
BEWARE THE BLOGSPOT: Confessions of an Internet Virgin *Jenny Flake*

For various reasons I am only now learning the benefits of 21st century technology with just occasional use of a PC and internet access and I'm still discovering the wonders of the worldwide web.

It wasn't until February this year that I gave way to temptation and clicked on a link in an email inviting me to visit

<http://geologywestcountry.blogspot.com>

Thus I unwittingly opened a Pandora's box of geological delights from many sources, available to the interested public at no cost apart from getting to the venue and the time spent there which has always been outweighed by the benefits from attending the event. I have noticed that all events at Bath Geological Society are so well advertised, with such full descriptions of both lectures and field events, usually illustrated like many entries with come-hither photos, that I wonder if the mysterious Edie who so regularly posts them has any connection with the Society. I shall not recount my attendance at these events as most regular members of the Society will also have enjoyed them. So what else have I done and where else have I been courtesy of this magical new source of information that I stumbled on?

My adventures started in early March with a lunchtime lecture given in the magnificent splendour of the Wills Memorial Building on the University of Bristol which houses the Earth Sciences Department, at the junction of Park Row and Park Street. If you haven't been there, it is worth a visit on its own merits with its really inspiring traditional academic atmosphere. It has a local geological collection and wall-mounted exhibits to examine while you wait outside the Earth Sciences lecture theatre, G25, alias the S.H. Reynolds lecture theatre. Whilst there I saw people I know from other geological organisations and one person from Bath, so there was a fair sprinkling of the interested public amongst the academics and students who suddenly appeared to fill the auditorium.



The Wills Memorial Building

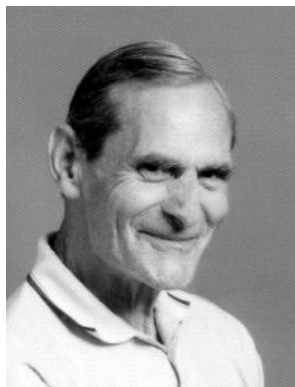
Dr. Steve Jacobsen from Northwestern University, U.S.A. spoke on 'Water Cycling in the Deep Earth: Are the Oceans just the tip of the Iceberg?' A member of America's Mineralogical Society, he explored the possible current location of the vast majority of the original water brought to Earth by chondritic meteorites. Although liquid water covers 70% of our blue planet, it accounts for only 0.025% of its mass and requires only a fractional amount to recycle the total ocean volume through subducted oceanic crustal material. He hypothesised that the transition zone on the mantle may serve as the largest internal reservoir, utilising nominally anhydrous minerals which hydrate by elevated temperature and pressure. There was quite a lot of geochemistry and geophysics to follow but the slides used to illustrate his arguments did help comprehension and the detailed questions which followed showed the depth of interest and understanding especially amongst the university component of the audience.

I next spent a fascinating day in Pewsey, Wiltshire, learning about the diversity of the North Wessex Downs AONB part of which I know well. Organised by Berkshire RIGS, and supported by a grant from the NWD Sustainable Development Fund, it gave those with an interest in the landscape and how we interact with the land, a chance to discover the links between landscape, geology, biodiversity and landuse. The

full day's programme started with an overview of the geodiverse nature of the AONB with its chalk downland cut by streams dominating the geology and landscape. This was followed by a brief history of the last 100 million years, including pictures of its earliest post glacial inhabitants both human and other animals, given by our own Chairman, albeit wearing her Wiltshire Geology Group hat.

The day continued with talks on soils, conservation target areas, river restoration and diversity in stone which explored the close link between geology and building materials and styles. With several refreshment breaks, there was plenty of time between presentations to view the various stands and talk to those manning them and to the presenters. This was most useful as the programme included talks on topics as varied as the extractive industrial heritage, geological site recording for wildlife sites, stream geology and freshwater crayfish plus a look at the stories hidden in woodland archaeology. At the end, I could only marvel at how much had been packed into one day as I could then appreciate the interdependence of the elements of the landscape in a completely new light.

Quite how the eagle-eyed Edie missed them, I don't know, as I picked up the flyer for a week of events on volcanoes and the legacy of George Walker at the Society's January lecture. Arranged by the University of Bristol as part of the Local Heroes Exhibitions to celebrate the bicentenary of the Geological Society of London, and to coincide with Science Week, these activities commemorated the life of Professor George Walker FRS (1926 - 2005). He was one Professor George Walker of Bristol's greatest field geologists and one of the world's leading volcanologists of the 20th century. He transformed the understanding of ocean crust formation by his



Professor George Walker

geological mapping in Iceland and developed volcanology into a quantitative science, making pioneering contributions into understanding how volcanoes work. There were lectures each evening given by post-doctoral researchers covering volcanoes in the laboratory, from space, diamond volcanoes and volcanoes and climate. I could only attend the lecture of volcanic islands and their hazards; this was also attended by Prof. Walker's widow and daughter and preceded by an in-depth look at his life and legacy, given by Professor Steve Sparks, arranger of the event.

