

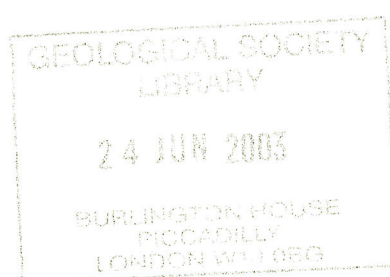
# HOGG

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



Number 18

May 2003



## Cover Illustration

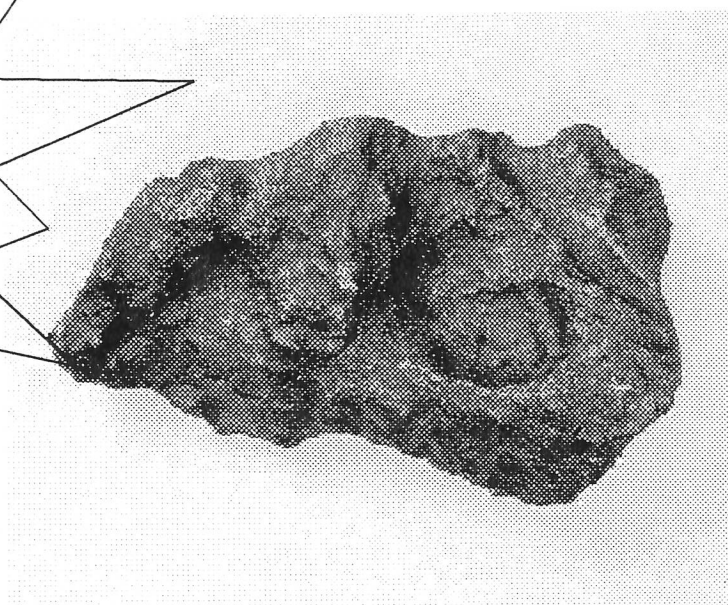
Ensisheim is the oldest witnessed fall of a meteorite in the western hemisphere. It was heard and seen to fall in a wheat field at 11.30 in the morning on 7<sup>th</sup> November 1492, by a shepherd boy, at the town of Ensisheim, Alsace, France (but then part of Germany and the Holy Roman Empire). The shepherd boy told the town mayor, who ordered that the stone be removed from its hole, and taken to the church, though not before many people had chipped pieces from it. The fall aroused much public speculation, eventually causing Emperor Maximilian to visit the town 15 days later. After consultation, the "Thunderstone of Ensisheim" was seen as a good omen for the Emperor's wars with France and the Turks, and he ordered it to be removed to the church, and remain as a sign of God's divine intervention and a sign of His wrath against the French. The stone was chained to the church to prevent it from leaving in a similar manner to which it had arrived! It stayed there until the French Revolution, when it was removed to Colmar. During this time much of it was removed by souvenir hunters and scientists. Originally weighing about 280 pounds, it now weighs 122 pounds, and was returned to Ensisheim some ten years after the Revolution, where it is still guarded in the Regency Palace at Ensisheim.

The engraving (from an unknown source) shows the town of Ensisheim, with Battenheim in the distance, and the fall of the meteorite from the skies. Two people emerge from the forest (lower right corner) one on horseback, though history only records the shepherd boy as a witness.

**Editor:** Peter Tandy, Department of Mineralogy, The Natural History Museum, Cromwell Road, London, SW7 5BD (tel: 020-7942-5076; fax 020-7942-5537; e-mail [pt@nhm.ac.uk](mailto:pt@nhm.ac.uk))

# "Fireballs and stones from the sky"

The History of Meteoritics  
from the early 18<sup>th</sup> century  
to 1920



A HOGG meeting to be held at The Natural History Museum, Cromwell Road,  
London, on 3<sup>rd</sup> December 2003

## Preliminary programme:

Introduction

### Overviews:

Ursula Marvin - The History of meteoritics - an overview: "Piloting through reefs and shoals"

Vladimir Jankovic - "Mineral Meteorology vs. Laboratory Atmospheres: the end of classical meteors in the 19<sup>th</sup> Century "

### European Collections:

(TBA) - The History of the Paris Natural History Museum meteorite collection

Sara Russell - The History of the Natural History Museum meteorite collection

Guy Consolmagno - The History of the Vatican meteorite collection

### Scientific acceptance:

Robert Hutchison - The Wold Cottage fall of 1793 - the prime convincer in England

Matthieu Gounelle - "The L'Aigle fall 1803 and the Biot Report"

### History of Classifications:

Richard Howarth - The work of Daubree (1814-1896) on classification

Ted Nield - The great irons: A visit to Hoba (found 1920) in the 21<sup>st</sup> century

Joe McCall - the recognition of meteorite cratering - beginnings.



'Field Trip' to see a number of historical meteorites from the NHM collection

To attend this meeting, please register with Joe McCall (e-mail: [McCall@freenetname.co.uk](mailto:McCall@freenetname.co.uk)) or by post to  
44 Robert Franklin Way, South Cerney, Glos. GL7 5UD (Fax 01285-862449). Please make cheques  
payable to History of Geology Group

## HOGG Annual General Meeting

The Annual General Meeting of the History of Geology Group will take place during the meeting on "Fireballs and Stones from the Sky", on December 3rd 2003, at the Natural History Museum, Cromwell Road, London.

### Election of Officers

Nominations for Chair, Secretary, Newsletter Editor and 6 committee posts are required.

Anyone willing to stand should send their name to the Secretary, Dr Cherry Lewis, 35 Morgan Street, St. Agnes, Bristol, BS2 9LG to arrive no later than 15 August 2003. Email nominations will also be accepted at [Cherry.lewis@bristol.ac.uk](mailto:Cherry.lewis@bristol.ac.uk). A list of nominees will appear in the next HOGG Newsletter.

