

HOGG

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



**Number 42
June 2011**

Front cover

Arthur Holmes (1890–1965) as a young man, c. 1912

2011 marks the centenary of the publication of the first-ever geological timescale. Arthur Holmes' paper *The Association of Lead with Uranium in Rock-Minerals, and its Application to the Measurement of Geological Time* was published in the *Proceedings of the Royal Society of London*, Series A, 85, 578, pp. 248-256 on 9th June 1911.

See Cherry Lewis' article 'Holmes' First Date' in the June edition of *Geoscientist* (pp.12-18); this can be viewed online at <http://www.geolsoc.org.uk/page9898.html>.

Editorial subcommittee

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

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

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).

LETTER FROM THE CHAIR



Since my last letter, I have attended two HOGG-inspired conferences, the first at the Natural History Museum (NHM) in London's South Kensington, the other at the Société Géologique de France (SGF) in Paris.

The London conference, entitled *Geological Collections and Collecting*, was organised by Nina Morgan and John Henry, ably assisted by Sarah Long of the NHM. The meeting was an educational cocktail of lectures, posters and workshops, as well as 'behind-the-scenes' tours. It would be unfair to nominate a best this or best that as the standards set were of the highest order. The meeting brought together people from all walks of life and during the interludes for coffee and tea, groups of delegates

enthusiastically discussed a whole range of topics. Unavoidably, there were some clashes in terms of timing because of the number of options on offer but the meeting was a huge success in terms of numbers present and in new member registrations for HOGG. Many thanks to Nina, John, Sarah and the large number of NHM staff involved (effectively backstage). See David Earle's report of this meeting on pages 2 - 4 of this newsletter.

In Paris, the sun also shone but on a much smaller meeting which was blessed by at least three receptions. The meeting, entitled *Dinosaurs – Their Kith and Kin*, attracted 48 delegates. Speakers came from all over Europe and there were several from North America. I have written a fuller account of the meeting on pages 5 - 8 of this newsletter but I would note here that, at last, I satisfied a life-long wish to visit the underground Chalk caves of Meudon.

The future looks really bright for HOGG. In November this year, a meeting entitled *A History of Geology and Medicine* will be held at Burlington House. Chris Duffin, Christopher Gardner-Thorpe and I are the co-convenors and we have a programme featuring 30 talks plus posters. We have arranged visits to the Hunterian Museum at the Royal College of Surgeons in Lincoln's Inn Fields, London, and a day in Oxford visiting the University's Natural History, Pitt Rivers and Ashmolean museums. Registration details are included in this newsletter.

In 2012, we can look forward to another of the successful open meetings organised by Tony Brook and we are planning an ambitious meeting on '*Geology in the Courtyard*' which will unravel the historical links between the learned societies based in the Burlington House complex in Piccadilly. In October or November 2012, a meeting on the *History of Geotourism* will be held at Burlington House under the auspices of the Geological Society's Conference Office.

In 2013, the plans laid by the existing committee will assure the growth of HOGG and we will be involved in a major celebration of the history of geology when INHIGEO comes to Manchester. For those of you not familiar with INHIGEO, see David Oldroyd's article later in this newsletter. Look out for exciting sessions instigated by this group, together with fieldtrips to historically important areas such as Shrewsbury and Much Wenlock, and North Wales or the Peak District.

HOGG continues to prosper!

Dick Moody
June 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.

REPORTS ON HOGG MEETINGS

GEOLOGICAL COLLECTORS AND COLLECTING

David Earle reports on the HOGG meeting held at the Natural History Museum, London on 4th - 5th April 2011.

This meeting was innovative in a number of ways. The venue at the Flett Theatre of the Natural History Museum was a first for HOGG and the meeting format was also novel with workshops and behind-the-scenes tours supplementing the talks and posters, thereby offering a choice of activities for the 130 registrants. The conference talks were themed in four sessions to cover firstly the rationale for collecting, and then the three main areas of collecting - maps and books, fossils, rocks and minerals.



Richard Fortey giving the opening talk.
(photo: John Henry)

The conference was opened by **Richard Fortey** of the Natural History Museum speaking on *Collecting fossils: pitfalls and practice* beginning with his own early experiences of Spitsbergen and trilobites. Richard dealt with the problems of collecting and conservation and the importance of maintaining the longevity of collections for the benefit of future research. **Julian Wilson** from Christie's spoke on *Rare geological books and maps: an auctioneer's perspective* considering the sale of important collections from the eighteenth century onwards and providing a context for the evening event when delegates were offered a preview of travel, science and natural history auction lots at Christies saleroom. The opening theme of the conference was concluded by **Jonathan Larwood** from Natural England who considered *Field collecting: the development of policy and guidance*. Jonathan developed the idea of a hierarchy of guidance, policy and legislation with examples of good field practice and standards.

The second session of talks on map and book collecting began with **Tom Sharpe** from the National Museum of Wales on *North on the map: the geological map collections of the National Museum of Wales*. Tom discussed Frederick John North (1889-1968), his long association with the Museum of Wales and the extensive and important collection of maps which he was responsible for acquiring. **Stuart Baldwin** of Baldwin's Scientific Books spoke on *Book collecting in the history of the natural sciences, especially geology, palaeontology and natural history* from the perspective of both a collector and a dealer, illustrated by some rare items from his own collection. The second session was concluded by **Christopher Toland** of Oolithica Geoscience on *The eye of a collector: how map collecting illuminates history*. Christopher referred to examples of mapping by Adam Sedgwick and the importance of publishers such as J and C Walker and James Knipe. He also discussed recent geological mapping and made the point that much high quality mapping is now undertaken commercially and may never be more widely available.



Julian Wilson is host at Christie's saleroom. (photo: John Henry)

The second day of the conference opened with the theme of fossil collecting. **Karolyn Shindler's** topic was "*I have found wonders*" - *the life, letters and passion for collecting of the 19th century fossilist, Barbara Yelverton, Marchioness of Hastings*. Karolyn described Barbara Yelverton as a well respected natural scientist who collaborated with Richard Owen and Edward Forbes. **Jonathan Radley** (Warwickshire Museum) spoke on *Collecting the Jurassic: local museums and a window on the past* and dealt with Jurassic collecting from William Smith and Mary Anning to the current programme of his museum. **Richard Edmonds** (Dorset County Council) continued the theme with *The furtherance of science: the role of the Dorset collectors* dealing with the historical importance and the present day management of the Dorset coast including the important contribution of amateur and professional fossil collectors.

