



The
Black
Country
Geological
Society

Newsletter No. 193

February 2009

The Society provides limited personal accident cover for members attending meetings or field trips. Details can be obtained from the Secretary. Non-members attending society field trips are advised to take out your own personal accident insurance to the level you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

Leaders provide their services on a purely voluntary basis and may not be professionally qualified in this capacity.

The Society does not provide hard hats for use of members or visitors at field meetings. It is your responsibility to provide your own hard hat and other safety equipment (such as safety boots and goggles/glasses) and to use it when you feel it is necessary or when a site owner makes it a condition of entry.

Hammering is seldom necessary. It is the responsibility of the hammerer to ensure that other people are at a safe distance before doing so.

**Copy date for the next Newsletter is
Monday 6th April 2009**

Joint Chairmen
Alf Cole C.Sci.,
Alan Cutler B.Sc.,
M.C.A.M.,
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Barbara Russell

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Gordon Hensman B.Sc.,
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Field Secretary
Andrew Harrison BSC.,
MSc., F.G.S.

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Future Programme

Lecture meetings are held at Dudley Museum & Art Gallery,
St James's Road, Dudley, DY1 1HU. Tel. 01384 815575.
7.30 for 8 o'clock start unless stated otherwise.

Saturday 21ST February 2009 (Field meeting)

Dudley Museum and Art Gallery, Geoconservation, etc. Leader: Graham Worton.

Meet at the Museum at **10.00am**. The exact itinerary has yet to be formulated but we will be looking at the latest developments in the Museum in the morning, and later in the day we will be going out to see the problems in the Wren's Nest area. Please bring a **packed lunch and out door clothing**.

Monday 23rd February 2009 (Indoor meeting)

Natural and Man-Made Earthquakes in the U.K. Speaker: Professor Peter Styles (University of Keele).

The Applied and Environmental Geophysics Group at Keele specialise in the application of high resolution geophysical techniques to investigate the region of the earth accessible to and accessed by human endeavour. These techniques include seismology, gravity, radar, magnetic and electrical methods and their computer modelling.

The problems include mining and past mining problems, pollution and its migration, forensic, archaeological and hydrogeological studies. Of special current interest is Clean Coal Technology for energy security and geological studies of Radwaste disposal. The areas of work include UK, Europe, Middle East, Africa and Australia. This talk will also touch on the Dudley Earthquake. The Research Group at Keele consists of 4 academic staff with several others who collaborate in using these techniques in their own research, 8 PhD's and 2 Post-Doctoral Workers

Saturday 14th March 2009 (Field meeting)

Forest of Dean: Huntley and Wenlock Quarries. Led by Dave Owen (Gloucestershire Geological Conservation Trust).

Meet up at The Country Garden Centre at Huntley (SO 714,197) where there is a car park, cafe and toilets, at 10.00 am. No pub on route so a packed lunch will be needed, usual good boots and waterproofs, some steep hills so sticks if they are required. The walk is about 6km.

Monday 30th March 2009 (Indoor meeting)

AGM starting at 7.45pm followed by:

Graham Worton, Keeper of Geology at Dudley Museum and Art Gallery

Graham will bring us up to date with what has been happening at the museum and plans for the future. He will tell us about the state of play regarding conservation and development of Dudley's important geological inheritance, such as the necessary stabilisation work on the Seven Sisters caverns, and other features which are in danger.

Saturday 25th April 2009 (Field meeting)

Abberley Hills and Shavers End Quarry. Possibly led by Peter Oliver of the Hereford and Worcestershire Earth Heritage Trust. Details to be confirmed.

Monday 27th April 2009 (Indoor meeting)

The Galapagos Islands. Speaker: Andy Harrison BCGS

Andy, our field meetings secretary, will talk to us about his recent trip to the Galapagos Islands (Galapagos is Spanish for tortoise), which are so important in Darwin's development of his Evolution by Natural Selection. His meticulous mind was able to discern the sometimes subtle variations between birds and other animals, depending on whichever island they lived. The fructification in his mind of the data he gathered over many years, when he returned to England, eventually led to his theory - despite his reluctance to publish, largely on religious grounds.



Sunday 31st May 2009 (Field meeting)

Castleton Blue John and Treak Cliff Caverns. Led by Chris Arkwright.

