

# HOGG

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



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## **Cover Illustration:**

### **Kent's Cavern.**

An oval lithograph of 62 x 78mm by E.Cockrem & W.Elliott , [1841] showing the entrance to Kent's Cavern as it once was.

The original lithograph is held in the Westcountry Studies Library of Devon County Council

Today the cavern entrance is enclosed within a restaurant and bar complex. Kent's Cavern became a scheduled ancient monument in 1957 – indeed the first such monument. – and is now a scheduled SSSI. The site was acquired in 1903 by Francis Powe, the grandson of George Smerdon, who had initially purchased it from Lord Haldon. He, as a carpenter, used it to make beach huts, and it was really his son Leslie Powe who spent his working life turning it into a tourist and scientific enterprise. Five generations later, the Powe family still run it.

Kent's Cavern was a major feature of the HOGG visit to Torquay from 21-24<sup>th</sup> April

Kent's Cavern still manages to produce interesting material. In a report dated 27 April 2005, Paul Rincon a BBC science reporter, says that a jawbone from the cave which was recovered 80 years ago, has now been re-examined and dated at 37,000- 40,000 years old. This makes it the oldest recorded maxilla in existence from northern Europe, and casts doubt on it being from *Homo sapiens*; given the new age it might actually be a Neanderthal remnant.

**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)

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... the next HOGG meetings:

## *“The Role of Women in Geology”*



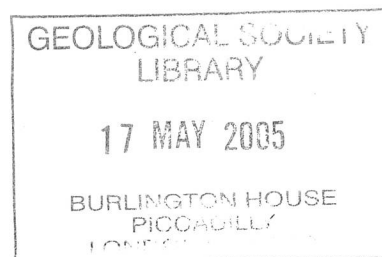
The meeting will be held at Burlington House, Piccadilly, London, on **28<sup>th</sup> November, 2005**, at a time yet to be decided.

Women have fulfilled many different roles over time in the history of geology. They have taken roles as illustrators, academics, travellers, collectors or simply 'wives'. This meeting aims to examine these roles and their effect on the development of geology.

If anyone would like to give a poster at this meeting, would they please contact **Cynthia Burek** at Environment Research Group, Centre for Science Communication, Dept of Biological Sciences, University College Chester, Parkgate Road, Chester CH1 4BJ or email at [c.burek@chester.ac.uk](mailto:c.burek@chester.ac.uk) or phone on 01244 375444 Ex 3051 (but email is best in the first instance.)

At present the following papers are expected:

|                           |   |
|---------------------------|---|
| Chris Cleal               | Women in Carboniferous palaeobotany.  |
| Joan Watson               | Women palaeobotanists   |
| Cherry Lewis              | Doris Reynolds  |
| Susan Brown               | Women in the GA   |
| Bettie Higgs              | Irish women geologists  |
| John Mather               | Grace Anne Milne, niece of Hugh Falconer and wife of Sir Joseph Prestwich                                     |
| Cynthia Burek             | The role “model” of women in geological education or  |
| E. Dix & Catherine Raisin | The role of the geological wife   |
| Martina Koelbl-Ebert      | The role of British and German women in early 19th century geology – a comparative assessment                 |
| Jane Plant/John Dewey     | Janet Watson  |
| Tony Brooks               | Geologists wives and families - a Sussex case history" (no subject yet)                                       |
| Mary Crease               | Mary Caroline McKenny Hughes  |
| Anne O'Connor             | The role of women in the history of biostratigraphical research in NE Wales and the preservation of the sites |
| J. Malpas & C. Burek      |   |



**R E W A R D**

**of £25,000**

not available

even for the identification of people  
as potential speakers at the

**HOGG Open Meeting  
on Thursday 13 April 2006.**

Keynote names already known,  
others being hunted.

Contact Anthony Brook, by email on  
[anthony.brook2@btinternet.com](mailto:anthony.brook2@btinternet.com)

if you want to come forward or know of others who  
could be persuaded

**Any aspect of the History of Geology accepted**

# HOGG Diary of Future Meetings

The HOGG Committee has set an ambitious provisional agenda of meetings for the future. More details will be given of each meeting nearer the date, but so far the provisional diary is:

## 2005

(November) "The Role of Women in the History of Geology"

## 2006

HOGG 'Open Meeting' (13 April)

Field trip to Scotland (Spring)

History of Geoconservation (20<sup>th</sup> January) (possibly in conjunction with the Black Country Geol. Soc. in Dudley)

History of Micropalaeontology (or 2008)

A 'Buckland' meeting in Oxford (Saturday 12<sup>th</sup> August)

## 2007

Celebration of the bi-centenary of the Geological Society

## 2008

History of Igneous Petrology

Field trip to Liverpool (in conjunction with the Geologists Association ?)

Other topics may include:

History of the Philosophy of Geology, the History of Mineralogy, something on Collections Lost and Found, and more on Hydrogeology

**If members have any additional ideas for meetings (or field excursions) the Committee would be pleased to hear of them.**

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## "From Earthly Bowels into Light"

**A report on the HOGG History of Speleology meeting held at Torquay, Devon, 21-24<sup>th</sup> April 2005**

This meeting took place largely in Torquay Museum as a joint meeting between HOGG, The Devonshire Association, and The Devon Stone Federation, and was attended by some 60 people. The meeting was held over 2 ½ days, starting with a full day of talks, followed by an evening reception (courtesy of the Devon Stone Association). The following day had two speakers, and was followed by a field trip to Buckfastleigh Hill and Joint Mitnor Cave. The evening was given over to a meal at Kent's Cavern (courtesy of Kent's Cavern Ltd). For Sunday morning a field trip was available for those wanting to attend, to several sites in the vicinity of Torquay.

### **Friday 22<sup>nd</sup> April 2005**

The first speaker was **Roger Jacobi** from the British Museum on the explorers of Creswell Crags. Roger started by looking at the roles of Thomas Heath and John Plant in the interpretations of the Creswell Crags excavations of the 1870s, both of whom have been obscured by the more prominent public figures of Rev. Magens Mello and William Boyd Dawkins. One of their most interesting disagreements involved the interpretation of a *Homotherium* tooth from Robin Hood Cave, and a bone engraving of a horse. Heath suspected that the tooth had been planted and expressed his doubts about its context in two pamphlets. The first was delivered to the 1879 meeting of the British Association; the second, voiced in stronger terms (encouraged by Plant), was delivered to the Manchester Geological Society in 1880. In addition to a genuine doubt over this discovery and careful observations at the find-spot, Heath was also bitter about the way in which he had been sidelined by Mello and Dawkins. He was not on the British Association Committee which was formed in 1876 and never got to contribute to the final publication on the excavations. Derby Museum also got the worst half of the Creswell

collection when this was split with the Manchester Museum. Although Heath did not name a culprit, Plant suggested that Dawkins and Mello might have been responsible for both the tooth and the horse engraving. The matter was left unresolved until J.W. Jackson announced in the 1950s that this was a hoax, but that Dawkins was not responsible. The blame was cast on two individuals from Castleton. However, mineral analysis of the tooth suggests that if this was a plant then the specimen must have been very carefully selected. The match between the tooth and the expected Creswell signature is extremely close.

The next speakers were **David M. Wilkinson**, **Hannah J O'Regan** and **Tom Clare** from Liverpool John Moores University, who spoke on "A tale of two caves: the history of archaeological exploration at Haverbrack and Helsfell in Southern Cumbria". The first, Dog Hole Cave, Haverbrack was partially excavated by Wilfrid Jackson in 1912. He excavated the shaft and determined it was a dog's den. After the First World War he made enquiries with the landowner about resuming his excavations but never returned to work at the site. In 1956 a group of scouts hoping to extend the system broke into the chamber below the limit of Jackson's excavations and found around 3,000 bones, including 20 human skeletons. These specimens were excavated, but more bones were still in-situ in the 1980s. Further exploration by us in 2003 has shown that all archaeology in the cave has now been destroyed. The second cave, Helsfell Fissure near Kendal, was excavated by J. Beecham between 1880-85 and the faunal remains were identified by Boyd Dawkins. Over the years this collection has apparently 'gained' a human skeleton and documentary research into the provenance of all the material reputed to be from this site shows that the remains are now more of historic than scientific interest.

