mediterranean (Hayes et al., Quaternary Science Reviews, 24, 999-1016 (2005)). An analysis of the core indicates that nutrient availability and water structure are the main ecological variables governing species distribution, rather than sea surface temperatures. In addition, the high resolution of the core allows for examination of shorter centennial-scale events, such as the 8.2 event and Inter-Allerød Cold Period. Three 14C AMS dates obtained for the study were kindly supported by the Bill Watts 14CHRONO IQUA Awards (Nov 2015).

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Time: 15.30 – 15.45

Title: An update on the Roughan Hill wedge tomb project: Dating prehistoric tombs on the Burren'

Dr Ros Ó Maoldúin (IT Sligo)

Over the past three years, students, staff and volunteers with 'The Irish Fieldschool of Prehistoric Archaeology' have excavated three Chalcolithic/Early Bronze Age wedge tombs on Roughan Hill in the Burren. This is part of a wider project, initiated in the 90's by Dr Carleton Jones, which has included the excavation of an earlier Neolithic court tomb, several settlements and palaeoenvironmental sampling. The human remains and finds from these excavations are helping construct a picture of social organisation, religious practices and human/environmental interaction during Irish prehistory. The preservation of the bone in the karstic Burren environment is particularly beneficial, in allowing for osteological, isotopic and aDNA analyses. However, the lack of stratigraphy at these sites makes dating their construction and often complex histories of subsequent use difficult. To understand this chronology, it is essential to get multiple dates. Recent radiocarbon dates, some of which were obtained with the support of IQUA, are helping to fill out that understanding. This paper will outline and discuss the results we have received to date and evaluate the challenges we still face.

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Details of IQUA membership are available at www.iqua.ie

Details of IQUA Field Guides (many of which are now available for purchase as pdfs) are also available at www.iqua.ie