Meet at 10:00 am on abandoned road close to Blue John Mine. SK131 833.

Saturday 27th June 2009 (Field meeting)

Return to the Brymbo Fossil Forest. Led by Prof Jacqui Malpas.

Joint with the NSGAA. Prepare to do some geoconservation work. Details to be confirmed.

Andrew Harrison, Gordon Hensman

Other Societies

Geological Society: West Midlands Regional Group

Programme of Evening Lectures

Lectures to be held at Birmingham University (Dome Lecture Theatre, Geology Department) and Wolverhampton University; (Room 202, School of Applied Sciences, Wulfruna St.) at 6.30pm (*unless otherwise stated).

Tuesday 10th March 2009: Wolverhampton University, Room 202, 6.30pm

Ken Addison: Wolverhampton University: Cenozoic landform evolution of the Long Mynd region.

Tuesday 21st April 2009: Dome Lecture Theatre, 6.30pm. Clive Barnwell: Waterman Group:

Offshore Geotechnics

For further details contact the Secretary: Adrian Jones Tel:0121746 5724 e-mail: adrian.a.jones@uk.mwhglobal.com
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North Staffordshire Group of the Geologists' Association

Thursday 5th March 2009 7:30pm AGM and Chairman's Address "Shark Bay to Wave Rock".

Some of the interesting landforms of Western Australia by Elizabeth Hallam.

Wednesday 22nd April: *Downstairs (and Upstairs) at the Potteries Museum, Hanley.*

Leader Don Steward. Meet in foyer at 2.00 PM. Due to restricted space in the geology store, limited to 10 places only; please book in with the Field Sec.

For further information contact NSGGA Field Secretary Gerald Ford , Tel. 01630-673409 or e-mail: g.ford@ukonline.co.uk Note: a field fee of £2.00 per head is made (for members and non members).

Lapworth Lectures

All lectures commence at 5.00pm in the Palaeontology Laboratory, Earth Sciences, University of Birmingham.

Monday 16th February 2009: Professor Paul Wignall (School of Earth & Environment, University of Leeds): Middle Permian volcanism and mass extinction in South China.

Monday 2nd March 2009: Dr Mark Williams (Dept. of Geology, University of Leicester): Across the Antarctic by frog: a tale of fossils, palaeoclimate and increasingly poor latrine conditions. ►

Monday 16th March 2009: Dr Conrad Childs (School of Geological Sciences, University College Dublin): The internal structure and growth of normal fault zones.

For further details/information contact: Jon Clatworthy, Curator of the Lapworth Museum of Geology, tel: 0121 414 7294, email: j.c.clatworthy@bham.ac.uk

Editorial

Welcome to the first Newsletter of 2009 and my first as Editor, assisted by my husband John. John and I are not professional geologists, but have been keenly interested in geology since our first visit to Iceland in 1972. The following year I did an extra-mural geology course at Birmingham University, and then the Open University's S233 (Geology/Environment) course in 1978. Work and family life pushed geological pursuits to the background for many years, except during our numerous holidays in mountainous areas, when our interest in rocks and landforms would surface with a vengeance. We were pleased that our daughter became sufficiently enthusiastic to pursue the subject, and she has an MSc in engineering geology from Leeds university, and an interesting career in the world of geo-technical engineering in the Leeds branch of Ramboll Whitbybird.

Our interest in geology was given a big boost in 2006 when we discovered the existence of the Global Geopark network during a visit to the 'Marble Arch' caves in Northern Ireland. Further research revealed that we have a Geopark on our doorstep – the Abberley and Malvern Hills Geopark, and my destiny was sealed when I learned that Hereford and Worcestershire Earth Heritage Trust were working on a long distance trail through the Geopark. Combining my two foremost hobbies, I felt this enterprise was asking for my assistance, and I've been actively involved as a volunteer on the 'Geopark Way' project ever since (more of this another time...).

As a member of BCGS I was delighted to be able to attend a conference in Dudley on the 'History of Geoconservation'. This brought me up to date with developments in this relatively new field of geological enterprise, and inspired me to respond to one of Bill Groves' 'Geobabble' articles on the origins of the term 'geodiversity' in Newsletter 181. It is with some trepidation that I attempt to follow Bill's fine example as editor, and I am pleased that he is willing to help us over the transition stages, and that he will continue to inform and entertain us in 'Geobabble'. Indeed, this month's 'Geobabble' on Lawrence Wager chimes nicely with my own experience of intertwining mountain walking with geology (though Everest is definitely not on my agenda!).

