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Thanks to the contributors to this issue. The Dublin conference, covered as a main article, might mark a sea change in the promotion of earth science in Ireland. It is hoped so. ES2k backs the declaration totally but does warn that there is much basic hard work to be done to convince the general public. Also, we rely on the earth for so many resources that conservation/use must be carefully balanced. The message from the Quarry industry is most appropriate at this time.

We are asking members, as a one-off appeal, if they would sponsor ES2k this year. Perhaps £3-£5 to cover the cost of the newsletter? More if you like. Please consider it and make any cheques payable to ‘ES2k’. Send to The Editor at the address below. It would enable us to achieve more in the future. If you can help, thank you.

Acknowledgements

We could not continue without the generous sponsorship of: The Curry Fund of the Geologists’ Association; The Environment & Heritage Service of the DOE (Northern Ireland); The Geological Society; The British Geological Survey; The Museums & Galleries of Northern Ireland; The Irish Salt Mining & Exploration Company; The Belfast Naturalists’ Field Club and a number of private individuals. Thank you. If a reader knows a person or company who would like to sponsor us or advertise with us please contact the Secretary or Editor.

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Chairman’s COLUMN

As incoming Chairman I would like to take this opportunity of asking you to support ES2k’s important initiative. Since you have taken the trouble to pick up the magazine (the only one of its type in Ireland), you are probably aware that:

Earth science is important for the maintenance of life on earth and the development of society, so,

The promotion of the public understanding of earth science is an essential activity.

The cynic might ask, “Why do you go on so much about geology?” Until quite recently, however, earth scientists in general have either not had to, or not wanted to talk to other people about what we do for the wider community.

The way we present ourselves is critical to how we are perceived by the community. Meeting an old miner some years ago, I recall how I felt when I said I was a geologist and he sneered “I only want one-armed geologists on my property”. Genuinely puzzled, I asked what he meant. “All you blokes who come to my mine tell me –‘On the one hand you might have this, but on the other hand you might have that’. That’s no use to me!”

Earth science is, of course, an imperfect science. But just because we don’t have Superman’s X-ray vision to see all in the subsurface, that in no way invalidates what earth scientists can do. The scope of geology extends from the basic human need for clean water and the gritty demand for minerals to support human society at one end of the spectrum to what Seamus Heaney recently called the “visionary perspective of geological discourse” at the other end. Its how we tell people about it that matters.

Finally, I must pay a personal tribute to those who have worked and are working so hard for ES2k; especially Norman Moles, Chairperson, Arlene Hunter, Treasurer, and Rosalie Grainger, PR, who now hand over to others.

John Arthurs

Earth Science 2000

Raising awareness of Earth Science across the north of Ireland

WEB SITE: www.ulstermuseum.org.uk/es2k

Chairperson: John Arthurs;
Secretary: Marie Cowan, e-mail: mariecowan@hotmail.com
Treasurer: Karen Parks;
Committee: Tony Bazley (ES2k Editor), John Hancock (PR), Jasper Knight (Editor Web site); Co-opted: Peter Crowther, Ian Enlander, William Lynn.

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Cover picture: Fossil plant in 350 million year old rock - and Seamus Heaney (see Page 3).
NATURAL & CULTURAL LANDSCAPES: THE GEOLOGICAL FOUNDATION

A major conference held in Dublin Castle 9th to 11th September 2002

Veteran conference-goers will probably recall a moment in all those days of meetings when one speaker shone so brightly as to transform the whole experience into something that touched the lives of everyone present. Such a moment came with the opening address by the Nobel Laureate Seamus Heaney. The essay “Bog Bank, Rock Face and the Far Fetch of Poetry”, was a prose poem, a tour de force, delivered in Heaney's own inimitable style, mellow voice and twinkling humour. By reference to his own poetry and experience and that of other poets, the poet's task of "Giving glory to things because they are" was brilliantly linked with that of the geologist. Of our science he said "There is a kind of visionary perspective about geological discourse that matches the scope and fetch of poetry itself." Almost every line in the address could be a quote for a future lecture, article or book on the subject of landscape and geology.