**Edward Rose** of Royal Holloway College, University of London spoke on "Military geological cave exploration on Gibraltar 1862-1868: the start of a saga". The narrow 6 km<sup>2</sup> peninsula of Gibraltar, at the western entrance to the Mediterranean Sea, is dominated by the Rock: a mass of Early Jurassic dolomite and limestone whose main ridge has peaks over 400 m high. Although its largest cave has seemingly been known to historians since Roman times, and some 140 Gibraltar caves now bear names, recorded excavation began only in 1862. Encouraged by Hugh Falconer and George Busk at a time of particular interest in human antiquity, the governor of the military prison, Captain J. Frederick Brome, enthusiastically used convict labour to dig out materials from eight of the main caves before these activities (and in consequence his career as a prison governor) were terminated by the military authorities. Amongst the cave artefacts and skeletal remains soon sent to England for study by Busk was the 'Gibraltar Skull', presented in March 1848 to the Gibraltar Scientific Society by Lieutenant Edmund Flint of the Royal Artillery, a find which almost pre-empted the name *Homo neanderthalensis* by that of *Homo calpicus*. Lieutenants Alexander Burton-Brown of the Royal Artillery and Charles Warren of the Royal Engineers were inspired by Brome's achievements to undertake near-contemporary cave exploration on the Rock and to apply for fellowship of the Geological Society of London – but after some six years of intense interest, further scientific work on Gibraltar's caves effectively lapsed until episodic rejuvenation in the next century.

**Marianne Sommer** of the Swiss Federal Institute of Technology spoke on "Science's wondrous wand" – the Role of Magic in the Story of 'The Red Lady of Paviland' Throughout space and time, it seems, the cave has been a mythical place. It may contain secrets about the future or the past, about the origin and true nature of things. Obviously, both the knowledge a cave may hold as well as the method to unveil it have changed in time and differ from culture to culture. Nonetheless, even though the paper is limited in scope to nineteenth- and twentieth-century Britain, its dramatis personae share in a wider cultural heritage of cave lore. At the advent of a more systematic approach to caving in the so-called Golden Age of geology, the pixies, boggarts, and chimaeras of folklore still occupied the bowels of the earth. The early 'undergroundologists', albeit equipped with pickaxe and hammer, did not entirely rid the caves of the shadowy creatures. Rather, the new kind of cave explorers adapted and translated the association of subterranean chambers with prophecy, magic, and vision to their purposes. The history of the excavations and interpretations of Paviland Cave and the Red Lady's burial will serve to investigate the role of magic in the practice of excavation, the rhetoric of caving, and the

reconstruction of human prehistory over time. Such a story may invite discussion on whether the Palaeolithic magical practices stand in the tradition of, or are indeed original to, mythical and folkloristic understandings of the cave as a place of magic, or whether, in reverse, we find it easy to see magic at work in prehistoric caves because we are located in the tradition of such a trope.

Exploration of cave systems relies on being able to locate them initially. **Colin Bristow**, former member of the University of Bristol Speleological Society and the William Pengelly Cave Studies Trust, looked at "Early developments in the use of resistivity geophysics for the detection of caves – Lionel Palmer's early work at Lamb Leer and Penhole Park and the single probe method used at Higher Kiln Quarry, Buckfastleigh" Professor L S Palmer was involved in the design of the Megger Geophysical Resistivity equipment and pioneered the use of resistivity geophysics in cave detection. Early experiments before the 2<sup>nd</sup> World War on Mendip led to further developments in the late 1940s and early 1950s, including the identification of a large high resistance anomaly alongside Lamb Leer cavern, which was interpreted as a large cavity. Subsequently the method was used to detect the "lost" cavern of Pen Park Hole Bristol, originally discovered by lead miners before or during the 17<sup>th</sup> C. A shaft was sunk and the cavern found as predicted. It is an unusual cave developed in the Carboniferous Limestone along a fault, below the Lias unconformity.

In the 1960s the author developed a new graphical technique using a pole-dipole probe configuration at Higher Kiln Quarry, Buckfastleigh. This detected a number of unknown cavities and provided useful information about the geological structure. Subsequently Peter Grainger and colleagues used the same method, in conjunction with other geophysical techniques, and refined the location of the cavities and the extent of the talus cone seen in Joint Mitnor cave. The author also used the technique to detect a series of narrow cavities in Permian limestone breccias, which were causing subsidence alongside Gallowgate reservoir and the Torbay Ring Road near Torquay. These were successfully entered, in one case by the ground collapsing beneath the weight of the drilling rig, and found to be much as predicted. A considerable literature, to which the author has not contributed, has now grown up around the use of the "Bristow Method", although the term has in recent years been extended to cover practically any pole-dipole investigation.



William Beard from John Rutter's "Delineations of Somersetshire"

**Andrew Currant** of the Natural History Museum, London, looked at the collection of William Beard (1772-1868), and the Mendip bone caves.

A project to restore, catalogue and re-house the Somerset County Museums Service Quaternary mammal collection at Taunton Castle has now been completed and the collection has been formally reopened. The bulk of this collection was put together by William Beard, a Mendip farmer who took a very active interest in the exploration of his local bone caves during his long retirement. In spite of very limited original documentation, Beard's collection has played an important part in the history of research into British Pleistocene mammal faunas and has huge potential for future study.

Beard clearly put his cave collections together with great care. By the standards of his day he was unusual in keeping large groups of fossils representing as many anatomical parts of each species as he could discover. Though

not a learned man, William Beard assembled and publicly articulated a major collection of Quaternary mammals in one of the first examples of sustained public outreach in Britain.

There are six principal sites or groups of sites in Somerset represented in the SMCS collections which have produced material spanning the later Middle Pleistocene and Late Pleistocene, OIS 7 to OIS 2, and four of these are largely or solely attributable to Beard's work - Bleadon Cavern, Hutton Cavern, Banwell Bone Cave and a lost cave somewhere on Sandford

Hill. The material representing lion, wolf, spotted hyaena, horse, wild boar, red deer and roe deer is among the best in Britain and includes material which is of international importance.

**Alan Bowden**, Curator of Earth Sciences, Liverpool Museums, spoke about Willoughby Ellis and the Pengelly connection. H. Willoughby Ellis (1869-1943) was an electrical engineer by profession and an amateur entomologist by inclination. He developed a particular expertise in the Coleoptera and served for four years as Vice-President of the Entomological Society of London. Willoughby Ellis developed many interests in Natural History throughout his life and acquired by purchase and trade extensive collections, including an anomalous distribution of Kent's Cavern material.

When the British Association, under William Pengelly's direction, excavated Kent's Cavern between 1864 – 1880, extensive records of the work were kept in daily diaries. Lord Haldon stipulated, when granting permission for the excavation to proceed, that the finds should be divided evenly between the Torquay Natural History Society and the British Museum. After this distribution was made a further release of some 1,200 specimens was divided between 17 institutions (the Liverpool Free Library Museum, now part of National Museums Liverpool, being one of them). Liverpool's material, sent by Pengelly, consisted of 67 specimens, all of which were lost in the incendiary fire that consumed the museum in May 1941.

In 1944 Liverpool museum received the geological portion of the Willoughby Ellis estate by purchase from his executors. This collection comes from the Torquay district and includes some 1,160 specimens of polished Devonian corals collected between 1908 and 1925 as well as some 4,000 specimens from Kent's Cavern, mainly teeth, some bone material and lithics. The Kent's Cavern material appeared to be acquired by Willoughby Ellis from 1899-1928 with some of the specimens being donated to him by W.J. Else, curator from 1897 until 1912 when he left to take up a museum appointment in Worcester.

Willoughby Ellis was a frequent visitor to Torquay from the 1890's and joined the Torquay Natural History Society in 1920, eventually resigning his membership in 1935/36. He may have worked as a volunteer for the museum during the 1920's, which gave him further access to Kent's Cavern material.

During a recent move of the Liverpool Museum collections some boxes of Kent's Cavern ephemera were discovered bearing Willoughby Ellis's handwriting. This included a substantial set of lanternslides on Kent's Cavern, designed to be used in public lectures, and copies of all the British Association Excavation reports, many of which were signed by Pengelly.

