

A470 BLAENAU FFESTINIOG  
TO CANCOED IMPROVEMENT

Chronology of developments  
(Previously unissued report 1996)

G1891

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By

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Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

## A470(T) BLAENAU FFESTINIOG TO CANCOED IMPROVEMENT

### ARCHAEOLOGICAL ASSESSMENT OF OAKELEY AND LLECHWEDD QUARRY TIPS

#### Chronology of developments.

*Note on spelling: the Festiniog Railway was incorporated as such by Act of Parliament in 1832, but now increasingly styles itself Ffestiniog Railway. This form is adhered to below for the title of the railway but not for its history by James Boyd, which was published as The Festiniog Railway.*

#### Abbreviations:

CRO Caernarfon Record Office  
DRO Dolgellau Record Office  
LNWR London and North Western Railway

*Note: the numbers in the text refer to the **Gazetteer of Features** included in the second (June 1996) report, with which this report should be read in conjunction.*

The pattern of industrial remains at the Pant yr Afon site was brought into being by the development of the North Wales slate industry in the nineteenth century, and the urgent transport and power needs it generated.

The area lies at approximately 700' above ordnance datum at a point where the Afon Barlwyd, whose waters gather between Moel Farlwyd and Moel Penamen to the north, reaches the floor of the cwm, an area that has always been known as Rhiwbryfdir, and thereafter flows south-south east past Glan y Pwll. The hills to the west were owned by the Oakeley family of Plas Tan y Bwlch and those to the east comprised the farm of Tal y Weunydd, owned in the early nineteenth century by one Richard Parry (CRO FR 500050 [old]).

Though slate has been worked in the Ffestiniog region since probably at least the sixteenth century, and from c. 1760 a group of quarrymen from the Arfon area had been working slate at Diffwys, to the east of the modern-day town, it was not until the early years of the nineteenth century that any systematic working began on the slopes above Rhiwbryfdir (DRO Isherwood, *Rhiwbryfdir Fawr*). In 1836 the Ffestiniog Railway was opened to a terminus at Dinas, near Rhiwbryfdir, but the only quarry to make use of it was Samuel Holland's, initially by dint of carting the produce down by a circuitous route through Rhiw Quarry and the Welsh Slate Company's Quarry and by Rhiwbryfdir House. A map of c. 1838 shows a "Deviation of cart road" which leads through Tal y Weunydd and across the Barlwyd at a point near the present road crossing at Pant yr Afon, but there is no direct evidence that this was built (CRO FR [old] 50050); sometime shortly after March 1839 Holland built an incline down to the Ffestiniog Railway. The Welsh Slate Company had built an incline the previous year and Rhiwbryfdir quarry (colloquially *Gloddfa Ganol*, the middle quarry) followed suit sometime between 1838 and 1842 (Lewis 1988 5). All these have long ago been covered by tips of unusable rock (well over 90% of the total extracted in any slate quarry) from the Oakeley quarry, formed by amalgamating these three workings from 1877 to 1889, and the present disused inclines leading from Oakeley are later replacements (DRO Isherwood, *Rhiwbryfdir Fawr*).

In 1846 Messrs Shelton and Greaves leased Tal y Weunydd, the site of the future Llechwedd Quarry (officially Greaves' Welsh Slate Mine) (Jones and Hatherill 4), and two years later production began. The original working level was the adit now used by Quarry Tours and it was here that Llechwedd's Quarry's first mill was built, in 1852-3 to saw slabs, powered by a waterwheel (Jones IW). The unusable rock and the sawn ends from the mill were tipped down the hillside overlooking Pant yr Afon, and the earliest plans of Llechwedd Quarry, dating from 1871, show that this tip had already reached the edge of the present road. Later workings at Llechwedd are higher up the hillside, and these also built tip-runs above the Pant yr Afon site by this date (CRO LNWR Plans 8).

