PRIFYSGOL ABERYSTWYTH UNIVERSITY

ABER Friends

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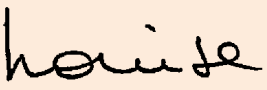
Dear Friends

Welcome to the summer issue of Aber Friends where we are delighted to report on the appointment of a new VC, Professor April McMahon; plans for developing new halls of residence with even better learning and communal areas; and research topics from the Sun to the Antarctic and from the ancient mysteries of Stonehenge to the future mysteries of robotic learning abilities.

At Graduation in July we look forward to meeting the families of our outgoing students and congratulating the graduates on their success. Some will be staying on to further their education with us (perhaps taking advantage of the fee discount for Aber graduates on Masters courses), others going further afield with great memories of Aber. All of them will be part of the Aber alumni community, eligible to receive PROM magazine, regular email updates and invitations to Aber events. There are Aber alumni in all corners of the world and the Development and Alumni Relations Office tries to keep them in touch with each other and updated with the latest at Aber, helped by our on-line database, Aber Connect.

Best wishes



Louise Perkins
Alumni Manager

Vice-Chancellor appointed

"I am delighted with the prospect of leading Aberystwyth University and look forward to working positively within a bilingual environment and to living and working in such a culturally vibrant part of Wales."

Professor April McMahon
Vice-Chancellor

Professor April McMahon has been appointed the new Vice-Chancellor, taking over from Professor Noel Lloyd on the 1st of August 2011. Professor McMahon is currently Vice Principal Planning, Resources & Research Policy at Edinburgh University.

A native of the Scottish Borders and Scots speaker, Professor McMahon gained an MA in English Language and Linguistics followed by a PhD in English Language at Edinburgh University.

For twelve years she taught at the Department of Linguistics at Cambridge University, where she was also a Fellow of Selwyn College, and was Professor of English Language and Linguistics at the University of Sheffield from 2000 until 2004.

In 2005 Professor McMahon returned to Edinburgh University as Forbes Professor of English Language and Head of the Department of Linguistics and English Language. She was subsequently appointed Head of the College of Humanities and Social Science and took up her current role as Vice Principal in September 2009.

Speaking of her appointment, Professor McMahon said, "I am delighted with the prospect of leading Aberystwyth University and look forward to working positively within a bilingual environment and to living and working in such a culturally vibrant part of Wales. This is a time of challenges and opportunities for universities and I look forward to working with staff and students to take the University into the next stage of its development."

Sir Emyr Jones Parry, President of the University said, "Universities face a period of unprecedented change and I am particularly pleased that Aberystwyth has been able to attract a new leader of the calibre of Professor McMahon. She is a very worthy successor to Professor Noel Lloyd, and I look forward very much to working with her to develop a research led, internationally competitive University, which also fulfills its obligations, regionally and nationally."

An enthusiastic linguist, Professor McMahon speaks French, German and some Scottish Gaelic, and will be learning Welsh over the coming months.

Here comes the Sun

"For the very first time we will be able to see the whole of the Sun at the same time, which will give us a new perspective on the Sun's activity, particularly the solar eruptions which can launch coronal mass ejections."

Dr Andy Breen
Solar Physics Group

A major milestone in the study of the Sun was reached in February when the two identical spacecraft that make up NASA's STEREO mission provided images of all the Sun for the first time, having reached a point where they were orbiting the Sun on opposite sides, 180 degrees apart.

The event has been closely monitored by the Solar System Physics Group at the Institute of Mathematics and Physics (IMAPS) who study the solar wind and the Sun's effect on the Earth. It was this group, working with Aberystwyth University spinout company See3D, that generated the world's very first 3-D images of the Sun in 2007, using data from STEREO.

Dr Andy Breen and colleagues at the Solar Systems Physics Group are interested in the Heliospheric Imagers on board the STEREO spacecraft. "For the very first time we will be able to see the whole of the Sun at the same time, which will give us a new perspective on the Sun's activity, particularly the solar eruptions which can launch coronal mass ejections."

If these strike the Earth they can knock out satellites, distort the accuracy of GPS systems, and even cause power grids to fail in extreme conditions. Now that we can see the whole of the Sun all of the time we will be able to follow an active region from the moment it forms, see how it evolves, and then ultimately dies."

Dr Bisi of IMAPS believes that by employing the many techniques used in his study along with STEREO and some of the other new and upcoming space-based and ground-based technologies and instrumentation, then future such studies can become even more comprehensive and thus allow us to delve further into the fundamental science of what it is that makes our Sun 'tick'.

New discovery in **Stonehenge bluestone mystery**

The source of the **bluestones at Stonehenge** has long been a subject of fascination and considerable controversy. One type of bluestone, the spotted dolerite, was convincingly traced to the Mynydd Preseli area in north Pembrokeshire in the early 1920s.

However, the sources of the other bluestones (chiefly rhyolites) and the rare sandstones remained unknown until recently.

