

Geology Club *Newsletter*

A publication from the School of Geography, Earth and Environmental Sciences

Lesson from the past contributes to climate change debate

Birmingham-based geologist Dr Steve Jones, together with colleagues in London, Cambridge and Paris, has contributed to our understanding of climate change with a lesson from the past.

The Paleocene-Eocene Thermal Maximum (PETM) was a period of extreme global warming 56 million years ago when surface temperature rose by 3–10°C for a period of 100,000 years. This completely natural global warming was driven by unusually high concentrations of the greenhouse gases methane and carbon dioxide in the atmosphere. Although natural sources of methane and carbon dioxide have been identified, none of them can supply methane fast enough to kick-start the PETM warming cycle.

Steve and his colleagues knew that large lakes and inland seas can gradually accumulate large amounts of greenhouse gases in their anoxic bottom waters and then release them suddenly. For example, in 1986 explosive eruptions of carbon dioxide from the depths of Lake Nyos (Cameroon) asphyxiated more than 1,700 people.

When Steve discovered that a large inland sea formed between Norway and Greenland just before the PETM warming began, the team calculated that up to 100 gigatonnes of methane could have accumulated in its bottom water. The catastrophic release of so much methane could have been enough to kick-start the PETM global warming. Although Steve describes this store-and-release as 'a big burp', the model is officially dubbed the Kilda Greenhouse Gas Capacitor, published in *Nature Geoscience*.

Steve says: 'It is worrying that the average global warming rate at the start of the PETM

is less than the global warming rate attributed to human activity since the 1960s by the International Panel on Climate Change. On the other hand, we know the Earth's climate fixed itself after the PETM warming period, which offers hope for the future if action can be taken to reduce man-made greenhouse gas emissions.'

Steve is one of the recently appointed staff members in Earth Sciences. To view staff profiles visit: www.gees.bham.ac.uk/staff



Dr Steve Jones, Senior Lecturer in Earth Systems



Engineers venting carbon dioxide from Lake Nyos to prevent a repeat of the 1986 disaster

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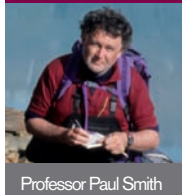
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Welcome



Professor Paul Smith

Welcome to the relaunch edition of the Geology Club Newsletter, which is back after a hiatus. We are particularly proud of the achievements of our geology alumni and keen to keep in contact with you as you develop your careers all over the world.

There have been many changes and much to celebrate recently in Earth Sciences including a state-of-the-art transformation of the old Petrology Teaching Lab, and recognition of the international importance of the Lapworth Museum collections through 'designation' by the Museums, Libraries and Archives Council.

Earth Sciences has been part of the School of Geography, Earth and Environmental Sciences since 2001, although the staff still reside and much of the geology teaching still takes place in the Aston Webb building; our home since Charles Lapworth began the Geology Department in the University.



Lapworth Museum of Geology

In 2008, the University went through a reorganisation aimed at enabling us to remain competitive in today's higher education environment. As part of this reorganisation our School joined the College of Life and Environmental Science, which also includes Biosciences, Psychology and Sport and Exercise Science. The new College presents a range of interdisciplinary opportunities for geology.

We are keen to keep you updated on the latest Geology and College news and the next issue of this newsletter will go out in electronic form. If you would like to receive this please

update your details by completing and returning the enclosed form. Feel free to check out the GEES alumni web pages www.gees.bham.ac.uk/alumni and we look forward to hearing from you about what you have been doing since graduation.

Professor Paul Smith

Head of School of Geography,
Earth and Environmental Sciences

Contact us with your news, memories and feedback

We try to keep our alumni up to date with activities and the latest news from the School and plan to launch an electronic newsletter to replace the hard copy. If you would like to receive it, please make sure we have your current email address. We always welcome contributions from our alumni, so whether you would like to share some news about yourself, or make suggestions about the content, we would be thrilled to hear from you.

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Alumnus profile: Clive Fowler (BSc Geology, 1970)

Tell us about the earlier part of your career after graduating?

I was lucky enough to get hired by Amoco (UK) Exploration Company, an American oil firm which was drilling in the North Sea. I did a couple of years as a well-site geologist (travelling back and forth to mobile rigs offshore) before getting started in the exploration discipline, making maps and generating prospects for future drilling.

Could you explain your current/most recent position?