After a general review of the major eruptions and different types of material vented, Dr. Jess Trofimovs provided a more detailed look at the 1995 Soufrière Hills volcanic eruption on Montserrat in the Lesser Antilles and its drastic affect on over half of the island and surrounding area. The huge volume of mud, flowing down the slopes and out into the ocean, rapidly displaced seawater and generated a tsunami with a 10m open sea wave diminishing to 1m on the shores of the adjacent islands. Vast amounts of material were dumped on the ocean floor which has been mapped by seafloor imagery and sampled. Coring samples have shown repeated such eruptions as ash and sediments alternate over the last 250 thousand years and can be used to predict the likelihood of future events in the areas most likely to be affected, as well as to interpret similar deposits found elsewhere, especially in the Mediterranean.

As part of the event, a weekend exhibition dedicated to volcanoes was on display at the Bristol Museum and Art Gallery with additional activities for children. Unfortunately I couldn't visit this as I was getting drenched in Soudley Valley with our Society on the Saturday. The following day, I went on a field trip led by Prof. Sparks to see the Carboniferous basalts and limestones at Sand Point, near Weston super Mare. Accompanied by research students, we went by coach from the University to a chilly and wind-swept headland to examine our local volcanic remains in Swallow Cliffs Bay as well as fossils in the limestone, interpreted by Dr. Tim Ewin from the Museum. Prof. Sparks gave us an overview of the conditions which produced the tuffs and lava flows some 350 million years ago, during crustal stretching following mountain building. Time precluded a visit to nearby Middle Hope Bay to see different fossil species.



But, back to the blogspot, where Edie had not missed a trick, or rather, a treat, in the posting about the unveiling of an interpretation board which marked the fruition of a project by Wiltshire Geology Group at Bradford on Avon Docks Clay Pit. I had been fortunate enough to hear Professor Hugh Torrens give a forthright lecture at Bath Guildhall during Heritage Week last October about William Smith. He is the country's foremost expert on William Smith and on the Bathonian rocks of Europe and their fossils, especially ammonites. So I was interested to hear him speak in the exact location where he had researched his PhD 40 years ago, then a working quarry for puddling clay alongside a deserted and empty canal, a very different scene from that found today. The rocks had not previously been studied or described, nor had fossils been found in them. He had found crinoids, ammonites, brachiopods and otoliths. These earstones, the calcified sounding boards found in fish's heads are microfossils and the only remains of the fish which lived in the warm Jurassic seas of 165 million years ago when the Bath oolite was formed. His 1968 paper established the area as the standard for the Great Oolite and he presented a signed, original edition to the Group for the local museum.

Having officially unveiled and commented on the detail of the attractive and informative interpretation board, Prof. Torrens congratulated the Wiltshire Geology Group on their work, including the excavation of a small quarry behind the board, exposing some Bradford Clay surfaces in which fossils can still be found as he had already that morning. He went on to admire the quality and format of the new Landscape and Geology Trail the Group had produced and stressed the importance of education in enthusing children and students to study the increasingly

valuable science of geology. After time for exploration in the quarry, most of those present, led by Isobel Geddes, the author of the trail guide, moved off for a short walk looking at the Avon Valley and local building stones. The guide is full of information about the geology and its effect on the history of the town. Its format makes it easy to use and its laminated production ensures that it is durable and practical. Legible and illustrated with diagrams and photographs, the 7km trail, which extends out to Avoncliffe, can be broken into shorter sections to be enjoyed on different occasions. The guided walk provided an excellent introduction to this attractive and modestly priced addition to the literature of the local area.

The next posting which attracted my attention introduced me to the geology section of the Bristol Naturalists' Society which also meets at the Wills Memorial building. Tempted by a lecture entitled 'Marie Stopes: sex, lies and fossil plants' given by Dr. Howard Falcon-Lang of the University of Bristol, I was entertained by his fascinating account of the life of an outspoken and



Marie Stopes

controversial woman who was passionate about palaeobotany. Probably better known for her books on married love and wise parenthood, which result from her own unhappy marriage, she was also a eugenicist and intellectual nazi sympathiser. A brilliant student, she had compressed concurrent external honours degrees at Birkbeck College, University of London, into two years, gaining a first in botany and a third in geology. How many of those who followed her advice on birth control in the early part of the

twentieth century knew she was initially a palaeobotanist and coal geologist whose 1904 doctorate in cycad reproduction, was awarded by Munich University after only one year's work, during which she also learned German in which language she wrote, and defended, aged only 23.

