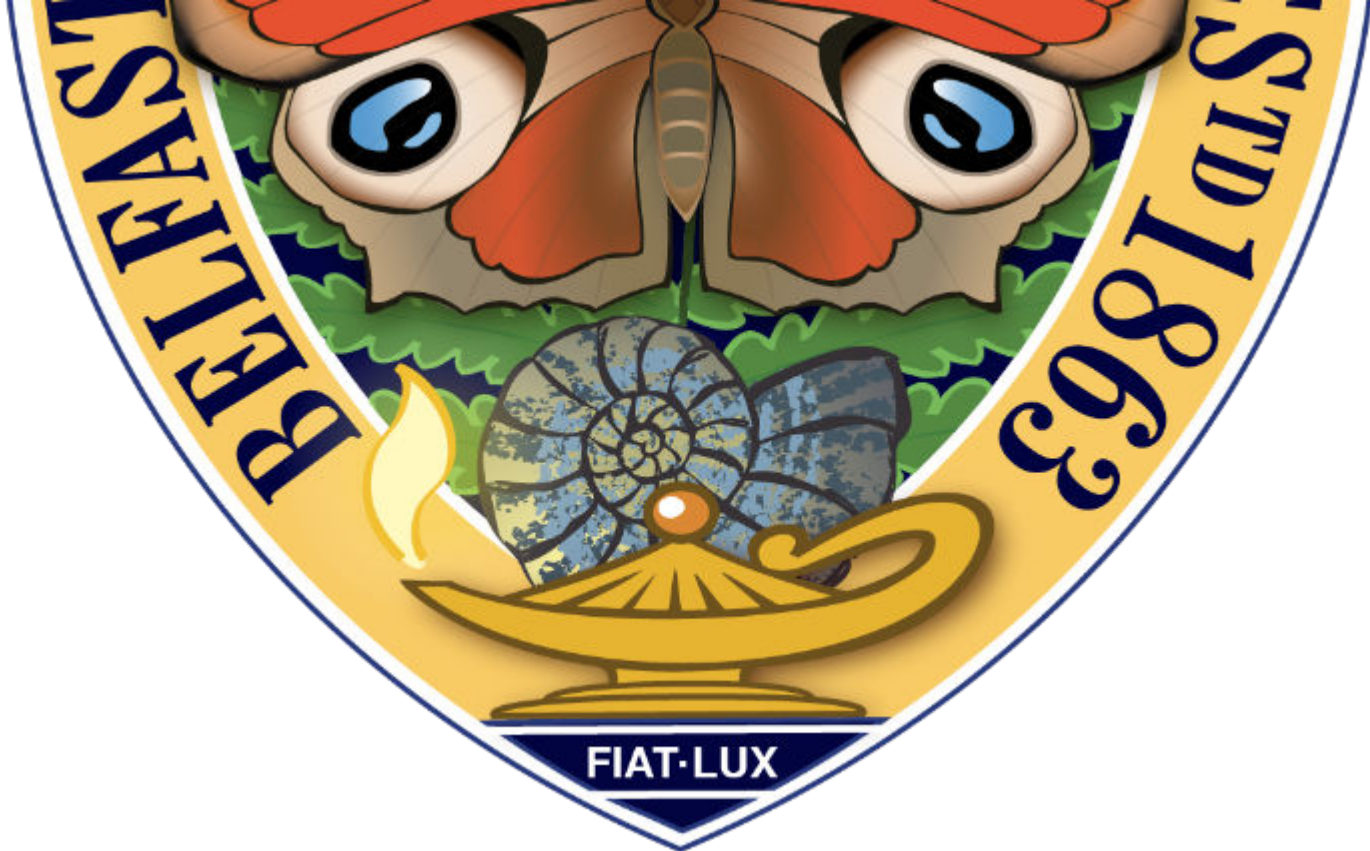


Belfast Naturalists'  
**Field Club**

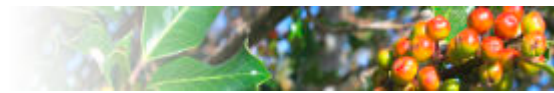
**Field Reports**  
**2021**





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## Milford Cutting

**Leader - Ian Enlander**

**7<sup>th</sup> August 2021**

### Archaeology



There was a fear that adverse weather conditions would spoil our third field trip of the season but thankfully the severe weather warnings did materialise during the time we were outdoors. Because of the restricted width of the path through the nature reserve at Milford numbers were restricted to 12 to allow compliance with Covid social distancing regulations. *The Navan centre* was accepting parties of 15 so a couple of extra members were able to join the afternoon session.

While many people were familiar with Navan fort and had visited the site and the original interpretive centre which was built in the 1990s but closed because of lack of funding due to low visitor numbers, the present Navan Centre was a new experience. The aim is to create a living history experience and eventually upgrade the indoor information area. We were introduced to the experience by our guide *Damien Houlihan* who gave us a brief talk about the origins of the name Navan, a corruption of *Emain Macha*. Macha was the ancient goddess of war and fertility who, legend claims, scored the earth with her brooch pin and traced the outline of this sacred site, home of the famous Red Branch Knights and Ulster Cycle of tales. We were led outside to the reconstructed roundhouse enclosure to discover what living conditions were like during the Iron Age.

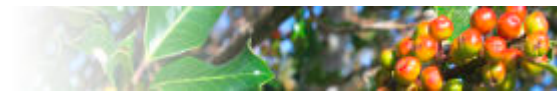


Our hostess was expecting us to come with something to trade and was slightly annoyed when she discovered that our 'tribe' came from the east near the coast and had not brought salt which is a precious commodity. However, we gained entrance and were told about the structure and customs of her society. This was relayed to us inside the round house where we could appreciate the structure and layout of the building.