**Anne O'Connor** from the Department of Archaeology, University of Durham then looked at the work of Hugh Falconer, Joseph Prestwich and the Gower Caves.

Hugh Falconer and Joseph Prestwich played an important part in the debates over Quaternary chronologies during the late 1850s and early 1860s. Although they often worked together these two friends held different perspectives on geological time: Prestwich derived much of his information from stratigraphy, Falconer from palaeontology. Many of the arguments between Prestwich, Falconer and their peers concerned the relationship between geological deposits, extinct animals and the time of great mid-glacial submergence when they believed much of the land had lain beneath the sea. This discussion of the 'pre-glacial' or 'post-glacial' date of mammoths, river drifts and cave deposits was complicated still further when human relics were dated back to the same period of controversial time. However, the researches of Hugh Falconer and Joseph Prestwich in the Gower caves of Glamorganshire, South Wales in 1858 and 1859, made a significant contribution towards the resolution of this question.

**Sarah G Cant** from the School of Geography, University of Plymouth spoke about British speleologies: politics, 'personality' and cave science, 1935-1950.

The paper focused on four stories: the formation and activities of the British Speleological Association, the influence of a speleologist called Eli Simpson, an argument relating to the practice of speleology, and the formation of the Cave Research Group in 1947. Slowly these stories become entangled within layers of scientific practice and 'personality clashes'. By tracing multiple stories that contribute to the histories of speleology, it was possible to examine some of the spatial, social and practical issues that both contributed to the

construction of speleology as 'new' whilst simultaneously resisting coherence and discipline (in both its subject-based and polite senses). Debates about practising science, definitions of speleology as a 'sporting science', and notions of 'the right kind of speleologist' complicate the histories of speleology within Britain. Sarah gave consideration to the implications that these debates held for the understanding of twentieth-century speleology, and new understandings of popular science.

**Brian Lewarne and R P Smith** of the Devon Karst Research Society. Looked at the discovery of the Cattedown Bone Cave, Cattedown Quarry, Plymouth

The recorded discovery of yet another bone cave in Plymouth during the Autumn of 1886 was not an unusual event in the City, which had hosted several earlier such discoveries throughout the 19th Century. The most notable of these had been those at the Oreston Breakwater Quarries at the beginning of the century. However, at Cattedown, the discovery and excavation of what was to become known as Worth's Cattedown Bone Cave was the most singularly interesting and intriguing of any bone cave ever found, not only in Plymouth or in the County of Devon, but probably in the UK. Near the base levels of the excavated cave-infill, containing a massive quantity of fossil bones representing 33 different faunal species, were found the fossilized skeletal remains of at least 15 Hominins, together with a flint implement and the scattered charcoal remains of a fire.

Clearly the deposits are old, and were said to be palaeolithic. They were associated with cave hyaenas, including young ones. Only one lithic, a possible hammer stone, was found, and there was no pottery – somewhat odd with 15 hominid remains. The Hominids were very short, only between 4'8" and 5'1". Sadly, the bulk of the remains were lost in bombing of Plymouth in 1942, but does remain is in the museum, and work on these proceeds.

**Ralph O'Connor** of St John's College, Cambridge, examined Kirkdale Cave and the Poetry of William Buckland. In 1821-2 the Oxford geologist William Buckland examined a newly-discovered cave in Kirkdale, North Yorkshire, which contained the bones of hyaenas and other assorted beasts. Buckland concluded that the cave had been an antediluvian hyaenas' den. His reconstruction of this primaevial habitat won him instant celebrity, and its imaginative possibilities generated a variety of humorous or satirical poems and sketches. One of these is a poem entitled 'The Professor's Descent', extant in a single manuscript copy: it presents a mythical narrative about Buckland's expedition to Kirkdale, culminating in a confrontation with the Devil. Ralph suggested that the poem was written by Buckland himself. It closely parodies Thomas Gray's 'The Descent of Odin' about a Norse God going to Hades. Why did he write it, when, and for whom?

In addressing these questions Ralph was able to shed new light on the relations between geology and literary culture at this crucial time in the science's history.

**Sheila Phillips and Harry Pearman** from the William Pengelly Cave Studies Trust, Buckfastleigh spoke about research at Joint Mitnor Cave, Buckfastleigh. For a brief period in its long history the cave was connected to the surface by a shaft. This opened into a large, funnel-shaped depression with slippery sides. Passing mammals who set foot on the slope found themselves sliding out of control to a painful death in the depths below. Over time a huge mound of corpses built up at the base of the shaft. At some point after this the shaft became blocked and the deposit became a time capsule, whose significance was only realized in the last century. The bulk of this deposit is still intact but from the small portion that has been excavated the remains of 127 separate mammals have been distinguished. The talk summarised the research carried out to date, placed it in the context of an overall Quaternary timescale and indicated the scope for further work.

The earliest reference to caves at Buckfastleigh was by Polwhele in 1797, who referred to "*a cavern at once terrifying and beautiful*". Both the Reverend J. MacEnery and William Pengelly visited Buckfastleigh but did not find any palaeontological material. However, in June 1939 the bone deposits in Joint Mitnor cave were evaluated by Messrs W. Joint, W. Mitchell and F.R. Northey, whose truncated surnames gave the cave its name.

Detailed research was subsequently carried out by Antony Sutcliffe in the 1950s. The relics recovered from most sites are often abraded from having lain or rolled around on the surface for long periods of time. John Mitnor's distinction is that for one brief period it was open to the surface as a pitfall, and during this time a good sample of the prevalent mammal fauna fell into the pit. Thus we have a well-preserved snapshot of the time.

More recent global research into oxygen isotopes has established a much better grasp of the prehistoric climate sequence and enables us to ascribe the cave deposits to Oxygen isotope stage 5c 75,000 to 128,000 years Before Present. The cave is designated as the UK's model site for this period.

The William Pengelly Cave Studies Trust was formed to preserve the deposit and to coordinate research into its significance. Recently in collaboration with Brunel University fresh samples were taken with a view to identifying microfossils including pollen and spores. It is hoped to publish the results shortly.

Saturday dawned bright in contrast to the rain of the previous day, and the first of two speakers was **Tony Waltham** of Nottingham Trent University, who looked at the origin and form of cave systems.

The great majority of cave systems in limestone are developed by through-flows of water; these derive their dissolutional capability from carbon dioxide that is largely collected during the waters' previous passage through the soil cover. The size of cave passages is therefore a function of dissolution rates and geomorphological history, and the larger caves are developed in regions of warmer climates. Shapes and patterns of cave systems are guided by geological structure; they also relate to hydrological environment, with dendritic systems of vadose canyons contrasting irregular mazes of tubes that originated in the flooded phreatic zones. Horizontal caves are formed at either a water-table adjacent to an alluviated plain, or at a halocline adjacent to a coast. Further variations in form are added as caves evolve, in that new vadose features follow rejuvenation, roof spans may collapse, and sediments infill abandoned passages. An important sub-group of limestone caves is formed by sulphuric acid dissolution, beyond the acid's widespread role in cave inception. Tony was able to illustrate the talk with many slides of stunning cave systems from around the world, which coupled with his animation and quaint humour gave a very entertaining talk.

### **Saturday 23<sup>rd</sup> April 2005**

The second of the day's two speakers was **Patrick Boylan** of the City University, London, who looked at William Pengelly (1812-1894), speleology and the Devonshire Association.

Though Cornish by birth, William Pengelly is always most closely associated with south Devon, and particularly Torquay, and was one of the prime movers behind the formation successively of the Torquay Natural History Society, the Torquay Museum, and the Devonshire Association (which he served as president in 1867-8).

Though self-taught, he became an internationally recognised authority in several scientific fields, particularly in the exploration and interpretation of cave deposits. Out of almost 120 significant scientific papers almost 40 reported on his speleological researches, most notably his excavations in Kent's Cavern, Torquay, and Brixham Cave, which demonstrated the great antiquity of man and that early humans were living alongside extinct fossil mammals.