Output was taken by packhorse to the railway until 1854, when Greaves constructed a 1' 11½" railway from the terminus of the Ffestiniog Railway to the original mill on floor 2 of Llechwedd quarry. Part of this was constructed as a counter-balanced incline plane up the slopes of Tal y Weunydd (Jones and Hatherill 4), and this is the plane (6) whose course still survives intact at the Pant yr Afon site. It is possible that the path down the side of the tips represents the course of the earlier pack-route since it leads straight to the original processing area at Llechwedd Quarry, though steps have been constructed on its lower stages (31); a plan of 1863 shows a trackway crossing the field at Pant yr Afon towards the site of the Dinas terminus of the Ffestiniog Railway. After a few yards its course disappears under the huge Glan y Don tip belonging to Oakeley, created after 1855, itself now swept away by work in the 1970s (CRO X Plans RD 17).

The opening of the railway had opened out the area around Ffestiniog to some extent, but for the first twenty-seven years of its life it remained horse-worked, and only acquired a passenger service in 1865. It by no means served all of the transport needs of the emergent town of Blaenau Ffestiniog, and by the mid-1840s there were moves to build a road from Blaenau Ffestiniog through Pant yr Afon and through Bwlch Gorddian to the north, to connect the area to the road from Betws y Coed to Dolwyddelan, and thereby to the Conwy valley. A track across the Bwlch was already in existence, climbing up through an area now obliterated by the Oakeley Quarry - it is marked on the unpublished 1818 ordnance survey and on the 1840 1" - but it was clearly insufficient to meet the needs of the burgeoning community. The main instigator of this proposal was the quarry-tenant Samuel Holland, a tireless member of a great many local committees and trusts, with the support of Llanrwst-based tradesmen (CRO XM 850 26, Malchow 1-77). Work began the following year, and was complete by 1855 (Pritchard 31). The road, and the pass through which it travelled, have since been known as "the Crimea", after a tavern opened near its highest point.

The precise course of this road through the Pant yr Afon area is not entirely clear. The whole route came to be administered by the Portmadoc and Beaver Pool Turnpike Trust by 1863, and a plan of proposed diversions of that year shows a road slightly to the west of the present course at the site, approximating to the location of the later standard-gauge sidings from the LNWR (15), though the limits of permitted deviation allow the construction of a road exactly on the site of the present alignment (CRO X Plans RD 17); unfortunately the book of reference, which would have been deposited with the Clerk of the Peace along with the plans, has not survived. Certainly the road had been rebuilt on its present location by 1871 (CRO LNWR Plans 8).

The prosperity of the Ffestiniog Railway after its successful introduction of steam traction in 1863 and of passenger traffic in 1865 led other and larger railway concerns to contemplate ways in which they might tap the lucrative slate traffic. The Great Western Railway was behind an abortive Bala and Festiniog Railway which would have led to the foot of the Llechwedd incline (CRO FR [old] P96 [new] 488996), and the LNWR by its Additional Powers Act of 1872 was enabled to construct a 1' 11½" gauge railway to Blaenau Ffestiniog (Down 222). This would have been built to a different alignment to the standard-gauge line that was actually constructed (19-20); it was intended that it should climb steeply up Dyffryn Lledr, and pass through the Crimea at a much higher level, and through a shorter tunnel. It would then have passed through the main working floor of Llechwedd Quarry, and reached its terminus in the complex made up of the the Votty and Bowydd, Diffwys and Maenofferen Quarries to the east (CRO LNWR Plans 8).

Clearly, the powers at Euston changed their mind, and recast the system as a standard-gauge branch line from the existing railhead at Betws y Coed to a terminus alongside the Ffestiniog Railway's Diffwys branch; work began on 24 May 1875 on a heading for a standard-gauge railway tunnel near the Pant yr Afon site (20) (Down 223).

By 1879 the tunnel was through, and services could run from Betws y Coed to a temporary station immediately outside the tunnel mouth at Pant yr Afon (Jones pl. 55). By 1881 narrow

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1818 2"

1840 1" (David and Charles reproduction)

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X Plans R LNWR 8 - deposited plans of Betws y Coed and Festiniog Railway 1871.

X Plans R LNWR 369 - engineer's drawings of arrangements at the Pant yr Afon wharf, 1881.

X Plans RD 17 - deposited plans of Portmadoc and Beaver Pool Turnpike, 1863.

