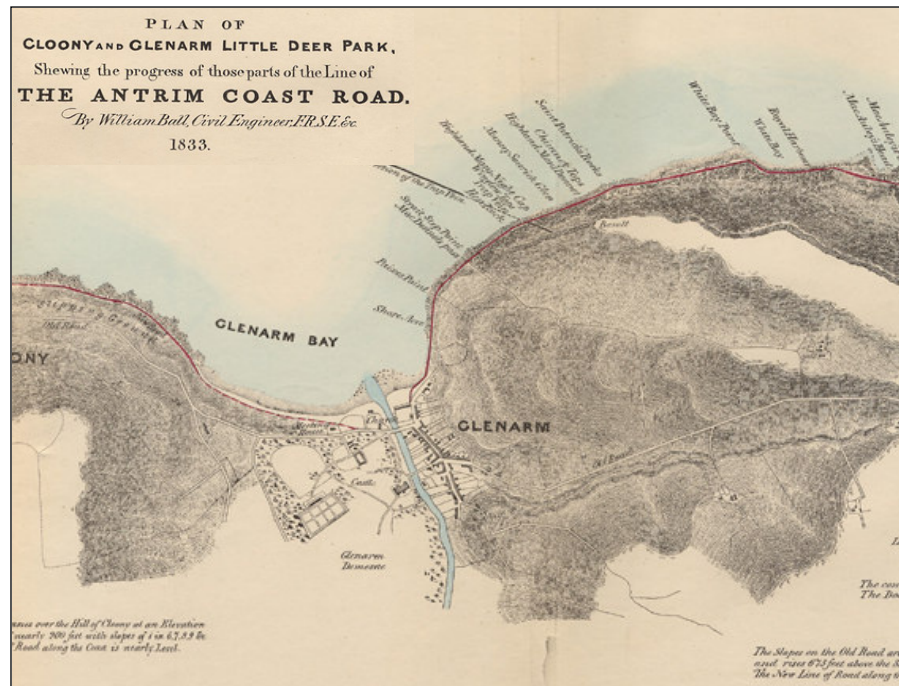


The Antrim Coast Road – a Civil Engineering Legacy

So now I turn to the history of the Antrim Coast Road – truly a great civil engineering legacy. In the early 1800s, in the reign of William IV, the Commissioners of Public Works in Ireland described the Glens of Antrim as 'a barren waste, asylum of a miserable and lawless peasantry'. It was 'cut off from any reasonable communication by the badness of roads over mountains and slopes varying from 1 in 6 to 1 in 12'. And so a great project was conceived as a 'grand military way' to give better access after the 1798 rebellion. It opened up the Glens, and gave some form of unemployment relief in the days just before the 1845 potato famine.

The Antrim Coast Road was promoted by the Commissioners, but it was their Engineer, William Bald, who rose to the challenge and had the vision of building the road along the foot of the cliffs. He did so between 1832 and 1842, under the watchful eye of the County Surveyors of the day – Thomas Woodhouse (1832 to 1836) and Charles Lanyon (1836 to 1842).



Bald was born in Burntisland in Fife in 1789. He was a Cartographer, Civil Engineer and Surveyor who came to Ireland in 1809 to complete the trigonometrical survey of County Mayo. He remained in Ireland until 1825 when he moved to Paris, but returned again in 1830 to undertake the Antrim Coast Road and other works such as the Port of Drogheda. In 1839 he became the Engineer to the Clyde River Trust and in 1845 returned to France. He died in 1857 and is buried in Highgate Cemetery in London.

I spent some time recently in the ICE library in London researching the construction of the Coast Road, and there is a contemporaneous copy of the 1834 report of the Commissioners presented to the Institution by William Bald himself. It is full of the most exquisite drawings and plans of the project such as the cross-section illustrated here. The interesting thing is that this is not just a typical cross section - there is page after page of these drawings showing either that Bald planned the work in the greatest of detail, or that he kept very good as-constructed drawings.

In the report Bald writes:

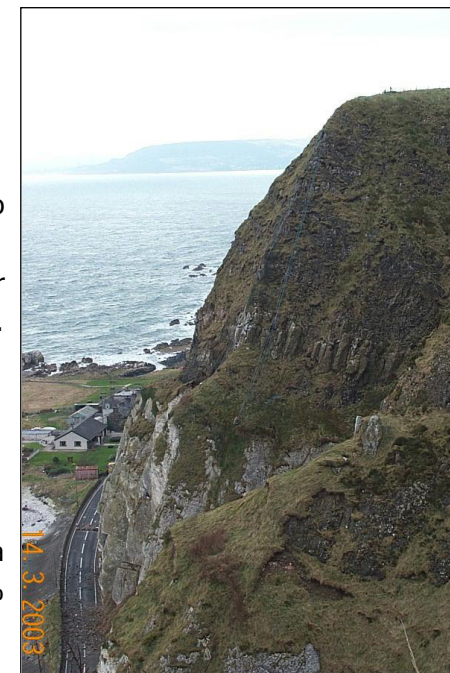
'30,000 cubic yards of rock have been hurled down on the shore almost entirely by blasting, which has been executed by care and judgement. This has been greatly assisted by the use of Beckford's Patent Safety Fuse, an invention of the greatest certainty and economy which reduces, in a great degree, the chance of those accidents to which the operation of the miners has been particularly liable'.

The geology of the Antrim Coast is limestone, greatly faulted and fissured, which is overlain by considerable depths of basalt, also weathered and rotten near the surface.

