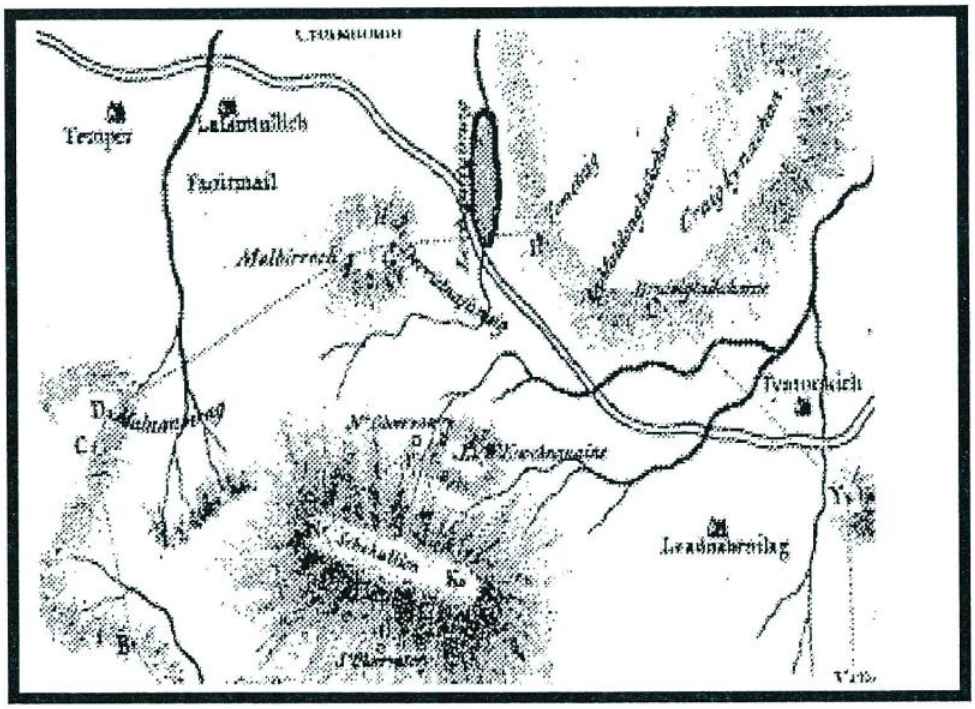
HOGG

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



Number 27
June 2006

Cover Illustration:

A 1778 illustration from Philosophical Transactions of the Royal Society (vol.LXVIII, p.788), showing part of Charles Hutton's map of the Schiehallion district of Scotland. The area was the scene of a dramatic experiment in 1774 to attempt to measure the deflection of a plumb-line due to gravitational attraction of the Schiehallion Complex. The experiment was carried out by Nevil Maskelyne. Not much has changed in the area since the time of the experiment. Lassintullich and Tempar still exist, and the road is now the one that follows the Braes of Foss road.

The Schiehallion Experiment was one of the talks given at the HOGG members meeting in April.

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William Buckland 150th anniversary symposium

REGISTRATION

Oxford University Museum of Natural History
12 August 2006

Name:.....

Address:.....
.....
.....
.....
.....

e-mail:.....

I enclose the Registration Fee of £15:
YES / NO

I am a member of HOGG / Pal. Ass. and enclose the Registration Fee of £10:
YES / NO

(Lunch is not provided.)

To book a ticket for the Buckland Symposium please make your cheque out to the ***Oxford University Museum of Natural History***, and send to Professor Jim Kennedy at the address below.

For further details contact Professor Jim Kennedy:
Address: University Museum of Natural History, Parks Road, Oxford OX1 3PW, UK
Email: jim.kennedy@university-museum.oxford.ac.uk

William Buckland 150th anniversary symposium

Oxford University Museum of Natural History
12 August 2006

The Oxford University Museum of Natural History, the History of Geology Group (HOGG) and the Palaeontological Association are meeting together on Saturday 12th August 2006 for a day of talks on the charismatic William Buckland, and to remember the 150th anniversary of his death (1784-1856). The Museum will also be exhibiting some of Buckland's specimens.

Speakers on Buckland will include:

Jim Kennedy on Buckland's life
John Brooke on palaeo-theology
Hugh Torrens on stratigraphy
Martin Rudwick on glacial theory
Philip Powell on Megalosaurus
Simon Knell on museums
Jonathan Topham on Buckland's Bridgewater Treatise
Ralph O'Connor on storytelling
Philippe Taquet on Cuvier
Claudia Schweizer on palaeobotany
Patrick Boylan on institutionalisation

To book a ticket for the Buckland Symposium please send a cheque for **£15** to Professor Jim Kennedy at the address below, with details of your name and address. (Members of HOGG and the Palaeontological Association pay **£10**.) Cheques should be made out to the **Oxford University Museum of Natural History.**

Lunch is not provided.

A registration form can be downloaded from the HOGG website (see below)
For a full programme see 'events' on the HOGG website: www.geolsoc.org.uk/hogg

For further details contact Professor Jim Kennedy
Address: University Museum of Natural History, Parks Road, Oxford OX1 3PW, UK
Email: jim.kennedy@university-museum.oxford.ac.uk

1807-2007
Bicentenary of the Geological Society

The Geological Society, founded 13 November 1807, is the oldest national geological society in the world. **The History of Geology Group** (HOGG) will be holding an international two-day conference on **12-13 November 2007** to celebrate the Geological Society's bicentenary.

Conference
The conference will focus on the achievements of the Society, the founders, and some of its members and their activities over the past 200 years.

- **Theme 1:** The status of geology in comparison to other sciences in the UK and to geology in other countries around 1807
- **Theme 2**: The foundation and founders of the Society
- **Theme 3**: The first 100 years
- **Theme 4**: Towards the 21st Century

Field trip
The conference will be preceded by a field trip to the Isle of Wight on the **10-11 November 2007** to visit some of the classic geological localities of historic interest.

Dinners
On the evening of **12 November 2007** a dinner will be held in the Connaught Rooms, which now incorporates the Free Mason's Tavern where the Geological Society was founded. A plaque commemorating the founding of the Society will be unveiled.

On the evening of the **13 November, 2007**, the Geological Society will be holding a dinner in the Natural History Museum.

Call for papers
Anyone interested in offering a paper should send an abstract of **not more than 300 words** to cherry.lewis@bristol.ac.uk to arrive not later than **1 June 2006**. Please clearly state which theme your paper addresses. As we anticipate a large number of papers to be offered, we regret we will not be able to include everyone. However, we intend to publish a Geological Society Special Publication based on the conference proceedings in which we will be able to include a much larger number of papers, subject to the normal peer review process.

Register your interest

Anyone wishing to go on the mailing list to receive further information about this event should email cherry.lewis@bristol.ac.uk putting '**HOGG bicentenary event**' in the subject line.

For information on this and other HOGG events, go to:
http://www.geolsoc.org.uk/HOGG

Call For Papers

The History of Geology Group

From Oil Shales and Seeps to 'Shaleopolis' and imported Roughnecks!