### Submission of Motions

Anyone wishing to submit a motion should do so in writing (including e-mail), to the Secretary (address above), also by 15<sup>th</sup> August 2003.

## Future HOGG meetings:

*"Slate and Chalk"*

*The History of UK  
Geology Teaching*

*17<sup>th</sup> March 2004*

*"A gneiss story of  
true grit in marbled  
halls"*

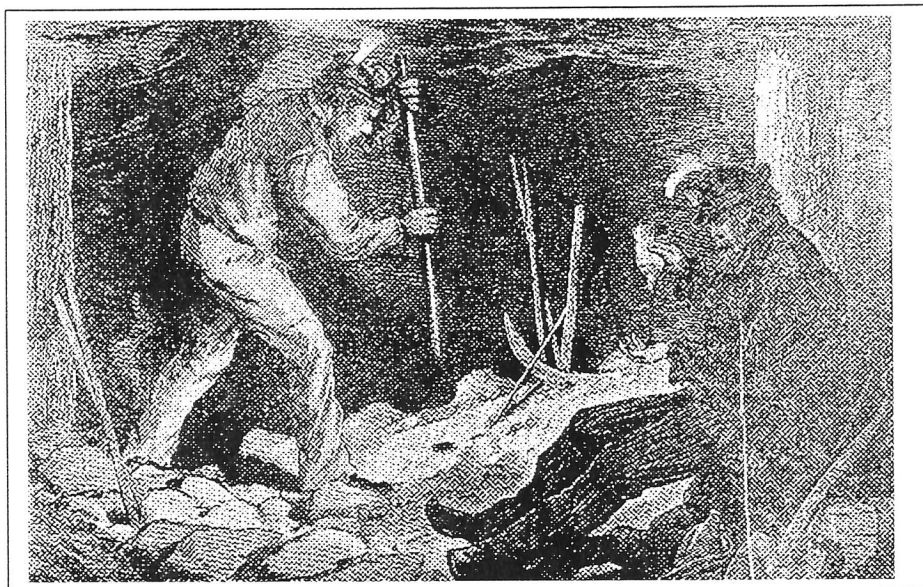
March 17<sup>th</sup>, 2004 at the Geological Society,  
Burlington House, Piccadilly London.

Speakers will include Prof. Jake Hancock  
(Imperial College) and Prof. Mike Basset  
(National Museum of Wales)

(Convenor: Stuart Baldwin, tel: 01376-  
583502; e-mail: [sbaldwin@fossilbooks.co.uk](mailto:sbaldwin@fossilbooks.co.uk))

## **"Understanding coal and coalfields - how did it begin? A meeting on the history of coal geology"**

Autumn 2004 (date to be decided), possibly in Newcastle-upon-Tyne  
(Convenor: Prof. Richard Howarth, (Dept. of Earth Sciences, University College, London,  
Gower Street, London WC1E 6BT; r.howarth@ucl.ac.uk);



Digging for coal in a Pennsylvania mine  
*Frank Leslie's Popular Monthly*, vol. III, no. 1, Jan. 1877, pp. 116-126.

**If anyone would like to give a paper at either of these meetings would they please contact the respective convenor as soon as possible. Papers should have a strong bias towards the history of the subject.**

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### **...and the previous HOGG meeting:**

#### **Geology, History and Water part II The Chaser Anthony Brook**

Reassembling late after luncheon, Conference participants were invited by *Dick Downing* to consider the role of the Geological Survey in the development of British groundwater between 1935 and 1965. After the drought of 1933-34 the Geological Survey became responsible for collecting and collating groundwater data, and a Water Unit was formed for this specific purpose. The Water Act of 1945 was most significant: the Geological Survey became the advisor to the

Government on all matters relating to groundwater; it also led to the introduction of quantitative hydrogeology. Groundwater resources of all the main aquifers were scientifically assessed, and accurate instrumentation via comprehensive observation networks introduced. A further Water Resources Act, after the drought of 1959, laid further obligations on the Geological Survey.

*Andrew Mackenzie* and *Jennifer Cunningham* explained that the British Geological Survey is the curator of the National Well Record Archive, an extensive database from over 108,000 wells and boreholes in England and Wales, compiled from a wide variety of sources — from survey mapping, systematic inventories, and, more recently, from statutory returns on well-drilling for groundwater. Such data only began to be systematically collected in the 1870's, although much relates to previous searches for groundwater. Indeed, the 'Seven Ages' of British hydrogeology, in 40-year blocs starting with 1820–60, was proposed. All these digitally-indexed data have been used to explore hydrogeological patterns and processes, and, perhaps more importantly, to influence groundwater exploration.

*Mike Edmunds* used the thermal waters of Bath to illustrate 400 years in the evolution of ideas about hydrogeology. Roman Bath was a very successful commercial geothermal site, as it was also to the monks of the Middle Ages. Curiosity about unusual resurgences was innate; such curiosity, notably at Bath, provided the impetus for innovative ideas after 1660, as part of the late 17<sup>th</sup> C. Scientific Revolution. Theories were advanced on the source of the heat and the curative properties of spa waters: early drilling and mining around Bath produced some of the basic principles of modern hydrogeology. Since mid-Victorian times Bath has remained the test-bed for scientific concepts, methods and analysis about anomalous springs. The 'New Millennium Spa' has seen a resurgence of both health-visitors and hydro-scientists.

