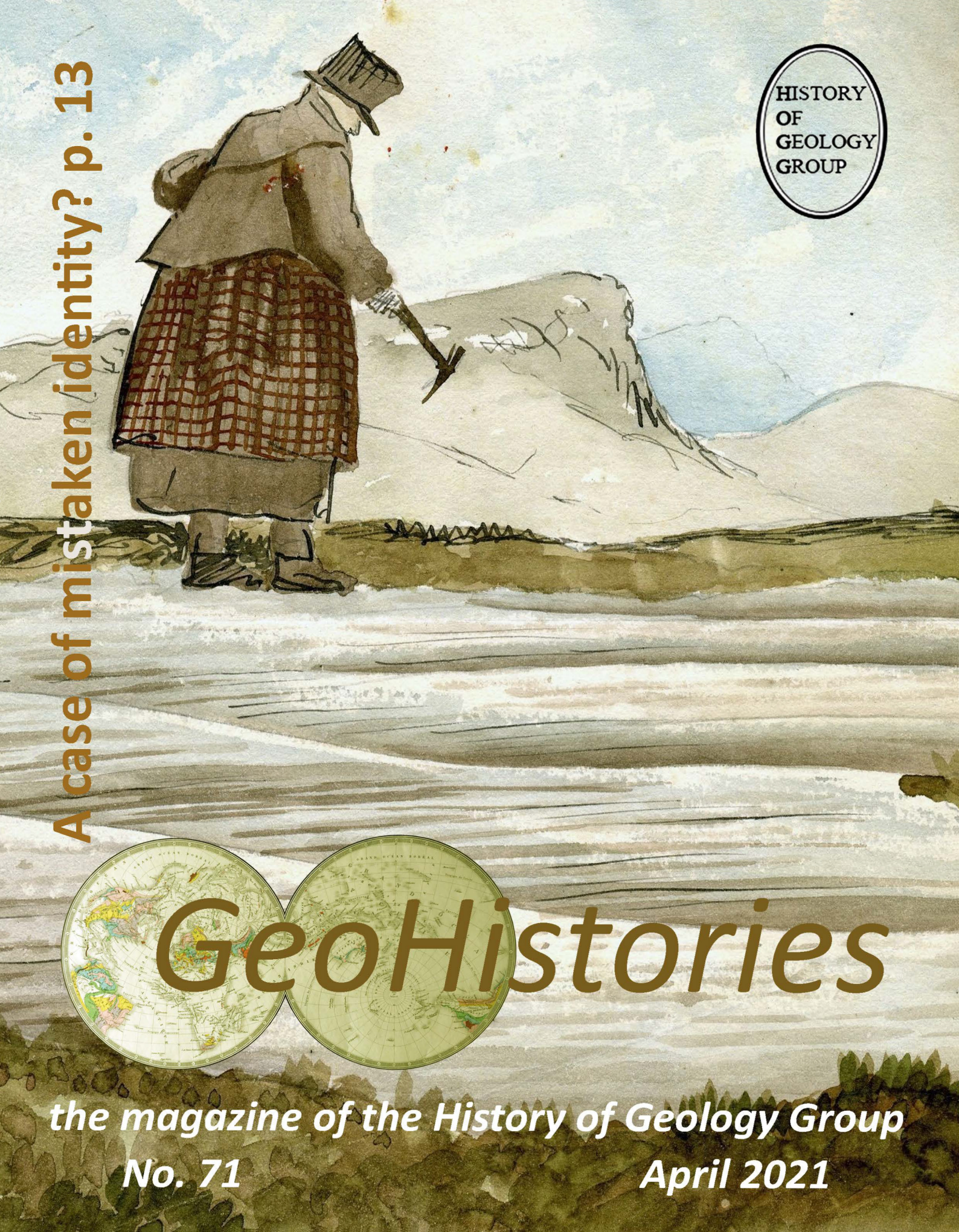
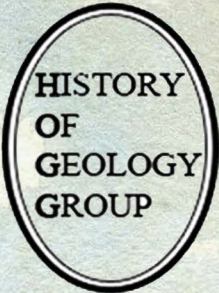


A case of mistaken identity? p. 13



GeoHistories

the magazine of the History of Geology Group

No. 71

April 2021

Contents

Comment from the Chair	3
2020 Secretary's Report	3
2020 Accounts	4
Committee News	5
Member News	6
Recent Meetings	
Brunel the Geologist Richard Porter	7
Hospitals & Geology in the Crimea Beverly Bergman & Vivienne Kendall	9
William Buckland: Glacial Impressions Duncan Hawley, Tom Sharpe & Susan Newell	11
Reviews	
<i>Ammonite</i> (Film) Dir. Francis Lee	17
<i>Caves, Coprolites & Catastrophes</i> Allan Chapman	18
<i>Strata</i> Peter Wigley et al	19
<i>The Fossil Woman</i> Tom Sharpe	20
Members' Notes	
Lost Books – a History (pt. 1) Hugh Torrens	21
Wm. Smith in Norfolk Peter Riches	21
Features	
The Cabinet of Curiosities Patrick Boylan	22
A HoG's Life Martin Rudwick	24
Tailings... Nina Morgan	26
Future Programme	28

Editorial Introduction

Welcome to *GeoHistories*, HOGG's magazine.

Over the past year, like all organisations, HOGG has had to develop new ways of working. One benefit of 'going virtual' for a time has been a greater participation in our meetings. We hope our new magazine venture reflects this increased activity and will further encourage HOGG members to share their projects and interests, and so build an even more vibrant history of geology community in the future.

For many members the Newsletter has always been the main point of contact, providing news related to the history of geology. Much of this time-critical information will now be distributed through the regular 'Bulletins', leaving *GeoHistories* to carry fuller accounts of meetings, with more space for notes, comment and discussion on the activities and enthusiasms of the members themselves.

The name, *GeoHistories*, was chosen to reflect the ever provisional nature of our understandings of the Earth as well as the second-order nature of our discipline: the *history* of an *historical* science. The geological map behind the name reflects these themes: published in 1875, it takes its geology from Jules Marcou's 1861 'Carte Geologique de la Terre', the second ever world geological map, with great areas left blank due to Marcou's insistence that only known geological facts should be printed.

As to the magazine itself, we have tried to develop a recognisable style and design in keeping with modern standards of inclusivity. Author guidelines are being established regarding article length and style for text and best practice concerning permissions and copyright for images.

This first issue is very much a 'trial run'. Please dip into its pages and let us know what you think; or better, suggest ideas for future issues. Even better, write something about your own interests, project or work. Your piece does not need to be long. In fact, we might all do well to heed WH Fitton's advice:

I shall exhort all contributions to the Geolog. Transactions – to be ... as short as possible. ... authors greatly advance their own reputation by such brevity. Dr. Wollaston's papers, have, all, that characteristic – and the effect is that they gain upon acquaintance – the weight of each sentence being such that repeated study of them brings out new light.

[Fitton to Buckland, 16 Feb. 1822, Peter Riches Collection]

I should therefore stop. But not before I thank all those who have already contributed so willingly to this first issue of *GeoHistories* (numbered 71 to maintain continuity with the Newsletter). I cannot pretend to be other than delighted that three well-respected 'seasoned campaigners' of the Group, Professors Boylan, Rudwick and Torrens have felt able to support this initiative. But it is a work-in-progress, and the support and participation of all members, ranging from 'novice' to 'expert' in their levels of knowledge and experience, will be essential to its future development.

Finally, I must acknowledge the help and support received from the Committee and others. In particular I thank Consuelo Sendino, whose DTP skills and advice have been indispensable and Andrew Hopkins, for taking on the Bulletin. I am also ever-thankful to Beris Cox, whose patient help and advice to her successor has been unfailingly valuable. I am very grateful to them all.

Peter Lincoln
hoggnewsletter@gmail.com



In the official clip from the recently released film *Ammonite* a gentleman (Murchison) enters Mary Anning’s shop announcing “I have often heard your reputation discussed in the Geographical Society in London.” I must admit I found it irksome; for Murchison’s first encounter with Mary Anning was in 1825 and the Geographical Society (later becoming the Royal Geographical Society) was not founded until 1830! And more, Charlotte Murchison seems to be portrayed as a weak character, inexperienced in geology and in thrall to husband Roderick, when we know this was not the case. This is not the first time with tales of Mary Anning that ‘the willing suspension of disbelief for the moment’ (as Samuel Taylor Coleridge put it), has been necessary. The novel *Remarkable Creatures* (Tracy Chevalier, 2009) has Mary romantically linked with Colonel Birch - who is portrayed as a cad. In

fact there was no romance and Birch was very much a philanthropist. In *Curiosity: a love story* (Joan Thomas, 2010) Mary engages in a romantic dalliance with De la Beche, but – once again – there is no evidence to support this.

There is nothing wrong with watching a film like *Ammonite* or reading such novels as enjoyable works of period fiction, and they undoubtedly raise public consciousness over some of the ways in which geological knowledge was ‘discovered’. But it is dangerous when these romanticised stories become lodged in the minds of the general public as historically accurate accounts of the contexts and processes by which geology has developed. It invariably leads to ill-informed prejudice rather than proportioned pride about our geo-historical heritage.

HOGG, and this magazine, clearly have an educative role to play.

Now... don’t get me started on the melodrama that is Simon Winchester’s *The Map that Changed the World!*

Duncan Hawley
duncan.hawley.hogg@gmail.com

AGM November 2020 – Secretary’s Report

Due to restrictions caused by the Covid-19 pandemic the 2020 AGM was held on 20th November by Zoom.

The group’s secretary, John Henry, outlined the year’s activity in his report.

Secretary’s Annual Report 2020

Meetings:

The meetings programme has been severely curtailed by the outbreak of the COVID-19 pandemic and the resulting public health restrictions.

The three meetings planned for this year have all been postponed due to the COVID-19 pandemic. It is planned to re-schedule all three.

- Conference on the bicentenary of the publication of the *Geological Map of England and Wales* by George Bellas Greenough.
- Field meeting on the centenary of the publication of Edward Greenly’s exemplary Geological Map of Anglesey.
- Symposium on Archibald Geikie; jointly organised with Haslemere Educational Museum.

One relatively well-attended and successful online meeting was held on 7th July on the theme of ‘Geologists responding to crises’. Three 10 minute talks were given.

1. Peter Lincoln on ‘William Buckland – sermonising on the cholera outbreak (1849)’
2. Duncan Hawley on ‘W.G Fearnside: geologist on the home front in WW1, finding resources in a time of crisis’.
3. John Mather on ‘All hands to the pump – the Geological Survey’s response to the outbreak of World War II’.

The AGM, was held online in November when Dr Richard Porter spoke on ‘Brunel: the geologist.’

Membership

HOGG currently has 164 members, of whom 7 joined this year, including the first young member. A small but increasing number of members do not have backgrounds in geology; this diversity of interest in the history of geology is to be encouraged. The Committee discussed the issue of recruitment but no clear strategy has yet emerged.

Membership records have been up-dated, distinguishing members from non-members on the JISC-mailing list. Now only HOGG members will get the full benefits of their subscriptions – the Newsletter and access to restricted parts of the HOGG website.

Committee Business

Committee met four times over the year (January, April, June, and September). The April meeting, (100th) was conducted by email. Subsequent meetings moved online. An issue with PayPal has frozen the HOGG account. As neither a charity nor a business, HOGG was considered a possible money laundering case. Despite HOGG's compliance with all requests for proofs and documentation the issue has yet to be resolved. Efforts will escalate to secure the release of our funds. [This issue has since been resolved.]

The role of Vice-Chairperson has been vacant for this year. We welcomed Sarah Scott, from the Geological Society's Council as a new GS representative. Peter Riches resigned as Treasurer during the year but was subsequently in a position to resume his role and so, in a welcome move, has been co-opted back onto the Committee.

Three HOGG Committee members are completing from their term of office; John Henry, Beris Cox and Nina Morgan and we are very grateful for the service they have offered to HOGG over the last three years, and in all three cases for previous periods also.

John is retiring as Secretary to HOGG. He has served on the HOGG Committee for eight of the past nine years, and was Chairperson from 2012-2015. Beris has served HOGG faithfully for many of its twenty-five years to date, as Newsletter editor for the last twelve years plus spells as Treasurer and Membership Secretary. Her wise counsel based on experience and 'insider' knowledge will be sorely missed. Beris deserves the grateful thanks of all HOGG members. Nina has been an active promoter of wider interest in the history of geology through her monthly 'Distant Thunder' articles in *Geoscientist*, editing *Ericdotes*, and oral history interviews. Nina has brought energy in thinking how we might make the history of geology more accessible through partnering with other organisations, especially via collaborative meetings.

Online activity and Social Media

There have been additions to the website. The home page now has scrolling images illustrating the history of geology more widely, including women and geology in the 20th century. There is a link to Nina Morgan's 'Distant Thunder' articles in *Geoscientist*. A separate website 'History of Geology Project Papers and Notes' has been set up for members to share and display their knowledge, work and enthusiasms however humble or grand. At the time of writing, there are two contributions: Roy McyIntyre's paper on William Smith's map and an article on Griffith's 1853 geological map of Ireland by Duncan Hawley. <https://historyofgeology.science.blog/>.

The HOGG Twitter feed has 2,274 followers. Posts include a few original tweets but more often re-tweets of items of interest to HOGG members. Access by following @HOGG or via the HOGG website. Social media is an important part of our outreach and needs to be developed.