Here we were shown a lucid model of how to communicate the sometimes-difficult concepts of geology to other people in a way that makes sense to them. The aim of the conference was to make a common cause between the earth science community and all others concerned with landscape in Ireland and elsewhere. As such, it was not only unique but also one of the most important ever to have been held in Ireland and, I suspect, elsewhere in the world. Its subject matter was at the heart of ES2k's concerns.

Organised by the Royal Irish Academy, there were 240 registrants from 23 different countries. The Northern Ireland Minister, Mr Dermot Nesbitt, together with the Irish Minister, Mr Dermot Ahern, jointly hosted a reception in the State Apartments their good-humoured speeches and relaxed conversation clear evidence of an informal but none-the-less strong agreement that the landscape of Ireland is a shared concern.

There is only a tiny band of geologists in Ireland who could have followed Seamus Heaney's opening address with any credibility at all. One of their brave number is Pádraig Kennan who spoke on “The geological landscape of Ireland: a unique heritage”. He reflected Heaney's visionary perspective in saying, “The Irish landscape bonds all who have been here. The rocks below constitute a unique part of a geological jigsaw scattered in fragments across the globe. Contrasting landscapes in Kerry, Leitrim and Antrim, and every other county, tell of unique rock basements from which each is etched. Those of every parish are likewise unique. From that comes identity with our own place, a treasure to appreciate and a responsibility to conserve not only for ourselves but for others elsewhere.”

There followed sessions on topics from the evolution of the landscape to mining and tourism. The conference ended with a major ‘declaration’ that sustainability of our environment relies upon informed, integrated and balanced decision-making on all land use issues relating to our natural and cultural landscapes. Therefore, the delegates will work to promote the geological heritage as a central and essential consideration in the management of the landscape. A number of ways forward were agreed, the main one being ‘to establish a Forum open to all individuals and organisations interested in the geological heritage of Ireland’.

John Arthurs

This is part of a brilliant article that could not all be reproduced here. For full version see our Web site www.ulsternuseum.org.uk/es2k

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Geoscapes, 3 Fontenoy Street, Dublin 7.
Tel: 01-8301850 (evenings).
Email: matthewparkes@eircom.net
Current research at Queens University Belfast is exploring the use of modern and fossilised seaweeds as a way of plotting past climate change. The seaweeds are calcareous (CaCO₃) red algae (Corallinaceae), which can become free-living due to fragmentation, and are known as *maerl* or *rhodoliths* (rhodo: rose-coloured, lithos: stone). Whilst having world-wide distribution maerl-forming species are considered rare in the British Isles, and are protected under EU legislation due to the high diversity of fauna and flora associated with them, similar to that of coral reef habitats. Dead maerl is extracted under licence in Co. Kerry and from Falmouth Harbour, Cornwall as a soil conditioner for agricultural land - an “organic” replacement for lime.

Preliminary isotopic analysis confirms that the 4,200 years old fossil maerl in Strangford Lough was growing in cooler waters than are present today. Analysis of incremental growth will reveal the extent of these variations at a seasonal level of resolution. The study will provide a high-resolution archive for part of the Holocene period (last 10,000 years) in Northern Ireland.

**Charmaine Blake**

We are interested to hear from anyone who has come across maerl or rhodoliths deposits in Ireland, particularly in any raised beaches. If you would like to know more please don’t hesitate to contact me, c.blake@qub.ac.uk, or check www.freakinfucus.co.uk or www.seaweed.ie for more information.
The very popular and respected Peter Brück has retired from University College, Cork. In his Chair, after 25 years in the Southern Hemisphere, is Professor John Gamble who graduated from Queen's University, Belfast in 1970. He studied for a PhD under Jack Preston and Ian Meighan, and was awarded a DSc in 2000. He has maintained research links with QUB through work on the Tertiary igneous centres of the Mournes, Carlingford and Slieve Gullion. John and his wife, Frances (QUB Geology graduate 1974, now IT expert), arrived in late July from Wellington, New Zealand. He has been fortunate to do geology in many spectacular and far away places such as Antarctica, the sub Antarctic Islands and more volcanoes than he can remember. His principal research interest recently has been the chemical stratigraphy of Mount Ruapehu volcano (see photo), the largest active arc volcano in the Taupo Volcanic Zone. We hope John and Frances enjoy the reportedly explosive social life of Cork.

