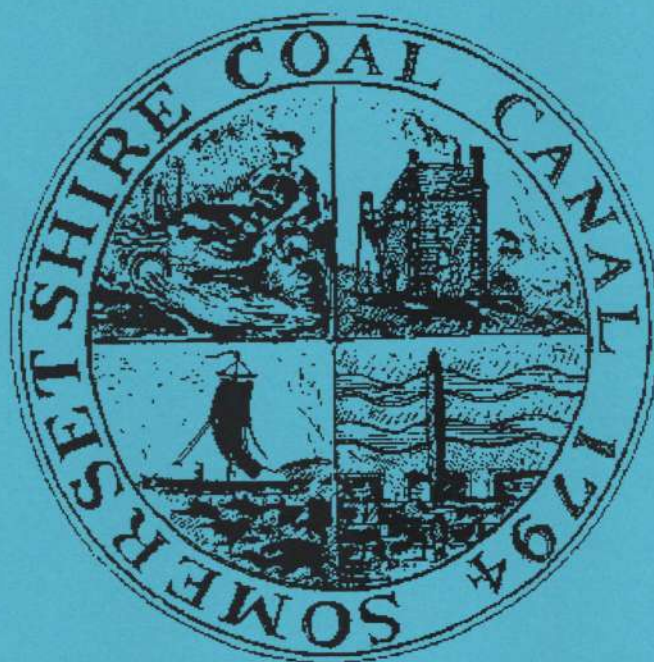


# HOGG

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



Number 17

January 2003

**Cover illustration:**

**Badge of the Somersetshire Coal Canal, started in 1794 with assistance of a geological survey by William Smith.**

The Somersetshire Coal Canal was authorised by an Act of Parliament in April 1794.

The canal was promoted by the mine owners of the North Somerset coalfields as a cheaper means of transporting their coal to the markets in Bath and the surrounding area. (At that time the only transport was by pack-horse or horse and cart, over rough terrain. These animals could only cope with limited quantities, which resulted in high prices ). The mine owners were also worried over the possible effect the flood of good Welsh coal might have on their market for there had been plans to import such coal into Bristol

Surveyed by John Rennie (of Kennet & Avon Canal fame), with help from William Smith (1769-1839) - (the "Father of English Geology", whose writings influenced Charles Darwin); the canal was to have two arms, with connecting tramroads, to the many coal pits in the Radstock and Timsbury areas. (June 2001)

(abstracted from the pages of the Somerset Coal Canal Society at

<http://homepages.enterprise.net/rtj/SCC2.html> (shortly moving to:

<http://rtjhomepages.users.btopenworld.com/index.html>) with due acknowledgement.

More illustrations and history of the canal will be found in the book "The Somersetshire Coal Canal" - see the "For Your Bookshelf" part of this newsletter.

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## An Apology from the Editor

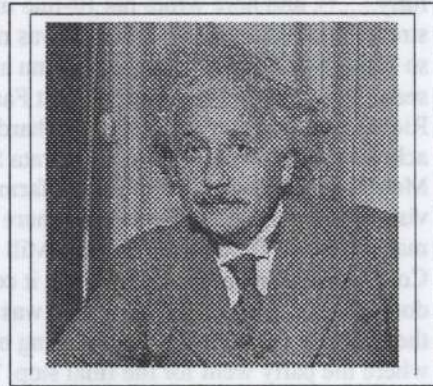
Many people will have received the previous newsletter with a demand from the Post Office for an extra 94p payment due to it having insufficient postage. Many will also have been inconvenienced by having to travel to collect the item from distant offices. The problem arose from a misunderstanding between the Editor, at a time when a desperate rush to get the newsletter out was created by the unexpected necessity to take urgent leave for family reasons, and the Post Office who did not say that the inland postage requested was insufficient, despite having an example on the scales at the time. In the heat of the moment it just simply did not register that the postage used was insufficient.

The Editor would like to offer profuse apologies to all members who had to make journeys to collect the newsletter from sorting offices and who were caused extra expense.

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## The next HOGG meeting.....