*John Fuller* considered the chalybeate springs near Tunbridge Wells as the site of a 17<sup>th</sup> C. 'New Town'. Before the Civil War there was neither settlement on the ground nor name on the map. Chance discovery of chalybeate springs a few miles south of Tunbridge generated great excitement at the Restoration Court, even gynaecological interest. Thomas Neale (1641–99), entrepreneur, organised the nascent spa's amenities, beginning in 1676 with plans for chapel or assembly-room. The Pantiles at Tunbridge Wells quickly became the fashionable watering-place, with elaborate proposals for expansion and development during the 18<sup>th</sup> C. The springs issue from Lower-Cretaceous Wealden beds, just above the Wadhurst Clay, in a shallow headwater amphitheatre of the R. Grom. A 1693 poem attributed the real secret of Tunbridge Wells' success to — wait for it—fairies!

The next two presentations formed a matching pair. *John Lloyd* evaluated the role of British hydrogeologists in North Africa and the Middle East, and *Robin Hazel* did likewise for West Africa. In both cases, political influences and changes greatly affected the work of hydrogeologists.

In the interwar period, as *John Lloyd* pointed out, there was limited British interest in hydrogeological aspects of the British Mandate of Palestine, and also the artesian basins of the western Egyptian desert. During the wartime military campaigns, the search for potable groundwater intensified throughout North Africa and across Suez into Transjordan: postwar, main British interest centred on the groundwater resources of the Kingdom of Jordan. In the mid-1970's British consultants were very involved in groundwater projects in the Gulf States, Oman and Saudi Arabia; in the 1980's and subsequently, the focus of British hydrogeological endeavours has shifted to Libya and Algeria, where there are huge basin flows requiring careful groundwater-management techniques.

*Robin Hazel* declared that the Colonial Office established and funded geological surveys in British West Africa, from c. 1908 until independence and self-government after 1960, in territories that rapidly acquired the dreadful epithet of 'The White Man's Graveyard'. At first the provision of clean water-supplies were considered a minor matter, but later it came to dominate colonial services. In the 1930's innovative geophysical exploration of sedimentary basins, as in Nigeria, led to the discovery and exploitation of major aquifers. In the 1980's, well after Independence, British firms continued to supervise major water projects and pioneer siting and construction techniques.

*Tim Atkinson's* talk had the gloriously-tubthumping title of 'Hair singed off by the fires of Hell'. It concerned the development of groundwater tracing (or, more prosaically, where does it comes out?) from 1740 until 1980, when contamination became a serious problem. The first scientific attempt to trace an underground waterway was at Malham in 1740, with surprising results, but real advances had to wait until the advent of new-style chemistry after mid-19<sup>th</sup> century. Salt, dyes and bacteria were all used to trace disappearing streams prior to 1914; thereafter, methodological developments have utilised a wide variety of inert tracers and sophisticated techniques, some more successful than others. Areas with proven underground hydro-routes include the Mendips, the Three Peaks in the Pennines and the Chalk downlands.

*Howard Headworth* presented his 'Recollections of a Golden Age', in terms of the groundwater schemes of Southern Water in the 1970's and 1980's. The creation of River Authorities and the Water Resources Board in 1965, and the Water Authorities Water Research Centre and Central Water Planning Unit in 1974 brought forth a major resurgence of groundwater research in England and Wales. In the extensive region of Southern Water, from the Hastings Beds of the Wealden Series to the beach gravels at Dungeness, there were manifold schemes to investigate aquifers and manage groundwater resources. Six major schemes were outlined, including artificial recharge in Sussex, groundwater augmentation in Hants (the Itchen River Scheme using the Candover tributary), and saline contamination from coalmine-water disposal in East Kent.

And finally, *Rick Brassington* brought us up to date with 'Developments since 1974' when the 10 Regional Water Authorities were centred. The last quarter of the century witnessed a marked increase in hydrogeologists, ever more employment opportunities, and an escalating ability to process and interpret loads of field data on groundwater systems. The 89 River Authorities acted as a natural focus for research. The driving forces behind these significant developments were 1) structural changes in the UK water industry 2) political decisions taken in London and Brussels 3) growing public awareness of environmental issues, and 4) huge strides in computing, software and instrumentation. Privatisation turned water into big-business: experienced hydrogeologists became private consultants, with an increasing role, and more and more are needed in these days of heavy regulation by OFWAT.

In his brief summarising remarks at 6 o'clock, the Conference Convener, John Mather, put forward yet another personage for the overblown epithet of Father of British Hydrogeology, this time a North countryman called James Clutterbuck, but tantalised us all by only hinting as to the reasons why.

Two general impressions of the day. There were far too many presentations: 10-12 is probably the comfort-zone for a day conference, otherwise participants start to suffer severely from mental overload and intellectual indigestion, particularly after mid-afternoon. It also meant that there were nil opportunities for questions, and timing became supercritical, to the detriment of both speaker and listener. Otherwise, it was very well organised by the Hydrogeology Group, much to the obvious delight of the History of Geology Group!

The other impression related to the overwhelming significance of such a simple thing as plain ordinary Water, which is, in fact, a strange substance, with some very peculiar properties. Water is the basis of all life on Earth, and Earth is the wet watery planet. Water is the primary geomorphological agent, and groundwater simply Nature's hidden reservoir. Too much or too little water in the wrong place at the wrong time is menacing and, ultimately, life-threatening, and the never-ending search for regular supplies of good-quality potable water forms a persistent drumbeat in history. The pursuit, exploitation and management of water resources are so important to the welfare of mankind that Water has the power to dissolve Geology and History into a powerful new brew of exceptional potency. Cheers!

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## HOGG Members' meeting

Approximately 20 people attended this hastily rearranged meeting, at the Geological Society on 15<sup>th</sup> May, to hear topics under no particular theme.

