

HOGG

**Newsletter of the History
of Geology Group of the
Geological Society
of London**



**Number 43
October 2011**

Front cover

JOSEPH BEETE JUKES, the bicentenary of whose birth occurs in October this year.

Born at Summer Hill near Birmingham on October 10th 1811, Jukes attended school in Wolverhampton, Pattingham, Staffordshire, and Birmingham. In 1830, he entered St John's College, Cambridge with the intention, at his mother's insistence, of preparing for ordination within the established church. However, he already had an interest in geology through his aunt and uncle who had published several articles on fossils, and therefore enrolled in the geological class of Adam Sedgwick. This was to prove decisive.; all visions of a career in the church vanished and throughout the remainder of his life, Jukes referred to Sedgwick as 'my dear father' (Juke's own father had died when he was seven). He graduated in 1836 (BA) and 1841 (MA).

In 1837 and 1838, on leaving Cambridge, Jukes undertook geological tours of England, paying his expenses by delivering courses of geological lectures. Early in 1839, he was appointed geological surveyor to the colony of Newfoundland where he embarked on a one-man reconnaissance survey. However, this appointment was discontinued in 1840 as he had failed to satisfy a local expectation for the speedy discovery of mineral wealth. In December 1841, he was appointed naturalist to HMS Fly. This voyage gave Jukes the opportunity to pursue his science in locations such as Madeira, Cape Colony, New Guinea, Australia and the Great Barrier Reef.

When he returned to England in 1846, Jukes was considered to be a geologist of global experience, and was appointed as geologist with the Geological Survey of Great Britain. Working in North Wales and the English Midlands, he was an outstanding success as a field surveyor and became "perhaps the finest British field geologist of his day". In 1850, at the invitation of Sir Henry de la Beche (director of the GSGB), Jukes took up the position of local director of the Geological Survey of Ireland based in Dublin, and its director from April 1867. As well as his survey duties, he also became, from 1854, professor of geology in the Government School of Science Applied to Mining and the Arts, and conducted courses in many Irish towns.

In July 1864, Jukes was concussed in a fall and was never the same man. In May 1869, he was committed to a private lunatic asylum in Dublin where he died on 29th July. Between 1856 and his death, he supervised the publication of 120 1-inch geological sheets, covering more than half of Ireland and most of these were accompanied by a descriptive memoir which he edited. He was elected FRS in June 1853, president of the Geological Society of Dublin (1853-5) and president of the Geology Section of the British Association for the Advancement of Science in 1862.

Abridged from Jukes, (Joseph) Beete (1811-1869) by Gordon L. Herries Davies; Oxford Dictionary of National Biography 2004.

Photo (c. 1860) courtesy of the Centre of Newfoundland Studies (MF-032), Queen Elizabeth II Library, Memorial University of Newfoundland, St John's, Newfoundland.

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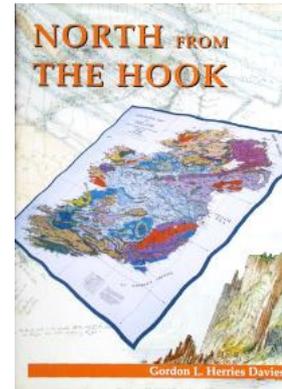
Dick Moody (e mail: rtj.moody@virgin.net)

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

Postscript on Joseph Beete Jukes (see cover)

by John Henry (e mail: geol.maps@virgin.net)

In his book *North from the Hook*, which recounts the history of the Geological Survey of Ireland, Herries Davies documents Jukes' sad decline; he wasn't quite right – difficult and unjustifiably critical of his staff – and then he had the fall (pp. 65-70). However, in Chapter 9 (pp. 237-252), he describes how Jukes came to the remarkable insight at Cappoquin, where the River Blackwater turns at right angles from its synclinal valley route to cross an anticlinal ridge, and then three more, before reaching the sea at Youghal. In recognising that the gorge section of the Blackwater through the ridges was the remnant of an earlier river system on an earlier surface, he introduced the concept of antecedent drainage; the predominant drainage occupying the troughs in the folded landscape was a subsequent drainage system that had developed as the original landscape had gradually become folded. Although the American geologist G K Gilbert changed the terminology, he acknowledged Jukes' then revolutionary concept in his own publications on landforms of the American West and named a peak 'Jukes Butte'.



LETTER FROM THE CHAIR



I have thoroughly enjoyed chairing the HOGG committee over the last year. When I was first elected on to the committee, my interests in the subject were very biased towards the history of palaeontology, in particular vertebrate palaeontology and, more specifically, fossil reptiles.

At the first meeting I attended in 2006, I rather foolishly volunteered to take over the organisation of the HOGG Bicentennial Dinner and to help with the group newsletter. Times were rapidly changing and the burgeoning advance of the electronic age and the success of the pdf format necessitated a change in style and presentation. For many years, Peter Tandy had made a major contribution to the success of HOGG by editing and compiling our newsletter, and posting it out to members. Although the majority of you would probably still prefer to receive a hard copy, many societies have bordered on, or entered, insolvency due to rising costs of printing and postage, so electronic distribution must prevail.

The aims and objectives of the HOGG Bicentennial Dinner of 2007 were essentially to pay tribute to the 'Founding Fathers' of the Geological Society. Its success was assured when the vast majority of diners wore period costume. The bicentennial HOGG meeting was also outstanding and I was fortunate enough to help John Mather organise a truly historical fieldtrip led by Martin Rudwick and Hugh Torrens to the Isle of Wight. I realised then that HOGG was something special and that it was guaranteed a great future by studying the past. I served under Cherry Lewis and Alan Bowden and thank them both for supporting me in the organisation of several conferences including *The History of Oil Shales, Dinosaurs and other extinct reptiles: A historical perspective*, and *A History of Applied Geology*. In 2010, the proceedings of the dinosaur meeting were published by the Geological Society as Special Publication 343, and I am proud to report that the content of the forthcoming conference on *A History of Geology and Medicine* has also been accepted by the Society for publication next year.

The historical links between medicine and geology are recorded over several thousand years and the abstracts for the conference to be held in Burlington House on 1st - 2nd November 2011 are written by both geologists and medics from countries around the World. As geohistorians, many of the characters we study are polymaths. The future meeting entitled *In the Footsteps of Sir Archibald Geilke* will reveal the special skills of a very famous geologist, author and artist. It will also reveal the amount of data and materials housed in local museums - gifts from families that move on or lose contact with our science. Come and join us in Haslemere on 13th April 2012 and partake of our HOGG/HOG Roast.

The HOGG programme for 2012 includes an open meeting in March, organised as usual by Tony Brook, which promises to be the best yet in terms of content; further details are given in this newsletter. Also look out for a Geological Society-supported HOGG meeting organised by Tom Hose in October 2012. Exploring the history of geotourism and entitled *Appreciating Physical Landscapes*, this should be a magnificent meeting with a wonderful fieldtrip in the offing.

Forward planning for two sessions and two fieldtrips for the meeting of INHIGEO in 2013 in Manchester has started. The organisers of the 24th International Congress of the History of Science, Technology and Medicine, which embraces the INHIGEO meeting, expect around a thousand people to attend (see Leucha Veneer's article in this newsletter).

This year's *Geology and Medicine* meeting in November will host our Annual General Meeting, a very short but very important meeting at which we elect a new committee. HOGG needs you! If you can spare a few afternoons a year to attend meetings and perhaps fill the role of Membership Secretary or Publicity Officer put yourself forward; HOGG is growing steadily in terms of membership, and the history of geology has an influential role to play in years to come.

I would like to close by expressing my thanks to colleagues who organise HOGG on a day to day basis. Beris Cox is both treasurer and editor of our newsletter; her effort on our behalf borders on the 'awesome' (my grandson's influence shows through), and Leucha Veneer (HOGG secretary) provides almost instant minutes of our committee meetings and is taking a major role in the planning of the INHIGEO meeting in Manchester.

Dick Moody
October 2011

HOGG COMMITTEE

Chairman Dick Moody **Vice Chairman** Richard Howarth **Secretary** Leucha Vener
Treasurer Beris Cox **Ordinary members** Tony Brook, John Henry, Cherry Lewis, Martin Rudwick, Bob Symes.

ANNUAL GENERAL MEETING 2011

This year's AGM will take place at 13.10 hrs on November 1st prior to the lunch break on Day 1 of the Geology & Medicine meeting at Burlington House.

Two members of the current HOGG committee will be standing down in January 2012 when their term of office comes to an end. Sufficient nominations have been received to fill any vacancies. New committee members will be voted in at the 2011 AGM and will take up their positions on 1st January 2012. The officer posts (Chair, Vice-Chair, Secretary and Treasurer), who are elected by the committee members, will be announced at the AGM.

INHIGEO



Leucha Vener's article on the plans for the INHIGEO meeting in Manchester in 2013, which was anticipated in the last newsletter, will now feature in the February 2012 issue.

FUTURE HOGG EVENTS

* GEOLOGY AND MEDICINE

1st – 2nd November 2011

Burlington House, Piccadilly, London

(including HOGG AGM)

See pages 5 - 9 of this newsletter for more information and programme. Registration form on page 32.

* OPEN MEETING

Tuesday 20th March 2012

Burlington House, Piccadilly, London

See page 10 of this newsletter. Registration form on page 31.

* IN THE FOOTSTEPS OF SIR ARCHIBALD GEIKIE

Friday 13th April 2012

Haslemere Educational Museum, Haslemere, Surrey

Joint meeting with Haslemere Educational Museum.

The Geikie Archive at Haslemere consists of letter books, artwork, field notebooks, geological specimens, letters, personal items, manuscripts and photographs.

Further details of this one-day meeting and a registration form will be given in the next (February 2012) newsletter.

* APPRECIATING PHYSICAL LANDSCAPES: GEOTOURISM 1670 -1970

22nd - 25th October 2012

Burlington House, Piccadilly, London

Geological Society-supported meeting.

Call for papers on page 11 of this newsletter.

* GEOLOGY IN THE COURTYARD

2013 Date to be advised (note change from last newsletter).

Burlington House, Piccadilly, London

A look at geological aspects of and historical links between the learned societies (Antiquaries, Astronomical, Chemistry, Linnean) and Royal Academy of Arts which are based with the Geological Society in the Burlington House complex.