However, in addition to his important excavations themselves, Pengelly researched and reported in detail on three centuries of cave exploration and research in south Devon in a remarkable series of detailed papers in the Devonshire Association Transactions modestly titled "The Literature of..." (e.g. Kent's Cavern), but which consisted of enormously valuable transcripts of and commentaries on, key manuscripts and often very rare published sources. Of particular importance was Pengelly's publication of the manuscripts of Rev. James McEnery, whose discovery in the 1820s of clear evidence of human occupation in the Pleistocene deposits in Kent's Cavern was largely ignored for more than 30 years.

## Conclusion:

This talk ended the morning's session, and it was entirely fitting that the talks should end with one on William Pengelly who had great connections with both speleology and the Torquay area. It only remained for the Chairman of the moment to thank those who had given talks, to thank the staff of Torquay Museum who hosted the meeting (especially Tessa and her group who supplied teas/coffee and lunch each day right on cue), and to thank the Devonshire Association for their sponsorship. The one missing ingredient was a paper from perhaps the greatest of contemporary cave researchers, Trevor Shaw, now Honorary Research Fellow, Karst Research Institute, Postojna, Slovenia. He was unable to attend, but had sent the following communication:

*I am writing this greeting from part of pre-1918 Austria where the serious study of caves and karst all began about three centuries ago. Before that only isolated reports had appeared. Then in the seventeenth century the first learned society publications such as the Philosophical Transactions of the Royal Society enabled researchers to be aware of work that had been done earlier. Baron Valvasor, in what is now Slovenia, explored caves there in the 1680s and realised that caves and underground streams were an integral part of karst hydrology. In 1747 and 1748 Joseph Nagel was sent by the Austrian emperor to investigate systematically the caves in what are now the Czech Republic, Slovenia and Austria itself. In the middle of the next century it was a Czech, Adolf Schmidl, who himself made complex studies of caves in central Europe and brought the various branches of cave study together to form the multi-disciplinary subject of karstology and speleology, creating a single word to denote it – Höhlenkunde. The deliberate spreading of this subject around the world was achieved by the Frenchman, Edouard Martel, from about 1890.*

*All this overall progress provides the context in which there developed individual studies such as cave palaeontology and prehistory, methods of dating deposits, and the antiquity of mankind.*

Following the meeting, there was field trip to view the Joint Mitnor Cave at Buckfastleigh. Here it was possible to make a small visit underground to see the talus slope containing animal bones, which had accrued when the cave was open to the surface. The owners of the cave system have ensured that these bones have not been moved so provide valuable stratigraphy. Visits were also made to the little museum dedicated to the locality, and to the ruined church on the hill, left in its decrepit state after a fire, when it was discovered that it stood over a large cavern, and there was no guarantee that heavy equipment would not crash through !

In the evening, there was a champagne reception and tour at Kent's Cavern. The cave system is quite extensive and it was possible to see cave formations, and to hear of some of the finds made over the years. The evening was completed with a magnificent meal of roast beef (or chicken pie), and vegetables, in the restaurant, courtesy of the current owner, .....

On Sunday, after the heavy rain had ceased, a small group went to look at the geology of the area around Hope's Nose, and Triangle Point, Torquay.

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## Dispersal of the Enys manuscripts – a further comment

Hugh Torrens

Anthony Brook makes some very vital points in his letter in the last HOGG Newsletter (23, pp.20-25) about many truly historic letters being recently scattered, and now 'lost', at auction. In this electronic, money-grubbing age, the problem proves however to be more widespread. When Keele University secretly sold its rare book collection in 1999, the news reached the front page of the broad sheets, so great was the shock. I had startled letters from France saying such a thing would be illegal in that country where Universities' possessions are publicly owned (and are not, as here, 'owned' by their Councils).

The Enys collection, about which Anthony writes, is a specially sad case. This was the collection of John Samuel Enys (1796-1872) an engineer who married Catherine, eldest daughter of Davies Giddy, later (from 1816) Gilbert on 17 April 1834 at Lewes in Sussex. Davies Gilbert (1767-1839) was president of the Royal Society from 1827-1830. These two both had had close connections with Cornish mining and engineering and also with geology (Davies Giddy was a subscriber to Smith's *Geological Map* of 1815) and as a Sussex land owner he was also later a supporter of Gideon Mantell (hence the letters from both which appeared in the sale). The fantastic resulting Enys collection of autographs was thus a sight to see (and to use!).

The fine Sale Catalogue was very circumspect about the origins of the collection, noting only that "it was formed by members of the old Cornish family of Enys in the 19th century and has, in all its astonishing richness, laid undisturbed ever since" (p.6). This is greatly economical with the truth. The Royal Institution of Cornwall was until recently the resting place of this collection, as the new *Oxford Dictionary of National Biography* entry of 2005 for Gilbert confirmed (by D.P. Miller). This now incorrectly records it as being at the "Royal Institution of Cornwall, Truro, correspondence". This is confirmed by the entry for lot 13 in the sale itself, a fine Edmund Burke letter "which was printed in the *English Historical Review* no. 457, June 1999, pp 654-656". If you check this, there it was credited as being from the "Royal Institution, Cornwall, Truro, Enys Autograph Collection, no. 211".

So the tragedy is that this wonderful collection was once in 'public trusteeship' and was available to researchers like me, and to A.C. Todd who used it in his fine biography of Davies Gilbert, *Beyond the Blaze*, 1967, but which is now scattered to the four winds as Anthony records. The question for us all is how do we stop this happening in future? After the equally sad sale of the great majority of the library of the Royal Cornwall Geological Society in 1999, including more unique manuscripts, we should realise this is a recent, and truly worrying, new process to which we must, as historians, now be alert. Surely the Cornish have enough "great gardens" already there to treat their archives better than this?

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## BOOK REVIEWS

**"Icelandic Ice Mountains on the basis of a Journey to the Most Prominent of them in 1792-1794" by Sveinn Pálsson.** pp.182, (2004) Pub: Icelandic Literary Society, \$56 (+\$15 p&p) (orders through [hib@islandia.is](mailto:hib@islandia.is))



If asked to name any prominent pioneers of glacial studies, most people will be entirely stumped, and even those with some knowledge may only come up with Saussure or Agassiz. The one probably nobody will cite will be Sveinn Pálsson. Pálsson was unlucky. Way ahead of his time, he spent four years in making field studies of the glaciers of Iceland, before completing his field notebooks in 1794 and a lengthy manuscript, with drawings, the following year. His work went to the Natural History Society of Denmark, which body had funded the work, but lay there until 1882 when part was published. It was not published in full until 1945 (and then in Icelandic!). He even passed a revised version via an English pastor in 1815, but the Society judged that "the work was carried out with much diligence, but

*could not be printed in the publications of the Society, as it only accepted what was of specific*

*natural history*"; the Society forwarded it to the Topographical Society in Norway ! This is even more unfortunate because Palsson's manuscript ("*Om Isbioerge*") was completed in 1795, the same year that James Hutton published his *Theory of The Earth*, which gained him the title of "Father of Geology"; Palsson could equally well have been known as the "Father of Glaciology". Although originally entitled "*Om Isbioerge*" (Om Isbiaerg in modern Danish) the authors here use the title "Glacier Treatise" as best summing up the meaning in English of the Danish and Icelandic versions.

Palsson was born on 25<sup>th</sup> April 1762 (he says it was the 24<sup>th</sup>!), in northern Iceland, the son of farmers. His parents had him educated in the Lutheran church school, where in 1782 he graduated and became a minister. He was persuaded to study medicine, and did so until 1787, when he found it better to travel to Denmark to continue the studies. In 1788 he started at the University of Copenhagen. In 1789, the Natural History Society of Denmark was founded by Prof Abilgaard, a geologist, who encouraged Palsson to add geology and mineralogy to his medical studies. Palsson became the first in Denmark to pass the exam which would allow him to do field studies back in Iceland. He started these in 1791 looking at the flora of Iceland (actually identifying 191 species and compiling local inventories of flora). He went on to study fish, birds, the anatomy of porpoises, Icelandic geology & mineralogy, volcanic eruptions and hot springs. But it was glaciers which excited him most. By 1794, the money from the Natural History Society had run out (more bad luck for Palsson!) and, though he was planning to return to Copenhagen, he spent winter by invitation with the District Sheriff. There he met the daughter of the Surgeon General, and they were married on 19<sup>th</sup> October 1795. A circuit physician's position was established across a large swathe of southern Iceland, including the island of Vestmannaeyjar, 12km off the southern Icelandic coast. From 1796 to 1809 he was a physician and farmer. He remained a physician until 1834, whilst also farming in summertime and fishing in wintertime. His pastoral needs took him across many of the glaciated areas of Iceland, and from this he was able glean much information. He died in 1840.