The final theme of the conference, rock and mineral collecting, was opened by **Monica Price** of the Oxford University Museum of Natural History who discussed *The Corsi Collection of decorative stones: how Faustino Corsi brought geology to the arts*. The Corsi collection of one thousand samples, the basis of his systematic study of decorative stone, is housed in the Oxford University Museum of Natural History and can be viewed by appointment. **John Faithfull** of the Glasgow Hunterian Museum spoke on *Spending a fortune in the 18th century: William Hunter's mineral collection and how it was used*. William Hunter (1718-1783) was a successful anatomist and royal physician as well as a prolific mineral collector; he thus provides a link to the HOGG conference on *Geology and Medicine* to be held later this year. The final paper of the conference was to have been given by **Chris Collins** of the Natural History Museum on preserving collections. However Chris was injured (not too seriously luckily) whilst undertaking the extreme sport of city cycling and his place was taken at short notice by **Brian Rosen** of the NHM who discussed the serendipitous acquisition of important geological material from skips – something which had been remarked on at other times during the conference.

In addition to the talks, workshops were run by experts on the conservation of books, objects and paper, and on digital photography for collections. Behind-the-scenes tours to see some of the Natural History Museum's own geological collections in both the Mineralogy and Palaeontology departments as well as the Library, where an 1815 William Smith geological map was on display, proved to be even more popular.



William Smith 1815 map on display.

(photo: John Henry)

Throughout the meeting, a really excellent selection of posters were displayed in the room adjoining the Flett Theatre. Pleasingly, the organisers had allowed sufficient time within the programme for delegates to do them justice.



Poster displays.

(photo: David Earle)

Feedback from delegates was very positive and the meeting was deemed to have been a great success. The programme and abstracts can be downloaded from the HOGG pages of the Geological Society website (<http://www.geolsoc.org.uk/hogg>).

The meeting was jointly convened by HOGG (Nina Morgan and John Henry) and the Natural History Museum (Sarah Long), and sponsorship was provided by Ove Arup and Partners, and Nineteenth Century Geological Mapping.

DINOSAURS – THEIR KITH AND KIN: A HISTORICAL PERSPECTIVE

Dick Moody reports on the joint HOGG/ Société Géologique de France/Muséum National d'Histoire Naturelle meeting held in Paris on 2nd – 6th May 2011.

Following the successful HOGG meeting *Dinosaurs and other extinct saurians: a historical perspective* held in 2008 at the Geological Society in London, a follow-up symposium entitled *Dinosaurs – their kith and kin: a historical perspective* was held at the Société géologique de France (SGF) in Paris in May this year.

Papers were invited on all aspects of the history of research on dinosaurs (including birds) and extinct non-mammalian tetrapods. Contributions dealt with the work of individual palaeontologists (professional or amateur), institutions, collections, palaeontological expeditions, fossil folklore and the contributions of artists past and present. The meeting was organised by Eric Buffetaut (CNRS/Ecole



Normale Supérieure, Paris), Richard (Dick) Moody (HOGG), Nathalie Bardet (CNRS/MNHN, Paris) and Jean Le Loeuff (Musée des Dinosauriens, Espéraza, France).

Registration and the first of several receptions took place in the wondrous palaeontology gallery on the first floor of the Muséum National d'Histoire Naturelle (MNHN) in the Jardin des Plantes. The conference and poster displays were held at the SGF which is housed in a beautiful Parisian villa hidden behind a huge green door. The atmosphere was positively relaxed!

Palaeontology gallery at the MNHN.

(photo: Dick Moody)

The programme comprised 27 oral presentations and nine posters, each of which revealed hitherto unpublished historical data. **Buffetaut & Brinkman** outlined the friendship that existed between O. C. Marsh and French palaeontologists in the discovery of sauropod dinosaurs in Normandy and loss of this collection due to Allied bombing towards the end of WWII. **Bardet & Galoyer** talked about the discovery of mosasaur material from the Chalk of Meudon, an area made famous by the work of several renowned French palaeontologists and the destination for a fieldtrip at the end of the conference.

A number of talks dealt with the contribution of different individuals to the history of palaeontology such as the legacy of Mary Anning in terms of French vertebrate palaeontology and her links with Cuvier (**Vincent & Taquet**) plus the role of Albert F. de Lapparent in the discovery of dinosaurs in Spain (**Pereda Suberbiola & Ruiz-Omeñaca**). The story of Cope's last feud (**Brinkman, P. D.**) revealed that Edward Drinker Cope was notoriously combative and that his last skirmish was not with Othniel Marsh but Frederick Skiff, the then director of Chicago's Field Columbian Museum. Sadly, Cope died miserably having taken to injecting formalin and belladonna.

Who discovered the Bernissart iguanodon bones (**Godefroid**) and the looting of cultural possessions in the form of actual specimens (**Roelf**) highlighted the fascinating moral battles that existed between collectors and warring nations.

Dinosaur footprints and track/trailways were the subject of talks given by **Landry *et al.*** (from the region of Ain and Jura in France) and **Lang *et al.*** working on the hand/footprints of sauropods. The trailways of Ain and Jura are continuously being unearthed on the surface of Jurassic sediments in the French Jura. They are startling in terms of quality and quantity, and the area will some day become a national park. The fascinating talk by **Lang *et al.*** concentrated on the question of knuckle-walking sauropods. They discussed the presence of completely imbedded claws which failed to register as a mark in soft sediment giving rise to imprints that resembled those of knuckle-walking primates!

The selling of dinosaur eggs from Mongolia (**Manias**), not for financial gain but as a public relations exercise to secure funding, was a great success for the scientists concerned with the Central Asiatic Expeditions of the 1920s. In contrast, competition between scientists and museums in both the United States and Germany was exacerbated by the campaign, initiated by Andrew Carnegie, of donating *Diplodocus* plaster casts (**Nieuwland**). The display of these beautiful casts suffered from the interpretation of sauropod stance and gait by palaeontologists who followed the Tornier-inspired lizard-like stance rather than the upright stature adopted by the Pittsburgh Museum. Day 1 finished with the flair of **Koseman & Conway** and an animated film entitled *Mystery of claws across time*.



Group photograph of delegates in Paris.

(photo: Dick Moody)

In line with the title of the meeting, **Pérez-García & Sánchez-Chillón** opened Day 2 with a talk on the giant tortoises of the Castilian Plateau which, together with a presentation by the same authors on Spanish Mesozoic reptiles found in the nineteenth century, threw light on the collective work being undertaken by Spanish workers to recover specimens and archival material from what appears to be rich and neglected collections.