(The History of On-Shore Hydrocarbon Use in the UK)

20-22 April 2007

Conference and field trip

Venue: Weymouth Dorset

The conference will focus on use of oil shales over two millennia and the early exploration for oil and gas onshore UK.

Papers are called for on the following topics:

- **The Geology and Distribution of UK Oil Shales**
- **The Use of Oil Shales - Through the Ages**
- **The First 100 Years of Onshore Exploration**
- **Personalities and Historical Events**

Field trips

There will be two half-day field trips along sections of the Dorset Coast.

Ice Breaker

Friday 7.00-8.00pm

The Conference Dinner will take place on the evening of Saturday

Anyone interested in presenting a paper should send an abstract of **no more than 500 words** to rtj.moody@virgin.net by the end of September 2006. Please indicate if you would be prepared to submit a full manuscript for publication.

To Register your interest

Please e-mail Professor Richard Moody at rtj.moody@virgin.net to register your interest in this conference and to obtain more details on the programme, field trips and specific costs.

For information on this and other HOGG events, go to:
http://www.geolsoc.org.uk/HOGG

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:

2006
A 'Buckland' meeting in Oxford (Saturday 12th August)
History of Geoconservation (24-25th November) (in conjunction with the Black Country Geol.Soc.in Dudley)

2007
Hydrocarbons/Petroleum meeting (April/ May 2007)
HOGG Celebration of the bi-centenary of the Geological Society (12-13th November)

2008
Smith, Phillips & Rotunda meeting (Scarborough, April, May or June)
History of Igneous Petrology
Mapping Literary Geology (Summer?)
Pre-Cambrian meeting, Leicester, (?September)
History of Metallurgical Mining (possibly held in Cornwall)

2009
Field trip to Liverpool (in conjunction with the Geologists' Association ?)
History of Micropalaeontology

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.

HOGG Previous Meeting....

For this meeting, held at the Geological Society on April 13th, there was no theme, and it was given over to members to give talks on any aspect of the history of geology which interested them. A total of ten speakers, including Emeritus Professor Leonard Wilson from the USA, gave an illuminating cross-section of talks on wide-ranging subjects to an audience of about 40 people. The meeting was efficiently organised by Committee member Tony Brook, and chaired by John Mather, Anne O'Connor and Tony himself.

John Morton looked at William Smith's involvement between 1808 and 1812, when he was the surveyor for the Upper Ouse Navigation Company, hoping to develop a canal to improve the passage of traffic along the River Ouse, and take it as far as the area north of Cuckfield. This was the time of the Napoleonic Wars, and the civil engineer John Rennie was looking at a scheme to provide a safe inland passage from Chatham (Kent) linking the River Medway via Tonbridge, thence via Horsham, Biillingshurst, and Arundel, to Portsmouth. It was never built, and neither was Smith's Ouse Navigation canal. But interestingly, whilst looking for

suitable stone for bridges and locks, Smith visited a quarry (probably at Whiteman's Green) where "very large bones were found". This was at least a decade before Gideon Mantell 'discovered' bones there. One, which he collected, was identified only in 1975 as the tibia of an iguanodon. Smith spent 4 years in Sussex, and during that time also looked at aspects of the geology. Some of his maps can still be seen in the East Sussex Record Office.

Gordon Judge looked at the poetry of geology, and in a very innovative approach, constructed a 'stratigraphic column' to accommodate it. His two crieteris were that the poems should have a true geological connection (and not just be a description of rocky scenery, for instance), and that they should have been published somewhere accessible. Following an analysis of extant poetry, he divided its occurrence into four date periods. For those which were published before the time of William Smith (1815-1879) he coined the term "pre-Smithian" for the 'geological period'; and those published during Smith's life, the "Smithian period". His next 'period', spanning the years from 1879 to about 1990, he termed the "Lapworthian period". Finally, for things published after 1990, and with the advent of electronic publishing, especially the World Wide Web, in mind, he used the term "Webbian". Within these 4 'periods, he outlined examples of poetry. The pre-smithian period, was essentially barren, but after 1815 there was odd 'zonez' where there was a 'population explosion'. Despite such luminaries as Charles Lyell, Gideon Mantell and James Montgomery producing much poetry, little of it was geological. But there were zones 'with common species', one being the 'John Scaife Trilobite zone' when Scafe wrote one poem of 1,135 lines! Other zones were listed as the "Buckland Appreciation zone" (Phillip Duncan at the Ashmolean Museum was the 'species' here), and the 'Mantell veneration zone' with among others George Fleming (curator of Mantell's Museum) and Horatio Smith (English writer and humanist). Other 'zones' were the 'Jolly geology zone', and the 'William Smith Admiration zone'. In the 'Lapworthian' he found nothing until just before WW1. , and then another barren period from 1933 until 1962. The 'Webbian' period is presently considered thin, but with deposition still occurring. All in all it was a most entertaining and original talk.

Archibald Giekie

The keynote speaker for this meeting was **Professor Leonard Wilson**, Emeritus Professor at the University of Minnesota, USA. He looked in some detail at 19th century debates on Geological Uniformity and the Age of the Earth. The age of the Earth had been an argument for many years before Archibald Giekie said that the historical past was to short to be of use in judging geological changes; modern changes were too slow to provide the changes in the Earth if its age was only 100 million years. The theory was that the Earth cooled as a hot liquid sphere and after the formation of the crust, internal heat continued to generate volcanic eruptions. The theory further said that as the Earth cooled, the violence of such eruptions diminished. But Charles Lyell, after taking a trip through central France with Roderick Murchison, and looking at geologically old volcanic sites in various stages of geological degradation, was able to show that past volcanic activity was no more violent that current activity, and that past geological changes occurred gradually. He estimated the time since the Cambrian as at least 240 million years. Volcanic eruptions he showed, were separated by vast periods of time. In southern Sicily he found limestones with shells of Mediterranean origin, which showed they were very young, and Etna lavas rested on top of them. It was clear that volcanic activity was intermittent. In 1833 he was able to show that the Tertiary was not a single period, and Murchison showed differences between the Silurian and the later Devonian. In 1840 he established the Permian, which had heretofore

been known in the UK as the 'New Red Sandstone' era. In 1855, geologists discovered fossils in the Cambrian which were different from those in the Silurian, but the same as examples from Canada and Sweden. The North American Huronian and Lawrentian periods were shown to have a thickness greater than 50,000 feet, and this included volcanic rocks. Lyell was able to reflect these changes in succession in various editions of *Principles of* Geology and noted the presence of volcanic rocks. In 1842, Lyell on his first trip to America, saw fossils of raindrops in rocks at the Bay of Fundy; similar marks were seen in New Jersey and Cape Breton Island by others. In 1862, William Thomson (later Lord Kelvin) wrote a speculative paper on the age of the sun. He had a mission to destroy the basis for Darwin's theory, itself founded on Lyell's principles, which needed a vast age of the Earth. Thomson argued that heat loss from the Earth must limit its age, and he largely ignored any geological evidence. He especially omitted from his calculations the heat in the Earth's core and its transfer to the surface. Had he taken it into account he would have arrived at a figure comparable to modern estimates. Despite this, his prestige in science and as a Lord of the Realm, gave enormous weight to his opinions. In the end, though, he was shown to be wrong, and the rest, as they say.... is history!