Garth became Director of the Geological Survey of N.Ireland on 21 August. A Queen's University graduate he was previously a director of the CSA Group, Ireland's largest geological consultancy. Garth has had extensive involvement in mineral exploration in both Northern Ireland and the Republic of Ireland. He has also worked as a professional geologist in many other parts of the world. He lives outside Ballygowan, Co.Down with his wife, Anne (a college lecturer) and daughter Megan. Pictured are (L to R) Geoff Warke, Sir Reg Empey, Garth and the outgoing GSNi Director - current ES2k Chairman - John Arthurs during a demonstration of satellite positioning equipment.

Nothing seems to have happened during the summer. A little bird tells us that there is a consultation exercise over a ‘Causeway Coast AONB: recommendations towards a management plan’. We don’t know if this relates to key geological issues and access. If it does we hope good geological advice is being obtained.

To Danielle (McFadden) of the Geological Survey of Northern Ireland who married Conrad McCormick on 4th September at Cushendun, Co. Antrim.

To Dee Flight and Andy Hulbert, both of the Geological Survey of Northern Ireland, on the arrival of Finlay, 8lbs 4.oz, on 31st August.

John Anthony (Tony) Weir was an Assistant Lecturer at Queen's University from 1954 to 1958. A proud Glaswegian, he returned to Scotland to join the staff at St. Andrews University. There he spent his career working on the sediments and structure of the Lower Palaeozoic rocks of southern Scotland. He retired in 1997 and a former student wrote 'Tony was one of those larger than life characters who enriched life for the rest of us. His enthusiasm and idiosyncrasies greatly enlivened the study of fossils for undergraduates’. He had an encyclopedic knowledge of steam railways and was keen on paddle steamers, Clyde shipping and classical music. Tony will be remembered with great affection.

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Http://www.gsi seabed.ie
WHAT USE ARE FOSSILS?

Scientifically, the geologist uses fossils for several reasons:

* They provide evidence of the history of life in our world. Without them we would know nothing about animals that are now extinct, e.g. dinosaurs. Steven Spielberg could never have made 'Jurassic Park'. We would know that brachiopods ('lamp-shells') existed but not that they were once as numerous and diverse as bivalved molluscs (clams etc.) are in modern seas.

* Fossils tell us that the first living things were blue-green algae found in marine rocks about 3,500 million years old; that the first animals appeared about 680 million years ago and the first humans about 2 million years ago!

* Fossils of known age allow you to date the rock in which you find them. Some, which lived for restricted periods but were widely distributed in the seas of the time, are more useful than others. For example a little twisted shell is absolutely diagnostic of a few metre thick bed of marine rocks found in Colin Glen and on Larne foreshore in Co. Antrim. If you holiday in northern Italy or the Austrian Alps you might find the same shell and can confidently say at all these places that the rock it is in is 210-208 million years old. So fossils allow you to correlate rocks, sometimes of quite different sedimentary types, across wide distances. They are a vital part of the evidence used in making geological maps.

* Fossils help you visualise the ancient environment and geography of a region. Comparison with modern forms often allows you to say whether the fossil shell or plant lived in fresh or marine water. The climate of the time can be inferred. Computer simulations can now vividly bring the past to life.

So, fossils are important commercially and scientifically. They are fascinating to find and, remember, if you discover a fossil on the beach or in a river bed you are probably the first human ever to see that particular specimen since it was buried all those millions of years ago.

Patrick Gaffikin

**TEXTBOOKS SHOCK**

Report on the Earth Science content of commonly used Secondary Science textbooks: Education Unit, Keele University 2002. It concludes 'the general level of inadequate coverage is far too high' and 'the error level is so high it questions the selection of many authors and checking procedures of publishers.' The report is already leading to improvements. Contact us or www.earthscienceeducation.com for details.