* METALLIFEROUS MINING IN THE SOUTH-WEST AND ITS LEGACY

November 2013

HISTORY OF GEOLOGY AND MEDICINE

1st – 2nd NOVEMBER 2011

Burlington House, Piccadilly, London

CONVENORS: Christopher J Duffin, Richard T J Moody and Christopher Gardner-Thorpe

From the times of the earliest civilisations, two professional areas held the monopoly of formal education the church and medicine. It was natural that, of these two disciplines, the latter should provide the birthplace for the bulk of enquiry into the natural sciences and geology in particular; many of the earliest descriptions of rocks, minerals and fossils can be attributed to physicians. Sumerian clay tablets, Egyptian medical papyri and Ayurvedic manuscripts all commended geological materials for the treatment of disease, examples of which would have been dispensed from one of the first pharmacies, which opened around 400 BC on the Arcadian Way in Ephesus. Apothecarial preparations containing essential geopharmaceutical ingredients have a rich, and largely neglected, history of use extending over some 4000 years. Similarly, the geological contributions of individual physicians to the development of the earth sciences have received only sparse attention.

The aim of this conference is to provide an opportunity for international researchers from a range of disciplines, including geologists, medical professionals, historians and linguists, to explore the historical links between Geology and Medicine for the first time. The papers and posters presented over the two days are remarkable for their range, both temporally and in terms of their content. Two major themes emerge, however – the therapeutic use of geological materials and the contributions of individuals as they straddled the divide between medicine and geology.

Those of us who try to tease out details of the lives and work of these intellectual forerunners and polymaths who collectively contributed so much to the evolution of geology as a science begin to feel as if we know them personally. It is to this enormous list of medical men cum geologists that this meeting is fondly dedicated. It is the hope of the organisers that this conference will provide a platform for the presentation of new research, a useful forum for identifying new questions worthy of future investigation, establishing new links within a scattered research community, as well as facilitating new friendships.



PROGRAMME

Pre-meeting excursion MONDAY 31ST OCTOBER FOR PRE-BOOKED DELEGATES ONLY.

Meet at 14.45hrs at the The Royal College of Surgeons of England, 35-43 Lincoln's Inn Fields, London WC2A 3PE (nearest tube station: Holborn on the Central and Piccadilly lines). Hunterian Museum Collections viewing. Guided tour by Harold Ellis at 15:00hrs (limited to 30 persons) followed by further viewing of the collections.

DAY 1 Tuesday 1st November

8:30: Registration at the Geological Society, Burlington House, Piccadilly, London W1J 0BG

9:00: Welcome and Housekeeping: Professor R.T.J. Moody

Session 1: Eighteenth Century physician/geologists (Chairman : R.T.J. Moody)

9:10: KEYNOTE ADDRESS Christopher Gardner-Thorpe (Exeter, UK) and Cherry Lewis (Bristol, UK)
James Parkinson (1755-1824).

9:50: Jeff Liston (Glasgow, UK):

Mixing Gynaecology with Geology: The vertebrate fossil collections of William Hunter

10:20: Avi Ohry (Tel Aviv, Israel):

Ebenezer Emmons (1799-1863): geologist, educator and physician

10:50: Coffee

Session 2: Early medicinal uses of inorganic material (Chairman : W D Ian Rolfe)

11:10: Arthur MacGregor (Oxford, UK):

Terra sigillata: a historical, geographical and typological review

11:40: Efraim Lev (Haifa, Israel):

The practical medicinal use of inorganic substances in Medieval Mediterranean according to the Cairo Genizah

12:10: Joaquin Carrasco & M. Linan (Zaragoza and Leon, Spain):

A comparative study of the stomatological stones cited in the Kitab al-tasrif (Albucasis, 1000 AD)

12:40: Nora Zergi (Budapest, Hungary):

Haematite in ancient-medieval medical treatises

13:10 Lunch

13:10-13:15 HOGG AGM in lecture theatre

Session 3: Early Modern Physicians and Geology (Chairwoman: Cherry Lewis)

14:00: Jakob Bek-Thomsen (Aarhus, Denmark):

From flesh to fossils: Nicolaus Steno and the anatomy of the Earth

14:30: Evelien Chayes (Nicosia, Cyprus):

Conrad Gessner and Johannes Kentmann: two Early Modern physicians and their contribution to (Medical) Geology

15:00: Ella Hoch (Gram, Denmark):

The realism of Ole Worm, portender of “that enlightened and barbaric realm, Europe”

15:30 Coffee

Session 4: Fossils, minerals and medicinal folklore

15:50: Eladio Linan (Zaragoza), M. Linan (Leon) and Joaquin Carrasco (Zaragoza, Spain):

Cryptopalaeontology : The fossils contained in ancient lapidaries and their magico-medicinal use

16:20: Christopher Duffin (Sutton, UK):

The Gem Electuary

16:50: Massimo Aliverti (Milan, Italy):

Religiousness and magic in lithoiatric practices of European folk medicine

17:20: Alessandro Porro (Brescia), Carlo Cristini (Brescia), Bruno Falconi (Brescia), Antonia Francesca Franchini (Milan) & Lorenzo Loruss0 (Chiari, Italy):

Vomiting Stones : Mental illness and Forensic Medicine in 18th Century Italy

17:50: John Pearn (Brisbane):

The Sunday Stone

Close: 18:20-18:25

RECEPTION

18.30. Lower Library, Geological Society, Burlington House

CONFERENCE DINNER

19.45. Getti's Restaurant, 16/17 Jermyn Street, London, SW1Y 6LT

DAY 2 WEDNESDAY 2ND NOVEMBER

Session 5: Geology and public health (Chairman : Christopher Gardner-Thorpe)

9:00: Beverley Bergmann (Edinburgh, UK):

The influence of geology in the development of public health

9:30: Rais Akhtar (New Delhi, India):

Soils and cancer in Kerala, India: historical perspective and current scenario

10:00: Aysegul Demirhan Erdemir (Bursa, Turkey):

Bursa in the history of Turkish hot spring and some samples (with the Ottoman Archive documents)

10:30 : Coffee

Session 6: From Galen to Bigsby – Geological Contributions through two millennia
(Chairman : Dave Martill)

10:50: KEYNOTE ADDRESS Leonard G. Wilson (Minnesota, USA):

John Jeremiah Bigsby, M.D. (1792-1881): Geological Pioneer in Canada

11:20: Gillian Hull:

Porcelain, Pox and Angina pectoris

11:50: M. Kazmer (Budapest, Hungary):

Stones, fossils, and the medical profession – a collectors' network in Early Modern Europe in support of the Flood

12:20: Dimitrios Koutroumpas (Athens, Greece):

The Pharmaceutical use of Earths, Rocks and Minerals by Galen of Pergamum

12:50 : Lunch

Session 7: 17th century studies (Chairman: Chris Duffin)

14:00: W. D. Ian Rolfe (Edinburgh, UK):

Materia medica in the seventeenth century Paper Museum of Cassiano dal Pozzo

14:30: Maria do Sameiro Barroso (Lisbon, Portugal):

Bezoar Stones, magic, science and art from the Late Middle Ages to the end of the 17th Century

15:00: Renzo Console (Woking, UK):

Pharmaceutical use of gold in the 16th and 17th Centuries

15:30 Coffee

Session 8: 19th and 20th century physicians as geologists (Chairman : Dick Moody)

15:50: David M. Martill and Tony Pointon (Portsmouth, UK):

Arthur Conan Doyle: physician, author and first true populariser of pterosaurs

16:10: Bernard Hubmann & Daniela Angetter (Graz, Austria):

Conrad Clar (1844-1904) and Theodor Posewitz (1851-1917): lives between geology and medicine

16:40: H. R. Guly (Plymouth, UK):

Medical geologists during the Heroic Age of Antarctic exploration

17:10: K.S.Murty (Nagpur, India):

Medical professionals and their contribution to Indian Geology

17:40: Lorenzo Lorusso (Chiari), Bruno Falconi (Brescia), Antonia Francesca Franchini (Milan) & Alessandro Porro (Brescia, Italy):

Geology, conservation and dissolution of corpses by Paolo Gorini (1813-1881)

CLOSE 18:10 : CLOSING REMARKS

Post-meeting excursion THURSDAY 3RD NOVEMBER

Day visit to **OXFORD** including the University's Natural History, Pitt Rivers and Ashmolean museums.

See next page for details.

OXFORD MUSEUMS VISIT 3rd November 2011

Leaders: Dr Chris Duffin and Professor Richard Moody

Travel to Oxford: This is best done independently and some registrants at the conference in London (1st - 2nd November) might prefer to travel to Oxford on 2nd November and stay in a local hotel overnight, or alternatively stay on at Oxford after our excursion.

Meeting Point: *Carfax Tower 10:30-10:45hrs.* This is very close to the point where buses to and from London, and to and from the Thornhill Park and Ride stop. Carfax is a local landmark and is easy to spot.

We then take a 5-10 minute walk to the *History of Science Museum* in Broad Street. Our visit to the museum will last an hour and then there will be 1 hour free time to get some lunch from local pubs, sandwich bars etc.

At 14:00hrs, we will meet up at the nearby entrance to the Bodleian Library; there is a 10-15 minute walk to the combined *Oxford University Museum and Pitt Rivers Museum*.

We will allow 2 hours at the double venue. We will then leave at 15.00hrs and walk 10 minutes to the *Ashmolean Museum*. We will finish at around 16:00-16:30hrs allowing some free time again before catching transport back home.

Ways to travel to Oxford : **1. Private/hire car** - approximately 75 minutes from London via M25 and M40, depending on traffic. Thornhill Park and Ride situated off the A40 (branches off the M40). Free parking. £2-20 (off-peak) or £2-50 (peak) return bus fare to the stop on the High Street near Carfax in the City Centre. Buses (number 400) every 10-15 minutes.

2. Train from Paddington to Oxford. Journey time just over 1 hour. Day return (booked in advance) £51. Off peak day return (trains after 9.30) £21-50.

3. Coach - Oxford Express. Buses leave every 15 minutes and can be caught at Victoria, Park Lane or Gloucester Place, to High Street in Oxford. Journey time around 100 minutes depending on traffic conditions. Prices - adult same day return £16, over 60's (identification needed) same day return £8.

4. Coach - Oxford tube. Buses leave every 15 minutes and can be caught at Victoria, Shepherd's Bush, Park Lane or Bayswater Road, to High Street in Oxford. Journey time around 100 minutes depending on traffic conditions. Prices - adult same day return £16, over 60's (identification needed) same day return £8.

