

HOGG

**Newsletter of the
History of Geology Group
of The Geological Society (GSL)**



**Number 58
October 2016**

Front cover

Charles Dawson (1864–1916), solicitor, amateur archaeologist and fraudster.

New tests on the human-like skull fragments and an ape-like jaw with two teeth (the supposed remains of the so-called Piltdown Man) show that they came from two or three humans and one orangutan. A multi-disciplinary team including palaeobiologists, historians, dental experts and ancient DNA specialists, led by Dr Isabelle De Groote, has concluded that the forged fossils were made by the prime suspect and ‘discoverer’ Charles Dawson. The research, which was widely reported in the national press, is published in *Royal Society Open Science*, 10 August 2016 DOI: [10.1098/rsos.160328](https://doi.org/10.1098/rsos.160328).

Image: en.wikipedia.org

Editorial subcommittee

Beris Cox (e mail: beris.cox@btinternet.com)

David Earle (e mail: daearle@btinternet.com)

The HOGG newsletter will be issued in February (copy deadline 31st January), June (copy deadline 31st May) and October (copy deadline 30th September).

HOGG NEWSLETTER 58

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LETTER FROM THE CHAIR



As geologists used to working with spans of millions of years, I'm sure you find, as I do, that human timescales are almost incomprehensibly rapid. In the blink of an eye, here we are already with our third newsletter of the year, and with the last few months of 2016 beckoning. I have missed most of summer in the UK, such as it was, as I have been bobbing about on boats in the Arctic, largely between Alaska, Greenland and Iceland, and exploring the legendary North West Passage. I have found myself at some classic geological sites, and had a lot of fun, in the company of other geologists, along the outcrop of the ancient Amitsoq Gneiss in West Greenland and on the Skaergaard (did you know it's pronounced "skargow"?) Peninsula on the East Greenland coast; this is a textbook example of a layered basic intrusion made famous by the explorations of Wager and Brown between the 1930s and 1950s. The story of our understanding of Greenland's geology is fascinating; this is the land of Lauge Koch, Robert Peary and the Cape York meteorite, and the death of Alfred Wegener.

While I have been away, my HOGG committee colleagues have been holding the fort, most notably with an exploratory visit to Alexander Pope's geological grotto. Expect to hear more soon of this fascinating site and its future potential. Sabina Michnowicz has been working on changes to our website, so look out for a new layout there and we hope too, through Cherry Lewis and Leucha Veneer, to keep you posted with HOGG news through JISCmail, Facebook and Twitter.

Coming soon, we have our AGM on 16th November and I hope to see many of you there. Ted Rose has put together a wonderful programme for the day, including several contributions from overseas (details on pages 5–6 of this newsletter). He has also cajoled the contributors to put pen to paper—or at least fingers to keyboard—to produce the content for a Geological Society Special Publication on military aspects of engineering geology, past and present.

A few weeks later, on 8th December, Dick Moody has arranged a great programme for a meeting at Burlington House to commemorate the life and work of Bob Symes, a long-standing member of HOGG who died earlier this year (details on page 7). I'm sure we'll see a good turnout there of Bob's many friends and colleagues.

Looking further ahead, we have a fascinating weekend coming up next May which Cherry Lewis has organised to show us something of the geological importance of the Forest of Dean and, in particular, the work of David Mushet and William Smith. Cherry has arranged a great inclusive package of accommodation, meals and travel for the weekend. Numbers are limited, so make sure you get your booking in soon for what promises to be a great weekend (see pages 8–9).

Tom Sharpe
email tom@tomsharpe.co.uk

October 2016

HOGG COMMITTEE 2016

Chairman Tom Sharpe **Vice Chairman** Geoffrey Walton **Secretary** Chris Duffin
Treasurer/ Membership Secretary David Earle
Ordinary members: Beris Cox (**newsletter**), Stephen Cribb, Jill Darrell,
Sabina Michnowicz (**web officer**), Ted Rose.

HOGG WEBSITE

The HOGG web officer **Sabina Michnowicz** (s.michnowicz@ucl.ac.uk) co-ordinates material for inclusion on our main website <http://historyofgeologygroup.co.uk/>. The site provides easy access to all aspects of HOGG including details about our meetings and the facility for online registration and payment, as well as subscription renewal. Please contact Sabina if you have any queries or items for inclusion. We also have a presence at www.geolsoc.org.uk/ where you will find some useful resources.

HOGG NEW MEMBERS

HOGG welcomes the following new members

Roy Hartley (Bath, Somerset)
Frank Hay (Church Stretton, Shropshire)
Sam Shingleton (Surbiton, Surrey)

HOGG AGM 2016

This year's AGM will be held at 12.30 pm on Wednesday 16th November 2016 in the Janet Watson Lecture Theatre at Burlington House, Piccadilly, London.

NOMINATION FOR HOGG COMMITTEE 2017

There is a single vacancy on the HOGG committee for 2017. Ordinary committee members normally serve for three years, starting on 1st January following the AGM at which they were elected. Committee meetings, which committee members are expected to attend (travel expenses paid), are held at Burlington House four times each year (usually in January, April, June and September).

If you are willing to assist in the general running of HOGG, have an idea for a future meeting, or would be interested in convening a meeting, please contact either the chairman Tom Sharpe (tom@tomsharpe.co.uk) or the secretary Chris Duffin (cduffin@blueyonder.co.uk).

Names of those prepared to stand for election must be received at least 14 days before the AGM (i.e. by **1st November 2016**).

FUTURE HOGG EVENTS

2016

***MILITARY ASPECTS OF ENGINEERING GEOLOGY, PAST AND PRESENT**

Wednesday 16th November 2016

Burlington House, Piccadilly, London including HOGG 2016 AGM

A joint meeting with the GSL's Engineering Group, convened by Ted Rose and Dr Judy Ehlen, to mark the centenary of the year in which (Sir) Edgeworth David was deployed on the Western Front, the first "engineering geologist" to serve as such with the British Army in combat.

Programme and speaker details on pages 5–6 of this newsletter; registration form on page 23.

Alternatively, view all details and register online at

<http://historyofgeologygroup.co.uk/november-2016-military-aspects-of-engineering-geology-past-and-present/>

[Deadline for registration is 2nd November 2016.](#)

***A COMMEMORATIVE MEETING TO CELEBRATE THE LIFE AND WORK OF
ROBERT F. SYMES OBE, 1939–2016**

Thursday 8th December 2016

Burlington House, Piccadilly, London

This one-day meeting has been convened under the auspices of the Geological Society of London and HOGG, in association with the Geologists' Association, the Ussher Society, the Russell Society and the Harrow and Hillingdon Geological Society.

Further details on page 7 of this newsletter.

2017

***WEEKEND MEETING:**

THE HISTORY OF GEOLOGY AND MINING IN THE FOREST OF DEAN

19th–21st May 2017

Forest of Dean, Gloucestershire

Convenor: **Cherry Lewis**

Details on pages 8–9 of this newsletter.

PLEASE NOTE: Reservations need to be made by 15th October 2016.