Gideon Mantell's *Thoughts on a Pebble* , published in 1836 was the theme for **Melanie Keene's** talk. The book was intended for children, and was based on Mantell's own experiences as a child after finding an ammonite by the side of a brook. Mantell had already read, as a child, the tale 'Eyes and No Eyes' which had a strategy of using a small object found on a walk to open children's eyes to the wonders of nature. Following this theme, Mantell wanted to provide a detailed description of a single object in order to bring geology closer to his readership. He created a guide to the pebble, and the world from which it had come. Mantell believed it was better to use real fossil specimens, no matter how small, to conjure up visions of past landscapes. Later editions would go into more detail shown by the stone, by including microscopical investigation. By this method, Mantell was able to make geological phenomena widely available to audiences, and probably initiated education and an interest in the sciences in many people. By imparting skills of observation, attention, and reasoning, he provoked new thoughts on humble pebbles.

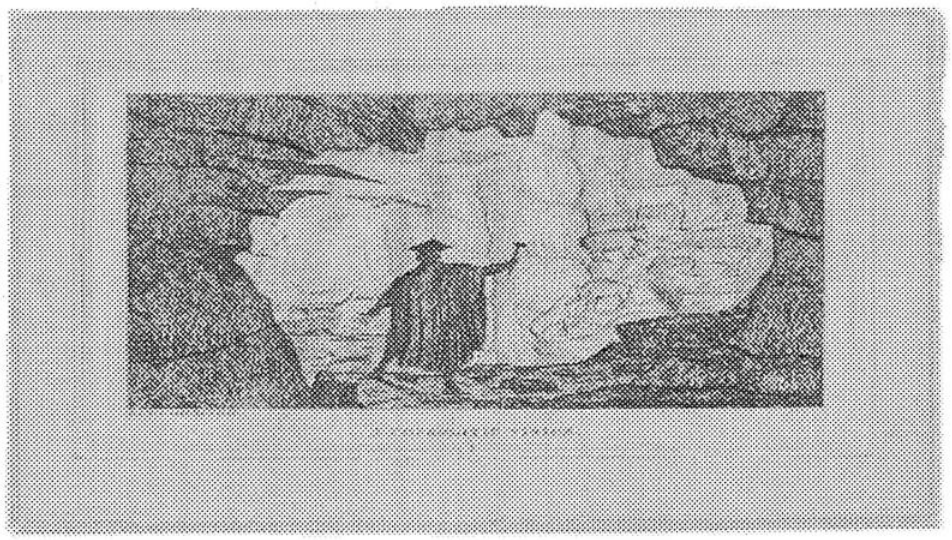
Gideon Mantell, from *Thoughts on a Pebble*

Following on from the Sussex Pioneers HOGG field trip of 2004, and continuing a Mantellian theme**, Peter Tandy** (along with Tony Brook) had been looking at available evidence which might point to exactly where the quarry, from which Gideon Mantell retrieved the first dinosaur bones, was situated. It is always stated to be 'at Whiteman's Green' near Cuckfield, Sussex, and today there is a stone tablet and plaque commemorating the event. But just exactly where was the quarry, and could it be identified today? The area so marked today is a level playing field (literally!) and questions were asked on the 2004 trip whether it was likely or even possible to fill and level a large quarry such that no sag occurred in the 150+ years since. Using evidence from Mantell's own writings, his publications, area maps and the geological survey, Peter gave an overview of progress so far. Mantell's journals, gave tantalising snippets but don't actually state just where the quarry was. In addition he starts calling the area "Tilgate Forest" in 1822 - and Tilgate Forest today is some 6 miles further north. His publications include a series of engravings purportedly showing not just the quarry entrance, but the identifiable markers of Cuckfield church spire and Ditchling Beacon, in the distance. Alas, simply drawing a line between the two doesn't, for sure, identify the quarry, but it does mark a present day small working. Could this be the quarry? Evidence isn't compelling at present, and the hollow itself isn't much like the engravings. Maps dating back to 1809 were shown, which might identify the quarry - as being under the present day sports fields ! The results so far are inconclusive, and what is needed is a geophysical survey of the

sports fields to see if they are virgin ground or disturbed ground. Peter has even considered contacting the TV Time Team group to see if it fits with their remit.....

Nic Bilham from the Geological Society gave an overview of the Society's Oral History Project. The idea is to capture the recollections of older Fellows of the Geological Society, partly to commemorate the Society's forthcoming bicentenary, but also as a resource for future historians and the geoscientific community. The oldest Fellows currently in the Society, joined in the 1930s, and several hundred joined in the 1940s and 1950s. Since this was a period of great change in the geosciences, especially in relation to plate tectonics, it is felt important to try and preserve the memories of those who have experienced and perhaps even been at the forefront of such changes. To show the scope of the project and how it might be conducted, Nic persuaded Ted Nield, his immediate superior at the Society, to take a seat and act as guinea pig. We were treated to a most entertaining and lively discussion of Ted's career and the situation he found in the geological sciences at the time. It isn't the intention that Nic should carry out interviews, and younger Fellows and HOGG members are asked to contact Nic if they would like to take part.

Coprolites was the subject of **Chris Duffin's** talk, and he looked at how they had intrigued William Buckland. It was Buckland who after excavating Kirkdale Cave in 1823, established

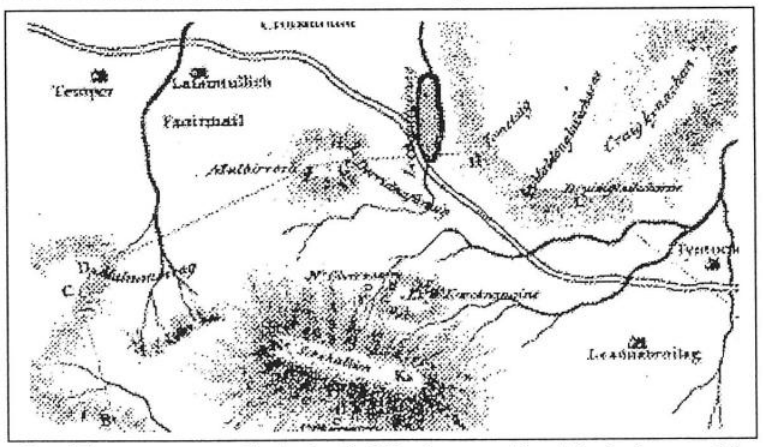


that one of the things found was hyena dung which was named Album Graecum. He coined the term "coprolite" for what was called Nigrum Graecum, (specimens from the Rhaetic Bone Bed and the Palate bed of the Carboniferous Limestone) in allusion to their black colour. The term was also applied to fossilised fir cones and to the so-called Bezoar stones from Lyme Regis. He seemed fascinated by them and the subject, and managed to replicate examples by filling Dogfish intestines with Roman cement, and showed how a spiral internal structure was conferred to the faeces prior to extrusion. His fascination led to various pieces of verse and a cartoon by Henry De la Beche entitled "The Coprolitic Vision" This showed a silhouette of someome in a gown and mortar board standing in a cave in which the stalactites/mites all have the shape of huge coprolites. In addition, as Chris pointed out so eloquently, all the creatures shown (pterodactyls, hyenas, ichthyosaurs, plesiosaurs) appear to be in the process

of "creating more coprolites" , and even the figure is standing with legs apart and a dark shadow on the ground.....