In this Newsletter I am delighted to present for the first time, 'The Dudley Bug', the magazine pages from our two student members. This is to be a regular part of the Newsletter. Chris and Alison are clearly going to keep us well informed with new developments, and hopefully will continue to keep us entertained with items such as this month's irresistible word search.

At the end of the Newsletter, I'm starting a section called 'Members' Forum' which is a place for your letters with any requests, ideas for the Society, or any short items of interest. I'd like to include photos with your explanations, or problems and queries for other members to solve for you in the next edition. I shall start the ball rolling in this Newsletter with a couple of short items. It is noticeable, looking through the last few editions of the Newsletter that very few people actually contribute, but those who do, work very hard indeed. I'd like to see far more names appearing in each edition of the Newsletter, and I hope the Members' Forum will encourage this. For those of you who are not comfortable with email, I am including my postal address in this edition, and will be happy to receive any material (including photos) by post. In this case, please try to get the material to us well before the deadline.

Oh yes – I mustn't forget to tell you about John's rôle in all this! His lifelong hobbies are maths, all things scientific, and computing. Without his skills in this last field I would be totally unable to fulfil my rôle as editor! Just to round off this rather long introductory editorial, perhaps I should let you know what we do to earn a living when we're not pursuing our hobbies. John is a bassoonist in the City of Birmingham Symphony Orchestra, and I play and teach the flute. ■

Julie Schroder

The Dudley Bug

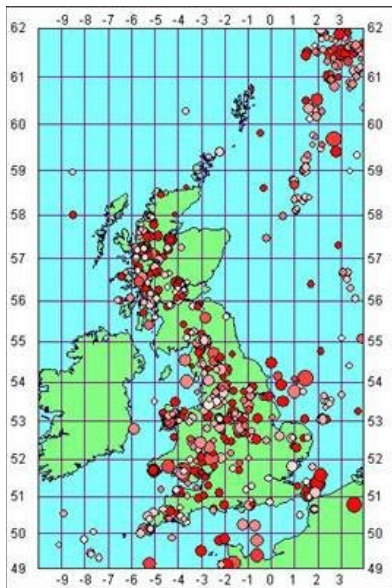
Welcome

Hello and welcome to the new part of the Black Country Geological Society newsletter. We are Chris and Alison, who have recently joined the society. We are both third year undergraduate Geology students at the University of Birmingham. This part of the newsletter aims to bring in new up to date developments and advances within Geology, as well as provide a little bit of fun! Enjoy!

Chris and Alison

UK Seismic Hazards

The UK is not one of the most seismically active countries in the world, but it does have a very large history of earthquakes. There appears to be very little risk of such events causing significant damage, the most damage being a few fallen bricks and the moving of furniture. The UK is not located near a plate margin, reducing the effect of a seismic hazard. Many UK earthquakes measure no more than 5.0 M_L (Macroseismic Intensity Scale). In the UK the areas which are affected the most by earthquakes are the Scottish Highlands and northwest England, as well as the Welsh Borders. The most active area in the UK is Caernarvon, North Wales.



Historically, records of UK earthquakes were limited due to the lack of technology and poor understanding of such events. The first major earthquake recorded in the UK was the 1580 Dover Straits quake, measuring 5 $\frac{3}{4}$ M_L . The two largest more recent events are the 2002 Dudley earthquake (4.7 M_L) and the 2008 Market Rasen quake. Both of these were felt across a wide area but no major damage occurred.

The reasons the UK is subject to these movements are not fully understood but it is primarily due to reactivation of ancient faults formed during the closure of the Iapetus Ocean around 450 million years ago, and the beginning of reactivity since the end of the last ice age around 10,000 years ago. The isostatic rebound of the UK is around 1-2mm per year and accommodated by slippage along the existing faults. Another reason for the seismic activity is due to large scale deformation as a result of the tectonic plates such as the African moving northward into the Eurasian plate; this collision has been occurring since the Cretaceous. The maximum stress is dominantly north-south accounting for much of the seismic activity in southern England, also the Mid-Atlantic Ridge. Usually it is a combination of these which causes the eventual earthquake.