***THE SOCIETY OF ARTS AND THE ENCOURAGEMENT OF MINERALOGY AND
GEOLOGY—1754–1900**

Thursday 9th November 2017

Burlington House, Piccadilly, London (including HOGG 2017 AGM)

A joint meeting with the William Shipley Group for RSA History

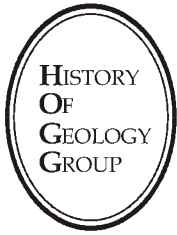
First Call for Papers on page 10 of this newsletter.

AND PROVISIONALLY

***WEEKEND MEETING AT LYME REGIS, DORSET**

Autumn (?late October) 2017 led by Tom Sharpe

The meeting will be based at Lyme Regis Museum which is due to re-open in July 2017 following building works. The proposed theme of the meeting is the history of Lyme Regis geology.



MILITARY ASPECTS OF ENGINEERING GEOLOGY: PAST AND PRESENT

Burlington House, Piccadilly, London
Wednesday 16th November 2016



PROGRAMME

09.00–09.25 REGISTRATION

09.25–09.30 Ted Rose *Introduction*

09.30–10.00 John Mather (Emeritus Professor of Earth Sciences, Royal Holloway, University of London, UK) *Water supplies to maritime and coastal defences: a story of risk and innovation*

10.00–10.30 Tony Brook (West Sussex Geological Society, UK) *Response to the Napoleonic threat of invasion in 1804: canals, coastal forts and cartography of south-east England*

10.30–11.00 COFFEE BREAK

11.00–11.30 Danny Harrelson (Engineer Research Development Center, US Army Corps of Engineers, Vicksburg, USA) *Geologic influence of the Great River Raft on the Red River Campaign of the American Civil War*

11.30–12.00 Peter Doyle (Visiting Professor of Geology, University College London, UK) *Geology and military mining: Gallipoli and the Western Front, 1915-1918*

12.00–12.30 Dierk Willig (Head of Geology, Hydrology & Geophysics, Bundeswehr Geoinformation Centre, Germany) *German military mining and military geology on the Eastern Front in the Great War*

12.30–13.30 LUNCH BREAK (to include **HOGG AGM**). Sandwich lunch provided in Lower Library

13.30–14.00 Ted Rose (Honorary Research Fellow in Earth Sciences, Royal Holloway, University of London, UK) *Quarrying Companies Royal Engineers: a geology-related innovation stimulated by World War*

14.00–14.30 Hermann Häusler (Professor of Geosciences, University of Vienna & Colonel, Reserve Army, Austria) *The northern Atlantic Wall: German engineering geology work in Norway during World War II*

14.30–15.00 Florian Malm (Bundeswehr Geoinformation Centre, Germany) *One hundred years of cross-country mobility prediction for military purposes*

15.00–15.30 Paul Nathanail (Professor of Engineering Geology, University of Nottingham, UK) *The impact of the Military Engineering Experimental Establishment (M.E.X.E.) approach to terrain evaluation*

15.30–16.00 TEA BREAK

16.00–16.30 Eddie Bromhead (retired Professor of Engineering Geology, University of Kingston, UK) *The landslide-damaged Roman era fort at Lympne, Kent*

16.30–17.00 Deodato Tapete (British Geological Survey, Keyworth, UK) *Coastal processes that have led to the loss of sites of British military heritage*

17.00–17.30 Sandy Mackay (ALYSJ joint venture, Doha, Qatar) *Engineering geological considerations for the 'Old' Beacon Railway Tunnel, Hong Kong Special Administrative Region: a route denied to the invading Japanese in World War II*

17.30–17.35 CONCLUDING REMARKS

CONVENORS

Edward P.F. Rose (e-mail ted.rose@earth.oxon.org) **Judy Ehlen** (e-mail judyehlen@hotmail.com)

SPEAKERS

John Mather graduated from Liverpool University (PhD, DSc) and enjoyed a career with the British Geological Survey, finally as Assistant Director and Head of its Geochemistry and Hydrogeology Directorate. He became Lyell Professor of Geology at Royal Holloway, University of London, in 1990, and was appointed an emeritus professor on retirement.

Anthony Brook graduated from Manchester University with a degree in Geography and Geology, followed by a research degree in the USA from Ohio State University, and a career in teaching and lecturing. After retirement, he has served on the HOGG committee and the Geologists' Association council, and contributes regularly to various journals.

Danny Harrelson graduated from the University of Southern Mississippi (BS and MS degrees in geology) and is presently employed as a research geologist for the US Army Corps of Engineers, at its Engineering Research and Development Center in Vicksburg, Mississippi. His current research includes the geological analysis of military strategies.

Peter Doyle graduated from London (PhD University College) and developed an academic career that led to a personal chair in geology at the University of Greenwich. He subsequently developed a career as a consultant geologist, an editor (currently of *Geology Today*), and an author/TV contributor associated with a wide range of military historical topics.

Dierk Willig graduated from the University of Würzburg (Dr. rer. nat.) and developed a career as a civilian military geologist within the German Army but also a strong record of publication on historical topics. He leads the Geology/Hydrology/Geophysics Division at the Bundeswehr Geoinformation Centre of the German Army, and holds the reserve army rank of lieutenant colonel.

Edward P. F. Rose graduated from the University of Oxford (MA, DPhil) and lectured on geology in the University of London (Bedford College, later at Royal Holloway) until retiring to an Honorary Research Fellowship in 2003. He served meanwhile in the Territorial Army from 1960–1990, from 1969–1990 as a military geologist, finally in the rank of colonel.

Hermann Häusler, having studied at three universities in Vienna, was appointed a Professor of Geology in the University of Vienna in 1989. He is also a colonel of the higher military technical service within the Austrian reserve army, and head of the Working Group 'Defense Geology' of the Austrian Geological Society.

Florian Malm graduated from Mainz University (Dipl. Geol & Dr. rer. nat.) as a hydrogeologist with special interests in applied geology and geothermics. He currently leads a specialist section within the Geology/Hydrology/Geophysics Division at the Bundeswehr Geoinformation Centre of the German Army.

Paul Nathanail graduated from Cambridge (MA) and Imperial College (MSc, PhD). His career spans research, teaching and consultancy in environmental and engineering geology. He is the University of Nottingham professor of engineering geology and course director of the BSc Environmental Geoscience. He delivered the Engineering Group's Glossop Lecture in 2009.

Edward Bromhead graduated from Portsmouth and followed the Imperial College Soil Mechanics MSc; later a PhD. He worked in London-based consultants, but spent most of his career at Kingston University (formerly Polytechnic), retiring in 2013 as a professor. Glossop Lecturer in 2011, he is currently Chief Scientific Editor of the *Quarterly Journal of Engineering Geology & Hydrogeology*.

Deodato Tapete graduated from the universities of Bologna (MSc) and Florence (BSc; PhD in Engineering Geology). A Fellow of the UK's Higher Education Academy, he specializes in applied geology and remote sensing for the preservation of historic buildings and urban environments as the Applied Urban Geologist at the British Geological Survey.