Tony Brook took as his subject, the gloomy one of Victorian geologists and suicide. He pointed out that Homo sapiens is the only creature that self destructs, and that suicide has taken place in all cultures in all places and at all times. There are any number of ways to commit it, but hanging, shooting and poisoning are the main favoured ways. Celebrity suicides include Van Gogh, Tschaikovsky, Arthur Koestler and Virginia Wolff, with, among scientists, Alan Turing, and there are many in literature but mostly women. Among Victorian geologists, three died by their own hand, Hugh Miller, George Fleming Richardson and John William Salter. Richardson (1796-1848) was a draper, but as he had enough talent to speak German wanted something better. He was one of the founders of the Brighton Mecahnics Institute. By 1838 he was an Assistant at the British Museum in the Mineralogy/Geology Department. But on the night of 30th June/1st July he cut his *own* throat - a most gory way of achieving the end. His insolvency at the time may have had much to do with it. Hugh Miller (1802-1856) was the son of a shipmaster who died when Miller was only 5. Although Miller achieved much, he became depressed and on Christmas Eve 1856, shot himself . John Salter (1820-1869) was bought up by his father, a clerk, after his mother died in childbirth. He became assistant to Adam Sedgwick at Cambridge, then joined the Geological Survey where he eventually became chief palaeontologists. But his behaviour became progressively odd causing Huxley to refuse to work with him. Pushed into retirement, he couldn't find alternative employment, took a steamer to a destination, but jumped overboard. He was 49. As Tony pointed out, these were exceptions. Many geologists lived to good ages, and bucked the National average for death (in 1840, the average age was 40) - Sedgwick was 88 at death. It perhaps had much to do with the struggle to be a geologist at the time, where toughness, robustness and resilience were prime qualities - as shown by T.H. Huxley.

In the final talk, **John Smallwood** looked again at the famous Schiehallion experiment of 1774. This was conducted by Nevil Maskelyne at Schiehallion, to measure its gravitational attraction in order to calculate the density of the Earth. The results obtained from free-hanging pendulums to the north & south of the mountain, were used by the mathematician Charles Hutton to calculate the mountain's gravitational attraction. Hutton also linked all points of identical altitude to allow theodolite interpolation, and so devised the contour line. Although the deflection of the plumblines was small (only 0.322 degrees !) , Maskelyne achieved a remarkably accurate estimate. A lithological survey by John Playfair in 1801, showed how the rocks varied, and allowed an upwards estimate of the value in 1811. Although laboratory experiments gave a figure, Hutton had more faith in the mountain experiment and in 1821 (when he was 84!) he repeated it, and revised the estimate upwards again, saying that it "was very near 5 [gms/cm-3] but not higher". The estimate in 2006 in 5.5 gms/cm-3. Hutton 'failed' (relatively speaking) because he didn't have enough concentric rings of measurements, didn't fully incorporate topography and account for lateral density variations. He was limited by time and data but not technology. John showed how he had searched the area for whatever remains there might be of the original field stations (one burnt down, but there is no signs today of any charred



remains), and then repeated the experiment with the help of modern computer technology, including 3-dimensional mapping, and accurate gravity vector models.

Following a period for questions and comments, this excellent meeting closed.

For your bookshelf?

"A Romance in Natural History" - The lives and works of Amadeus Grabau and Mary Antin, by Allan Mazur, Pub: Garrett, 2004; Library of Congress Cat.No. 2004096697.

In 1912, Mary Antin was the most talked about immigrant in the United States. Her best-selling autobiography, *The Promised Land*, written before she was thirty, described Antin's journey from a Russian Jewish *shtetl* to proper Bostonian society. Lauded by Theodore Roosevelt and Louis Brandeis for her advocacy of open immigration, she became an icon for the opportunities offered by America.

Amadeus Grabau, today honoured as the American founder of China's modern earth science, fell in love and married the much younger Mary. As a professor of geology and palaeontology at Columbia University, Grabau was one of America's most respected natural scientists. But during World War I he defended Germany's actions, a stance deplored by his wife and Columbia's administrators. By the war's end, the marriage was broken, and Grabau was fired. He moved to China becoming a leading figure in Beijing's glittering community of Asian and Western scientists, adventurers, and philosophers. In the following years Chines, European , and American scientists extended the Euro-American geological systems to Asia, discovered the incredible fossil beds of Mongolia, and found prehistoric Peking Man. Grabau was a participant in every significant activity, finally honoured in the United States as well as China.

A Romance in Natural History tells of the triumphs and tragedies of the Grabau-Antin marriage, of their lives together and apart, and how their classic works were created. It illuminates the histories of earth science and ethnic politics in early twentieth-century America, and the birth of modern geology and palaeontology in Republican China.
(from the cover)

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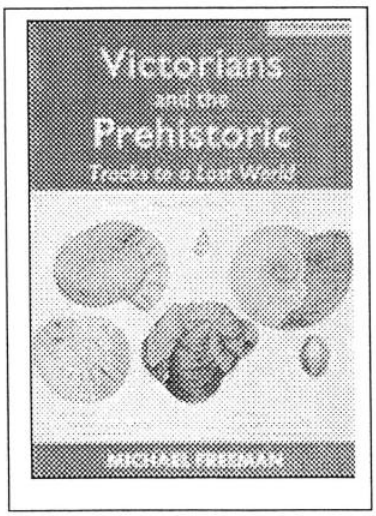

Victorians and the Prehistoric: Tracks to a lost world, by Michael Freeman ISBN: 8125030077 Publisher: Orient Longman Private Limited , Delhi Edition: 1st ed. Year of Publication: 2006 Physical Description: x+310p., Figures; Notes; Bibliography; Index; 24cm. Book Format: Softcover

As the Victorians excavated the earth to create canals and railways in the early part of the nineteenth century, geological discoveries brought to light new narratives of the prehistoric, ideas that resounded in British society, art and literature of the period. This engaging and generously illustrated book explores the Victorian fascination with all thing prehistoric. Michael Freeman shows how men and women were both energized and unsettled by the realization that the formation of the earth over hundreds of

millions of years and Darwin's theories about the origins of life contradicted what they had read in the Bible. He describes the rock and fossil collecting craze that emerged, the sources of inspiration and imagery discovered by writers and artists, and the new importance of geologists and palaeontologists. He also notes that the intellectual and emotional journey undertaken by Victorian men and women in the face of the unfolding earth narratives was increasingly being recorded, in more institutional form, in the museums that were springing up in Victorian cities and towns. Beginning first as basic repositories for the science of collecting, these building ultimately became much more powerful symbols, shrines to all that was progressive of their age but still clothed in the trappings of traditional ideas. The greatest natural history museums were housed in cathedral-like structures, sometimes embellished at almost every turn with features that appeared to celebrate not scientific evolution but the natural world as a form of divine creation.