**Do you  
have a  
bright idea?**



**Then don't keep it to yourself!**

**If you have an interesting topic concerning the history of geology, why don't you come and tell us about it at the HOGG Members Meeting on Thursday 15th May 2003?**

**If you would like to make a presentation, please contact Richard Howarth 49 Selwyn Ave, Richmond, Surrey, TW9 2HB or e-mail [r.howarth@ucl.ac.uk](mailto:r.howarth@ucl.ac.uk) giving your name, the title of your presentation and a short synopsis. Offers of talks should be received by March 5<sup>th</sup> 2003.**

**This is your chance to share your pet subject!**

## The Industrial Basis of Stratigraphy

A look back at last summer's HOGG field trip to the neighbourhood of Bath in the footsteps of John Strachey (1671-1743) and William Smith (1769-1839)

(photographs courtesy of Cherry Lewis, Shirley & Hugh Torrens, and John Fuller)

Approximately 20 people elected to follow in the footsteps of John Strachey & William Smith. The first day was spent in the area around Batheaston, the site of one of the world's first scientifically based mineral prospects, when coal boring was conducted under guidance from Smith between 1804 and 1813. Other locations included 29 Pulteney Street where Smith dictated his *Natural Order of Strata* in June 1799, Trim Street where Smith had an office from 1802 to 1805 and where he laid out his fossil collection in stratigraphical order for public inspection, and Bloomfield Crescent where Smith lived from 1795 to 1798 while supervising contracting work on the Somersetshire Coal Canal.

The second day was spent in glorious sunshine, visiting localities further afield. First to Sutton Court at Chew Magna, the ancestral home of John Strachey, and the Strachey family home until 1987. It was from here that Strachey described local coal-mining practice, which has a special place in the history of stratigraphy. Then on to the fine Jacobean mansion of Stowey House, the home of John Strachey's sister, Elizabeth from 1702. Forty-eight years after Strachey's death, Smith was sent to Stowey to survey the estate. Then a brief visit to the site of the Mearns coal-work at High Littleton, and Rugbourne Farm where Smith lodged from 1791 until 1795, and from where he was "desired to investigate the collieries". Smith surveyed Mearns colliery in 1792 and made his first attempt at a mine profile (which still survives). Following a short stop at Dunkerton wharf to look at the remains of the first section of the Coal Canal to come into operation (1798), it was time to retire to *The Old Swan* at Dunkerton, just as Smith had done "to collect his thoughts and make notes" (well, if one is to follow in the footsteps it might as well be done fully.....!), and here wrote his 10-line memo asserting that "nature had assigned to each class its peculiar stratum", wrong of course, but he was not aware of it. Sadly this place is now too blighted by traffic noise, so lunch was taken at The George Inn at Norton St Philip, where there was time to discuss what had been seen. The first afternoon stop was at Farleigh Church, Hungerford, where Smith's friend Benjamin Richardson was rector. In 1831 Richardson wrote to Adam Sedgwick at the Geological Society to acknowledge the help given by "Strata Smith". Shortly after, Smith was awarded the society's Wollaston Medal. A quick visit to Broadfield farm, home of Smith's brother and a retreat for Smith, was followed by a visit to Hill farm near Pipehouse where Smith demonstrated his method of relating detached outliers to the main stratum. Then on to Tucking Mill cottage which Smith purchased in 1798 while employed by the Coal Canal Company. At that time, it consisted of the left-hand half (as seen from the road) only, but was doubled in size shortly after. There was much discussion as to just which half Smith had occupied. He lost the property when his stone quarrying operations on Coombe Down failed, and it was to Coombe Hay where the party went for the final stop. This construction at the eastern end of the canal's upper level was to involve a novel method of lifting boats from level to another inside a water-filled caisson, but was thwarted by the geology. Swelling bentonite caused bricks to be dislodged inside the shaft carrying the caisson and so impeded its upward/downward movement. Smith, perhaps unfairly, was held responsible for its failure and was dismissed by the Canal Company.

Sadly that was the end of what had been a stunning adventure in unbelievable weather. There was much to think about and discuss, but time was not on our side especially as some members had to get back to catch flights to far-off parts. Their plight was not aided by the chartered bus succumbing to a puncture on the way back, and the need to call for a replacement. A time to panic, perhaps? Well not for Shirley Torrens who boldly stepped into the traffic and stopped cars to gain private lifts for the unfortunate few. The rest had to wait but eventually a new bus, resplendent in its logo advertising Bath Rugby Club arrived. It is to be hoped that HOGG can arrange more trips of this nature, especially if they also have access to controlling the weather!



Forget sea, sand and sangria, this is Somerset, Smith and sunshine!



Lunch at the George Inn, with plenty to discuss!

Gordon Hillier, Cherry Lewis, John Martin and Hugh Tonnens are NOT expected to be part of any new Bath Rugby Club front row...



William Smith's house at Tucking Mill. It is generally thought he occupied the left-hand portion, but may have constructed the rest from stone taken from the Coombe Hay project.



Gordon Hillier, Cherry Lewis, John Martin and Hugh Torrens are NOT expected to be part of any new Bath Rugby Club front row....!