I retired from full-time work in 2003 as a Senior Exec with BP (BP and Amoco merged in 1999), following retirement I had a number of Non-Exec Director appointments with private and public companies in the oil and gas sector. I am still involved in the oil and gas industry 38 years later as a Non-Executive Director and Chairman of a small Aberdeen-based company.

Career highlights?

The oil and gas industry has been very good to me over the years and I have seen many parts of the world. I have been part of and have led teams of explorers which have found a lot of oil and gas in various worldwide locations. It is always a terrific 'buzz' to find a big field. I lived for a long time in the US and I used to run Amoco's exploration programmes in Europe, Latin America and the Far East and then in Europe and the Middle East. In New Orleans

I was Amoco's Vice President in charge of our Gulf of Mexico exploration and production. In 1996 I was transferred to London as Managing Director – 24 years after joining the company as a young and green well-site geologist!

Achievements and successes?

A very rewarding career in an industry which, despite an unflattering public image created by occasionally uninformed and irresponsible opponents, really does make an essential contribution to modern society. Rising to the top of the company I joined after graduating in 1970. Still being in touch with a group of lifelong friends. Being able to retire at 54 and being fit and healthy enough to enjoy life.

Having a wonderful wife and family with an increasing brood of grandchildren. Long may it continue...

Which memories of Birmingham really stand out?

The friends I made (Class of 1970 Geology grads). I played for the University first XV at rugby in the inter-mural sports competition and I was part of the promotion-winning Geology Dept All-Stars at soccer! The quality of the teaching – Professor Shotton and his staff – was outstanding. And Finals – I have never worked so hard in my life as I did in the eight weeks before final exams.

Clive is the Class of 1970 Ambassador for the forthcoming 40th Anniversary Reunion. Eight alumni from the Geology Class of 1970 have already booked their place at the reunion and Clive looks forward to seeing as many of his former classmates at the Anniversary Reunion as possible. See below for further information about the Anniversary Reunions.



Clive – now



Clive – then



Anniversary Reunions Saturday 12 June 2010

Celebrate the anniversary of your graduation from Geology with a reunion day and dinner back on campus. Alumni from the Classes of 1985, 1975, 1970, 1960 and the pre-1960 'Golden' classes are invited to meet their classmates for a variety of reunion activities. Visit the School of Geography, Earth and Environmental Sciences, take a tour of the Lapworth Museum of Geology and meet current students before joining classmates from across the University for your reunion lunch. All alumni are welcome.

If you would like to attend please complete and return the enclosed booking form or visit www.alumni.bham.ac.uk/events to book your ticket online. To make the most of your reunion, why not get in touch with your Geology classmates and organise a table at the reunion lunch or dinner? For help finding friends, or for further details please contact Clare Gordon in the Alumni Office on: +44 (0)121 414 8904 or via alumnievents@contacts.bham.ac.uk

News round-up

Commemorating Ken Thomson's research

Over 30 geoscientists gathered at the University for a day of talks, posters and lively debate to celebrate the research achievements of Dr Ken Thomson, who died aged 40 in April 2007.

One of Ken's research highlights was his contribution to mapping a lost land under the North Sea which featured on a Channel 4 *Time Team* special in April 2007.

Participants from academia and industry travelled from across the UK and even the Faroe Islands to discuss progress in modelling and visualisation of sedimentary basin dynamics. Notable themes included mechanisms of emplacement of igneous rocks and injected sandstones, geoarchaeology,

and a talk on the massively destructive mud volcano in East Java that is thought to have been triggered by nearby drilling for natural gas. Such was the quality of the scientific sessions that a thematic set of papers was published in the Geological Society's *Petroleum Geoscience* journal: 'Interplay between igneous and tectonic processes in prospective sedimentary basins' – Schofield, N., Turner, J.P.T., Underhill, J. (eds), *Petroleum Geoscience*, Vol.15.



Geoscientists commemorating Ken Thomson's research

Ken was also posthumously awarded the Volcanic and Magmatic Studies Group award for his contribution to volcanic studies.

The Lapworth Society

LapSoc is as strong and vibrant as ever, write Rich Curtis and Colette Lyle (2009 LapSoc committee members).

This year the ball was held in Edgbaston Cricket Ground and we enjoyed a great turn out of more than 100 students, postgrads and lecturers. The standard lecturer awards were given out to lecturers who were deemed 'genius' or 'cuddly'.

