GeoConservationUK Newsletter

Volume 5, Number 4

15th December 2014

This is the Day that . . . we remember past geologists . . .

On the year's close we often recall, thankful for their enrichment of our lives, the passing of relatives, friends, and sometimes fellow geologists. On the day that this *Newsletter* is published the Scottish geologist James Croll died in 1890. Born in 1821, and largely self-educated, Croll became a caretaker at Glasgow's Andersonian College museum in 1859 - mainly to give him library access so he could develop his ideas. From 1864, he corresponded with Charles Lyell on ice ages and their links to variations in the Earth's orbit; this eventually led to him becoming keeper of maps and correspondence in the Geological Survey of Scotland's Edinburgh office. There, its Director (Archibald Geikie) encouraged his research and publications - most notably *'Climate and Time, in Their Geological Relations'* (1875). In 1876, he was elected Fellow of the Royal Society and the University of St Andrews awarded him an honorary degree.

Also on the year's close we are sometimes fortunate to recall happier events such as family additions. Coincidentally, on the day that this *Newsletter* is published, the American geologist Joseph Barrell was born in 1869. From a reasonably comfortable background, Barrell graduated from Lehigh University in 1888, gained his MS in 1897, and taught Geology there. Eventually he was invited by Yale University in 1903 to develop a structural geology course; whilst there he developed his ideas that many sedimentary rocks, rather than the result of just marine sedimentation, were the products of the action of rivers, wind, and ice.

Sadly, despite their significant contributions to an understanding of geological processes significant to our present studies on changing environments and climate, few modern geologists will recall them - reminding us all of the neglect of our 'valuable' work that passing time creates?!

E D I T O R I A L

The year's final *Newsletter* carries articles on the membership's activities together with news items, including two on this year's most excellent geopublications, the '*Geodiversity Charter for England*' and *'Quarrying Industry in Wales - a history'*; the former represents a distinguished group effort, that should drive forward geoconservation in one country, and the latter the culmination of much personal research should stimulate further historical study in another country of this United Kingdom. Anyone involved in such publications, let alone humble newsletters, is well aware of the considerable expertise and time, a lot of which can be frustrated by the vagaries of email and DTP/graphics software, required to put them together. Somehow, as I keep saying to myself with the impending completion of a certain conference volume, it all seems worth it in the end! On that positive note, I send all our readers my best seasonal regards.

TOM HOSE

ISSUE CONTENTS

ENGLAND — *Berkshire Geoconservation Group*

Reading Building Stones – an alternative to Christmas Shopping

On Saturday 5th December 22 people joined Lesley Dunlop and Angela Houghton for a walk around Reading's town centre to look at some of the its building stones and history. This walk was billed as an alternative to Christmas shopping and certainly all commercial aspects of the day were avoided. Reading town centre was greatly expanded during the second half of the 19th century and many of the buildings, including the impressive Museum and Town Hall, date from then. Angela Houghton explained that although the obvious buildings date from 1875 onwards these are wrapped around an earlier building on the site. The Town Hall and clock tower *(see middle right)* were built in 1875, to a design by the architect Alfred Waterhouse, using local bricks and terracotta ornamentation. The Concert Hall, Museum and Library were added in 1882 and designed, following a competition, by Thomas Lainson. The Waterhouse building uses bricks manufactured from sands and clays of the Reading Beds at brickworks in Tilehurst. The Lainson part is made of harder, darker Staffordshire brick and the difference can be seen when looking at the façade. New Red Sandstone dating from the Permian (about 280 million years ago) has also been used for decorative purposes. The south tower was destroyed in 1943 but rebuilt, using locally sourced material, during the restoration of the Town Hall in the late 1980s. As it was such a bright sunny day we were able to easily spot the footprint of a dog in one of the bricks were it had obviously walked across it prior to firing.

Reading Abbey was destroyed during the Dissolution (of the monasteries) and much of its stone has been reused in other buildings of that time. There are reports of 70 cart loads of material being transported to St Mary's Church for repairs and an extension. Most of the Taynton limestone and flints forming the beautiful chequerboard pattern probably originate from the Abbey. The reaming walls of the Abbey, formed of flint and a sandy mortar, are now in a poor state of repair and much work needs to be done to stabilise them; trials have been ongoing for some time to test different mortars and cappings and it is hoped that funding might be available in the near future to allow work to commence. We finished the walk at the Maiwand Lion in Forbury Gardens *(see bottom right)*. The sculpture is a memorial to the Afghan campaign of 1879-80 and is one of the world's largest bronzes. The original pedestal was of terracotta but this was replaced on the 30th anniversary of the campaign by Portland Stone which stands on a base of south-west England granite.

Berkshire Geoconservation Group and Reading Museum and Town Hall offer this walk regularly and the popularity is increasing. We will be offering other town walks during 2015 including repeats of the Reading one.

Lesley Dunlop

GeoConservationUK Newsletter

ENGLAND — *Bedfordshire Geology Group*

Houghton Regis Quarry in September

We were pleasantly surprised when we visited Houghton Regis Quarry on 21st September for the AGM field meeting - none of the usual white, sticky mud and wet, slippery underfoot conditions! The unusually fine and dry September weather saw almost thirty of us *(see top right)* taking the opportunity to explore the old quarry owned and managed as a Local Nature Reserve by the Wildlife Trust. It is a beautiful example of how these former 'industrial' sites can become valuable oases of biodiversity and opportunities for education.

Historically the quarry was worked for cement by Blue Circle Cement. It features about 38 metres of the Lower Chalk representing the time period of 90 to118 million years ago. The Chalk here is classified as the West Melbury Marly Beds and the Zig Zag Chalk Formation or Lower Grey Chalk, interspersed with a bed of Totternhoe Stone. These are rocks familiar to the Group's members as we have seen them on field trips to Totternhoe Stone Pits and Sharpenhoe Clappers. The quarry still contains some promiment outcrops which the group identified as Totternhoe Stone due to its fossil content (small orbirhychia brachiopods). The base of the Marly Chalk was seen to have the bivalves *Inoceramus sp.* and *Plicatula iflatus*, together with oysters in varying degrees of completeness.