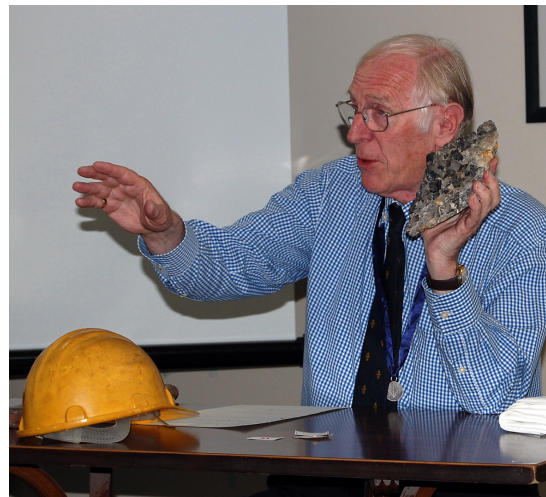
Alexander ('Sandy') Mackay is a chartered geologist and mining engineer with about 30 years of professional experience, practicing mainly in Hong Kong for the past 20 years. He has held Corporate and Project Management positions on construction projects, ranging in capital cost up to US\$ 23 billion (Sakhalin Island, Russia); he specializes in sub-surface design and construction.

Registration form on page 23 of this newsletter or register online @
<http://historyofgeologygroup.co.uk/november-2016-military-aspects-of-engineering-geology-past-and-present/>

**A COMMEMORATIVE MEETING TO
CELEBRATE THE LIFE AND WORK OF
ROBERT F. SYMES OBE, 1939–2016**

Thursday 8th December 2016

Burlington House, Piccadilly, London, UK



This one-day meeting has been convened under the auspices of The Geological Society and HOGG, in association with the Geologists' Association, the Ussher Society, the Russell Society and the Harrow and Hillingdon Geological Society. The contributions listed below reflect Bob's contribution to mineralogical research, museum activities, earth science education, public outreach and the mineralogy of the Mendip Hills, the minerals and geology of Cornwall and Devon, and the North of England.

Convenors: Richard Moody (Kingston University), Roy Starkey (Russell Society), Andrew Fleet (NHM London), Jenny Bennett (Ussher Society)

Speakers:

- Dick Moody *Bob and the Geologists' Association*
- Brian Young *Minerals of Northern England*
- Roger Le Voir *10 Years at Sidmouth Museum*
- Ron Cleevely *The use of archive material to enhance our knowledge of mineral collecting in the past*
- Alan Hart *35 Years' influence*
- Rick Turner *Beyond Symesite—Mendip experiences with Bob Symes*
- Roy Starkey *Bob Symes and Sir Arthur Russell*
- Richard Scrivener *Devonshire Shining Ore: micaceous hematite from NE Dartmoor*
- John Mather *Sidmouth geology and geologists*
- Frank Ince *Vanadium chemistry, vanadium geochemistry and UK vanadates*
- Alec Livingstone *Museums, collections and mineralogy: an overview*

Accepted abstracts will be printed in the Conference Abstracts Book which will be made available to authors and delegates on the day of the conference. Specific papers may be considered for inclusion in a special publication.

Contact addresses:

Dick Moody (e-mail rtj.moody@virgin.net mobile +44 (0) 7973273623); Roy Starkey (e-mail roy.starkey@gmail.com home +44 (0) 1527 874101); Jenny Bennett (e mail jenny.bennett@rocketmail.com); Andrew Fleet (e.mail ajfleet@btinternet.com)

There will be a registration fee of £10.00 to cover teas and coffee, and £12 for an optional evening reception. To register, please fill in the details below and send, with a cheque payable to HOGG, to David Earle (HOGG Treasurer) 61 Straight Road, Old Windsor, Berkshire, SL4 2RT.

Name.....

Email.....

Address.....

.....

Telephone.....

Registration Fee..... **Reception** (optional).....

THE HISTORY OF GEOLOGY AND MINING IN THE FOREST OF DEAN



Bluebells in the Forest of Dean

DATE: 19th–21st May 2017

LOCATION: Forest of Dean, Gloucestershire

Maximum number of participants: 20

CONVENOR: [Cherry Lewis](#)

In order to reserve rooms at this very popular hotel it is necessary to pay a deposit of £12.50 by 15th October 2016. See payment details below.

CONDITIONS: One short steep section, but otherwise nothing too strenuous. Strong footwear recommended.

Iron has been mined in the Forest of Dean since prehistoric times, and coal since at least Roman times, but how and when did an understanding of its geology evolve? This two-day field trip will explore the unique history of ‘free’ mining in the Forest of Dean, and how a gradual understanding of its geology facilitated exploration for these resources. A list of some of the places we will visit can be found on the next page.

The weekend will be based in the historic 17th century [Speech House Hotel](#). Located in the centre of the Forest, the Speech House once housed the Forest’s court in which the [Verderers](#) dealt with offences and managed the Forest’s game, wood and mineral resources. The dining room is now located in the court room where most of the original features have been retained.



Miners Memorials

COSTS: These are still to be finalised but will be in the region of £200 per person sharing a room at the Speech House Hotel (single room supplement, £20 per night). This price includes two nights’ bed and breakfast, dinner on Friday night (at the Speech House), two packed lunches, travel to sites (by small coach), entrance to all mines and museums, and a comprehensive field guide. The only additional costs will be dinner on the Saturday night and anything you spend at the bar.

Deposit required before 15th October 2016

If you wish to reserve a place on this trip and are happy to **share a room** (we will pair you with somebody if you do not know who to share with), please pay a deposit of £12.50.

If you wish to reserve a place on this trip and require a **single room**, please pay a deposit of £32.50.

To make life easy for us, you can pay online at

<http://historyofgeologygroup.co.uk/the-history-of-geology-and-free-mining-in-the-forest-of-dean/>

If you do not wish to pay online, please send a cheque for the appropriate amount, stating whether you require a single or shared room, to:

HOGG Treasurer, 61 Straight Road, Old Windsor, Berkshire, SL4 2RT.



THE FIELD TRIP

We will be accompanied by two experts on the history and the geology of the area, one of whom is a present-day Verderer. While we will be introduced to the Forest of Dean's geology, the main objective is to comprehend what it was like trying to find iron and coal when the geology of the area was poorly understood. Some of the places we will visit include:

- [New Fancy Geomap](#)—for an overview of the area's geology. This stone map, in which the strata are depicted by samples of the rock they represent, celebrates the geological and industrial history of the Forest of Dean.
- The Scowles (pictured left)—the labyrinthine and atmospheric remains of ancient iron mines. A well-preserved 18th century lime kiln can also be seen.
- [Bixslade Valley](#)—where we will walk in the footsteps of many of geology's great names: William Smith, John Farey, David Mushet, William Conybeare, William Buckland and Thomas Sopwith, to mention but a few. Bixslade has been mined and quarried for over 500 years and many abandoned workings are still evident.
- [Hopewell Colliery](#)—a guided tour by a free miner around a rare example of a working free mine in which coal is still mined.
- [Clearwell Caves](#)—a guided tour of these ancient and vast caverns where iron ore has been mined for millennia, and from where its famous multi-coloured ochre is still extracted and sent around the world.
- The Suckstone—reputedly the largest block of detached rock in the British Isles. Lying beneath a spectacular overhang from which it has fallen, this huge boulder of Old Red quartz conglomerate stands above the River Wye near the village where David Mushet is buried.
- [Dark Hill Ironworks](#)—scheduled as an Ancient Monument of national importance, David and Robert Mushet first developed steel used in railway lines on this site.
- [Dean Heritage Centre](#)—to visit Thomas Sopwith's unique geological model of the Forest of Dean, depicting the underground workings and minerals. We can also see a working beam engine. For those with an interest in literature, DHC hosts [Dennis Potter's archive](#) and an exhibition about his life and works.