The effects of earthquakes abroad are far more serious than those felt here in the UK. At their most extreme, earthquakes in the UK cause moderate shaking which is strong enough to move furniture. Other less significant effects are the fracturing of levees and excessive radon emissions.

Due to the few effects, it is difficult to mitigate against the hazards of such events. 'Mitigation' is the steps taken to reduce the impact of a given hazard to the people and the environment. The main way to mitigate is to ensure nuclear repositories and major pipe lines are not placed on old faults which may be reactivated during a seismic event. Mitigation of these effects is easy and hazards are decreased by using better engineering methods.

Earthquake Word Search

Can you find the following 12 words in this word search? They run vertically, horizontally and diagonally and can be found backwards too! Good luck. The answers will be in the next newsletter.

- Earthquake
- Epicentre
- Fault
- Focus
- Magnitude
- Mitigation
- Richter
- Seismics
- Seismograph
- Shear
- Transpression
- Tsunami

A	H	J	D	T	V	T	S	T	W	E	T	H	Y	A
L	G	S	E	I	S	M	I	C	S	A	I	O	S	K
T	N	H	E	I	V	H	A	J	T	U	V	C	H	P
R	A	X	T	S	S	I	E	S	T	A	N	Q	D	A
A	E	A	R	T	H	Q	U	A	K	E	G	A	R	S
N	D	V	L	U	E	A	H	N	R	P	N	F	M	E
S	U	Y	H	H	A	Q	S	A	C	I	K	O	S	I
P	T	M	B	A	R	L	N	B	H	C	W	C	F	S
R	I	S	F	O	C	U	S	Y	V	E	G	R	H	M
E	N	H	N	H	M	D	Z	F	Z	N	X	H	A	O
S	G	E	N	O	I	T	A	G	I	T	I	M	E	G
S	A	G	E	R	U	U	U	R	C	R	N	L	A	R
I	M	S	D	A	L	S	A	D	F	E	A	V	O	A
O	M	T	L	T	S	P	K	H	P	C	G	N	B	P
N	A	F	U	B	R	I	C	H	T	E	R	Z	F	H

Did You Know???

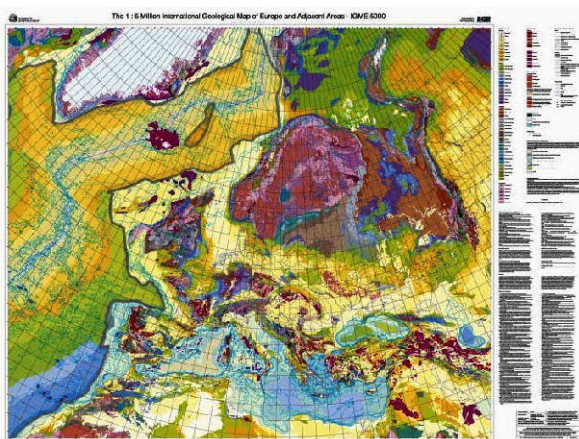
1. The Upper and Lower Carboniferous have now been changed into the Mississippian and the Pennsylvanian respectively.
2. Zircon is the oldest mineral found on Earth.
3. Rocks cannot melt deep in the Earth because they are under too much pressure. Lava forms at a few miles down from the surface, where there is less pressure. This is known as decompression melting.
4. Granite has been found to harbour bacteria deep within the crystalline structure.

Next time in the Dudley Bug

The origins of the Solar System, Planet Earth and the Moon. How did the Earth form? What rock types is the Moon composed of? All will be answered next time.

International Geological Map of Europe (1:5,000,000)

I recently came across this very interesting and large geological map of Europe while visiting the BGS (British Geological Survey) shop at the Geological Museum in South Kensington. The "1:5 Million International Geological Map of Europe and Adjacent Areas" is a major European geological GIS (Geographic Information System) project, which is being managed and implemented by the Federal Institute for Geosciences and Natural Resources (BGR) on behalf of the Commission for the Geological Map of the World.



The geological maps from each country across Europe have been harmonised to a common geological scheme and the coloured shading doesn't stop at country boundaries. The project was undertaken by 48 geological surveys and institutes from Europe and adjacent countries. As far as I can determine the work began around 2000 and the paper map was published in 2005.

