Taith y Llechen
The Slate Trail
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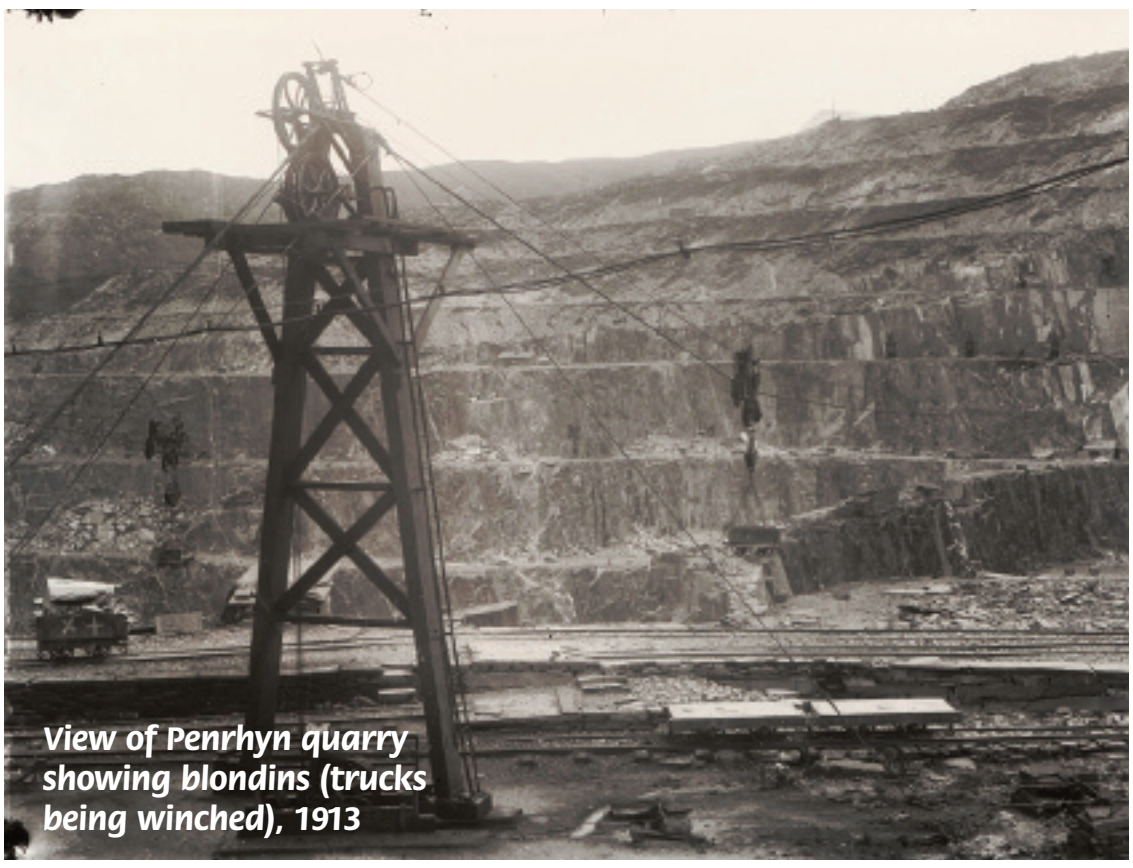
LÔN LAS OGWEN

The Quarry Technology

One of the distinctive features of the quarry was the use of terraces or galleries. The gallery system introduced at Penrhyn enabled large numbers of men to work on the same vein of slate at different heights. Over 20 galleries were in use, each connected by an incline to the dressing mills at lower levels. Penrhyn was the first site to introduce tramways to move quarry waste to the tips, (originally on wooden rails which were replaced with iron on a 2ft gauge). Over 90% of the rock in slate quarries is unusable and has to be tipped. The slate tips are the most distinctive feature of the North Wales slate quarries. As well as the movement of unworkable blocks of rock and processing waste to the slate tips, the movement of blocks to the processing areas often required moving materials up and down the quarry, involving a considerable height difference. To overcome this, incline plains were first introduced at Penrhyn in 1800-1. Thereafter, their use spread gradually throughout the industry. There were many versions of the incline plain in the slate industry. At Penrhyn quarry, the workings where the slate was extracted were originally all above the processing and marshalling area (where the slate was collected), so the inclines operated on the counter-balance principle. The descending heavier load pulls up the empty wagons on a parallel track. By 1810, however, the quarry had a powered incline for raising blocks from lower workings, operated by a water wheel.



View of Penrhyn quarry showing blondins (trucks being winched), 1913

Men of Princess May Gallery, Penrhyn quarry, 1913

Many of the processes in the slate industry continued without change for a considerable time; slate splitting was one of the last of the traditional quarryman's skills to be mechanised in the 20th century with the introduction of electricity in 1912. Other technological innovations at Penrhyn were the use of water power pump engines. These were driven by water pressure (rarely used in the slate industry) and powered by a leat from the Ogwen River (one of these survives underground). Two impressive survivals from the quarry are the water balance head frames used to lift a cage of up to five tons of slate from the lower part of the huge pit.

It was also at Penrhyn quarry that the naming system for the size of roofing slates was decided, they are based on the titles of the aristocracy: Duchess, Countess, Empress etc.

THE SLATE TRAIL

Follow 'The Slate Trail' along Lôn Las Ogwen, where you can find a series of information boards recounting the unique story of Ogwen slate, Penrhyn Quarry and the people involved in its production.