Bixslade Mine

Further details will be distributed in due course but to guarantee a place on this trip, please ensure you reserve your room at the Speech House Hotel **by 15th October 2016**.



**THE WILLIAM
SHIPLEY GROUP
FOR RSA HISTORY**

The Society of Arts and the Encouragement of Mineralogy and Geology 1754–1900

A joint meeting of the History of Geology Group of the Geological Society and the William Shipley Group for RSA History is to be held on 9th November 2017 at the Geological Society, Burlington House, Piccadilly, London.

First Call for Papers

The Society for the Encouragement of Arts, Manufactures and Commerce, founded in 1754, was a quintessential enlightenment organisation dedicated to raising the standard of life through encouraging invention, discovery and improvements. To this end, it instituted a series of awards covering a broad spectrum of endeavour. Prizes in the field of chemistry, cartography, and land reclamation encouraged the emerging science and field practice of mineralogy and geology. Although there were direct awards for mineralogical maps of England, Scotland and Ireland, other less direct awards set the scene by enabling geology and mineralogy to develop by exploitation of minerals, by hydrological and coastal defence work and by improved survey. Several prominent people of the time were members of both the Society of Arts and the Geological Society, as well as other contemporary institutions, notably the Royal Institution.

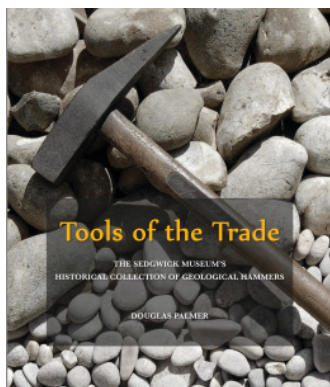
Papers on the Society, its aims and organisation, its effectiveness in supporting the development of geology and mineralogy, and rivalries with other interested bodies, are welcome. It is intended that the papers will be published. Presentations will be 20–25 minutes long, although published papers may be longer. To be considered, abstracts of 250–500 words for proposed papers should be received by the convenors by 31st October 2016. For further information, please contact the convenors John Henry (john@geolmaps.com) of HOGG or Susan Bennett (susan@bennett.as), Honorary Secretary of the WSG.

If you wish to join an electronic mailing list to receive updates,
please send your email to susan@bennett.as



William Shipley Group for RSA History www.williamshipleygroup.btck.co.uk
History of Geology Group www.historyofgeologygroup.co.uk

BOOK AND MAP NOTES



Tools of the Trade: the Sedgwick Museum's historical collection of geological hammers

Douglas Palmer

Sedgwick Museum, University of Cambridge, Cambridge. 2016 48pp.
ISBN 978099272701 £7.50 (available from the Sedgwick Museum shop)

An illustrated booklet about the history of the Sedgwick Museum's collection and those geologists who donated their hammers. There are portraits and brief biographies of Wm Buckland, O. M. B. Bulman, W. D. Conybeare, G. L. Elles, C. L. Forbes, T. Griffith Taylor, W. B. Harland, A. Harker, D. L. Home, H. Keeping, C. Lyell, M. C. McKenny Hughes, T. McKenny Hughes, W. Pengelly, S. G. Perceval, R. B. Rickards, T. Roberts, A. Sedgwick, H. G. Seeley, M. Sudbury, E. B. Tawney, J. Vilanova y Piera, G. F. Whidborne and H. B. Whittington.

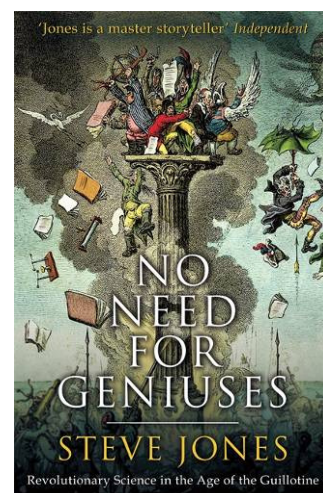
No Need for Geniuses: Revolutionary Science in the Age of the Guillotine

Steve Jones

Little, Brown Book Group 2016 384 pp.
ISBN 9781408705964 paperback £14.99
9780349405452 hardback £25

Widely reviewed in national press—Guardian, Independent, FT, Sunday Times etc.

“It’s a general history of science in revolutionary France. I counted six geologists in the cast of characters—four imprisoned, one guillotined and one became president of the Senate.....” [David Earle]



From Somerset to the Pyrenees—in the steps of William Arthur Jones, geologist and antiquary

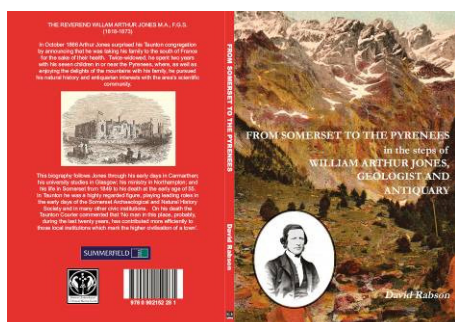
David Rabson

Somerset Archaeological and Natural History Society (SANHS)
2015 120pp.

ISBN 978-0902152281 paperback £14.95

Obtainable from the SANHS office at The Somerset Heritage Centre, Brunel Way, North Fitzwarren, Taunton,

Somerset TA2 6SF email office@sanhs.org tel. 01823 272429



“In October 1866, the Reverend William Arthur Jones surprised his congregation at Taunton’s Unitarian chapel by announcing that he was taking his family to the south of France for the sake of their health. Twice-widowed, he spent two years with his seven children in or near the Pyrenees where, as well as enjoying the delights of the mountains with his family, he pursued his natural history and antiquarian interests with leading members of the area’s scientific community.

This first biography of Arthur Jones follows him through his early days in Carmarthen; his university studies in Glasgow; his ministry in Northampton; and his life in Somerset from 1849 to his death at the early age of 55, with particular attention to his time in the Pyrenees.....” [from publisher’s website]

The mineral collection of William ‘Bill’ Terrill, FCS, MIMM (1845–1901)

Tom. F. Cotterell

*The Geological Curator**, Vol. 10 No. 5 (July 2016), pp. 201–220.

Abstract: “William ‘Bill’ Terrill is little-known of as a collector of minerals but his well-curated collection of British and Worldwide minerals preserved at Amgueddfa Cymru–National Museum Wales is an excellent example of why it is important to properly label and catalogue specimens. It is also a testament to his widow and youngest daughter that his collection is preserved and so too his brother, Bertie, who kept meticulous diaries of family events which would otherwise have been long forgotten. Remarkably there are very few examples of mineral collections assembled within Wales and this represents a fine example of late Victorian collecting. Research into the history behind William Terrill and his collection has revealed a fascinating set of stories including his role in the establishment of a geological society in Swansea and his work as curator of the mineral collection at the Royal Institution of South Wales.”