This book, published by the Icelandic Literary Society, represents the first English translation of Palsson's treatise, under editors Richard S. Williams, Jnr (USGS), and Oddur Sigurdsson (National Energy Authority, Iceland). First impressions are of a lavish book printed on heavy glossy paper. Following the usual preface, which also includes a small number of digitally reproduced images of pages from Palsson's various works, the editors give us their introduction which deals with Palsson's own history, followed by a shorter introduction to his Treatise. Palsson had divided this into four parts, (an introduction and three chapters sub-divided into sections). This is followed here by the editors with minor applications of extra bold type and topical headings in the margins to help the reader navigate though it. Palsson of course had no access to photography, but made a number of original drawings which are reproduced here. These are supplemented by many modern photographs in full colour of the places as they exist today. A greater proportion of these are oblique aerial photographs so cover a great distance. Given that they are almost all smaller than an average postcard, the visible detail is perhaps not as distinct as it might be. The text is quite readable despite its 18<sup>th</sup> century origins, but is (of necessity) punctuated by many place names, which with the unusual Icelandic alphabet characters will probably cause the reader to stutter somewhat, and affect the flow of the reading. Maybe a page setting out how to read these characters would have been useful, and it is perhaps surprising that this isn't there at the start of the small section on geographical place names found in the Treatise, which follows the main body of the text. The book ends with the usual acknowledgements and references, and then some 415 "Endnotes" added by the authors to supplement and in places explain the text. They form a valuable addition. Overall, despite any comments which might appear slightly negative, I would recommend readers who would like to know more about the early history of glaciology, or who have an interest in the glacial geology of Iceland, to take advantage of the low \$:£ ratio and get this book while the advantage is on your side.

Peter Tandy

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**“Vulcan’s Forge and Fingal’s Cave. Volcanoes, Basalt, and the Discovery of Geological Time”**, by William B. Ashworth, Jr. Pub: Linda Hall Library of Science, Engineering & Technology, Kansas City, MO 64110-2498. (2004)

This little book in landscape format represents the catalogue of an exhibition of rare books from the Linda Hall Library, held between August 2003 & February 2004.

Even today volcanoes in full flow cause excitement and awe, but we are in the position of having a good understanding of both their origin, and of the products which they produce. In the mid 17th century, there was no such understanding. Few volcanic eruptions had been recorded by then, and, as the catalogue says, studies of them were not seen as contributing to earth’s history. Volcanoes were seen as unconnected with the development of the Earth, which was very much ‘chronology’ based, relying heavily on scriptural texts. There were few if any significant eruptions of volcanoes in the European area, since the catastrophic eruption of Vesuvius in AD79, so the only real records (for those who could read) were in Classical works. That changed in 1631 when Vesuvius again erupted cataclysmically, followed by an eruption of Mount Etna in 1669. Suddenly there was an awakening, and thoughts that volcanoes might, after all, be linked to geological history. This eruption of Etna is featured in two of the early works, those by Giovanni Alfonso Borelli (1670) and Heneage Finch, Earl of Winchilsea (1669). The eruption of Vesuvius in 1631 is caught in an inset in a work by Antonio Bulifon following a further eruption in 1694. Further eruptions in the Mediterranean region of Vesuvius, Etna, Stromboli, and Santorini, caused an upsurge of interest and the publication of a number of works, all with magnificent engraved plates. Meanwhile, various people were examining the basalt of Giant’s Causeway. Samuel Foley published on it in 1694, with a weird semi-threequarters aerial view. Although the plate is odd, his artist did note that the columns were hexagonal (normally). The columns were thought by Thomas Molyneux to be fossils, and looking for other examples in the literature of the day, he found a drawing of similar structures from Meissen (Germany) in Konrad Gesner’s work of 1565. There was no recognition of them being volcanic until 1768, when Nicolas Demarest wrote captions for plates drawn nearly 30 years earlier, for an edition of the French *Encyclopedie*. The volcanic connection was made following the discovery of similar columns in the Auvergne, a recognised volcanic province. Other authors then followed the lead. The book follows the trail through into Italy, the Rhineland and Saxony, and then around the world.

The exhibition (and catalogue) used 66 books and journals from 1565 to 1835 in order to tell the story. Each page of this book shows one engraving from a particularly pertinent work, many superbly executed, some a little whimsical (did the villagers of Mezieres in France really use columns like logs to build houses, in quite the way shown?). At the end is a Bibliography and Name Index. This is not really a book for the academic, since it contains relatively shallow (though still interesting) information. The value of this book lies in the excellent reproductions of the engraved plates, though it is to me, sad that they are all so small when the originals are undoubtedly many times larger. Much, I feel is lost in the splendour of the plates by this reduction in size. As a composite record of the literature of early volcanology, this is certainly a book worth having, and I would recommend those with an interest to invest in a copy.

Peter Tandy

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## For your bookshelf....?

**“Darwin’s Other Islands”**, by Patrick Armstrong (School of Geographical & Earth Sciences, University of Western Australia), 288pp, 234x156mm, hard back £75.00



Charles Darwin’s visit to the Galapagos Islands has been the subject of many studies but the significance of his experiences on the other islands visited during his Beagle voyage has not been documented. This study examines the visits Darwin made to the ‘other islands’ – the Falklands, Azores, Pacific islands, Australia (incl. Tasmania), New Zealand, Mauritius, the Cocos Group, Chiloe and other islands off South America – redressing the balance of published material focussing on the Galapagos islands.

Using archival sources, such as Darwin’s original field notes and the log of HMS Beagle, as well as recent fieldwork in the islands, this book provides the first complete evaluation of the whole of Darwin’s island experience. It documents his visits to the various islands and island groups, describes how the island look today, and evaluates these visits in relation to the entire corpus of Darwin’s work.

This comparative treatment provides fresh insights into the role played by these islands in the development of his ‘Theory of Coral Reefs’, his book on ‘Volcanic Islands’ and the research into barnacles, which established his scientific reputation, as well as the material they provided for his later ideas on evolution.

(from advance publicity)

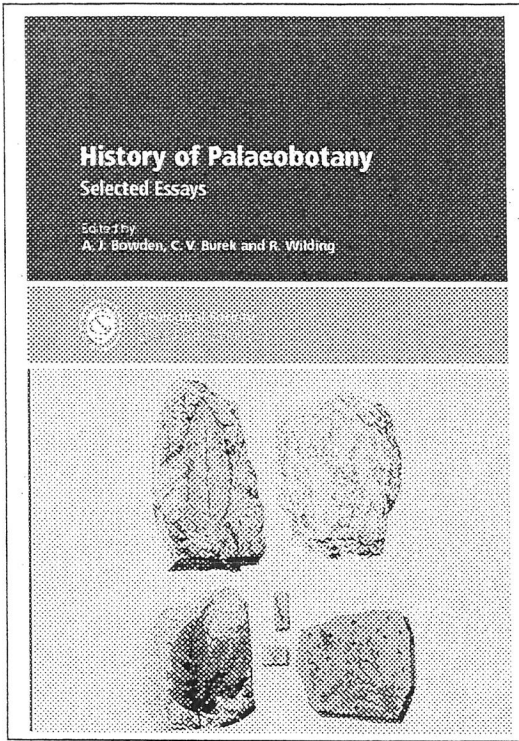
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**“John Phillips and the Business of Victorian Science”**, by Jack Morrell, to be published by Ashgate, pp458, 40 b/w illustrations, hardback, ISBN 1 84014 239 1 £57.50.