For more information, and to order, please see:
http://www.bagchee.com/BookDisplay.aspx?Bkid=B37380

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"Weighing the World - the quest to measure the Earth", by Edwin Danson, Pub: OUP, 2006, pp289.

The science behind the mapping of Earth took a giant leap forward in one experiment, conducted in the "Fairy Hill of Caledonians" in Scotland, a desolate and romantic place if ever there was one. It was an experiment that measured the weight of the world and revolutionised our understanding of the planet, but it has never been written about since the report by the Royal Society some 225 years ago. The scholars and scientists involved included James Lind - the inspiration for Mary Shelley's *Frankenstein* - and Ben Franklin, as well as astronomers Neville Maskelyne and Charles Mason, the explorer James Cook, the paranoid genius Reuben Burrow, and Charles Hutton. They measured something Isaac Newton had predicted with his theories of gravity: the distortion of Earth measurements by the gravitational pull of mountains. Before this fearful scientific enigma was resolved, maps were hopelessly in error since they did not take into account the fact that mountains and differing densities of the earth's crust distort surveying plumb lines and produce serious errors in measuring latitude.

In a global tour de force, *Weighing the World* recounts the 100 year quest to discover the enigmatic natural energy - the curious capability that mountains have to bend gravity - and of an extraordinary experiment that transformed our understanding of the world. Written to appeal to a general reader interested in popular science and geographical intrigues, the book will also be greeted enthusiastically by surveyors, historians of science, physicists, teachers and other specialist audiences.

(from the cover)

The Manifestations of Mantell's Journal

Anthony Brook

One of those key documents for the History of Geology with which I have become regularly acquainted over recent years is the Journal of Gideon Mantell. He maintained this personal chronicle from January 1819 more or less until a few days

before his death on 10 November 1852. It disappeared to the Antipodes after his death, out of easy reach of British researchers, until the mid-1930's, when a typed version returned to this country, and its full significance began to be realised. Here I have considered its manifestation in various forms, adjustments for certain purposes, and its perception and valuation at different times. This exposition leads towards an irritating unknown, which will surely soon become more widely known.

The first disclosure of events is provided by the frontispiece to Vol. 1, which is dated April 1935 and signed by Dr Eliot Curwen. It reads: 'Gideon Mantell's Journal in 4 volumes, was taken, with other of his papers to New Zealand, and there deposited in The Alexander Turnbull Library, Wellington. Mr Johannes Andersen, the Librarian, has kindly had the Journal typed for me for presentation to the Library of the Sussex Archaeological Society, Lewes'. Dr Curwen then spent many hours carefully adding further material in terms of photographs and other illustrations, and making considerable annotations on the facing pages of the foolscap sheets of the transcript before having them nicely bound in dark-brown half-leather. The 4 Volumes are chronologically arranged thus:

Vol. 1: (1818) Jan. 1, 1819 – May 3, 1830 154pp.
Vol. 2: May 19, 1830 – March 29, 1842 151pp.
Vol. 3: April 4, 1842 – June 22, 1848 162pp.
Vol. 4: June 24, 1848 – June 14, 1852 173pp.

The year 1818 is considered retrospectively, the dating of the early years requires considerable care, and there are far more entries in the Journal for the London period in Mantell's life (post – 1838) than there are for all his time in Lewes and Brighton.

In 1927 Sidney Spokes published the first biography of Gideon Mantell, and seems also to have been the first to comment upon this newly-available documentary goldmine. In the August 1936 issue of Sussex Notes and Queries (Vol. 6), he remarked that (76): 'it was Dr Eliot Curwen who conceived the idea of asking for a full typescript of the whole of [Mantell's] Journal, in 4 volumes, to be made at his own expense. He also had them well-bound' – so we now know who to thank in full measure: it was Dr Curwen's idea, and, moreover, his expenditure. Spokes continued, with the significant assertion, which I have italicised: '*they now represent the only complete copy in this country, so far is known*'. He also provided sample entries from Mantell's Journal for 6 September 1820, 20 June 1827 and April 1830, all early, when Mantell was still resident in Lewes.

Two years later, in 1938, Cecil Curwen, Eliot's son, published extracts from these volumised transcripts of Mantell's Journal in 12 monthly issues of the general-interest, widely-circulated Sussex County Magazine (Vol. 12, 1938). In his Introduction, in the January issue, he wrote that (20): 'for most readers, Mantell's Journal will be interesting on account of his comments on the times in which he lived and his pictures of everyday life in Sussex in the early 19th century'. These well-illustrated monthly excerpts were chosen with a particular readership in mind, one that was more interested in Mantell as a personality of his time and place, in Sussex and elsewhere, than in Mantell the pioneer geologist and palaeontologist. Cecil Curwen was quite open and clear about this when he informs his readers that (21): 'the selections have been chosen from a vast mass of material, with a two-fold purpose: to provide characteristic glimpses of life in Sussex about a century ago from the pen of a contemporary observer; and to illustrate the life and development of a

great Sussex worthy, who remained a son of Sussex even though, in later years, he lived in London'. So, be advised that these extensive extracts have a particular emphasis and purpose, more to do with the history of Sussex and a man of Sussex than the History of Geology per se.

In 1940 Oxford University Press published The Journal of Gideon Mantell, edited and abridged by Cecil Curwen, who wrote, in the Introduction (v-vi), that: 'between 1818 and 1852 Mantell kept a Journal in which he entered some of his activities and experiences, flavoured with delightful descriptions, candid opinions, and a few [choice] comments on current events'. He then proceeds to claim that the transcript obtained by his father and now preserved in the Sussex Archaeological Society Library in Lewes was '*the only complete copy of the Journal in this country*' (my italics).

Furthermore, Cecil Curwen unashamedly admits to severely editing this transcript for publication: 'this typescript has been used as the basis of the abridged form of the Journal which appears in this publication, and *which amounts to a little more than half of the original*' (my italics). The amount of abridgement can clearly be gauged by the pencil parentheses down the left-hand margin of the typescript, indicating material for deletion. Curwen does at least provide a raison d'être for such deletions (vi): 'In making this abridgement I have endeavoured to preserve the essential interest of the Journal, while omitting such details and lists of correspondents, or of calls made and received, bald statements of commonplace happenings, and other recurrent features of little interest', but, in deciding what to delete and what to publish, it soon becomes clear where Cecil Curwen's intellectual interests lay. He was first and foremost an archaeologist, and was less cognisant of Mantell's geological obsession and palaeontological propensities. This published volume is, therefore, only a pale imitation of the real thing. Despite all its defects, it is all that is still readily available, so it is often used as a (reliable?) source for reference and quotation. At the time of its initial wartime publication, it could be purchased for the princely sum of 12/6d!

