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Screens on the western side of Penmaen-bach near Conwy tell of long weathering under periglacial conditions, but are less well known than those of the nearby Sychnant Pass

## **Chairman's Message:**

It seems that Autumn has come early, so it's a reminder that we have a continuing programme of meetings lined up for your enjoyment now that the season for field activity has drawn to a close. In September there is a fascinating opportunity to visit the small haematite mine at Bodfari, and in October we will welcome Dr. Phil Hughes from Manchester University whose research into the extent of Snowdonian ice-sheets continues a theme that has exercised many workers over the years. In November we are expecting to hear from Dr. David Schofield, the British Geological Survey's Chief Geologist, Wales on the work that has proceeded in mapping the Welsh Basin and its environs, including Lleyn and Anglesey.

Thereafter, as December is a traditional recess, the next meeting will be the AGM. This will be the opportunity that you have awaited to pass judgement on the re-vitalised committee that has been working hard on your behalf. We are now in the planning stage, so if you have any good ideas for a venue, please let one of us know. We are very approachable, and contact details are printed in each edition of this newsletter, or available online on the website. If you don't come up with a suitable venue, then I shall be forced to find one - and that might not be so enjoyable, so please use your imagination.

This year my wife and I took our vacation in Ireland and enjoyed the lowland coast between Donegal Town and Sligo, which is dominated by Carboniferous sandstone and limestone strata. It was good to be re-united with the famous, recumbent *Syphonophyllia* fossils in the limestone (the Sligo Snakes of folklore), and the sandstones

showed a wealth of sedimentary forms and plant fossil material. The surprise, and dominant geological discovery was the richness of the quaternary landscape, and the extraordinary Donegal Bay drumlin swarm which records the passage of ice westwards from the midlands and upland County Donegal. Where the sea has risen and engulfed the drumlins there are now a series of quite exquisite islands, some farmed and others very desirable residential properties, which make a fascinating excursion by boat in Donegal Harbour. Not as numerous as those in Clew Bay, perhaps, but just obscure enough to make exploration a delight. The contrast between the sand dunes and eroding drumlins adjacent to the magnificent sandy strands is most marked, and well worth exploring when the endless, shelving limestone strata have lost their attraction.

In the next month I shall be away on business in London and Germany, but I am not expecting to find much interesting geology on either trip - although in Germany I will be close to the famous Messel pit with its exceptional fossil deposits. If any of you have holiday geology reminiscences, please consider writing or presenting a short resumé. We will be considering another Geological Cornucopia after the success of the meeting earlier this year.

***Jonathan Wilkins***

### *Sabellarifex tremadoci?*



Many of you will recall the enigmatic medusoid “fossils” that Jan Heiland found near Tremadoc recently. Those of you who attended the last AGM at Pencychnant may have seen the impressive slab (pictured above) that was in residence in Jan’s car at the time.

In carrying out some research on a sedimentary succession on Lower Palaeozoic sedimentary strata I came across a description of the “*Sabellarifex* Sandstone” (later renamed the Dubaydib Sandstone) from Jordan in Selley, R.C. “*Ichnology of Palaeozoic sandstones in the Southern Desert of Jordan: a study of trace fossils in their sedimentologic context*” in Trace Fossils; Crimes, T.P. and Harper, J.C. (eds), Geological Journal Special Issue No 3, 1970.

The trace fossil is described as follows:

“...sands are commonly cut by burrows...described by Huckreide (in Bender 1963) under the name *Sabellarifex dufrenoyi* (Rouault)...burrows are vertical generally less than 10cm deep, but may penetrate to 30cm. Width varies from 1-5mm. They are sometimes trumpet shaped at the top, the maximum

observed width of the single trumpet being 1.8cm. Internally the tube may be simple, infilled by sand or silt...”

and

“...the interlaminated very fine sand, silt and clay units in the centre of the cycles show abundant burrows attributed to *Sabellarifex dufrenoyi* (Rouault) ....”

But on the basis of a picture painting a thousand words – it was the photograph that convinced me:



Comparison with Jan’s slab opposite reveals features that seem morphologically identical, but the Tremadoc version seem significantly larger at up to 6cm across. It should not perhaps be considered unreasonable that these rocks might be related, as this early in the Palaeozoic both terranes would have occupied peri- Gondawan locations.