Being a Chalk site the calcicole flora, still quite abundantly in flower, provided insights into the growing conditions – a classic example of geology's influence on the soils and associated flora. We spotted wild thyme, common centaury, carline thistles, plus some pale toadflax. Following the walk the group were able to sit by the marl lake for a pleasant picnic lunch in the warm weather. Perhaps, the only disappointment was that neither the buzzards or red kites, seen on previous visits, graced the sky above us. The walk was a good sociable 'warm-up' for the AGM.

Site Clearance Work at The Spinney in October

The exposure of terrace gravels at The Spinney in Biddenham was not in a very good state, having collapsed and covered the old badger set, and had become very overgrown, when we arrived on 11th October to do some clearance work. But, with the wonderful work of Colin and his strimmer, not to mention the two Tony's *(see bottom right)* and Janet's clever spade-work, we soon got on with the task. We cleared a good workspace and exposed the main features of the site. Tony Brian found a fossil, of course, even where none should exist! John Buxton provided transport for Colin and the equipment and as usual, the tea-making facilities - for which many thanks John!

There have been two visits since the clearance; a group of mature students from the Bedford Retirement Education Centre and a A-level Geology group from Bedford Sixth Form College. The latter visited on the wettest and windiest day some of us can remember, so they will have to re-visit to do their field sketches! Unfortunately, there have already been two small landslips, and this might well be an ongoing problem with such loose sediments. A resident from a nearby road has kindly offered to keep a watch on the site - some welcome local goodwill. An information board is in preparation by the Wildlife Trust and the BGG; it a should be erected around the New Year.

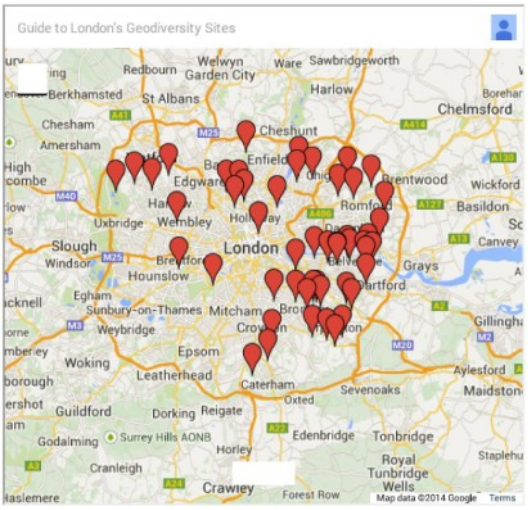
Francess Maynard, Anne Williams & Tom Hose

Volume 5, Number 4

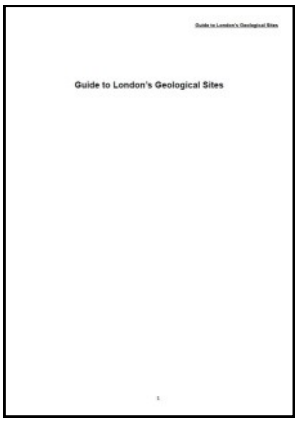
ENGLAND — *London GeoDiversity Partnership*

Guide to London's Geological Sites

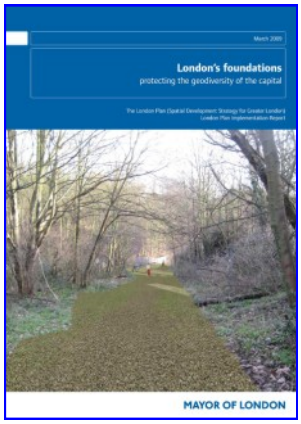
One of the key objectives of the London Geodiversity Partnership is to promote London's geodiversity to a wider audience. It is, therefore pleased to announce that the Guide to London's geological sites can now be accessed on its website at: www.londongeopartnership.org.uk/londonguide.html

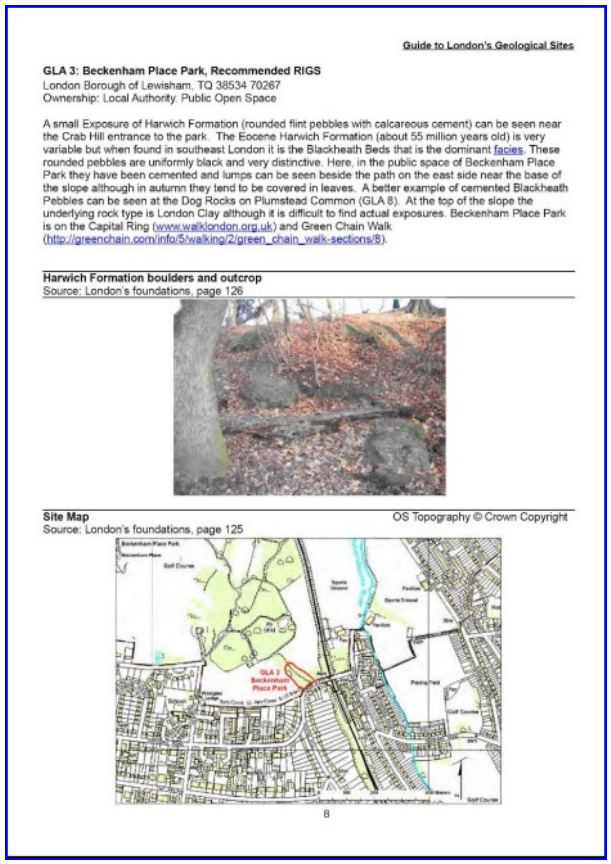


This opens as an interactive 'Google' map *(see top right)* with push-pins identifying London's geological sites; that is, Sites of Special Scientific Interest (SSSIs) and recommended, and potential, Regionally Important and Locally Important Geological Sites (RIGS and LIGS). Each push-pin, when clicked on, offers up a description of the specific site. The guide can also be downloaded in full as a pdf file *(see near middle right)*; its rather plain cover belies the richness and interest of its content *(see far middle right)*. Each site has a summary description, photograph and detailed location map.