A waterlogged and derelict trow at Dundas Wharf 1962. At this point the Somersetshire Coal canal joined the Kennet and Avon canal.



The Somersetshire Coal Canal at Combe Hay, photographed in September 1892. The bridge crosses the entrance to lock 16 in a flight of 22 joining the upper & lower levels of the canal between Midford Wharf and Paulton Wharf.

## Geology, History and Water: Mix and Stir.

Anthony Brook

On a wet Thursday in December 2002 (the 12<sup>th</sup> to be precise), at Burlington House, London, there took place a Joint Meeting of 2 specialist groups of The Geological Society — Hydrogeology and History of Geology, under the appropriate umbrella title of “200 Years of British Hydrogeology”. As the programme, organised by the Hydrogeology Group, with John Mather as Convenor, was overflowing with 17 presentations (which permitted no time for questions or quiescence between eager speakers), it was thought best, after consultation with the Editor of HOGG, to summarise the morning sessions this time, and hold back the afternoon sessions and final thoughts till next time, so stay tuned.

*Hugh Torrens* opened proceedings by drawing attention to the hydrogeological work of the ‘Father of English Geology’, William Smith (1769-1839). As early as 1799 Smith was keenly aware of the intricate relationship of strata and aquifers. His experiences as a canal engineer in Somerset, and all the hydrological problems involved, stood him in good stead when he was forced, by circumstances, to earn his own living as a consultant. Thereafter, he rearranged the hydraulic landscape by draining wetlands and creating water-meadows; erected defences against incursions of the North Sea; and sought out new water-supplies, all using his innovative understanding of topography and stratigraphy.

*Michael Price* related his research on Dr John Snow (1813-58), a mid-Victorian investigator of groundwater pollution. Cholera epidemics had ravaged 19<sup>th</sup> Century London at regular intervals and were thought to be caused by ‘miasmas’ emanating from marshlands. Dr Snow was worried about the rapid diffusion of this highly-contagious disease. His meticulous investigation of the outbreak of cholera around the pump in Broad St., Soho in 1854 was an innovative and model study of an incidence of groundwater pollution. Even at the time people needed a lot of convincing of the connection between water-supply, disease and death: his discoveries still provoke controversy. The key was the depth of the Broad St. well and its proximity to an overflowing cesspit: a classic case of epidemiology.

*William George* made out a strong case for William Whitaker (1836-1925) to be considered the ‘Father of English Hydrogeology’. Shortly after graduating from UCL with a degree in Chemistry, Whitaker joined the Geological Survey in 1857 and remained in their employ until retirement in 1896, when he took on the role of consultant hydrologist. For nearly 60 years



Whitaker meticulously accumulated and published detailed records of wells and borings, in publications such as Geological Survey Memoirs (1861-1902), Water Supply Papers (1867-95) and County Water Supply Memoirs (1899-1928). Two of these Memoirs were monumental: London Basin (1872) 619pp. and London and the Thames Valley (1889) 908pp. As in all science, description precedes analysis: Whitaker had a lifelong pioneering obsession with hydrologic data.

*John Mather* revelled in the life and career of Joseph Lucas (1846-1926), a Victorian polymath and keyman in the development of British hydrogeology. Lucas came from an extensive, well-connected, mid-Victorian, South-London family. He joined the Geological Survey in 1867 and spent 9 years mapping in and around Nidderdale before being told to resign: thereafter, he advised on groundwater resources. In 1874 he pioneered the modern use of the term hydrogeology, and defined this new research field in a series of innovative papers (1876-82). In 1877 Lucas constructed the first British map showing groundwater contours i.e. the initial hydrogeological map; 2 years later, divided England and Wales into Watershed Districts; and also outlined procedures for hydrogeological surveying. An accomplished linguist and translator, Lucas also found the time to write books on natural history and genealogy!

*John Tellam* pointed out that, in the mid/late 19<sup>th</sup> Century, there was a national proliferation of active local groups of amateur researchers in hydrogeology. A good example was Isaac Roberts, who was particularly active in the Liverpool Geological Society. In his investigations of the water-supply problems of Liverpool and Manchester, Robert's researches, in the 1860's and 1870's, demonstrated a sound grasp of many hydrogeological principles, such as permeability, seawater intrusion, recharge rates and the effects of faulting on flow. The contributions of Roberts and his contemporaries to the bulk supply of water to these burgeoning conurbations centred on the regional sources of groundwater and their differential geochemistry; and latterly, developing fundamental conceptual models.