The HOGG page on the Geol. Soc.'s website has been updated. A 'History of Geology on the web' page listing links and sources about key geologists and their work will appear before the year is out.

Publications

The contributions to last year's meeting marking the centenary of the first female FGSs will be published as a Geol. Soc. Special Publication early next year, thanks to the efforts of editors Cynthia Burek and Bettie Higgs plus a team of HOGG reviewers.

HOGG financed the printing of '*Ericdotes*', a book of anecdotes about geologist Eric Robinson. Marketing and sales are now handed over to The Geologists' Association who are better placed to promote this booklet.

Other remarks

The Committee looks forward to a better year ahead, acknowledging the probable need to pursue activities via socially-distanced and online means. As a silver lining this may allow a greater level of participation. The Committee is always pleased to hear from members who can offer contributions.

Finally, my term as Secretary ends this year, formally on 31st December. I have enjoyed my time on the Committee, as committee member, Chairperson and finally Secretary. My support for HOGG will continue as an active member.

John Henry
HOGG Secretary

November 2020

Financial Statement

HOGG Financial Statement 2020			
Financial Year: 1 October 2019 to 30 th September 2020			
Income	£	Expenses	£
Subscriptions**	2165	Lyell Appeal (Edin. Univ.)	1000
Meeting registrations	390	York Meeting (October)*	815
<i>Ericdotes</i> sales	349	<i>Ericdotes</i> – product ⁿ & post	348
		Committee travel	318
		Mtg. organiser expenses	400
		Newsletter	143
		Paypal charges	23
Festival of geol. (GA)	75	GA Aaffiliation	40
Total Income	2979	Total expenses	3086
* York meeting surplus of £124			
**Paid up members 148			
Income minus Expenses -£108			
Bank Balances			
	30/09/2020	01-Oct-19	change
	£	£	£
Santander	3180	4374	-1194
Co-op	200	356	-156
Paypal	9430	8188	1242
Total	12810	1918	-108

P. Riches
Hon Treasurer

Committee News

HOGG Committee 2021

Duncan Hawley (**Chairperson**), Martina Tully (**Secretary**), Peter Riches (**Treasurer & Membership**)

Committee members: Cynthia Burek, Tim Carter, Jill Darrell, Steve Donovan, Andrew Hopkins (**Bulletin**), Cherry Lewis (**Website**), Peter Lincoln (**Newsletter**), Consuelo Sendino

At the 2020 AGM we thanked retiring HOGG committee members Beris Cox, John Henry and Nina Morgan and welcomed in their places:

Steve Donovan

Steve studied at the universities of Manchester (B.Sc.) and Liverpool (Ph.D., D.Sc.). He was formerly Professor of Palaeozoology at the University of the West Indies in Jamaica and returned to Europe to be Keeper of Palaeontology at the Natural History Museum (1998-2001).

Until recently he was a researcher at the Naturalis Biodiversity Centre in Leiden, but has now retired to Manchester. His research interests have included Palaeozoic crinoids and trace fossils, and Caribbean geology and its history. Steve edited *Jamaican Rock Stars 1823-1971: The Geologists who Explored Jamaica* (2010), a GSA Memoir.



Andrew Hopkins



Following a degree in Geology from Imperial in 1980, Andrew spent most of his career in the (largely fruitless) search for oil and gas. He has also lectured in geoscience, geography and general science in FE colleges and completed a part-time PhD on the seismic interpretation of Namibian contourites at Cardiff University. In 2014 Andrew began an MSc in the

History and Philosophy of Science at UCL, before joining a research project at the LSE looking at how narrative is employed in scientific practice. Andrew is currently an Hon. Research Associate in the Department of Science and Technology Studies at UCL. He is particularly interested in the history of ideas in geology, and in understanding how we reconstruct the past on the basis of the often meagre evidence available to us in the present. He has been a member of HOGG for about 5 years.

Consuelo Sendino

Consuelo comes originally from Madrid, Spain, where she worked at different institutions, having a significant background in collection digitisation and bioinformatics. Her education combines informatics and geology. After her PhD in 2008, she moved to London and started work at the



Natural History Museum, as a curator of palaeoinvertebrates. She is in charge of the core Fossil Historical Collections, made by Sir Hans Sloane (founder of the British Museum), Charles Koenig (first Keeper of Natural History and Modern Curiosities) and Thomas Pennant (an 18th century naturalist, antiquarian and collector) and fossil bryozoans, sponges and worms. She is particularly interested in women's contribution to the history of geology, and in highlighting historical collections, built by women, that have since been forgotten.

Martina Tully

Originally from Westmeath, Ireland, Martina completed her undergraduate degree in Geology at University College Cork. She went on to study at the University of Edinburgh, completing an MSc by Research, for which her project focused on volcanism on the island of Sumatra, Indonesia. Following graduation she worked in heritage tourism and volunteered extensively in collections and visitor engagement in the museum sector. This experience led to her appointment as Geological Collections Assistant at the British Antarctic Survey. Martina is currently the Assistant Curator at the Lapworth Museum of Geology at the University of Birmingham. She has a particular interest in the history of women in geology and the development of early geological maps.



Obituary

Matthew Parkes (1961-2020)

Matthew died unexpectedly on October 23rd 2020. There was an outpouring of sadness in the Irish geological community, as well as among his friends and colleagues in the UK. It seemed everyone knew Matthew – such was his support for anyone who needed his assistance, whether amateur or professional, individual or institution, national or international.



Matthew in Hepste Valley, 1993

(photo by Mike Simms)

Matthew was born in Hertfordshire, England. He studied Geology at Sheffield University, and obtained his PhD on Lower Palaeozoic palaeontology, from the National University of Ireland, Galway. His early career was as a Research Fellow in Trinity College Dublin, followed by employment with the National Museum of Wales and the Geological Survey of Ireland. He was awarded a Masters in Museum studies from Leicester University in 2001. Matthew's friends and colleagues were delighted when he landed what he called his dream job in the Natural History Division of the National Museum of Ireland in 2005. As curator of the national geological collections, Matthew continued to give his time to amateur and professional associations alike, working on committees such as Earth Science Ireland, and the Copper Coast Geopark. Matthew helped set standards of geological curation in museums across Ireland and in the UK, where he sat on the British Geological Survey's National Geological Repository Advisory Committee, and became Editor and later Chair of

the Geological Curator's Group. Professionally Matthew had an extensive list of achievements. He served as editor of the Irish Journal of Earth Sciences of the Royal Irish Academy, and completed the Geological Heritage survey of Ireland that listed sites of geoscientific importance.

Matthew co-convened the very successful joint GCG/HOGG Collectors, Collections and the Geology of SW Britain meeting held in Bath in September 2018 and when HOGG recently scoped a visit to Ireland, Matthew was the first to say he would assist.

Matthew had an active interest in many areas, particularly in caves and karst, and mining heritage. In 1996 he helped to set up the Mining History Society of Ireland, holding office continually as Secretary, Journal Editor and finally Chair of what became the Mining Heritage Trust of Ireland (MHTI) in 2000. He was Editor of the Speleological Union of Ireland and an active member of their cave rescue organisation.

Our paths crossed many times over the years, and it was consistently a pleasure to see his enthusiasm for his work. I remember I was with Matthew when he first saw the Valentia Island tetrapod trackway. His excitement led him to instigate public access to this site and thousands of people have since benefited. This relationship with the public and geoscience was typical of Matthew. The words on everyone's lips - a kind and gentle man, with a vast geological knowledge, who was good company, a friend and colleague. Matthew will be greatly missed by us all.

For more detail on Matthew's achievements see <https://tinyurl.com/kzznm59c>.

Bettie Higgs
B.Higgs@ucc.ie

Other News of Members

Cynthia Burek has been elected an honorary member of Quaternary Research for her contribution to geoconservation and Quaternary research. Cynthia has also been appointed to the UNESCO IGCP Science Board for expertise in geoheritage and geoconservation.

N.B *Celebrating 100 Years of female fellowship of the geological Society: Discovering Forgotten Histories*, GSL Special Publication No. 506, edited by **Cynthia Burek** and **Bettie Higgs** was published in March 2021.

Renee Clary of Mississippi State University, has just been elected President of The History of Earth Sciences Society and took up her post on 1 January.

Hugh Torrens has stepped down as Associate Editor (British geology, palaeontology and stratigraphy) of *Earth Sciences History* and is succeeded by **Tom Sharpe**.

I.K. Brunel: The Geologist

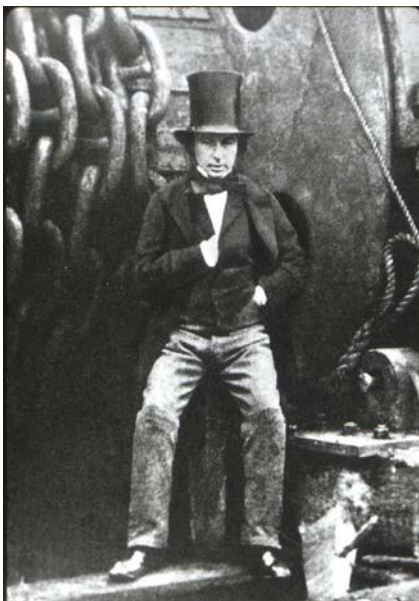
A talk given at the AGM in November 2020

Richard Porter

I.K. Brunel: The Geologist

In conclusion, I must observe that no man can be more sensible than I am of the great advantage it would be to a civil engineer to be better acquainted with geology, as well as with many other branches of science, that I have endeavoured to inform myself on the subject, and that I have not altogether thrown away the many opportunities afforded me in my professional pursuits.

Extract from Brunel's letter to 'an eminent geologist' (thought to be William Buckland) who doubted the safety of Box tunnel, written about a year after its opening in 1841, quoted in Brunel's autobiography.



'The Gentleman Geologist', Brunel by the launching chains of the Great Eastern 1857

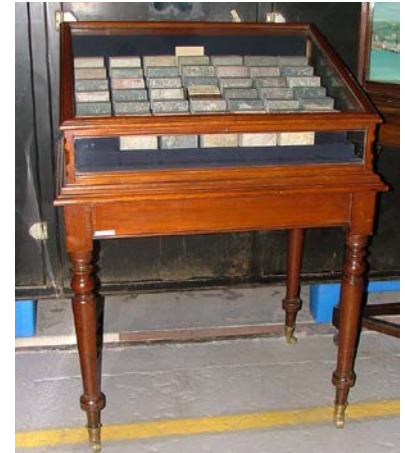
Having a long-standing fascination with the work of Isambard Kingdom Brunel, I have for many years collected quotes about and by the great engineer, and it was this quotation that first alerted me to Brunel's appreciation of the science of geology. Back in 1968 I had seen a rock collection bearing his name in the Great Western Museum at Swindon, but assumed that this was just a

collection of building stones used to illustrate the rock used in various parts of the Great Western Railway system.

Then, in 2005, I discovered a similar set of Brunel rocks at the National Railway Museum in York in a cabinet identical to the one seen 37 years earlier in Swindon. This raised the question: was this actually the same case that I had seen at Swindon in 1968, or was it a second cabinet? I assumed that it was the Swindon cabinet relocated to York.

By then the GWR Museum in Swindon had closed and a new museum had reopened in the old GWR Railway Workshops. When I visited this new Swindon museum, no cabinet of rocks was on display suggesting that the rock collection I had seen in York was indeed the one from Swindon, claimed as part of the National Railway Collection. Many of the items on display at Swindon were part of the National Collection centred in York.

However, I had found the York Brunel cabinet in their newly opened 'Store Room' and since Swindon had also opened its own 'Store Room Collection' I made a further visit and, sure enough, there was the original cabinet of rocks that I had seen in 1968. There were clearly two cabinets of rocks.



The York cabinet of rock specimens

It was now also clear that the two collections contained different suites of rocks. Further research at York suggested that the original labels, handwritten by Brunel, had been relabelled – from the style of the labelling probably in the 1960's.

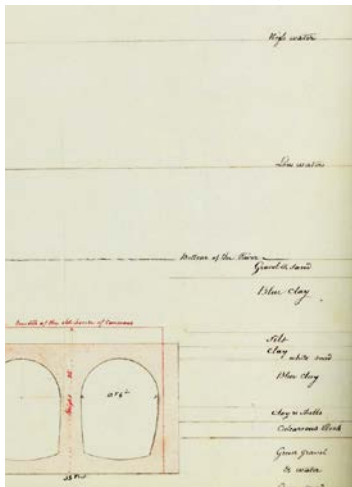


Close up of the Swindon collection

Thinking that the York collection had probably originated from the GWR Headquarters at Paddington I was pleased, at the HOGG AGM, to hear Patrick Boylan relate that when the New Museum of British Transport at Clapham was being gathered together, the newly appointed Director had visited all the main London terminus stations looking for interesting items. This makes it likely that the collection was re-labelled about this time.

Photographs of Brunel's offices in London show no sign of the rock cabinets, so more research is needed into the reasons for making the collections and their original display location. Are there any more such cabinets in existence? If there are, then perhaps the original offices of the GWR in Bristol might be a possible original location.

The next Brunel project I examined was the Thames Tunnel. Brunel's father, Marc, was the engineer for the project and he appointed Isambard at the young age of 19 to continue the work for him. Both must have had first-hand experience of the geology of the Thames river-bed and the sediments below. One coloured section of the tunnel and the ground through which it was driven details the geology in detail and it is quite clear from the description that this is the London Clay.



Drawing by Marc Brunel of the Thames Tunnel, describing the London Clay

After the Thames Tunnel, I.K. Brunel was selected to design a bridge over the Avon Gorge in Bristol. The Carboniferous Limestone on which the bridge piers sit would have again brought him into close association with the underlying rocks.

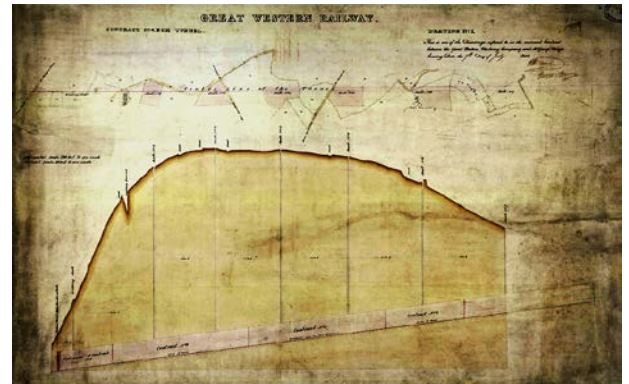


Avon Gorge Suspension Bridge showing the Carboniferous Limestone supporting the piers

Brunel's appointment as Engineer to the Great Western Railway from London to Bristol gave him further opportunity for geological study. One major geological obstacle was Box Hill to the east of Bath. Brunel considered a tunnel to be the only solution and sunk many exploratory shafts (what we would call boreholes) to determine the nature of the underlying rock.



The unlined interior of the tunnel lithograph by J C Bourne



Drawing showing a cross section of Box Tunnel and Brunel's exploratory 'shafts'

It was the Box Tunnel that brought Brunel to the attention of William Buckland. The tunnel was not lined with bricks as Brunel was confident that the rock was sufficiently strong to not need lining. However, Buckland thought otherwise, criticising civil engineers in general and Brunel in particular for not paying enough attention to the underlying geology. This led to Brunel's rebuff at the beginning of this account.

The disagreement cannot have harmed the relationship between the two men, as when Brunel was elected FGS in 1844, Buckland was happy to sign his nomination form with the comment 'from personal knowledge'.

We don't really know how much Marc Brunel appreciated the value of the new science of geology. He knew Humphry Davy, a founder member of the Geological Society, and his work on the Thames Tunnel would certainly have brought him into close contact with the sediments he was tunnelling through. But clearly the Tunnel project played a large part in introducing the young Isambard to the importance of geology. However, in the words of the author and traveller Charles Macfarlane, who had met both men:

'I had liked the son, but at our very first meeting I could not help feeling that his father far excelled him in unworldliness, genius and taste.'



The Brunel Family grave in Kensal Green Cemetery

One is left to wonder, what might the world have seen if Marc Brunel had been born some 50 years later? What might his genius have produced in Britain's Industrial Revolution?

Richard Porter
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[Unless otherwise indicated images are in the public domain or the author's own photographs.]

Geology and Hospital Planning: A Crimean War Map

Beverly Bergman
report by Vivienne Kendall

This HOGG talk, given by Dr Beverly Bergman in early February, revealed some fascinating and fundamental geological influences on public health and military engineering.

In the Crimean War (1854-56), the UK fought in alliance with France, Sardinia and the Ottoman Empire against Russia. The overland route to the Crimean Peninsula, on the north coast of the Black Sea, is through Russia so the only access and return for the allied troops was via the sea passage through the Dardanelles and the Bosphorus.



Crimea, 1856, showing the locations of Renkioi and Scutari
(Public domain)

The war cost some 22,000 British lives. Out of those, no more than 6,000 were lost through battle injuries, while the rest were due to diseases including cholera, dysentery and typhoid and the appalling living conditions. Only three days after the UK's declaration of war on Russia William Russell, war correspondent of *The Times*, wrote: 'What we have most to fear in an engagement is an enemy that musket or bayonet cannot meet or repel'.

Florence Nightingale had been sent with her nurses to care for the military wounded at the British hospital at Scutari, on the south-eastern shore of the Bosphorus. Hospital conditions were bleak – dark, damp and overcrowded.

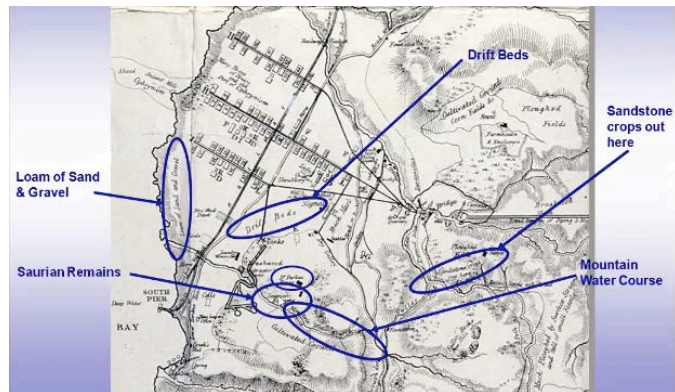


The British Hospital, Scutari. (Wellcome Collection CC BY 4.0)

At a time when there were no antibiotics, anaesthetics or modern surgical techniques, the most common treatment for shrapnel wounds to limbs was amputation; hopefully before infection and gangrene set in. Florence Nightingale wrote home that the hospital had 'almost four miles of beds here, and not an average of three limbs per man'.

In an attempt to improve the situation, the British Government commissioned Edmund Alexander Parkes, the young and brilliant professor of clinical medicine at University College London to set up and run a new hospital in the region. The prefabricated hospital, designed by Brunel and manufactured in England, could be shipped out, easily erected and put into service quickly. Parkes was accompanied in the venture by one of Brunel's engineers, John Brunton.

In locating the hospital, they determined that the site should be well-drained, reasonably flat and sheltered, with a good water supply, no local indigenous disease risk, and importantly, should have landing facilities for ships bringing the wounded from the battlefields. The site chosen was at Renkioi, on the SE shore of the Dardanelles.



Brunton's chart showing the hospital site (Wellcome Collection CC BY 4.0)

Brunton surveyed the site and included some geological observations: oolitic formation with lignite and a rock which he assessed as similar to the Kelloway formation of England (Middle Jurassic), and saurian fossils. However modern geological maps show that there is no Middle Jurassic within 100km of Renkioi – it is Miocene. This misunderstanding is at first surprising, since Brunton was an experienced railway engineer who would need to understand the underlying geology in order to build structures to withstand the weight of railway stock. But the Miocene had only been described some 20 years earlier by Charles Lyell, and there is very little Miocene in southern England where Brunton had been working. Brunton's description of fossils as Jurassic could easily have been a

misinterpretation of Miocene fossils in a poor state of preservation.

The map also noted geological features: sand and gravel, drift beds, a sandstone outcrop, and a source of fresh water for the holding tanks of the hospital.



Geological section of Well X. (Wellcome Collection CC BY 4.0)

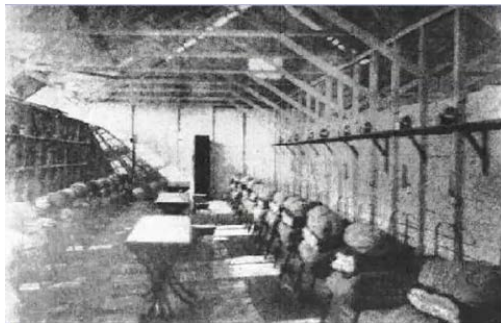
A geological section from one of the wells on the site was added later.

The hospital sections were delivered in 23 ships, and assembled by just 17 tradesmen with some local labourers but no mechanical help. Water closets were included – a pioneering introduction that would have been unknown to many of the soldiers. A horse-drawn railway was built to bring casualties from the landing stages.

The whole process was very efficient: with

Brunel's design completed in February 1855, the first shipload arriving in early May and construction starting later in May. By mid-July the hospital was ready to accept its first 300 patients, eventually expanding to be able to take 2,200.

Cross infection was almost unknown; whereas in Scutari hospital the corridors were interconnected, the Renkioi hospital was designed with separate huts and the wards were also light, airy and well ventilated.



Interior of a ward block at Renkioi hospital (Public Domain)

Renkioi also had an early form of air conditioning that was ahead of its time: fans blew air over sub-floor channels of water and then up through vents into the ward.

The medical improvement was dramatic: out of 1,408 patients treated, 3% died, compared with a much greater

number of fatalities at Scutari. However the conflict came to an end with the signing of the Treaty of Paris on 30 March 1856, so the hospital began to close down after less than a year of operation.

Parkes' experience in Renkioi was put to great use. On his return to the UK, he provided evidence to a Commission of Enquiry which recommended that military doctors needed better training in hygiene – the medical specialty of public health did not then exist. The enquiry also called for an Army Medical School to be set up to train doctors in military medical care; Parkes was to be Professor of Military Hygiene. In this role he went first to the Military Medical School at Fort Pitt, Chatham, then the school moved to Netley on Southampton Water. Netley Military Hospital eventually inherited the sanitary equipment brought back from Renkioi.

As there was no existing textbook, Parkes wrote his own highly influential Manual of Practical Hygiene, including some findings from Renkioi. He recommended the choice of sites on granitic, metamorphic and trap rocks, hard oolitic limestone and gravels, but warned against building on magnesian limestone (which was then considered to have a role in thyroid disorders).

Parkes retained his interest in the developing science of geology and its relationship with health. He is known to have associated with a number of others in the small medical community in London at the time who were also active in natural and earth sciences, probably including John Frederic Daniell and William Brande.

Among the issues explored in questions after the talk was that even though a number of medical experts of the time had an interest in geology, Parkes was the first to identify (in his textbook) that the geology of a medical location was an important factor. This experience from Crimea was put into use in the First World War and other conflicts. The Royal Engineers have experience in siting and building hospitals and have long been responsible for locating and providing water for military establishments, and the Army Medical Service for water testing and purification. Modern training in civil engineering also takes geological studies into account, and the siting of medical facilities is now taught to junior army medical personnel. It would be of value to explore further the interplay of medical and geological sciences and military engineering.

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‘Costume of the Glaciers’: just a ‘groovy’ cartoon?

One of the most frequently published impressions of William Buckland is the etching ‘Costume of the Glaciers’. It shows Buckland (over) dressed in field garb, supposedly for work in cold climes, although the locational setting of this cartoon is far from any glacier. The sketch is signed ‘Scratched by T. Sopwith’.



Costume of the Glaciers. This (foxed) copy was a gift in a letter by Thomas Sopwith, who has added to his ‘signature’ with FGS. He was elected FGS in 1835. (Duncan Hawley Collection CC BY-NC-ND)

Thomas Sopwith (1803 -1879) was born in Newcastle-upon-Tyne where, following a private education he was apprenticed to his father as a cabinet-maker. In his spare time he studied architecture, took a keen interest in the use of optical and scientific instruments and became skilled at drawing. Released from his apprenticeship, Sopwith joined Joseph Dickinson as a land and mineral surveyor in a survey of the Alston Moor mines in the northern Pennines. In 1829 he published geological plans and sections of the mines “showing the various strata and subterranean

operations”. Buckland bought six copies and the two became life-long friends.

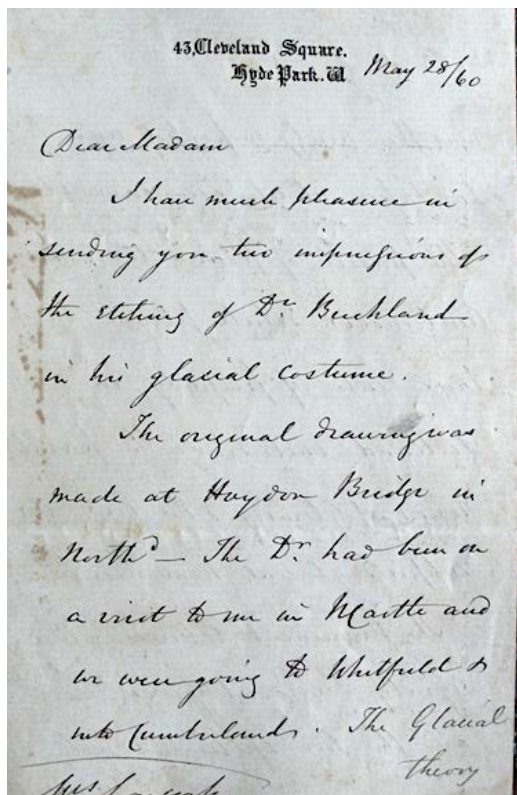
In the early 1840s Sopwith joined Buckland on field excursions across the north of England and North Wales, hunting for evidence to support Louis Agassiz’s contention that a ‘glacial nappe’ (ice sheet) had once covered the British Isles, producing the ‘superficial’ deposits known as ‘drift’ (a term introduced by Charles Lyell, arguing that the deposits resulted from melting icebergs drifting across a cold sea covering Britain). In 1838 Buckland, a convinced diluvialist, had visited Switzerland, aiming to persuade Agassiz to recant his theory, but by the end of his visit it was Buckland who had converted to the glacialist’s idea.

Agassiz returned the Buckland visit in September 1840, meeting in Glasgow at the British Association for the Advancement of Science meeting, where Agassiz presented a paper ‘On glaciers and boulders in Switzerland’ and claimed that he also expected to find evidence of the former existence of glaciers in Scotland. His idea met a generally cold reception. However, Buckland had already recognised indications of the action of ice in Britain and following the meeting the pair toured Scotland to document evidence for the ‘glacial nappe’. In October, after Agassiz’s departure, Buckland travelled south to Newcastle where he met Sopwith.

Buckland was full of Agassiz’s glacial theory and embarked on a quest for further evidence across northern England. Sopwith accompanied him across familiar Pennine country into Cumberland and it was here ‘Costume of the Glaciers’ was drawn, portrayed in the sketch by the coach and fingerpost ‘To Alston’. In fact, the sketch was drawn at Haydon Bridge, County Durham.

This insight was revealed in a letter from Sopwith to a Mrs Laycock, dated 28th May 1860 written from Sopwith’s London address nearly 20 years after the etching was originally drawn.

In the lower left corner of the etching there are two rock samples, one “scratched by a glacier thirty three thousand, three hundred & thirty three of years before The Creation” and the other having scratches made by a cart on Waterloo Bridge “the day before yesterday”. Sopwith’s letter reports “the two specimens with labels originated in a good anecdote of Dr B having shown to Agassiz two specimens – one a glacial polish – the other a stone rubbed by cartwheel drags & the latter was adopted by Agassiz as being the glacial specimen. At this time Dr B was doubtful and rejoiced in the error of Agassiz -” Buckland (or his wife Mary) had collected such specimens during their 1838 visit to Switzerland, one from a glacier surface, and another scratched by a cartwheel (now in the OUMNH collections).



Letter from Sopwith to Mrs Laycock, dated May 28 1860, sending her "two impressions of the etching of Dr Buckland in his glacial costume." (Duncan Hawley Collection CCBY-NC-ND)

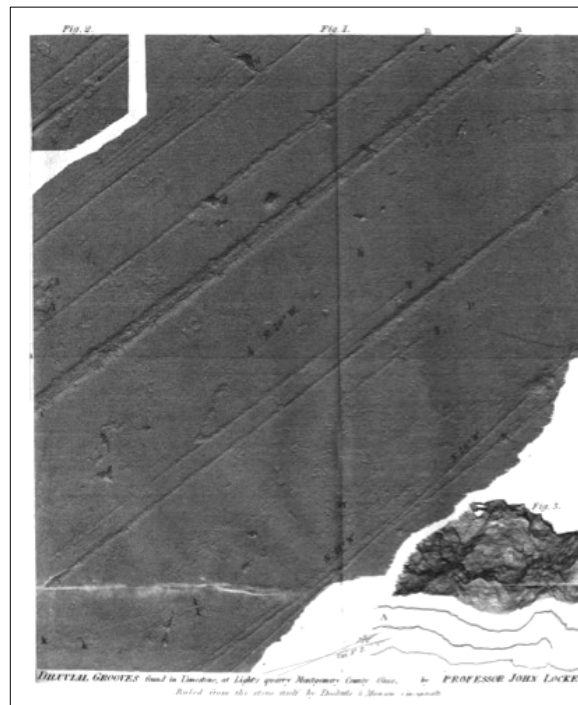
The letter also reveals that the roll of papers tucked under Buckland’s arm and titled 'Maps of Ancient Glaciers' was a parcel of “some Auctioneer’s Estate plans on a large scale of property in Scotland, including the parallel roads of Glenroy & the line of supposed glacial movements.” Buckland and Agassiz had visited the roads of Glen Roy just a few weeks earlier, convinced the parallel Roads were traces of successive levels of a glacial lake impounded by glaciers, based on analogies with extensions of present Alpine glaciers.

The inscription in the prominent central cartouche is, perhaps, most intriguing. It states: “The rectilinear course of these grooves corresponds with the motions of an IMMENSE BODY, the momentum of which does not allow it to change its course on slight resistances.”

The quote was taken from the second report on the geology of Ohio (1838), which Sopwith informs they “read for the first time on the evening of the day the sketch was made.” Written by Professor John Locke (assistant to the Ohio State Geological Survey) to conclude a careful description of “diluvial grooves” found on the surface of bedrock at Light’s Quarry, north of Dayton, Ohio (the quarry still exists, but is not producing stone).

Locke precedes this quote with “The grooves appear as if they had been formed by icebergs floating over the

terrace, which is the highest in the neighborhood, and dragging gravel and boulders frozen into its lower surface, over the plane of the stone.”



Locke produced an illustration of the grooved surfaces at Light’s Quarry using an ‘engraving engine’ and “suffered it to engrave its own picture, and thus stop the mouths of fault finders.” (Mather, W. W. (1838) Second Annual Report of the Geological Survey of Ohio. Not in copyright. Source Google Books)

The iceberg theory put forward by Locke is likely to have been based on interpreting ideas, formulated in the early 1830s by De la Beche and Charles Lyell, to explain massive erratics. However the inscription was appropriated to support an alternative conclusion, as outlined by Sopwith in an 1842 paper: “It is at once evident that this description is exactly correspondent to the effects of glacial action; and it shows very clearly how strong an evidence is afforded by the mere physical conditions of the grooved and polished stone; for it would be impossible more correctly to describe the action of the glacier as witnessed by Agassiz, and recorded, there is much reason to conclude, on the rounded, and grooved, and furrowed rocks of Great Britain, as legibly as upon the rocks which in Switzerland are in juxta-position with existing glaciers.”

In the letter Sopwith notes “Dr B gave several hundred copies of this etching to his friends.” Buckland’s friends included many geologists. It seems likely that this ‘caricature’ impression of Buckland was designed to be more than just a ‘groovy’ cartoon; its careful composition and wide circulation suggests an intention to promote scientific argument in favour of the glacial theory in Britain.

A case of mistaken identity?

Thomas Sopwith's famous cartoon of William Buckland, *Costume of the Glaciers*, was drawn at Haydon Bridge in Northumberland in October 1840 while the two men were on their way, via Alston, to Cumberland in search of evidence of glaciation. Although Sopwith himself did most of the engraving, he employed a professional engraver for Buckland's facial features.

In early July 1842 Sopwith was once again at Alston and, in a letter written on his way back to Newcastle, urged Buckland to come on another 'northern expedition' and described how, in the vicinity of Middleton in Teesdale, he had seen 'enormous mounds of moraines which, with the admirable development of basaltic rocks in this fine valley, afford much interesting matter for observation'. The 'basaltic rocks' are the quartz dolerites of the Whin Sill which is exposed in Teesdale. Sopwith was drawing attention to the presence of these resistant rocks for their potential to preserve glacial striae.

The sill also crops out on the low ridge of Moor Rigg about half a mile south of Middleton, as shown in a watercolour by Sopwith, *Surface of basalt grooved and furrowed, Moor Riggs, Teesdale Oct. 12. 1842* which he later sent to Buckland. This pencil, ink and watercolour sketch in the Buckland family archives shows a low-lying, smoothed, rounded, furrowed and striated rock surface surrounded by a low shrubby moorland vegetation.

A year earlier, in October 1841, Buckland and Sopwith



Surface of basalt grooved and furrowed, Moor Riggs, Teesdale Oct. 12. 1842, Thomas Sopwith

spent a very wet week in North Wales in search of glacial landforms. During the course of their tour, Sopwith observed that 'many of the rocks of North Wales present a furrowed or undulating surface, the curves of which are alternately concave and convex, and several feet in length' and noted rocks which were 'rounded, grooved, and

polished' and 'worn into bosses or dome-like shapes'. Sopwith made at least four drawings of such features with Buckland for scale.

One, *Pont Aberglaslyn*, shows Buckland as a small figure. He wears a check coat and shoulder cape, the coat finishing mid calf, and a tall hat. In a second, *Near Pont Aberglaslyn*, we have a closer view of Buckland and of his check coat and cape with a high collar, and top hat. He leans on a rolled umbrella in his right hand and holds a bag and perhaps a hammer in his left. His facial features are indistinct. In a third, *Near the Middle of Llanberis Upper Lake*, Buckland's face is visible, but undefined.



Near the Middle of Llanberis Upper Lake. Buckland on a glacially smoothed and striated rock outcrop

He wears the same coat, cape and top hat, with a bag hanging to his left side, its strap over his right shoulder, and a rolled umbrella in his right hand.

He stands on an outcrop which is smoothed, rounded and undulating with prominent parallel striations. In a fourth sketch, *Dry y Coed*, Buckland is a tiny figure to the left of a rounded rock knoll close to the shore of a small lake.

Another watercolour in the Buckland family archive shows a smoothed and striated rock surface surrounded by a low shrubby moorland vegetation painted in a style very similar to that in Sopwith's 1842 Moor Riggs picture. Both have the same rendering the vegetation, with spots of colour and zigzag ink lines and a more solid tone for the background vegetation. The rocks, too, are similarly painted in both pictures. It seems probable that both watercolours are by the same hand.

This second watercolour also shows a figure wearing a top hat and dressed in a coat which finishes mid-calf. There is a short jacket over the coat, the strap of a bag or satchel crosses the back and goes over the right shoulder, the bag hanging on the left side and the figure holds a hammer in the right hand. The face is looking down and the facial features are indistinct. The bulky costume of this figure is similar to that in *Costume of the Glaciers* and to Sopwith's portrayal of his friend in his sketches of their tour of North Wales. There are some differences in the costume, the upper part more like a jacket than a cape, and only one layer in a check pattern. But there are similarities in the length of the coat, the top hat and the bag to the left side,

its strap over the right shoulder, and a positioning of the figure which avoids showing any facial detail.



Mary Anning at Lyme Regis or William Buckland in Snowdonia?

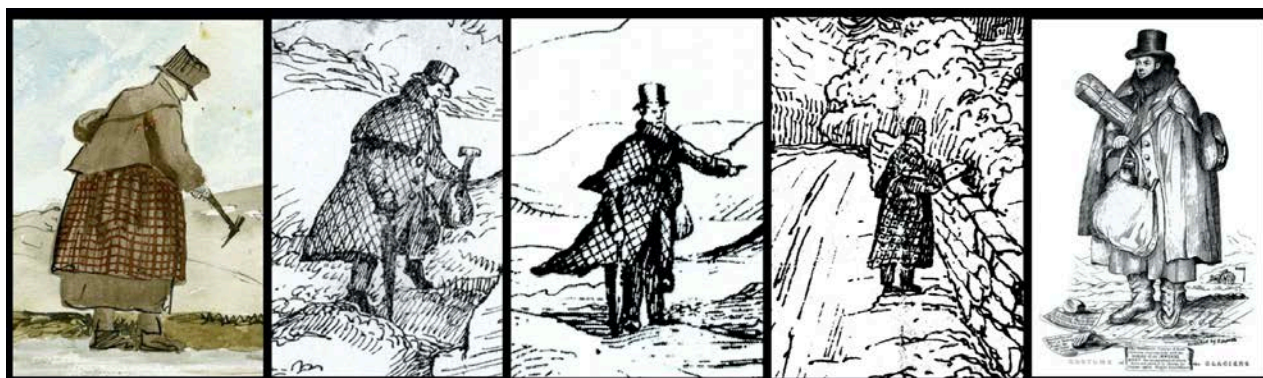
This watercolour was first published in 1933, identified as ‘Mary Anning, fossil collector, at work’; it was later attributed to Anning’s friend, Henry De la Beche. Since the 1980s, it has been reproduced widely as a picture of Mary Anning in field clothes.

The known portraits of Anning, one a copy of the other, show her in what is probably her Sunday best: a wide-skirted green dress and cloak, and a bonnet tied with a red ribbon. Her field equipment, though, is shown: her basket, hammer and her dog. Roderick Murchison visiting Lyme in 1825, records meeting Anning in the field ‘with her dog,

hammer and basket’ and leaving his wife Charlotte to ‘be accompanied by Mary with her dog, hammer and basket in fossil hunting among the ledges on the shore’. A late nineteenth century memoir recalled ‘Mary Anning ... with hammer and rush vasculum followed by her little black and white terrier dog, making towards the lias beds’. If the watercolour does show Anning in the field, might we not expect to see her trademark basket and dog?

‘A thick man-like figure in clogs or pattens, a short, stout petticoat, a shorter check skirt, a masculine jacket, a satchel, and what looks like a battered top-hat’ is how this portrait has been described, and that does fit with several descriptions we have of Anning being a ‘masculine figure’ or of ‘masculine expression’. But equally it might be ‘man-like’ because it actually portrays William Buckland.

That this is a picture of Buckland and not Anning is supported by several strands of evidence: the likelihood that it is by Sopwith, based on comparison with a known watercolour by him, the similarity of the figure and its costume to those of Buckland by Sopwith, as well as the avoidance of facial detail, and the rendering of the foreground rocks like those in Sopwith’s Moor Rigg watercolour; by the portrayal of a surface ice-smoothed and striated, rather than the flat ledges or boulders of the Lyme foreshore; by its provenance, within Buckland’s papers; and by the background landscape which bears a closer resemblance to the mountains of Snowdonia than to the cliff profile of the Dorset coast. The route covered by Sopwith and Buckland on their North Wales tour took in several sites displaying ice-smoothed and striated outcrops and where the mountain profile resembles that of the watercolour, most notably in the area of Cwm Idwal and the Ogwen Falls, and to the west of Snowdon where Sopwith ‘made a drawing on the margin of Llyn y Gader, near Drws y Coed’.



Buckland by Sopwith (from left): watercolour; Near Pont Aberglaslyn; Near the Middle of Llanberis Upper Lake; Pont Aberglaslyn; Costume of the Glaciers

For a full account of this work see: Sharpe, T., 2021. A case of mistaken identity: is Mary Anning (1799-1847) actually William Buckland (1784-1856)? *Earth Sciences History*, 40(1), pp.1-16.

I am most grateful to Roderick Gordon for making available the Buckland family papers on which this research is based and to Oxford University Museum of Natural History for copies of Sopwith’s prints and permission to reproduce them.

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Glacial Theory seen through the lens of the Bucklands' teaching collection at Oxford

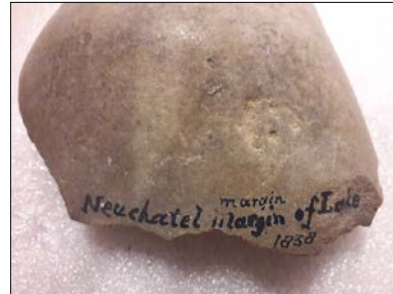
The historical collections and archives at the Oxford University Museum of Natural History (OUMNH) hold a small group of items that reveals much about the early efforts of the university's first professor of Geology, William Buckland, to persuade his peers to adopt the new glacial theories propounded by Louis Agassiz. These items, initially made or collected to accompany Buckland's papers for the Geological Society (GS), were also recycled as teaching material for his student lectures.

Buckland sourced materials in various ways but his own practice as a field geologist was probably most important in this respect, and was reflected in the specimens he selected in the field, and the maps and sections he made based on close observation of the terrain. These items were supplemented by enlarged versions of rough diagrams and prints as well as commercial prints aimed at elite tourists and fine maps. He also brought geological features into the lecture room by acquiring models and casts whenever the opportunity arose.

The glaciation-related material at Oxford can be referred to two of Buckland's field trips; his visit to Switzerland in 1838 accompanied by Agassiz in person, and the final major field work of his career, his October 1841 visit to North Wales with Thomas Sopwith, as discussed in the previous article by Tom Sharpe. It was probably Jameson's translations of Agassiz's Swiss glaciation lectures in the *Edinburgh Journal* that spurred Buckland on to visit Switzerland. Agassiz's theories must have represented quite a challenge to him, as he had built a large part of his career on the interpretation of recent surface geological features as diluvial, firmly believing them to be the after-effects of inundations. Buckland's insistence on visiting Agassiz in Switzerland to review the evidence with his own eyes was therefore very much to his credit. He returned home, as we know, completely converted.

Buckland did not make the Swiss trip alone. His wife Mary, a redoubtable figure and a skilled naturalist in her own right, accompanied him, leaving the eight-month-old Adam Sedgwick Conybeare Buckland and his four siblings at home in England. By September, the couple had met up with Agassiz at Porrentruy in the Swiss Jura, where they attended a meeting of the French Geological Society (of which Buckland was a member), and met many eminent continental geologists. There followed a week of lectures and field trips, with Agassiz taking a lead as the group examined evidence for his theories. The Bucklands then travelled with Agassiz to tour the Bernese glaciers and visited his museum in Neuchâtel. It was probably there

that Buckland bought the plaster models of the Jura region which survive at OUMNH today. Thanks to Mary



Smoothed and rounded pebble, inscribed by Mary Buckland 'Neuchatel Margin of Lake 1838' trip.

Buckland's curation of the collection and the survival of some of her inscriptions, it is possible to identify a few examples of scratched, polished, and cracked specimens collected by the couple during this

A single manuscript survives of a glaciation lecture by Buckland. It relates to his work in Northern England (as described above by Duncan Hawley) and confirms that Buckland introduced the subject by referring to Agassiz's identification of the evidential features of glacial action in Switzerland, which Buckland then compares with similar features in Britain. As his 1838 trip was in fact his fourth to Switzerland it is not surprising that Buckland had numerous maps and prints in his collection that feature the glaciated Alpine landscape, any of which could have been pinned up to assist members of his audiences to envision the scenery of the high Alps.



'La Mer de Glace vue du Montanvert', tinted lithograph by J. Hurlimann after J. Suter, early nineteenth century . (28.3cm x 38.7cm)

In 1840 Agassiz published a superb book of topographical lithographs of Swiss glaciers by the artist Joseph Bettanier with additional versions of each plate explaining the glacial features. Buckland's collection shows that he made use of this material as several of his enlarged teaching diagrams can be linked to this source. Although unsigned, it is likely that Buckland used a local

Oxford artist, Joseph Fisher, to make these illustrations, as others in a similar style are signed by him.



Louis Agassiz *Etudes sur les Glaciers*, Dessinés d'Après Nature et Lithographiés par Jph. Bettanier (Neuchâtel: H. Nicolet, 1840), plate 14, 'Glacier de l'Aar'



Teaching diagram 'Medial Moraine', attributed to J. Fisher. (74cm x 98cm)

The majority of the illustrations relating to British glaciation derive from Buckland's Welsh trip in late 1841 as mentioned earlier. By this time Buckland was being heavily criticised for adopting the glacial theory, both at GS meetings and also in print. Undaunted, his trip to Wales seems only to have strengthened his conviction at this stage, and the associated material in his teaching collection assumes an added importance in this light. When Buckland presented the results of this trip to the GS in December



William Buckland, relief map of Snowdonia marked with evidence of glacial action, Nov.-Dec. 1841 (detail)

1841, the central plank of his evidence for glaciation in Snowdonia consisted of an enlarged map marked up with the features indicative of glacial action identified by him and Sopwith in the field. Nearly four metres wide, this map can be identified in Buckland's archive today, preserved in sections. It is extremely detailed with the paths of

glaciers marked in green, glacial scratches, mounds and gravel in red and rounded bosses in black.

To supplement the map, Buckland commissioned drawings of Snowdonia, some based on Sopwith's topographical lithographs discussed by Tom Sharpe and others, more diagrammatic in style, underlining particular glacial features. One of the latter depicts the 'Falls of Ogwen', an important site where glacial polishing and the distinctive shaping caused by the driving movement of the ice, are clearly visible.

Prior to delivering his lecture to the GS in London, Buckland received an illustrated letter from Sopwith, excitedly announcing his discovery of glacial scratches at Langley Quarry in the Tyne Valley. Buckland wasted no time in gaining permission to enlarge Sopwith's sketches for use as decisive evidence of glaciation in Britain at the end of his Snowdonia lecture.



Letter from T. Sopwith to W. Buckland, 6th Dec. 1841 (page 1 of 2). Courtesy Roderick Gordon and Diana Harman



Teaching diagram, 'Quarry nr. Langley', after T. Sopwith, attributed to J. Fisher, Dec. 1841

Sopwith described the newly exposed scratched surfaces in the quarry as 'gloriously polished and grooved and scratched in a most decided and persuasive manner so that even fragments which I have

brought here carry conviction with them.'

We can hear an echo of Buckland's views on the power of specimens and illustrations to 'carry conviction' in Sopwith's words. Despite Buckland's lack of success in persuading his peers about glacial theory, his collections at Oxford provide eloquent proof of his own conviction on that score, and the considerable efforts he made to convince others through the use of different types of illustrations as visual rhetoric in his teaching.

All photos unless stated otherwise by S. Newell courtesy of OUMNH Historical Collections and Library and Archives.

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Mary at the movies: *Ammonite* – a review

by Tom Sharpe

Ammonite (cert 15)
Directed by Francis Lee

2020 (2021 UK)
2 hours



Well, the long-awaited Kate Winslet-as-Mary-Anning film, *Ammonite*, was finally released in the UK on 26 March. Dutifully I paid my £13 to Amazon and settled down to watch: I felt I really ought to see it so that I could harrumph with confidence. I was disappointed: I liked it – although there were many aspects which irritated. Director, Francis Lee, has shot an atmospheric, dark and melancholic film in which not very much happens (apart from some much-hyped lesbian sex).

Winslet is excellent as Anning, a little past her professional prime. She's perfectly believable, but with some surprising characteristics in addition to her sexuality: swearing and a penchant for bawdy limericks – as well as the odd quick ciggie. She's also perhaps not quite as pious as some recent biographers suggest. Her simple and plain costume befits both her Dissenting background and her poverty and, in the field, she is given sturdy boots, the famous basket and hammer and, thankfully, no top hat – but where is the dog, which she certainly had in 1842, or her brother, Joseph? The house she shares with her mother also is suitably basic and spartan, and their meals frugal.

While the real Anning was described as 'always smiling', Winslet's is a bit miserable; it's an hour in before we see a hint of a smile. Later in the film the death of her mother, Molly, gives her cause to be sorrowful. This also places the action in the months leading up to October 1842. Molly, having lost so many children, is a little deranged by grief: an important but clumsy reference to family tragedy, which is reinforced by Mary's own memories.

Don't expect to see much of Lyme Regis. There are tight shots of her shop front – placed on Bell Cliff rather than farther up Broad Street (although that's only obvious if you know Lyme) – and a view of the Cobb when Anning rushes to catch the boat to London. Her empty shop windows would surely have had a display of fossils, but this hardly matters as the windows are so grimy – only the doctor seems to have had clean windows in Lyme. The fossil-hunting scenes seem mostly to be at Charmouth, on the upper part of the Black Ven Marls at the foot of Stonebarrow. Some potentially nice touches of detail

dissolve on close inspection – a letter addressed to Cockmoile Square; surely everyone knows that by 1842 her home was on Broad Street!

The dialogue is like the Annings' house: spartan and meagrely furnished. Long moody silences and long moody shots – and insect cameos, the symbolism of which was beyond my simple mind. Subtle metaphors for something, I'm sure. Some references were more obvious. At the British Museum, as Anning walks through a gallery lined with portraits of men (I got that bit), she pauses and looks around, momentarily framed taking her rightful place on the gallery wall. Mary's backstory is told only through some awkward dialogue, with some points over-laboured, such as the removal of her name as her first ichthyosaur is lifted – with surprising ease – into a case in the Museum.

The Murchisons, displaced 17 years forward from their real-life meeting with Anning, don't come over well. Roderick is unpleasant, patronising and unlikable; though the real life Anning thought him 'the handsomest piece of flesh and blood' she ever saw. He tells her that she is much discussed at the Geographical Society; it's possible, but she was probably even more discussed at the Geological Society. Murchison, clearly having checked Gideon Mantell's 1832 diary, refers to Anning as 'the presiding deity'. Charlotte is to be much pitied. Bullied by her husband and 'melancholic', she's clearly grieving for a lost baby. Although portrayed as a woman in her early twenties, in fact, by 1842, Charlotte was about 54, to Mary's 43.

Elizabeth Philpot on the other hand is correctly portrayed as older than Mary, but their relationship is oddly strained, leaving the impression that they too had once been much closer. Lyme was clearly a racy place in the early 19th century.

I'm not sure that much is to be learned about Mary Anning from this film. Her story is often used as an exemplar for children, but this film is definitely not suitable for that audience. It isn't however a biopic, and doesn't claim to be. But it will be seen as such. It's slow, even tedious in places, and it's not a happy film. It's full of historical inaccuracies and is grossly unfair to Charlotte Murchison. And as for the ending, well... it just ends. Yet despite all this, I rather enjoyed it. I liked the dark, pensive, brooding cinematography and music, and Kate Winslet as Anning. But my main take-aways from it are that Mary Anning and I have the same kitchen chairs and that she shaved her armpits. I suspect that these might not be the messages that the director was trying to get across.

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Caves Coprolites and Catastrophes: the Story of Pioneering Geologist and Fossil-Hunter William Buckland

Allan Chapman

SPCK

2020

ISBN 9780281079506

£19.99

256pp

It is fitting that the life of William Buckland, Oxford's first 'professor' of Geology, has been tackled by another Oxford don, historian of science, Allan Chapman. His very readable book gives a good introduction to Buckland and the times in which he lived. Published by SPCK, the reader might expect, and indeed detect, a hint of evangelistic fervour on the part of the author but, that aside, Chapman presents a balanced picture of the man, his clerical and scientific colleagues, and the broader society of the day.

Chapman avoids the temptation to give us a simplistic 'great man of science' biography. He makes the point that science was, then as now, a collaborative endeavour. Well-placed to explain the traditions at Oxford as a backdrop to his subject's life and work, Chapman brings out the longstanding connection between the clergy and science but also shows the conflicted context in which Buckland's own fieldwork, research, writing and teaching took place. He provides a brief tour of Buckland's predecessors and contemporaries from Hooke and Halley to Lyell and Murchison – though I would have liked to see mention of the less privileged workers who also contributed to Buckland's endeavours. Fortunately, he gives due regard to two important women, Buckland's wife Mary (nee Morland), and Mary Anning. (see review of Tom Sharpe's book on page 20).

While Sharpe's book appeared too late for Chapman, it is still fair to say that Chapman's bibliography is light on recent work by historians of geology. Reference to Patrick Boylan's massive contribution to Buckland studies would have helped to avoid a few factual errors, such as that concerning Lyell's acceptance of glacial theory. Chapman also states that there is 'no mention of Mary Buckland' in relation to the illustrations in Buckland's 1836 Bridgewater Treatise. In fact, 'Mrs. Buckland' is acknowledged several times; as Chapman states elsewhere, Buckland was characteristically careful in acknowledging the work of others, and particularly so in the case of his wife.

This biography is described as 'the first to have been written for more than a century'. However, Chapman

relies heavily on the 1894 *Life and Correspondence* by Buckland's daughter, Mrs Gordon, and indeed takes most of his illustrations straight from that work. These might at least have been re-photographed from the original publications as, although printed on glossy paper, the book's grainy images give little impression of the care and expense that Buckland took over his illustrations, to say nothing of the quality of the original artists' work.

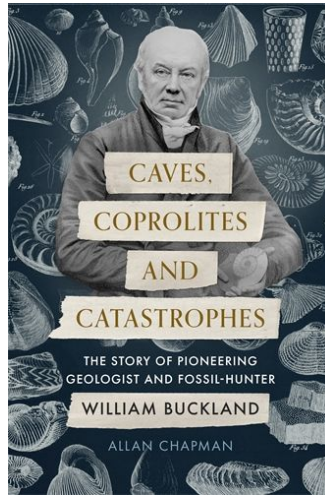
These niggles aside, the stories in Gordon's book, often taken from sources now lost, are too good to omit. Chapman is right to re-cycle them, which he does with contextual details helpful for those unfamiliar with the historical background. We gain a real sense of the warmth, fun, lively curiosity and intelligence of both Bucklands, husband and wife, a couple who never failed to make an impression on those who met them. One bugbear of mine that the author helps dispel is Buckland's alleged 'eccentricity'.

The book is aimed at the general, non-specialist reader for whom it adequately covers the different facets of Buckland's work. A particular strength of the book is the author's concern to lay to rest the misleading idea of conflict between religion and science in the early nineteenth century. In the best tradition of historical writing, Chapman brings his study into the present day. Tackling the thorny subject of Natural Theology and the 'Argument from Design', he underlines the difference between the dogmatic fundamentalism of twenty-first century America and the creationism that informed the biblical geology of Buckland and his contemporaries, open as it was to modification in the light of new discoveries and theories. Chapman also carefully balances Buckland's scientific life with his strong sense of Christian charity, emphasising his work in agricultural improvement, and sanitation, both stemming from a Christian concern to improve the conditions of those around him.

This popular science history biography contains a wealth of detail about its subject. Like most Buckland scholars, Chapman clearly found the man himself fascinating – even endearing. I hope this book will introduce Buckland, and his wife, to many new readers, inspiring them to find out more about this remarkable scientific couple and their contributions to this engrossing and important period in the history of science.

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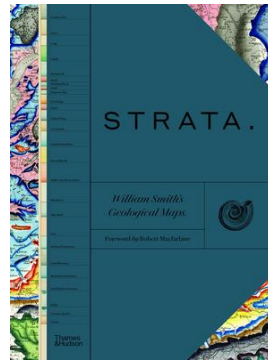
STRATA

Peter Wigley et al
Thames & Hudson 2020
ISBN 9780500252475

RRP £50
256pp

STRATA is a book that appeals to the senses. A delight to hold and touch, on the outside it resembles a huge quarter bound note-book. Inside, its thick, high-quality pages are generously illustrated with the most beautiful images, many of which are the work of its subject, William ‘Strata’ Smith. The whole of Smith’s seminal 1815 *A Delineation of the Strata of England and Wales, with part of Scotland* is reproduced (from the wonderfully preserved 1816 copy held by OUMNH) at approximately two-thirds scale, and there are even a few pages devoted to full scale reproductions of parts of this pioneering work. There are also many beautiful geological sections and other of Smith’s finely executed ‘working drawings’, as well as some contemporaneous prints which give a flavour of industrial England at the turn of the nineteenth century. However, to dismiss this volume as a mere picture book would be a grave injustice. Almost a quarter of its 256 pages are devoted to eight essays by recognised experts on the subject of Smith and his works (including five members of HOGG).

The scene is well set by Douglas Palmer’s contextual introduction in which he briefly explains the contemporary and conflicting theories and ideas of Werner and Hutton as well as Lyell’s ‘uniformitarianism’, before introducing us to Smith’s own innovatory and influential mapping techniques and use of fossils to identify specific ‘strata’. Peter Wigley takes up the story with two essays, the first, ‘Apprentice’, details Smith’s early career in Somerset while the second tells of his work as a mineral surveyor throughout the country. Dave Williams then concentrates on the many drainage and land-improvement projects that Smith undertook on estates from Kent to Carmarthenshire. Tom Sharpe covers the long gestation of Smith’s 1815 map, its disappointing initial reception and the publication of the Geological Society’s competing ‘Greenough map’, before describing Smith’s later, more detailed, county map series. The troubled history of Smith’s strata-defining fossil collection is dealt with by Jill Darrell and Diana Clements, with several illustrations setting the original fossils against James Sowerby’s depictions of them in Smith’s *Strata Identified by Organised Fossils* (1816-19). For me, as a geological layman, John



Mather’s essay, ‘Well Sinker’, was a personal highlight. It gave me not only an appreciation of Smith’s work in establishing water supplies in various locations, but also a rather better (if still slim) understanding of the complexities of hydrogeology. The final chapter, by John Henry, summarises Smith’s later years in Yorkshire, his nurturing and mentorship of his nephew John Phillips and his own belated recognition by the ‘gentlemen of science’.

At just over 2 kilograms this is clearly a book designed for the coffee table rather than the bedside. However, it is also a volume that merits a more serious study than its convoluted structure easily allows. The main prints of Smith’s great map are divided into four geographically defined ‘chapters’, each introduced by a table of the ‘predominant strata’ of the area together with a selection of their associated ‘organised fossils’. The eight essays, which are interspersed between the four chapters, are in broadly chronological order; but otherwise there seems little logic to the arrangement of material. Form has, it appears, been allowed to eclipse function. Also, large and beautiful as some of the images are, many are still too small for important detail to be easily discerned. In this respect the few full-scale prints of the map are a particular delight.

Robert Macfarlane has indeed contributed an excellent literary foreword to the book, but the prominence of his name on its cover was misleading enough for more than one national bookseller to catalogue him as the author. One understands the commercial allure of celebrity, but cannot help the feeling of irritation it provokes. A similar discomfort was prompted, at least in this curmudgeonly reviewer, by the seemingly redundant full stops that pepper the front cover – no doubt a reference to 19th C usage, but simply obtrusive in this modern context. But these are minor quibbles; more significant is the unease prompted by the recognition of an error of fact. Was the whole work proof-read by the illustrious specialist authors (or even by Robert Macfarlane)? If so, it is hard to believe that they would all have overlooked the statement that the Lancaster Canal, between Preston and Kendal, ‘was mainly used to carry coal south and Limestone north’.

However, these strictures apart, this is a fine book, which HOGG members will want to own and pore over, and which will undoubtedly give much pleasure.

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The Fossil Woman: a Life of Mary Anning

Tom Sharpe

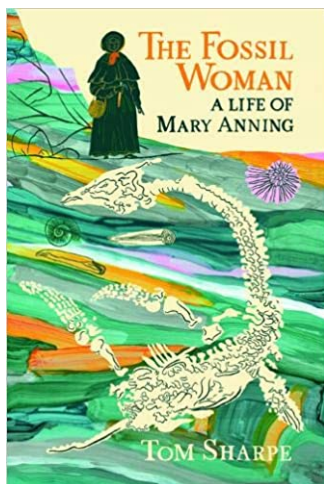
Dovecote Press

2020

RRP £20

ISBN 9780995546295

240pp



Mary Anning, so long the victim of romancers and now Hollywood, has found a worthy biographer in Tom Sharpe. I had always accepted that it was great gaps in the historic record that gave room for such free play of excessive imagination and innuendo in the several works of historical fiction – written and cinematic – about Anning. But now Tom Sharpe has written a very readable account of Anning's life that is substantiated by thorough research utilising sources that include her many surviving letters to a wide circle of people, the diaries of visitors to Lyme Regis, and the record of her fossil finds: fossils that Anning discovered, excavated, prepared, framed, and sold to private collectors and museums. Here we have not only Anning's story but a group biography. Sharpe deftly draws portraits of the men and women for whom Anning collected and with whom she corresponded, and he thoughtfully evaluates the nature of their connections and relationships. Apart from close family, the chief players – Henry De la Beche, William and Mary Buckland, William Conybeare, Roderick and Charlotte Murchison – are prominent. Strong supporting roles are played by Lyme residents Elizabeth Philpot, Anna Maria Pinney, George Roberts, and Thomas Birch. Sedgwick, Cuvier, Owen, Mantell, Hawkins, GB

Sowerby, Featherstonehaugh, and De Luc all have walk-on parts.

Lyme Regis was a magnet for collectors, and Anning played the central role. She became an attraction herself. The well-known story of a working-class woman making her way in a man's world and succeeding, or just breaking even, often clouds the detail of Anning's achievements. She was scientifically knowledgeable, well read, a prolific correspondent, and confident in her interactions with all-comers. That she made good friends across class and gender barriers – friends who helped her and acknowledged her contributions – speaks volumes. When she was in funds, she was generous to local people in need.

The Fossil Woman will become the principal reference for Mary Anning. It is not only well documented, but the copious endnotes include many nuggets that make this section a worthwhile chapter in itself, beyond its use for occasional fact-checking. Sharpe has been equally thorough in finding and presenting pictures of Lyme Regis in Anning's time, portraits of the characters, and photographs and engravings of the fossils. These are located in two gatherings.

The illustrations have good resolution and colour, but, as usual, one would have liked them to be larger. There is a useful 'Who's Who' that includes not only the historical cast, but also current experts. The index is comprehensive. There are nice touches as when Sharpe notes, in his introduction, the astronomical sum paid for one letter by Anning to Buckland at an auction that occurred when his book must already have been on its way to the printers. He misses no opportunity. Nor should you; this book is worth having.



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Lost Books – a history (part 1)

Hugh Torrens

*It is more than ten years since the first **Lost Books** appeal was made in the HOGG Newsletter. In this, the first of two short articles, Hugh Torrens explains how they started and gives a 'progress report' on the results of the appeals so far.*

This Lost Books idea came to me when I was trying to find a copy of the Printed List of all the music composed by the father of the man who taught me geology in the 1950s. It had been published in 1928 in Bournemouth (where we had had a wonderful Symphony Orchestra since 1893). My mother had even been a librarian there from about 1930, but sadly I am still looking, as no copy has ever been found. The problem, she thought, was that librarians all collected the same things, and that this left a lot of space for losses.

Lost Books No. 1, sought in Newsletter 35 (Feb 2009), was *Thoughts on the Formation of the Earth* published Shrewsbury 1802. The discovery of the still only known copy was announced in the next Newsletter (no. 36, June 2009), thanks entirely to Wendy Cawthorne (who has since lost her job at the GSL). Thanks to Mike R., it is now available at Rosenbaum, M.S. and Torrens, H.S. (2018). "a farmer": an early scientific explanation of continental drift. *Proceedings of the Shropshire Geological Society*, 19, ISSN 1750-855X (Print), ISSN 1750-8568 (Online). [Online at ...

www.shropshiregeology.org.uk/SGSpublishings; printed copy in press]. As the anonymous review in *British Critic* (1804) indicated, the book, by "a farmer", had included a detailed description of Whitcliffe, the common land facing Ludlow and site of quarrying for building stone since medieval times. After many years of searching, a single copy has been located in Edinburgh. Not only does the original indicate an extant interest in the geology of South Shropshire by the beginning of the 19th Century, some 30 years before Murchison's first visit, but also provides an early scientific explanation of what became continental drift.

Lost Books No. 2, sought in Newsletter 36 (June 2009) was the **Printed Prospectus** for William Smith's book of 1807 *Description of Norfolk, its Soil and Substrata*, of which book only a single copy was ever printed (a situation perhaps unique in all printing history?), & the discovery of which was described in *Geoscientist*, 16. no. 3 (March 2006). This **Prospectus** too has been located, in the Preussischer Staats-Bibliothek in Berlin, despite Allied attempts to destroy it, see my 'William 'Strata' Smith (1769-1839): His struggles as a consultant, in both geology and engineering, to simultaneously earn a living and finance his scientific projects, to 1820' in *Earth Sciences History*, 35, no. 1, pp 15-20, 2016 (where it is reproduced).

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A revision to the recorded date for William Smith's first visit to Norfolk

Peter Riches

A recently catalogued letter from William Smith to Miles S Branthwayte (1756 – 1807), dated 23rd July 1800, in the Norfolk Record Office contains two interesting pieces of information (ref: HNR 28/3).

First, it shows that Smith was working in Norfolk in July 1800. This date is slightly earlier than the date of October given by Torrens (2004) for Smith's first visit to Norfolk at the invitation of Thomas Coke.

Secondly, Smith's letter contains an explanation and description of the work necessary for draining and irrigating the marshes at Taverham, near Norwich. The work included the construction of a mill and Smith provided a cost estimate of £652 for all the proposed work. The work was carried out by Smith and is included in Smith's 1808 list of clients (see Torrens, 2004, p.22-23). A letter from Branthwayte to Smith, dated 4th May 1806, refers to the "new mills" (OUMNH ref: WSC 10157).

It would seem likely that Coke introduced Smith to Branthwayte, a Norfolk landowner, (see Phillips, 1844, p.35) and so it is likely that Smith first visited Coke in Norfolk in, or before, July 1800.

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Phillips, John. 1844. *Memoirs of William Smith, LL.D.* London: John Murray.

Torrens, Hugh S. 2004. 'The water-related work of William Smith (1769–1839)'. in: *200 Years of British Hydrogeology*, edited by J. D. Mather, 15–30, Special Publications 225. London: Geological Society of London.

OUMNH is Oxford University Museum of Natural History, William Smith Collection.

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10th January 2021

HOGG's Cabinet of Curiosities is a chimerical space combining the personal passion of the classic radio show 'Desert Island Discs' with the broadly educational intentions of the newer programme, 'The Museum of Curiosity'. The first exhibit in the cabinet is from Patrick Boylan, who recounts a personal journey in some famous footsteps.

Darwin's 'mean hovel' and fossil forest

In retrospect, one of the most important early conferences of INHIGEO (the International Commission on the History of Geological Sciences) was the Munster and Bonn meeting in 1978. This was my first INHIGEO meeting, attending as a UK representative because of my position on the Royal Society's Subcommittee for the History of Geology (later transferred to the Geological Society and its History of Geology Group - HOGG).

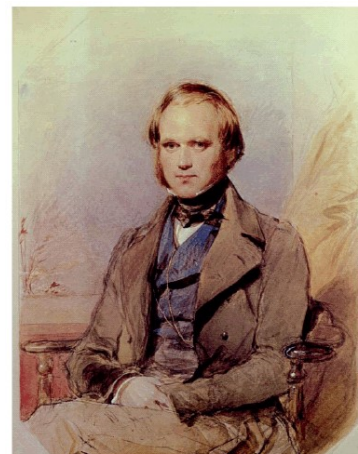
The 1978 theme was 'Regional influences on the origin and development of geological theories', and I was one of around 40 speakers and field leaders on this, in my case reporting on my research, then in progress, to track down on the ground and re-evaluate the 117 sites and locations across Scotland and Northern England visited in September and October 1840 by Agassiz, Buckland and Lyell, and used to present and support the glacial theory at the Geological Society meetings of November and December 1840.

Other INHIGEO speakers also stressed the importance of reviewing and understanding important localities and concepts in the history of geology, and this was demonstrated on the ground in a week of post-congress visits and discussions across Germany and into northern Switzerland. Examples included the volcanoes of the Eiffel, Elie de Beaumont's interpretation of the history of the Rhine valley and gorges, and Quenstedt's 'stufenlandschaft' (scarp landscapes) theory of the development of the landscape of the Jurassic of Swabia (but of eventually global significance.)

Through half a century I have continued to seek out and re-examine sites and locations relating to significant geologists and their work along the lines of my original work on the 1840 recognition of glaciation. Among these were the geological locations relating to Charles Darwin, and particularly his remarkable crossing and re-crossing of the Andes in less than a month in March – April of 1835. In the same season and months of 2008, with my wife, I finally flew to Mendoza, Argentina, and armed with Darwin's detailed day by day journal I set out to find his key sites in the Pequeenes Pass and Portillo Pass across the Andes from Chile to Mendoza, and then back from Mendoza to the Chile coast through the Uspallata Pass and

over the high foothills of Aconcagua, the highest mountain in the world outside the Himalayas.

Darwin suffered from severe seasickness right through his three years on HMS Beagle. Weeks of severe storms through the South Atlantic, the Southern Ocean and South Pacific were especially difficult for him. When Captain Fitzroy reached Valparaiso, Chile, in March 1840, his Admiralty Orders were to spend a month surveying for a detailed chart, taking depth soundings around the coast close to Valparaiso to identify anchorages where storm-bound ships could safely shelter. Darwin asked to be put ashore for the four weeks of the survey so that he could explore the geology of the high Andes; Fitzroy agreed.



Darwin aged 40 (Geological Society)

On 11th March Darwin travelled to Santiago, Chile, and quickly put together the expedition equipment, supplies, a guide, two horses and 10 mules with their 'arnero' (muleteer). On 14th March they left Santiago and walked to the start of the mule track up the west face of the Andes. The following day they started the ascent, reaching the over 7,000ft top in two strenuous and often dangerous days. They then continued eastwards through the Pequeenes Pass.

Darwin soon made his first very significant discovery. On 21st March, at over 7,000ft above sea level, he found exposures with what he immediately recognised were Mesozoic marine fossils, particularly ammonites and bivalves. (On his return to Europe the identifications were confirmed by d'Orbigny at the Paris Museum, who placed the specimens in the Lower Cretaceous Neocomian.) Although Darwin was an enthusiastic supporter of Lyell's recently published *Principles of Geology*, which attributed such fossil occurrences as the result of marine submergences, he felt that such a high sea level seemed impossible, and began to realise that there must also have been substantial volcanic or structural uplift of the mountain range. The same day they were affected for the first time by what the indigenous people call 'puna' – altitude sickness. (They use the same word for the cold, bare-rock-surface, high altitude desert, and Darwin commented that they could not boil potatoes at that altitude!)

Continuing through the Peuquenes and Portillo Passes with their spectacular volcanoes on both sides, by 25th March they were descending through the fruit-growing fields (nowadays famous vineyards) of Lujan de Cuyo, and then on into Mendoza. Darwin had heard from travellers' accounts and guidebooks that the Villavicencio Inn at an altitude of 5,750 ft rather than Mendoza's 2,500 ft was a highly regarded place to rest and feed both people and pack animals at altitude before heading back into the highest mountains.

After a brief stay to pick up stores in Mendoza, on 28th March Darwin started out for the Uspallata Pass via Villavicencio. This was (and is) a remarkable hot springs oasis in the cold stony desert with a hot spring pool surrounded by trees. In the later 19th century this became,



The 'mean hovel' at Villavicencio (now a very highly rated *parilla* restaurant!) with our Renault Clio outside. (Photo Patrick Boylan)

and remains, a major source of bottled mineral water found all over Argentina and beyond, (now owned by the Danone company after the financial crisis of 1991). No doubt Darwin and his animals would

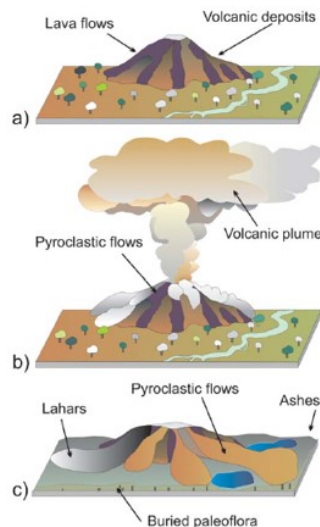
have been very glad to enjoy the water, and the horses and mules would have been put in the very large fenced compound where horses and mules could rest and be fed. Darwin and his guide then went to stay in the adjacent, much-praised Inn. However, this proved to be a most bitter disappointment. Darwin described it in his journal the next morning as 'a mean hovel' and negotiated with the manager of a large copper mine about 2 miles away to stay there instead.

From 29th to 31st March he explored the area around Villavicencio. Close by were the remains of late 17th – 18th century silver mines and smelters. However, far more important was what has ever since been known as Darwin's Fossil Forest. Just by the north side of the main mule track of the Uspallata Pass he spotted around forty large fossilised fallen tree trunks and a few matching tree roots still in position. Darwin suspected that these were *Araucaria* (Chilean Pine or 'Monkey Puzzle' tree), and his identification was confirmed by Hooker of Kew



Burned timber in Darwin's Fossil Forest. (Photo Patrick Boylan)

on his return, though Darwin did not realise that these were Triassic in age. Seeking a scientific explanation for the apparent simultaneous destruction of the trees, he found that they were partly buried in volcanic ash, and some of the trunks appeared to have been burnt. Following the ash flow up the slope of the valley side he traced this to a small volcano a few hundred feet above the fossil forest, and he concluded that an area of woodland had been overcome and destroyed by a hot ash flow from the volcano above.



Contemporary diagram reconstructing Darwin's interpretation of the Fossil Forest (Geol. Soc. of Argentina)

On 1st April the party started up the Uspallata Pass, following the mule track to the foothills of Aconcagua and then on to Chile. This has been quite recently widened and surfaced to create a modern two lane highway. Darwin soon paused to record and draw a truly remarkable section in the Triassic volcanic deposits on the south side of the Pass exhibiting a re-markable range of colours, from white to black via green, red, purple and grey among others. His detailed colour drawing of the section is in the Darwin Papers, and he recorded in his journal 'This had every shade



Uspallata Pass section with spectacular colours recorded by Darwin. (Photo Patrick Boylan)

of colour. This was the first view I ever saw which really resembled those pretty sections which geologists make of the inside of the earth'. Darwin continued to climb up the

Uspallata Pass, making many new geological observations through 2nd to 5th April, reaching a height of 12,454 ft on the foothills of Aconcagua before turning onto the steep pass over the mountain. It took four days – 6th-9th April, partly because of the time spent trying to find one of the mules, stolen while camping overnight by the track.

The party finally completed the descent to Santiago on 10th April, from where Darwin continued to Valparaiso where he boarded the *Beagle* to continue through the Pacific to the Galapagos Islands.

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A column where historians of geology tell us something about their experiences in the field. We are delighted that in this first *HoG's Life* Professor Martin Rudwick has consented to be our 'guinea-pig'.

Martin will need no introduction to most readers of this column, nevertheless a few reminders about his illustrious career might not go amiss.



Following doctoral research in paleozoology, Martin's interests broadened to include historical and philosophical issues. He transferred to Cambridge's HPS department in 1967 from which time his work focused on the history of the earth and life sciences. In 1974 he moved to the Vrije Universiteit in Amsterdam and in 1986 he was appointed professor of the history of science at Princeton, transferring to the University of California San Diego in 1988. Since his return to England in 1998 he has been an Affiliated Research Scholar at Cambridge University's Department of the History and Philosophy of Science. He is a Fellow of the British Academy, and in 2007 he was awarded the Sarton Medal of the History of Science Society.

To quote Richard Fortey: "To describe Rudwick as 'scholarly' is rather like describing Mozart as 'musically talented'. He is omniscient."

Martin, please tell us how you first become involved in the History of Geology (HoG)?

Two distinct routes around the same time. I was starting research in palaeontology at Cambridge: fascinated by the beautiful sculptural forms of many brachiopods, but frustrated by the narrowly taxonomic or stratigraphical objectives of most published work on these and other invertebrate fossils. E.S.Russell's classic *Form and Function*

(1916) introduced me to the idea of functional morphology, to its untapped value for tracing adaptive evolution, and to the towering figure of Georges Cuvier, who had first used this approach to reconstruct extinct mammals from their scattered bones. This showed me the weakness of much of what then passed as history of science: Cuvier was not just a benighted opponent of evolutionary ideas, but an outstandingly creative scientist whom I then took as my inspiration (I'd been well taught at school, and had no difficulty reading his works in their original French). Around the same time, unexpected events gave me access to a mass of letters and other manuscripts in the then privately owned papers of George Greenough, the Geological Society's first president. This led me to try to reconstruct the earliest activities of the Society, and made me realise the limitations of the conventional emphasis on the solitary achievements of Great Men (and they were all men, of course). On the contrary, the highly productive geology of the early 19th century, no less than that of the mid 20th, had evidently been the work of many people of varied competence and expertise, interacting sometimes amicably and sometimes not, but certainly not divisible into caricatured goodies and baddies.

Why is it important to study the history of a discipline like geology?

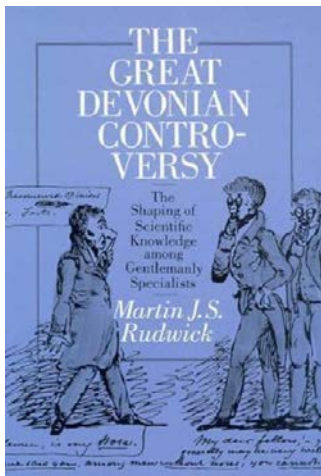
It's important in its own right, to understand how reliable knowledge of the natural world has been achieved - and continues to be improved - by the efforts of highly diverse human beings. But it's also important as a corrective to misleading and even destructive ideas about scientific knowledge. Studying and understanding the natural sciences - I try to avoid the 'anglophone heresy' of a singular and monolithic 'Science' - can keep them all in their proper places as highly diverse, and as neither panaceas nor pernicious. Above all, studying their histories can open our eyes, or keep them open, to the character of the sciences as *human* constructs, indefinitely improvable, but always provisional and corrigible.

What was your first HoG research project or publication?

My first historical publications were articles derived from my research in the Greenough papers, on his early fieldwork and the early history of the Geological Society. They were published in the first volume of the *British Journal of the History of Science*, the start of which was a sign that the history of the sciences was becoming a serious field of scholarship in Britain (it was already well established in the rest of Europe and in the United States).

Of which piece of work/ publication/moment are you most proud?

I think that must be my big book on *The Great Devonian Controversy* (1985), which was reviewed in a very wide range of periodicals: historical and geological, of course, but also philosophical, sociological, anthropological, literary and so on. The reviews ranged from the positively enthusiastic - Steve Gould's lengthy essay-review in the *New York Review of Books* must have helped sales no end - to the fiercely critical; the same range was on display when the sole plenary session of the four international 'science studies' societies, meeting together in Philadelphia in 1986, was devoted to my book. What it tried to show, and what stuck in the gullet of some of the philosophers, was that a scientific controversy that had aroused equally fierce



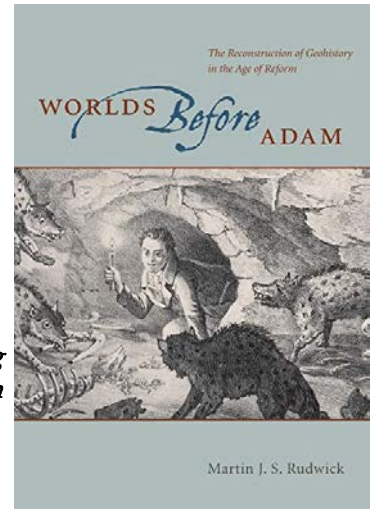
passions among the original participants had been resolved not by the triumph of the correct interpretation over incorrect ones, but by the emergence of a novel alternative (the 'Devonian' system and period) unanticipated by anyone at the outset. I had been able to trace their tangled arguments in detail, week by week over more than a decade in the mid-19th century, thanks to the survival of a mass of manuscript letters and field notebooks written by a varied cast of characters, some famous, some obscure, and now conserved in widely scattered archives. I think my portrayal of a specific scientific community, at a specific point in history, resolving an important scientific puzzle by a process of intensive interaction, is the historical work of which I am most proud.

What is(are) your favourite HoG-related book and do you have a favourite character from the HoG?

Charles Lyell's *Principles of Geology* (1830-33) may seem too obvious a choice; but when long ago the Chicago press asked me to edit their facsimile three-volume reprint, it gave me the incentive to read it very carefully and to chase up all its footnote references. This seemed to me to turn upside-down the conventional interpretation of the work as the triumph of an enlightened 'uniformitarianism' over a reactionary 'catastrophism', and to disclose Lyell's much more interesting objective of working out the most effective method for reconstructing the *history* of the Earth and its life (hence his use, as its epigraph, of a quote from Niebuhr, the then leading historian of classical Rome). And

I found Lyell himself a fascinating character, usually though not always admirable as a human being, but hugely impressive as a scientist. In more recent years I've tried, in my *Bursting the Limits of Time* (2005) and its sequel, *Worlds Before Adam* (2008), to set his work in its proper international and multilingual context.

If geology has been about understanding and utilising the earth and its resources, does the history of the discipline have anything to teach us for the future?



Just the clear advice not to stick dogmatically to one side of any major argument among Earth scientists. The herd instinct of relentless hostility towards, for example, crustal mobility and 'catastrophic' events in the Earth's history, as displayed by large sections of the Earth sciences community during much of the 20th century, should put us on our guard.

Do you have a funny HoG-related story to share with readers?

Just a small anecdote at my own expense. In 2007 Hugh Torrens and I led an international party of geologists and historians on a field trip on the Isle of Wight, as part of the celebrations to mark the Geological Society's bicentenary. I designed it as a 're-treading' of the fieldwork by the Society's first paid employee Thomas Webster, who first worked out the spectacular folding of the strata across the island and extending on to the mainland. On the first evening, introducing what we would see during the weekend, I emphasised the value of deliberately trying to see the puzzling geology through early 19th-century eyes, suspending our knowledge of its later and successful resolution. I warned jokingly that, while in the field, anyone heard protesting 'But we now know that...' would have to buy everyone else a round of drinks. Unfortunately for me, the next day I myself was heard using some such wording while explaining what we were seeing in the field. I don't remember whether I had to pay for it, but I deserved it: what historians of science rightly criticise as 'presentism' is an ever-present obstacle to thinking and writing effectively about the history of any kind of science.

Thank you Martin.

All aboard!

Geologist and science writer Nina Morgan takes a trip down memory lane.

The introduction and growth of the railway network in the first half of the 19th century revolutionised travel and transport of goods for many, and it also had a profound effect on the science of geology. Not only did it make it easier for geologists to cover the ground quickly – but the railway cuttings for the new lines revealed rock outcrops that had never before been seen. One of the first to take advantage of the new possibilities was John Phillips [1800 – 1874].

Phillips, the first keeper of the Yorkshire Museum, and later first keeper of the Oxford University Museum of Natural History, was a skilled palaeontologist, field geologist and prolific author. He also became a great train enthusiast



John Phillips (1800-1874).

Courtesy OUMNH

Phillips never married and lived with his unmarried sister Anne who served as his moral support, confidant and geological companion. In 1835 John wrote to her with a vivid description of his first train journey – travelling on a 'flying steed of Iron,' from Manchester to Liverpool on his way to Dublin.

To: Miss Phillips, Museum, York, England

Liverpool. Thursday Evening, 23 July 1835
Royal Hotel
& Dublin Sat 2pm

My dear Annie

Mais hélas! ou suis je? - Est ce que Monsieur va par le chemin de fer a Liverpool? a Warrington? a Wigan? Tenez Monsieur, permettez moi d'arranger votre bagage. Ah! oui je vois tres bien, que ce grand portemanteau a joli soi de nuit, et ce -- de'alle comment s'apelle cette petite boite? -- So like a lump of sugar I was tossed in & my baggage upon the Railway Auxilium Omnibus (What Latin?) & away we drove. -- Entered the Train & the Railway & fly Jack & be gone. In 80 minutes we reached Liverpool 32 miles, & soon by another Omnibus were landed at our several hotels. My dear Annie, You must certainly come to feel the strange impression of this flying Stead of Iron. It does so hurry & flurry on, you shake & sleep & start & wonder at the gliding Houses, trees & Churches, -- the trains which meet & pass you like the swiftest birds with a rushing sound & the Master power (Steam) & a confused picture of colours & forms not at all distinct as Men[,] Women, Carriages &c that it is all like magic & can not be understood by a mere description. Then you are dragged through a tunnel full of gas lamps, then laid hold of by ruffian porters & crammed into an Omnibus whether you will or no & whirled away the man who guides (only) knows whither. Mais Voilà. I have walked to see the docks &c, a man was very talkative to me. I go to sleep. God bless You!

Converted

Phillips quickly became a convert to train travel. He was often travelling from his base in York to earn money by giving lecture courses by subscription to members of the various newly formed Philosophical societies in Yorkshire and elsewhere, so enjoyed the relative convenience and faster travel times train travel offered – even though, as he wrote to Anne, the trains were not always punctual. No change there!

Royal Hotel Manchester
Tuesday 10 pm
March 30 1841

My Sister

My sweet sister if a name dearer & kinder were, it should be thine!

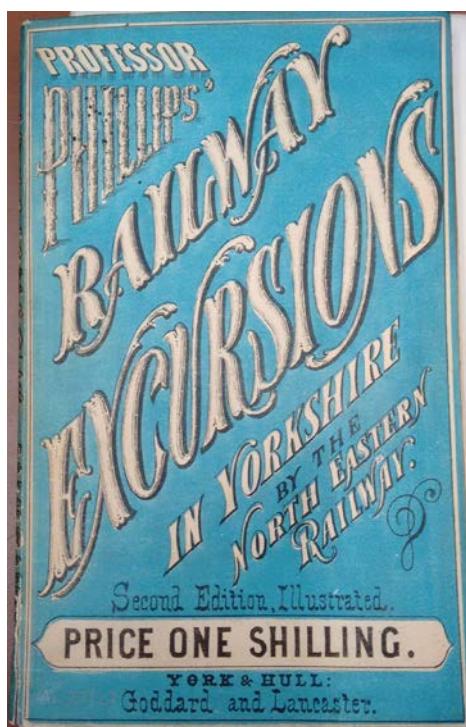
Mais voici: I found the Train of yesternight very good travelling till we entered on the Leeds & Manchester line at Normanton. Then began this singular amusement: to lose time so as to arrive in 4 hours from Leeds, the time really required being 2 1/2

hours. We did this odd railway feat by stopping 5 minutes each at about 10 stations & using all possible precautions not to go too fast. This is said to be on account of the recent embankments not allowing rapid transit: but some of the trains are faster. We reached Manchester at 10:30, that is to say in 4 hours from York...

Trip Advisor

As well as welcoming the faster travel times offered by train travel, Phillips also recognised the potential offered by the expansion of the railways to introduce the wonders of geology, scenery and history to the travelling public at large.

Phillips's book, *Railway Excursions from York, Leeds and Hull*, first published in 1853, was a popular success. It went through several editions and was republished several times under various titles. Along with references to geology, the book included much historical background about the buildings, sights to be seen, and advice on the top 'tourist destinations' and how to reach them.



Railway Excursions in Yorkshire, first published in 1853 (Courtesy OUMNH)

The book inspired other Yorkshire-based geologists to jump onto the platform, and as new lines opened in Yorkshire, so new railway geology guidebooks began to appear. Notable examples include the *Geology of the Hull and Barnsley Railway* by Edward Maule Cole, which appeared in 1886; and *Yorkshire from a Railway Carriage Window*, included as Part 2 in the massive *Geology of Yorkshire* by Percy Fry Kendall, emeritus professor of geology at Leeds University, and Herbert Wroot, Honorary secretary of the Yorkshire Geological Society, which was published in 1924.

Network Rail

As the railway network expanded throughout Britain, so did the number of authors keen to describe the geology of their part of the country from the windows of a train.



The first Inter-City railway

(Author's Collection)

In 1886, Sir Edward Poulton, published an account of *The Geology of the Great Western Railway journey from Oxford to Reading*. Then in 1945 the Oxford Geologist W.J. Arkell published his classic paper, *Geology and Prehistory from the train, Oxford to Paddington*. Philip Powell paid tribute to Arkell's methods with a final chapter in his 2005 book, *The Geology of Oxfordshire* outlining the geology visible along the Cotswold Line from Moreton in Marsh to Reading. Meanwhile, Eric Robinson, now retired from UCL, prepared numerous handouts and guides describing the geology to be seen from trains leaving from various London stations.

Along the way all of the 'railway geologists' painted vivid pictures both of the geology and the countryside as they saw it, and their descriptions – especially those from the earlier publications – provide a valuable insight into landscapes and railway lines now lost.

"A railway tour is life in a hurry", Phillips proclaimed in his pioneering railway book. He clearly enjoyed the rush, and so did the many other geological authors and lovers of the countryside who followed in his tracks. Even today, with a railway geology book in hand, those delays along the line can turn into a real pleasure – depending where you're held up, of course!

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I thank the archivist, librarian and the director at the Oxford University Museum of Natural History (OUMNH) for providing access to Phillips's letters and copies of his Railway book; also Patrick Boylan, Philip Powell, and Eric Robinson for advice and encouragement. This article is based on a talk I gave at the Yorkshire Geological Society Meeting Yorkshire, Geology, Landscape and Literature, held in Hull in March 2019.

Nina Morgan is a geologist and science writer based near Oxford. She writes the quarterly history features (formerly known as 'Distant Thunder') in the GSL's *Geoscientist* magazine and is an Honorary Associate at the OUMNH.

Future HOGG Meetings

Wed 12th May 2021 (11.00 start – 17.00 finish). – HOGG International Conference

The Geological Society's Map: understanding George Bellas Greenough and his 1820 geological map project

This online conference is the re-scheduled meeting marking the bicentenary of the publication of the first edition of the Geological Society's map of England and Wales (in 1820) - commonly referred to as the Greenough map. We will be joined by former members of the Greenough Club, the student geological society at UCL.

Thurs 17th June 2021 (Lunchtime: 13.00-14.00) – *Treasures from the Archive of the Sedgwick Museum* with Sandra Freshney

Thurs 29th July 2021 (Lunchtime: 13.00-14.00) – *Geology & Medicine* (full title tbc) with Dr Chris Duffin

Fri - Sun 10th- 12th Sept 2021 – HOGG field meeting: *Malvern Rocks: Geology in a Victorian Health Resort*

Tim Carter is organising a meeting in Malvern to look at how the complex geology of the Malvern Hills and their surroundings was investigated and came to be understood during the nineteenth century. The event is being planned to enable social distancing, should this still be recommended in September.

Thurs 14th October 2021 (Lunchtime: 13.00-14.00) – *The History of Petroleum Exploration* (full title tbc) with Tony Spencer

Fri 19th November 2021 (13.00-14.30) – HOGG AGM followed by

The 'Discovery' of the Silurian: following in the footsteps of Murchison with Duncan Hawley

HOGG Website

Our main website at <http://historyofgeologygroup.co.uk/> continues to be upgraded. This provides easy access to all aspects of HOGG including details about our meetings and the facility for online registration and payment, as well as subscription renewal. We also have a presence at <https://www.geolsoc.org.uk/hogg> where you will find some useful resources.

Social Media

You can follow HOGG updates, history of geology news and selected items of interest through our Twitter feed where our username is @HOGGGroup. Latest tweets are visible on <http://historyofgeologygroup.co.uk/>, and past tweets can be seen by clicking on the Twitter icon at the foot of that page. All our tweets also appear at <https://www.geolsoc.org.uk/hogg>

Please direct any HOGG Twitter queries to Duncan Hawley (duncan.hawley.hogg@gmail.com)

History of Geology Project Notes and Papers <https://historyofgeology.science.blog>

A platform for HOGG members to share findings and notes about their projects, and engage with others in constructive discussions and comments about their work. Members can pre-publish their work without prejudice to future publishing in a scholarly journal. For further information, or to submit articles, please contact the site editor: duncan.hawley.hogg@gmail.com.

GeoHistories is issued in April and October.

Please send copy by the last day of the month preceding publication to the editor: Peter Lincoln (hoggnewsletter@gmail.com)

Past editions are available at <http://historyofgeologygroup.co.uk/newsletter/> and <https://www.geolsoc.org.uk/hogg-newsletters>.

Front Cover: Detail of a watercolour (of William Buckland in Wales?). See Tom Sharpe, 'A case of mistaken identity', pp.13-14.

Image courtesy of Roderick Gordon.

The geological map used as the backdrop to the *GeoHistories* title was published in 1875. It is a French map from the *Atlas Universel en 67 feuilles* by Brue' and Levasseur. It is unusual as the projections are centred on Paris and its antipode. The geology on the map is from Jules Marcou's 1861 *Carte Geologique de la Terre* - the second world geological map to be attempted (the first was by Ami Boué in 1843). The great blank areas are due to Marcou insisting he only publish geology that was known rather than based on conjecture. As such, it is an interesting view on the state of geological knowledge in the mid-nineteenth century.

Image courtesy of Duncan Hawley under CC BY-NC 4.0