John Phillips was one of the most remarkable and important scientists of the Victorian period. Orphaned at the age of seven and brought up by his uncle, he rose to hold a number of highly prestigious posts within the British academic and scientific community, despite lacking a university education. By the time of his death in 1874 he was widely regarded as one of the pioneers and champions of the science of geology, yet until now there has been no full length biography of Phillips. In rectifying this lacuna, Jack Morrell has produced a meticulous and magisterial piece of scholarship that does justice to the achievements and legacy of John Phillips. Adopting a broadly chronological approach, the book not only traces the development of Phillips’s career, but clarifies and highlights his role within Victorian culture, shedding light on many wider themes. It explores how Phillips’s love of science was inseparable from his need to earn a living and develop a career which could sustain him. Hence questions of power, authority, reputation and patronage were central to Phillips’s career and scientific work. Drawing on a wealth of primary sources and a rich body of recent writings on Victorian science, this biography provides a fascinating and compelling account of John Phillips and his legacy. It will be vital reading for anyone with an interest in the history of British and nineteenth-century science.

(from advance publicity)

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The Geological Society Publishing House is pleased to announce the publication of the following title, likely to be of interest to HOGG members:

SP241 – History of Palaeobotany: Selected Essays, Edited by A. J. Bowden, C. V. Burek and R. Wilding, List price £80.00; GSL members price £40.00

(For further details click on the link to the Society's Online Bookshop)

Often regarded as the 'Cinderella' of palaeontological studies, palaeobotany has a history that contains some fascinating insights into scientific endeavour, especially by palaeontologists who were pursuing a personal interest rather than a career. The problems of maintaining research facilities in universities, especially in the modern era, are described and reveal a noticeable absence of a national UK strategy to preserve centres of excellence in an avowedly specialist area. Accounts of some of the pioneers demonstrate the importance of collaboration between taxonomists and illustrators. The importance of palaeobotany in the rise of geoconservation is outlined, as well as the significant and influential role of women in the discipline. Although this volume has a predominantly UK focus, two very interesting studies outline the history of palaeobotanical work in Argentina and China.

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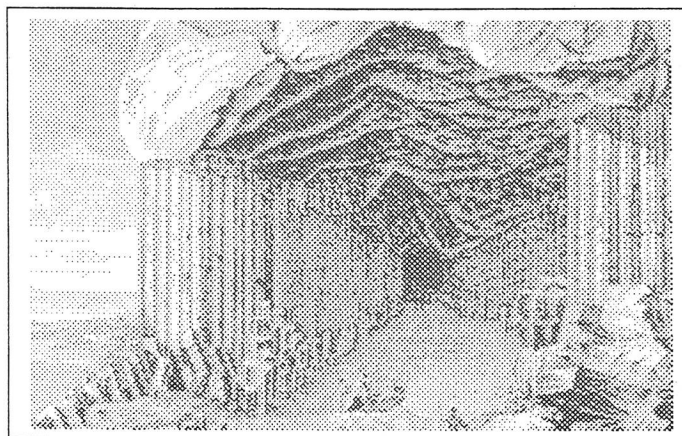
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## FINGAL'S CAVE and a VERY IMPORTANT VISITOR

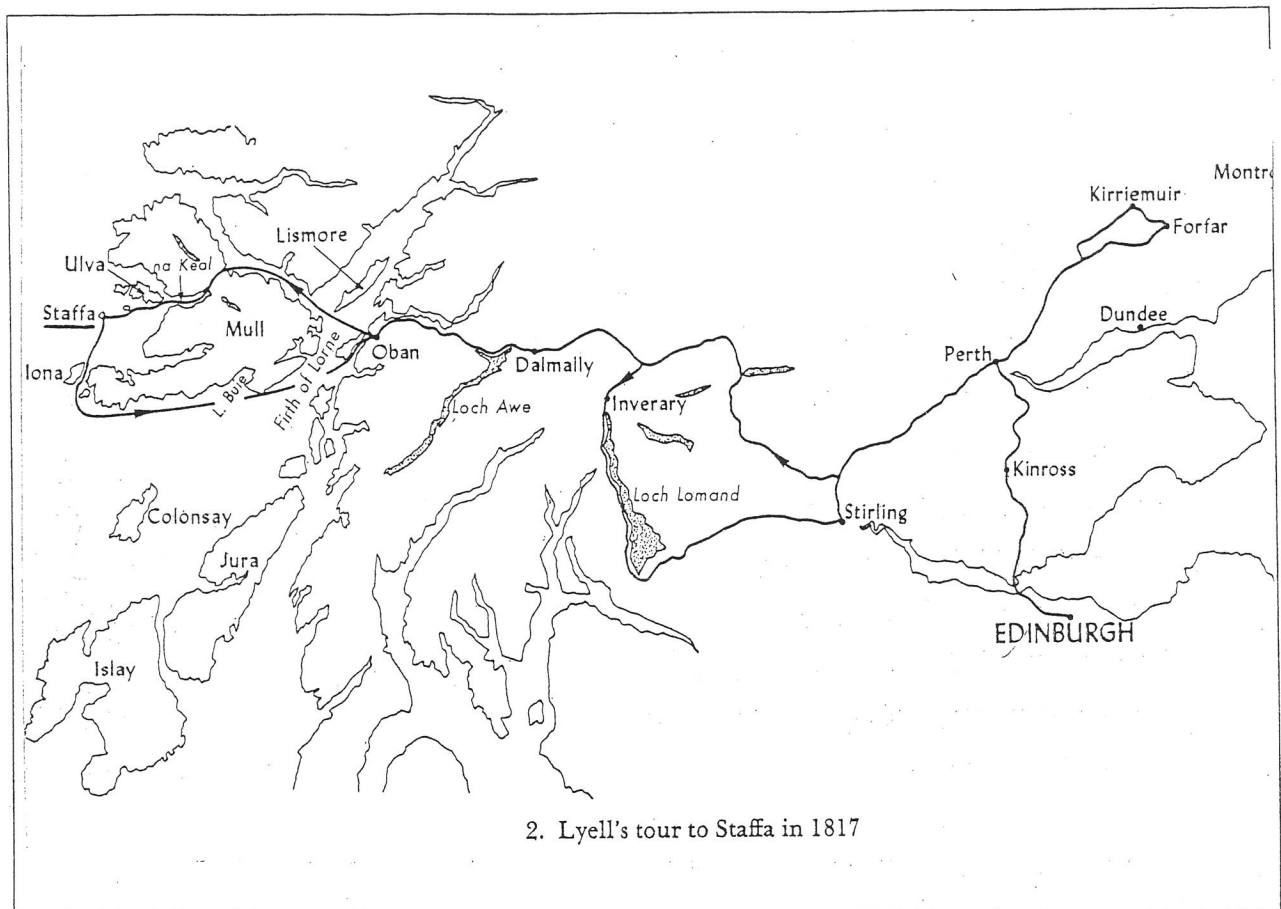
Anthony Brook

Fingal's Cave featured on the front cover of HOGG Newsletter No. 23, (January 2005), and the Editor pointed out, on the inside front cover, that the earliest complete description of these 'striking basalt formations' on the Isle of Staffa in the Inner Hebrides was made by (Sir) Joseph Banks in 1772 and published 4 years later, by Thomas Pennant in his *Tour in Scotland and Voyage to the Hebrides* (2<sup>nd</sup> Ed., Vol. 1, 299–309) — which was most fortunate, otherwise it would probably never have been published at all. This amazing natural feature made a great impression on the national consciousness, particularly on those with more finely-tuned aesthetic sensibilities. 45 years later Fingal's Cave worked its magic on another visitor who later rose to considerable significance in the new science of Geology.