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*Martin Preene* made a good case out for the great civil engineer Robert Stephenson (1803-59) to be considered the first groundwater engineer, developing considerable expertise in the practical management of groundwater during his vast engineering projects, viewing groundwater as both a valuable resource and a major impediment to construction. His empirical approach to groundwater was grounded in the years spent battling aquiferous quicksands during construction of the extremely long Kilsby Tunnel on the London-Birmingham Railway during 1835-38. Later Stephenson advised on public water supply from the Chalk to London (1841) and from the Sherwood Sandstone to Liverpool (1850). He empirically identified the 'cone of influence' and

the 'hydraulic gradient', major hydrogeological concepts; his hard headed practical approach to the mis-supply of groundwater still has much to recommend it.

*Paul Younger's* dynamic presentation matched 'the hydrogeological adventures of Britain's early mining engineers'. Water was the great enemy of miners: more than a nuisance, it was a mortal hazard! The earliest technical descriptions of British mining methods (1670-1720) effused on the problems caused by the ingress of groundwater into underground workings. Water had to be removed, by various laborious and expensive means. Although early mining engineers were beset with practical problems, they also speculated on the nature and origins of underground waters, developed ideas about groundwater occurrence in mines, and identified persistent issues. Pioneer mining engineers were so successful with under – groundwater management that they bequeathed the technical basis for the development of large-scale public-water-supply systems from c. 1820. Mining engineering led on to hydraulic engineering.

*Ted Rose* considered the contribution of British military geologists to the search for good-quality groundwater. From the early 19<sup>th</sup> Century military personnel pioneered initiatives in geological cartography and instruction, starting with MacCulloch in Scotland. From 1814-45 all official geological mapping was undertaken by the military, and from mid-century Geology formed part of the curriculum at Sandhurst. During World War I the British Army appointed its first hydrogeologist (Bill King) to site boreholes and develop water-supplies in the battle-zone of Northern France and Flanders. In 1915 he produced a geological map of Flanders showing water-supply quality. Interwar, the Army remained concerned with methods of water-supply; during World War II military well-drilling units were part of the North African and Normandy campaigns. The long, postwar 'Cold War' period saw the Army retain a reduced but cogent hydrogeological capability.

(to be continued)

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## For your bookshelf....?

**"Curious Bones: Mary Anning and the Birth of Paleontology,"** published September 2002 by Morgan Reynolds (112 pages, ISBN 1-883846-93-5, library edition \$21.95).

A Long Island religious leader has just published the first biography of the woman who started the original prehistoric monster craze. "Curious Bones: Mary Anning and the Birth of Paleontology." Written by the Rev. Thomas W. Goodhue, Executive Director of

the Long Island Council of Churches, is being published this month by Morgan Reynolds.

"Hers is a remarkable story," Goodhue says, "but she remains little-known."

Anning began searching for fossils as a child, found the first prehistoric swimming reptile when she was just a teenager, and found some of the rarest specimens ever unearthed before she turned thirty. Her discovery of the strange sea creature Plesiosaurus, two decades before the word "dinosaur" was coined, touched off fossil-hunting mania around the world. Study of the fossils she found, which included extremely rare fossil fish and flying reptiles, provided raw material for Charles Darwin's theory of evolution. Her life spanned a crucial period in the growth of geology (1799 to 1847) when it was "the queen of the sciences."

"She was poor but formed friendships with wealthy collectors," Goodhue adds. "Uneducated, she influenced the development of science. Unable to vote, she helped bring down the corrupt political machine which dominated her town. She was deeply pious, but her discoveries disturbed the beliefs of millions of people. "I've always been interested in both science and religion, and Anning shows how complex this relationship is."

Goodhue began researching this early 19th century scientific pioneer while teaching at the Riverside Church Weekday School. There were countless books for young children about prehistoric creatures, but nearly none about any other female paleontologists. Unable to find an account of her life, Goodhue began writing one himself. "It turned into an obsession," he confesses. "He first wrote about Anning for the teachers' magazine "Instructor" and then included a children's sermon about her in "Sharing the Good News with Children," his collection of stories for the Franciscans. Articles followed about her religious life for Episcopal publications in the U.S. (Anglican & Episcopal History), Canada (Anglican Journal), and Britain (Church Times), plus one for Northeastern Environmental & Geological Sciences and invitations to speak at scholarly conferences in the U.S. and England.

While "Curious Bones" is a short book, it is the most complete account yet of Anning's life and times yet published and the only one to deal with her emotional and spiritual life. With a glossary and time-lines, it is intended to be a book which older children and teenagers can read, but it also includes an index and references which scholars can use for further study.