For those who might want/need to travel to the two main London airports, coaches run from Oxford (Thornhill Park and Ride) to Heathrow and Gatwick direct.

Costs: £15 per person including planned talks and Oxford City Map.

Please reply to: Professor Richard Moody (rtj.moody@virgin.net) to confirm that you would like to take part.

**HOGG OPEN MEETING
TUESDAY 20th MARCH 2012**

BURLINGTON HOUSE, PICCADILLY

The detailed programme will be in the next newsletter (February 2012) but the speakers and topics are listed below (in no particular order).

- *John Mather: *The French industrial spy Le Turc (1748-1800) and water well drilling in late 18th century Britain.*
- *John Lonergan: *Geological problems of building the London to Brighton railway 1835-1841.*
- *Anthony Brook: *John Martin (1789-1854) and the artistic search for the 'Scientific Sublime'.*
- *Martin Whyte: *Samuel Beckles and those fossil footprints at Fairlight.*
- *William George: *Historic images of the geological heritage of Essex.*
- *Philip James: *Some fascinating aspects of Victorian geology books.*
- *Paul Kabrma: *John Milne (1850-1913): father of modern seismology.*
- *Bernard Leake: *John Gregory (1864-1932): geologist, writer and explorer*
- *Gareth Dyke: *Franz Nopcsa (1877-1933): The Dinosaur Baron of Transylvania.*
- *Peter Forey: *'Old four legs': scientists, coelacanths and controversies.*
- *Jan Zalasiewicz: *The Anthropocene: the current geological period?*
- *Tony Brown: *Is the 'Anthropocene' really necessary?*
- *David Greenwood: *Geological site survey of a post-war steelworks in Sheffield.*
- *Jane Randle: *Ian Gass: first Professor of Earth Sciences at the Open University.*

**OPEN MEETING
REGISTRATION FORM
AT THE BACK OF THIS NEWSLETTER**

Appreciating Physical Landscapes: Geotourism 1670 - 1970

22nd - 23rd October 2012

at the Geological Society apartments (Burlington House, London)

Geotourism's burgeoning literature has tended to focus on descriptions and case studies of modern interpretative and promotional provision in protected areas and geoparks. The significant historical antecedents of modern geotourism in Britain and Europe are comparatively neglected in the literature. Whilst these antecedents can be traced back to the elite 17th century travellers who ventured into wild landscapes and visited caves and mines, early modern geotourism, with many of the features of its present-day provision, can be recognised if not so named from the opening of the 19th century. This latter period more than coincided with the emergence of modern scientific geology and the beginnings of excursion tourism; the organised publication of regional geology guide-books and geology field excursions followed from the first quarter of the 19th century. The conference's timeframe opens with the early reportage of elite travellers and the publication of the first travellers' guide-books and closes at the cusp of modern landscape and geoconservation measures, such as national parks, areas of outstanding natural beauty, national nature reserves, and the emergence of environmental interpretation and modern countryside leisure as forerunners to modern geopark provision.

Call for Papers

Title, abstract (up to 500 words) and an associated image to be submitted to t.hose123@btinternet.com by **11 March 2012**.

Conference Convenor

Tom Hose, University of Bristol / *Rockhounds Welcome!*

The Hunterian Museum at the Royal College of Surgeons

Christopher J. Duffin¹

Ahead of the Geology and Medicine meeting, Chris Duffin, one of the meeting's convenors, reports on the museum at the Royal College of Surgeons, the focus for the pre-meeting excursion.

The Hunter brothers, William (1718-1783) and John (1728-1793), were born into a family of ten children, several of whom died in childhood. They were raised at Long Calderwood Farm, now a museum in their honour, in what is now East Kilbride, Lanarkshire, Scotland.

William went on to study divinity at Glasgow University, matriculating in 1731, and then he went to study medicine at Edinburgh University. In 1741, he moved to London where he trained at St George's Hospital, specialising in obstetrics. He rose to become the leading obstetrician in the capital, being appointed Physician to Queen Charlotte (1764), FRS (1767) and Professor of Anatomy to the Royal Academy (1768). That same year, he built the famous anatomy theatre and museum in Great Windmill Street, Soho, where the greatest surgeons and anatomists of the day came to train. Those flocking to his door included his brother John who until then had been working as a cabinet-maker in Scotland.

John assisted William with dissections and, before long, was in charge of his own series of dissection classes. Having found his forte, John went on to study medicine under William Cheselden (1688-1752) at Chelsea Hospital and Sir Percivall Pott (1714-1788) at St Bartholomew's Hospital. Following appointments at St George's Hospital as Assistant Surgeon (1756), and later as Surgeon (1768), and a spell serving as an Army Surgeon (where he made a name for himself treating gunshot wounds), John set up his own anatomy school and went into private practice in London. In 1771, he married Anne, sister of Sir Everard Home (1756-1832), who was later to describe the famous ichthyosaur discovered by Mary Anning (1799-1847) and her father from the Lower Lias (Early Jurassic) of Lyme Regis on the Dorset coast.

William, meanwhile, had cultivated a growing interest in the arts and was beginning to amass a large collection of art work, antique coins, medals, shells, minerals, books and manuscripts. He made extensive purchases from the libraries and collections of private individuals and monastic houses, particularly in Paris, Vienna and Italy. He amassed a huge collection of anatomical preparations. After he died, the collection eventually passed to the University of Glasgow in 1807, forming the core of their Hunterian Museum and Art Gallery.

John emulated William in his collecting activities as well as in his medical studies. By 1783, he had acquired a large house in Leicester Square, ideal to accommodate his growing number of specimens (supposedly around 14,000 preparations representing more than 500 species of plants and animals). In 1799, the Government purchased this huge collection of papers and specimens and presented it to the Company of Surgeons which became the Royal College of Surgeons where the collection forms the basis of the Hunterian Museum.

John Hunter's original collection was utilised by him as a teaching museum and included some significant contents, some of which has now been dispersed to other institutions. For example, Joseph Banks (1743-1820), the famous traveller and naturalist who later served as a long-term President of the Royal Society, at different times gave parts of his collection to Hunter. This included material collected during his 1768-1771 voyage to South America, Tahiti (to observe the Transit of Venus), New Zealand and Australia on HM Bark *Endeavour* when he served as naturalist on Captain James Cook's (1728-1799) first voyage of discovery.

In 1783, John acquired the skeleton of the Irish giant Charles Byrne (1761-1783), still on display. Legend had it that Byrne's considerable height, over which there is some argument although it is generally agreed to have been at least 7 feet 7 inches (2.31 metres), was due to the fact that he had been conceived on top of a haystack! Byrne left Drumallon in the remote reaches of County Tyrone and travelled to London to seek his fortune. Here he was hailed as a remarkable curiosity and was overtaken by fame and wealth. He drank excessively and, after his pocket had been picked of his life savings, tried to drown his sorrows in alcohol which led directly to his death. Apparently terrified at the prospect of the 'anatomists' dissecting his corpse, his deathbed request was to be buried at sea. Contrary to his wishes, his corpse was purchased by Hunter who bribed a member of the funeral party with £500. The coffin supposedly was filled with rocks at an overnight stop and the body whisked away for dissection, preparation and scientific description. In similar vein, John Hunter is believed by some to have been somehow involved in other deaths. The question has been raised as to how his brother William was able to gain access to the corpses of so many pregnant women for his foundation study on the gravid uterus (published in 1774)!

The collections were supplemented after transfer to the Royal College of Surgeons in 1799. An extensive collection of skulls, jaws and teeth of humans and a range of other animals forms the historically important Odontological Collection, for example, and there is a fine collection of historical surgical and dental instruments. Over 10,000 microscope slides, collected or prepared in the 1840s and 1850s by John Thomas Quekett (1815-1861), belong to the Museum, as does a large and diverse collection of primate material collected and prepared by William Charles Osman-Hill (1901-1975).

There is at least one rather bizarre connection between the Hunterian Collection and the Oxford University Museum. William Buckland, First Professor of Geology and Mineralogy at Oxford and later Dean of Westminster, died in an asylum in 1856. His son, Francis Trevelyan Buckland (1826-1880), studied surgery at St George's Hospital. His passion for surgery led him to order post-mortems on his own parents. The Hunterian Museum contains the occipital bone and five cervical vertebrae of William Buckland (RCSPCS/ 49a.5 – not on display). Frank later wrote '*while] the brain itself was perfectly healthy ... the base of the skull ... together with the two upper vertebrae of the neck, were found to be in an advanced state of caries, or decay. The irritation, therefore, communicated by this diseased state ... was quite sufficient cause to give rise to all symptoms; this irritation being considerably augmented by continuous and severe exercise of the brain in thought*'. Frank Buckland searched for and found John Hunter's coffin in the crypt of St Martin's in the Fields, Trafalgar Square and arranged reburial in Westminster Abbey in 1859.



John Hunter's coffin in 1859
(courtesy C.Gardner-Thorpe)

The first curator of the collections was Cornishman William Clift (1775-1849). Clift was apprenticed to John Hunter through an introduction by a friend of Hunter's wife, and Clift arrived in London on 14th February, the date of both his own and John Hunter's birthday! His drawing skills held Clift in good stead and he was employed to care for the museum, attend Hunter's dissections, make notes, write letters and so on. After Hunter's death, the Royal College agreed to keep him on when they acquired the collections. It was to William Clift that Gideon Mantell (1790-1852) came seeking assistance and comparative material for his study of the reptile remains he had collected

from the Early Cretaceous, to be described later, in 1825, as *Iguanodon*. Clift also contributed papers to the *Transactions of the Geological Society of London*.