First was **John Fuller** on the "*Unpublished manuscripts of John Strachey, FRS*". John Strachey (1671-1743) is likely to be remembered among geologists chiefly for two papers published in the *Philosophical Transactions* of the Royal Society, which, some seventy years afterwards, proved to be a source and inspiration for William Smith's understanding of the natural order of strata. Less well known among Strachey's works was a third essay entitled 'Strata of Earths and Minerals', which he published privately in 1727. Later he added numerous marginal notes, and further expanded it with an 18-page sequel, most of which has remained unpublished.

John Strachey journeyed widely through England, North Wales, and Scotland in pursuit of his chief mineral interests - coal and lead. He commented everywhere on what he saw, and besides his particular observations on coal and lead, his notes offer a recognisable account of the geological face of Britain. He was aware as any among the scientific philosophers in the Royal Society of the time that the evident variety, natural order, and distribution of stratified rocks in Britain required explanation.

Next it was **Neville Haille** speaking on "*Buckland at Stonhenge: haunted by the deluge?*" Buckland was initially convinced of the deluge, and published *Reliquiae Diluvianae*; the flood was one of the best described of events and not just in the Bible! It led to theories of how fossils came to be embedded in rocks. But Buckland became disillusioned with it. In Switzerland with Agassiz, he saw how glaciers had re-distributed material, and back in London put forward a glacial theory. He was ridiculed by Conybeare and Greenough and other leading geologists. In 1882, after Buckland's death, the Reverend T. Mosely wrote a book making disparaging comments about Buckland. Some had been upset by Buckland's Presidency of the BAAS, particularly his invitation of Cambridge dons and 'dissenters' some of whom even gained doctorates. The owner of the Stonehenge site, a Mr Brown, published a pamphlet stating that the stones were an antediluvian structure made by Adam. He became the butt of Buckland's words, but Buckland apologised and the matter was closed until Mosely's book. The book upset Caroline Buckland who wrote to the College Dean, who told Mosely that the assertions were not true. Mosely replied saying he did not mean to cause distress to Caroline, and that Buckland wasn't irreligious, just a little coarse! Buckland is credited with

introducing the term coprolite for fossil dung, and had a table made of them. On another occasion he took out a hankie adorned with a picture of Queen Adelaide and blew his nose on it. It was seen as profane. Buckland died in an asylum in Oxford.

**Stuart Baldwin** then spoke on "*Encouragement to amateur geologists and palaeontologists by scientific societies and professionals*", essentially setting out the awards with which amateur geologists can be rewarded. Those mentioned were the Foulerton Award of the geologists' Association, the Worth Award (Geol.Soc.), Sylvester-Bradley Award, Mary Anning Award (Pal.Ass), and the Curry Fund (GA). The Foulerton Award was instituted in 1920 with a £250 legacy from Foulerton who died aged 90 in 1918. He was a medical doctor who qualified in Edinburgh in 1850, but latterly lived in Saville Row, London. The bulk of his fortune went to the Royal Society for Medical Research. The first recipient of the award was T.W.Reeder. The Worth award honours Richard George Hansford Worth, born in Plymouth in 1868. He began as an engineer with the GWR in Plymouth but graduated to his own practice in 1890. He became an expert on the climate and water supply of Devon, and as well as geological interests was an oil painter and archaeologist. He died in 1950. The Sylvester-Bradley award honours Peter Sylvester Bradley (1913-1978), interested in ostracods and a lecturer at Sheffield. It is open to both amateurs and professionals, for palaeontological research or field work, and is limited to a maximum of £1000. The Mary Anning Award was initially known as the Amateur Palaeontologist Award, and is open to anyone not professionally employed in the field of palaeontology. The Curry fund was started by Dennis Curry (1912-2000) who donated shares in the family firm in 1958. It became a charitable trust in 1986. Although an amateur, Dennis became President of the GA (1963-65), Professor at UCL (1971-84) and was a noted philanthropist. Other awards mentioned were the Strimple Award (USA), in honour of Harrell L.Strimple (1912-1985), who published over 300 papers on fossil crinoids from 1938, The Palmer Award (USA) honouring Kathleen Palmer of the Palaeontological Research Institution, and The Geological Curators' Group award instituted in 1991.

**Anthony Brook** then spoke on "*Dr. Dixon and the geology of Sussex*". Frederick Dixon was a resident of Worthing for 20+ years. He was born in 1799, the son of the Reverend Joseph Dixon, and married in 1825, the daughter of the owner of Westminster School. After an extended honeymoon spent with his brother at the English garrison in Corfu, he settled in Worthing in 1827. With his brothers he established a dispensary, which eventually became Worthing Hospital. He died in 1849 of typhus fever and was buried in the churchyard at Sompting where his father was rector. His geological interests started in 1835 when he went with Gideon Mantell on an excursion to the Chalk pits, and he was honoured in 1844 when Mantell journeyed to Sussex to look at his collection. He published "Geology and Fossils of the Tertiary and Cretaceous Formations of Sussex," but it only dealt with a part of west Sussex and he only wrote some 8 pages- the other 400+ were written by others. Many fossils have been named after him, and the zone ammonite *Manteloceras dixonii* is named after both him and Mantell. His fossil collection of some 4,500 pieces was catalogued by James de Carle Sowerby, and was eventually purchased by the British Museum for £500. He was a founder member of the Sussex Archaeological Society in 1846. His house at 3 Union Place still exists and is currently used for adult teaching - indeed by Anthony Brook himself!