While much of this information has been published, in 2009, by the Greater London Authority in its Supplementary planning guidance – ***London's foundations*** – the guide *(see bottom right)* was been written for the general reader. Individual sites are illustrated and detailed location maps are provided, together with references and a useful glossary of technical terms.




Guide to London's Geological Sites

GLA 3: Beckenham Place Park, Recommended RIGS
London Borough of Lewisham, TQ 38534 70267
Ownership: Local Authority. Public Open Space

A small Exposure of Harwich Formation (rounded flint pebbles with calcareous cement) can be seen near the Crab Hill entrance to the park. The Eocene Harwich Formation (about 55 million years old) is very variable but when found in southeast London it is the Blackheath Beds that is the dominant facies. These rounded pebbles are uniformly black and very distinctive. Here, in the public space of Beckenham Place Park they have been cemented and lumps can be seen beside the path on the east side near the base of the slope although in autumn they tend to be covered in leaves. A better example of cemented Blackheath Pebbles can be seen at the Dog Rocks on Plumstead Common (GLA 8). At the top of the slope the underlying rock type is London Clay although it is difficult to find actual exposures. Beckenham Place Park is on the Capital Ring (www.walklondon.org.uk) and Green Chain Walk (http://greenchain.com/info/5/walking/2/green_chain_walk-sections/5).

Harwich Formation boulders and outcrop
Source: London's foundations, page 126

8

We intend in the future to add Sites of geological interest (SGIs), which are not sufficiently distinctive to rank as LGS or RIGS sites and where there may be little to see at the surface but where there is a generally historical geological element and possibly also the start and end-points of geo-trails and building stone walks.

David Brook & Tom Hose

GeoConservationUK Newsletter

ENGLAND — *GeoSuffolk*

Open Day at the 'Pliocene Forest'

Suffolk's Coralline Crag is a Pliocene limestone packed with fossils – molluscs and other invertebrates abound, plus vertebrate remains and pollen. Dating at about 4 million years old, it is our oldest deposit to have some extant species (plus many extinct forms) and so records the beginning of our modern flora and fauna. It shows a 'Paradise Lost' of varied and exotic animals and plants, most of which were lost to Britain during the great Pleistocene glacials.

Five years ago, with a grant from the Geologists' Association's Curry Fund, GeoSuffolk embarked on an ambitious project to bring the Pliocene flora back to Britain, thus creating our 'Pliocene Forest'. It is based on work done by Professor Richard West who recorded the pollen profile of the Coralline Crag from a borehole at Orford in Suffolk in the 1960s. The fossil pollen is only specific to genera, so GeoSuffolk's tree specialist, Barry Hall, in consultation with Professor West, has sourced a variety of species from many parts of the world to represent the Coralline Crag genera.

Five years on we have 180+ trees, shrubs – *Metasequoia*, *Tsuga*, *Sciadopitys*, *Pterocarya* and many more - sponsored by geologists, friends and visitors. They have thrived in this last mild wet winter and spring – some are 2m+ tall and starting to 'paint the sky', many have fruiting bodies for the first time. The 'Pliocene Forest' is on part of the Rockhall Wood SSSI, which is privately owned, and GeoSuffolk has shown many visiting geological groups the Coralline and Red Crag exposures at this site and of course the Forest. However we have always wanted the opportunity to welcome the public in to see it and our chance arose this year on 15th June when Sutton (the parish in which the SSSI lies) opened its gardens to the public and welcomed us as part of their event.

The 'Pliocene Forest' Open Day - *(from left to right)* Prof. Richard West, Pinus radiata, Barry Hall, Dr Roger Dixon, Pinus coulteri, with *Cryptomeria japonica* in the foreground. [Copyright: Anita Blyth]

So, with the landowner's permission, we showed about forty people around our 'Pliocene Forest' along with the nearest Coralline Crag exposure. There were many people from Sutton itself, plus a large group from the Lowestoft area, some from Cambridgeshire, and some VIPs - Prof. Richard West, and Susan Brown from the GA Curry Fund. Sales of Barry Hall's booklet ***Pliocene Plant Profiles'***, created especially for the event, were brisk. Two more trees were sponsored and we made some new friends; we can post the booklet (£4 by post) to anyone who would like a copy - just email info@geosuffolk.co.uk. For more information on the Forest go to www.geosuffolk.co.uk and to see our two interpretive panels at Rockhall Wood.

Site Management in Suffolk

The Suffolk Coast and Heaths Area of Outstanding Natural Beauty has a varied and often unique geodiversity; GeoSuffolk has designated 18 County Geodiversity Sites (CGS), all with public access, within the AONB and there are also 25 geological SSSIs. Many of the exposures are in active marine cliffs, but six of the CGS are disused Crag pits and these require some management as their faces degrade and talus builds up over the years. The Coralline Crag (a 4 million year old limestone) is unique to Suffolk; its upper bed, locally known as the 'rock bed', has been used as a building stone. The Norwich Crag was laid down in coastal waters about 1½ -2 million years ago and represented the last major marine incursion across Suffolk.

ENGLAND — *GeoSuffolk* (cont.)

This autumn, under the guidance of GeoSuffolk (who also obtained the permissions), SCH AONB volunteers refreshed two of the Crag CGS – many thanks to them for the muscle power which made this possible.