Fossil specimens have commercial value. Some are sold simply as ornaments. Such trade has gone on over the centuries. Amber (fossil tree resin) for jewelry, powdered fossil bones and teeth in Chinese medicine, the sale of ammonites as 'snake stones' to pilgrims and the sale of 'jet' (a form of carbonised wood) for brooches and rings, are examples.

Practically, fossil remains of past organisms provide us with various economic resources. The 'fossil fuels' like coal and oil. Coal originates as vegetable debris (trees and plants) which are buried in swamps and, over millions of years, is compressed and converted into coal. Last century COAL, from deposits around 300 million years old, was mined from the Coalisland district of Co. Tyrone and at Ballycastle in Co. Antrim. OIL mostly forms from tiny organisms provide us with various economic resources. The 'fossil fuels' like coal and oil. Coal originates as vegetable debris (trees and plants) which are buried in swamps and, over millions of years, is compressed and converted into coal. Last century COAL, from deposits around 300 million years old, was mined from the Coalisland district of Co. Tyrone and at Ballycastle in Co. Antrim. OIL mostly forms from tiny organisms provide us with various economic resources. The 'fossil fuels' like coal and oil. Coal originates as vegetable debris (trees and plants) which are buried in swamps and, over millions of years, is compressed and converted into coal. Last century COAL, from deposits around 300 million years old, was mined from the Coalisland district of Co. Tyrone and at Ballycastle in Co. Antrim. OIL mostly forms from tiny organisms provide us with various economic resources. The 'fossil fuels' like coal and oil. Coal originates as vegetable debris (trees and plants) which are buried in swamps and, over millions of years, is compressed and converted into coal. Last century COAL, from deposits around 300 million years old, was mined from the Coalisland district of Co. Tyrone and at Ballycastle in Co. Antrim. OIL mostly forms from tiny organisms provide us with various economic resources. The 'fossil fuels' like coal and oil. Coal originates as vegetable debris (trees and plants) which are buried in swamps and, over millions of years, is compressed and converted into coal. Last century COAL, from deposits around 300 million years old, was mined from the Coalisland district of Co. Tyrone and at Ballycastle in Co. Antrim. OIL mostly forms from tiny
SANDSTONE MINES IN DONEGAL

It is unusual for 'common' stone to be mined. It is usually quarried, but in past times if a bed of rock had special features as, for example, an ornamental building stone, it might have been mined. Such is the case of a bed of rock about 2m thick at Drumkeel near Mountcharles in south Donegal. The workings extend in from the quarry faces for up to 50m. Drumkeel stone is a Carboniferous sandstone. It was worked back to at least the 12th century. The proof of the age of working is a medieval miner's lamp found in the mine. It had been used by Cistercian monks who, around 1170, worked the stone for Assaroe Abbey near Ballyshannon.

Other notable buildings using the stone were the National Museum of Ireland, the National Library and Leinster House (the Dial) and Sligo Town Hall. Although reported to 'dress and cut well' the slight calcareous cement in the sandstone made it inadequate to withstand the pollution of Dublin. The National Library has been renovated and the Drumkeel stone mostly replaced with the Ardbraccan Limestone from Co. Meath.

The stone industry in Donegal is still thriving, but now by open cast quarrying rather than mining. Current quarrying is threatening the destruction of the old mines at Drumkeel but they can still be seen and the recording of their presence by the Mining Heritage Trust of Ireland is important.

The above account is from a well-illustrated paper by M.A. Parkes, G. Carville, J. Kelly and S. Dowds in the Journal of the Mining Heritage Trust, 1, 2001. Photo from ‘Assaroe, Abbey of the Morning Star’ by G. Carville. Thanks for their permission to give this short summary.

A Message from the Quarrying Industry

Explaining the role and benefits of our Quarrying Industry

Our industry knows very well the vital contribution that the quarrying industry makes, not only to the economy but also to every aspect of modern life. The fact is if something cannot be grown then it has to be dug from the ground. Quarry products are the essential ingredients of civilization. Everyone uses them and everyone benefits. They literally help us to make more of life.

If you work in the industry, it seems obvious, our houses, schools and factories; our roads, railways and airports - and everything that travels on them - are made from minerals. And yet people fail to make the connection between these every day essentials and the mines and quarries where they are produced.