The late summer of 1817 was considered by Mr Charles Lyell, Senior, to be an opportune time for his 20 – year-old undergraduate son and namesake to accompany him to Scotland and pay his first visit to the family estate at Kinnordy, near Kirriemuir in Forfarshire. It was the famous geologist's grandfather, the first Charles Lyell, who bought 2 adjoining estates of c. 5000 acres on the north slope of the Vale of Strathmore in November 1782, made some agricultural improvements and, shortly thereafter, purchased 2 further properties nearby to become one of the largest landowners in the area. The Lyells owned a large Scottish estate and were absentee landlords. The two Charles Lyells, father and son, set out from the family home at Bartley Lodge, near Lyndhurst in the New Forest, on 20 August, and progressed north, by way of York, Newcastle and Edinburgh, to reach Kinnordy by the end of the month. In the middle of September, the young Charles Lyell left Kinnordy with 2 of his friends from Oxford University, Sir James Ramsay and Thomas Corbett, to visit the isles of Mull, Staffa and Iona in the Inner Hebrides, using the town of Oban as a base. His journey to and from Staffa is shown on the accompanying map, from Volume 1 of Leonard Wilson's multi-volume biography of Charles Lyell, published in 1972. In Volume 1 of the *Life, Letters and Journals of Sir Charles Lyell*, published in 1881, occur extracts from his journal for August-September 1817 (45–52), with details of all the incidents en route. Lyell describes his visit to Staffa and Fingal's Cave in just 2 paragraphs (49–50):

*We arrived at Staffa in the evening, and the wind being northerly we were able to enter the cave, with the width of which I was much disappointed. When the boat was in they could nearly touch each side at once with their oars. The height is magnificent, and two or three broken lines of columns at the bottom on each side form a superb base to the pillars. The roof, hung with the broken heads of pillars, is likewise grand.*



*There was a slight agitation and swell of the sea, which prevented us from going in very far. The wave which entered sucked us in, and the boat sunk at the same time several feet. We then heard the wave creeping up towards the end of the cave, till it struck against it, we in the meantime remaining motionless: then the wave returned, and gently heaved us up, and carried us to the mouth of the cave. This was very fine, but after two or three trials we rowed away for fear of an accident. The pillars in the Boats' Cave are higher and finer than those in Fingal's, but a striking part of the entrance of Fingal's is that the pillars are ranged in a fine rounded swell on each side, instead of being straight in the manner of a wall.*

That is a fine brief contemporary record of impressions and events, but it lacks context, which is supplied by the appropriate extract from the aforementioned Wilson biography of the early career of Charles Lyell:

“They had intended to sail around the island of Mull to Staffa but found the wind too much against them so landed at Arrow on Mull, where the innkeeper rented them a boat which he had on Loch Nalgael, a long inlet on the opposite side of Mull which nearly divides the island in two. After a short walk across the island they boarded this craft and sailed on to Staffa”

“As an island, Staffa is famous for its magnificent array of basalt pillars capped with a layer of igneous rock solidified from former lava. At several points there are openings between the pillars forming caves into which the sea extends. The largest and most famous of these is Fingal's cave. Staffa first became well known to Europeans when Sir Joseph Banks visited it on his way to Iceland in 1772 and his description was published in 1776 in Thomas Pennant's *Tour in Scotland*.<sup>37</sup> From that time it was a place which travellers to Scotland had tried to include in their itineraries and it had been visited by both William Buckland and Dawson Turner”.

“Only a few weeks before Leopold von Buch<sup>38</sup> had been at Staffa in the course of a tour of Scotland. On his return to England he had visited Buckland at Oxford and had suggested a theory to account for the origin of Fingal's cave. He had supposed that an intrusive dyke of softer lava had invaded the basalt and had later been eroded away to leave the opening which was Fingal's Cave. To support his theory von Buch asserted that there were no broken ends of columns appearing in the roof of the cave as there should have been if the space occupied by the cave had once been filled with basalt columns.

Buckland had been surprised by this assertion because he thought he remembered having seen broken ends of columns appearing in the roof when he had visited Staffa, but since it had been long before, he was not certain. Pennant's illustration of the cave also showed the broken ends of columns in the roof. Buckland therefore had asked Charles to check this particular point and Charles found that von Buch was wrong. They first landed opposite the Clam-shell cave and climbed to the top of the island. From there they went around the cliff until they reached Fingal's Cave. Continuing his account of this tour, Charles described his impressions:

*"All representations of Staffa must fall short in expressing the bold or regular swell or semicircle in which the pillars are ranged on each side [of] the entrance. In a front view this of course is foreshortened and becomes a nearly flat wall. When we had walked in as far as we could be climbing along the side we returned to the boat and enjoyed a much more delightful view of it from the water. Fortunately the wind was northerly and the waves were therefore exhausting themselves on the other side of the island which must otherwise have prevented our getting in. When we had just passed the entrance a large swelling wave sucked us in suddenly a considerable way, the boat sinking at the same time five or six feet. There we were left motionless for some time and heard the wave slowly winding up the cave, then dash against the end of it. It then returned and carried us completely out again raising us up at the same time."*

*"The boatmen shewed great address with their oars in preventing the boat from striking against the sides of the cave. After repeating this experiment several times one wave (I suppose a ninth) threw us back so suddenly that we were afraid to try it again. – The boatmen however would willingly have gone in again."*

*"The echo in the cave is very loud. We had no bagpipes unluckily. The roof is ornamented with broken tops of pillars"*

[37. T. Pennant. *A Tour in Scotland and Voyage to the Hebrides*, 2<sup>nd</sup> ed. In this 2<sup>nd</sup> edition there is an "Account of Staffa" by Joseph Banks Esq., vol I, pp. 299-309]

[38. Christian Leopold von Buch (1174-1853) was a Prussian who had studied under Werner at Freiberg. Having inherited wealth he devoted himself to geology and travelled widely for that purpose. Quite early he abandoned Werner's Neptunian theories.]

It would seem that this young man was not just a wealthy aristocratic tourist indulging an antiquarian interest in a natural curiosity: he was a visitor with a scientific purpose. He had been specifically asked by his geological mentor at Oxford, William Buckland, to ascertain whether the basaltic columns in the roof had broken tops or not, which would determine the status of his theory concerning the origin of Fingal's Cave: 'the roof is ornamented with the broken tops of pillars', which proved Buckland right and the German geologist, von Buch, wrong.

Charles Lyell returned to his studies at Exeter College, Oxford in October and wrote to his father on 21 October and 11 November, as quoted in full in *Life, Letters and Journals* (52–56). The letter of the latter date is most unusual, consisting almost wholly of a poetic evocation of Staffa and Fingal's Cave in 4, 9-lined stanzas (see text panel below), which only goes to show the intellectual versatility expected of a well-educated scion of the landed gentry in the Regency period, when the Romantic Movement prevailed and Keats, Shelley and Byron published extensively. It harks back to the profound question of what constitutes 'the Sublime', as argued by Edmund Burke in his 1757 Treatise on 'The Sublime and the Beautiful', and forward to the idea of 'the Scientific Sublime', as developed in the grandiose portrayals of Mesozoic times by the artist, John Martin, between 1838–42 in the frontispieces to works by Thomas Hawkins, Gideon Mantell and George Fleming Richardson.

Wonders of the natural world, discovered by intrepid explorers of faraway times and places, generated that overpowering combination of almighty awe and spine-tingling fear which led, so it was believed, to a state of transcendental communion with the Creator. At the same time, these wonders were also being subjected to scientific scrutiny and explanation by those natural-philosophers with sharply-observant eyes and more open and analytical minds, such as Charles Lyell.

Charles Lyell's comment beneath this poem that his father would agree with him 'in regretting that Werner died without the knowledge of this geological discovery concerning the origin and formation of basalt' is more in character, but requires a little explanation. The ideas of the great German geologist, Abraham Werner (born 1749), who had died earlier in the year, had been most influential in theories of the Earth since the 1780's. He advocated the concept of the Universal Ocean, from which all sediments and strata had precipitated: even basalts were considered to have crystallised from the primordial fluid. In 1787, in his *Kurze Klassifikation*, he reasserted, unequivocally, that basalt had an aqueous origin despite recent field evidence from the extinct volcanoes of the Auvergne, in the Massif Central of France, that basalt was far more likely to be igneous. Werner's opinion carried immense authority and became paramount. Four years later, in his publication on the theory of mineralisation, Werner pronounced that all mineral veins were aqueous in origin, including even basalt. They had all been injected into the strata from above, seeping down into cracks and joints in the rock. Fingal's Cave, with its huge hexagonal

basaltic columns, was thus a superb field site for the verification or denigration of various theories as to the origin and formation of basalt, not just Werner's. It would seem that Werner had expired unaware of this latest piece of field research, and what it meant for his pet theory.