Westleton Heath Pit

Having obtained permission to proceed from the RSPB (Westleton Heath is part of their Minsmere Reserve) and Natural England (it is also a biological SSSI) on 9th October eight volunteers assembled at the Pit *(see top right)*, at 9.30 am, in bright sunshine with a southerly breeze. Spades and wheelbarrows were the order of the day and work was started on the portion of the west face of the pit allocated by GeoSuffolk. The task was to clear the talus from a section of the face to enlarge the 1.5 m vertical exposure to about 3m. The Pit's Norwich Crag comprises sandy strata inter-bedded with layers of large cobbles – the 'Westleton Beds' named after the local area. The sands were much easier to dig out than the pebbles! Nevertheless, a pebble bed was exposed at the base of the section – a mirror to the one at the top with a sandwich of horizontally bedded sands in between. We hope that these refreshed sections of Pit's face will help visitors to consider past environmental change – from sea to land as the climate cooled at the onset of the Ice Age. Also our small 'windows on the past' should help with understanding the profound influence of the geology, with its high permeability and lack of clay minerals, on the heathland vegetation of the area.

Orford Castle Pit

Coralline Crag is used in the fabric of Orford Castle and it is likely that is was sourced in the pit, also the well in the castle's basement would have been dug through this rock to access the water table held up on top of the London Clay at depth. With permission needed from English Heritage, because Orford Castle and its associated earthworks is a Scheduled National Monument, it took some doing as the documents had to go all the way up to the Secretary of State. However, with EH's help it was achieved with 36 hours to spare! On 6th November, a beautiful sunny day saw 16 volunteers (word gets round!) assemble at the Castle at 9.30am with spades and rakes to tackle the vegetated talus build-up in the Coralline Crag pit *(see bottom right)*, south of the Castle. Work was undertaken along a section of the quarry face, clearing several small and overgrown exposures. By the end of the day, a 3m Coralline Crag face, displaying some large scale current bedding structures, had been exhumed from the accumulated debris and vegetation. The Pit's refreshed sections will help interpret the building and its site, together with providing a most attractive (geological) addition to the area by the historic earthworks.

The GeoSuffol website has details of our other sites and activities, even with suggestions for sites to visit this winter, so why not pay it a visit at info@geosuffolk.co.uk?

Caroline Markham

GeoConservationUK Newsletter

ENGLAND — *Dorset's Important Geological Sites Group*

Red Lane, Abbotsbury in September

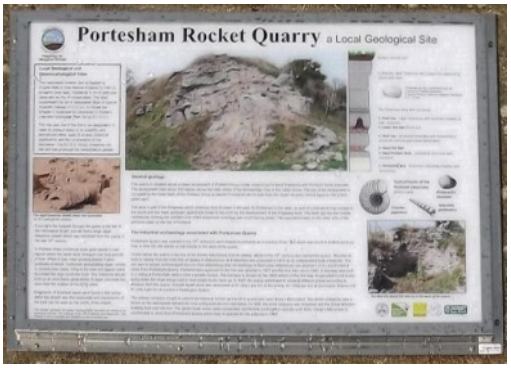
Red Lane in Abbotsbury is one of our DIGS sites that gets regular treatment to remove excess vegetation *(see top right)* covering the quarry's faces; this was recently rather expedited by a request from a group of Canadian geologists who wished to visit the site in early October. The link with them had been made through our revamped website which is also bringing in regular requests for information or help. After some brush cutting, using equipment bought through funds generated by site reporting to GCUK, a small group spent the rest of the morning clearing ivy and other overhanging vegetation to reveal the quarry's key features *(see middle, far right)*; this facilitated the viewing of the iron-rich oolitic limestone by the visiting Canadians. Fossils are sparse but one ammonite was found *(see middle, near right)*. For further information see our web-site link at:

http://www.dorsetrigs.org.uk/southwestrigs/abbotsbury/redlanequarry/

Portesham Farm (Rocket Quarry) in October

During recent months members of the DIGS group have been working on conserving the site and replacing its interpretation panels at our at our Portesham Farm (at Winters Lane, Portesham) Local Geology Site *(see right)*. This work required the redrawing of the artwork because the original electronic versions were no longer available. The old panel fixings, on the original stone pedestals, also proved somewhat difficult to remove. The new posters (printed by *LamArt* in Dorchester) were finally fixed on site in October *(see next page, top)*.

ENGLAND — *Dorset's Important Geological Sites Group* (cont.)



It is to be hoped these new panels, which describe the quarry's geology and geological setting (on the Weymouth anticline) anticline will also will last another fifteen years!

Alan Holiday

Quar Lane in November

A successful conservation session was undertaken, on 29th November, at Quarr Lane, Sherbourne.

This rather brought the site back to better than its November 2010 *(see top left* and November 2012 *(see top right)* states. Most of the group worked for a couple of hours, but Pat, Roger and Geoff carried on into the afternoon to really clear the site of excess vegetation *(see bottom right)*. As these three photos clearly show, capturing images, preferably from the same vantage point, of 'before' and 'after' conservation work are a good way of recoding progress on such work over time; they are also useful for benchmarking a site's condition prior to new conservation work and provide evidence to potential funding bodies of the nature and amount of physical work needed to maintain physical, let alone intellectual, access to geosites.

Alan Holiday & Tom Hose

GeoConservationUK Newsletter

SCOTLAND — *GeoHeritage Fife*

GeoHeritage Fife is a charity and fully-constituted society set up in 2000 to publicise Fife's geological heritage, to provide educational resources in geology, and to promote geotourism in Fife. It currently has 42 members. To date, geoHeritage Fife has produced eight leaflets which explain aspects of Fife's geology, has built a geological wall, recreated a Jurassic Garden and has erected plaques to two famous geologists in St. Andrews. It also organises excursions to explore Fife's geodiversity. In 2009, it commissioned grants worth £7700 to produce a plaster cast of a giant fossil arthropod trackway in Fife. In 2010, it organised a photographic competition which encouraged the public to observe Fife's geoheritage through the camera lens.