* *The Geological Curator is the journal of the Geological Curators’ Group (GCG), an affiliated specialist group of The Geological Society (GSL), and ‘sister group’ of HOGG. Past issues, except those of the most recent two years, are freely available for download from www.geocurator.org. For GCG membership enquiries, contact Cindy Howells (cindy.howells@museumwales.ac.uk)*

TROWELBLAZERS: RAISING HORIZONS

TrowelBlazers is a website (<http://trowelblazers.com>) dedicated to telling the stories of pioneering women in archaeology, palaeontology and geology.

Next February, it will launch its project *Raising Horizons* which, in collaboration with photographer Leonora Saunders and supported by Prospect Union, celebrates 200 years of trowel-blazing women. This touring multi-media exhibition of photographic portraits will juxtapose a group of women working today with historical women in the same fields; there will also be oral history interviews about their careers and experiences. The exhibition will launch at Burlington House, hosted by the Geological Society and the Society of Antiquaries. For updates, visit <http://trowelblazers.com/blog/>



THE GREAT ESTUARINE GROUP (JURASSIC, SCOTLAND) AS A SOURCE OF VERTEBRATE FOSSILS: SOME REMINISCENCES AND FIELD TRIPS

John D. Hudson

The following article by Professor John Hudson (formerly of Leicester University) recounts some relatively ‘recent’ history; it is reproduced from the Palaeontological Association’s Newsletter 92 (2016) with the permission of Pal. Ass. and the author.

When I started research at Cambridge in 1956 for my PhD on the Middle Jurassic rocks of the Inner Hebrides, I gave no thought to their potential for vertebrate palaeontology. I quickly became most interested in the Great Estuarine Series (see Hudson and Trewin 2003), as it was then known. Its palaeoenvironment was a challenge, especially as the ‘Estuarine Series’ in Yorkshire had recently been interpreted as largely deltaic. I knew I had to study its sedimentology and invertebrate fauna, as well as sorting out its stratigraphy, but I was entirely ignorant of vertebrates. At that time, invertebrates were

taught in the Department of Geology in Cambridge, led by Bulman, and vertebrates in Zoology, led by Parrington (rumour had it that they didn't get along).

The Eigg plesiosaur

The story began with Hugh Miller's visits to Eigg in 1844 and 1845. He discovered plesiosaur bones, the first record of these marine reptiles from Scotland, and wrote enthusiastically about them in his Free Church journal, *The Witness*. His writings gained wider circulation in the posthumous publication of *The Cruise of the Betsey* in 1858 (see Hudson 2003). Miller was also remarkably prescient about the palaeoenvironment of what Judd later called the Great Estuarine Series, but while his writings were a great popular success they were largely ignored by later authors, presumably because they were not published in scientific journals. There are scattered mentions of vertebrate finds, mostly of fish, in the Geological Survey Memoirs of the early 20th century, but without emphasis.

My own involvement started in the late 1950s when I visited Eigg and found some well-preserved plesiosaur vertebrae. I showed them to my contemporary, Arthur Cruickshank, at that time a PhD student under Parrington, and he prepared a specimen from its recalcitrant matrix and suggested I send it to Alan Charig at the Natural History Museum (NHM) in London. The specimens attracted the attention of W. E. Swinton, then curator of vertebrates, who wrote me a rather remarkable letter reminding me of his position, and of Charig's. Shortly after this, Swinton left for Canada and Charig succeeded him. Re-awakened interest led to Barney Newman collecting a great deal of material from Eigg (and reputedly enlivening the social scene there); the collection remains in the NHM. I published a paper on "Hugh Miller's Reptile Bed and the Mytilus Shales", rather incongruously written at Caltech in Pasadena, in 1966. This confirmed Miller's observation that the Reptile Bed, the thin, iron-rich limestone that is the source of all the plesiosaur bones, occurs low in the succession on Eigg, in what we now refer to as the Kildonnan Member of the Lealt Shale Formation. I think this paper played a part in encouraging the next phase of research by David Brown at Newcastle. This has not been fully published, but led to the construction of an excellent model of this small plesiosaur in time for an exhibition at the National Museum of Scotland, marking the 2002 bicentenary of Miller's birth. I told this part of the story at a gathering in honour of Arthur Cruickshank in 2009.

The Kilmaluag Formation 1: mammals

So far, all plesiosaur. That changed dramatically in 1971. For a Jurassic symposium held in 1969, I had written a field guide that mentioned bone fragments could be found in the Ostracod Limestones (now Kilmaluag Formation) at Glen Scaladal, near Elgol on the Strathaird peninsula of Skye. Science teacher Mike Waldman went there with a party from Stowe School to take a look and found a mammal tooth. He immediately told his mentor, Bob Savage from Bristol, who apparently drove all the way to Skye and was on the outcrop by first light. I was told about this, and sworn to secrecy (it seems vertebrate palaeontologists are a competitive bunch). Soon afterwards, a skeleton of the mammal was discovered. On publication in 1972, *Borealestes* was the second named Middle Jurassic mammal in the world (Waldman and Savage 1972); there are many more now.

The Kilmaluag Formation at Glen Scaladal consists of fine-grained, somewhat argillaceous and dolomitic limestone, interbedded with marls, with many levels of deep mudcracks showing emergence (see Andrews 1985). The fine-grained lithology allows faithful preservation, although it is hard due to slight metamorphism from proximity to the Cuillin plutonic centre. Perhaps this helps with collecting, as the limestones form bold low cliffs that yield many large coherent fallen blocks, and bones weather proud on exposed surfaces. It also means that invertebrate fossils, especially the ostracods that gave the Formation its former name, are poorly preserved at Glen Scaladal. So, in 1980, Jim Harris and I made Kilmaluag in north Skye the type locality (Harris and Hudson 1980). It is of similar facies but unmetamorphosed and yields a sparse macrofauna, mainly of unionid bivalves and the gastropod *Viviparus*, and an abundant microfauna of freshwater ostracods and spinicaudatans (conchostracans). Deposition was in extensive, shallow freshwater lakes, probably close to the sea but not connected to it, that periodically dried up. A strongly seasonal climate is indicated. The absence of rootlet horizons is somewhat surprising, but maybe intervals of emergence were too brief and evaporation too strong. Had

we know how important a vertebrate locality it was to become, we might have called it the Scaladal Formation.

