

East Antrim U3A geology group report

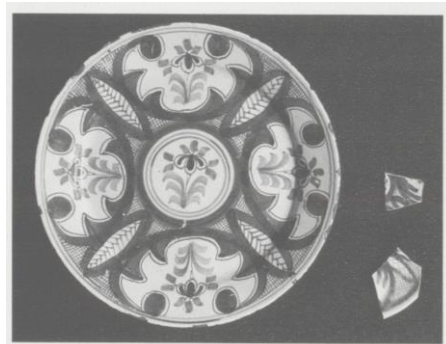
Ian Enlander group convenor

Greenisland 1st March 2022

10 of us attended our second fieldtrip – this to the Seapark – Greenisland area. The day was glorious, warmth and sunshine – for proof see photo below.



We first contemplated the strange story of the missing Carrickfergus clay! It is known that a high quality white clay was dug up from the Carrickfergus area (the exact location is not known but the clay probably occurred on the shoreline in the area of the Woodburn River) and mainly exported to England with peak export around the 1750's of some 600 tons annually. Over 20000 tons of the clay (recorded as imports to England) were extracted but by 1778 no further exports were recorded. It is likely that the deposits had been fully extracted by that stage. Earlier in the late 1690's – 1720's this clay was likely supplied as the raw material to the Belfast 'potthouse' in the area of the junction between High Street and Hill Street. This pottery produced a high grade delftware. Strangely, the Carrickfergus historian McSkimmin makes no reference to this important industry.



Then on to geological material we could see! The shoreline here is dominated by our old friend the red Mercia Mudstones described in the account of the Carrickfergus fieldtrip. These are Triassic in age – some 200 million years old and formed as deposits in a desert environment. Occasional saline waterbodies developed which evaporated leaving salt beds behind which were formerly worked at various places around Carrickfergus and continue to be mined at Kilroot.

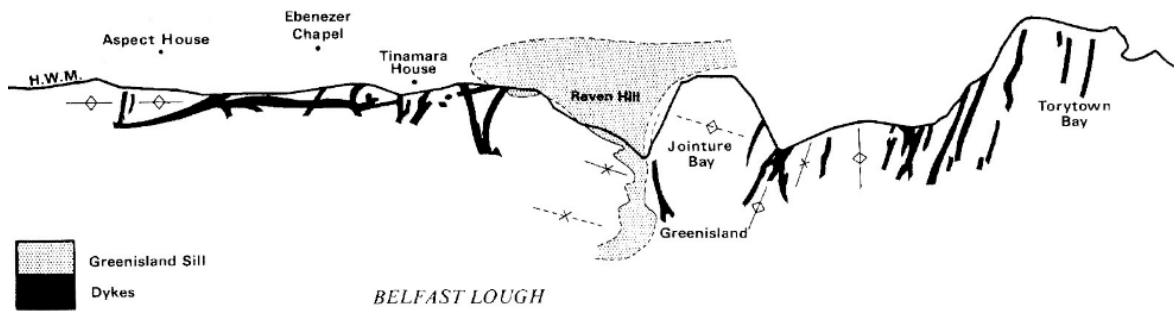
Group leader Ian was very excited when we noted ripple marks on some sections of the mudstones. The form of the ripples were unusual as they were small scale and almost perfectly symmetrical along the ridge. That evening I consulted Dr Mike Simms (Ulster Museum) who told me these are oscillation ripples caused by the wind blowing across shallow water so represent the result of a desert breeze blowing across a shallow pond one Tuesday morning 200 million years ago.



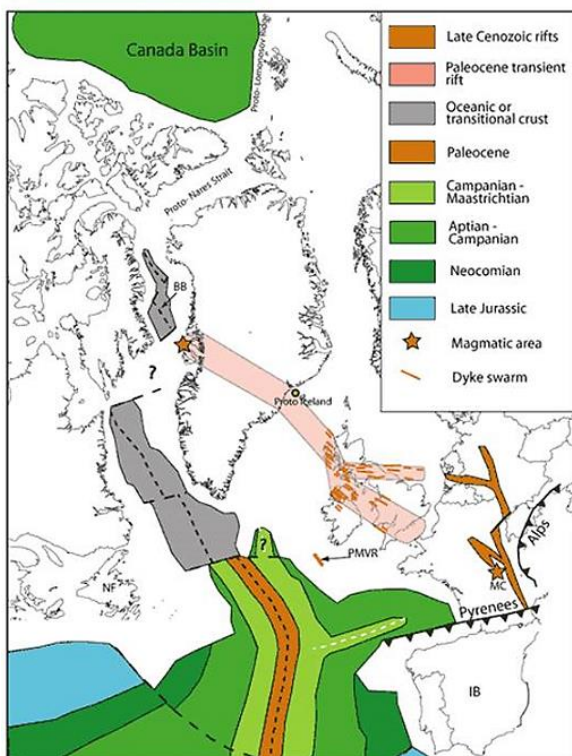
The final feature examined was the series of igneous intrusive rocks which are very obvious along this section of shore. These take two forms – vertical dolerite sheets known as dykes which project out of the mudstones and horizontal dolerite sheets known as sills which have been squeezed between layers of the mudstone. The previous field trip report described the large dyke that Carrickfergus Castle is built on.

The dolerite is the intruded equivalent of the erupted basalt (cooled lava flows) which can still be seen forming the high ground behind the Carrickfergus and Greenisland area and is especially prominent at Knockagh.

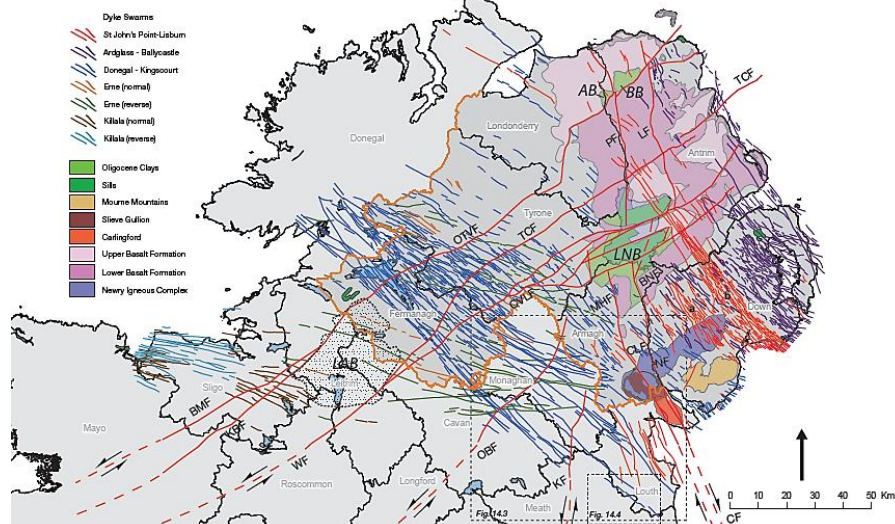
Dating from some 60 million years ago, the dykes and sills represent magma which didn't erupt at the surface as lava flows. The Greenisland shoreline exhibits a complicated series of dykes and a very large sill.



The north-east of Ireland at that time (the Palaeogene period) formed part of a major area of igneous activity associated with the opening up of the north Atlantic. As the crust was stretched, multiple dyke intrusions were emplaced, representing new crust. The Atlantic is still growing today while a visit to Iceland (not on our programme unfortunately) shows what our part of the planet looked like at that time.



Origins of the North Atlantic - North Atlantic Igneous Province



Complex network of dykes across the north of Ireland – different colours represent different dyke swarms.