Outside among plants grown for culinary uses there was woad (*isatis tinctoria*) used for painting their faces and dyeing cloth. Also, there were examples of cooking methods including a *fulachtai fia*. We were also introduced to a Red Branch Knight who told us they went into battle naked with their bodies painted blue because blue woad is an antiseptic that helped with cleaning wounds. A Red Branch Knight, suitably clad, demonstrated his various weapons and volunteers were recruited to try them out after claiming strength from the sun god Lugh who had made a welcome appearance.

After this introduction to the Iron Age society of Ulster we had a pleasant walk to the focus of the site, Navan Fort.

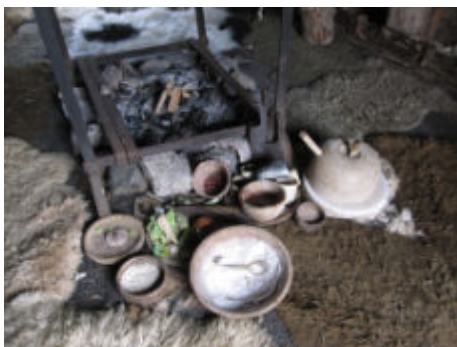
*continued*



## Milford Cutting (contd)



A Red Branch knight



Iron age cooking utensils



Irish Hornbeam

The site was extensively excavated in the 1960s uncovering a series of buildings including a series of figure-of-eight buildings of the Early Iron Age and a 40-metre timber-ringed structure constructed circa 95 BC. This structure was filled with stones and burnt to the ground creating the massive mound that dominates the site. However, recent surveys by Dr Patrick Gleeson from QUB have yielded a lot more information and in an interview on BBC News in March 2020 he said -

*"Our discoveries add significant additional data, hinting that the buildings uncovered in the 1960s were not domestic structures lived in by kings, but a series of massive temples, some of the largest and most complex ritual arena of any region of later prehistoric and pre-Roman northern Europe."*

It is hoped to carry out more excavation of the site, funding permitting. The view from the top of the mound was spectacular and Lugh smiled on us as we looked out beyond Armagh to counties Tyrone, Derry, and Antrim. The visit to this historic site was truly rewarding and I welcome the news that a bid to secure a place on the tentative list for UNESCO World Heritage status for Navan Fort, as part of the Royal Sites of Ireland, is currently underway.