Other events throughout 2009 included the Dome 'pub' quiz. Once a term the Dome lecture theatre plays host to this now popular event where students and staff pit their general knowledge against each other – the geology



Students and lecturers at the LapSoc Ball last spring

round is always an interesting exposé of exactly what the lecturers really know!

Then there was the Halloween film night, James Bond night at local bar Risa and a trip to the Natural History Museum.

Send us your memories and photos of LapSoc at alumnioffice@contacts.bham.ac.uk

Sediments from the Middle Stone Age in western Kenya

Dr Ian Boomer, Research Fellow, is part of a successful NERC Urgency bid for a rescue excavation of articulated vertebrate remains, with possible cut marks, eroding out of Miocene sediments in Western Kenya.

The area is known for some of the very earliest Hominoid remains (*Proconsul*), a possible ancestor of all modern humans and apes. The site also has much younger evidence of human activity with Middle Stone Age stone tools littering the surface.

Ian says: '*This find could have enormous scientific importance in our understanding of*

the evolution of Homo sapiens in Africa and the environmental history of the area around Lake Victoria.'

Ian's role will be to provide an environmental context using microfossils and stable-isotopes for the lacustrine sediments in which these deposits are stratified.

What's new in Earth Sciences

£250k makeover for the old Petrology Lab

The old Petrology Lab has had an extensive makeover. It is now called the Earth Imaging Laboratory and provides the school with a unique and state-of-the-art teaching facility with a wide range of imaging facilities and a computer cluster optimised for training in GIS, remote sensing and seismic imaging.

The new lab has an innovative layout based around a central podium, a radical departure from the traditional front facing lecture room. We have eight new tables, 32 computers, four separate screens, two teaching microscopes and a new set of Prior microscopes. The layout allows a quick and easy transition between class

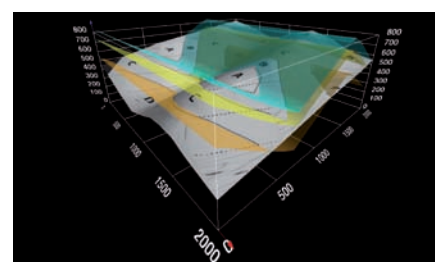
lectures, small group work and individual learning.

Colette Lyle, third year geology student, comments: *'We can have both modern and traditional geology classes in there. The layout of the room and the four projection screens, linked to a master computer and microscope, allows better interaction between the lecturer and students.'*

Tim Reston, Professor of Geology, says: *'This truly unique and modern teaching space allows us to bring geosciences into the 21st century and make full use of ever advancing technology.'*



New look Earth Imaging Laboratory



3D visualising software

Software gives students a hard edge

Students are developing important skills to compete for jobs after graduation thanks to industry software donated by two major geological businesses.

A licence and support package worth \$6.6 million over the next three years is being provided by geoscience group Seismic Micro-Technology (SMT) as part of its worldwide Educational Gifts Programme. The support allows the School to use its cutting-edge Kingdom package during teaching to give students invaluable experience using the software.

Structural geology company Midland Valley Exploration has donated software licences worth £500,000 through its Field Mapping

Training and Support Initiative, which works with universities to ensure newly qualified geologists have the core skills needed for 21st century field mapping.

Midland Valley's Alan Gibbs says: *'The initiative provides participant universities like Birmingham with our Move software for use in mapping classes, and support for staff training and development. We believe modern technologies can help learning to progress from observation through mapping to 3D model building – an essential industry skill.'*

Alongside funding from the Science Research Investment Fund (SRIF) to refurbish the Earth Sciences' Subsurface Visualisation Suite, the market value of recent contributions to teaching and research facilities is more than £4 million.



'To compete in the modern geology industry, our graduates must have a blend of traditional skills alongside the ability to use new software and technologies. We are extremely grateful for all the support we have received to enrich our students' experience and for the difference it will undoubtedly make to their career prospects.'

*Professor Paul Smith
Head of School of Geography,
Earth and Environmental Sciences*



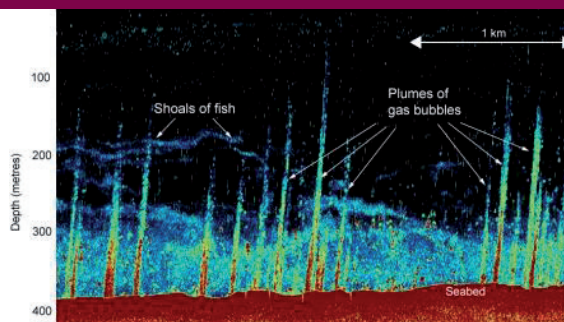
News round-up

Methane beneath the Arctic Seabed

A research team led by Professor Graham Westbrook has discovered a methane gas system beneath the seabed off the west coast of Svalbard in the Arctic that has probably been active for the past 15,000 years. This is the first discovery of methane plumes in this part of the Arctic.