Sauropod dinosaurs in the form of the Carnegie *Diplodocus* surfaced again (!) in the talk by **Vives & Colin-Fromont** entitled *Deep Time's Dippy*, the arrival of *Dippy* in Paris rivalling the appearance of Charles X's giraffe in 1826. As before, however, the erection of the Paris cast simply added to the confusion over stance and gait that shook Europe in the second and third decades of the twentieth century.

The *Incredible Hulke* (**Wills**) was a classic in terms of new data on an early but neglected pioneer of vertebrate palaeontology; a man who was at times President of the Geological Society (1882-1884) as well as the Royal College of Surgeons, the Clinical Society and the Pathology Society, and who stood alongside Huxley against Owen, as well as completing the first skeletal reconstruction of *Hypsilophodon foxii*. The talk was enhanced by the presence of Susannah Hulke who carried the Wollaston Medal of the Geological Society awarded to Hulke in 1887.

Mildenburger presented a paper on dinosaurs and theosophy, and the world of Edgar Dacqué who wrote the best seller *Urwelt, Sage und Menschheit* and who was effectively consumed with the relationships between man and dinosaurs. Crazy maybe but his second book sold 13,000 copies in three weeks. Publications of a more sinister type characterised the presentation *Paul Renouard's les premiers déprédateurs: dinosaurs in World War I propaganda* given by **Buffetaut & Le Loeuff**. This research deals with the crude propaganda written against German scientists by their French counterparts, with Renouard's artistic representation of *Diplodocus*, based on a note by Marcellin Boule entitled *Le paléontologie et la guerre* in which he concluded that the "Germanic monster whose evolution has taken a wrong turn" will be defeated in a "triumph of spirit over matter".

Great English women were discussed by **Moody & Torrens** in *The world of Mrs Smith*, and the poster by **Chapman & Schindler** on *Barbara Yelverton, Marchioness of Hastings* – two female collectors and palaeontologists from very different backgrounds.

Talairach-Vielmas spoke on the influence of art and the visualisation of prehistoric monsters, reporting on the cultural impact of the 1853 display of dinosaurs at Crystal Palace on both art and literature and quoting from the novels of both Charles Dickens and Edith Nesbit. **Le Loeuff** also spoke on dinosaurs in literature with specific reference to novels from Pierre Boitard to Fernand Mysor; these ranged from lizard-creatures to fantasy kangaroo-like dinosaurs that lived during the Cretaceous, both reflecting the conceptual changes in palaeontology.

The final group of talks dealt with the contributions of Paul Carié, a Mauritian naturalist who studied the Dodo (**Angst & Buffetaut**) and the work of Edward Hitchcock on "bird-like tracks" in the Triassic – Jurassic deposits of the Connecticut Valley. These tracks were first found by Pliny Moody in 1802 and were referred to as "Noah's Raven". The first discoveries of dinosaurs in Provence (**Tortosa**) were made by Philippe Matheron in 1844. This presentation revealed several specimens of ornithomimid and titanosaur dinosaurs and reported that the hitherto neglected Matheron collection was being reworked.

Sue Turner had travelled from Australia to attend the meeting and gave a relaxed and informed review of the work of von Huene and the fate of his daughter Erika who was his true scientific heir but who was prevented from following her father due to the Nazi control of science and the social instability that ruled Europe after the war.

In the final address, the contribution of Cyril Walker, who died in 2009, was discussed by **Eric Buffetaut**. Cyril was probably dyslexic and did not put pen to paper very often. He formed working partnerships with Colin Harrison and Dick Moody and, in his last years, worked with Gareth Dyke on the enantiornithines, a group he erected in 1981. Eric closed with a verbal salute to Cyril as a fine scientist and bon vivant.

The last afternoon of the meeting involved a ride on the metro and then an overground train to Meudon. Today, there is little evidence, amongst affluent housing and tall blocks of apartments, of chalk quarries in the Craie de Meudon. The chalk slopes are now grassed over and climbed via

steep paths and a host of steps but, three floors down in a tower block, a large metal door leads to a maze of underground quarries and skillfully shaped tunnels and store rooms. The roof of the chalk is marked by hollows filled with black, sandy clays marking the unconformity between the Upper



Underground galleries at Meudon.

(photo: Dick Moody)

Chalk and the Palaeocene. The chalk, containing giant shells of *Inoceramus* and chert ‘nodules’ standing over a metre high, is particularly white and the quarried material had been mixed with water and used as a surface covering. After 1920, the tunnels were used for mushroom cultivation. Meudon is also famous for the discovery of *Gastornis parisiensis*, a giant flightless bird from the Eocene conglomerate, and reptiles such as *Mosasaurus* from the Cretaceous chalk. The trip was a great way to finish any meeting and the convenors were dutifully rewarded in a local hostelry.

FUTURE HOGG EVENTS

* **GEOLOGY AND MEDICINE**

1st – 2nd November 2011

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

Draft programme on pages 10-12 and registration form on page 26 of this newsletter.
*Offers of poster presentations still welcome - contact Prof. Richard (Dick) Moody at
rtj.moody@virgin.net*

* **OPEN MEETING**

Tuesday 20th March 2012

Burlington House, Piccadilly, London

See page 13 of this newsletter

* **IN THE FOOTSTEPS OF GEIKIE**

Friday 13th April 2012

Haslemere Museum, Surrey

Joint meeting with Haslemere Museum. More details in the next (October) newsletter.

* **HISTORY OF GEOTOURISM**

October or November 2012

Burlington House, Piccadilly, London

* **GEOLOGY IN THE COURTYARD**

2012 Date to be advised.

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

REGISTRATION FORM

AT THE BACK OF THIS NEWSLETTER

HISTORY OF GEOLOGY AND MEDICINE 1ST – 2ND NOVEMBER 2011

DRAFT 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 : Chris Duffin)

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 (Chairman: W.D. Ian Rolfe)

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.

Assemble in Oxford (time, place and cost to be decided).

HOGG OPEN MEETING TUESDAY 20th MARCH 2012

BURLINGTON HOUSE, PICCADILLY

A message from convenor Anthony Brook:

Got some: would like some more!! Although that might well refer to my relationship with money, it actually refers to the speakers and presentations for the HOGG Open Meeting on Tuesday 20th March 2012 at Burlington House. The programme is coming together nicely already but it is looking rather moth-eaten with holes where talks should be. Please step forward to fill the holes with a short talk on ANY aspect of the history of geology that you have been investigating recently; work in progress will do fine. No restrictions on theme, topic or time-period – only the duration of your talk! I expect to be overwhelmed and snowed under shortly!