According to the Treatise on Invertebrate Palaeontology (Part W) *Sabellarifex d.* is a junior synonym of *Tigillites d.* and is known from the Lower Cambrian. It is related to the *Skolithos*, *Monocraterion* style of vertical burrow.

Positive identification is still some distance off – and further contributions from anyone who would like to offer an alternative would be most welcome.

(KHN)



## IGCP 591 - Announcement

The following text is from a recent announcement of a UNESCO research project that will resonate with many of us who work in Wales, and particularly those of you who consider anything younger than the Old Red Sandstone to be drift.

### **Bridging the Gap between the Great Ordovician Bio - diversification Event and the Devonian Terrestrial Revolution**

The Early Ordovician to Early Devonian interval contains several of the most significant paleoclimate and paleobiological events in Earth history including paleobiodiversity events and/or perturbations to the global carbon cycle associated with the Great Ordovician Biodiversification Event (GOBE), near the base of the Katian, Ordovician-Silurian boundary, Llandovery-Wenlock boundary, middle Homerian, middle Ludfordian, and Silurian-Devonian boundary, among others. This interval of Earth history also contains the acme and amelioration of the Early Palaeozoic Ice Age, which provides an important historical analogue for researchers of modern climate change. Additionally, this interval contains the roots of the invasion of life onto land. The Earth did not go quietly into the Middle Palaeozoic and the primary research objective of IGCP 591 – ‘*The Early to Middle Palaeozoic Revolution*’ is to investigate this dynamic and important interval in the history and evolution of life and our planet.

IGCP 591 is designed to allow the Early to Middle Palaeozoic global community an opportunity to build on the

momentum gained by the highly successful IGCP projects 410 and 503 by providing a regular venue in which to continue their research and dialogue so effectively begun during those projects.

Any member with an interest in the project will be welcome to register with the organisers, contactable through their web site at:

<http://igcp591.org>

Even if you don't have a direct interest, our membership will surely find something useful in the downloadable field guide "Siluria Revisited" (edited by David Ray) which contains a wealth of information relating to the Silurian rocks of Mid Wales and the Welsh Borderland.  
<http://igcp591.org/books.php>

### **Dates for your diary**

#### **NWGA Meetings**

#### **Sunday 18<sup>th</sup> September, "Bodfari Mine", 10:00AM. NWGA Field Trip:**

Morning visit to Bodfari Limestone/haematite mine, Denbighshire. PM visit to view Limestone Pavements near Eryrys. Details to be confirmed. Contact Cathy O'Brien.

#### **The following is an account of a previous visit by the Archaeological Society**

*"Following an invitation from the owner of the above mine, a group of eight Members made an early evening visit to the mine. The owner welcomed us and gave us some background information on the mine. The mine is situated in Bodfari and also known as Coed Llan. It is located in fissures occurring in the Vale of Clwyd fault between Silurian Rocks and Carboniferous Limestone.*

*The mine, it has been reported, was worked between the years 1877-1930.*

*The disused mine survives as do two buildings; but all working evidence has been lost in the dense undergrowth and surrounding woodland. The main shaft has now disappeared in undergrowth and apparently would have been a horse whim shaft. Open workings and other earthworks had been cleared in the vicinity of the two surviving buildings. There may be other remaining structures and earthwork evidence hidden in the undergrowth to the north-east of the surviving buildings.*

*The former agent's house remains and has been modernised. The workshop /smithy/storage building nearby has been altered but still retains some of its original architectural features. An outside staircase runs up to the first floor, and double doors front the smithy area. The owner also pointed out, what was believed to be part of the crushing shop, possible smithy and stables where the horse and carts were housed. The crushed rock was transported down the road to Bodfari Station where it was shipped to various places for smelting. Loads of high quality iron ore were carried down the hill in horse drawn carts from the mine to a local weighbridge. The ore was taken down through the village to Bodfari Railway Station from whence it was transported, originally to Foryd Harbour, Rhyl for shipment to France and later, it is believed to Partington Steel Works on the outskirts of Manchester.*

*At the front of the house, there were the remains of three well defined stone bin containers, where the crushed rock would have been stored prior to transportation.*

*Bella Vista, a neighbouring property, was probably built as the 'Ticket Office' for the haematite mine. The mine ceased to be worked around 1930 and had formerly been owned by Thomas Gee in the late 19<sup>th</sup> century.*