In 2012, geoHeritage Fife joined a consortium of local groups and charities in Fife, called the 'Living Lomonds Landscape Partnership' (LLLP) which bid to the Heritage Lottery Fund for a three-year multidisciplinary project to explore the natural, cultural, and built environment of the Lomond Hills area of Fife. The bid was successful and £1.7million was awarded to the consortium, led by Fife Coast & Countryside Trust, in August 2013; GeoHeritage Fife's share of this grant was around £23,000. GeoHeritage Fife will interpret the geological history of the Lomond's area and its relationship to the landscape. It will produce five interpretative leaflets covering diverse aspects of the local geology. The areas selected are East Lomond, West Lomond, Benarty, Bannet Stane & Glen Vale, and Bishop Hill.

The two Lomond Hills *(see right)* represent relict vents which have cut through the extensive Midland Valley quartz dolerite sill. Carboniferous fossiliferous limestones are well-exposed locally and an abandoned lime kiln tells of former industrial activity. Contact metamorphism can be demonstrated between once-molten dolerite and sandstone, and there are excellent examples of spheroidal weathering in the dolerite. Late Carboniferous sediments record a more arid environment with desert sand dune bedding evident in the rocks. Glacial features resulting from the last glaciation are preserved as kettle holes, glacial meltwater channels, erratics and drumlins. Recent wind erosion has carved spectacular pillars out of the friable sandstones. GeoHeritage Fife will build a cairn (containing examples of local rocks) to be sited in a public place and will produce a geological guide leaflet on the building stones of Falkland village.

Richard Batchelor

England - *Dorset's Important Geological Sites Group* (cont.)

On a visit to Monkton Wild Church, near Lyme Regis, DIGS group members they found that a James Harrison is buried there. Further research found that Harrison was a land-owner and doctor with an interest in fossil collecting in the 1850s. He recognised that some bones he had acquired from a quarryman working on the Charmouth cliffs were something special and sent them to a friend, Professor Richard Owen, who at the time was the leading authority in dinosaurs; the bones were of a small dinosaur subsequently named *Scleridosaurus harissonii*. These and other fossil finds by James Harrison are now in the Phillpot Museum, Lyme Regis. In mid-November, five DIGS members spent a couple of hours clearing vegetation *(see above right)* over the grave so that the final resting place of a fellow geologist can better appreciated.

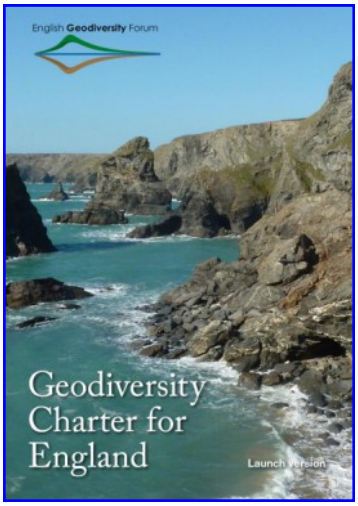
Alan Holiday

NEWS — *English Geodiversity Forum*

A Geodiversity Charter for England

The English Geodiversity Forum was established in 2013 and promotes England's geodiversity, seeking to widen the profile of, and support for, geodiversity and its influence on national and local policies. The Forum is open to all organisations and individuals who are interested in promoting England's geodiversity and sharing experience and good practice.

The English Geodiversity Forum has published a ***Geodiversity Charter for England*** *(see top right)*. This was launched at an MP briefing in Committee Room 11 in the Palace of Westminster on 21st October. The launch was a historic occasion, being the first time in England that a geodiversity initiative has received a Ministerial launch and the first time that the geological community working together has reached so many influential people, MPs and a Minister of State. It was wonderful to witness the excitement and the willingness to support the ***Charter*** by those present. It was drawn up by the English Geodiversity Forum (EGF), encourages everyone to work together to promote and manage England's geodiversity, and to ensure that it is better integrated into policy and guidance consistent with the economic, social, cultural and environmental needs of England. GeoConservationUK are supporters of the ***Charter*** and member groups are invited to add their support. Please let me know if you would like to do this or require further information.



Julian Smith MP for Skipton and Ripon facilitated the briefing and Lord de Mauley enthused on the importance of geodiversity to the country's resources and the fashioning of landscape, and the crucial part played in the industrial revolution, economic development, food and farming, and the countryside. He recognised the value of geodiversity in the National Planning Policy Framework (NPPF) and in SSSIs, National Parks, AONBs and the wider countryside especially for tourism. He saw it as the link between landscape, people and their culture.

The Westminster briefing *(see bottom right)* was an opportunity to celebrate geodiversity. It was the culmination of a period of hard work by many people; amongst these was Prof. Rory Mortimore who gave an excellent introduction about the concept of geodiversity. Using his wide experience, from industry and education, he was able to demonstrate how a knowledge of geology and an understanding of geodiversity is critical to being able, for example, to run engineering projects safely and successfully; further, he noted why education is important. Andrew Sells, *Natural England*'s Chairman, who commended the Forum on the quality and clarity of the Charter, concluded that *"The fact that we are all here today in Westminster is a very positive sign. I encourage everyone here to play their part and to work with or even join the English Geodiversity Forum in the months ahead."* The ***Charter*** is available, along with notes of the press briefing, for download on the web-site at www.englishgeodiversityforum.org . Everyone involved in geoconservation should be encouraged to read, and then support, the ***Charter***.