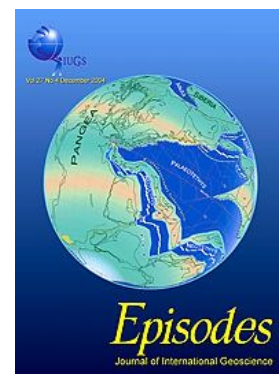
E mail anthony.brook27@btinternet.com



INHIGEO

David Oldroyd¹

INHIGEO – the International Commission on the History of Geological Sciences - is one of the commissions of the International Union of Geological Sciences (IUGS) which is the international body that ‘co-sponsors’ the International Geological Congress (IGC), held every four years. IUGS has many functions but perhaps its most obvious one is that it is the body that ratifies and adjudicates upon the subdivisions of the stratigraphic column and determines where ‘golden spikes’ are to be ‘placed’ within the stratigraphic column. IUGS publishes a quarterly journal, *Episodes*, which has articles about the stratigraphic column and geological topics more generally, as well as reports about associated field excursions, conferences, etc. It also publishes book reviews and historical articles: a ‘Classic Paper’ series which provides the abbreviated texts of classical geological articles with analysis and/or commentary, and discussion of the historical background and significance of classical papers, as well as a series of papers on past IGCs, describing their origins, happenings, debates, field excursions and influence. IUGS, which funds INHIGEO, is itself funded by UNESCO. INHIGEO is also an affiliate of the International Union of the History and Philosophy of Science (IUHPS) (Division of History of Science) and receives (more limited) funding from that body.



INHIGEO held its inaugural meeting in Yerevan (in today’s Armenia) in 1967, and has held meetings on most years in different countries since then, usually coinciding with the Congresses of the IUGS or the IUHPS but independently in years when such Congresses are not being held.

Initially there were 31 members (12 Full and 19 Corresponding). It published a small bilingual *Newsletter* in English and Russian. INHIGEO's by-laws were specified by IUGS. Later it was determined that each country could have one Full Member and up to 10 Corresponding Members. Subsequently, the Full/Corresponding Member distinction was abolished so that at present each country can have a maximum of 11 members (with those aged over 70 not being counted in the national quota). This means that membership is 'tight' in such countries as the USA and Germany but 'slim' in countries such as Malta. At present, a ballot for membership is held every two years. In April 2011, there were 233 members from 47 countries. Europe, the Americas, China, Japan and Australasia are well represented but membership is almost non-existent in Africa and the Indian sub-continent. There is only one representative from a Muslim country which seems to reflect a real cultural difference. INHIGEO has an elected President, Secretary-General and Vice-Presidents for Europe, North America, South America, Asia and Australasia/Oceania. There is no membership fee.

The annual *Newsletter*, now published in English only and available on the internet, has grown to 139 pages in 2011. The publication contains reports of, and notices of, meetings, short articles on history of geology, book reviews, and reports from Members about their historical researches in the preceding year. Members are chiefly (but not exclusively) geologists with an interest in the history of geology.

The annual meetings are centred on a specific historic theme, or themes, and nearly always involve a substantial field excursion. In the last few years the UK, China, Switzerland, Australia, Lithuania, Norway, Canada, Brazil, the Czech Republic, Italy, France, Germany, Spain, Portugal and Ireland have acted as host countries. Meetings are scheduled for Japan (2011), Australia (2012) and the UK (2013), the last (we hope) in conjunction with HOGG. Nearly all meetings serve as the basis of a volume of papers (either as a refereed book of *Proceedings* produced by the host country, as commercial publications, or *Special Publications of the Geological Society*). Although INHIGEO membership is limited by its by-laws to 11 Members per country, in practice anyone can attend meetings (but must pay the conference fees!) and on request can receive the Newsletter without charge.

INHIGEO is the only truly international body concerned with the history of geology and it certainly fosters international collaborations and friendships as well as enabling historians of geology to know what is going on in other countries and in languages other than their own.

It may be mentioned that most of the IGCs have now received historical articles in *Episodes*, but of the two British IGCs (1888 and 1948) only the latter has been written up (by a Swiss author!). Appeals for a British author to write up the London meeting of 1888 have fallen on deaf ears thus far (see, for example, HOGG Newsletter 37, October 2009). Anyone who may be interested in providing such an article (or a 'Classic Paper'), is cordially invited to contact the present writer, who organises these two series.

INHIGEO looks forward to a close and fruitful collaboration with HOGG for the IUHPS (H of S) Congress in Manchester in 2013. For further information about INHIGEO, please visit www.inhigeo.org/ — and www.inhigeo-jp.org for information about the forthcoming 2011 meeting in Japan.

¹ Professor David Oldroyd, Vice-President INHIGEO (for Australasia and Oceania)
email doldroyd@bigpond.com

Current UK members of INHIGEO are **Alan Bowden** (Liverpool), **Professor Gordon Craig** (Edinburgh), **Dr Trevor Ford** (Leicester), **Dr John Fuller** (Tunbridge Wells), **Dr Andrew Grout** (Edinburgh), **Professor Richard Howarth** (London), **Professor Simon Knell** (Leicester), **Dr Cherry Lewis** (Bristol), **Dr Ralph O'Connor** (Aberdeen), **Professor Martin Rudwick** (Cambridge), **Professor James Secord** (Cambridge), **Dr Michael Taylor** (Edinburgh) and **Professor Hugh Torrens** (Keele).

In the next (October) HOGG newsletter, Leucha Veneer will be writing about the plans for when INHIGEO comes to Manchester in 2013.

White Russian descendants sought

Dr Platon Tchoumatchenco of the Geological Institute of the Bulgarian Academy of Sciences is searching for geologists in the UK (and the Commonwealth) who are of White Russian descent. After the Russian Civil War between the White and Red Russian armies (1917-1923), there was an exodus of White Russians, many of whom worked as geologists in their new homelands. In Bulgaria, Platon has traced 29 first to fourth generation White Russian geologists; he is himself a second generation emigré.

If you can help, e mail Platon Tchoumatchenco at platon@lark.tu-sofia.bg

BOOK NOTES

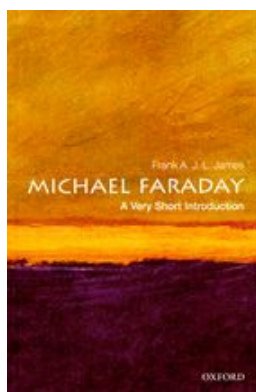
No formal book reviews in this newsletter but Wendy Cawthorne (Geological Society Library) has notified us of the following two items which may be of interest:

Michael Faraday: A Very Short Introduction

Frank A. J. L. James. 2010.

Oxford University Press. 184 pp.