*Thomas Gee, who was born in Denbigh (1815-1898), owned the mine during the late 1800's and records exist to show that he had several periods of ownership between 1880 and 1897. Thomas Gee was a Welsh Nonconformist preacher, journalist and publisher. On his return from London in*

*1838, he threw himself into literary, educational and religious work. Among his greatest achievements was the newspaper 'Baner Cymru' (The Banner of Wales) founded in 1857 and amalgamated with 'Yr Amserau' (The Times) two years later as 'Baner ac Amserau Cymru'. He would regularly ride from Denbigh to Bodfari on his horse Degwm. When he died in 1898 his funeral was the most imposing ever seen in North Wales.*

*Haematite is the mineral form of iron oxide, one of several iron oxides. It crystallizes in the rhombohedral system and has the same crystal structure as ilmenite and as*

*corundum. It is coloured black to steel or silver-grey, brown to reddish brown, or red. It is mined as the main ore of iron. Varieties include kidney ore, martite, iron rose and specularite. Whilst the forms of haematite vary, they all have a rust-red streak. It is harder than pure iron, but much more brittle.*

*The name haematite is derived from the Greek word for blood (haima) because haematite can be red and in ancient times this was used as rouge, in a powdered form for use on ladies' cheeks. In German it is known as blutstein (bloodstone). However, this name is confusing as there is a bloodstone, which is a variety of chalcedony. Haematite will also turn water red.*

*We were escorted into the mine, which was incredible. There were a number of passages which the group explored. Some of these led to large open caverns where daylight could be seen, whilst others only ran several feet into the rock face and stopped.*

*A number of passages ended with large pools of very deep, crystal water. The main passageway took us to a deep shaft – this was also filled with crystal clear water and was estimated to be in the region of between 80-100 feet in depth.*

*The walls were a beautiful warm red colour, typical of ferrous oxide with glistening specks of quartz and other minerals. Small stalactites could be seen as we entered the passages with some calcium formations*

*resembling rows of very sharp teeth or possibly spinal cords – were these fossils or just our imagination??*

*Haematite has been extensively used in the jewellery trade and is sometimes used to imitate black pearls. It is also often carved as a cameo or sealstone, and is commonly used in gentlemen's rings. A number of ancient cultures used haematite in the creation of magical amulets, and is also believed to be an aid to sound sleep by creating a calm, meditative state. It is said to create a happier frame of mind for the wearer, thus promoting healing properties.*

*Thanks were offered to the owner for her generosity of allowing Society Members to visit and it was hoped that a return visit could be made in the future.*



Thomas Gee situated on right hand side of picture, with headframe and horse whim in the background.  
(MB)

**Wednesday 12<sup>th</sup> October, NWGA**  
**Meeting: Madog Room, Coleg**  
**Llandrillo, Rhos on Sea. 7:00PM**

Dr Philip Hughes of Manchester University will talk on “The last ice sheet and later glaciers in Wales: timings, extents and associated palaeoclimates”

The abstract of Phillip’s talk was published in the July edition of this Newsletter

**Wednesday 9<sup>th</sup> November, NWGA**  
**Talk, Coleg Llandrillo, 7:00PM**

Speaker TBC (Hopefully, David Schofield, BGS)

**Other Meetings**

**Saturday 3<sup>rd</sup> September, “Beaumaris Town Walk”**

1 mile, Start at 10:30AM, Beaumaris Town Square. Prebooking essential (£5 per head) through [geomon@btconnect.com](mailto:geomon@btconnect.com), or by phone – 01407 832555

**Friday 9<sup>th</sup> and Saturday 10<sup>th</sup> September - Geologist’s Association Meeting:**  
**Geoconservation for Science and Society – an agenda for the 21<sup>st</sup> Century, Worcester**

One day conference followed by field excursion to Wren’s Nest NNR and other sites. Conference cost £20 for GA members, £30 for others. Registration – by e-mail to Sarah Stafford at: [geol.assoc@btinternet.com](mailto:geol.assoc@btinternet.com)

**Sunday 18th September, “Lleiniog Beach and Castle”**

2 miles, Start at 10:00AM, Lleiniog Car Park SH 620 790. Prebooking essential (£5 per head) through [geomon@btconnect.com](mailto:geomon@btconnect.com), or by phone – 01407 832555



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