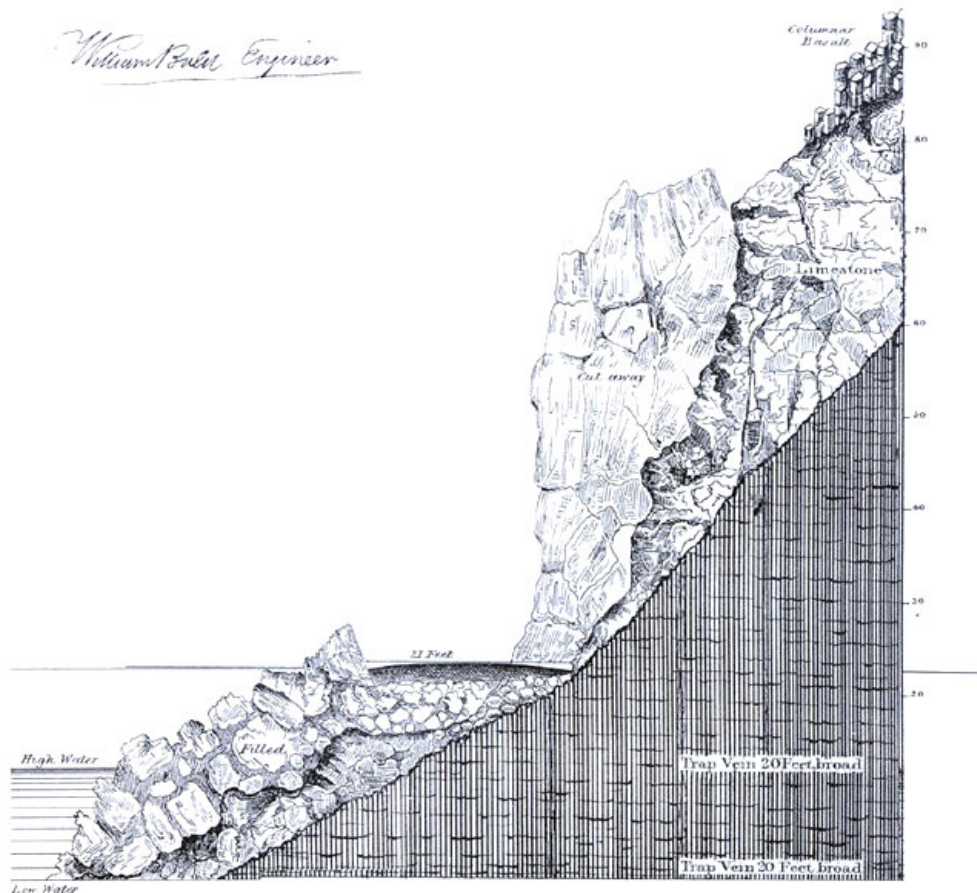
After the road was completed in 1842 it remained largely unchanged until the late 1960s.

October 1968 there was a 1 in 70 year storm which washed away the part of the causeway that had not yet been protected by rock armour. The work restarted in 1969 and a reinforced concrete sea wall was constructed, again by direct labour. Altogether 97,000 tonnes of rock armour were placed and the scheme was completed in November 1970.

There are still rock falls from time to time, and on certain sections of the route you might get a small rock falling, once a week or so. We monitor this by daily patrols and, when there is a sign of more frequent activity, we close the road to carry out rock scaling so that abseiling teams can remove loose material from the cliff face. Now there are those who say that the entire 20km or so of cliff face should be netted. That would be very expensive indeed as the cliffs are up to 100 metres high, and the visual impact would be significant. We do review the risk assessment from time to time – but given the relatively low frequency of rock falls and the low volume of traffic, it is not surprising that there are no records of a vehicle being struck by a falling rock. In relation to the risk of vehicles colliding with a fallen rock, we have put in place risk control measures of warning signs and daily inspections, and of course Rule 105 of the Highway Code requires drivers to 'drive at a speed that will allow you to stop within the distance you see to be clear' – a very different regime from the operation of railways where the driver is entitled to assume that his way is clear. So for the moment we don't intend to undertake very expensive netting operations – the money can be much better directed to remedial measures at the large number of collision cluster sites across the road network where we have a track record of being able to achieve 30% savings in actual accidents.



William Bodd Engineer



In February 1967 there was a major fall of rock onto the road south of Glenarm, and in May 1967 there was another fall which completely blocked the road. At this point the cliffs are some 100m high, so Antrim County Council decided to build a new road 30m on the seaward side of the old one, and the story is told in Malcolm Turner's excellent paper to the ICE of January 1972.

The Council decided to do the work largely by direct labour and started to acquire the plant and equipment needed for the job. They opened up a quarry and began to construct a new embankment, but on the night of 31

Bald's report to the Commissioners in 1834 said 'the work has 2 particular difficulties: one the necessity of conducting the road under a considerable extent of rock, and the other, its passage along portions of very steep hills of moving clay bank'. And this continues today at the mud flows of Minnis, where the blue lias clay flows down to the sea as it has done for many centuries.

And so, as we consider the history of the Antrim Coast Road, I ask the question: could we afford it today? In Bald's day it cost £37,140 – some £12,000 over budget – but today the cost could be upwards of £370 million. And would it be allowed today? We would need to think of the environmental impact (ironically those who would probably object most are the same people who enthuse about the scenery opened up by the Antrim Coast Road) and there is of course the health and safety considerations of the construction process, together with the extensive land purchase.

On the Antrim Coast Road, just north of Larne, there is a memorial which reads:

'Antrim Coast Road constructed 1832 to 1842
by the Men of the Glynnnes under the direction
of William Bald'.

I am proud that, even today, the responsibility for maintaining this stretch of our heritage falls to another man of the Glynnnes, Bob McKay, the Assistant Section Engineer who comes from Carnlough.