**Richard Wilding** then gave a "*Short History of Vesuvius*". Richard has the distinction of being one of a dwindling number who witnessed the last eruption of Vesuvius, in 1944. The volcano was formed some 12,000 years ago, and had major eruptions in 6000BC, 1200BC and 800BC. It was then inactive until the famous eruption of 79AD. Others occurred in 1631 and 1867. The first known painting of Vesuvius, on a wall, shows it in profile to have just 1 peak, but is thought to be accurate. It now shows 2 peaks, those of Vesuvius itself and Monte Somma. An observatory was established on the slopes in c.1841. After the Allied invasion of 1943, it was used by the Americans as a weather station, but the geologists managed to co-erce them into continuing taking readings. Among those who have taken more than a passing interest in Vesuvius are Sir William Hamilton, the British Ambassador to Naples and husband of Emma Hamilton, who descended into the crater on over 100 occasions. In 1779, he produced a magnificently illustrated book called *Campi Phlegraei*, copies of which are very scarce today. Vesuvius is long overdue for an eruption, and there is evidence today of rising magma.

**Richard Howarth** then spoke on "*From petrologist to mining geologist: Frederick Hatch in Southern Africa*". Frederick Hatch was born on 7<sup>th</sup> March 1864 near Paddington Station. His father, Henry Hatch, was a successful merchant in Oxford, and proprietor of the first playhouse there. Frederick married the daughter of the Registrar for births, marriages and deaths, but, completely unknown to her, he set up house with 'Elizabeth' in London. Later he became involved in banana trading and may even have had a third secret family in New York!! Despite attending University College he failed to get a degree, and ended up doing a PhD in Bonn, Germany, on the petrology of a volcano in South America. As a survey geologist he published his first text on petrology in 1892, and that year went to South Africa to do gold mining. Here, convinced that gold reefs extended to depth, he went underground for the first time. He joined Consolidated Goldfields under Cecil Rhodes. With political unrest looming with the Boers, he came back to London with his pregnant wife in 1895, but was back again in Johannesburg in 1897 to complete a map of the Transvaal. As the Boer war began in 1899, he again came back to England, and a house in Oakley, Surrey. With Rhodes' death and the ending of the Boer war just 5 days later, Hatch again went back to South Africa, and continued a drilling programme which was completed in 1904, yielding good gold values. It wasn't until 1911 that it was exploitable due to large quantities of water in the mines. In 1905 he was elected president of the Geological society of South Africa, and later described the Cullinan diamond following its finding. The end of his Presidency in 1905 signaled another return to London, but in 1909, he was recalled by the Natal government to assess mines which they hoped would equal those of the Witwatersrand. In 1910 he returned to Britain, setting up home just outside Cambridge, before moving to Wimbledon as a consulting mining engineer. In 1920 he was awarded the OBE, and in 1921 his wife died, but by 1923 he had remarried. In 1928 he bought a flat in Piccadilly (yards from the Geological Society), and died there in 1932 of bronchial pneumonia. He is buried in Wimbledon. Both student textbook works which feature his name, ("*Hatch, Lake and Rastall*", and "*Hatch, Wells and Wells*"), were published after his death.

Finally **Martin Rudwick** spoke on "*Bursting the limits of time: the reconstruction of*

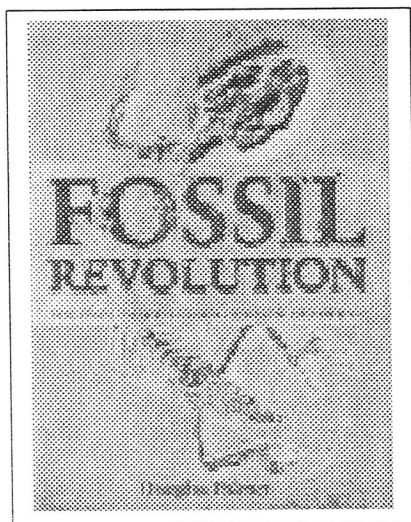
*geohistory in the age of revolution*", which is to be the theme of his latest book. It will be a large book offering a reinterpretation at how geologists took it for granted that by looking at the earth they could interpret it in terms of past Earth's history. At one time it was thought that it would only be possible to reconstruct the history of the Earth as a science fiction, but within a generation that had changed. Debates ranged across what was called the "republic of letters", where things like theology counted as sciences. France was the centre of sciences at the time, and French the most important language. The book starts with a synchronic survey of the period pre the French Revolution, which upset much of Europe, not just France. The second phase is a diachronic narrative from the French Revolution up to the 1820s. In the 18<sup>th</sup> century scientists were either doing 'natural history' (taxonomy today) or natural philosophy which looked at causes or natural laws. In natural history there were 3 sciences: mineralogy (which included fossils) physical geography (essentially field science looking at large 2-dimensional structures) and geognosy, a non-theoretical science using additional evidence from mines to look at large 3-dimensional rock structures. Natural philosophy also had its science - "physic de la terre" - literally earth physics-, which tried to explain causally any and all of the natural history sciences. The theory of the earth evolved into a global work, for instance with Hutton, and it unashamedly produced a model with the intention of explaining all aspects it going it will then evolve in a more or less organised way. In many ways the book will be a history of the scientific elite of the period.

(reports from notes by the Editor)

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## For Your Bookshelf...?

**Fossil Revolution. The finds that changed our view of the past**, by Douglas Palmer, £16.99.



Over the last 200 years, the discovery of fossils has revolutionised our understanding of evolution and the story of the Earth. Fossils - the remains of once-living organisms - from seashells to dinosaur bones have fascinated us for thousands of years. Early man collected them and placed them as treasured objects in tombs with the dead.

*Fossil Revolution* is the story of the discoveries that unlocked the secrets of the past. It traces the history of species that once dominated the earth and were then wiped out. Taking you on an archaeological journey through time, this beautifully illustrated book reveals how man has come to understand his precarious position in a fragile and unpredictable world.