ISBN 978-0-19-957431-5 Paperback £7.99



Frank A.J.L. James, Professor of the History of Science at the Royal Institution, explores Faraday's life from his origins in eighteenth-century Westmorland and Yorkshire, his religious and scientific background, to the growth of his fame in the nineteenth and twentieth centuries. As well as introducing his scientific research, he also puts Faraday (who was a fellow of the Geological Society) in the various institutional contexts in which he lived and worked, including the Royal Institution, the Royal Society, Trinity House, and other agencies of the state. He thereby provides a commentary on the rapidly changing place of science in nineteenth-century society, especially in regards to its role in government and the growth of a professional scientific community. [adapted from publisher's notes].

Alexander Nimmo's Inverness survey & journal 1806

Edited by Noël P. Wilkins. 2011.

Royal Irish Academy. xv + 192pp.

ISBN 978-1-904890-74-4 Hardback €35

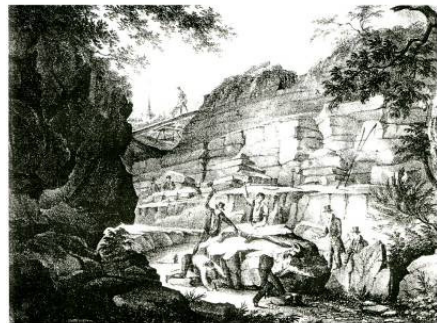
Alexander Nimmo (1783-1832) has been variously described as civil engineer, surveyor and geologist; he was an early honorary fellow of the Geological Society. Born in Kirkcaldy, Scotland, he began his career as Rector of Inverness Academy. In 1806, on Thomas Telford's recommendation, he was commissioned to undertake a survey of the boundaries of Inverness-shire and to insert them on a new draft map of Scotland (Aaron Arrowsmith's map of 1807). In the course of his survey, Nimmo kept a personal journal in which he recorded a variety of observations and data. His experience of the survey would lead ultimately to his resignation from the Rectorship in 1811 to join the Commission for the Bogs of Ireland as an engineer. According to the book's editor, Nimmo had an iconic role in Ireland in surveying and mapping the then isolated, uncultivated regions of Kerry and Connemara. [adapted from the book's preface]

What on Earth is under Sussex?

Organised, edited and designed by HOGG committee member Anthony Brook of the West Sussex Geological Society, and published for the West Sussex Archives Society by Guildbourne Publishing, Worthing, this special issue of the *Journal of West Sussex History* includes the following papers:

- **John Mather** (Royal Holloway, University of London): *Taking the waters at Brighton, 1750-1850*
- **Wolf Mayer** (Australian National University): *Rev. Charles Wilton and his pre-emigration geological investigations in West Sussex*
- **John Cooper** (Royal Pavilion and Museums, Brighton): *Gideon Mantell and the Brighton Press, 1834-1838*
- **Melanie Keene** (Darwin College, University of Cambridge): *Gideon Mantell and the art of seeing pebbles*
- **Christopher Duffin**: *Herbert Toms and the geological folklore of Sussex*
- **David Bate** (British Geological Survey): *Edward Alfred Martin and 'the glaciations of the South Downs'*
- **David Bone** (West Sussex Geological Society): *Martin Venables and the Natural Science and Archaeology Society of Littlehampton 1933-1938*

What on Earth is under Sussex?



JOURNAL OF
WEST SUSSEX HISTORY
No. 77 2008-09

West Sussex Archives Society

To order a copy, send your name and address together with a cheque for £11.20 (£10 + £1.20 p&p), payable to Guildbourne Publishing, to Guildbourne Publishing, Worthing, West Sussex BN11 4BQ

Discount for multiple (5+) copies ordered together; enquiries to Anthony Brook at anthony.brook27@btinternet.com

The following further eight papers will be published later as a companion volume:

- **Roger Cordiner** (West Sussex Geological Society): *Some geological observations in Sussex 1650-1800*
- **Leonard Wilson** (University of Minnesota): *Gideon Mantell and Charles Lyell: early years of a scientific friendship*
- **Anthony Brook** (West Sussex Geological Society): *Frederick Dixon and the early years of the SAS*
- **Robert Robelou** (West Sussex Geological Society): *Henry Catt and the Warren Farm well*
- **John Morton** (Horsham Geology Field Group): *Roderick Murchison and the geology of western Sussex*
- **John Henly** (West Sussex Geological Society): *Landmark books in the history of geology of Sussex*
- **William George**: *H. J. Osborne White and his Geological Survey memoirs of Sussex 1910-1928*
- **Richard Hodgkinson** (Natural History Museum): *Edward Heron-Allen of Selsey, and the exquisite world of the Foraminifera*

Herbert Toms, who features above in Chris Duffin's Sussex paper, is also one of the personalities highlighted in

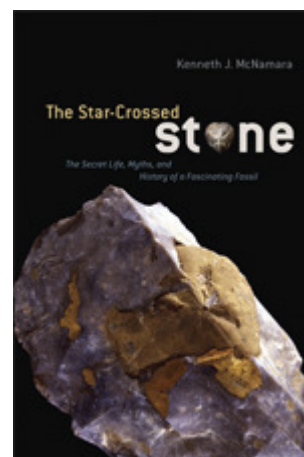
The Star-Crossed Stone *The secret life, myths, and history of a fascinating fossil*

Kenneth J. McNamara. 2011.

The University of Chicago Press. 272pp.

ISBN 978-0-226-51469-7 Hardback \$27.50

This book combines anthropology, archaeology, folklore, history and palaeontology. As well as Herbert Toms, other personalities who feature include Augustus Henry Lane Fox Pitt-Rivers (1827-1900) whose collection forms the basis for the museum in Oxford that today bears his name (and which will be visited during the post-HOGG Geology & Medicine meeting excursion in November; see page 12 of this newsletter).



**Natural History
Museum
Centre for Art
and Humanities
Research**



The formal launch of the Natural History Museum's Centre for Art and Humanities in South Kensington, London will take place on 11th July 2011. The Centre supports interdisciplinary research into the historical, cultural, social and economic significance of the library, archive and specimen collections of the museum. These rich and diverse collections trace a wide spectrum from

the history of science, history of empire, epistemologies of observational practice to ontologies of data-mining, with associated field notes, films, photographs, diaries, drawings, ship's logs, correspondence, GIS and DNA data.

The Museum's specimen collections are a rich resource for investigation in fields as varied as history, philosophy, museology, anthropology, literary studies, economics, animal studies, cultural theory and area studies relating to South Asia, Africa, China and elsewhere.

Plate tectonics: who? when? and where?