Lesley Dunlop

GeoConservationUK Newsletter

NEWS — *Scottish Geodiversity Forum*

Looking Back in 2014 and to the Future

The Scottish Geodiversity Forum greets 2015 with lots of energy and enthusiasm, after a very active year. We would like to highlight just a few recent developments; further information, and up-to-date news, can be found at the Forum's web-site www.scottishgeodiversityforum.org - or why not become a member of the Forum; it is free, and open to all!

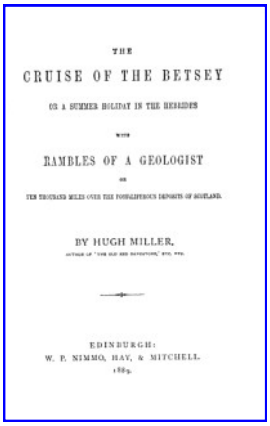
Scotland's three Geoparks have undergone a transformation in 2014, with Scottish Government funding creating the opportunity to develop exciting new plans. These range from opening visitor centres, running residential trips, and to cooperating with other Geoparks across the Northern periphery region — from Canada to Russia.

The Forum's autumn conference, on writing about geodiversity, was a great success, with a very diverse audience travelling from the ends of the UK and representing almost the full range of geoconservation groups, Geoparks, universities and other organisations that are involved in the Forum. There was lots of 'buzz' and some very positive engagement with ideas of how we can better get our message out to the general public.

We have had some success too in engaging with *Visit Scotland*, the national tourism agency, and will be developing further tourism links as we lead up to a major conference with *Scottish Natural Heritage* in November 2015, which will try to switch on those working with visitors to the geodiversity underpinnings of Scotland and all the links with history, scenery and people.

The Forum also supported the Cruise of the Betsey, a voyage around the Inner Hebrides, in homage to Hugh Miller and as written up in his well known book of the same title *(see right)*. Lots of partners were involved in this project; there was some excellent community engagement and an unforgettable voyage for the crew — further details can be found at the web-site:

https://cruiseofthebetsey.wordpress.com/.


THE
CRUISE OF THE BETSEY
RAMBLES OF A GEOLOGIST
BY HUGH MILLER.
EDINBURGH:
W. P. NIMMO, HAY, & MITCHELL.

This particular project ties in with an fossil open day at the Our Dynamic Earth centre in January 2015, where Scotland's palaeontology community will come together to share the nation's fossils with the general public; We will also formally launch the Fossil Five poll to choose Scotland's favourite fossils — more on that as 2015 progresses!

Angus Miller

NEWS — *New Environmental Geoscience Degree*

A unique new degree in Environmental Geoscience has been launched, in collaboration with the British Geological Survey, at The University of Nottingham. It has, according to a press release, *". . . welcomed its first students who benefit from the expertise of staff from the world's oldest national geological survey and the United Kingdom's premier centre for earth science information and expertise as well as internationally renowned academics in one of the leading Geography departments in the country."* Because 21st century environmental geoscience is about people and their interaction with the environment the course, amongst other things, looks at how people use natural resources such as building materials, groundwater, oil and gas, and how their respective environmental and social impacts are managed. The University's Professor of Engineering Geology, Paul Nathanail, believes: *". . . it fills a gap in University provision and will provide graduates with the skills and knowledge to help protect and manage our fragile home."* He is particularly looking forward to working with colleagues from the BGS and also leading the final year field-trip to Cyprus. *(continued, bottom of page 13)*

NEWS — *Threat to Todmorden Moor Fossil Site*

An important fossil site, both for Yorkshire and the UK, is threatened by possible development. A proposed access track, for forestry management purposes, could destroy the only location in the UK for some exceptionally preserved plant fossils, that were very significant in the development of palaeobotany in the nineteenth century, and they are still being researched today.

Todmorden Moor lies on the high Pennines between Yorkshire and Lancashire. Life must have been tough for the mining community who the exploited coal seams from the Upper Carboniferous sandstones and mudstones of the area. Miners extracted coal and fireclay, the fossil soils in which the Carboniferous trees grew, to make bricks and pipes. The Moor has many old mine shafts, mine entrances, spoil tips and even an old tramway.

Many of the Moor's spoil tips (*see top right* - in which members of the Rochdale Naturalists are looking at one) yield, on careful examination, fossils such as bivalves and goniatites within hard carbonate nodules. The coal seams are an important source of 'coal balls' *(see middle right)* which were studied by Marie Stopes and other palaeobotanists. They contain beautifully preserved plants in which each individual cell has been replaced by calcite. A 'coal ball' containing tiny shark denticles has recently been found; research has shown that this is an entirely new species of shark. Hence the site is significant for both historical and scientific reasons.

Local people recently established a geological trail, with several interpretation boards, giving information about the Moor's mining heritage. Further information on the trail, supported by the Pennine Prospects' "Watershed Landscapes Project" and Heritage Lottery funding, can be found on the West Yorkshire Geology Trust (WYGT) website at:

http://www.wyorksgeologytrust.org/misc/Todmorden%20Moor%20geology.pdf

The WYGT has also published a short illustrated guide *(see bottom right)* to the Moor.

The forestry track, as currently proposed, would destroy the fossil site. It is very unfortunate that no consultation with local people or the geological community has seemingly taken place prior to the planning. Many of us within the local and geological communities are objecting to this planning application, which expires on 25th December 2014. If you wish to comment, please contact Alison Tymon at

alison@wyorksgeologytrust.org

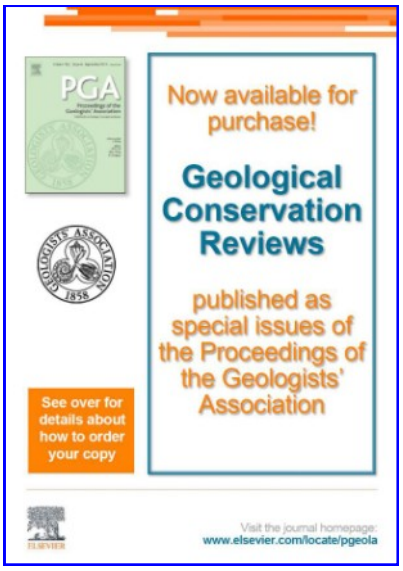
as soon as possible.