For further information, contact Tom Goodhue, Long Island Council of Churches (tel USA 516-565-0290) or Laura Shoemaker, Morgan Reynolds Publishing (tel: USA 336-275-1311)

(note received anonymously in Sept 2002)

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**Carl Wilhelm von Gumbel (1823-1898). *Leben und Werk des bedeutendsten Geologen Bayerns.*** Edited by Thomas Sperling. Published by Dr Friedrich Pfeil, Munich. ISBN 3-931516-87-3. (in German)

Wilhelm Gumbel was born in Dannenfels on 11<sup>th</sup> February 1823, the youngest of 11 brothers. He was educated in Munich and Heidelberg where he studied geology,

mineralogy, and mining. After his state exams in Munich, he was employed from 1848 at a coal mine in St Ingbert in the Saarland. On 14<sup>th</sup> April 1851, he was summoned by King Maximilian II to Munich to begin a systematic geological map of the Bavarian area.

Gumbel became the leader of the Geological Bureau from 1856 and stayed there until his death on the 18<sup>th</sup> June 1898. In 1882 he was awarded the Knight's Cross of the Bavarian Crown, and for his work relating to the Munich water system he was given on 1<sup>st</sup> January 1889, the Freedom of the City. The volumes dealing with the geology and the map itself, became his life's work, and also the standard work on Bavarian geology.

This book forms a series of papers on various aspects of von Gumbel's life. It is a lavishly illustrated book printed on excellent paper, but for UK readers, sadly, has no text in English.

(free translation from the book cover)

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**Gideon Mantell - Memento Mori 3**, by Anthony Brook. Pub: West Sussex Geological Society, Mantell Memorial Series, Oct. 2002, 40pp.

This volume, the third in a series dealing with Gideon Mantell (see the previous HOGG Newsletter for a brief account of vols I & II), focuses on his lesser known interests of archaeology & antiquities. Until he was forced by pecuniary and health circumstances in 1838 to leave his beloved Sussex to live in London, archaeology and antiquities had played a very large part in his life. He had spent much time opening tumuli, recording artefacts and visiting sites, but in London this was reduced to attending meetings and publishing reports. This volume reprints many of his published reports, along with accompanying illustrations. It also contains reprints of the reports of the autopsy carried out on him, showing that he suffered from a curved and distorted spine. His attempts to alleviate the pain, caused him to take anodyne pain killers, and it was one of these which finally killed him. Part of his spine (illustrated on the front cover and inside) was preserved at the Hunterian Museum of the Royal College of Surgeons, until a direct hit during WWII, and it disappeared - or, as the prologue asks, did it?

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**The Somersetshire Coal Canal - A Pictorial Journey** by Roger Halse and Simon Castens. Millsteam Books, £6.50. ISBN 0-948-755-8X ; 48 pages. More pictures than were originally published in "Archive" no.26 (The quarterly journal for British Industrial & Transport History) (about 50% overlap); picture quality is a little better-but smaller. Picture captions have a little more detail.

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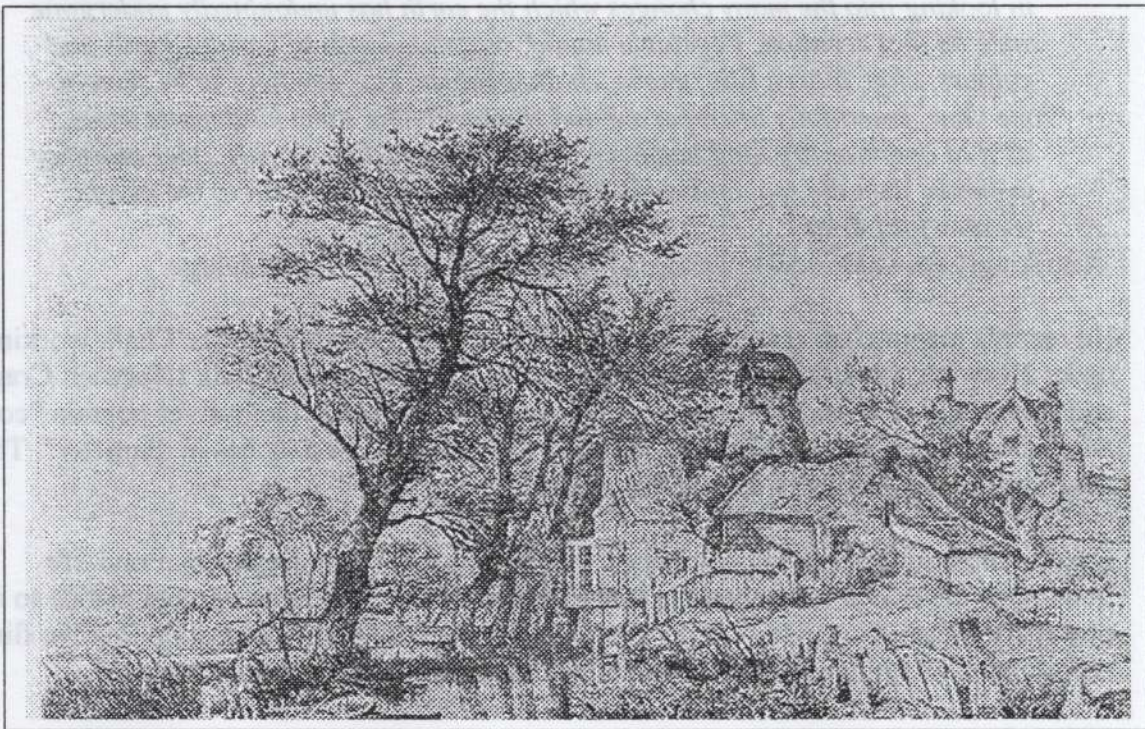
## William Arderon (1703-1767)