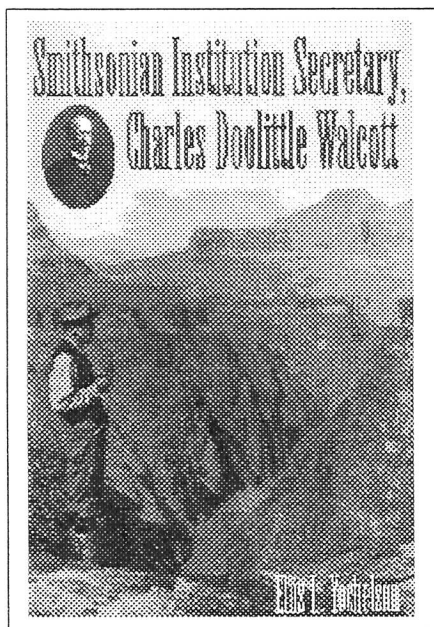
(from the flyleaf)

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"Walter Grainger 1872-1941 Paleontologist", Vincent L.Morgan and Spencer G.Lucas, pp58, pub: New Mexico Museum of Natural History & Science, Bulletin 19, Albuquerque 2002

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**Smithsonian Institution Secretary, Charles Doolittle Walcott**, by Ellis L.Yochelson, Pub: The Kent State University Press, Kent Ohio 44242, 2003.



Charles Doolittle Walcott (1850-1927) is a highly respected figure in the history of geology and palaeontology. Perhaps his most notable contribution to his field was his discovery of the Middle Cambrian Burgess Shale, one of the most important fossil finds ever made. In addition to his distinguished field work, Walcott's career included years of service as an administrative leader in the scientific community: as Director of the U.S. Geological Survey, as secretary of the Smithsonian Institution, as a founding member of the National Research Council, and as president of the National Academy of Sciences.

*Smithsonian Institution Secretary* continues the story Ellis Yochelson began in *Charles Doolittle Walcott, palaeontologist* (1998). Using Walcott's letters and journals and the recollections of friends and colleagues, Yochelson discusses Walcott's life and career as secretary of the Smithsonian Institution. As secretary, he worked tirelessly to revitalise the dispirited organisation, fighting for funding, recognition, and support from presidents, Congress, and the general public. During his tenure, the Institution flourished. He is credited with building the Freer Gallery of Art and with laying the foundations for the National

Air and Space Museum, the National Portrait Gallery, and the National Museum of American Art.

Accompanied by illustrations and photographs from private collections and the Smithsonian Archives, this straightforward biography of Charles Doolittle Walcott offers readers a look at the life and career of an important but little-known American scientist. (from the flyleaf)

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**Gideon Mantell: Memento Mori -4**, by Anthony Brook, pub: West Sussex Geological Society Mantell memorial Series, March 2003., 42pp, £4.50.

This 4<sup>th</sup> part of the series dedicated to Gideon Mantell is mainly concerned with the discovery of extinct saurians in the 1830's whilst Mantell was still resident in Sussex. The first section deals with Mantell's award of the Wollaston Medal - the highest award of the Geological Society. The next section concerns his discovery of *Hylaeosaurus* from the summer of 1832 onwards, and the final section conveys the excitement of discovering and interpreting the Maidstone *Iguanodon* from June 1834 right up to the present time.

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## **Sir Clement Le Neve Foster Memorial Plaque, Llandudno**

Pete Challis

(photos courtesy of the author)

The erection of a plaque on the Llandudno home of Sir Clement Le Neve Foster (1841-1904) was a long held ambition of the writer to have the professional life of this eminent 19<sup>th</sup> century geologist and mining engineer recognised beyond the narrow confines of those engaged in the study of the mining and geological history of the UK.

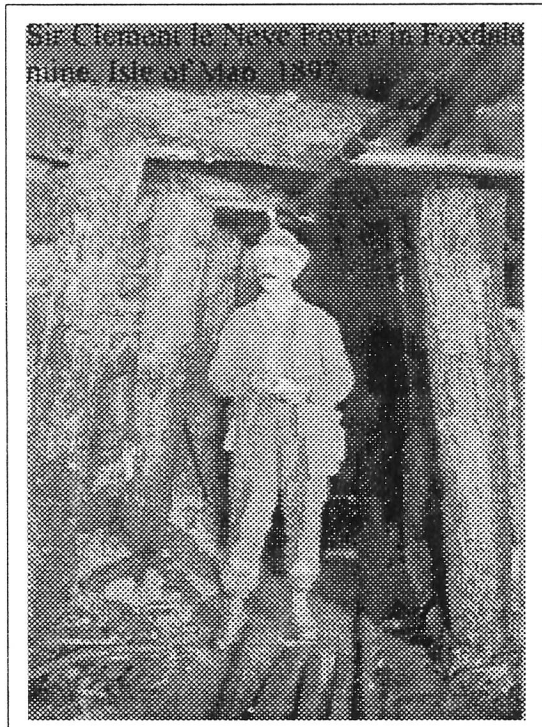
Emanating from a family with many connections in the world of Victorian science Clement was sent to France aged twelve years' to study for a degree. On returning to London he entered the Royal School of Mines where he excelled academically. Graduating in 1859 Foster pursued his career in the mining and minerals industry, first studying at the famous German mining school at Freiberg.

Returning to London he came to the notice of Sir Roderick Murchison and in 1860 was appointed as a geologist in the Geological Survey. Although he stayed for only five years' his work on the geology and geomorphology of the Weald, with William Topley, is still recognised today as having made an important contribution to the elucidation of the geomorphology of the Weald.

From the Geological Survey he became a lecturer to the Miners' Association of Cornwall and Devon where he was able to devote his geological talents in the field of mineralogy much of which is disseminated in the annals of the Royal Geological Society of Cornwall and the Mineralogical Society.