Now geologists at Amgueddfa Cymru, the National Museum Wales, have further identified the source of one of the rhyolite types, which provokes new thought on how the stones might have been transported to the Stonehenge area.

Their findings are published in the March 2011 edition of the *Journal of Archaeological Science*.

Dr Richard Bevins, Keeper of Geology at Amgueddfa Cymru (and an alumnus of Aberystwyth), in partnership with Dr Rob Ixer, from the University of Leicester and Dr Nick Pearce of the Institute of Geography and Earth Sciences (IGES), have been working on the rhyolite component of the bluestones, which leads them to believe it is of Welsh origin.

Through standard petrographical techniques combined with sophisticated chemical analysis of samples from Stonehenge and north Pembrokeshire using laser ablation induction coupled mass spectrometry at IGES, they have matched one particular rhyolite to an area north of the Mynydd Preseli range, in the vicinity of Pont Saeson.

The bluestones are a distinctive set of stones that form the inner circle and inner horseshoe of Stonehenge. Much of the archaeology in recent years has been based upon the assumption that Neolithic Age man had a reason for transporting bluestones all the way from west Wales to Stonehenge and the technical capacity to do it.

Richard Bevins said, "This recent discovery is very significant as it potentially provides us with new clues for understanding how and possibly why the Welsh bluestones were transported to the Stonehenge area. It has been argued that humans transported the spotted dolerites from the high ground of Mynydd Preseli down to the coast at Milford Haven and then rafted them up the Bristol Channel and up the River Avon to the Stonehenge area. However, the outcome of our research questions that route, as it is unlikely that they would have transported the Pont Saeson stones up slope and over Mynydd Preseli to Milford Haven. If humans were responsible then an alternative route might need to be considered. However, some believe that the stones were transported by the actions of glacier sheets during the last glaciation and so the Pont Saeson discovery will need appraising in the context of this hypothesis."

"This recent discovery is very significant as it potentially provides us with new clues for understanding how and possibly why the Welsh bluestones were transported to the Stonehenge area..."

Dr Richard Bevins
Keeper of Geology at Amgueddfa Cymru

Nick Pearce and colleagues at the Institute have pioneered a technique which uses laser to vaporise minute samples of rocks so that their chemical composition can be determined. In the case of the samples from Stonehenge and Pembrokeshire, Dr Pearce focused on the geochemistry of tiny grains of the mineral zircon that are embedded within the rocks.

Once identified, part of the zircon was vaporised by a powerful laser beam measuring just 10 microns (100th of a millimetre) across and analysed in a mass spectrometer.

Just like matching fingerprints, the chemical composition of the zircons in both samples was indistinguishable, proving beyond reasonable doubt that the source of the rhyolites at Stonehenge is indeed a rocky outcrop at Pont Saeson on the northern side of the Preselis.

New halls of residence

Aberystwyth University has initiated the process of procurement for new halls of residence that will provide accommodation for 1000 students in modern self-catering accommodation. The development, subject to planning, will be located on Penglais Farm, immediately behind the existing award winning Pentre Jane Morgan student village. Construction of the new halls is not expected to commence until the autumn of 2012 at the earliest.

The potential development would represent an increase of 500 beds on current levels as well as replacing existing accommodation, and will provide an opportunity to further develop the unique experience Aberystwyth has to offer. The plans feature enhanced learning and communal zones in keeping with Aberystwyth's progressive approach.

Pro Vice-Chancellor, Rebecca Davies, said, "Aberystwyth offers one of the best student experiences in the UK. This project represents the biggest single element of the University's strategic plan and underlines its commitment to improving the quality of the accommodation it has to offer to students, with an emphasis on self-catering en-suite facilities."

"As the process unfolds, as well as working closely with the local community and planners, the University will be engaging with student representatives to ensure the new halls provide the social and technological facilities that future generations of Aberystwyth students will expect."

Polar expedition

British Antarctic Survey field assistant Alan Hill sampling an erratic granite boulder on James Ross Island, Antarctica.

Scientists from Aberystwyth and Leeds have teamed up for a **NERC-funded Antarctic expedition** to learn more about the climate history of the region.

Led by Professor Neil Glasser from IGES, the team stayed in part of the coldest, windiest, highest and driest continent on Earth to hunt for clues that will tell us more about how the glaciers and ice sheets of the north-eastern Antarctic Peninsula behaved in past climates and what we can expect in the future.

The Antarctic Peninsula has suffered above average warming over the past half-century, with an increase of around 2.5°C since 1950. This warming is causing glaciers and ice shelves to melt, releasing large volumes of fresh water into the oceans, which not only raises sea level, but also influences deep sea circulation and regional climate.

However, scientists do not fully understand the relationship between air and sea temperature, and the melting of ice. Therefore it is difficult for them to assess whether the melting being observed at the moment is unprecedented in the context of geological time.