John Martin

William Arderon is a virtually unknown but interesting personality in the history of the growth of 18<sup>th</sup> century natural history, and perhaps of more than passing interest to the geologist.

Born in Yorkshire, he moved to Norfolk as a young man of about 20 with the job of Customs Officer in Norwich. He so continued in this employment without much enthusiasm until the age of about 40. He said it was a laborious calling and he refused promotion because "*that little time and opportunity I then enjoyed for study would be entirely taken away from me if I accepted.*" Instead, in 1774, he became the managing clerk at the New Mills, a long established site of Norwich's principal corn mills and the source of such public water supply as existed at the time. The move provided more money (£60 p.a. plus a house) but was illusory so far as providing more time for himself. In 1747 he wrote "*It [i.e. the New Mills] is a place of great labour, as you may easily understand when I tell you I negotiate in corn buying and flour selling upwards of £10,000 a year, all of which goes through my hand without the least assistance.....Besides accounts of £900 a year for conducting water through this populous city.*"

All such spare time that he had, had been devoted to developing a great passion for natural history, which was to be his primary interest throughout life. He was particularly attracted to aquatic plant and insect life, of which he was a keen and accurate observer.



The New Mills, Norwich, by John Crome, 1812

He was a keen microscopist and a competent draughtsman and he left many illustrated notes and letters. However his interests recognised no boundaries. As a meteorologist he invented a hygrometer for the measurement of humidity, and geological matters were far from unnoticed.

His main correspondent was a Mr Henry Baker, FRS, of London, to whom over 1200 letters relating to natural history matters are extant. Part or all of these letters were often read to the Royal Society and in 1743 Arderon himself was elected a Fellow, albeit his salary as a customs officer made it difficult for him to pay the subscription. Subsequently he frequently wrote to the Society with his observations and between 1744 and 1763 he sent no fewer than 24 papers for publication in the Transactions.

Amongst the huge amount of material that he left, much of it was written in large notebooks containing a short essays on a wide range of topics outside natural history. His range of interests seems endless. Notes, essays and tracts cover such matters as women's education, capital punishment, education in village schools, teaching the deaf and dumb, the training of soldiers, bankruptcy, cruelty to animals and the employment of criminals.

In all this, geological topics are present but do not dominate in the manner that insect and plant subjects do. He wrote to the Royal Society on the occurrence of an earthquake south of Norwich in 1750, and in 1746 wrote on the strata he saw, but made no real attempt at an interpretation, between Happisburgh and Walcot. However in his paper to the Royal Society, interestingly, he wrote:

*"the various strata---must be greatly entertaining to every one who takes pleasure in looking into the many changes which the earth has undoubtedly undergone since its first creation. Vegetable mould, oaz(sic), sands of various kinds and colours, clay, loams, flint, marls, chalk, pebbles, etc., are here to be seen at one view, beautifully interspersed and frequently the same kind many times, as if at one time dry land had become the surface, then the sea, after morassy grounds, then the sea, and so till these cliffs were then raised to the height we now find them."*

A strikingly forward view in an age still dominated by Noarchian deluge.

He records mammalian remains from the Norfolk coast, fossils from the Chalk workings under Norwich, the large molluscan fauna in sands overlying the Chalk (Norwich Crag) and "blew" clays, south of Norwich, containing septaria which themselves contain "cornu amonis or snakestone in a beautiful manner, from one to 5 or 6 inches in diameter". This description must be one of the earliest of boulder clay.