The extract below was presented as evidence for the original development plan for the site in the 1980s.

### Emain Macha : Navan Fort

By

ANN HAMLIN

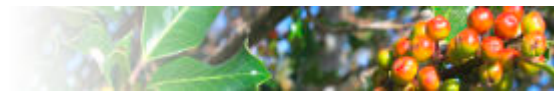
*This article is a slightly shortened version of the proof of evidence presented to the Navan Fort Public Enquiry in June 1985 by Dr Hamlin, who is the Northern Ireland Department of the Environment's Principal Inspector of Historic Monuments.*

#### THE SITE

Navan Fort is a circular earthwork enclosure two miles west of Armagh City. It occupies a low rounded hill of glacial boulder clay above limestone, and commands surprisingly extensive views, north to the Sperrin Mountains, east to the hills where the two cathedrals now stand, and south across lower land towards the mountains of south Armagh.

The earthwork takes the form of a massive outer bank with an inner ditch, well preserved only to west and south. The area enclosed by the ditch is about 12 acres, but if the bank did originally surround the site on the scale surviving on the west side the site would once have occupied about 15.5 acres. Within the enclosure is a much denuded circular earthwork and a prominent mound, in its present form reconstructed after excavation.

North-east of Navan Fort lies Loughnashade which the 1835 Ordnance Survey map showed as a large stretch of water but which by the 1860 map had been reduced to approximately its present size by drainage works.



## Whitehead and Blackhead

Leader - Ian Enlander

4<sup>th</sup> September 2021



After meeting at the foreshore car park in Whitehead, 22 members assembled with *Ian Enlander* at the beginning of the coastal path.

Here we first looked back southward to Whitehead. An early OS map showed Whitehead in the mid 19<sup>th</sup> century as just a hamlet or clachan, clustered around *Castle Chichester*, but it owes both its name and development to the limestone cliff above it – now almost entirely quarried away and almost invisible. This activity also led to building of its harbour, and a reciprocal trade with Scotland, which imported lime from the Whitehead quarry in exchange for coal which was used to fire the lime kilns. Firing and subsequent slaking convert the calcium carbonate to calcium oxide/hydroxide for use in building and agriculture.

The Club had visited the quarry in 2013, as part of the sesquicentenary celebrations and re-creating the visit in 1863 led by Ralph Tate.

Other significant rock types in the vicinity are *Triassic mudstones* – formerly important for brick manufacture in Whitehead as well as in many well-known businesses in Belfast and elsewhere – and *Basalt*, which forms Blackhead and which was the main object of study this day.

Not far away are Triassic salt beds dating from around 220ma which are mined near Carrickfergus. Deeper salt beds under Larne Lough are the subject of controversial discussion over the creation of solution cavities for storage of natural gas.

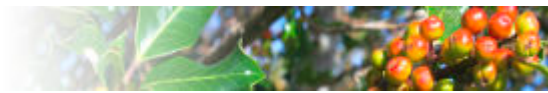
As we looked back at the town below its cliffs, our leader showed us a print of a watercolour by the accomplished 19<sup>th</sup> century artist *George Victor du Noyer* showing the view. Du Noyer incidentally was a member of the Club in his later years.

A short way along the coastal path we stopped to look at a slope above the path, showing newly completed work to stabilise a recent landslip or mass movement of the Triassic mudstone which followed heavy rainfall. It has been 'hydroseeded' with appropriate vegetation to help hold the surface.