To address these outstanding questions, the team collected rock samples to date their exposure to cosmic radiation and thus analysed how the glaciers and ice have retreated since the last ice age, around 20,000 years ago. Back in the UK they will analyse the rock mineralogy, geochemistry and isotopic character of the samples to determine when they were first exposed to cosmic radiation; to calculate when ice cover disappeared from that particular site. They mapped a 600km^2 ice-free area of the island to generate a 3D terrain model.

The team of three scientists and one British Antarctic Survey (BAS) field assistant were dropped off by the Royal Research Ship *Ernest Shackleton* on James Ross Island, just off the Antarctic Peninsula. Their equipment included four quad bikes, two trailers, scientific equipment, tents and enough food and fuel to last three months, with only radio contact to the rest of the world.

BEACON

From **plants to products**
O **blanhigion i gynhyrchion**

Deputy First Minister for Wales, Ieuan Wyn Jones AM with Professor Noel Lloyd VC Aberystwyth University

Aberystwyth is leading a major new initiative that could boost the green economy in Wales and make a significant contribution to combating climate change.

The BEACON programme will aim to develop new technologies and new ways of making products that are traditionally made from oil. It will establish Wales as a bio-refining Centre of Excellence, with a total budget of £20 million, including £10.5 million from the European Regional Development Fund.

Deputy First Minister for Wales, Ieuan Wyn Jones AM, made the announcement at an event at the Senedd to showcase world class research at Aberystwyth University that is responding to 21st century global challenges.

BEACON will also build closer links between universities and industry, promote Welsh expertise in scientific research and innovation within Europe and the United States and boost inward investment in these technologies for the benefit of Wales.

IBERS is the lead organisation in the programme in collaboration with Bangor and Swansea Universities.

The pioneering research will involve bio-refining – developing sophisticated processes to turn locally grown crops into valuable chemicals and commercial products, ranging from fuels to cosmetics, pharmaceuticals, textiles, food and health products.

Child's play

The Developmental Robotics Group, part of the Department of Computer Science, has taken delivery of a **state-of-the art humanoid robot,** one of only four in the UK, as part of its work on a European research project.

IM-CLeVeR

The **"IM-CLeVeR"** *(Intrinsically Motivated Cumulative Learning Versatile Robots)* project aims to develop new robot controllers based on ideas inspired by neuroscience and psychology.

The project involves ten partner institutions from across Europe working in fields including robotics, neuroscience, developmental psychology and machine learning. By using a multidisciplinary approach the project hopes to be able to make robots which can learn in more flexible ways than those programmed using traditional methods.

Research in the Developmental Robotics Group is focused on identifying processes of development in infants and translating them into strategies for learning in robotics. A main focus is on constraints in infant development, which prevent the infant from accessing certain abilities before others have been sufficiently mastered.

By implementing similar constraints on their robot, the group believes that it can overcome the problems of sensory overload that impede other robotic learning systems. The iCub robot, which has been built in Italy, has been designed to have a similar size and range of motions to a young child.

Researchers at Aberystwyth will use it as a platform to test and demonstrate their theories, and to integrate the research of other teams within the IM-CLeVeR project.

UKPASS

Aberystwyth University is the first in Wales to join UKPASS, the online application service for prospective postgraduate students.

Dr Hywel Davies, Director of Recruitment and Admissions has welcomed the development, "As well as facilitating the system for finding suitable courses and applying for them, the service is free and very flexible."

"It is a rolling service, which allows for several start dates throughout the year, and is done wholly online, which reduces paper costs and avoids delay in submitting applications. Furthermore, applications can be submitted in English or Welsh – the only provider to offer this essential feature," he added.

As the applicant's core information is kept in an individual 'account', they do not need to complete countless forms for each application – up to ten courses can be applied for with institutions represented on UKPASS.

Once the application has been submitted, the applicant can track its progress online at any time during the process. This means that the prospective student receives information much sooner and also reduces the number of enquiries that staff have to deal with. When each step of the process is completed, the applicant is automatically informed by email.

UKPASS is run alongside current application routes, and further information is available online at **www.ukpass.ac.uk**

Order of Ceremonies for **Graduation 2011**

Tuesday 12 July 2011

Ceremony One: 11.00am
English and Creative Writing
History and Welsh History
European Languages

Ceremony Two: 3.00pm
School of Management and Business
Sport and Exercise Science

Wednesday 13 July 2011

Ceremony Three: 11.00am
International Politics
School of Art

Ceremony Four: 3.00pm
Theatre, Film and Television Studies
Education

Thursday 14 July 2011

Ceremony Five: 11.00am
Law and Criminology
Psychology
Information Studies

Ceremony Six: 3.00pm
Institute of Geography and Earth Sciences
Welsh

Friday 15 July 2011

Ceremony Seven: 11.00am
Computer Science
Institute of Biological, Environmental and Rural Sciences

Ceremony Eight: 3.00pm
Institute of Biological, Environmental and Rural Sciences
Institute of Mathematics and Physics

More information is available at **www.aber.ac.uk/en/graduation**