Our modern society, in Northern Ireland for example, has increased its demand for quarry products from less than 500,000 tonnes in the 1940s to a current annual requirement of about 25,000,000 per year, that's about 20 tonnes per man, woman and child.

Our quarries do not create this demand but they must meet it. In order to sustain the current level of economic growth and prosperity we enjoy, high production of primary construction materials will continue for the foreseeable future, particularly in Counties Down and Antrim.

This will mean faster use of quarry stone reserves. When these reserves run out, quarries will have to be replaced or extended. They are an essential factor in our way of life and will exist for as long as we do.

We possess a natural environment of wonderful diversity, from the beautiful Strangford shores to the towering ramparts of the Sperrins. Every County has its own unique beauty and we are all justly proud of this, our natural inheritance. But we have two other equally wonderful resources, our people, living and working in what is becoming one of the most progressive economies in the world, and our built environment. From our heritage of historical stone monuments to Belfast's City Hall and the new Waterfront, all of these structures have one thing in common, they came out of the ground - they all came from quarries.

The challenge we face today is to integrate our living and working environments.

Our industry has a great story to tell about its economic contribution and environmental achievements. We have high operating standards aimed at reducing our impact on the environment during production and we continue to improve the quality and value of our site restoration schemes.

Continued economic growth and prosperity in your area rely on the continued local supply of primary construction materials. The Quarrying Industry depends on your support.

Paul McCabe,
(Blast & Quarry Surveys)
Interested in studying geology? Liverpool University experiences...

Magmas, Mountains and Mudslides: memories of Connemara

A field-class for our geology degree provided an excellent opportunity to take in the sights of coastal Connemara, while learning some of the secrets of its distant past.

Thirty or so geology students from Liverpool University didn’t know quite what to expect as we boarded our flight to Dublin. Once there we travelled right through the heart of Ireland to the west coast, where we were to spend the next few weeks searching for the evidence of a wide variety of geological processes. We found it hard work but it certainly proved worth it!

Magma chamber

At Currywonguan we were transported deep into an ancient magma chamber, a storage vault for hot, molten rock. We imagined the magma rising up through the ‘pipes’ of a rumbling volcano, before spilling out over the surface of the land as a lava flow, a powerful river of boiling rock and debris, scorching and devastating everything in its path.

Mountain-building

We stood on Omey’s beautiful beach, observing the buckled and folded shapes of previously flat-lying rock layers, and marvelled at the immense earth movements required to achieve the shapes we could see. We visualised mountain-building at work; the collision of two continental masses, their fusion, and the genesis of a new chain of mountains.

Catastrophic mudslide

And at Lettergesh, we imagined life on a quiet sea-floor being disrupted in an instant by a catastrophic underwater mudslide, violent enough to flow for many kilometres, able to rip up and transport everything from mud and sand to large boulders in its surging current.

In just two weeks, we came to understand the processes that build and shape the landscape around us.

Come on now, surely you can’t tell me you’re not interested, can you? I enjoyed it so much I’ve stayed on for postgraduate work!

Ruth Foreman,
Department of Earth Sciences, Liverpool University

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**LAST BUT NOT LEAST**

The new ES2k Secretary Marie Cowan (nee McSherry), from Hilltown, Co.Down, was the last person to take a degree from the Queen's University Geology Department. She is pictured in the splendour of her PhD gown on that day last July when the 152 years history of the Department ended. Congratulations Marie - and good to have you with ES2k.

**NEW BALLYCASTLE MAP**

Geology explained! Coloured photo inserts and dioramas of past times will transform and inform your visit to the area. Still only £5 from the Geological Survey of N.Ireland and outlets.

**FORMER QUEEN’S GEOLOGY BUILDING**

The Elmwood Avenue Grade B2 listed building is being refurbished as a technology-based Learning and Teaching Centre. Construction work is to be completed in December. The hard wooden seating in the lecture theatre will not be missed but we mourn the loss of the geologist's bottoms that should still be sitting on them.