In 1872 he was appointed as one of the first Government's Inspectors of metalliferous mines following the extension of the Mines Inspection Acts from those of the coal industry to cover the rest of the mining industry extant in the British Isles. Perhaps not surprisingly Clement's first posting in this capacity was to Cornwall. Here he quickly made his mark performing his duties with diligence and zeal much to the dismay of many mine-owners and he is credited with reducing the high mortality rate then prevailing as he railed against the use of out-dated technology and strove to have the latest installed, for example the 'man-engine', which, where it was introduced, saved the miners the arduous task of climbing often many hundreds of feet of fixed ladders to and from their daily work.

He later transferred to the north Wales mines inspection area, which included the Isle of Man and which, later, also included such far-flung counties as Kent, Middlesex and Surrey and here he spent almost the rest of his professional life. He also became a professor at the Royal School of Mines and would undoubtedly have spent many more years than he did in this capacity if not but for the effects on his health following a dreadful accident in a lead mine on the Isle of Man that he attended in his official Government capacity and where he assisted in the grim recovery of several deceased miners.



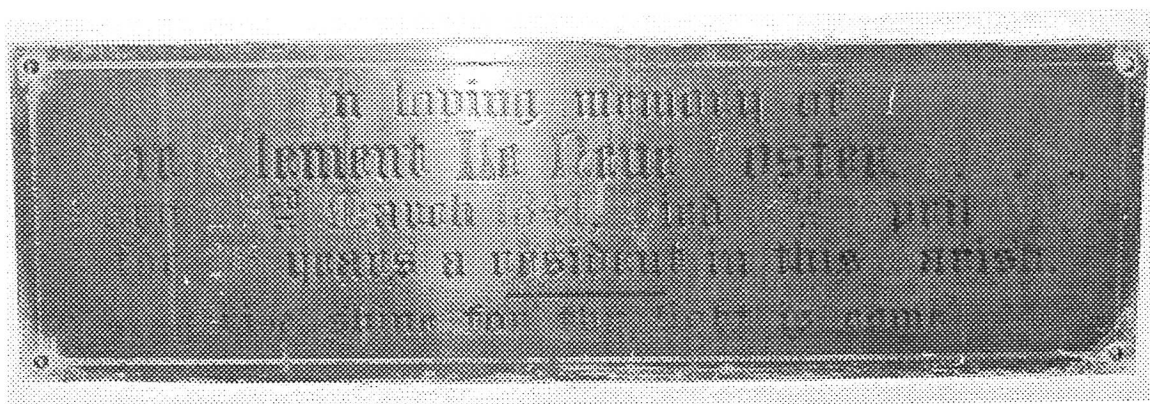
Sir Clement le Neve Foster in Foxdale mine, Isle of Man, 1897

Although his name crops up from time to time in the pages of the various UK mining history societies and probably also amongst the mineral collecting fraternity there appeared to be little or nothing written, at least in the public domain, of his life and work.

The opportunity to redress this omission came to me when I undertook Liverpool University's MSc course in the history of science and technology. Having spent many years working in the geological sciences and having an interest in the history of geology especially where it impinges on the history of mining it provided an ideal base for a study of Sir Clement's life and work.

Unfortunately despite tantalising references to his propensity to keep large volumes of notes and having located his surviving relatives it appears that little of this material survives, nor indeed, seemingly, has much survived within the various archives of the institutions with which he is associated: sadly also including his mineral collections.

Upon completion of the MSc I was hopeful that, in addition to the small plaque to him (below) which resides in the picturesque church of St Tudno on the Great Orme, Llandudno (which is sadly more often locked and closed than open), that it may have been possible to have a memorial to him erected on his imposing family home in the town itself.



Editor's Note:

The bronze plaque reads:

In loving memory of  
**Sir Clement Le Neve Foster**  
**Born 23<sup>rd</sup> March 1841, Died 9<sup>th</sup> April 1904**  
**for 26 years a resident of this Parish**

-----  
**Arise shine for thy light is come**

Negotiations with Conwy Borough Council took a long time to come to fruition although they readily agreed to having a plaque funded, commissioned and erected as part of Llandudno's, 'Town Trail' of local worthies and thus it has come to pass that the plaque has recently been completed and now proudly adorns the entrance of his former family home, which is presently a much enlarged hotel.

Thanks are due to Conwy Borough Council's generous provision of funding to enable the plaque to be cast and erected especially Janet Johnson, Strategic Tourist Development Officer, for her support and help during the negotiations to mark the life of this remarkable man.

For more information on Clement Le Neve Foster, see:

Challis, P., 'The Professional Life of Sir Clement Le Neve Foster (1841-1904): Geologist and Mining Engineer' 145pp. + appendices. Submitted 2000 for the degree of Master of Science at Liverpool University in the 'History of Science and Technology'.



Syr Clement Le Neve Foster FRS 1841-1904  
Geologist and Mining Engineer:  
HM Government's Chief Inspector of Mines

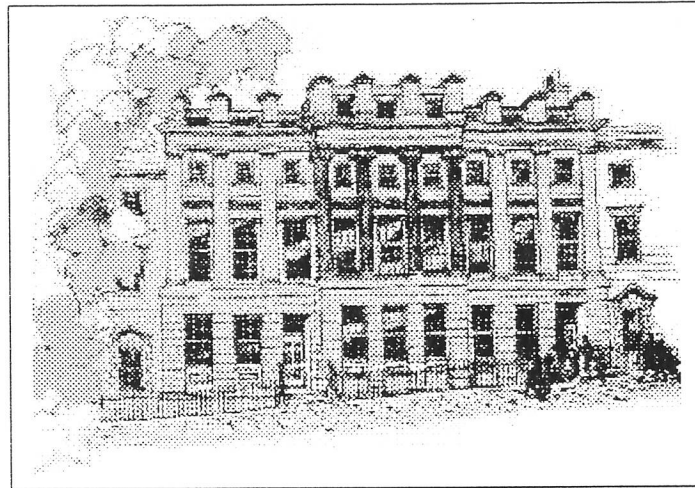
Chwaraeodd Le Neve Foster ran yn yr ymgyrch i ostwng y raddfa farwolaethau arswydus yng Nghloddfeydd metal a llechi Cernywa Chymru. "Ni chyfrannodd yr un dyn yn y wlad hon wasanaeth mwy eithriadol ym maes cloddio metellog....Fe wnaeth lawer i ledffu balch y cloddiwr." (Yagrif Goffa) Bu Clement le Neve Foster a'i deula yn byw ym Min y Don am 25 miynedd.