Probably the most famous curator of the collections was Richard Owen (1804-1892), Clift's immediate successor and, eventually, in the face of many and sustained objections from his wife, son-in-law. Owen came to London from Lancaster following an apprenticeship to a local surgeon and apothecary, and medical studies at Edinburgh University. The eminent surgeon John Abernethy (1764-1831) encouraged Owen to accept the post of Assistant to Clift at the Hunterian Museum. Owen catalogued the collection, developing his skills as a comparative anatomist, and was appointed Hunterian Professor at the Royal College of Surgeons in 1836, eventually leaving in 1856 to take up the post of Superintendent of the Natural History Department of the British Museum. Owen's intimate knowledge of extant and fossil organisms and his access to the vast diversity of Hunter's collections allowed him to make significant contributions to geology. This included the definition of the Dinosauria in 1842, extensive descriptions and interpretations of labyrinthodont amphibians, Mesozoic mammals, mammal-like reptiles (therapsids), Mesozoic aquatic reptiles (plesiosaurs, ichthyosaurs and turtles), Darwin's *Beagle* collection of South American fossil mammals, the Moa, and *Archaeopteryx*. His zoological contributions were no less impressive, with memoirs on the Dodo, Kiwi, Takahe, Great Auk, Pearly Nautilus, brachiopods, *Limulus* and many others. Other achievements include supervising the removal of the natural history collections to a dedicated building, now The Natural History Museum in South Kensington, and advising the sculptor Benjamin Waterhouse Hawkins (1807-1894) in the preparation of life-size models of dinosaurs for The Great Exhibition of 1851 and then the Crystal Palace Gardens at Sydenham. He was never far from controversy, nursed a gigantic ego and was an accomplished political schemer. The science historian, Richard Freeman, once (1978) characterised him as "the most distinguished vertebrate zoologist and palaeontologist ... but a most deceitful and odious man".

The Royal College of Surgeons was bombed during the night of 10th May 1941 and much of the collection destroyed. With considerable foresight, the basements and sub-basements had been strengthened earlier, and the Hunterian and other historical parts of the collections placed there for safe storage. Fire damage caused the loss of some material, and parts of the collection were dispersed during rebuilding of the College after the War. The new Hunterian Museum opened to the public in February 2005.

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Horner and Hutton: the French Connection

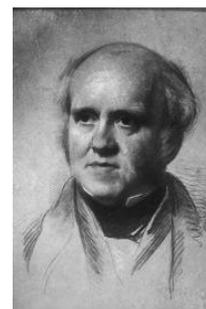
Anthony Brook¹

Earlier this year, I read a recently-published biography of a significant but underrated geologist of the first half of the 19th century, namely Leonard Horner (1785-1864), entitled *Leonard Horner: Pioneer Reformer* by Professor Patrick O'Farrell, of Edinburgh University. It seemed to be far more concerned with Horner's educational innovations, e.g. Mechanics Institutes, and his decades of unremitting hard work as the leading Factory Inspector, than with any of his geological researches and activities, despite the fact that Leonard Horner twice served as President of the

Geological Society (1845-1846, and 1860-1861). Over many years, Horner presented papers to Meetings, published erudite research papers in the *Transactions*, and attended conscientiously to delegated business of the Council, all in his spare time, and all for the passionate pursuit of the rapidly-developing science of Geology.

In the sole chapter devoted exclusively to Horner's lifelong geological interests, there occurred a most intriguing statement connecting Leonard Horner and James Hutton, both eminent sons of Enlightenment Edinburgh (p.327):

“During 1809 he [Horner] also wrote and published (in French) ‘Notes on the Huttonian System of Geology’ ”



Leonard Horner
(Photo: GSL)

which implies that Horner must have read and thoroughly digested Playfair's *Illustrations of the Huttonian Theory of the Earth*, published in 1802, which made James Hutton's innovative 'landscapes-cycles-in-endless-Time' framework for geological processes understandable. As I had never come across this conjunction before, in any text dealing with the geological ideas and personalities of the time, Wendy Cawthorne of the Geological Society Library contacted Professor O'Farrell on my behalf to ask for details of the source(s) for his assertion which, unfortunately, he was unable to provide. As the authority on the history of geology of this period, Professor Martin Rudwick was then asked for his opinion and replied that he "can find no trace of it in my copious notes. Since I combed through the 1809 volumes of all the main francophone journals with geo material years ago and, since you say it's not in the Royal Society Catalogue, I suspect it may never have been published. It's not in Dennis Dean's vol. on Hutton himself."

So, we have an unproven assertion of a publication, written in French—a language that Horner knew well, that would be historically invaluable, if only it could be located, even in manuscript form. Can anyone throw any light on this mystery of geological history?

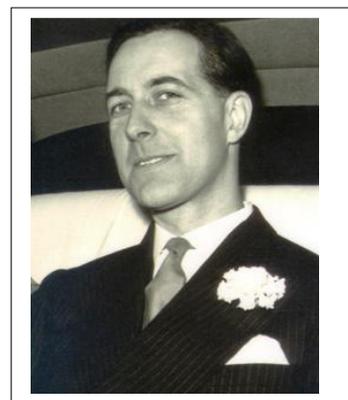
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OBITUARY

Bruce Wilcock 1927 – 2011

Bruce Wilcock, a long term member of HOGG, died peacefully in his sleep following scoliosis on 2nd August 2011, aged 83.

Bruce was born on 26th November 1927 and as a schoolboy (early in WW2) returned from evacuation eventually to join the SE London Emergency Secondary School in Lewisham, London. There he came under the influence of one of the teachers Dr H A Baker DSc, a former Government Geologist to Newfoundland. On leaving school and after industrial experience, he proceeded to read Geology at Chelsea Polytechnic (as it then was), graduating with a BSc (Hons) London, with ancillary Chemistry and Physics, in 1953.



As a senior student, he was elected a Fellow of the Geological Society on 26th November 1952, his application signed by W F Fleet (Head of Department), W E Smith and Judith Cohen, all staff at

Chelsea. He had an interest in cartography and design, and worked first as an Information Scientist at the British Iron and Steel Research Association (BISRA) headquarters.

Pending the retirement on 30th April 1961 of Arthur Greig, in post at the Geological Society for many years, Wilcock was appointed Assistant Secretary and Editor (Designate) on 13th February 1961, taking up full office (now styled 'Executive Secretary') on 1st May 1961. Under the then rules, he had to relinquish his Fellowship, regaining it on leaving the Society's employ. While in post, Bruce served under Presidents S E Hollingworth, O M B Bulman and F W Shotton; Secretaries J M Edmonds, P A Sabine and W B Harland; Treasurers P Evans and W Bullerwell; and Foreign Secretaries O T Jones and O M B Bulman. (In those days Secretaries, two in number, overlapped for a few sessions to ensure continuity).

Bruce was of course closely involved with all aspects of the Society's administration but throughout his period in post, many developments took place, some of which would come to fruition after he had left. In all of these, he worked closely with the Officers and with the numerous standing committees (about 10 in number) that reported to Council, and frequently played a dominant role. He commented on some aspects of these activities in recent years in *Geoscientist* and, in a fuller paper, in the *History of Geology Group Newsletter*.

Major new matters during this time were the expansion of the accommodation in Burlington House following the departure of the Royal Society, the institution of a preliminary 'straw poll' for Council, the first Society meetings outside London, the establishment of the Volcanic Studies Group, and especially the Engineering Group, which had an important effect upon the scope, expansion and finances of the Society, and the publication of the *Phanerozoic Time Scale* - a prototype for the Special Publications series.

The far-sightedness of the Society in setting up the Engineering and other specialist groups was especially praised by R Glossop in his comprehensive foreword to the 25th anniversary publication of the *Quarterly Journal of Engineering Geology*.

Bruce resigned in May 1966 to join the Clarendon Press (Oxford University Press) as editor for sciences in Oxford. The form to confirm his re-election as a Fellow of the Society on 12th October 1966 was signed by W B Harland, W Bullerwell, J Sutton, P A Sabine (all officers), J A Farnaby and A Greig. He was later elected to the Society Club.

In retirement, he was much concerned with the *Oxford Companion to the Earth* (OUP, 2000) and also with the Oxford University Press series on the *Birds of the Western Palaearctic*.

Bruce was a man of charming presence who had a delightful sense of humour, as evidenced by his contribution to the *History of Geology at Chelsea* (Blundell 2005). He leaves the Geological Society very much in his debt. Bruce is survived by his widow Anne, a son and three grandchildren.

Peter Sabine, with thanks to Anne Wilcock, Professor Derek Blundell and Wendy Cawthorne

BOOK NOTES AND REVIEWS

Darwin in Scotland: Edinburgh, Evolution and Enlightenment

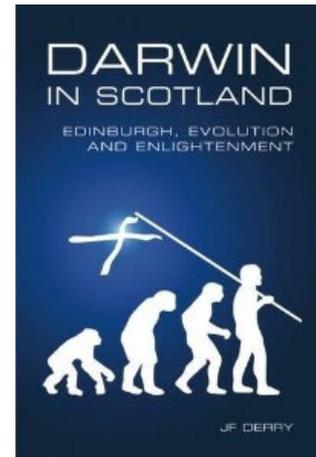
J F Derry. 2010. Whittle Publishing. 186pp. ISBN 978-1904445579 £18.99

Review by Lyall Anderson¹



(This review first appeared in Newsletter 77 of the Palaeontological Association and is reproduced here with the permission of the author and the Pal. Ass.)

It is a matter of fact that the bicentenary of Charles R. Darwin's birth produced a surge in related books, historical research, museum exhibitions and *Darwinia* during 2009. Indeed publishing 'Origin of Species' in his fiftieth year also provides us an additional excuse every fifty years to celebrate Darwin's life, works and contribution to scientific thought. With this currently considered title, J. F. Derry has added a useful contribution, setting the scene as he does for the understanding of just how influential the city of Edinburgh was to the Pre-Cantabridgian student. Derry's book examines in close detail the contribution that the Scottish physical and intellectual landscape made to Darwin's development as a theoriser grounded in the collection and compilation of facts.



In preparation for writing this review, I revisited 'Origin of Species' to refresh my own memory as to just what Darwin *actually* said, and not what he was reported to, or has since been *interpreted* to have said. This proved to be a valuable reminder, made more accessible by the use of electronic book formats and 'text to speech' software ('Origin' and many of Darwin's other works are now freely downloadable as 'Classics'). I happily discovered that Derry remained true to the original source.

'*Darwin in Scotland*' does not follow a strict chronological order of the man's life. This is a somewhat refreshing change as to how things 'Darwin' normally appear inspired by his own voluminous archive of dated letters, notebooks, collection catalogues and published works. The first eight chapters relate to Darwin, Edinburgh and his subsequent travels and researches until his death in 1882. The next four examine various evolutionary processes, some of which don't appear to fit comfortably within Darwin's original outline of Descent with Modification. Chapters 13 through 17 are concerned very much with the Religion and Science debate which for some demands conflict, others acceptance and still others partition and isolation. With titles such as 'Creationism', 'The Dissent of Man' and 'Intelligent Design', the reader is left in no doubt as to what content is discussed therein.