Despite these excursions into geology it was not his main preoccupation. Pond life dominated his sketch books and his less frequent drawings of flints did less justice to his powers of observation. These were often accompanied by notes suggesting that the flint represented a flamingo head or a whole fish "which I take to be a Chinese one"

One broken flint about 2 1/2 inches long contained a full length picture of a "Chinaman" and yet another "the likeness it bore to a Chinese head and bust is scarce credible."

Fanciful interpretations such as these would have done credit to Berringer's students rather than a normally keen observer and recorder of natural phenomena.

Upon his death, his large collection of papers found their way into the collection of Dawson Turner, the Victorian collector of Great Yarmouth. Upon Turner's death the papers became scattered, along with all of his other vast collections. Arderon's papers now exist in the Natural History Museum, London, The British Museum, the V&A and Norwich Castle Museum. Much also has been lost. Two biographical papers exist (Kitton 1878; Whalley 1971) but basically Arderon has been forgotten. As a self-educated man in the 18<sup>th</sup> century he deserves better, although from the geologists' viewpoint he perhaps stands on the sidelines.

Kitton, F. (1878). Trans. Norf & Norwich Naturalists Soc., vol.2, pp429-458.

Whalley, P.E.S. (1971), Journ.Soc.Bib. Nat. Hist., vol 6(1): 30-49.

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## Subscribers sought for William Smith Memoirs

Cherry Lewis

Much of what we know about the life of William Smith comes from a book entitled *Memoirs of William Smith, author of the Map of the strata of England and Wales* that was published in 1844 by Smith's nephew and pupil, John Phillips. Only 500 copies of the book were ever printed and by 1917 it was described by Thomas Sheppard as being 'exceedingly scarce'. An original presentation copy is held by the Bath Royal Literary and Scientific Society (BRLSI) who have had the wonderful idea of reproducing a limited reprint.

The Memoirs concentrated on Smith's working life but, as Phillips admitted, 'purposely softened the darkest outlines of Mr Smith's private and personal fortunes'. To rectify this the BRLSI have asked Hugh Torrens, a leading expert on Smith, to write an introduction and redress the balance. In addition, the Geological Society have generously agreed to allow inclusion of Torrens' *William Smith Lecture*. The whole will be newly indexed.

The BRLSI, following in the footsteps of Smith who had to seek subscribers before his map could be printed, are now seeking subscribers to this limited edition. The name of each subscriber will be inscribed in the book and they will be invited to the book launch in June 2003.

The Memoirs will be reprinted as a hardback, gold blocked on the spine and cover, with a ribbon marker. If you would like to be a subscriber please send a cheque or money order for **£15 PLUS £2 P&P** made payable to Angela Reichardt, William Smith Book, BRLSI, 16-18 Queen Square, Bath, BA2 7TJ, to arrive no later than 28 March 2003. Please state how you would like your name recorded in the book. For further information call (44) 1225 312084 or email [exxbrlsi@bath.ac.uk](mailto:exxbrlsi@bath.ac.uk).

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## IN MEMORIUM

### Clifford Frondel (1907 -2002)

Clifford Frondel was born in New York in 1907, and took an interest in geology, especially mineralogy, after a school field trip to New Jersey. Pursuing his interest he graduated from the Colorado School of Mines, then took a Master's Degree from Columbia University. In 1939 he became a full Professor of Mineralogy at Harvard. His war years were spent with the US Army Signal Corps developing quartz oscillator plates, now so common in piezoelectric devices and wrist watches. In 1969 he was one of the first to see lunar rocks bought back by the Apollo 11 astronauts. His reaction upon seeing the rocks coated with fine dust was "It looked like a bunch of burned potatoes." In 1970 he was 'contaminated' with lunar dust and spent two weeks in quarantine, lest any microbial lunar life should escape into the Earth's environment which might be catastrophic. In his lifetime he discovered 48 new mineral species, and cliffordite and frondelite are named in his honour

(abstracted from The Daily Telegraph of 21 November 2002 with due acknowledgement)

## Signs of Life: the Role of Paleobiology in the History of Evolutionary Theory

A proposal will shortly be submitted to the Geological Society of America to include a topical session on this theme in the program for its Annual Meeting in Seattle, Washington. This meeting will be held from Sunday to Wednesday, November 2-5, 2003. The session will be sponsored by the History of Geology Division of GSA. Other divisions and affiliated societies with interests in this field will be invited to co-sponsor the session. Here is a short rationale.