Le Neve Foster was instrumental in reducing the appalling death rate in the metal and slate mines of Cornwall and Wales. "No man in this country has rendered more conspicuous service to metalliferous mining...

He did much to ameliorate the lot of the miner " (obituary)

Clement le Neve Foster and his family  
lived at Min y Don for 25 years

## Bath Royal Literary and Scientific Institute



Cherry Lewis was recently nominated by the West of England Geological Society to be a trustee of the Bath Royal Literary and Scientific Institute (BRLSI), which was founded in 1824. The Institute has one of the finest collections of geological and zoological specimens, antiquarian books, ethnic artefacts, curiosities and archives in the West of England. Unfortunately, during the period before the Institute's revival in 1991, the collections were neglected and allowed to fall into disrepair. The intention is now to make them available via the internet on which a virtual museum is being created at <http://brlsi.bath.ac.uk>.

### *Adopt a Book scheme*

The BRLSI holds many books that, due to this neglect in the past, have suffered from damp and insect damage. However, most of the books could be refurbished, their corners repaired, their endpapers replaced and new leather spines attached, if the money can be found to finance it.

When you adopt a book, it will be restored by local bookbinders who specialise in antiquarian books. Your contribution will be recorded in the BRLSI's official register of the scheme, and your name will be inscribed on a specially designed bookplate.

A selection of the geology books available for adoption follows below. Anyone wishing to adopt one of these books, make a tax free donation to the scheme, or requiring further information can contact the BRLSI at 16-18 Queen Square, Bath, BA1 2HN, UK. Tel: +44 1225 318145; email [exxbrlsi@bath.ac.uk](mailto:exxbrlsi@bath.ac.uk).

<b>Geology books for adoption</b>	<b>Cost of repair</b>
Agassiz, L.J.R., Recherches sur les poissons fossiles (1833-43). (Text volumes already restored)	3 vols. of plates to be rebound. £87.55 per vol.
Basterot, B. de, Mémoire géologique sur les environs de Bordeaux (1875).	Repair £36.47
Bonney, T.G., Cambridgeshire geology: a sketch for the	Repair £36.47

use of students (1875).	
Burmeister, H., The organisation of Trilobites (1846).	Repair £51.90
Crookall, R., Fossil plants of the Carboniferous rocks of Great Britain (Second Section), from Memoirs of the Geological Survey of Great Britain. Palaeontology vol. 4 pts. 1 & 2 (1955, 1959).	£27 quoted for a box, but if this is complete we would probably have it bound.
Cuvier, G.L.C.F.D. de, Recherches sur les ossemens fossiles (1821).	6 vols. to be rebaked, £44.67 each.
Cuvier, G.L.C.F.D. de, Discours sur les revolutions de la surface du globe, et sur les changemens qu'elles ont produit dans la regne animal (1826).	Repair £72.15.
Daubeny, C.G.B., volume of tracts bound by Rev. Leonard Jenyns, including: A Description of active and extinct volcanoes (2nd supplement, 1858); On the Elevation Theory of volcanoes ... (from the Edinburgh New Philosophical Journal, 1860); Obituary notice of Charles Giles Bridle Daubeny (by John Phillips, read to the Ashmolean Society, Feb. 17, 1868)	Price on application
Geological Society of London Transactions, a run from 1939 to 1949	To be bound at £14.87 per vol.
Mawe, J., A treatise on diamonds and precious stones, including their history, natural and commercial (1813)	Repair £47.50
Murchison, R.I., The Silurian region and adjacent counties of England and Wales geologically illustrated; from the Ordnance Survey coloured in the field during the years 1831-8.	Map requires a new case, £22.
Nicol, J., Manual of mineralogy; or the natural history of the mineral kingdom (1849)	Repair £36.47
Witham, H.T.M., Observations on fossil vegetables (1831)	To be boxed £27

## ----- 150 year-old Portuguese Geological and Mining Institute facing closure!

The Geologic and Mining Institute (IGM) is at risk of extinction due to an approval of a proposal by the Council of Ministers of Portugal on 27 of May of 2003. The statements that define this governmental proposal are unknown to the workers and directors of this Institution.

The Geologic and Mining Institute (IGM) has been a national reference institution within the geosciences areas over the past 150 years and provides crucial services to the nation. With the extinction of IGM, Portugal will become the only European country without an autonomous national institute in this technical and scientific area.

In a time [in] which geosciences assume a relevant role in environmental, public works and territorial planning areas that extends beyond the traditional methods of application, it is outlandish this decision that is prejudicial to the general interest of the country.

**In case you don't agree with the imminent extinction of IGM, please subscribe Our Petition, which will be send to Mr. President of the Portuguese Republic, Mr. Prime Minister and the Council of Ministers.**

Portugal may be the first European country which closes its geological survey, but it may not be the last.... If you wish to sign the electronic petition, please go to:  
<http://igm.no.sapo.pt/english.html>