Alison Tymon

GeoConservationUK Newsletter

NEWS — *The Geological Conservation Review*

The Geological Conservation Review (GCR) is a milestone in geo-conservation. It identified sites, of national and international importance, that demonstrate the key elements of Earth History within Great Britain. It forms the basis of statutory geo-conservation in Great Britain; a site must be a GCR site before it can be considered for protection as a Site of Special Scientific Interest (SSSI). The scientific description of each GCR site is still being published in a series of GCR volumes incorporating the insights and expertise of generations of leading geologists.



Some 34 volumes were published by the *Joint Nature Conservation Committee* (web-site: http://jncc.defra.gov.uk/page-2731); many more were planned. In 2011, the Geologists' Association took over publication of further volumes through Special issues of the ***Proceedings of the Geologists' Association*** (PGA). Essentially, each volume provides exceptional reviews of current knowledge, plus a series of geological site descriptions (extremely useful to assist field excursions). Three Special Issues have been published in the PGA and others are planned during the next few years. Also, it is intended that descriptions of any new GCR sites to emerge will be published in the PGA. Electronic PDF files of chapters within the Special Issue GCR volumes are available via the PGA website; in addition. hardback and softback copies of these Special issues can be purchased (on-line) from Elsevier - our publication partner. The following volumes are available for purchase:

- *The Marine Devonian of Great Britain* [**PGA** (2011) Volume 122, Issue 4]
- *The Non-marine Lower Cretaceous Wealden Strata of Southern England* [**PGA** (2012) Volume 123, Issue 2]
- *The Dalradian Rocks of Scotland* [**PGA** (2013) Volume 124, Issues 1-2]

We expect to publish the following volumes during the next two years:

- *Quaternary of East Anglia and the Midlands*
- *Quaternary of Southern England*
- *The Jurassic-Cretaceous Transition in Southern England*

Further volumes are expected once these are completed.

Graham M Williams

NEWS — *New Environmental Geoscience Degree* (cont.)

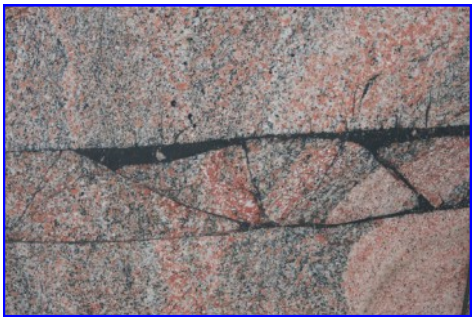
Professor Mike Stephenson, BGS Director of Science & Technology considers it: *". . . is a fantastic opportunity for the BGS to contribute to the development of the next generation of geoscientists who will be responsible for driving forward research and problem-solving in applied geoscience."* He also believes *"There is a pressing need to train experts that are equipped to understand and deal with big societal challenges such as energy and water resource needs and environmental hazards. This new degree course will combine knowledge, expertise and resources from the BGS and the University to equip future scientists to meet these fundamentally important environmental geoscience challenges."* This new programme builds on recent collaborations between The University of Nottingham and the BGS. Details of the new degree can be found on the University of Nottingham web-site at

http://www.nottingham.ac.uk/ugstudy/courses/geography/environmental-geoscience-bsc.aspx

Tom Hose

FEATURE ARTICLE - *Why is it important to study building stones?*

Study of the built environment is very much on the radar of modern architects, engineers and archaeologists, and should be so for geologists too. The streets of the World's cities provide opportunities to examine stones *(see top right)* quarried from all over the planet. Take London for example, a city developed on the Thames but without a source of sound building stone. The Romans brought in Kentish Rag Stone and Reigate Stone from Kent and Sussex. Following the great fire of London, a monumental stone was required for the new, monumental architecture, and Portland Stone was introduced from Dorset. The building of the railways in the 19th Century brought granite to the city and today stone is shipped in from all corners of the Earth.

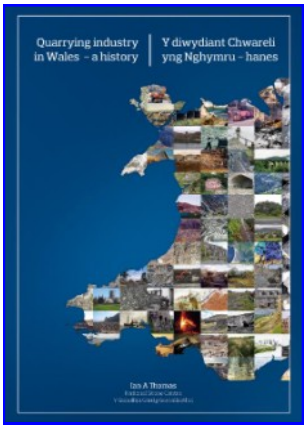


These unnatural outcrops are an amazing learning & teaching resource, from where very basic observational and recording skills, such as recognising fossils, can be advanced through indentifying minerals and textures and, therefore, characterising and naming rocks. Such skills are applicable at teaching from school to HE level; advanced level teaching can be enhanced from object-based learning on a grand scale. The Rustenburg Gabbros of the Bushveld Complex or the impact brecciated gneisses of the Vredefort Dome *(see bottom right)* can be viewed after a short bus ride rather than an expensive flight to South. Of course we are not seeing these rocks in their natural environments, but textures and mineralogy are extremely easy to observe.

Obviously, a knowledge of building stones is essential to the conservation of our built environment. The identification and provenancing of stone in heritage buildings requires specialist training. However, this can be learned and applied by geologists who have an understanding of building stone trade across the ages. Even the casual urban geologist can learn much about the social and architectural histories of cities through their building stones. If you are interested in this, a good way to learn more is to join a building stone walking tour or take a self-guided tour. These exist for many cities in the UK and information can be obtained from the British Geological Survey or regional branches of the Geologists' Association, as well as a variety of online resources. Such excursions are enjoyable activities for those interested in seeing their home town with new eyes.