Towards the beginning of his favourable review in the Sussex County Magazine (Vol. 14 1940, 93-94), Lord Ponsonby, who, apparently, had actively encouraged Dr Curwen to acquire the transcript, wrote that (93): 'Mr Cecil Curwen has added one more to the list of Sussex diarists. In response to the appreciation expressed by many who read the extracts he recently contributed to this magazine, he wisely decided to publish in a volume a fuller version of the Journal of Gideon Mantell derived from the transcript copy of the original manuscript, which was taken to New Zealand by Mantell's [elder] son, Walter, and is preserved at the Turnbull Library, at Wellington. Even so, this volume comprises only about a half of the original journal'. In that version of events, the Curwen book was considered to be simply a response to the palpable interest generated by previously-published extracts. Again, it was seen primarily as another Sussex chronicle and archive. Notice the phrase 'derived from', and the acknowledgement that it represents only a moiety of the whole. Also, close comparison reveals that these excerpts, in the periodical and in the published volume, are not always the same, perhaps in response to a national rather than regional market. Some are in one and not the other; many are in both, but it is worth checking both sets of excerpts for specific material.

And there the matter rested for some 40 years, until the early 1980's, when an important discovery was made: Mantell's lost journal for the period after the last date

in the transcript. In her article in the Turnbull Library Record (16, 1983, 77-94) Sharon Dell explained the circumstances before providing a complete transcription of the record of those last days and months in Mantell's life. She first goes over old ground, relating that the Mantell Family Papers at the Alexander Turnbull Library, Wellington, New Zealand were 'known to, but not used by Mantell's biographer, Sidney Spokes [in 1927], and in 1940 E. C. [Cecil] Curwen edited and published a greatly-abridged version of Mantell's journal, from typescripts of the 4 known manuscript journals supplied by the then Turnbull Librarian. The last entry in that Volume is for 14 June 1852; until now we have had to rely on Mantell's voluminous and intimate correspondence with Professor Benjamin Silliman, of Yale University, for information on the remaining 6 months of his life'. She then continues, with the wonderful news that 'it was perhaps not surprising to find, on closer examination of Reginald Mantell's papers, that a volume assigned to, and in fact principally used by him, also contained the last 6 months of Gideon's Journal. It is physically uniform with his other volumes, and it is evident that Reginald used its unused pages, whilst at leisure in India, to write up his own account of the weeks he spent in London sorting and organising his father's estate; it thus constitutes Vol. 5 of Gideon's Journal and Vol. 8 of Reginald's'. The Journal runs from 14 June to 8 November, 1852, only 2 days before Gideon Mantell's demise, is illustrated with two splendid original lithographs from The Illustrated London News, and, in Sharon Dell's own words, 'is transcribed without alteration or editorial comment'.

According to the British Union Catalogue of Periodicals, the only library in the U.K. with holdings of the somewhat-obscure Turnbull Library Record is the British Library, so I was not very hopeful when I put in an interlibrary-loan request for a copy of Sharon Dell's article. I was, therefore, extremely surprised and delighted when one was forwarded by this means without undue delay. After long and careful perusal, I passed it onto the Sussex Archaeological Society Library in Lewes, who were only to pleased to add it to their transcribed Volumes, which means that they now possess the complete unexpurgated Journal of Gideon Mantell, from his very first to his very last entry. They are perhaps the only British library to do so– unless, of course, you know otherwise!

There followed another time-lapse, of 15 years this time, until the late 1990's, when Dennis Dean authored two important books about Gideon Mantell. His biography of Gideon Mantell, published by Cambridge University Press in 1998, was the first to make full use of Mantell's Journal in its entirety, not from any previously-published source but actually from the original documents at the Turnbull Library (see the Figure, top). Certain comments in his Acknowledgements are pertinent, and also revealing in the italicised aspects (ix): 'Thereafter [post-1818] I extract many specifics from his private journal, the original of which is at the ATL. Cecil Curwen's still-helpful edition of that Journal (1940), derived from an *incomplete, sometimes faulty* typescript commissioned by his father, of which Curwen published less than half. The final pages of Mantell's Journal were not included in the typescript, and *came to light only in 1982 when I discovered them* among his son Reginald's papers at the Turnbull'. That is the first indication that the transcription is in any way defective. Also, according to this perception of history, Vol. 5 was discovered by Dean, and transcribed and published by Dell, which is slightly curious. Dean refers to and quotes from the manuscript Journals throughout this evocative biography, starting with a quotation from 23 June 1819 (37) and footnote references to January-April 1819 (38).

The following year Dennis Dean published a supporting volume which featured his extensive Bibliography of works by Mantell, plus a series of Supplementary Essays on further aspects of this remarkable pioneer geologist. Although there are extensive Notes to these Supplementary Essays, it is beyond annoying that there is no Index to this expensive book. There is a nasty similarity here, because there is no index to the transcribed Volumes of Mantell's Journal either. This creates a major problem of locating specific material without knowing a date, or at least, a month; otherwise, it can be a very tiresome and dispiriting job trying to find anything! Mantell's Journal appears as no. 32 in this Bibliography (see the Figure, bottom), and Dean again states that Vol. 5 was 'discovered by me in 1982'.

One of the Supplementary Essays is directly concerned with 'Gideon's Journal' (123 – 51 and 265 – 67). It remains the only commentary on the Journal so far published, and provides an exegesis of the Journal as a historical document, although most of the analytical treatment relates only to the first Volume, i.e. to the 1820's. There is no doubt that Dean praises Mantell's Journal as 'the fullest, most candid self-revelation we have for any early 19th century British geologist or surgeon' (125), but then, a little later, complains that (126): 'sadly, innumerable details one would like to have were never written down; others subsequently disappeared, having been obliterated or destroyed [by Walter Mantell]. Even so, the maimed but still copious narrative remaining deservedly ranks high among the great diaries of its era'. Even Dean has to concede that this personal chronicle, although 'maimed but still copious', nevertheless has immense historical value.

The first of the 'Notes' to this essay is also most interesting (265): 'Gideon's manuscript journal (ATL) comprises 4 volumes and part of a 5th. A generally- reliable typescript of the first 4 Volumes (*copies at ATL, Oxford, Lewes and elsewhere*) but is sometimes misleading in that it fails to acknowledge significant deletions. Though based solely on that typescript, Curwen's edition of Gideon's Journal includes many of the more important entries and is still worth consulting'. Dean describes the transcript as 'generally-reliable' but 'sometimes misleading because it fails to acknowledge significant deletions' from the codex. Only an extra- vigilant comparison between manuscript and transcript would reveal any such 'significant deletions' in the latter, which immediately raises the awkward corollary of when, by whom and why. The only person to have had the opportunity, with the necessary knowledge, to realise that there were any such discrepancies seems to have been Dennis Dean. He then proceeds to assert that Curwen's semi-abridgement of what apparently is a defective transcript is still worth consulting!

