

# East Antrim U3A geology group report

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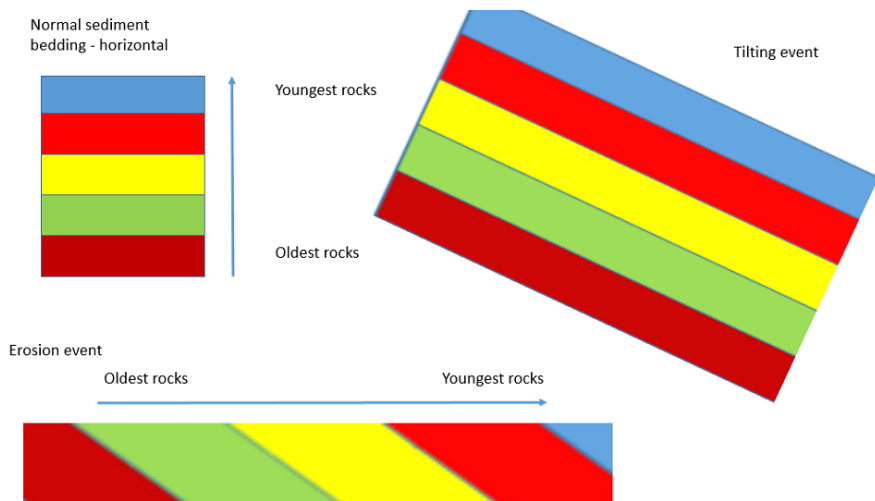
Larne 5<sup>th</sup> April 2022

12 East Antrim members of the Geology Group turned out for our walk along the seafront at Larne. We were joined by 3 members of the newly formed Causeway U3A Geology Group – so obviously chasing rocks is catching!

We were there to look at the internationally important series of late Triassic and early Jurassic rocks – one of the few places worldwide where you can follow this uninterrupted transition across the boundary between 2 geological periods.

Firstly, we needed to recognise that these sedimentary rocks have been tilted after their formation with beds dipping roughly to the north. This means that as we walked from the Leisure Centre towards Waterloo Cottage, we were time travelling with the rocks getting younger to the north.

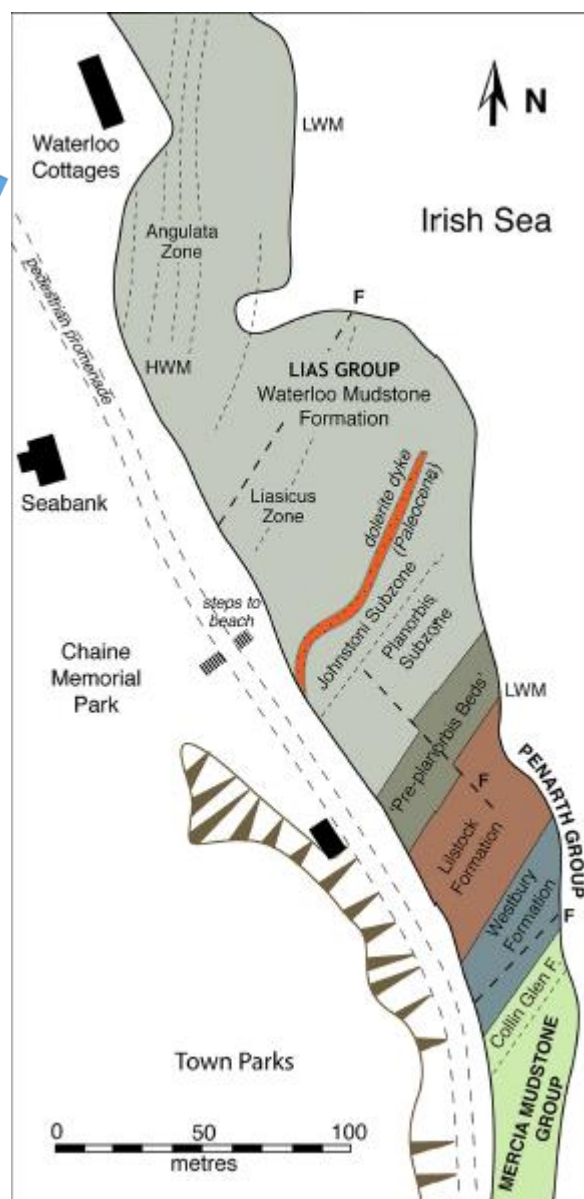
## Turning this into this allows you to walk through time



Starting with our by now familiar Mercia Mudstones, we walked through the succeeding Colin Glen Formation and Penarth Group (all late Triassic in age – some 215 million years old) through to the start of the Jurassic rocks, dating from some 200 million years ago.