In the next decade, the 1820's, Fingal's Cave had 2 further visitors who left a distinctive mark in their respective spheres of influence, Murchison and Mendelssohn. In the summer of 1826, soon after his Pauline conversion to geology, Roderick Murchison and his wife, Charlotte, meandered their way all the way to Brora, in Sutherland, in the far North of Scotland, to investigate the coalfield in Jurassic strata. Upon reaching Edinburgh, they turned westward towards Arran and the Inner Hebrides, and Murchison proceeded to visit Staffa and Fingal's Cave, climb Ben Nevis, etc. etc. Indeed, they took most of the summer to cover the Western Isles and the Scottish Highlands before reaching Brora. In the late spring of 1829 the young German composer, Felix Mendelssohn, came to England as part of a grand European musical tour. When the London concert season ended, in mid-July, he headed north, with a companion, for a walking tour of Scotland. On 7 August they arrived in Oban, where Mendelssohn, looking out towards the Hebrides and observing the way in which waves broke upon the coastline, found the leitmotif for his Hebridean Overture, also known as Fingal's Cave. The next day, 8 August, they visited the majestic sea-cavern on the Isle of Staffa and the equally-desolate island of Iona. This musical composition has remained in the concert repertoire ever since its first performance by the Philharmonic Society on 14 May 1832— a supreme example of Geology become Art, elegantly straddling the dangerous gulf of 'The Two Cultures' of C. P. Snow.

Fingal's Cave might only be a large sea-cave on an inaccessible Scottish isle, but it has been celebrated in verse by Lyell and immortalised in music by Mendelssohn. More prosaically and scientifically, its basalt columns from part of the mid-Tertiary Igneous Province of Northwest Britain, and reappear in the World Heritage Site of the Giant's Causeway on the north coast of Antrim. Visitors were all suitably impressed with Fingal's Cave, none more so than a young, impressionable nascent geologist by the name of Charles Lyell.

**Acknowledgement:** the author wishes to thank Professor L. Wilson for granting permission to reprint material from his book *Charles Lyell: The Years to 1841* (New Haven, 1972).

*'Oxford is of all places the most barren of news.  
Rather than send an empty letter so far, I will give  
you the only verses I have found time to make lately,  
which are but the beginning of a subject.'*

### Lines on Staffa

Ere yet the glowing bards of Eastern tale  
Had peopled fairy worlds with beings bright  
Roamed o'er the palace and enchanted vale,  
And dreamed a heavenly vision of delight,  
And told of realms rich with unborrowed Light,  
On which the needless sunbeams never fell,  
Whose noon of splendour never knew the night,  
Illumed by lamps that burnt unquenchable,  
And dazzling hung in air, upheld by magic spell:

All these and more, with which their wizard strain  
Led far away deluded Fancy's child,  
Till he would turn on Nature's self again,  
And deem her charms a desert bleak and wild,  
Himself from visionary heavens exiled;  
While yet unheard that strain, the Time had been  
When Nature's hand as if in sport she toiled  
To build e'en more than could the thoughts of man,  
Amid the ocean's vast, had framed a fairy scene.

For she had found a lone and rocky isle,  
And at her voice a thousand pillars tall,  
She bade uprising lift the massy pile,  
And far within she carved a stately hall  
Against whose sides the entering waves did fall,  
While to their roar the roof gave echo loud –  
And she had hid each column's pedestal  
Beneath the depths unseen of Ocean's flood,  
While towered their heads on high, amid the passing  
cloud.

And she has fashioned with an artist's pride  
The dark black rock where hung the sparking foam,  
And many a step along its sculptured side  
Had hewn, as if to tempt some foot to roam,  
Some favoured foot of Mortal yet to come,  
She bade no shapes of Terror there abound,  
That pillar'd hall no guardian dragon's home,  
But ocean rolled his mighty waves around,  
To guard from vulgar gaze her fair enchanted ground.

*'Whatever you may think of the poetry, you will  
agree with me in regretting that Werner should have  
died without the knowledge of this geological  
discovery concerning the origin and formation of  
basalt'*

## **Joseph Henry Collins (1841-1916) to be honoured**

**The unveiling of a plaque to J.H.Collins will take place at St Paul's Church ,  
Charlestown, near St Austell, Cornwall at 2.30pm on Friday 10<sup>th</sup> June 2005**

**All those who may be interested are invited to the dedication and unveiling**

Joseph Collins was the founder of the Mineralogical Society and Secretary from its inception in 1876 until 1881, and founding editor of the Mineralogical Magazine. Collins was also involved in the founding of the Institution of Mining & Metallurgy, and was Vice president at the time of its formation in 1892. He was a noted mineralogist, mining expert & geologist and the author of many well-regarded publications on these subjects in south-west England, many of which are still regarded as valuable works of reference at the present day. Collins later held office as the president of the Institution of Mining & metallurgy and, at various times, was President of three Cornish 'Royal' societies – the Royal Geological Society of Cornwall, The Royal Institution of Cornwall and the Royal Cornwall Polytechnic Society. He received numerous awards during his lifetime and was a Fellow of the Geological Society of London.

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## **Fourth International Symposium on Lithographic Limestone and Plattenkalk**

Eichstatt/Solnhofen, Germany, September 12-18<sup>th</sup>, 2005

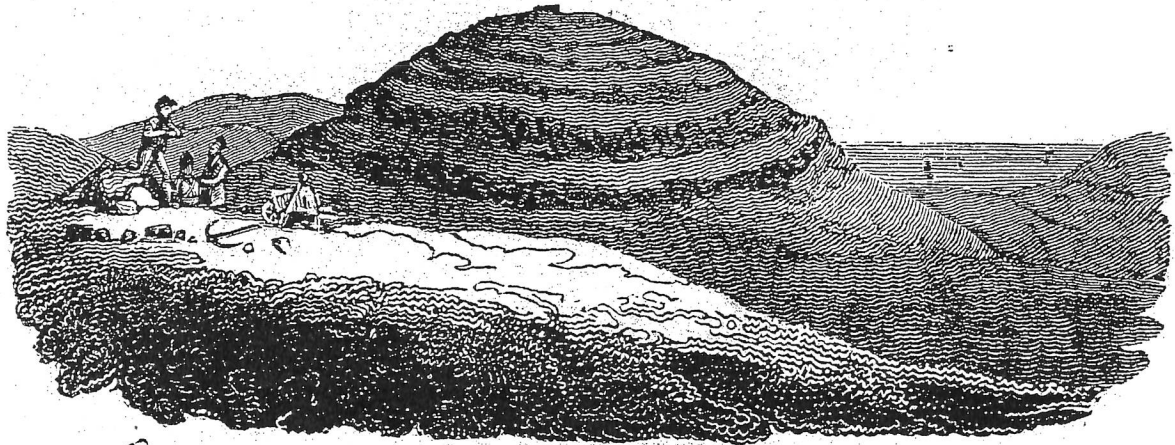
Cost for the conference will be around E120.00, plus optional extras such as conference dinner or field trips. Manuscripts should be submitted to the conference office in Eichstatt , September 14-16, 2005

For further details contact the conference office, Jura-Museum Eichstatt, Willibaldsburg, D-85072, Eichstatt, Germany (Fax: +49-8421-89609, or e-mail: [symposium@jura-museum.de](mailto:symposium@jura-museum.de))

# Barbican House Museum, Lewes

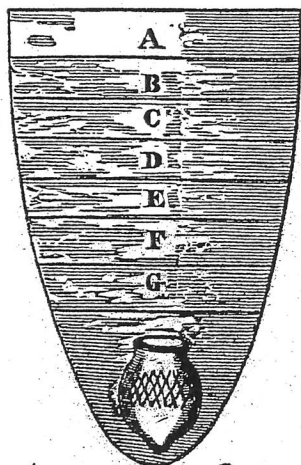
# GIDEON MANTELL

# EXHIBITION



*Mount Caburn, vol 1, p 344.*

An exhibition covering the life of  
Gideon Mantell, discoverer of the  
Iguanodon



*Mantell's Cock.*

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