Ruth Siddall

News - publication of *'Quarrying industry in Wales - a history'*



This new 224 page bilingual publication, by the National Stone Centre, covers the development of the Welsh quarry industry. It significantly benefited from the support of the Aggregates Levy Fund (Wales) and, under their terms, specifically excludes slate and generally building stone. It has already been described as the first 'coffee table book on quarrying' but that belies the considerable technical detail recording the transformation of the industry from past family ventures to today's multi-million tonne producers. The country is divided into eleven areas each prefaced by a short description of the local geology before the detailed descriptions of specific quarries. Most of the copies will be distributed free to educational institutions and interest groups in Wales; at the time of going to press, decisions by the Welsh Government on this process and on selling other copies are awaited. In the interim, please register your interest with its author (Ian Thomas) using the subject '*Quarry Industry in Wales'* via ian@nationalstonecentre.org.uk

Ian Thomas

GeoConservationUK Newsletter

MEETINGS and CONFERENCES - *William Smith 2015*

HISTORY OF GEOLOGY GROUP

William Smith Meeting 2015

200 Years of Smith's Map

Conference: 23-24 April 2015
Geological Society, Burlington House, London
Field excursion: 25 April 2015

The History of Geology Group (HOGG) is organising the Geological Society's flagship William Smith Meeting 2015 to celebrate publication of the first geological map of a nation 200 years ago.

William Smith (1769 –1839) was an English geologist who created the first nationwide geological map. In 1794, working as a surveyor on the construction for the Somerset Coal Canal, Smith recognised that each stratigraphic horizon contained a unique assemblage of fossils. This enabled him to work out the order of strata from the fossils they contained. From 1799 he mapped local strata, eventually creating the first geological map of England and Wales, published in 1815. In the interim, his ideas were widely disseminated throughout the geological community. Like many new theories they took time to become accepted. In 1831 the Geological Society of London awarded Smith the first Wollaston Medal and the President, Adam Sedgwick, referred to him as 'the Father of English Geology'.

This bicentenary meeting aims to address:

- Smith's achievements and his impact on the state of geology in his time, his fossil collection, his contemporaries, his relationship with the Geological Society of London, and his various careers including canal builder, land drainer, mineral surveyor and lecturer.
- Smith's map, '*Delineating the Strata of England and Wales with Part of Scotland*', contemporary concepts of geological survey and map design, and past and present research into surviving Smith maps, sections and documents.

Call for Papers: We are pleased to invite all interested participants to submit abstracts for oral presentations on topics of relevance. Presentations should last 25 minutes. International contributions are most welcome, although no financial assistance can be given. HOGG will provide a letter of invitation on request. 500-word abstracts should be submitted by **31 August 2014** to John Henry: wmsmith2015@gmail.com

Confirmed keynote speakers: Professor Simon Knell, Professor Hugh Torrens, Dr Tom Sharpe

Posters: Given the fundamentally graphic contribution of William Smith to geology, posters are also invited and it is intended that short presentations of selected posters will be addressed to the conference audience prior to the poster sessions. 250-word abstracts should be submitted by **24 August 2014** to John Henry: wmsmith2015@gmail.com

Publication: It is intended that the conference proceedings will be published as a Geological Society Special Publication. Speakers will be strongly encouraged to contribute to this. Please indicate your willingness to contribute a paper when submitting your abstract. Suggestions for written contributions to supplement the proceedings from the conference are also invited.

Field and other visits: During the conference we aim to visit Smith's fossil and rock collections at the Natural History Museum, and to unveil a plaque on Smith's London house. An evening celebratory dinner is also planned. On Saturday 25 April we will visit the Smith Archive at the Oxford University Museum of Natural History, and Smith's birthplace and the Smith Heritage Centre in Churchill village.

Event organisers: David Williams, Cherry Lewis, John Henry

For further information please e-mail: wmsmith2015@gmail.com

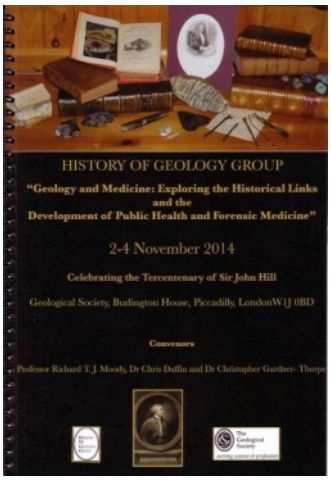
GeoConservationUK Newsletter

MEETINGS and CONFERENCES

GeoConservationUK acknowledges the support of ***Rockhounds Welcome!*** in the production of this *Newsletter*

Geology and Medicine: Exploring the Historical Links

Having missed, due to prior commitments, the first day and Sunday's field excursion (to follow in the footsteps of James Parkinson in my old Shoreditch haunts *(see top right)*) for this conference the quality and interest of the presentations on the last day rather reinforced how much of a loss it was to me and anyone else not present! I joined, on 4th November, over fifty international delegates assembled in the Geological Society's Janet Watson Lecture Theatre (*see near middle right)* and the Lower Library (for coffee and to view the posters *(see lower right)*. Tuesday's presentations ranged across a couple of millennia and disparate locations, from ancient Greece, through Medieval times, to 19th century London; South America Italy, and the Aegean were also visited. Of particular personal interest was *' Nathaniel Hodges and the Purging Wells of Shooters Hill'* .



Meanwhile, perusal of the high-quality Abstracts Book *(see bottom far right)* means I really do not want to wait too long for the publication of the anticipated conference volume that will be a fitting companion to the one *(see bottom right)* from the preceding geology and medicine conference. Further information on this and past and future HOGG conferences and events can be found on the Group's web-site at:

http://historyofgeologygroup.co.uk/

Tom Hose