'*Darwin in Scotland*' begins with an initial examination of the cultural and intellectual climate that had developed in Scotland during a period referred to as the 'Scottish Enlightenment' (which took place in the latter half of the 18th Century). Firmly grounded in concerns of moral philosophy and coupled with a national programme of public education, the country was developing on the international stage. Moral philosophers such as David Hume traced their lineages of thought back to the empiricism of the Ancient Greek practitioners. This proved key to the methodology that Darwin subsequently put into practice in his scientific life.

Each of the 17 chapters is preceded by a choice quotation from the Scots poet Robert ('Rabbie') Burns (b.1759 – d.1796). Choice in that they demonstrate that something can always be found to quote in support of one's arguments, a theme exhaustively explored later in the thirteenth chapter. Derry makes the interesting point that Edinburgh had become an important focus for medical training at the time as it was a city that possessed both a teaching University for theoretical concerns and an adjacent hospital for more practical learning. This explains why the family tradition for the Darwin males to attend medical school there, starting with Charles' grandfather Erasmus and followed by Darwin's father and contemporaneously his elder brother. The family's non-conformist Unitarian faith provided another reason why Edinburgh with its more 'free-thinking'-friendly environment was favoured rather than the Anglican Church's stranglehold over the English universities of the time.

In Chapter 2 (Darwin's Scottish Enlightenment), two full plates of black and white images illustrate some key architectural scenes and figures from Edinburgh. Surprisingly though, there is nothing illustrating the striking Carboniferous volcanic topography which shaped the layout and constraints of the city. What influence did the vistas of the Firth of Forth have on Darwin's later 'Volcanic Islands'?

Chapter 3 (Mendelian Ratios) initiates the format adopted throughout the rest of the book. Namely a topic is introduced before Derry then quotes *verbatim* interviews he held with academics associated with the University of Edinburgh or other leading figures in the topical debates. In this instance, the broadcaster and animal behaviourist, Prof. Aubrey Manning provides a personal account of how Darwin has influenced his research and work.

The Burns quotation '*Lord grant that thou may ay inherit*' opens the fourth chapter concerned with the modern evolutionary synthesis. Here Derry interviews Nick Barton who emphasises Darwin's importance to evolutionary biology more so perhaps than Mendel and the DNA duo of Watson and Crick.

Chapter 5 (Scottish Geology) explores how Darwin's comprehension of 'Deep Time' arose entirely from his Edinburgh experiences. James Hutton and his school of plutonic rock formation thought had influenced Hope, Darwin's lecturer in Chemistry. Countering this was Darwin's interaction with Robert Jameson's Wernerian-flavoured lectures and field classes undertaken during his second year in the city. Much later and after the publication of 'Origin', when Lord Kelvin later argued for a younger Earth based on cooling rates, it was another Scot, Croll, who defended Darwin. The sixth chapter is an examination of Darwin's return to Scotland to decipher the parallel roads of Glen Roy, influenced by his having encountered similar phenomena on the hills above the coastline of Chile. In South America, Darwin had interpreted the presence of 'upraised shells' (mainly marine mollusc fossils) as evidence of land uplift relative to a static global sea level. Try as he might, he could find no such fossil evidence in Glen Roy. Here, is introduced the Swiss Louis Agassiz (b.1807 – d.1873) who proved former ice action in Scotland with a tour in 1840, only two years after Darwin's Scottish Highlands tour and subsequent fruitless theorising. Darwin's last visit to Scotland was in 1855 to Glasgow and the Annual Meeting of the British Association for the Advancement of Science.

The book then moves on to be concerned with the voyage of HMS *Beagle* and Joseph Dalton Hooker. This man, later to become Darwin's botanical confidante regarding the species question, was born in Suffolk, but grew up, was educated and later worked in Scotland. Explanation and interviews dealing with the concept of Punctuated Equilibrium and Stephen J. Gould follow on. A useful quote from Richard Dawkins reminds us that Darwin required a gradual speed for modification through descent, not a constant speed, hence allowing for leaps and bounds over time.

Other quotations are provided by a parasitologist who discusses Chagas disease which Darwin is thought to have picked up in South America and suffered the effects of for the rest of his life.

The relatively short Chapter 11 ties together the seemingly disparate topics of the etymology of Darwin's family name, the uses of oak trees in England at the time of the second (and Darwin-carrying) voyage of HMS *Beagle*, and Darwin's imagination of the inter-linked life of a kelp forest - derived from a rotten pile of seaweed on the seashore. In a similarly visionary vein, Astronomer Royal Martin Rees reminds us that there is more time ahead for evolutionary change than has gone before and thus Man is not the pinnacle of the process.

The chapter headed Creationism is notable in terms of its length (15 pages) in comparison to preceding chapters. The reason for this seems to be that the interviewee, Ken Ham (Answers in Genesis) has a lot to say and is given an impartial platform to say it on. Carefully questioned by Derry, Ham attempts to explain the difference between observational and operational science and why that is important to his World View. Here it is interesting to read of at least three 'Kirks' of thought under the banner of Creationism: Young Earth Creationists, Old Earth Creationists and adherents of Intelligent Design. All of whom take objection to Darwin's theory of evolution, some of them accepting the reality of natural selection others not. Ham states that he is not blaming evolution for the World's ills, but that through the implications of the theory, it indirectly contributes to the erosion of Christian morality.

In the fourteenth chapter, the viewpoint is expressed that Darwin's lack of prejudice gave him clarity of vision, which was unavailable to others. A discussion of Darwin and the Animal Kingdom is then presented via Rheinhold's bronze *Affe mit Schädel* (Ape with Skull). Helpfully, the reader is also directed to an advert on the last page of the book where one can order a custom hand-made bronze replica for their own office desk. This chapter ends with a useful listing running to 14 pages of Darwin (DAR) Archival sources held by the University Library of Cambridge.

A chapter discussing teaching Darwinism honestly in schools follows, and once more the reader is reminded of the fact that it involves a simple idea with grand repercussions. In the Epilogue, Derry discusses how although remaining impartial in the interviews, it was inevitable that he be drawn into the Religion vs. Science debate. But in a personal note, he reveals that he considers the evidence for evolution as incontrovertible. Following on is a useful Appendix, one portion of which consists of a 'Clarification of Terms' followed by a 'Glossary of Scientific terms'. This ties in nicely with the final chapters of the book which relate to the religion and science debates which invariably surface when Darwinism is mentioned, and the teaching of science in schools, particularly in the US and Scotland. Derry provides a useful resource which those science teachers who would present evolution in the classroom would do well to read, digest and transmit on to their charges. A list of contributors is given which provides a strong indication of what to expect in terms of the direction and content of the interviews.

Finally, there are nine pages of Endnotes which enrich and advise the reader on background which would otherwise have disrupted the narrative flow. This book is a welcome addition to the body of interpretive material relating to Charles Darwin. At £18.99, it is reasonable value, providing as it does a slightly different angle on a much studied historical figure. Lastly, had the front cover been rendered in a yellow and black rather than a blue and white colour scheme, one wonders what the First Minister of the newly devolved Scottish Parliament would have made of the procession from knuckling chimp to Saltire-bearing *Homo sapiens*!

¹ Lyall Anderson, Sedgwick Museum of Earth Sciences, University of Cambridge

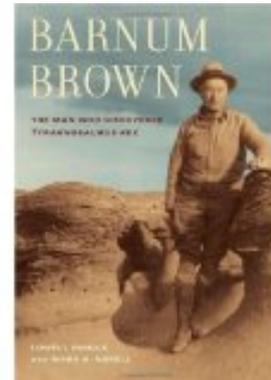
Barnum Brown – the man who discovered Tyrannosaurus rex

Lowell Dingus & Mark A Norrell. 2010. University of California Press. 368pp.
ISBN 978 -0-520-25264 (hardback) £20.95

Review by Rebecca Pyne²



(This review first appeared in Newsletter 77 of the Palaeontological Association and is reproduced here with the permission of the author and the Pal. Ass.)



For someone known as the greatest dinosaur hunter of all time, it is surprising this is the first real biography of Barnum Brown (1873-1963). Books concentrate on field activities, leaving the man himself a shadowy figure. The authors make this point: “Given all that he accomplished, the fact that no full biography has ever been written is a mystery to us.” A mystery no longer, this book examines his personal life as well as his scientific career and offers a vivid, highly readable account. On essentially the centenary of his *T. Rex* discovery, Dingus and Norell produce an outstanding tribute to “Mr Bones”. The competitively priced book draws on correspondence, notes and expedition reports in American Museum of Natural History archives as well as writing by his wives and daughter. It is all the better for that. Favourable reviews from dinosaur specialists appear on the cover but this book is of interest to non-specialists as well as vertebrate palaeontologists. The text is lavishly supported by eight maps, 43 figures and uses a clear font. Production standards are extremely high from type setting to the illustrations. A well formatted bibliography and notes allow the reader to further explore and find Brown’s original publications. Three appendices include a list of 57 major specimens displayed in the AMNH, a fascinating memoir on the discovery, excavation and preparation of the type specimen of *T. rex*, and a summary of collections made from 1896 to 1941.

We begin with an old man, reflecting on a “life filled with adventure and intrigue” preparing an autobiography that never materialised. It covers the period 1873-89 and explains why his parents moved from the settled East to the Midwest frontier, nearly two decades before his birth on February 12th 1873; an interesting diversion but we do not stay long. The unusual Christian name reflects the popularity of P. T. Barnum’s “Great Traveling World’s Fair” during the 1870s and an inability to decide what to call a new baby. A six year old brother solved the problem and the name stuck. William Cody founded Buffalo Bill’s Wild West in 1883 – an attraction that toured annually. If Mr Bones had been born later, this book might have been about Buffalo Brown! Raised on a farm, the five year old Barnum collected Pennsylvanian invertebrates in overburden excavated from coal seams. The chapter closes with a four month trip into the remnants of the Wild West with his father which reinforced an instinct for taking reasonable risks.

Chapter 2: 1889-96 covers high school and undergraduate studies at Kansas University. Meeting Samuel Wendell Williston crystallised his palaeontological ambition. Inevitably in any book on this period, two great American fossil hunters must be mentioned: Marsh and Cope and their well known rivalry. Although interesting and well written, the three page amble across well trodden ground could perhaps have been shortened. The authors redeem themselves by justifying its inclusion since Williston was the head of Marsh’s field operations before he tired of the turmoil. Brown talked himself onto the 1894 expedition into South Dakota’s White River Badlands to collect Tertiary mammals and learned excavation skills.