The map also features for the first time the geology of the offshore areas of Europe as well as the land. Furthermore, the map has been generated using GIS and has a related database that is free to access on the Internet.

http://www.bgr.de/app/igme5000/igme_frames.php

This map can be zoomed into and features identified. I have found this particularly useful to look at places I have visited in Europe where I have been unable to find a geological map and have never been really sure of the geological ages of the rocks I've seen.

At £14.00 I think the printed map is excellent value. It covers an area from the Middle East to Greenland and from North Africa to the Arctic. The copy I obtained is at a scale of 1:5,000,000 and is around 1m by 2m when unfolded. I believe it can also be purchased as a smaller scale poster or as two flat sheet maps. ■

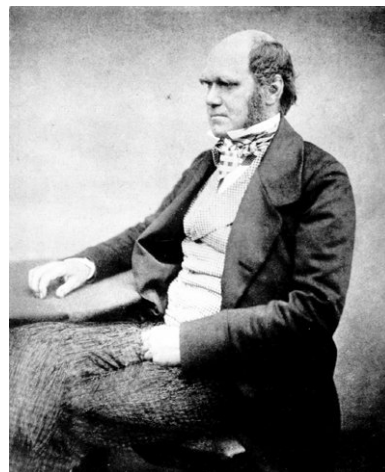
Graham Hickman

Some Thoughts on Darwin

Part 1: Background and formulation of the theory of natural selection

As most people know, in July it will be 150 years since Charles Robert Darwin (1809-1882) published his famous book, 'On The Origin of Species.'

Charles was born in Shrewsbury, and later settled at Down House in Kent where he lived until his death. His father, Robert Waring Darwin (1766-1848), was the youngest son of Erasmus Darwin (1731-1802). Erasmus was the seventh child of Robert Darwin of Elston (1682-1754) who was a barrister. In 1718, Robert Darwin noticed an unusual fossil in a stone slab in the village of Elston. He presented it to the Royal Society, and was invited to attend one of its meetings where he met the great Sir Isaac Newton, then President of the Society. We now know that the 'fossil' - not that the word was used then - was a part of a Jurassic plesiosaur. ►



Erasmus Darwin was a doctor, educated at Cambridge and Edinburgh. He settled in Lichfield and established a very successful medical practice, despite opposition from the church to some of his ideas. He published several scientific papers and became a Fellow of the Royal Society in 1761.

Along with Matthew Boulton, he was the moving force behind the creation of the remarkable 'Lunar Society', where he met such luminaries as James Watt, Benjamin Franklin, Josiah Wedgwood (with whom he campaigned against slavery), and Joseph Priestley who invented soda water (and hence 'fizzy pop') as well as being credited with the discovery of oxygen.

Erasmus's son Robert married Josiah Wedgwood's daughter Susannah, who brought with her the modern-day equivalent of £2,000,000. Thus their son, the great Charles Darwin, never needed to make a living in the professions, although he tried to train as a medical doctor in Edinburgh. He hated this, and after flirting with the idea of becoming a priest, he devoted all his time to study-travel and research. After his 5 year long voyage in HMS Beagle to South America, this resulted in the gradual formulation of his theory of evolution by natural selection.

It must be pointed out that the idea of evolution was nothing new, as it can be traced back to the Ancient Greeks. Francis Bacon and Leibnitz both had similar ideas, and the Frenchman Buffon also devoted much thought to the puzzle that slightly different species occur in different continents, and wondered if they might have descended from a common ancestor.

The tremendously important development resulting from Charles Darwin's life-time work, was that he produced the mechanism whereby evolution could take place. Furthermore, he backed it up with a wealth of evidence based on scientific observation from all over the world. His theory replaced Lamarck's ideas of acquired characteristics, by suggesting that evolution advanced by a process of adaptation to changed surroundings, so that only the best adapted survived to reproduce. We must not forget the coincidence that Alfred Russel Wallace, another Englishman, developed the same theory at about the same time as Darwin through research in South East Asia rather than South America. ■

Gordon Hensman

Part 2: 'The Influence of Erasmus Darwin and Geology on Darwin's theory' will appear in the next edition of the Newsletter. Ed.

Global Warming



Can man's ingenuity mitigate the effects of global warming? Ever the optimist I would argue that such a challenge will bring about technological change, so here are a few examples proposed by academics.