**COLERAINE & BALLYMENA MAPS**

First modern editions, in full colour, folded for ease of use. Only £5 each from the Geological Survey of N.Ireland and outlets.

**LEAVING SOON**

Philip Doughty is planning to move to the English Lake District soon! He will be hugely missed by the earth science community in Ireland. One of those few people able to communicate his enthusiasm at all levels! Coming to the Ulster Museum in 1965 he ‘rescued’ geology and became our leading media mogul.

The packed audiences for his recent series of talks ‘Geology Tamed’ were a testament to his popularity.

We wish him well for the future and hope that he will return regularly.

**DID YOU HEAR?**

The BBC Radio Ulster series on landscape and history called ‘Miles of Time’. It was devised and contributed to by Garth Earls.

ES2k would like to be able to advertise such features, on radio or television, for its members. So they don’t miss them (as I did - Ed). Can you help by reporting anything you spot in advance? We would put it on the Web site. Then, if you like a programme, please let it be known. Write in to the BBC or whoever. Only this way will we get more earth science to the public notice.

Oh! We hear Mike Simms of MAGNI was whisked off to Fermanagh to star with a fossil plant (Calamites) in a ‘Flying Gardener’ programme. Watch the Web site for the date of screening.
Foyle and Methody Students Rock Awards.

Christine Crossan (Foyle & Londonderry College) and Andrew Waugh (Methodist College, Belfast) were given ES2k Awards, sponsored by Stevenson Quarries, at the AGM of Earth Science 2000 in the Ulster Museum on 18th September. They were respectively first and second in the A Level Geology examinations in Northern Ireland. In presenting the awards Mr. Philip Doughty, President of the Belfast Geologists’ Society, said that he hoped they would get as much enjoyment from unravelling the secrets of the landscape and rocks as he had in his job with the Museums and Galleries of Northern Ireland. He praised the students, giving special mention to the background but vital role parents play, as well as the teachers.

The teachers responsible for inspiring the students were present, Mr. William Lynn (Foyle) and Mrs. Karen Parks (Methodist College). ES2k is delighted that both teachers are on its committee this year.

Letters to the Editor

Sir, I was sent a copy of ES2k Issue 4 because it contained an article on the Giant Deer by Andrew Tweed. It was interesting and the magazine more so! Does anyone have an unwanted ‘bit’ of Giant Deer I could have?

The Isle of Man was home to two extinct animals, the Great Auk and the Giant Deer - “and a more bizarre pair of one time island visitors it is difficult to imagine. Combine the assembly of Alice’s tea party with dark beasts from Mervyn Peak’s fantasy via a couple of Hagrid’s more peculiar pets and you have them.”

Bill Cottle, 24 Queen Street, Castletown, Isle of Man.

(Editor - I will try to include a short version of the article sent with this letter in a future issue)

Sir, I admire and enjoy your most excellent magazine, so it is with regret that I express deep dismay and concern at the content and tone of Ms Allen’s report (Issue 5) on the Belfast Geologists’ Society visit to the classic Girvan sections in Scotland. Phrases like ‘all very collectable’, ‘a robust blow with a hammer’, ‘mineral collectors all had a great time’ and ‘enough ballast to sink a fleet of ferries’ implies unrestrained geological vandalism. The deplorable tone of the article suggests ES2k is validating a ‘smash and grab’ attitude in even sensitive sites.

Elsewhere your magazine seems to espouse and advocate responsible collecting only in appropriate sites (as in the illustration on page 5 of a young person collecting from spoil). I suggest that you should publish a prominent article on the need for respectful conservation of sites and point out that hammering, breaking and collecting must be severely restricted to appropriate sites under informed supervision. The Belfast GS might even ban hammers?

Ralph R. Horne, Newcastle, County Wicklow.