Two recent publications that have been more than happy to make good use of the 4 transcribed Volumes of Mantell's Journal, defective or not, at the Sussex Archaeological Society Library in Lewes are Deborah Cadbury's best-selling The Dinosaur Hunters (2000, paperback 2002), and John Thackray's To See the Fellows Fight (2003) – the one the story of a bitter scientific rivalry, the other eye-witness accounts of early meetings of The Geological Society, both enhanced and enlightened by Gideon Mantell's acerbic comments about people and events.

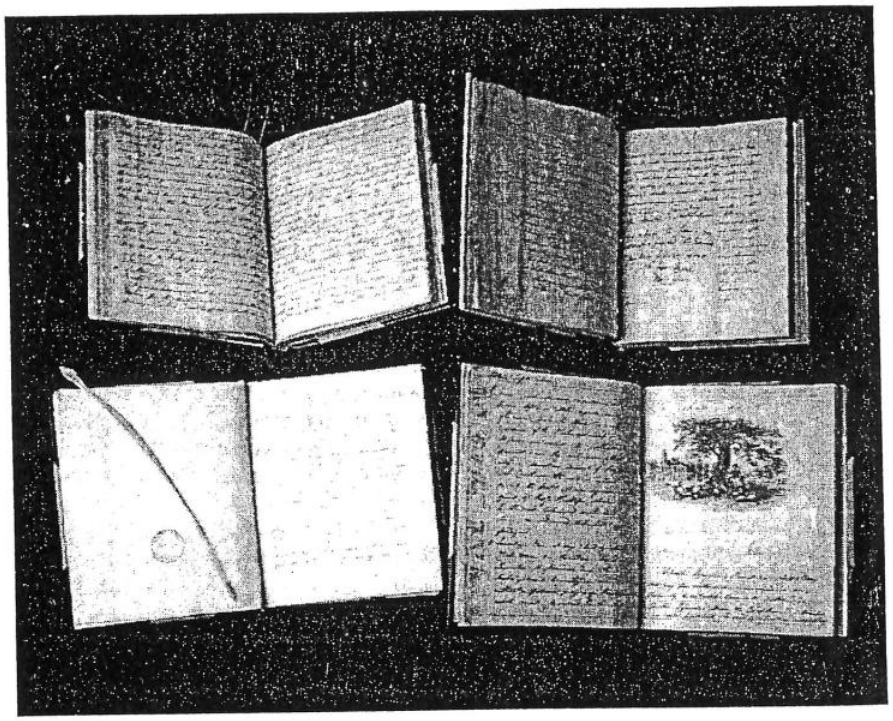
And finally, we come to the search for the unknown, as in algebra, only it relates, in this instance, to the whereabouts of duplicates of the 4 Volumes of the 1935 transcript of Mantell's Journal. Dean ends his entry for the Journal in his bibliography of Mantell's work with the wonderfully-enigmatic phrase 'and copies elsewhere'. In

Dennis Dean

Gideon Algernon Mantell:

A Bibliography with Supplementary Essays 1998

Montage, p. 124: No. 32, p. 49



Gideon Mantell's Journal (Alexander Turnbull Library, Wellington, New Zealand), 1819–1852, in four volumes (and part of a fifth, not shown). Top left: Volume IV, showing 2–11 October 1849. Top right, Volume II, showing 24–25 June 1832 and Mantell's note of introduction to the Bristol Institution. Bottom left: Volume I, showing the initial entry (1:00 a.m., 1 January 1819), a dedicatory letter addressed to his then only child, Ellen Maria, for whom the journal was originally begun. Bottom right: Volume III, open at 7–28 September 1844 and showing a lithograph of Clapham Common.

32. Journal. Manuscript: Lewes, Brighton, Clapham, and London, 1 January 1819 (with retrospective entries to 1818) – 8 November 1852. 5 vols. Alexander Turnbull Library. Vol. I, 284 pp. (23 × 18 cm), addressed to daughter Ellen Maria; II, 328 pp. (23 × 18 cm), dedicated to son Reginald; III, 284 pp. (25 × 20 cm), labeled "Private Memoranda / April 1842 / Clapham Common"; IV, 254 pp. (23 × 18 cm), untitled. Vols. I-IV have been rebound with black leather spines and grey buckram boards; occasional items are tipped in, and some passages have been deleted or torn out. Vol. V, 30 pp. (GAM), 172 pp. (RNM) (23 × 13 cm, dark green spine with marbled boards), "Private." Typescript of vols. I - IV, Alexander Turnbull Library, with copies elsewhere.

addition, in Note 1 to his essay on Mantell's Journal, he claims that there are 'copies at ATL, Oxford, Lewes and elsewhere' – but Where, exactly? Such indeterminate and imprecise locations are extremely annoying. So, my query is really very simple: apart from the SAS Library in Lewes, which other British libraries hold copies of the transcript of the Journal of Gideon Mantell, in 4 volumes, from 1819 to June 1852? I could list the most likely places, but would dearly love confirmation, by email to anthony@anthonybrook.wanadoo.co.uk. Such tantalising phrases as 'and copies elsewhere' should be consigned to the ocean depths.

A prognostication to end with: transference of the transcript to CD-ROM, in this digital age, would enable even more historians to enter the private world of Dr Gideon Mantell, and be yet another manifestation of Mantell's Journal.

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HAFNER PUBLISHING COMPANY

Stuart Baldwin

During the 1960s and 1970s the Hafner Publishing Company Inc. of New York and London, produced a number of books of interest to Historians of Geology. Under the general editorship of George W. White, Research Professor of Geology at the University of Illinois, a series called Contributions to the History of Geology was produced of which I have so far tracked down Volumes 1 through 9 in my own library. Though in some cases the emphasis is on American Geology, the rest are of universal interest.

In addition to this series I have found six other relevant titles and all 15 are listed below in date-of-publication-order. Where descriptions are available (mainly on dust jackets) these have been included. If there are any other Hafner books on the history of geology, not mentioned I would be very interested to hear about them. In addition I only have dust jackets on Vols. 1-4 of the Contributions and none of the other 9 in the list. If anyone has dust jackets on these others, a photocopy would be very much appreciated please. It would also be of interest to know what happened to the Hafner Publishing Co - did they go out of business or were they taken over by someone such as Arno Press? I have done internet searches but with little success so far.

1. Merrill, George. P: ***The First One Hundred Years of American Geology***: Hafner Publishing Company, New York and London, 1964, reprint of 1924 edition. Hardback.

2. Agassiz, Louis translated and edited by Albert V. Carozzi: ***Studies on Glaciers preceded by the Discourse of Neuchatel:*** Hafner Publishing Company, New York and London, 1967. Reprint of his presidential address given at the opening session of the meeting of the Societe Helvetique des Sciences Naturelles, at Neuchatel, July 24, 1837 and of his Studies, 1840.

3. Perrault, Pierre with LaRocque, A. (Transl.): 1967. ***On the Origin of Springs***: New York and London, Hafner Publishing Company Inc. Hardback.