Chapter 3: 1896-98 details fieldwork and the beginnings of a relationship with the AMNH and its head of vertebrate palaeontology Henry Osborn. One of the book's strengths is that it introduces many great American palaeontologists with interesting brief sections before steering the reader back to how they furthered Barnum Brown's career. A major discovery from this period was the skull and other skeletal elements of *Coryphodon*, one of the first mammals to attain large size after the Cretaceous dinosaur extinction. After all his fieldwork, it is hardly surprising that Brown did not complete his degree for another decade. It is a wonder he found time at all. *Chapter 4: 1898-1900* details an 1899 South American expedition but begins with two more American greats – the mammal specialist William Diller Matthew and John Bell Hatcher. Patagonia became a focus for research into mammal evolution in the early 1890s when an Argentine palaeontologist proposed Argentina as “the cradle for mammalian origins and the focal point for vertebrate evolution and distribution” [p. 63].

Chapter 5: 1900-1903 documents Brown's interest shifting to Cretaceous dinosaurs, after discovering “a large carnivorous dinosaur not described by Marsh.” Although he immediately recognised its significance, he did not realise this would be his greatest legacy. *Chapter 6: 1903-06* deals with marriage to his first wife, Marion, who accompanied him on a scientific expedition and extended honeymoon. Dingus and Norell draw on unpublished accounts by Mrs. Brown (*Log book of the Bug Hunters*) which must be a fascinating read with notes on flora and fauna, weather, temperamental mules and the Crow Fourth of July dance. This is a particularly engaging chapter since it balances scientific discovery (most importantly the type *Kritosaurus navajovius*) with landscape, natural history and Native American culture. It closes with Osborn beginning a formal description of the prepared tyrannosaur. Although Brown is acknowledged, he is not a co-author in the 1906 paper proposing the new genus and species *Tyrannosaurus rex*.

Chapter 7: 1906-10. Brown's “Hell Creek Beds” coin a new name for the latest Cretaceous dinosaur-bearing sediments and set a foundation for understanding the Mesozoic – Cenozoic transition i.e. the end of the dinosaur age and the beginning of that of mammals. The section ends poignantly with Marion's death. Both mother and her baby daughter contracted scarlet fever, the infant recovered but Barnum lost the love of his life. Canada's 1910 Dinosaur Bone Rush is skilfully described in *Chapter 8 (1910-16)* –where dinosaur fossils were discovered in a remote region of Alberta. The Red River, Belly River Series and Edmonton Formations were slightly older than the Hell Creek Formation and the AMNH had geographical and chronological gaps to fill. Off Brown went to make numerous discoveries including a new ceratopsian and other treasures. Dingus and Norell usefully correct nomenclature, noting that “*Ornithomimus*, which if truly an ornithomimid, would now probably be called *Struthiomimus*” {p. 134}. They also note that the specimen may be a juvenile *Albertosaurus*. The fact that both authors are dinosaur specialists is apparent in their attention to detail, and they increase the value of their work to those in their field as well as to non-specialists. Brown collected mammoths in Texas and Mexico, primitive whales in Mississippi and then on to Cuba. By July 1911, he returned to Alberta and almost drowned in an accident. If that had happened, the book would be much shorter.

Chapter 9 documents the three years Brown spent in Montana, US treasury consultancy and Cuba. Mr. Bones published a *National Geographic* article in May 1919 entitled “Hunting big game of other days” and this is a good way to summarise his entire career. Correspondence from this period reveals his womanizing and a blackmail attempt. Oil prospecting in SW Ethiopia proved impossible to resist. Lilian McLaughlin, soon to be his second wife waited in Cairo and accompanied him to India and Pakistan (*Chapter 10: 1921-23*). The narrative discusses hominid evolution before returning to Brown's expedition. *Chapters 11 and 12 (1923-25)* cover Burma and Greece. *Chapter 13 (1925-31)* includes the only time, 1925-6, in 45 years that Brown “abandoned the field during consecutive years” [p.227]. He visited Nebraska in 1925 in search of ‘*Hesperopithecus*’ but doubted they were primate.

A paper published the next year confirmed this; despite resembling anthropoid molars, the teeth probably belonged to an extinct peccary *Prosthennops*. The chapter returns to dinosaur hunting and valuable discoveries including ‘*Daptosaurus*’. This languished in collections until the 1960s when this lightly built theropod was renamed ‘terrible claw’: *Dienonychus* Ostrom 1969. The description of robot dinosaurs at Chicago’s 1933 Worlds Fair in *Chapter 14* is engaging. Sponsored by a US oil company, they gave Brown the idea to request expedition funding. Budgets became increasingly tight, mirroring problems of research today. The oil company funded a 20,000 mile aerial survey – a “paleontological extravaganza” [p. 251]. Hampered by lack of funds, Brown was busy in the field from 1935 to 1941 and this is documented in the penultimate section. After battling museum cuts, he retired in July 1942, aged 69. The last chapter deals with Brown’s role in war planning from late 1942-43, consulting (1943-45), oil prospecting on the Duke of Windsor’s Alberta ranch and Guatemala (1947-52). His last field season in 1955 aged 83 almost killed him. After recovering from Rocky Mountain spotted fever, he then proposed being lowered down sea cliffs on the Isle of Wight by helicopter to dig for dinosaurs! Barnum Brown died a week before his ninetieth birthday. The epilogue summarises his career and personal life and character, while hinting at amorous adventures and clandestine government work: a balanced view of this larger than life character.

In summary, “The man who discovered *Tyrannosaurus Rex*” is a work of great scholarship, nearly a decade in development and production. It is also a fascinating read.

² Rebecca Pyne, Ceredigion, Wales

The forgotten explorers: pioneer geologists of Western Australia

John Glover with Jenny Bevan. 2010. Hesperian Press. 231pp.

ISBN: 978-0-85905-473-7 A\$36.50

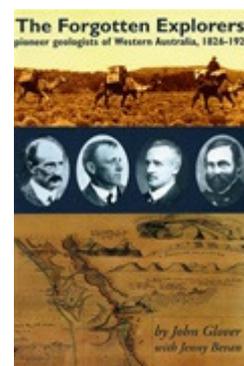
Review by Joe McCall³

This review first appeared in Geoscientist Vol. 21, No. 6 (July 2011) and is reproduced here with the permission of the author and Geoscientist editor.

This unusual book will appeal especially to members of the History of Geology Group. Western Australia is one third of the size of the USA and covers one third of Australia. In the early days after British settlement, the population numbered 5000!

The first attempts by French explorer Baudin, and afterwards by the early British settlers at King George Sound (now Albany) and Swan River in 1836, were extremely courageous in reporting and sampling geology. This book tells the story of men travelling on foot or by horse and camel, working with meagre equipment and wearing quite unsuitable dress, in temperatures above 100°F and never sure of water supplies. They include Governors, farmers, surveyors, prospectors and men with limited geological training: the establishment of a proper Geological Survey was delayed and intermittent due to a preference for prospectors who did great work but who were restricted to on-the-surface mineral finds. The Survey was brought together as an efficient organisation by the remarkable Andrew Gibb Maitland who led it from 1895 to 1926.

This book describes this remarkable cast of characters, many of unusual origins, eccentric and some difficult to get on with, possessed with strong and often incorrect beliefs about the mineral potential of the State. There was great respect for Murchison who pontificated about Western Australia’s potential for minerals without ever going there! Some prescient opinions were ignored.



My favourite tale is that of Robert Austin's 1854 expedition to find pastoral country and minerals, in which one man accidentally shot himself dead and 85% of the horses died by eating poisonous vegetation. Water dried up, yet Austin led them back through unbearable heat to the last-visited water hole, 40 miles away (finding it almost dry), and then on to lead mines near Northampton. Gibson, who gave his name to the desert, lost his wits and was never seen again. Lasseter was lost, and there were many vain searches for his fabulous gold lode, probably a chimera.

Jenny Bevan has collected an absolute treasure trove of old pictures, diagrams and documents, such that there are 140 illustrations enriching the text. This is a unique, splendid book.

³ Joe McCall, South Cerney, Gloucestershire.

NEW ANTARCTIC HISTORY BOOK

HOGG member Dr Susan Turner (Queensland, Australia) has sent in this cutting from the Australian Earth Science History Group news bulletin 26 about Alec Trendall's new book on the history of exploration in South Georgia with a biography of Duncan Carse ("who some may remember as the voice of Dick Barton!").

"In the 1950s, Alec Trendall, a former President of the GSA and Director of the Geological Survey of WA, took part in two of three surveys of South Georgia. He has now published the history of the whole campaign in a book titled *Putting South Georgia on the Map*. Profusely illustrated with route maps and contemporary photographs, the book contains accounts of all three expeditions that finally produced the first map of the whole island, as well as giving the background of the project and biographies of all party members. This self-published volume is available directly from Alec via his website at <http://www.alectrendall.com.au>"

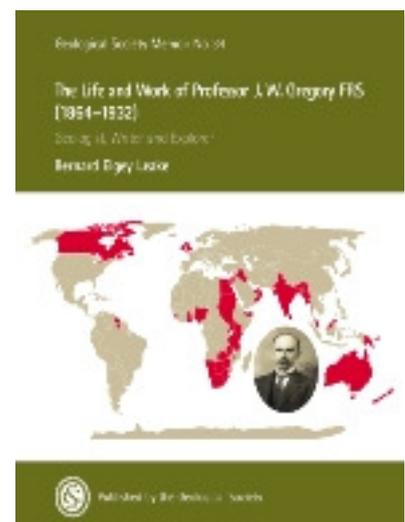
NEW MEMOIR FROM THE GSL (published 28th July 2011)

The Life and Work of Professor J. W. Gregory FRS (1864-1932): Geologist. Writer and Explorer

B E Leake. 2011. Memoir 34 Geological Society of London. GSL Publishing House. 232pp.