(Editor - My apologies if the tone of the article was misleading. It was journalistic overstatement! The Belfast GS is particularly careful to avoid damaging in situ rocks and was collecting from loose material. We recommend everyone to follow the Geological Fieldwork Code published by the Geologists’ Association, London W1V 9AG. It covers collecting and field parties, visiting quarries, research workers, health and safety, landowners, and a code for coring - do not hammer indiscriminately, do not remove in situ material unless genuinely needed for serious study, keep collecting to a minimum and to loose material such as scree.
Summer 2002 saw visits to the sea shore, mountaintop, bog, riverbank and towns where we studied bats and butterflies, castles and tombs, orchids and ferns, limestone and basalts. The earth science trips concentrated on Co. Antrim. In June Mark Cooper (GSNI) focussed on landslips. We climbed over the slumped blocks at Garron Point and looked at mud slides and flows on the beach at Glenarm. The rich source of fossils from the mudstone here proved a particular attraction for members. John Roberts took us to Murlough Bay in August, and from the ancient Precambrian rocks to the much younger Cretaceous era without moving from the vicinity of the car park. He took us through the basics of geology introducing us to a new word, ‘slickensides’, describing the slip grooves in the Chalk. The quote of the day was “If you remember nothing else remember this; sand is a description of granular size.”

A visit to the foreshore at Hazelbank Park, Newtownabney one evening in September was led by Tony Bazley. In a race against fading light we examined a huge glacial erratic called ‘Ross’s Rock’ (later proved to be basalt) and speculated from where it had travelled. Red and green tropical sandstones cut by dolerite dykes led up to an opportunity to discuss the authenticity of the recently discovered ‘rock art’. Too soon the sun set and we left the shore determined to return for a more detailed opportunity to discuss the authenticity of the recently discovered ‘rock art’. Too soon the sun set and we left the shore determined to return for a more detailed look another day.

Tuesday 12th November 2002, 7.30 p.m. in the Ulster Museum
101 Things to Do on a Rainy Day in Pategonia
by Andy Jeram

This is the geological talk in our winter programme.

Visitors welcome. For details of all the events this winter contact:
Prof. Richard Clarke, Hon. Secretary, 78 King’s Road, Belfast BT6 6JN; tel: 028 9079 7155.
Geology Section Secretary: Barbara W. Russell; tel: 028 9337 8124

Joan Semple, President.

OTHER MEETINGS FOR YOUR DIARY

Tuesday 12th November 2002, 7.00-8.00 pm, Newry Arts Centre.
Volcanoes on our doorsteps - what makes them go bang?
Dr Eliza Calder, The Open University/The Royal Society of London.
Free talk by an expert working on active volcanoes across Europe who will discuss the affects on our climate and us. She will also describe life in Northern Ireland if our volcanoes were still active.
Further information: Dr A. Hunter, The Open University in Ireland. Tel: 028 9024 5025

21st-23rd February 2003, Ulster Museum.
46th Annual Irish Earth Sciences Research Meeting.
Catch up on all that is being done in Ireland. Don’t miss the guest speaker on the first evening, Andrew Smith FRS, on the subject of fossil sea-urchins.
Want to speak or have more details - michael.simms.um@nics.gov.uk Tel: 028 9038 3103

Belfast Geologists’ Society

15 January 2003 – Presidential Address
Edinburgh Rock
Rosalie Grainger
The striking landscape of the city has been shaped by its geological history. Mixed with folklore, this talk will appeal to all.

19 February 2003
Graves, Moats, Dunes & Landfill Sites
Dr Alastair Ruffell (Queen’s University Belfast)
There has been a resurgence in the use of ground-penetrating radar in studies of the shallow subsurface. The results of research in Ireland will show why!

19 March 2003
Cretaceous kites of Brazil: a diverse array of pterosaurs
Dr David Martill (University of Portsmouth)
Flying reptiles - stranger than fiction!

16 April 2003 – AGM
Meetings are in the Ulster Museum, 7p.m. refreshments, 7.30 start.
Visitors welcome. Free.
Contact: The Secretary, Peter Millar, 31 Knock Eden Park, Belfast BT8 0JF; tel:028 9064 2886
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- Environmental Assessments
- Soil and Groundwater Remediation
- Geographical Information Systems
- Landfill Site Selection & Assessment

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ES2k is a voluntary initiative to raise the profile of Earth Science in the north of Ireland. We hope to develop a network of interested people. The publication is aimed at all interested people but particularly decision-makers who may have little knowledge of the subject and the younger generations.

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