4. Bruce, Archibald with Greene, John C. (Intro.) & White, George, W. (Foreword): 1968. ***The American Mineralogical Journal***: Vol. 1 (facsimile of the 1814 ed.) _ Contributions to the History of Geology Vol. 1, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. The first American publication designed primarily for geologists and mineralogists. Almost all the American workers in geology and mineralogy contributed to the Journal, and thus this volume is a directory of those active in the period 1810_1814. The introduction by Professor John C. Greene deals with the origin, progress and ending of the journal. His account of Dr. Bruce includes much new biographical material on this early American scientist.

5. Steno, Nicolaus, with Winter, J. G. (Intro. & notes); Hobbs, W. H. (Foreword) & White, George, W. (Intro.): 1968. ***The Prodomus of Nicholaus Steno's Dissertation Concerning a Solid Body enclosed by Process of Nature within a Solid***: Vol. 3 (facsimile of vol. XI, pt. 2, 1916.) _ Contributions to the History of Geology Vol. 4, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. One of the greatest landmarks in the history of geology. Although best known for his discovery of the fundamental law of crystallography, it is also a pioneer work in palaeontology, stratigraphy and geology.

6. Volney, C. F. with Brown, C. B. (Transl.) & White, George, W. (Intro.): 1968. ***A View of the Soil and Climate of the United States of America:*** Vol. 2 (facsimile of the Philadelphia 1804 ed.) _ Contributions to the History of Geology Vol. 2, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. This is the earliest connected account in English of the geology of the United States. Volney had already published acute observations on the geology of Egypt and Asia Minor. He based his American work on his own observations and on extensive information from S. L. Mitchill, William Bartram and other Americans. His fossils were studied by Lamarck. The map is of geological importance and the sections are the earliest for America. The work also includes the first extensive report on the climatology of America.

7. Featherstonhaugh, G. W. with White, George, W. (Intro.): 1969. ***The Monthly American Journal of Geology and Natural Science***: Vol. 3 (facsimile of the 1831_32 ed.) _ Contributions to the History of Geology Vol. 3, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. The Monthly American Journal of Geology and Natural Science contains much more of importance in American geology and history than is indicated by its 576 pages in 12 numbers, making up this single volume. It presents almost an instantaneous cross_section of the knowledge of geology and the attitude toward it by a considerable body of men in the Philadelphia area in 1831_32 and provides an interesting contrast to attitudes in some other parts of the country. Each number contains reviews which give opinions of the time about the geological ideas expressed. Some of the reviews are intensely personal and some of them are from a standpoint quite different from the reviews of the same works appearing in some other better known and hitherto more accessible journals. Colonel George Croghan's journal of 1765, a classic of early western history, was first printed in this volume.

8. Hutton, James with Eyles, V. A. (Intro.) & White, George, W. (Foreword): 1970. ***System of the Earth, 1785; Theory of the Earth, 1788; Observations on Granite, 1794; together with Playfair's Biography of Hutton:*** (facsimiles) _ Contributions to the History of Geology Vol. 5, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. James Hutton, 1785. Abstract of a Dissertation read in the Royal Society of Edinburgh, upon the 7th March and 4th April 1785, concerning the System of the Earth, its Duration and Stability, 30 pages. James Hutton, 1788. Theory of the Earth; or an nvestigation of the Laws observable in the Composition, Dissolution and Restoration of Land upon the Globe. Transactions of the Royal Society of Edinburgh, vol. I, part II, pp. 209_304, pls. I & II. James Hutton, 1794. Observations on Granite. Transactions of the Royal Society of

Ebinburgh, vol. III, part II, pp. 77_81. John Playfair, 1805. Biographical account of the late James Hutton, FRS. Edinburgh, Transactions of the Royal Society of Edinburgh, vol. V, part III, pp. 39_99.

9. Raspe, Rudolf. E with Iversen, A. N. & Carozzi, A. V. (Eds. & Transls.): 1970. ***An Introduction to the Natural History of the Terresterial Sphere: Principally concerning New Islands born from the Sea and Hooke's Hypothesis of the Earth on the Origin of Mountains and Petrified Bodies:*** New York and London, Hafner Publishing Company Inc. Hardback. Includes a facsimile of the 1763 edition.

10. Thomas, David with Wells, J. W. (Intro.) & White, George, W. (Foreword): 1970. ***Travels Through the Western Country in the Summer of 1816:*** (facsimile of the 1819 ed.) _ Contributions to the History of Geology Vol. 6, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. David Thomas's Diary, with his 'Additional notes of the Western Country' and 'Supplement'. Also 'Notes on Thomas's Geological Observations' by John W. Wells and George W. White.

11. Cayeux, Lucien with Carozzi, A. V. (Ed. & Transl.): 1971. ***Past and Present Causes in Geology:*** New York and London, Hafner Publishing Company Inc. Hardback.

12. Werner, Abraham G. with Ospovat, A. M. (Transl. and Intro.): 1971. ***Short Classification and Description of the Various Rocks:*** Translation and facsimile of original text (1786) in juxtaposition; New York and London, Hafner Publishing Company Inc. Hardback.

13. Boyle, Robert with Hagner, A. F. (Intro.) & White, George, W. (Foreword): 1972. ***An Essay About the Origine and Virtues of Gems:*** (facsimile of the 1672 ed.) _ Contributions to the History of Geology Vol. 7, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. Many books on gems had appeared earlier than this, but they were only lapidaries. Boyle's book is far more than another book on the lore of gems, indeed, it is not a lapidary at all, but is a book on mineral and crystal chemistry. This book is more inclusive than the title implies for it is about many other kinds of crystallised minerals as well as gems.

14. Schopf, Johann D. with Spieker, E. M. (Annotator & Transl.) & White, George, W. (Foreword): 1972. ***Geology of Eastern North America: an annotated translation of Beytrage zur Mineralogischem Kenntniss des Ostlichen Theils von Nord_Amerika und seiner Geburge, 1787*** _ Contributions to the History of Geology Vol. 8, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. Contains a facsimile reprint of the original German text. This first book on American geology is a perceptive record of geological observations, together with an attempt to explain the origin of many of the geological features. Schopf's book is an outstanding example of pre_Wernerian and pre_Huttonian geology, and as such is important not only to American geologists, but also to historians of geology in general.

15. Jameson, Robert with Sweet. J. M. (Intro.) & White, George, W. (Foreword): 1976. ***The Wernerian Theory of the Neptunian Origin of Rocks: A facsimile reprint of 'Elements of Geognosy', 1808.*** _ Contributions to the History of Geology Vol. 8, edited by George G. White; New York and London, Hafner Publishing Company Inc. Hardback. This volume is the most detailed statement in English of Werner's system of rock classification and of his theory of origin of the rocks of the earth's crust. This theory was the 'Neptunist' theory, in contrast to the 'Plutonist' theory of Hutton and his supporters. It was through this volume that Werner's ideas were disseminated to the English_speaking world on both sides of the Atlantic, and more or less exact quotations from this volume may be found in the works of more than one writer.
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