Methane, which is stored in sediment beneath the seabed as methane hydrate, flows upwards towards the seabed, where it enters the water as plumes of bubbles. The team used seismic profiling equipment to show the presence of

methane and hydrate beneath the seabed, and imaged rock structures through which the gas naturally flows. Sonar systems provided high-resolution maps of the seabed that identify the seeps and vents where methane can escape. The research, conducted in collaboration with the National Oceanography Centre, Southampton and Royal Holloway, University of London was funded by the National Environmental Research Council as part of an International Polar Year project investigating the dynamics of gas hydrates in polar marine systems.



Alumna named CIWEM Young Member of the Year 2009

Congratulations to Earth Sciences alumna Elizabeth Guilford (MSc Hydrogeology, 2005). Now a Hydrogeologist in Mott MacDonald's Water and Environment team in Cambridge, Elizabeth was named 'Young Member of the Year 2009' by the Chartered Institution of Water and Environmental Management (CIWEM).

This award recognises the outstanding contribution to environmental understanding made by a young member of CIWEM.

Send us in your news at
alumnioffice@contacts.bham.ac.uk



425 million-year-old Wenlock limestone found in Dudley

'The award of designated status opens up opportunities for the museum in terms of potential funding for developments, which will focus on a major refurbishment and expansion of its education and outreach role.'

Jon Clatworthy, Lapworth Museum Curator

Lapworth Museum celebrates major accolade

The Lapworth Museum of Geology has been awarded designated status by the Museums, Libraries and Archives Council in recognition of the 'national and international importance of the collections' and the 'outstanding breadth and variety' of both the museum and its archives.

This status places the Lapworth within a group of only 18 designated university museums and galleries in England, including the Sedgwick and Fitzwilliam museums in Cambridge, the Ashmolean, Pitt Rivers and Natural History Museums in Oxford, and the Courtauld in London. There are an additional 16

designated university archives and the Lapworth is unique in having both the object-based collections and archives designated.

The Lapworth was recognised particularly for the breadth of coverage of the combined collections and archives. Together, they record the work of important geologists and major advances which have been made in the geological sciences and detail the resolution of a number of major geological controversies which drove scientific debate during the 19th and early 20th centuries.

The Lapworth hopes to build on this award by working towards a major refurbishment and development project for the museum over the next few years.

www.lapworth.bham.ac.uk



Alumnus profile: Daniel Robinson (BSc Geology with Biology, 2003)

Knowing which career path to take after your degree is a difficult question to answer for many graduates. Daniel Robinson, (BSc Geology with Biology, 2003), was no different.

After periods in the Non Government Organisation (NGO) and private sectors in the UK and abroad, Daniel has now founded his own business, Gnewt Scoot, an innovative enterprise focusing on sustainable transport.

After graduating from Birmingham, Daniel successfully completed a Masters in Evolutionary Biology at Imperial College. Daniel secured a position in an NGO in London affiliated with the United Nations, working on stakeholder engagement with civil society dedicated to environmental issues such as climate change and water management.

He then moved into a position in the private sector working for an international events company in Dubai, designing conferences for the oil and gas industry in the Middle East.

After a few years he returned to London to take up a position at a management consultancy firm, again specialising in the oil and gas market.

Daniel has since established Gnewt Scoot (www.gnewtscoot.co.uk) along with business partner and fellow Birmingham alumnus Barnaby Mills (BA French Studies, 2004).

The business is dedicated to establishing electric scooter schemes with employers promoting sustainable transport alternatives to complement cycle and car sharing schemes.

The pair have started major projects in Oxford in partnership with the city's university and council.

***gnewtcargo**

Daniel says: *'The work we have done so far is really exciting and has allowed us to gather a substantial amount of evidence to demonstrate the demand for what we are doing. This will allow us to bring in the finance and expertise we need to scale up the business nationally.'*

The pair are excited about the prospects for the future and are relishing the challenges ahead in growing their own business.