Anthony Brook¹

More often than not the simplest question creates the greatest perplexity, e.g. what, exactly, is "time" or, for that matter, "gravity"? What brought this to mind was a question I have been asked quite a lot recently. Over the last six months, my non-geological friends have watched many TV news programmes about recent earthquakes in New Zealand and Japan, the tsunami on the east coast of Hokkaido, Japan and, even more recently, another volcanic eruption in Iceland, plus the *Horizon Special* presented by Professor Ian Stewart. They have become aware, in very general terms, of the prevailing view that the Earth's crust consists of colliding and separating plates. All well and good. Then I was asked who thought of this grand unifying concept in geology, like Newton and gravitational attraction, or Darwin and evolution by natural selection, and I have to confess I floundered. I knew there had been a fundamental shift in geological thought in the mid-1960's when plate tectonics first appeared on the scene, but I could not specify exactly who, when or where, which was most annoying and embarrassing. So, to clarify the historical record, and save further embarrassment, I would like to know:

- 1. Who first used the term "plate tectonics" in its modern sense - when and where? and, more importantly,
- 2. Who published the first clear and coherent statement of this new, global, Earth science concept, and when and where? It does not seem to be in any major geological periodical - or maybe, I am just looking in the wrong place. This primary source should include all the following aspects:
 - a. Earth's lithosphere consists of a series of plates in perpetual motion, driven by convection cells in the mantle
 - b. sea-floor spreading from mid-oceanic ridges
 - c. subduction zones, with associated violence (earthquakes/volcanoes) where plates forcibly re-enter the mantle.
 - d. types of plate junctions, for plates that are colliding, separating or just passing alongside.

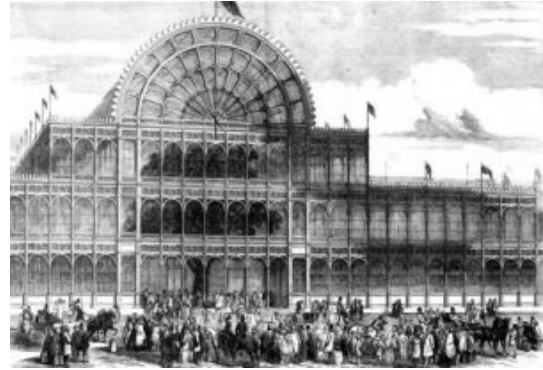
It would help greatly if we could put someone's name to this grand unifying concept in geology; it would make it easier for the general public to remember. It might be only 50 years ago, but let us at least get our contemporary history accurately defined!

¹ Anthony Brook e mail anthony.brook27@btinternet.com

Hercules and the Geikies

Ramues Gallois¹

In 1851, at a time when the extent of the British Empire was such that Queen Victoria could truthfully be said to rule over dominions on which the sun never set, the government decided to hold a Great Exhibition to display its greatest scientific, technological and artistic achievements. Plate glass had recently been invented so Joseph Paxton, Head Gardener at the Duke of Devonshire's Chatsworth estate in Derbyshire who had recently built the world's largest greenhouse, was commissioned to design an exhibition hall. This, the Crystal Palace, became the largest steel-frame structure in the World with the largest sheets of glass ever seen; 563 metres long, 138 metres wide and 41 metres high, it contained the crème de la crème of the wonders of the Victorian Age. Its purpose was not just to show that Britain was the most advanced civilisation of its time, but also to be a commercial showcase. One of the results of this was a large profit, part of which was used to build the Natural History, Science and Victoria and Albert museums, and to buy the adjacent land at South Kensington on which the Geological Museum was later built.



Crystal Palace (courtesy of Science Museum)

The 'artistic' exhibits included a 3 metre-high statue of Hercules carved from a single 15 ton block of Portland Stone by a Mr John Smith at a cost of £20. It was designed to show that the Portland Stone of Dorset was as good a freestone as the Italian Carrara Marble. The statue was a copy of a 3rd century AD Roman copy of a 4th century BC bronze of Herakles by the Greek sculptor Lysippos. The Roman copy was made in Carrara Marble and designed to stand on a column in the Baths of Caracalla in Rome. It was moved to the Palazzo Farnese in Rome in the 16th century where it became known as the Farnese Hercules. You do not need to travel to Florence to see Michelangelo's David to realise that the shelly, ooidal calcarenites of the Portland Stone are in no way comparable to Carrara Marble as a sculpting medium. You only have to go to the British Museum to see examples of sculptures that were either 'purchased' from Italy or 'donated' via the Emperor Napoleon I.

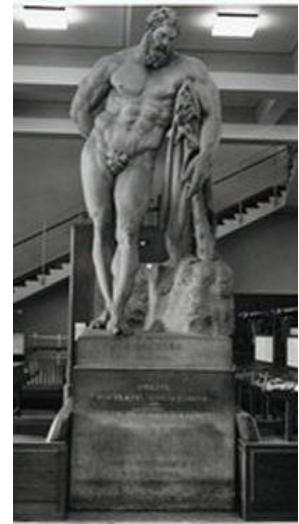


Archibald and Anna Geikie
(courtesy of Haslemere Museum)

When the exhibition closed and the objects dispersed, no one knew what to do with Hercules. The stone company had donated the statue to the exhibition which meant that it was now government property. Under the rules relating to donations it could not be sold, and it could only be destroyed by an act of war. It was given to the Geological Survey, presumably on the grounds that it was made of rock and, from 1851 onwards, it stood in the entrance hall of the newly opened Museum of Practical Geology in Jermyn Street, London. It remained there until 1882 when a new Director General, Professor Archibald Geikie was appointed. He and his French wife Anna Alice had moved to London from Edinburgh. Since before the time of the *Auld Alliance*, the Scots and the French have been more religious and less attracted to lewdness than

the English. It should therefore, perhaps, come as no surprise that Anna objected to being subjected to the full frontal nudity of Hercules every time she entered the museum. She therefore persuaded her husband to have the offending *équipement de mariage* removed. Given that the pendants on the Farnese Hercules were designed to be seen in perspective when viewed from below and that the Portland Hercules stands at floor level, disappointment and/or a false memory of the virility of French men may have played a part in her objection. A distinguished sculptor, Sig. D. Bruccioni, was employed to replace the offending parts with a fig leaf. His invoice of £7.70 for “time removing genital organs” was refused payment by the Treasury, with the result that Geikie was obliged to provide them with a detailed explanation of what had been done and why.