The 1972 field trip

It was partly because of Waldman and Savage's discoveries that I decided to organize a field trip to the Great Estuarine Series to show it to interested friends and colleagues. By then I had made many field visits for my own research and I thought I knew the outcrops reasonably well. I simply wrote to people asking if they were available, and quite a few of them were. It is hard to imagine this happening now. Several participants subsequently had notable careers in diverse fields. They included Waldman, Savage, Tim Palmer, later Executive Officer of the Palaeontological Association, Mike Barker, at one time its Membership Treasurer, Hugh Torrens, now doyen of geological historians, Keith Duff, then my PhD student on Oxford Clay bivalves and ultimately chief scientist of the Nature Conservancy, David Palframan who also worked on the Oxford Clay, Alastair Robertson, who had mapped Eigg for an undergraduate project and subsequently became an authority on Cyprus and Turkey, Terry Scoffin, who wrote a text book on carbonate rocks, Rob Raiswell, a geochemist interested in concretions (another prominent feature of Great Estuarine geology), and Peter Boyd, a great collector who sadly didn't complete his work on the microfossils, and Roy Clements, curator at Leicester who made a collection of material for our Department. We had a great time and collected a great deal of rock, especially for extracting microvertebrates. Waldman and Savage collected a lot of important material that eventually led to the next phase of investigation.

The Kilmaluag Formation 2: small reptiles and more mammals

I can claim no direct involvement in this next phase, led by Mike Waldman, Susan Evans (University College London), Paul Barrett (Natural History Museum, London) and many colleagues, which led to the most important discoveries of tetrapod fossils (see Evans *et al.* 2006). From a number of field trips, the Kilmaluag Formation yielded a remarkably diverse fauna of terrestrial and freshwater aquatic mammals, reptiles, amphibians and fish in at least 22 taxa, including sharks, amiid fish, salamanders, lizards, choristoderes, pterosaurs, crocodiles, turtles, and further mammals and tritylodonts. The most spectacular discovery on the 2004 field trip was an association of several turtles. The assemblage resembles that from roughly contemporaneous horizons in Oxfordshire, but differs in containing several associated specimens, not just isolated teeth.

Dinosaurs and their footprints

In 1982, I was with Julian Andrews, then my PhD student and now Professor at the University of East Anglia, investigating the Lealt Shale Formation at Trotternish, Skye. Julian noticed an inverted block of limestone, fallen from the cliff above, that bore an unmistakable print from a large dinosaur. The block could be assigned to a precise bed in the section by its distinctive lithology. At the time, dinosaur footprints were not known in Scotland, but were becoming well known in the Purbeck Beds of Dorset in rather similar lithologies to those of the Lealt Shale: alternating mudstones and shelly limestones. We consulted Paul Ensom, who had worked on the Purbeck. Later, the block was collected for the Hunterian Museum in Glasgow by Stan Wood, assisted by Julian, and had a small paragraph in *The Scotsman* newspaper. Soon after this, Dugald Ross, a local resident, became interested in fossil collecting and set up a small museum near his home. More footprints were found, this time in the Valtos Sandstone Formation above the Lealt Shale, and dinosaur bones started to turn up too. Ross contacted the Hunterian Museum in Glasgow, as a result of which Neil Clark became involved. Since then both the Valtos Formation and the Duntulm Formation in Trotternish have yielded footprints, including trackways, and Paul Marshall extended the record to Strathaird. The Duntulm dinosaurs must have waded through salty water, as its abundant oysters show that the shallow lagoons were more saline at that time. Trotternish is now promoted as a dinosaur hotspot to tourists, with a signboard at the Kilt Rock viewpoint erected by the Lochaber Geopark. See Clark (2007) for more on the dinosaur discoveries.

The Kildonnan Member: the 1999 field trip

Many field visits continued, especially in the company of PhD students who studied aspects of the Great Estuarine Group much more intensively than I had been able to. In 1999, as part of the celebrations to

mark my retirement from the University of Leicester, I invited some colleagues and former students to join me for a few days on Eigg, my favourite island. It started frustratingly with three days in Arisaig while a gale blew and ferries could not sail, but eventually we made it over and a good time was had by all. We naturally visited the Kildonnan Member section (see Hudson *et al.* 1995 for palaeoecology). The plesiosaur bones all come from one thin bed in the lower part of the Kildonnan Member; another thin bed is distinctive in being packed with fish teeth and scales, especially hybodont sharks. Charlie Underwood, then at Liverpool, joined us and collected a great deal of material from the Fish Bed, as well as other horizons (see Rees and Underwood 2007).

Transatlantic involvement has contributed further insight into the Kildonnan Member palaeoenvironment. I had made contact with Bill Patterson, then at Syracuse University, who is an authority on fish otoliths. In 1995, Matt Wakefield and I showed Bill and his student the Kildonnan Member outcrop. The samples he collected yielded the oldest otoliths known still preserved in their original aragonite (see Patterson 1999). Another successful collaboration, with Chris Holmden from Saskatchewan, also built on the exceptional preservation of aragonite at Kildonnan, via analysis of the geochemistry and composition of the bivalves. Although not directly concerned with vertebrates, the results helped to re-interpret the environment, showing that the water in the shallow lagoons in which the sediments accumulated was overwhelmingly freshwater (Holmden and Hudson 2003). Some marine connection is still required to interpret the otoliths of migratory fish, but much less than we used to think. It seems likely that the plesiosaurs, as well as the sharks, were freshwater animals.

The 2013 field trip

In 2011, I met Martin Munt from the Natural History Museum, London, at a PalAss meeting. He had a poster on Chinese freshwater bivalves and I hoped he might use his Chinese contacts to help investigate the possibility that some of those in the Great Estuarine Group had crossed from China via the 'polar route', as I had tentatively suggested. He responded by proposing a field trip, intended to go to Eigg. We were joined from the vertebrate fraternity by Roger Benson from Oxford and David Ward, the authority on sharks. Shades of 1999: we arrived at Mallaig with an easterly gale blowing and no ferries to Eigg, so squeezed back into our small vehicle and drove to Kyle and over the bridge to Skye. I had taken no literature on Skye, but fortunately could remember enough localities to keep us happy for a couple of days. Eventually, we made it to Eigg for a curtailed visit, although unfortunately David Ward had to leave, but we collected some Fish Bed samples for him. The others were suitably impressed by the Kildonnan Member section, and several reptile bones were found. The bivalves, however, still await re-interpretation.

New blood and more footprints

Perhaps, as an American, Steve Brusatte won't mind being called the new kid on the block. He is now based in Edinburgh and is a leading light in PalAlba, a group pressing Scotland's claim to be a hotspot for vertebrates, especially dinosaurs and marine reptiles (see Brusatte 2015). It includes Stig Walsh and Nick Fraser from the National Museum of Scotland, Neil Clark from the Hunterian Museum in Glasgow and Dugald Ross from Skye. A particularly welcome part of their activities, with Stig Walsh's student, is the long-delayed full description of the *Borealestes* skeleton found by Waldman and Savage in 1971. Brusatte made contact with me in 2014 asking about specimens in Leicester and field localities. He visited in 2015 to give a talk and we had a long chat afterwards. I showed him a piece of bone from the Duntulm Formation, which he decided was the jaw of a small crocodile. I recommended a visit to Duntulm, and while there Steve and others found yet more footprints in outcrops that I must have walked over many times without noticing them.