1. The melting of the Arctic ice cap by 60% this summer resulted in positive feedback since darkening of the Arctic Ocean caused even more of the sun's rays to be absorbed. To counteract this, one proposal is to float white polystyrene sheets on the surface of the oceans to radiate the sun's energy back into space. (Not quite sure what happens to these sheets in a storm!) A more practical application would be to paint all roads and roofs white to reflect the sun's rays.
2. 50% of the CO₂ in the atmosphere is absorbed by the oceans. Ocean CO₂ levels could be managed by using nuclear powered ships to collect and process CO₂ into dry ice torpedoes. Such torpedoes can then be returned to the oceans, as frozen CO₂ is some 1.56 times the density of water. Additionally, at a water temperature of 5°C and at depths of 255m CO₂ will be transformed into frozen but stable carbon dioxide hydrate. When deposited in sufficiently deep ocean areas such torpedoes may fall to the sea floor with sufficient velocity to penetrate the sediments and remain stable for millions of years. ►

3. The carbon cycle shows that 18% of all atmospheric CO₂ is recycled by plants and returned to the atmosphere when the plants decompose. It is possible to intercept the plant-soil-atmosphere components of the carbon cycle in the form of Biochar, a very stable carbon produced in bio-energy systems using the technique of slow pyrolysis. Returned to the soil, Biochar acts both as a sink for atmospheric carbon and a source of increased fertility with the further advantage that it is the by-product of a renewable energy generating process.

4. Thanks to Honda, Californians now have sufficient fuel distribution infrastructure to make hydrogen fuel cell cars a practical proposition, although the fuel cost reflects current market levels of 'gas'. It seems ironic that Honda UK have enforced a four month closure of their petrol based car making facility. ■

Mike Williams

Sources:

Professor Carl T F Ross, University of Portsmouth

Professor David Manning, Newcastle University

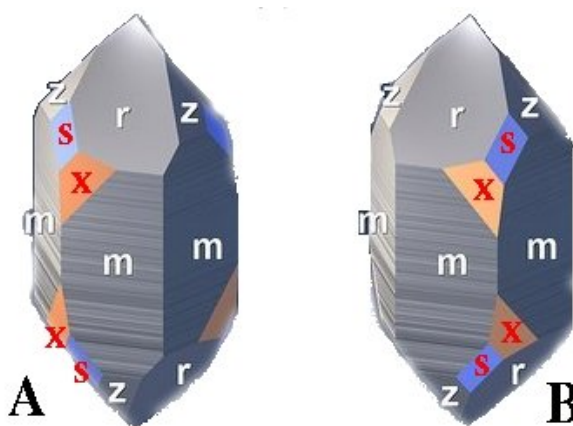
BBC Top Gear

Enantiomorphism (Handedness) in Crystals

Enantiomorphous crystals of Quartz: A is lefthanded, B is righthanded. The dissymmetry is produced by the small faces s & x, which on the two crystals are in the relation of mirror images with respect to each other.

Enantiomorphism is much more common in organic (carbon containing) molecules, and formed the basis of Pasteur's seminal work with Tartaric acid.

Remember Si is in the same PT group (IV) as is C. Bodies often cannot metabolise the 'wrong' form of dietary feedstock!



Handedness is not uncommon: indeed man's brain can easily adjust to the manipulation of R/L handed objects, sometimes by using a plane mirror. There is a conundrum, however. Why does a flat mirror invert R to L, **but not** top to bottom? TRY IT FOR YOURSELF. ■

Alf Cole

Geobabble

One of my Christmas cards was from a friend who had just retired after a lifetime in mining geology and Earth Science journalism, at the foot of his card was written; "retired last March, now it's hill walking". It made me think that if a survey was done of the pastimes and hobbies of amateur and professional geologists, the outdoors and walking would feature highly. How could anyone be interested in looking at rocks if they did not enjoy walking to the outcrop?