Fossils are important stratigraphic and paleoenvironmental indicators, but first and foremost they are records of ancient life. The interpretation of fossils as once-living organisms, members of biological communities, and evidence of patterns of evolutionary change has advanced dramatically in recent decades as a result of new discoveries, the application of new techniques and modes of analysis, and lively interaction between paleontologists and biologists. The purpose of this topical session is to focus attention and to develop scholarly interest in the history of paleobiology, focusing on the 20th Century in particular. Much excellent scholarly work has already been done on earlier developments in this field, extending back to the Renaissance and even the Classical world. However, papers on aspects of this earlier history will be included in the session, in order to give it a broader scope and a proper context.

The main object of this session is to stimulate new historical research and analysis, so reports of work in progress are as appropriate as accounts of completed projects. Consequently, we do not currently have plans to publish the papers presented in this session, as such. However, we do anticipate that this enterprise will lead in due course to the production of one or more books.



The Geological Society of America permits us to include up to four invited papers in sessions of this kind. The session can extend over a half or a full day, depending on the number of contributed papers we receive. If you are interested in participating in this session, if you would like more information, or if you would like to suggest a topic or speaker to be included in the session, please contact Roger Thomas (roger.thomas@fandm.edu) immediately. A formal call for papers will be sent out over Paleonet and subsequently by GSA as soon as the session has been approved.

Here are some potential topics. This list focuses on the history of ideas. However, please do not assume that we are uninterested in the roles of professional institutions, field and laboratory practice, sources of support for research, or the social, political and philosophical contexts that have influenced the history of this field.

Renaissance images of relics of former worlds, variously construed  
William Buckland's paleobiological actualism  
Darwin's use of the fossil record, reconsidered  
Dinosaur physiology and behavior: Mantell, Owen, Leidy and Huxley  
Late 19th Century neolamarckism  
Ernst Haeckel, idealistic morphology and the biogenetic law and "recapitulation"  
The roles of competition and cooperation (Russian school) in evolutionary change  
The Paläobiologie of Dacque, Abel and Richter  
Paleobiology and the "New Synthesis"  
Discovery that the Archaean was not Azoic: zeroing in on the origin of life?  
Punctuated evolution and gradualism  
Extinction and evolutionary innovation  
Quantitative analysis of macroevolutionary trends: distinguishing facts from artifacts  
Paleobiology and the "Idea of Progress"  
Molecular clocks and the timing of phyletic divergence: who guards the guardians?  
Paleobiology and the evolution of developmental patterns  
Patterns of discovery of fossil hominids and their influence on evolutionary theory  
Changes in the audience(s) for paleobiology and their influence on the discipline

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## Future HOGG events...

early December 2003 (date to be decided)

### "Fireballs and Stones from the Sky"

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

To be held at the Natural History Museum, Cromwell Road, London.

There will be a limited number of speakers, but contributions are invited from prospective speakers. Please contact the convenors Joe McCall (e-mail:McCall@freenetname.co.uk) or Peter Tandy (P.Tandy@nhm.ac.uk, or address on inside front cover). Further details will be given in the next HOGG newsletter and in Geoscientist.

March 17 2004 - "Teachers in Geology"

Meeting at the Geol. Soc. (Stuart Baldwin)

Autumn 2004 - "History of Coal Mining "

Meeting in Newcastle (Richard Howarth)

## Membership fees

Dear HOGG Member,

Please be advised that your contribution to the Newsletter for 2003 is now due

### THE FEE IS £10.00

- a) To help us save scant resources *please* complete the standing order form below and **send it to the Treasurer**, Bill George (address below). **DO NOT SEND IT TO THE BANK.**
- b) If you already pay by standing order, please amend it if necessary to reflect the new amount (£10) payable since 2001, since this year's payment will already have been collected, thank you.
- c) If you feel unable to pay by standing order, *please* make your cheque for £10 payable to HOGG and send it to the Treasurer; Bill George, 11 Sterry Road, Barking Essex IG11 9SJ

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### STANDING ORDER FORM

The Manager of Bank or Building Society:

Branch Address:

Sort code (number in top right-hand corner of cheque book):

Please pay the amount of £10 (ten pounds) to the History of Geology Group of the Geological Society (Girobank Account No. 14 665 9406, Sort Code 72-00-00) on 1<sup>st</sup> January 2003 (or closest date thereto) and annually thereafter until terminated by me in writing. **This standing order supersedes all other standing orders payable to HOGG.**

Please debit

Account name:

Account Number:

Signed

Date :

Print your name and address: