

Committee

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John Schroder

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Bob Bucki

Copy date for the next Newsletter is Monday 1 June

Newsletter No. 260 April 2020

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To find out more about this photo - read on!



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For enquiries about field and geoconservation meetings please contact the Field Secretary.

To submit items for the Newsletter please contact the Newsletter Editor.

For all other business and enquiries please contact the Honorary Secretary. For further information see our website: bcgs.info, Twitter: @BCGeoSoc and Facebook.

Covid-19: a message from our Chairman

Dear members, we hope that you are well and coping in these difficult times. In line with the Government's guidelines and the overriding need to keep everyone safe, we are postponing our meetings programmes until it is clearly safe to return to 'normal business'. In the first instance, nothing will be organised until at least the **September** indoor meeting. The situation is changing quickly and still very unpredictable in its direction. Because of this the committee will be monitoring the situation and updates will be given by email and in this newsletter to let everyone know what is going on. The committee would love to hear from you in the interim, so if you have any questions or concerns, stories of interesting things to share with the other members please do get in touch. Also if we can be of some practical service while all this is happening please get in contact and we'll help if we can. \blacksquare

Graham Worton

Future Programme

Indoor meetings will be held in the Abbey Room at the Dudley Archives, Tipton Road, Dudley, DY1 4SQ, 7.30 for 8.00 o'clock start unless stated otherwise.

Visitors are welcome to attend BCGS events but there will be a charge of £1.00.

Covid-19 Cancellations

Please note that all BCGS meetings and field trips are cancelled until the indoor meeting on Monday 21 September. We will keep you informed of any further developments.

Monday 21 September (Indoor Meeting, 7.00 for 7.30 start): AGM (postponed from 16 March) followed by 'Glacial Change and its impact on sea levels'. Speaker: Dr Lucy Clarke (Senior Lecturer in Physical Geography, School of Natural and Social Sciences, University of Gloucestershire). Lucy will describe and discuss some of the glacial change research she undertook in Antarctica and the impact of glacial change on sea levels.

Other Societies and Events

Covid-19 Cancellations

Most societies have cancelled their meetings for the foreseeable future. Below is a list of the societies whose events we normally promote in this Newsletter. Please check websites for further information.

Geological Society, West Midlands Regional Group: Click here for website. Warwickshire Geological Conservation Group: http://www.wgcg.co.uk/ North Staffordshire Group of the Geologist's Association https://nsgga.org/

Teme Valley Geological Society: http://www.geo-village.eu/

Woolhope Naturalists' Field Club - Geology Section https://www.birmingham.ac.uk/facilities/lapworth-museum/events/lectures.aspx

Shropshire Geological Society: www.shropshiregeology.org.uk/ Manchester Geological Association http://www.mangeolassoc.org.uk/

Mid Wales Geology Club: http://midwalesgeology.org.uk/
East Midlands Geological Society: http://www.emgs.org.uk/

Herefordshire & Worcestershire Earth Heritage Trust: http://www.earthheritagetrust.org/

Abberley & Malvern Hills Geopark: http://geopark.org.uk/

Editorial

With the world turned upside down due to a tiny small microbe, these are testing times for all of us. We have all been adversely affected in numerous different ways, but this Newsletter has always tried to reflect the positives in our local geological community, and in this issue I think we need to try even harder to maintain the spirit of optimism. Be of good faith and bear with us. This is a time for us all to reflect, dust down those collections of rocks (and make sure they are all properly labelled!) and dip into our collections of books and leaflets to revise and learn more. Perhaps spend time exploring our web site? There's a wealth of information there: from the entire collection of Newsletters, to the leaflets and booklets which have been produced by the Society over the years, and the ever-increasing archive of photos. Those of you whose memories of the Society go back a long way, how about looking through your old photos, particularly of the early field trips? Either send them to me or to our webmaster, my husband John: webmaster@bcgs.info If you are uneasy about digitising, just keep them on one side and hand them to John when we meet again or post them (address above). John will copy and return them to you.

There are also the websites of other geological societies, both local and more distant (see 'Other Societies' above), and our Meetings Secretary, Keith, has flagged up a Geology web page with a vast collection of geological posts with wide ranging subject matter – something for everyone: www.geologypage.com Then there are up-to-the minute tools like the Voyager Apps. You can start close to home with the Wren's Nest Voyage which you can follow from the comfort of your armchair: https://deeptime.voyage/wrens-nest-voyage/ Using your phone and the App, you can follow the route for real once we're unleashed from our current confinement. Another geo-learning aid was flagged up to me by Julie Harrald, from WGCG: www.earthlearningidea.com which is a mine of information and activities for the young – and young at heart.

The inability to hold the AGM at the usual time faced us with something of a constitutional dilemma. This is explained more in the AGM report below. ▶

We hope you will find ways to keep your geological interest alive during the lockdown, and please share with all of us any tips and suggestions you have for staving off boredom. To send items for the Newsletter get in touch with me (details on p.2) or for direct and immediate communication please remember our social media platforms: Facebook and Twitter - @BCGeoSoc

The committee members are still beavering away from solitary confinement (thank goodness for email!) to make sure that we have a full programme up and running when the current crisis is behind us. On behalf of the committee, I send our best wishes and hope that you are all keeping well and finding ways of coping with the 'new reality'.

Julie Schroder

Annual General Meeting - Postponement

BCGS is constitutionally obliged to hold an AGM each year, no later than the end of April. Due to the cancellation of the meeting scheduled for 16 March, and the current Covid-19 restrictions, this will clearly not be possible. The committee is therefore proposing to postpone the AGM to the start of the meeting on **21 September**. In the meantime please note the following:

Current Situation

- All members have been sent the full Chairman's report, and the Audited accounts. For those not on email, printed copies are enclosed with this Newsletter.
- All the current honorary officers and committee members are willing to stand for re-election.
- The honorary auditor (Davena Dyball) is willing to be re-appointed.
- We have no responses to the Committee Vacancy notice in the February Newsletter.

Interim arrangements

- The committee members will continue in their current roles and will stand for re-election at the postponed AGM in September.
- The Honorary auditor's re-appointment to be ratified at the AGM in September.
- Chairman's and Treasurer's reports to be formally presented for acceptance at the AGM in September.

Below is a summary of the Treasurer's audited financial statement, the Chairman's report, and the current make up of the committee and officers.

Financial Statement

For the year ending 2019, there was a slight increase in over-all income compared with 2018, due largely to catering, donations and a surplus on the Dorset trip. However, there was a substantial increase in expenditure, due largely to room hire and speakers' expenses, thus incurring a deficit in the current account. The Society has reserves in a building society account, leaving a healthy balance for the moment, but this raises questions about the Society's on-going financial viability. The statement was prepared by the Hon Treasurer, Alan Clewlow, and audited by Davena Dyball.

Chairman's Report

The meetings' programme for the last 12 months covered a wide range of topics including Canalside geology, Doggerland, Minerals of the Midlands, the Solar System, and short talks by members at the Christmas social evening. There were six field trips, from nearby Castle Hill to more distant localities ▶

in Gloucestershire, Martley and the Severn Valley, plus a weekend field trip to the Dorset coast. Geoconservation work took place at Wren's Nest, Barrow Hill, Portway Hill and Saltwells.

Thanks were offered to members of the Society and fellow local societies for their participation in our programme, and special thanks to Keith Elder for the indoor programme, and Andrew Harrison for the field and geoconservation programmes.

For the newsletters, secretarial work, social media and website, thanks were offered to John and Julie Schroder, Peter Purewal and Robyn Amos, noting that these things together are the voice and visibility of our Society. Thanks were also extended to all the membership for practical help, information and ideas with a plea for continuing involvement.

Noting the current disruption caused by Coronavirus, the Chairman expressed the understanding that the Black Country UNESCO Global Geopark is expected to be ratified by the UNESCO Executive at some point in the next few months. Interest is mounting and teams are preparing for the announcement and publicity campaign. The Chairman noted that this Society would be at the heart of this pivotal moment in the history of the Black Country and how its heritage will be presented in the future.

It was observed that the Society's programme would be affected by the current situation, but that BCGS members will be welcome to engage with future Geopark events. It was emphasized that the BCGS programme is very much open to suggestions, and invited Members to let us know of subjects, events, activities, or any speakers which might be considered for the future programme.

The Chairman reflected that BCGS formed in 1975, so is 45 years old this year, and over this time has made a significant contribution to local heritage. His personal membership dates from 1978 and he noted the influence the Society had in saving and promoting the Dudley geological collection, and its leading role in geoconservation, hosting and supporting geological events, and being an inspiration for others. In conclusion, the Chairman offered thanks to all members across all 45 years, and extended an invitation to current members to get more involved, and in so doing get more out of the BCGS programme. ■

Graham Worton, March 2020 (summarised by Julie Schroder).

Status of Committee

Members of the Committee have offered themselves for re-election, and they agreed to continue in their current roles until formal election is possible:

Chairman: Graham Worton Hon Secretary: Robyn Amos Hon Treasurer: Alan Clewlow

Vice Chairman and Field & Geoconservation Meetings Secretary: Andy Harrison

Meetings Secretary: Keith Elder Newsletter Editor: Julie Schroder Webmaster: John Schroder

Social Media: Peter Purewal, Christopher Broughton, Robyn Amos

Other member: Bob Bucki

Davena Dyball is willing to audit the accounts for the next year.

Geoconservation Meeting Reports

Saturday 5 October 2019 and 8 February 2020: Saltwells Local Nature Reserve

Doulton's Claypit

October's visit to Saltwells was an overcast and cool day with a light breeze. A small group of BCGS volunteers met ranger Tom Weaver in the reserve car park for the usual 10.30 start time. We spent the day in Doulton's Claypit at the foot of the 'Grey Cliffs' exposure situated at the foot of the Claypit's main access path. The exposure has been so named due to the grey Coal Measures mudstone, shale and coal bands that dominate it. Our task for the day was to clear the thickly bedded yellowish-brown sandstone layers at the foot of this exposure. The sandstone exposure contains thin cross-bedded layers indicating the passing of ripples, and evidence of shallow channels carved into earlier sandstone layers. These indicate low-lying fluvial flood plains towards the end of the Carboniferous, as the land

Dolerite intrusion, Brewin's Cutting

was being uplifted prior to the Hercynian (Variscan) Orogeny.

Tom pointed out how the reserve rangers are busy keeping the Claypit vegetation in check to help manage important grassland and wetland habitats found there. Many butterfly and dragonfly species call the Claypit home. However, none are as large as the giant dragonfly-like Meganeura that inhabited Carboniferous swamps and marshes. Life size metal sculptures of these creatures can be seen in the Claypit clinging to rock faces and hovering over engineered ponds.

Brewin's Cutting

Our February meeting saw only a small group gather, this time without Tom. With help from the Friends of Saltwell's LNR Group the wardens have been doing a lot of work to keep the Brewin's Cutting

and the Old Tub Line clear, whilst uncovering new exposures between the two locations. With spring approaching and with the local flora still asleep from the winter, we spent the day at the Brewin's Cutting clearing vegetation from the dolerite exposure situated before the bridge. Intruded as part of the Variscan orogenic event, this rock proved a hard obstruction to shift for the workforce constructing the cutting ready for the Dudley No. 2 canal to pass through. ▶



Dolerite spheroidal weathering, Brewins Cutting

Saturday 18 January 2020: Wren's Nest National Nature Reserve

On a cold, clear and sunny day in January 2020, we joined lan Beech and the Wren's Nest wardens for a day in a section of the Lower Quarried Limestone trench to the south of Locality 2, the top of the NCC Cutting. At the end of this section, a low rock and earth wall crosses the trench and indicates where the Lower Quarried Limestone band is offset by one of the reserve's cross-cutting faults. This section of trench was used for land filling during the 1950s and 60s, hence the floor along here is higher than elsewhere along the trench. Our day was spent clearing small trees, saplings and



Wren's Nest, Lower Quarried Limestone trench

vegetation along the trench to open it up, improve the view along its length and allow more light in.

Saturday 7 December 2019 and 7 March 2020: Barrow Hill local Nature Reserve



East Quarry South Face

On both our visits to Barrow Hill Local Nature Reserve, we spent the time generally clearing vegetation from the left-hand arm of the East Quarry. We also tried improving the access to some faces such as the southern exposure, by cutting steps into the scree slope. This exposure provides a good example of the Etruria Marl country rock in contact with the intrusive Carboniferous dolerite.

During both visits the light was just right to distinctly reveal the Etruria Marl and the dolerite. On the southern face it appears that much of the baked Etruria Marl has fallen away

from the rock face and ended up as large crumbing boulders down the scree face sloping down from it.

The Etruria Marl in this exposure appears to have been a lump of country rock that fell into the magma chamber whilst the mafic-rich lava was still molten. Looking at the contact between the two rocks, the dolerite looks heavily fractured and brecciated and the marl looks reddish and yellow-brown, baked and crumbly. The subsequent passage of calcium-rich hydrothermal fluids through the rocks can be seen as whitish calcitic veins through the exposure. Standing back from the rock faces on both the northern and southern side of this quarry arm, reveals sub-vertical thermal joints within the dolerite that formed as the magma cooled.



Baked Etruria Marl boulders, East Quarry

Since the Barrow Hill LNR is an unmanned reserve it is important to keep on top of the vegetation growth within the East Quarry so as not to lose the features visible there. Hopefully the work undertaken over this last winter will reduce the amount of vegetation growth over the coming summer months from obscuring the view of the exposures.

With the likelihood of the Black Country becoming a recognised Global Geopark just around the corner, the works we undertake at these and other sites has never been so important. There are over 40 sites in the



Calcite veining in brecciated dolerite

Geopark, some manned and others not. It is planned to join up with other groups to set up a programme of ongoing maintenance to ensure that these sites remain open and accessible for all to see and learn from. With spring now arrived the current season of works is at an end until the autumn.

Andy Harrison

Mike's Musings No. 26, Seeing the Bigger Picture

One of the advantages, and great joys, of gaining expertise in any subject is that fluency increases one's ability to express oneself more completely. Compare, for instance, the satisfaction a musician gains from haltingly playing the scales when first picking up an instrument, to that of the virtuoso interpreting a complete concerto. Although the comparison may seem fanciful, I have found my enjoyment of geology has increased with experience over the years from being able to pull together the seemingly disconnected threads of a broader tapestry, thus gaining greater satisfaction from seeing the bigger picture more clearly, though I do not presume to have reached the level of the virtuoso!

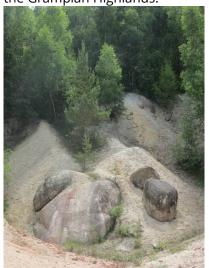
To illustrate the point, there are four particular places I have visited over a period of several years each of which, at the time, I looked at in complete isolation from one another.



Lochaline Sand Mine

The first location is the Lochaline Sand Mine Morvern (the area between Ardnamurchan peninsula and Mull), I described this in a short article in Newsletter No. 221 (October 2013), so, not to repeat at length, this mine extracts a very pure, fine-grained, well sorted, almost white sandstone, the same age (Cenomanian, c.95 Ma) as the lower part of the Chalk in the 'White Cliffs of Dover'. In simple terms, the sandstone was deposited along a very small part of the western 'Grampian High' (GH) shoreline around the early 'Chalk Sea' (the shallower shelf sea on the northern side of the Tethys Ocean). ▶

There is indirect evidence for the eastern limit of this landmass that comes from the Chalk, in particular the more resistant flints, eroded during the early Palaeogene and eventually re-worked, and still surviving, in the Buchan gravels of Neogene age. This interpretation is well illustrated in the booklet (freely downloadable) 'Landscape Fashioned by Geology Northeast Scotland' 1 (pp.26-33). Exposures of these deposits are somewhat limited, but make a fascinating contrast to all the metamorphic and igneous rocks of the Grampian Highlands.



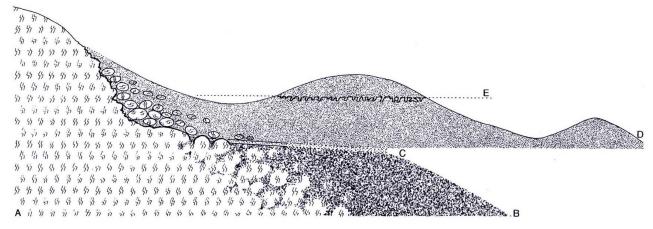
Degraded and kaolinised residual boulders of the gneiss basement



The Buchan Gravels at Windyhills, near Fyvie, remarkable for the high proportion of cleanwashed white rounded flints and quartzite.

The second location at Windyhills, near **Fyvie,** is perhaps the best exemplar of the younger Buchan gravels.

The third location is Ivö Klack, on the tiny island of Ivö in the eponymous lake (Ivösjön), near Kristianstad, in southern Sweden. This site, at approximately the same latitude as Lochaline, preserves weathered and degraded granitic-gneiss cliffs at another spot around the coastline of a 'Fennoscandian High' landmass, from a slightly later time (Campanian c.80 Ma) in the life of the same 'Chalk Sea'. As well as the progressively kaolinised basement gneiss, complete with isolated boulders of altered gneiss embedded in a kaolin matrix, the site preserves onlapping Cretaceous sediments, beginning with a basal quartz-sand, passing up into a coarse 'calcarenite' (impure sandy / gritty limestone) with many familiar 'chalk fossils', together with a 'hardground' (contemporary weathering surface) near the top of the succession. This is illustrated in the diagram below by R.G. Bromley from an account of a Geologists' Association field excursion in southern Scandinavia.²



Schematic cross-section of Ivö Klack Quarry showing the weathered and eroded basement granite-gneiss (A -B) being encroached by littoral Cretaceous sediments, including a basal quartz sand (C) and overlying calcarenites (D) with further erosion surfaces (E)

The final location lies roughly due south of Ivö Klack, in a disused quarry at Kutná Hora, east of Prague, in the Czech Republic. I briefly described this site in my 'Musing' in Newsletter No. 247 (February 2018). Admirably presented with many information boards (albeit in Czech) and a large ▶

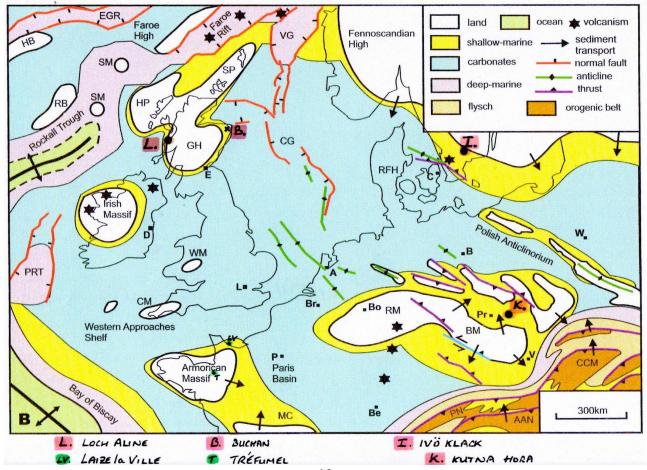
display of boulders illustrating many of the local rock types, the main feature of this quarry is a splendid angular unconformity between the late Proterozoic basement of amphibolitic gneiss and late Cretaceous (Cenomanian c.95 Ma) coarse, glauconitic, calcareous sandstones (reminiscent of the Greensand that precedes the Chalk in Britain). Nearby localities apparently include a basal boulder-conglomerate infilling the deeper hollows of a rugged former land surface. Either way, these Cretaceous sediments are, once again, representative of a shallow coastal environment, in this case on the margins of a 'Bohemian Massif' (BM) and other smaller landmasses in the 'Chalk Sea', much closer to the northern margin of the Tethys Ocean.



Cretaceous unconformity above dipping Precambrian (Proterozoic) basement, Kutná Hora

The bigger picture came home to me only when I happened to come across a geological map in Graham Park's excellent, but demanding, read 'The Making of Europe: A Geological History'. The map below (based on Figure 7.5B, p.99) shows up the extent of the 'Chalk Sea' (blue shading marked as 'carbonates') across northern and central Europe, whilst also showing the various landmasses (GH, BM etc. in white) which litter the marine shelf, each with a littoral fringe dominated by clastic deposits of sandstone-shale (shown in mustard-yellow, and marked 'shallow-marine'). The deeper trough of the Tethys Ocean lies to the south of the region covered by this

map, but is just suggested by the narrow band of purple shading (marked 'deep marine').



This map suggests I have other places to visit before I can claim to have seen the 'full picture': perhaps I should explore the 'Irish Massif' margins next.

With regard to the fringes of the Armorican Massif, there is another celebrated locality at Laize-la-Ville, in Normandy (in the mustard-yellow area west of Paris), where two splendid unconformities are exposed in a single road-cutting: Brioverian (late Proterozoic) is unconformably overlain by grey Cambrian quartzose sandstone that is itself unconformably covered by yellow Lower Jurassic limestone (see front cover photo for Cambrian / Jurassic unconformity). Not far away, at Tréfumel in Brittany, one finds highly fossiliferous marine beds of Miocene age lying directly upon Brioverian metasediments. It is easy to imagine that the 'Chalk Sea' overlap might once again have occurred somewhere between these two locations, but apparently offering no present day exposure.



The double unconformity: Jurassic at the far end, over Cambrian, over Pre-Cambrian (the nearest, darker grey rocks) at Laize-la-Ville

Connections like these become easier to make when, with increased experience, stratigraphic correlations can be identified. In particular, I find the series of special reports compiled for each geological period (published in the 1970's by the Geological Society of London) extremely helpful. Some have been revised and updated since then. Although getting a little dated, they remain an invaluable source for 'general use' today.