Over the next ten years she worked in Scotland and the coalfields of northern England before spending eighteen months travelling alone through Japan lusting for evidence of the earliest angiosperms. Returning to the University of Manchester, she worked on the fern ledges of St. John, New Brunswick and interested Scott of the Antarctic in Wegener's theory of continental drift. She subsequently found a fossil sample in the Beardsmore Glacier which proved to be the missing piece of the puzzle of Gondwanaland's constituent modern continents. Thereafter her interests changed. She remarried and by 1923, in her mid-forties, was living in a lighthouse on Portland Island where she wrote poetry and plays. She died of breast cancer in 1958. In spite of her seminal contributions to geology, she was never fully accepted by the scientific establishment.

Bristol Nats were also the hosts for my next Blogspot-promoted outing, this time a geological walk along the Avon Gorge led by Dr. Tim Ewin of Bristol Museum.



River Avon Gorge

This was an area I did not know and the warm sunny Spring day made for a pleasant introduction, as before we set off from Sea Walls we were given a detailed description of the local geology and the area's history. Tim then discussed the five theories for the formation of this well-exposed but difficult to access linear feature, together with similar gorges in the area. These echoed those rehearsed by one Elizabeth Devon at a lecture about the "Rocks, landscape

and possible origin of the Bristol Avon" which she gave to WEGA members earlier in the year. Unfortunately evidence is lacking for them all, so you can take your pick. Walking across part of Durdham Downs we crossed areas of rough ground, the result of early mining activities which excavated veins of lead, zinc, iron and other minerals especially celestine, used for strontium, as well as quartz, which became known as Bristol diamonds, examples of which are in both the Museum and Wills Building.

A walk along parts of the top of the gorge enabled us to see many of the nine subdivisions of rocks exposed in the quarries opposite where the bedding was clearly visible, along with patch reefs and dolomitic conglomerate following desert weathering of the Carboniferous Limestone. Finishing by the observatory with views over the caves beneath and the Suspension Bridge, we looked towards Hotwells, the only place in Britain apart from Bath where spa water naturally reaches the surface, whereas all other sources are pumped. Here though, meteoric water can percolate down and cool the waters from Bath's 45°C to just 24°C. By now the sun was really shining and the temperature rising which gave a different atmosphere from that ending most field trips, as the groups of picnickers and families extending over the downs provided an almost festive scene.

Whilst my first Blogspot event was a lunchtime lecture, my most recent one in late May was at teatime in the impressive barrel-roofed Peel Lecture Theatre of Bristol University's Geography Department around the corner in University Road. The title of the lecture given by Tony Payne, Professor of Glaciology, was "Second deluge or just another drop in the ocean: what can we expect of ice sheets in the twenty-first century?" One of the most complicated areas of science to unravel is the effect of ice sheets on sea level changes as so many factors interact and, until satellite based observation revolutionised the study of ice sheets over recent decades, there was too little reliable data for accurate predictions to be made. Detailed study of Antarctica and Greenland has shown that ice sheets are thickening inland but thinning toward the coast, allowing ice shelves to break away along stress lines along the coastlines. Once the buttressing effect of the ice shelf has gone, glacial flows increase, leading to a net increase in ice on the oceans and subsequent sea level displacement. Even a one metre rise in sea level would have an

immediate and significant impact on economics and ecosystems worldwide.

Although he had been in post since 2000, this was Professor Payne's somewhat belated inaugural lecture and was accompanied by many carefully numbered slides of facts, figures and illustrations to build up a detailed picture of the evidence behind the changes. Such inaugural lectures, given in recognition and celebration of an individual's research, are by tradition open to the public and no questions are allowed. However, the entire audience, which was standing-room-only, was invited down to the hall beneath where questions could be asked and discussions continued over a glass of wine and healthy nibbles. There were a few familiar faces amongst the students and academics in another impressive room with wall displays showing the range of the department's work. This was fitting end to my first season of Blogspot eventing and I look forward to those which the efficient Edie will post later in the year.

The geology in the West Country Blogspot is an extremely valuable resource with items to appeal to many different types of geological interest and email reminders when new postings are made. My thanks go to the enterprising Edie and those who provide the details of events, without whose efforts I would not have known about most those I attended. So I have now "been there, done that" though I have yet to "get the T-shirt"! Now that you know what you've been missing, isn't it time that you too turned on, tuned in and got out your diary? I look forward to seeing you out and about sometime soon, broadening your horizons as well.

Interested in our local rocks and landscapes?

Click onto

<http://geologywestcountry.blogspot.com>

There are links to

- *all local geological organisations
- *museums with geological displays
- *geology in education

GEOLOGICAL HOWLERS

In trying to explain how flood basalts could cause a mass extinction:

- *It is possible that the magma floods occurred on the continents because the creatures (that became fossils) didn't have legs – they couldn't run away and were killed.*
- *Because they were so unexpected they would be unpredictable and there would be nothing the species could do about it because they are in the middle of tectonic plates.*
- *Flood basalts destroy bedding planes, beds which contain the fossil record, the beds become metamorphosed, recrystallisation occurs and an entirely new rock can be formed, therefore loss of the fossil.*
- *The dinosaurs would have seen it coming.*