Research on the Kilmaluag Formation fauna continues. Benson, following up the 2013 trip, returned to Skye in 2014 and 2015 with colleagues: finds included mammal jaws, such as the jaw of the stem therian *Palaeoxonodon ooliticus*, a taxon previously only known from teeth, and new remains of amphibians and reptiles. Most recently (autumn 2015), Julian Andrews and colleagues have found dinosaur prints in the basal part of the Kilmaluag Formation in inland Strathaird. Being a fairly obscure locality I might forgive myself for not visiting it, but surely I should have found more prints and bones than I did, over the decades. My old notes record loadcasts from several horizons within the Great Estuarine Group and I

now wonder what applied the load. Fortunately, a field lifetime is short on a geological time scale. Progress is much faster now—long may that continue.

At Kildonnan, the view of the mountains of the west Highlands; at Duntulm, those of Harris across the Minch; and on Strathaird, most dramatic of all, the Black Cuillin. Can there be more beautiful field localities in the whole world?

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The Kilmaluag Formation locality

OTHER FUTURE MEETINGS AND EVENTS



DINOSAURS AT BARNES

28th–30th OCTOBER 2016

London Wetland Centre, Barnes, London SW13 9WT

The beautiful London Wetland Centre, in Barnes, south-west London, is a fantastic setting for this meeting as the landscape replicates the background of the dinosaur epoch, although the vegetation is almost completely different. There will be a one-day international conference on 28th October held in the magnificent, newly renovated lecture theatre, followed by a two-day festival of geology and dinosaurs ('Dinosaur Days') on 29th–30th October. The dinosaur art gallery will be open throughout the three days and will include several art workshops; featured artists include John Sibbick, Luis Rey, Bob Nicholls, John Conway, Mark Witton, Katrina van Grouw.

CONFERENCE (28th October)

KEYNOTE SPEAKERS include

Romain Amiot (University of Lyon, France) *Chilly dinosaurs from the Far East: palaeoclimate in East Asia 120 Ma ago.*

Michael Benton (University of Bristol) *Telling the colour of dinosaurs and early birds.*

Eric Buffetaut (CNRS Paris) *Bones from the vineyards: the Late Cretaceous dinosaurs of southern France.*

Katrina van Grouw *The unfeathered bird.*

Dean Lomax (University of Manchester) *The significance of the British dinosaur record.*

David Martill (University of Portsmouth) *Giant pterosaurs from the mid-Cretaceous of Morocco*

Richard Moody (Kingston University) *Dinosaur 'Evolution and plate tectonics'*

Darren Naish (University of Southampton) *Dinosaur evolution, sexual display and sexual behaviour.*

Bob Nicholls (Bristol) *The life appearance of Psittacosaurus.*



DINOSAUR DAYS

Saturday 29th October

Dino-Talks

10.00 *All about Tyrannosaurus rex.* Chris Duffin

11.00 *Tyrannosaurs fact and fiction.* Dave Hone

12.10 *Bringing dinosaurs back to life. A personal take on the history of dinosaur iconography.*
Luis Rey

15.00 *How to build accurate dinosaurs, featuring a life-size Psittacosaurus.* Bob Nicholls

16.00 *Discovering dinosaurs—how to become a palaeontologist.* Mike Howgate

Art Workshops

10.50 Art Workshop 1 (children only) Mark Witton

13.10 Art Workshop 2 (children/adults) Luis Rey

15.50 Art Workshop 3 (16–adults) John Conway

Each Art Workshop lasts approximately 1 hr 20 mins. Parents must stay with children at all times.

Sunday 30th October

Dino-Talks

10.00 *British dinosaurs.* Dean Lomax

11.10 *Gigantic sauropods.* Femke Holwerda

12.20 *The unfeathered bird.* Katrina van Grouw

14.50 *Palaeoart*. Mark Witton
16.00 *Killing styles*. Jeff Liston

Art Workshops

11.00 Art Workshop 1 (children only) Mark Witton
13.20 Art Workshop 2 (children/adults) Luis Rey
15.50 Art Workshop 3 (16–adults) John Conway

There will be a **Dino Drawing** session with all the artists present starting at 9.30 and 17.00 on both days. 20 min. **book-readings** start at 11.30, 1.30 and 15.00 each day. Please ask for directions to the allocated rooms on the day. The **Award Ceremony** for our school painting competition will be held at 14.30 in the Lecture Theatre.

We can confirm the support of numerous companies and institutions including the **Geologists' Association, Rockwatch, the Kent Geologists' Group, the Geological Society and the Natural History Museum.**

The Dinosaur Society acknowledges our patron Sir David Attenborough, OM, FRS for his continued support.

To **register**, please complete the following form and mail to:
Professor R. J. Moody, Dinosaur Society, Gnoll House, 15 Forster Road, Guildford, Surrey KT6 3LE.
Tel: 07973273623. Email: rtj.moody@virgin.net

REGISTRATION FORM

The Dinosaur Society Conference, London Wetland Centre, Barnes, London SW13 9WT
Friday 28th October 2016 9.30–5.30.

Registration: **£40.00** for **Member** or Affiliate Group Member, **£45** for **Non Member**.
Affiliation: **HOGG**, Geologist's Association, Rockwatch, Geological Society, Palaeontology (online group).

Cheques payable to the *Dinosaur Society*.
or

Bank Transfer to Dinosaur Society: NatWest sort code 600427 a/c. no. 94172528 Reference: Wetland

Name.....

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GA FESTIVAL OF GEOLOGY
SATURDAY 5TH NOVEMBER 2016
10.30am–4.30pm
University College London, Gower Street, London WC1E 6BT



ENTRANCE FREE

Exhibitors from the World of Geology: Fossil and mineral displays, stonecraft, books, maps, geological equipment, jewellery, Building Stones walk around UCL with Ruth Siddall, Tours of the UCL EarthScience Laboratories and more.....

Geological Talks including

Dr Howard Falcon-Lang *Marie Stopes: passionate about palaeobotany.*

Prof. Joe Cain & Sarah Butterworth *Iguanodon and the Restaurant*

Festival trips on Sunday 6th November

including *The Crystal Palace Dinosaurs—bringing extinct worlds to life* (suitable for families) led by Ellinor Michel of Friends of the Crystal Palace Dinosaurs.

For further festival details, visit www.geologistsassociation.org.uk

E mail festival@geologistsassociation.org.uk

SOUTH-EAST REGIONAL CONFERENCE

SATURDAY 26th NOVEMBER 2016

Exhibition Hall of Worthing College (at their campus on the northern outskirts of the town)

Geology, Landscape and Humans in South-East England

PROGRAMME

9.00–9.40 **REGISTRATION AND WELCOME**

9.40–10.20 Chris Duffin (Natural History Museum) *The Iguanodon: iconic dinosaur of the Weald*

10.20–11.00 Julian Murton (University of Sussex) *South-east England as a periglacial landscape*

11.00–11.30 **COFFEE/BISCUITS**

11.30–12.10 Sanjeev Gupta (Imperial College, London) *The English Channel megaflood: implications for pre-history*

12.10–12.50 Julie Gardiner (Oxbow Books) *Flint Mining: organisation, operation & significance*

12.50–2.00 **BUFFET LUNCH**

2.00–2.40 Brian Short (University of Sussex) *Victorian Ashdown Forest: environment and politics*

2.40–3.20 Jeremy Hodgkinson (Wealden Iron Research Group) *Iron Working in the High Weald: 1600–1770*

3.20–4.00 Annabelle Hughes (Wealden Buildings Study Group) *The Wealden House: general model or complete misnomer?*

4.00–4.30 **TEA/BISCUITS**

4.30–5.10 Tom Dommett (NT Regional Archaeologist) *The changing landscapes of Petworth Park: mediaeval to modern*

5.10–5.50 Roger Smith (Southern Testing Geoconsultancy) *The geological hazards of South-East England—and how to avoid them!*

SOUTH-EAST REGIONAL CONFERENCE REGISTRATION FORM

Conference Fee for the day is still only £25, including coffee/tea/biscuits, buffet lunch and Conference publication. Conference Fee for full-time students is a paltry £20.