Example of Hydroseeding

continued



## Whitehead and Blackhead (contd)

Further along are two large Basalt boulders known locally as the 'Wrens eggs'. These are possibly 'exotic', but may not have been transported far i.e., not of local rock and thought to be glacial erratics, probably being moved here during the 'North Channel Readvance' about 15,000 years ago. Ian related how the 19<sup>th</sup> century geologist *Louis Agassiz* had described how ice sheets had been responsible for the dispersal of such erratic rocks. We then examined the pebbles on the foreshore, which are of a wide variety of rock types, but failed to find any specimens of *Ailsa Craig granite* (Ian had brought as an example a piece obtained by himself on a recent visit to Ailsa Craig).



We next moved on to examine the basalt forming Blackhead. The basalt of the Antrim Plateau, which is the largest basalt plateau in Europe, dates back to the tectonic events associated with the opening of the North Atlantic Ocean, and it was part of the '*North Atlantic Igneous Province*', or '*Thulean Igneous Province*'. This rifting and opening of the Atlantic was associated in our part of the North Atlantic by a mantle hot spot, now situated under Iceland. Apparently this hot spot has a number of 'spokes', one recently recognised as extending under Scotland and thus explaining the relative topographic high of Scotland compared to England – something contrary to expectations given the crustal thickness of the latter.

The lava which poured out in successive flows did not come from a single volcano, but rather from fissures. Despite the abundance of dykes observed and the multiple lava flows seen in section, only three source feeder dykes can clearly be seen 'feeding' an associated flow unit.

Much of the basalt in the cliff face which we examined contains zeolites. As a lava flowed over damp ground, superheated steam rose, which together with gases generated within the lava, resulted in bubbles rising and being trapped within the basalt. Zeolites formed, occupying these gas voids (vesicles) and a process post-dating the formation of the basalts perhaps up to 25 million years later.

Chemically, zeolites are mainly hydrated aluminosilicates, but there is a wide variety of types containing additional elements.

Several different zeolites have been identified for the first time internationally along the Antrim coast, including Gobbinsite (identified at the Gobbins by Rab Nawaz).

Different groups of zeolite form at different depths, leading to coarse stratification, and when Antrim was compared with Iceland by George Walker, this indicated that some 400-500 metres of basalt have been eroded from the original surface of the Antrim plateau.

A brick-red patch shown in the photograph here, and containing some angular pieces of basalt, was the result of explosive ash eruptions, typical of the start of fissure activity. These red beds are unlike the lateritic red beds seen e.g. at the Giant's Causeway, which form by in situ weathering of the basalts.

Ian Enlander



Zeolites in basalt



Red beds, the result of ash eruptions

continued



## Whitehead and Blackhead (contd)



Tafoni weathering

Further along, there is a limited area where the basalt shows erosion into large irregular holes and cavities, which is known as Tafoni weathering. It is thought to occur due to in-situ weathering from the impact of salt which crystallises and then expands, and also perhaps freeze-thaw action – but the mechanism and why it should occur in this limited area are uncertain. This type of weathering can also be observed in deserts.

There are several narrow vertical faults, some of which have been points of weakness where the sea has eroded caves. One of these, 'Smuggler Cave', was occupied in the early 19<sup>th</sup> century by a man named Thomas McCartney who made it his home and set up as a schoolmaster.

Another phenomenon nearby is the occurrence of bubble trails running in parallel vertical stripes through the basalt. These 'pipe cylinders' are unusual, as they require a particular combination of factors. They need abundant gas formation at the base of a basalt flow, as for example when the flow is over a wet surface, with instant volatilisation of water; the basalt flow needs to have come to a standstill, and also the viscosity of the basalt lava has to be just the right consistency to allow bubbles to rise but not to flow back to re-occupy the void that becomes the pipe cylinder.

This observation concluded the serious geological studies for the day, and we ascended the steps to beside the lighthouse on Black head whence we dispersed to our various lunch spots, having thanked our leader, Ian, for a very informative morning.

**Liam McCaughey**



Above and below, bubble trails