The Geological Survey geologists, all of whom were of a virile outdoor nature, unanimously strongly objected to the manner in which Hercules had been treated. A compromise was therefore reached whereby the offending organs, which had been carefully removed as a single item, were placed in a custom-made, velvet-lined mahogany box where they could be preserved until such time that either Geikie was no longer the Director General or society in general was ready for its reinstatement. The Curator of the Geological Museum was charged with the responsibility of looking after the box and its priceless contents, and was instructed on his retirement to pass on this responsibility to his successor; the geological equivalent of the Chairman of the Board of a multinational company handing over the keys of the drinks cabinet to the new Chairman. Hercules, along with all the staff and everything else that the Geological Survey owned, was moved to the new Geological Museum in Exhibition Road when it opened in 1935. He occupied a prominent position on the ground floor where he continued to welcome visitors.



Hercules with fig leaf at Exhibition Road (BGS)

When I joined the Geological Survey in 1960 it was like joining a Victorian gentleman's club. Dr F. M. Trotter, the Assistant Director in charge of field surveys, welcomed me to his division and took me to meet Sir William Pugh, the Director who welcomed me to the Survey. I was then taken on a tour of all the departments where I was personally introduced to each of the scientific officers; only the scientific officers of course, not the scientific assistants, the administrators or the pretty secretary whom I later discovered in the Hydrogeology Department. Last on the list was a visit to the office of Mr A. J. Butler, the Museum Curator. After the now familiar welcoming speech, the Curator donned a pair of white gloves, removed the mahogany box from his safe, and gave a brief description of its history. The box was then opened with a suitable show of reverence, and we gazed upon its contents. I was now a fully fledged Geologist in Her Majesty's Geological Survey.

With the rise of feminism in the 1960s several of the field geologists, still a virile all-male fraternity, suggested that the time had come for Hercules' manhood to be restored. We therefore sent an official request to the Director, couched in appropriate Civil Service terms, to the effect that we were offended by the prejudicial Victorian defacement of an important work of art that had been entrusted to the safekeeping of the Ministry of Public Buildings and Works, and that we felt that the statue should be returned to its original state. Rumour had it that the Director's wife, a bubbly blonde, was in favour of this. However, the Director, Sir James Stubblefield, was afraid that it might attract the wrong sort of publicity from the tabloid press. More importantly, he was mindful of the fact that the Geological Survey's annual funding was dependent on

administrative civil servants who did not know the difference between a stick of Blackpool rock and a piece of anthracite. He therefore decided that the restitution of Hercules' manhood was not at that time in keeping with the image of the World's leading national geological survey that he wanted to project. We, the geologists, were disappointed, but were politically astute enough to realize that we would have been even more disappointed if Hercules' gain had been at the cost of our field expenses.

The fig leaf remained in place until 1977 when the opportunity arose to restore Hercules in a quiet rural setting of no interest to the national press, and at a time when a rather poor representation of a penis and scrotum in a Jurassic shelly limestone would not have interested them anyway. The headquarters of the Geological Survey started to move from London in 1976 to the 15 hectare site of a former Catholic teacher training college in the village of Keyworth, near Nottingham. This comprised two- and three-storey buildings separated by gardens with plenty of space to display Hercules in an outdoor setting. The Museum reported that the "removal of his coy attire and the restoration of his full virility" had been achieved at a cost of £223, and that he had been crated up in readiness for his despatch to Keyworth. He arrived there three years before the building works at the chosen site were completed. The packing was therefore removed, he was certified as being intact, and was stored behind a screen in a large room that was awaiting renovation. By chance, this room also served as the assembly area for visiting school parties and the place where they ate their packed lunches. Hercules soon became a popular unscheduled attraction with the younger girls who, in the summer months, would make daisy-chains and hang them on the part that Anna Alice Geikie did not want them to see. With hindsight, she may have been right, but for the wrong reason. When Hercules was finally displayed outdoors it was decided on Health and Safety grounds that he must be fitted with a lightning conductor. Within a few years, the action of acid rain on the copper and the limestone resulted in a colourful excrescence of carbonates and verdigris on his lowest appendage, the appearance of which could only be matched in the more unpleasantly illustrated medical publications. If it had had the choice, it would no doubt have preferred to stay in the comfort of its velvet-lined mahogany box where it could welcome future geologists (men only of course) to their honorable profession.



Hercules' current position (without plinth) outside the main entrance of the BGS HQ at Keyworth, Notts. (Photo: M.G.Sumbler)

A version of this article first appeared in the February 2011 Newsletter of the Dorset Geologists' Association Group (DGAG). A more formal account can be found in Wilson, H. E. 1985. Down to Earth: 150 years of the British Geological Survey. Scottish Academic Press, Edinburgh. ISBN 7073 0473 3.

¹Dr Ramues Gallois, formerly British Geological Survey; e-mail gallois@geologist.co.uk

John Michell (1724/25 – 1793) – geologist, seismologist, astronomer

R. A. Downing¹

In the May issue of Geoscientist, Richard Downing contributed an item to Readers' Letters about John Michell, "a forgotten geophysical pioneer". For the benefit of HOGG members who may not see Geoscientist, Richard has written the following article for the newsletter.

The calamitous, tragic earthquake and tsunami in Japan recently should have reminded us of John Michell for he was an 18th century pioneer in the interpretation of earthquakes and tsunamis, a man whose astonishing talents are now largely forgotten.

Michell was born in 1724 or 1725, possibly in Nottinghamshire. He entered Queens College, Cambridge in 1742, graduating in mathematics as a Fourth Wrangler in the second mathematical tripos, 1748/9. He was elected to a fellowship at Queens College in the following year before proceeding to an MA in 1752 and BD in 1761. He gave college lectures in Hebrew and Greek as well as mathematics, a very versatile and able scholar.

In an ingenious paper, published in 1761 in the *Philosophical Transactions of the Royal Society*, he suggested earthquakes had a natural cause. He recognised that they occur repeatedly in the same, generally volcanic areas, at times that may be short (aftershocks) or at much greater intervals marking separate shocks. He explained that seismic movements are partly vibratory, due to elastic compression, and partly propagated by elastic waves; the latter affect much larger areas. He determined the epicentre and depth of the major earthquake that struck Lisbon so disastrously in 1755. His methods for determining the epicentre were initially overlooked but reinvented and applied subsequently. He believed that earthquakes and the waves of energy they created were caused by "shifting masses of rock miles below the surface". He suggested that tsunamis, such as afflicted Lisbon, resulted from earthquakes under the sea. It was for this paper that he owed his election to the Royal Society. Michell was appointed Woodwardian Professor of Geology at Cambridge in 1762, vacating the post in 1764 upon his marriage. He then became Rector of Compton in the Itchen Valley and subsequently at Havant near Chichester, and, finally, in 1767, at Thornhill near Dewsbury, where he remained for the rest of his life.