Name.....

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Please make your cheque payable to *Anthony Brook* and forward, with this completed form, to:

Anthony Brook, 15, Cambourne Court, Shelley Road, Worthing, BN11 4BQ

Email: anthony.brook27@btinternet.com



VOLCANOES AT OXFORD 9TH FEBRUARY–21ST MAY 2017

David Pyle (Oxford University) informs us that he is curating an exhibition on volcanoes for the Bodleian Libraries in Oxford which will be open to the public from 9th February until 21st May 2017. The exhibits will be mainly manuscripts, printed books and maps, and there will be a number of items of particular interest from the 17th–19th centuries.

INTERNATIONAL ASSOCIATION FOR MILITARY GEOSCIENCES 12TH INTERNATIONAL CONFERENCE ON MILITARY GEOSCIENCES



18TH–23RD JUNE 2017 (+ post conference field excursion 24th–29th June 2017) STELLENBOSCH, SOUTH AFRICA

The theme of the conference is *The scope, reach and impact of Military Geosciences*. With this deliberately broad theme, the organizers aim to host a conference celebrating the diversity of research avenues explored by Military Geoscientists, as well as the impact this research has on military activities in the broadest possible sense.

The five day conference will take place at the picturesque Lanzerac Wine Estate in the scenic university town of Stellenbosch, about 50 kms from Cape Town. The Lanzerac Wine Estate can trace its history back to 1692 when Governor Simon van der Stel granted the farm in the Jonkershoek Valley to Isaac Schrijver and three freed slaves.

For more information about the conference, preliminary scientific programme, timeline and key deadlines for registration and submission of abstracts, please visit the conference website at <http://www.icmg12.co.za> .

The last date for abstract submission (oral and posters) is 19th May 2017.

**ABRAHAM GOTTLOB WERNER (1749-1817) AND THE EARTH SCIENCES
29TH JUNE–1ST JULY 2017
FREIBURG, GERMANY**

A CONFERENCE CELEBRATING THE BICENTENNIAL ANNIVERSARY OF WERNER'S DEATH

This symposium focuses on the geosciences at the end of the 18th Century to the beginning of the 19th Century, and the impact of Abraham Gottlob Werner's research and teaching. The following issues are being addressed:

1. Werner's charisma (analysis of his personality and its outward impact)
2. Europe-wide network and its influence on progress in the earth sciences
3. Transfer of knowledge (history of cartography, history of collections, effect of geoscientific insights to other fields like fine arts; development of mining academies following the Freiberg model)
4. Werner's students and their work for earth sciences
5. Teaching and education at the early Mining Academy (Freiberg)

Abstract submission deadline was 30th September 2016. Authors will be notified on their paper acceptance as soon as possible and no later than 15th October 2016 Full submission required by 30th January 2017.

Contact: Susanne Kandler (Director), TU Bergakademie Freiberg, Universitätsbibliothek "Georgius Agricola", Agricolastr. 10 09599 Freiberg GERMANY
Tel. +49(0)3731 39-2959. Fax +49(0)3731 39-3289 Email susanne.kandler@ub.tu-freiberg.de



**42nd INHIGEO SYMPOSIUM
12TH–18TH SEPTEMBER 2017
YEREVAN, ARMENIA**

This conference is being planned as a 50th Anniversary INHIGEO conference. It will be organised by the Armenian Institute of Geological Sciences and Armenian National Academy of Sciences.

The first meeting of INHIGEO was held in Yerevan in 1967 and this conference will be held at the Armenian National Academy of Sciences in Yerevan, the same venue as the 1967 meeting.

The conference themes will be:

1. 50 years of INHIGEO

2. Development of geological ideas and concepts
3. History of geology in Armenia
4. Ancient knowledge of stone and metals
5. Studies of historic and prehistoric evidences of seismic and volcanic activity
6. General contributions and biographies of famous geologists

Both mid-conference and post-conference field trips are being planned to geological sites, historical sites, archaeological sites, geological museum and the Armenian Museum of Ancient Manuscripts (Matendaran). For any questions please contact the Organising Committee by e-mail at inhigeo2017@geology.am or Khachatur Meliksetian at km@geology.am .

Visit the conference website <http://inhigeo2017.geology.am/> for more information.

FUTURE INHIGEO SYMPOSIA

Future venues/dates for the annual INHIGEO symposia are as follows:

2018 43rd Mexico City, Mexico (4th–14th November).

2019 44th Como/Varese, Italy.

2020 45th New Delhi, India.

2021 46th Poland.

MILITARY ASPECTS OF ENGINEERING GEOLOGY, PAST AND PRESENT

A joint meeting of the History of Geology Group (HOGG) and the Engineering Group of the Geological Society (EGGS)—non-members welcome

WEDNESDAY 16 NOVEMBER 2016 from 09.15 to 17.35
at the Geological Society, Burlington House, Piccadilly, London W1J 0BD

TO REGISTER FOR ATTENDANCE AT THIS MEETING

Please *either* register online at <http://historyofgeologygroup.co.uk/november-2016-military-aspects-of-engineering-geology-past-and-present/>

or complete the form below and send this with the appropriate cheque to:

Dr Edward P. F. Rose
13 Nea Road
Highcliffe
CHRISTCHURCH
Dorset
BH23 4NA

Registration fee covers the cost of admission to the meeting; coffee/tea during a morning break; sandwich lunch in the Lower Library; and afternoon coffee/tea.

Registration Form: Military Aspects of Engineering Geology: 16 Nov 2016

Name:

Address:

.....

.....

Telephone number:

Email.....

Member's registration fee **£35** (HOGG / EGGS / The Geological Society (GSL)/ Geologists' Association—please delete as appropriate)

Non-member's registration fee **£40**

I enclose a cheque payable to *HOGG* for £.....

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Sort code.....Account number.....

Account name.....

Please pay the amount of £15 (fifteen pounds) to the History of Geology Group of the Geological Society (Santander Business Account, Sort code ___ - ___ - ___ Account number _____) on 1st January (or closest date thereto) following the date of this instruction and annually thereafter until terminated by me in writing. **[NB Account details will be inserted by the HOGG Treasurer.]**

Signed.....

Date.....

PLEASE SEND THE COMPLETED MANDATE TO

David Earle (HOGG Treasurer)

61 Straight Road, Old Windsor, Berkshire SL4 2RT