ISBN 978-1-86239-323-3 (paperback) £75.00 (GSL fellows £37.50; other societies £45.00)

ABSTRACT: Gregory's remarkable career and his scientific work are detailed and critically assessed. Accounts of his heroic 1893 expedition to the Rift Valley (a term he coined) in Kenya (now the Gregory Rift), his first crossing to Spitzbergen, and his resignation as Leader of the first British Antarctic Expedition of 1901, when racing to the Pole under Scott became the priority, draw on unpublished letters. While in Melbourne, he published on mining geology and a series of geography textbooks. His 1901 Lake Eyre expedition in Central Australia initiated the phrase 'The Dead Heart of Australia' and controversy over the

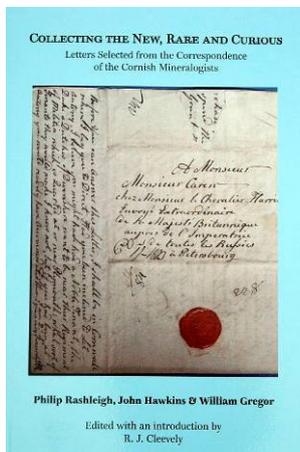


source of artesian water. In the Chair of Geology in Glasgow from 1904, he built up the largest first-year geology class in the UK, over 400 students. He worked in every field of geology and every continent except Antarctica. He was involved with the search for a 'homeland' for the Jews in Libya and Angola. He shrewdly realized that Wegener's Continental Drift Theory erroneously supposed that the Pacific Ocean was wider than now before the Atlantic opened. This led to his influential rejection of Continental Drift. He drowned in Peru traversing the Andes having published over 30 books and nearly 400 articles.

***NB: Bernard Leake will be speaking on J. W. Gregory at the HOGG Open Meeting next April.**

***Collecting the new, rare, and curious
Letters selected from the correspondence of the Cornish mineralogists
Philip Rashleigh, John Hawkins, & William Gregor***

R J Cleevely. 2011. *Devon & Cornwall Record Society*, New Series, 52.



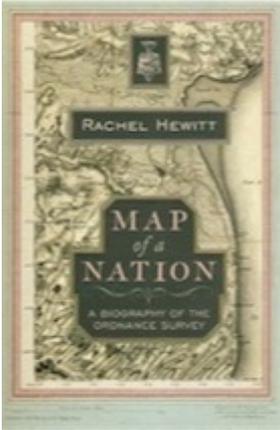
“Mineral collectors made a significant contribution to the development of Mineralogy as a science, and the rich variety of specimens found in the South West peninsula enabled Cornish collectors to participate in improving knowledge of their occurrence, paragenesis, chemistry and variety.

The correspondence of three eighteenth-century Cornishmen – Philip Rashleigh, the Reverend William Gregor and John Hawkins – provides evidence of their involvement in the progress in this branch of geology throughout that period as a result of their collaboration with British and European researchers. A selection of these letters illustrates the motives of collectors and the gradual manner and sequence by which improvements in identifying minerals were made. The fashion for making

protracted tours throughout the UK or Europe facilitated the spread of geological knowledge in enabling direct contact with those involved. The initial stage of acquiring and exchanging specimens is typified by letters between Rashleigh and his nephew Pole Carew, during such a tour. Other letters between this Cornish ‘trio’ reveal the nature of their contribution to the later stages of cataloguing or refining classification systems, through providing material for analysis and continuing to supply specimens to eminent collectors. A Chronological List of all relevant letters in these archives (more than 500 in number) from which 168 have been selected, provides a unique reference source. The Introduction to the volume discusses the archives, the letters, the relationships of the ‘trio’, historical and political events of the period, aspects of mineral collecting, and the gradual development of a satisfactory mineral classification system. Extracts from the letters are used as evidence in each of these. Reference is also made to some earlier theories of 18th century geology.” (<http://genuki.cs.ncl.ac.uk/DEV/DCRS/>)

The Geological and Ordnance surveys, and the question of scale

John Henry¹



Although we are aware that the Geological Survey began with Henry De la Beche's appointment as Geologist to the Ordnance Survey in 1832, the interplay of the OS's mapping requirements and the experience of geologists mapping in the field is less well known. In reviewing *Map of a Nation; a Biography of the Ordnance Survey*² (see <http://www.history.ac.uk/reviews/review/1109>), recently, I was prompted to look more deeply into the experience of geological mapping in Ireland and Great Britain within the Ordnance Survey, and how that influenced the OS's selection of scales for survey and for publication.

The need for detailed and accurate mapping of Great Britain was driven by events on the continent and fear of invasion. The Trigonometrical Board of the Ordnance Survey was created in 1795 to produce maps showing the lie of the land for military purposes. The scale of 1" to the mile was adopted as adequate for defence needs. The priority for mapping was London and the south-east, followed by the south coast and the North Sea coast. The first map of Kent was published in 1801. Subsequently, maps on a grid layout appeared from 1811 onward. When De la Beche made his proposal in 1831 to Thomas Colby of the OS to prepare geologically coloured Ordnance maps of Devon and Dorset, the 1" maps were to him a great improvement in accuracy and depiction of relief over any mapping that had preceded the OS.

*'too much praise cannot be given to the late sheets of ... the Ordnance, remarkable not only for their general fidelity, but also for the shading of the hills; ... With these maps in his hands the geologist feels ... he is able to soar, as it were, above the country he has examined; and by combining his various observations, he may arrive at general conclusions ... to which he might never have been led without an exact document of this nature.'*³

In Ireland, defence was not the issue. Instead the requirement was accurate mapping to clearly define and delineate boundaries for the assessment of taxes. A larger scale was required and the scale of 6" to the mile was adopted. The concept of evaluation led to an expansion of the scope of the survey. Colby conceived for Ireland a 'fully rounded national survey' that fleshed out 'the paper landscape'⁴ with a memoir for each map that included agriculture, manufactures, resources and population statistics. This memoir concept failed due to budget overruns and the difficulty for surveyors of combining measurement with sample collection and questionnaires. However, from this wider concept, the mapping of geology was retained and continued, using the 6" survey maps as they became available.

In Ireland, De la Beche quickly perceived that geologists could record much more useful detail more accurately at the 6" scale. However, he realised that to publish at that scale would be too costly and time consuming. As the original brief of the OS in Ireland had not envisaged publishing topographic maps at any other scale, the issue of whether to produce a 1" scale had been debated throughout the 1840s. De la Beche, heading the new Geological Survey of GB and establishing a separate Geological Survey of Ireland in 1845, campaigned to have the 1" scale adopted in Ireland as the scale for publication of the geological survey by reducing it from the 6" manuscript field surveys. 'Ireland gained its one-inch (topographic map series) largely because the Geological Survey wanted it for publishing its results'⁵.

In Great Britain, until this time, the ‘infilling’ of the triangulation network with detail was carried out at 2” to the mile. While this had been vital for speed initially, after the defeat of Napoleon this was less essential. This scale had been used by De la Beche and his first assistants for mapping the geology which is why he was so enthusiastic about the 6” scale field mapping sheets he had seen in Ireland. In 1845 the geological mapping of Scotland and much of the north of England had not been started. There was pressure to map the geology of mining districts in detail. De la Beche and Colby were able to persuade the Treasury to support the adoption of the 6” scale for the as yet unmapped areas of Great Britain as the topographic survey scale with publication at 1” scale. Eventually, the 6” scale was the published map scale for all of GB, topographically, and for selected areas, geologically.

In Ireland, the 1” scale, which was completed by 1890, remained until recently the only published scale for geological maps. The unique 6” map manuscripts were used by generations of geologists, including yours truly, at the headquarters of the Geological Survey of Ireland in Dublin when more detail was required. Now these are available digitally on-line as are all the original 1” geological maps (see <http://www.geologicalmaps.net/IrishHistMaps/history.cfm>). For a more complete, authoritative and lively account of geologists in Ireland, Herries Davies is hard to beat⁶.

De la Beche played a pivotal role in persuading the Irish OS to publish at the 1” scale, based on his experience in England and Wales, and in persuading the OS and Treasury to enable the 6” survey scale in Great Britain based on his Irish experience. He was politically adroit, manoeuvring to join the OS as a geologist, and eventually establishing separate Geological Surveys of England and Wales, of Ireland, and of Scotland.

²Hewitt, R. *Map of a Nation; a Biography of the Ordnance Survey* (London, 2010).

³De la Beche, H. *A Geological Manual* (2nd ed., London, 1832), p. 545.

⁴Hewitt, R. (2010), p. 270

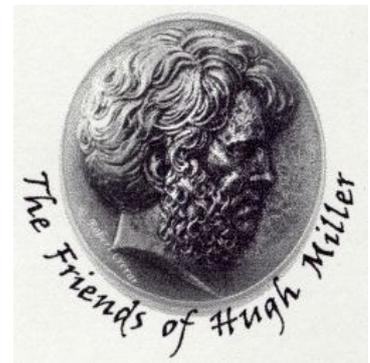
⁵Hellyer, R. & Oliver, R. *One-Inch Engraved Maps of the Ordnance Survey from 1847*. (London, 2009), p. 20.

⁶Herries Davies, G. L. *Sheets of Many Colours* (Dublin, 1983) and *North from the Hook; 150 years of the Geological Survey of Ireland*, (Dublin 1995).

¹John Henry (e mail: geol.maps@virgin.net)

BOOKS FOR HUGH MILLER MUSEUM

Do you have any spare copies of the works of Hugh Miller, or works related to Hugh Miller? His best-known geological book is *The Old Red Sandstone* (1841), but there are several others on geology, religion and folklore. Would you like to donate books to the Hugh Miller Museum in Cromarty? The ‘Friends of Hugh Miller’ aim to improve the Museum library by building up a collection of the various editions of Hugh Miller’s publications. These would be available for research into the literary legacy of Hugh Miller.



Donated copies that duplicate editions already held in the collection would be sold to Museum visitors to assist ‘The Friends’ in supporting displays and events at the Museum, and in the purchase of editions of Miller’s work not in the library.

Donated copies for this good cause can be sent to
Martin Gostwick, Russell House, 55 Shore Street, Cromarty IV11 8XL

or

Prof. N H Trewin, Dept of Geology and Petroleum Geology, Meston Building,
University of Aberdeen, Aberdeen AB24 3UE.

The 'Friends of Hugh Miller' (Charity No. SC037351) supports the National Trust for Scotland properties of Hugh Miller's Birthplace Cottage and Museum at Cromarty. A recent generous donation to NTS has funded the appointment of a new Manager/Curator, Dr Alix Powers-Jones, who took up her post on 1st June this year. The Museum is now open daily from 12 to 5 until 30th September, and then on Tuesdays, Thursdays and Fridays in October. Other times can be arranged for group visits.