Daniel adds: *'It's early days but our skills complement each other's and we have established an excellent platform from which we can launch.'*

Tell us what you are doing now via alumnioffice@contacts.bham.ac.uk



Various varieties of gem quality beryl

and in making Birmingham a leading manufacturing centre.

There is also an important collection of stunning gemstones, closely associated with Birmingham's historical Jewellery Quarter.

This new addition will enhance the collection of 250,000 items already held by the Lapworth Museum. Many items will be incorporated into new and existing displays, and will also feature in major projects which are being considered for the future development of the museum.

Learn more
www.lapworth.bham.ac.uk

A gem of a collection

The Lapworth Museum of Geology and Birmingham City Council have agreed a long-term loan to bring the city's geology collection to the University.

The collection of around 12,000 specimens was carefully packed and transported to the University, with the help of a team of Lapworth Museum Scholarship students. Highlights include Matthew Boulton's mineral collection, with fine examples of ore minerals from mines where many of Boulton's, and his associate

James Watt's, steam engines were installed during the 18th century.

Boulton (1728–1809), is one of Birmingham's most historically significant individuals, and as an outstanding industrialist and manufacturer he played a key role in the industrial revolution,



A selection of agates from the gem and semi-precious stone collection of William Bragge (1823–1884)

News round-up

Palaeontological Association annual meeting

The annual meeting of the Paleontological Association (PalAss) organised by Dr Guy Harrington, Lecturer in Palaeobiology, took place in Birmingham from 13–16 December 2009.

The meeting attracted 250 delegates from across the UK, Europe and the US and there were more than 45 talks and 80 poster presentations. A field excursion was held on the final day to the Oxford Clay, south of the Cotswolds, that yielded fantastic ammonite localities.

Tectonic Studies Group annual meeting

Birmingham played host to the Tectonic Studies Group (TSG) AGM January, organised by Dr Carl Stevenson and Professor Tim Reston and sponsored by BP, Shell and BG-Group. The TSG is a specialist group affiliated to the Geological Society of London and provides a forum for research in tectonics and structural geology.

The Birmingham 2010 TSG AGM was attended by 80 academics, students and industry reps from across the UK and Europe and there were more than 100 presentations.

The meeting was followed by a one-day workshop for users of Move2010 software, led by a representative from Midland Valley Exploration Ltd.

Geological Society Annual Medal Ceremony

Dr Carl Stevenson, Lecturer in Geology, was presented with a President's Award from the Geological Society of London at President's Day 2009. The President's Award is given annually by the President of the Geological Society to an early career researcher who shows the most promise in their future career.



Professor Iain Stewart

Lapworth lecture series

The Lapworth lecture series runs through the autumn and spring terms with guest lectures every other Monday evening followed by drinks in the Lapworth Museum. Recently Professor Iain Stewart (of BBC's *Earth: The Power of the Planet* and *Journeys From the Centre of the Earth* fame) gave a lecture based on his recent BBC series *How the Earth Made Us*.

Professor Stewart is becoming somewhat of a regular speaker as in 2008 he helped us celebrate the designation of the Lapworth Museum and gave a Lapworth Lecture entitled *Un-natural Hazards: The cultural geology of risk*.

Keep track of upcoming Lapworth lectures at www.lapworth.bham.ac.uk and make sure you receive your invitation by updating your email address at alumnioffice@contacts.bham.ac.uk

Birmingham alumnus earns his place among the stars

An alumnus who became one of China's most famous geologists has been honoured by having a minor planet named after him.

The International Astronomical Union has formally recognised the minor planet No. 137039 as 'Lisiguang' after the late Li Siguang (BSc Pure/Applied Science 1917; MSc 1918; PhD Geology, 1921).

Li Siguang is known for founding a branch of geology called geological mechanics, which deals with the stresses and strains on the earth's crust, and how soil and rock behave in response to natural forces.

With geological mechanics, he discovered that China had abundant oil and gas

resources. Li made outstanding contributions to changing the situation of oil in the country, enabling the large-scale development of oil fields to raise China to the ranks of the world's major oil producers. His work led to the continuous development of oil fields in Daqing, Shengli and Dagang.

Professor Judith Petts, Pro-Vice-Chancellor (Research and Knowledge Transfer), says: *'The University has significant research strengths in energy. That many years ago we contributed to the foundation of a researcher who went on to make such a significant impact in the subject is*

an honour. That he has been recognised through the naming of a minor planet enhances the University of Birmingham's global standing.'