The rocks formed in a gradually encroaching shallow sea which progressively deepened into the Jurassic period. Our familiar red mudstones (red due to their oxidised iron content), gave way to greens (reduced iron) then progressively darker grey (increasing organic content) colours.

While we did spend some time fossil hunting, our finds were limited to some shells - the fairly common Jurassic bivalves *Cardinia* and *Gryphaea* – the latter going by the common name, Devil's Toenail. Kevin did find an excellent fossil sea urchin but this was of Cretaceous age – from younger rocks we will be exploring in future field trips. Amazingly we didn't find a single ammonite – blame the leader – and certainly no evidence of the large marine reptile *Ichthyosaurus* which has been recovered from this site. Perhaps another day. While we associate the Jurassic with dinosaurs, unfortunately our Jurassic rocks are exclusively marine so no fossils of actual dinosaurs are likely.





Cardinia sp

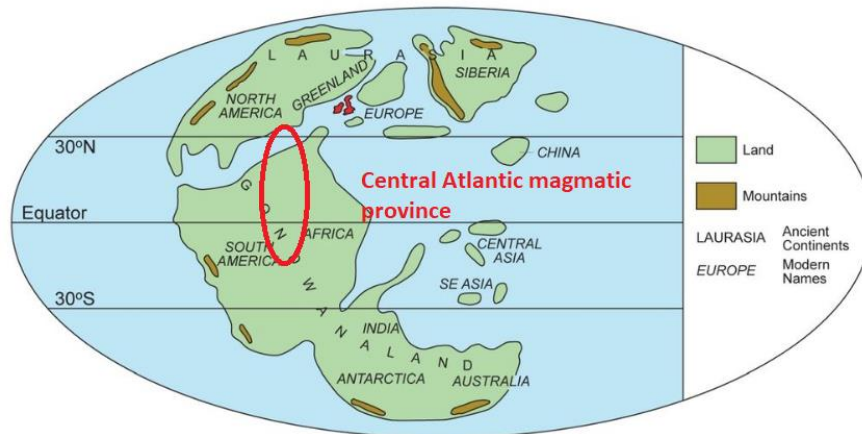


Gryphaea arcuata

During this time in the Earth's history, the mid-Atlantic was beginning to open as Central and South America to the west and Africa to the east begin to pull away from each other. The transition between the Triassic and Jurassic is marked by another of the great extinction events believed to be due to

enormous scale volcanic eruptions linked to the opening up of the Central Atlantic. Huge quantities of CO<sub>2</sub> were pumped into the atmosphere causing a massive 'greenhouse' effect and ocean acidification.

We found the disrupted bedding in the pre-Jurassic (Penarth Group) section. This is thought to have been caused by



contemporary earthquakes, distorting the still soft seabed sediments.

The site is Ireland's most important and most complete section of Jurassic rocks. It came to global attention (amongst the geological community) when the search was on to select a site that defined, and would then be the international reference point for, the base of the Jurassic Period. Unfortunately a site in Austria was selected but since then, a lot of new research has been undertaken at the Waterloo site. Lots more information about this can be found at Waterloo Bay, Larne - Northern Ireland's Jurassic Park - [www.habitas.org.uk/larne/index.html](http://www.habitas.org.uk/larne/index.html).



Layered sedimentary rocks at Waterloo looking north.



Duria Antiquior – a more Ancient Dorset, 1830 watercolour by Henry De la Beche, based on William Buckland's account of Mary Anning's discoveries. This was the first attempt at a pictorial representation of a scene from the distant past. Our Jurassic seas