Take this a stage further to mountaineering and exploration, what part do geologists play in these activities? Who were the great geologist/mountaineers? One of the greats of the last century was undoubtedly *Lawrence Wager*. Perhaps not a familiar name unless you are keen on the history of Everest exploration or layered igneous intrusions, in particular the *Skaergaard* intrusion of eastern Greenland. ►



Lawrence Wager

Wager learnt his climbing skills from his Yorkshire Dales birthplace, through to the Cambridge University Climbing Club from 1922-1926, with forays into Wales, the Lakes and the Alps. He was considered one of the top climbers of the 1930s and was invited to join the 1933 Everest expedition. On this expedition he made the first attempt on the summit and reached 28,100ft, less than 1000ft from the top. This was the highest point reached on Everest without oxygen, and remained so until 1978. He was also the man who on this ascent found the ice axe of *Sandy Irvine* who perished with *George Mallory* in the 1927 attempt. As a geologist he brought back a collection of 244 rocks from Everest. He was part of the British Greenland Expedition of 1935-36, one of four such expeditions in the 1930s; indeed he discovered the layering of the Skaergaard intrusion from a ship. Many regard Wager as one of the top six explorers of the 20th century in the company of such legends as *Scott* and *Shackleton*.

As a geologist he was primarily an igneous petrologist who made his name in the study of layered igneous rocks in general and the Skaergaard intrusion in particular. He led the 1953 expedition to study this intrusion, and was planning another for 1966 when he suddenly died of a heart attack in 1965 at the age of 63. He was Professor of Geology at Oxford University and shortly after his death the book '*Layered Igneous Rocks*' was published that he wrote with *Malcolm Brown*.

He was a remarkable man; his powers of leadership were evident in the 1953 expedition and he could assess vital things such as weather, ice and climbing conditions quickly. He knew the capabilities and limits of every member. When the going got tough so did Lawrence Wager. ■

L.R. Wager, G.M.Brown: *Layered Igneous Rocks*; Freeman 1967

www.geochemsoc.org/publications/geochemicalnews/gn131apr07/thelifeandtimesoflawrencew

www.earth.ox.ac.uk/~davewa/research/himal/everest-lrw.html

www.oum.ox.ac.uk/learning/pdfs/wager.pdf

Bill Groves

Why not have a look at our excellent website at:

www.bcgs.info

Members' Forum

Whilst walking along the beach beneath the towering Cretaceous cliffs of the south coast between Hastings Country Park and Fairlight Cove, we were intrigued by the beautiful concentric circular features in many of the boulders on the beach (see photo on the right - 20p for scale). Can anyone throw any light on this for us? ►





We couldn't believe our eyes when, in the same area, we came across the large boulder above (photo also featuring your editor, for scale). Are those **really** dinosaur footprints? ■

Julie and John Schroder

Whilst reading the NSGGA's Bulletin (sent to me in my new rôle as editor), I was amused to find some quotations from a Keele University web site listing geology student 'howlers'.

www.esci.keele.ac.uk/resources/howlers.htm

The one that really caught my eye was the 'supper continent of Pangaea'. Maybe not such a howler after all, I thought, as I reflected on all the excellent suppers we've enjoyed in our favourite local balti restaurant (below) which happens to be owned and run by our next door neighbours! ■

Julie Schroder



For those receiving printed copies of the Newsletter

Please note that the emailed version of the Newsletter is in colour and the photos are clearer. If you now have an email address, why not change to receiving the Newsletter in this way so that you can enjoy it in its full glory? Please let me know, with your email address, if you would like to make this change.

!Stop Press!

You are all invited to attend the official launch of the Cannock Chase Geotrail on Saturday 28th February 2009. The invitation is from Dr. Richard Waller of Staffordshire RIGS group and has been passed to us by Mike Fereday of the NSGGA. Meet at Style Cop car park (SK038152) 10.00 - 10.30 am. The walk (c. 8km) includes a free buffet lunch and ends back at the car park by 4.00 pm. If you wish to attend, please contact Richard Waller by phone, post or preferably e-mail before 23rd February so that the catering requirements can be finalised:

Dr. Richard Waller
School of Physical and Geographical Sciences
William Smith Building, Keele University, Staffs., ST5 5BG.

[email: r.i.waller@esci.keele.ac.uk](mailto:r.i.waller@esci.keele.ac.uk)

Direct line: 01782 733179

Please Contribute

We rely on members to make the content of the Newsletter more interesting. Please do not reduce the quality of any photos. In order to include material in the April Newsletter, please send it by:

Monday 6th April 2009.

Please send material for the next Newsletter to:

julieschroder@blueyonder.co.uk

42 Billesley Lane, Moseley, Birmingham, B13 9QS.