Substituting Cambridge for the quiet life of a country parson allowed him to continue his scientific work apace. Among his friends, he included many of the leading scientists of his day including Henry Cavendish, Joseph Priestley and William Herschel. He travelled widely in England, frequently to London, and in doing so, recognised the regular sequence of sedimentary strata as well as unconformable surfaces caused by uplift followed by erosion. He established the Mesozoic sequence in England simply by observing the order of superposition. He also studied the geology of the Yorkshire Coalfield. Undoubtedly, he was the most accomplished English geologist of his time.

The breadth of his work was extensive. Soon after graduating, he published *A treatise on artificial magnets* in which he demonstrated that iron needles can be magnetised and demagnetised by electricity, anticipating work later credited to Franklin. He also discovered that the force of repulsion between two like magnetic poles obeys an inverse square law. He anticipated, in part, the work that became incorporated in Coulomb's Law.

Michell made important advances in astronomy displaying amazing acumen. In 1767, in a paper to the Royal Society, he argued that most double stars were not separate masses that chanced to lie in the same direction as seen from the Earth, but were companion stars bound together by an attractive force. He believed the same was true for star clusters such as the Pleiades. In 1783, he speculated

that light consisted of corpuscles rather than waves and that these were subject to gravitation. This idea, that gravity may act on light in a similar fashion to matter and that large stars may prevent light from leaving them because of gravity, was the first suggestion that 'black holes' (a term not itself used by Michell) may exist². He pointed out that there was a possibility that large quantities of hidden material existed in the Universe and suggested that 'black holes' could be detected by seeking their effects in binary star systems where one member was visible while the other was a 'black hole', with the visible member showing irregularities in its motion because of the presence of the invisible member. These are now important problems in astronomical research. That nebulae were possibly separate "universes" of stars was another prescient observation. He applied probability and statistics to the interpretation of astronomical observations.

Michell devised a method and built an apparatus for weighing the Earth using a torsion balance which he also invented. After his death, the apparatus was given to Henry Cavendish who successfully carried out, in 1798, the experiments Michell had designed, and succeeded in measuring the mean density of the Earth, known as the "Cavendish Experiment". Michell built a 10 ft reflector telescope which on his death was bought by Herschel who found it more useful than his own.

Michell was a small man, rather plump with a dark complexion. He was committed to science all his life and careless about seeking credit for his work, much of which remained unpublished. When he was at Queens College, his rooms resembled a workshop with instruments and machinery dominating the space.

Michell died in 1793 at the age of 69 and is buried in Thornhill. He was not only a most accomplished geologist but also an ingenious, innovative thinker, a pioneering scientist who played an important role in physics and also in astronomy, particularly by his revolutionary and startlingly correct suggestions about the nature of the cosmos. Undoubtedly one of the founders of seismology, Michell was ahead of his time and, like so many who have been in that position, the merit of his work was not recognised. His conception of geological successions, his prophetic insight into earthquake phenomena, and his revolutionary correct views on astronomical theory were all lost for many years and when reinvented, there was little credit for him. But his accomplishments so astonished Archibald Geikie that he published a short memoir of Michell's life in 1918 through the Cambridge University Press.

Perhaps we should pause for a moment to pay homage to the value of the work of a modest, exceptionally gifted 18th century polymath.

Acknowledgement The author is indebted to the authors of the references listed for many of the facts about Michell's life.

References

- Clerke, A. M. 2004. Michell, John, 1724/5 – 1793, rev. Michael Hoskin *Oxford Dictionary of National Biography*, Oxford University Press (online edn Jan. 2008).
- Davison, C. 1921. Founders of Seismology I. John Michell. *Geological Magazine*, 58, 98-107.
- Geikie, A. 1918. *Memoir of John Michell*. Cambridge University Press.

¹Dr R A Downing 20 Springfield Park, Twyford, Reading RG10 9JH

²See Gibbons, G. 1979. The man who invented black holes. *New Scientist*, 28th June 1979, p. 1101.

FUTURE MEETINGS OF OTHER BODIES

NATIONAL ASSOCIATION OF MINING HISTORY ORGANISATIONS – BRITAIN AND IRELAND (NAMHO) CONFERENCE
FRIDAY 29th JULY – MONDAY 1st AUGUST 2011
PRESTON MONTFORD FIELD CENTRE,
MONTFORD BRIDGE, SHREWSBURY



National Association of Mining
History Organisations
NAMHO

The theme of the conference is ‘*50 Years of Mine Exploration*’. Fifty years ago, there was little interest in industrial archaeology and many important mine sites were lost to neglect or the bulldozer. Many more would have been permanently lost but for the efforts of mine explorers.

Following the welcome evening on Friday, a full programme of lectures is planned on Saturday and Sunday with parallel threads in separate rooms. Particular emphasis will be given to practical mine exploration over the years and subjects range from local to international. There will be facilities for posters, club stands and trade stands.

There will be an extensive programme of complementary surface and underground trips to lesser known parts of Shropshire’s mining history as well as some longer trips further afield. Underground trips will include a winch trip at Snailbeach, and range from simple walk-in mines to some serious through or round trips with Single Rope Technique.

Full information and booking details are available at <http://www.namhoconference.org.uk> or from

Dr Peter Cloughton, Blaenpant Morfil, near Rosebush, Clynderwen, Pembrokeshire SA66 7RE
Tel. (0)1437 532578 e mail P.F.Cloughton@exeter.ac.uk

SYMPOSIUM OF VERTEBRATE PALAEOLOGY AND COMPARATIVE ANATOMY
MONDAY 12TH SEPTEMBER – SATURDAY 17TH SEPTEMBER 2011
LYME REGIS, DORSET

Two Centuries of Discovery

In 1811, Joseph Anning found the skull of a huge ichthyosaur, and with his sister Mary collected the whole animal. This and other later discoveries brought to public attention the realisation that there had once lived animals completely different from any alive today, and that the history of the Earth was vastly deeper and more complex than had previously been imagined. This stimulation of both public and scientific imagination can in many ways be seen as the origin of the science of palaeontology in the UK. To mark the 200th anniversary of this significant event, the annual SVPCA meeting will be held in Lyme Regis, the historic town which has been the centre for the collection and preparation of fossils from the Jurassic Coast Natural World Heritage Site. With grants from the Lottery Heritage Fund, it has been possible to buy a number of important and



spectacular specimens found on the coast over recent years, emphasising its current scientific importance as well as its unique historic status.

*For more information, visit the website

http://svpca.org/years/2011_lyme_regis/second.circular.php

Delegates can book their places and submit offers of talks or poster presentations on the website but note, the deadline for bookings and abstract submission is 4th July 2011.

**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 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.

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

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.