Why not sign up and join 'The Friends'? For a mere £10 (or more!) you will receive details of meetings, publications, and a newsletter with reports of events. For further information, visit the website at <http://www.hughmiller.org/>

Prof. Nigel H Trewin
Chairman 'The Friends of Hugh Miller'

THE GEOLOGICAL SOCIETY LIBRARY'S "SPONSOR-A-FISH!" PROJECT

The GSL Library has launched a project to conserve and digitise one of its most important collections.

The fossil fish portfolio of Louis Agassiz (1807-1873), comprising nearly 2000 watercolours and drawings dating from the 1830s - 1860s, were copied from private and public collections around Europe, principally by the German artist Joseph Dinkel.



Born in Môtier, Switzerland, Agassiz studied medicine at the Universities of Zurich, Heidelberg and Munich, during which he developed an interest in zoology, particularly of European freshwater fishes. His research for a natural history of European freshwater fishes, comparing the fossil forms from Oeningen and Glarus (Switzerland) and Solnhofen (Bavaria) sparked a life-long fascination with fossil ichthyology. Finding the existing classification scheme inadequate, Agassiz developed his own (now superseded) scheme based on the scales and dermal appendages.

The five volume *Recherches sur les Poissons Fossiles*, lavishly illustrated with 400 lithographic plates of fish, was issued from 1833-1843 and gained Agassiz international recognition as the leading figure in fossil ichthyology. In 1836, the GSL awarded him its Wollaston Medal.

In order to fund his research and the expensive colour printing, Agassiz accepted help from various friends and scientific figures of the time. Lord Francis Egerton, later 1st Earl of Ellesmere, purchased 1200 drawings and paintings directly from Agassiz, primarily to provide him with funds to continue his work. Egerton donated these drawings to the Society in 1843. The second donation

came from Agassiz himself. In 1858, he gave the 568 sheets of drawings and paintings still in his possession, most of which were unpublished. A final donation, in 1876, came from the Earl of Enniskillen, and includes images from Agassiz's follow-up work *Monographie sur les Poissons Fossiles du Vieux Grès Rouge (1844-1845)*.

For many years, the drawings were kept in a trunk in the 'Museum' and later in different places around the Society but the Library would now like to make them accessible to future generations of researchers by conserving and digitising the entire collection.

If you would like to help the library in this project, a small contribution of £20 would be enough to clean, conserve and digitise one fish. The names of all sponsors will be included in a roll of honour in the Archive, and on the GSL website. A brilliant £1200 was raised in the first month of the appeal but there is still a long way to go to reach the Library's target.

To Sponsor a Fish:

Please send a cheque made out to 'The Geological Society' or call 020 7832 0999 to pay by card.

For more information, contact Michael McKimm at the GSL Library
(e mail michael.mckimm@geolsoc.org.uk)

IRISH NEWSPAPER ARCHIVE

The largest digital collection of Irish newspapers available anywhere in the world is at the GSL Library, Burlington House, until 30th November 2011. With over 20 newspaper titles dating from 1700 to the present day, the Irish Newspaper Archive may be of particular interest to those researching the history of Irish geology.

Contact: Michael McKimm (e mail: michael.mckimm@geolsoc.org.uk)

On the first usage of 'Plate Tectonics'

Anthony Brook¹

In the last issue of the HOGG Newsletter, I requested assistance in identifying the original proponent(s) of the all-powerful concept of plate tectonics in the 1960's and, also, who first used the two technical terms 'plate' and 'tectonics' in association as a shorthand description of this innovative idea. So far I have had more success with the latter than the former, and wish to report that its debut seems to have been belated, accidental and incidental. It was used for the first time quite some time after the event, so to speak, when Earth scientists were searching for a succinct phrase to encapsulate what had been so elegantly elaborated. The term 'tectonics' had been prefixed by 'raft', 'continental' and 'global' by various authors, but none captured the scientific and public imagination quite like 'plate tectonics'.

In 2001, Naomi Oreskes edited a collection of essays entitled *Plate Tectonics: An Insider's History of the Modern Theory of the Earth* which is exactly what it says on the front cover: 17 original essays by the scientists who made Earth history. One of those essays was by Dan McKenzie, who was in the Department of Geodesy and Geophysics at Cambridge University at the time, and in this essay he wrote (p.184):

“Who invented the term Plate Tectonics itself is unclear. Several people tried to coin a term, partly (it must be said) with the aim of being able to say that they discovered the theory. None of these proposals stuck. One of the earliest uses of the term that I know of was by Jason [Morgan] and myself in our paper on the evolution of triple junctions [in Nature] in 1969. But I certainly would claim only to have written down a term by which the theory was, by then, widely known’.

The paper by Dan McKenzie and Jason Morgan on ‘*The Evolution of Triple Junctions*’ in *Nature* (11th October 1969) begins, on p.125, thus:

“A precise version of the hypothesis of seafloor spreading has recently been presented. This new formulation requires that all the aseismic areas of the Earth’s surface move as rigid spherical caps, and, for this reason, it is often called “plate tectonics”.

However, the entry in the multivolume *Oxford English Dictionary* (2nd Ed. 1989, Vol. XI) for ‘plate tectonics’, which is buried in the small print on p.998, reads:

“1969 Scientific Journal Aug.,40/2 Plate tectonics....has shown its ability to predict, amongst other things, the direction of movement accompanying earthquakes.”

This is a couple of months prior to McKenzie and Morgan, and therefore takes precedence. However, thanks to the tireless effort of Jane Dore, Information Librarian at Worthing Reference Library, it has proved possible to push the priority several months further back in time. In the article by James Schopf entitled ‘*Ellsworth Mountains: Position in West Antarctica due to Sea-Floor Spreading*’, published in *Science* on 4th April 1969 (Vol. 164, pp. 63-66), there occurs the following sentence, on p. 64/3:

“If one...considers continental drift in the light of plate tectonics, displacement of the Ellsworth Mountains can readily be explained.”

It would thus appear that James Schopf takes the honour, in early April 1969, for the first published usage of the term ‘plate tectonics’. This is surprisingly late, but it caught on like wildfire---unless, of course, you can improve on the priority!

REPORTS ON MEETINGS OF OTHER BODIES

NATIONAL ASSOCIATION OF MINING HISTORY ORGANISATIONS (NAMHO) CONFERENCE



National Association of Mining
History Organisations
NAMHO

The National Association of Mining History organisations (NAMHO) 2011 Mining History Conference was held from 29th July to 1st August at the Field Studies Centre, Preston Montford, near Shrewsbury. The event was held under the auspices of the Shropshire Caving and Mining Club.

Around 160 delegates were registered for the conference which included a wide range of presentations together with surface and underground field visits.

Photo: David Earle



A total of about thirty presentations were given in parallel sessions, allowing choices to be made from a range of topics and areas of interest. The conference coverage and delegates' interests encompassed both mining history and archaeology, as well as the exploration, surveying and documentation of mines. There was some emphasis on the varied history and archaeology of Shropshire mining but topics also ranged more widely to include, for example, iron ore mining in North Lincolnshire, manganese mining in North Wales, as well as lead mining, coal mining and underground stone quarries. Archaeological topics such as firesetting and the excavation programme at Pitchcroft engine house were also considered and the social history of mining communities was a further strand. There is the intention to publish the conference proceedings.

David Earle (e mail daearle@btinternet.com)

FUTURE MEETINGS OF OTHER BODIES

THE GEOLOGICAL SOCIETY FOUNDERS' DAY LECTURE AND DINNER THURSDAY 10TH NOVEMBER 2011 BURLINGTON HOUSE and LE MERIDIEN, PICCADILLY, LONDON



To commemorate the day the Geological Society was founded, the 2011 Founders' Day lecture will be given by Professor Iain Stewart (University of Plymouth) on '*A succession of worlds – a journey through the foundations of modern geology*'.

The lecture (18.30hrs) will be followed by a reception (19.30hrs) and dinner (20.30hrs) at Le Meridien, Piccadilly, with an after dinner speech (at 22.00hrs) from Prof. Nick Pelford (University of Northampton).

Ticket price £80 per person. Dress: black tie.

Bookings are now being taken; contact Georgina Worrall to reserve your place, or complete the booking form on the Geol. Soc. website (www.geolsoc.org.uk/founders11).

Georgina Worrall: e mail georgina.worrall@geolsoc.org.uk
tel. 020 7434 9944

HOGG OPEN MEETING
Geological Society, Piccadilly, London
20th March 2012
REGISTRATION FORM

I wish to register for this HOGG Open Meeting:

Name:

Postal Address:

.....
.....

Tel. No.:

E mail address:

Meeting fee: HOGG members.....£15

Others£35 (includes annual subscription to HOGG (£15) for 2012)

Students.....£10

Please return the completed form and cheque (*payable to HOGG*) to the meeting organiser:

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

A HISTORY OF GEOLOGY AND MEDICINE
Geological Society, Piccadilly, London
31st October – 3rd November 2011
REGISTRATION FORM

NAME:.....

ADDRESS:.....

.....

Postcode:.....Telephone:.....

E mail:.....

I wish to register for the following (*please tick appropriate boxes*):

VISIT: Monday afternoon 31st October - ROYAL COLLEGE of SURGEONS £10.00

CONFERENCE: Tuesday 1st – Wednesday 2nd November

Free to Speakers

Members of HOGG, Geologists' Association and OUGS £25.00

Others £30.00

Join HOGG on registration (annual subscription £15) and benefit from the reduced members' rate; £40 will secure registration and HOGG membership for 2011 and 2012.

£40.00

The registration fees are inclusive of all teas/coffees.

RECEPTION: Tuesday 1st November 18.30 £5.00

CONFERENCE DINNER: Tuesday 1st November 19.45 £40.00

VISIT: Thursday 3rd November OXFORD MUSEUMS
 (Ashmolean, Natural History, Pitt-Rivers and History of Science)
 cost to be advised

Total Payment:

Cheque (payable to HOGG) enclosed ††Payment by debit/credit card

Complete this form and either post it or email it to the HOGG Treasurer (Dr B M Cox)
 151 Browns Lane, Stanton-on-the-Wolds, Keyworth, Nottingham NG12 5BN, UK;
 beris.cox@btinternet.com

††you will be e mailed a separate PayPal invoice; this will incur a 5% surcharge.