Rather than seeing a particular geological outcrop in isolation, it is often worth trying to relate it to others of similar age, to obtain a broader context for what might be going on... 'joining the dots' so

to speak. This has been made easier with the ever-growing volume of detailed guides on sale and the vast range of technical literature available on-line. Such information provides a fuller understanding of the geological evolution of our world, whether on a local, regional or global scale. I find that **the bigger the picture**, the more satisfying the overall understanding becomes.

References:

- **1.** 'Landscape Fashioned by Geology Northeast Scotland' pub. Scottish Natural Heritage, 2009. Download: https://www.nature.scot/landscape-fashioned-geology-northeast-scotland
- **2.** Bromley, R.G. 'Field meeting in southern Scandinavia 18 28 September 1975'. *Proceedings of the Geologists' Association vol.90, 1979, p.184*.
- **3.** Graham Park, 'The Making of Europe: A Geological History' pub. Dunedin, 2014 (ISBN: 978-1-78046-043-7).
- 4. Special Reports: correlation of (eg. Silurian) rocks in the British isles. Geological Society

Mike Allen

Poetry for the Black Country Geopark

Rob Francis is a poet and novelist, and one the Creative Writing lecturers at the University of Wolverhampton. He's been in touch with us to tell us about a geo-poetry project he is planning, to explore the Black Country Geosites through the medium of poetry. He would like to work in liaison with our Society, and has sent a poem which will challenge us all to look at our heritage in a different way. Below is Rob's statement, followed by the poem 'Through Filth'. There are links below to other aspects of his work. Prepare to be challenged – and enjoy! Ed.

Chain Coral Chorus: a Geopoetry project that explores the Black Country Geopark and the 40+ recognised geosites; supporting and celebrating the bid for the Geopark to become a member of the UNESCO Global Geoparks Network, and to investigate how the physical land of a place impacts on sense of place. I'll be considering how engaging in geological research, language and environment exploration illuminate new ways of considering place-identity, and energise new creative work, and how an understanding of the makeup of physical land affects and influences place-identity.

Thinking about the region's prehistoric or deep-time aspects, and how this plays a part in communal memory, identity and our industrial heritage, I'll engage in psychogeographic drift through the geopark, producing site-specific poems and running creative writing geopoetry workshops. I'll also conduct research at the Lapworth Museum at the University of Birmingham and at Dudley Museum and Archives; considering geological processes and terminology that has enabled my poetic explorations.

Drawing on the trend for writing that is concerned with conservation, ecology and new ways of experiencing place in the anthropocene, this project considers these issues in an overlooked region, famed for its 'dark satanic mills'.

Rob Francis

Through Filth - by Rob Francis

Attend!

Descend wi' me, mucker, down below grounds 'a Paganel's priory, 'ere 'ides the rhizome-echo 'a cluniac monks an' theya prayer enkindled, enflamed, like our own Smithys scorched core to gem, sand to glass, dust to daggers, smelt by quicksilver fingers 'a nailmekkin' kins full 'a ken for our caverns. These caverns.

Descend wi' me, mucker.

Descend down below wrenna roots an' lime where the cut chainlinks nidhogg, yggdrasil to cornershop, callcentre, from chain-coral helixing revelations to brackets 'a battle, ghost-ship, colony -

sendin' out cantin' whisps 'a caggy-'eaded scrappies older than god-time.

empires am iverin' an' overin' 'ere,

Attend!

Moist ore moves

in slow spit splitting fermi -

firm as fossil, cold

as core - there ay a Svedberg

of scuttles in 'ere; just patient sediments wi' the brood 'a halysite

silica shale, tracks

'a tabulate ordering roots

for protobeings an' protoaction.

Down 'ere weem

the stone an' slick sand

fertilities for steeler, glassmekker,

almost-teen lad wi' ommer, wi' chissel, wi' lens to spy crinoid ruins - insects set in geonest. Attend! 'Ere rests the Dudley Bug. Moloch. Iss ower

slow burn municipal crest -

elytra protects brave chests

in protean soils an' lets us swarm:

in stercore invenitur.

For more on the poetry and ideas of Rob Francis here are some links:

- 1. A Talk on Youtube: https://www.youtube.com/watch?v=CtkBRG2Pde0&t=17s
- 2. Wolverhampton University staff profile: https://www.wlv.ac.uk/about-us/our-staff/r-m-francis/
- 3. Rob's personal website: https://rmfrancis.weebly.com/