XM 850 26 - letter from tradesmen and businessmen of Llanrwst and district to Samuel Holland, esq., Plas yn Penrhyn, 9 July 1845, expressing support for the plan for a road from the Ffestiniog area to Dyffryn Conwy.

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and standard exchange sidings and their associated facilities were operational at Pant yr Afon (3, 4, 11-15) to enable Llechwedd slates to be transported on the LNWR, and the passenger services had been extended to a new station at SH699459, nearer the centre of the town, as originally proposed (CRO LNWR Plans 369, Jones and Hatherill 22, Boyd *Ffestiniog Railway* vol. 1 plate 20H).

Initially the LNWR offered a choice of transporting the slates on the national rail system or of shipping it into vessels at a specially constructed pier at Deganwy; to this latter end, Crewe works built special standard-gauge "host" wagons capable of carrying three 1' 11½" wagons. Narrow gauge wagons could therefore travel from the quarry yard to the quayside without the need for transshipment at Pant yr Afon; instead they were loaded bodily onto standard gauge wagons. This system proved only a limited success and was abandoned in 1914 (Jones and Hatherill 18). Slates for the LNWR were henceforth transhipped at Pant yr Afon, or went down the Ffestiniog Railway in much the same way as they had done before the LNWR arrived.

The next development to affect the Pant yr Afon site was the installation of a hydro-electric turbine station (1) in 1904. This remarkable structure, still in operation, was the fruit of experiments which had been conducted at Llechwedd Quarry since 1890, by the manager, C. Warren Roberts, clearly a versatile and skilled engineer, though unfortunately comparatively little is known about him. His father was Hugh Beaver Roberts of Plas Llanddoget, near Llanrwst, a solicitor with a finger in many pies locally, an election agent for the Conservatives, a shareholder in many local quarry and railway schemes (pers. comm., Dr MJT Lewis). Warren is known to have been educated abroad, and it was perhaps his travels which alerted him to the possibility of the new power-source (*Report of the Departmental Committee of Inquiry into the Merionethshire Slate Mines* qu. 3703-5, 3724, 3972-3, 3948-9).

Since the first serious mechanisation of the Blaenau quarries in the 1850s, mills and haulage systems had been powered by water-wheels or steam engines, according to the terrain; Llechwedd had the advantage of a good gathering ground for water, and its extensive system of slate and slab mills, constructed between the 1850s and the 1890s, made use only of hydraulic power, generated by waterwheels (Gwyn 1994, CRO XS 1058). The first experimental dynamo was rigged up to one of these wheels in 1890, to charge cells for lighting up the Greaves' house at Plas Weunydd. A purpose-built power station was later installed to drive a level to unwater some of the workings, and from 1896 a Thompson vortex turbine drove two dynamos at 120A and 60A. The direct current station at Pant yr Afon was opened on 11 April 1904, and the invoice from Gilbert Gilkes, the Kendal firm of turbine manufacturers, to Llechwedd for £2,235 13s 7d. is dated November 1905. An early view of Pant yr Afon station shows a arrangement of machinery different from what prevails now, and it is unclear precisely when it took its present form, but it appears probable that the present system dates from its very early days (Jones IW 14, CRO XS 1058 26, 28, 29).

The twentieth century has been a period of long decline for the Welsh slate industry, reaching a nadir in 1970, and no further developments are recorded at the site after 1904/5. In 1946 the Ffestiniog Railway ceased operations, and in 1955 the now-disused 1' 11½" gauge rails connecting the foot of the Llechwedd incline to the Ffestiniog Railway were removed, but the narrow gauge system remained in use on the incline and to the Pant yr Afon wharf to transfer slate to the wagons of what was now known as British Railways, as successor to the LNWR and the LMS (Boyd 251, 495).

From c. 1958 Llechwedd Quarry began to use the exchange sidings to transfer slates from narrow gauge wagons into lorries. Limited use was made of the standard gauge railway from this time on, and in 1962 it ceased utterly. The incline itself ceased to be used in 1964 when road lorries could make their way up to the working levels at Llechwedd Quarry. The rails were removed for use on the "Quarry Tours" section in 1972; this made use of the original adit where operations had begun in the 1840s (Jones and Hatherill 5, 21-2).

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