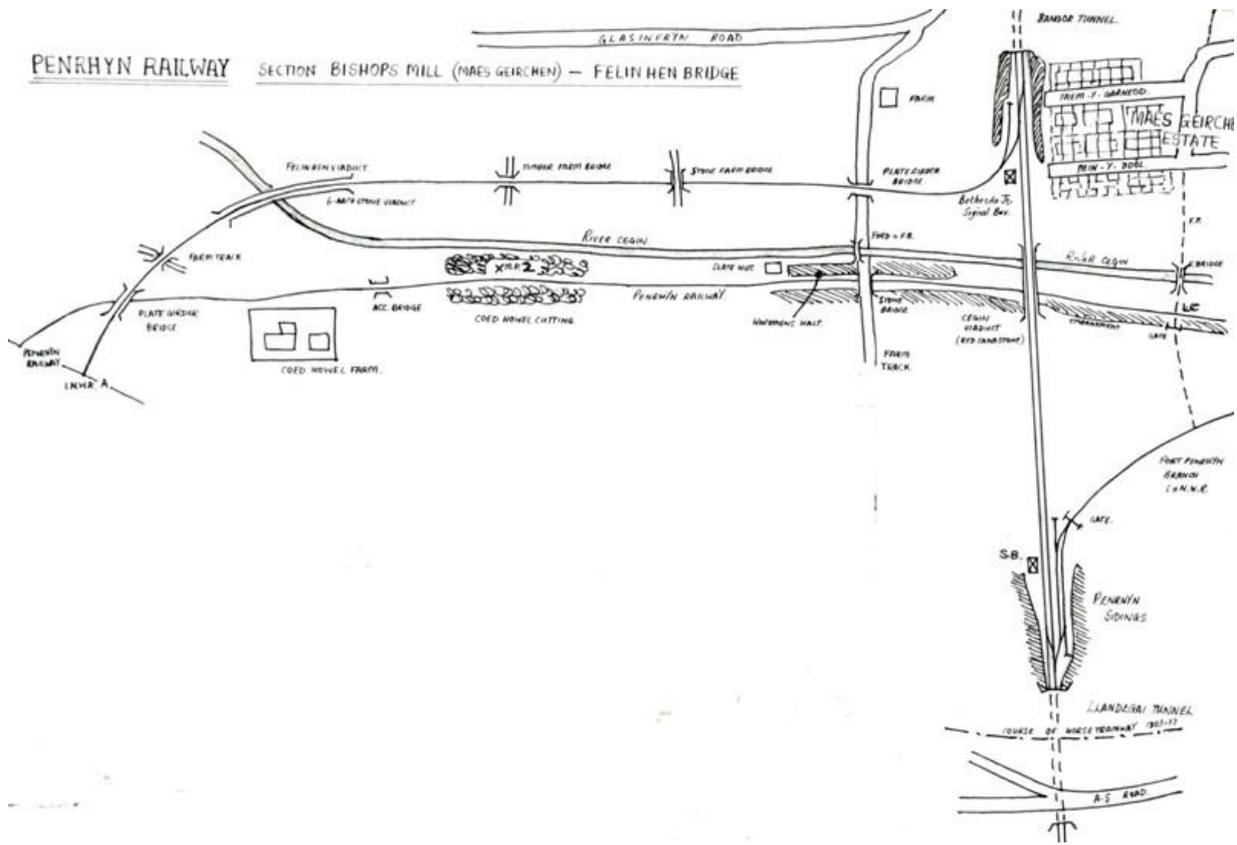
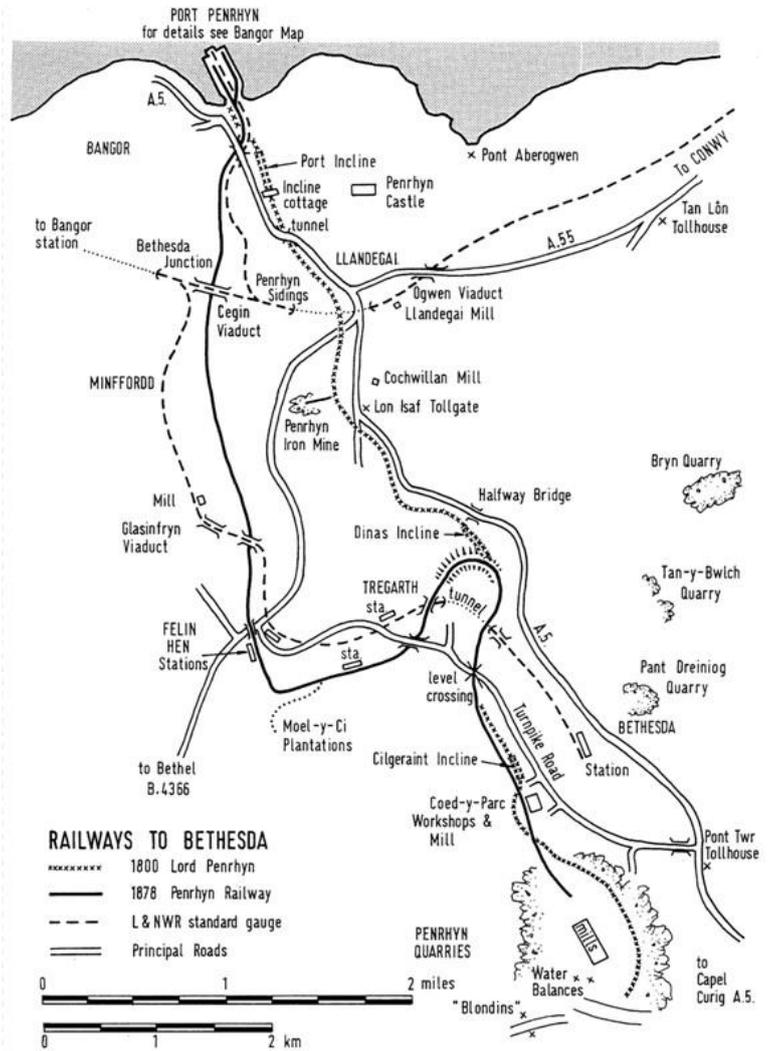


11) Railways and Quarrying at Bethesda

The Penrhyn Railway was built in 1878 to replace the inclines of the old tramway by a level route and so facilitate locomotive working throughout. To achieve this, the course adopted was more serpentine, following the contours along the valley of the Afon Cegin, and was six and a half miles long compared to the five miles of the older tramway. Our sketch map is repeated here to aid orientation.....

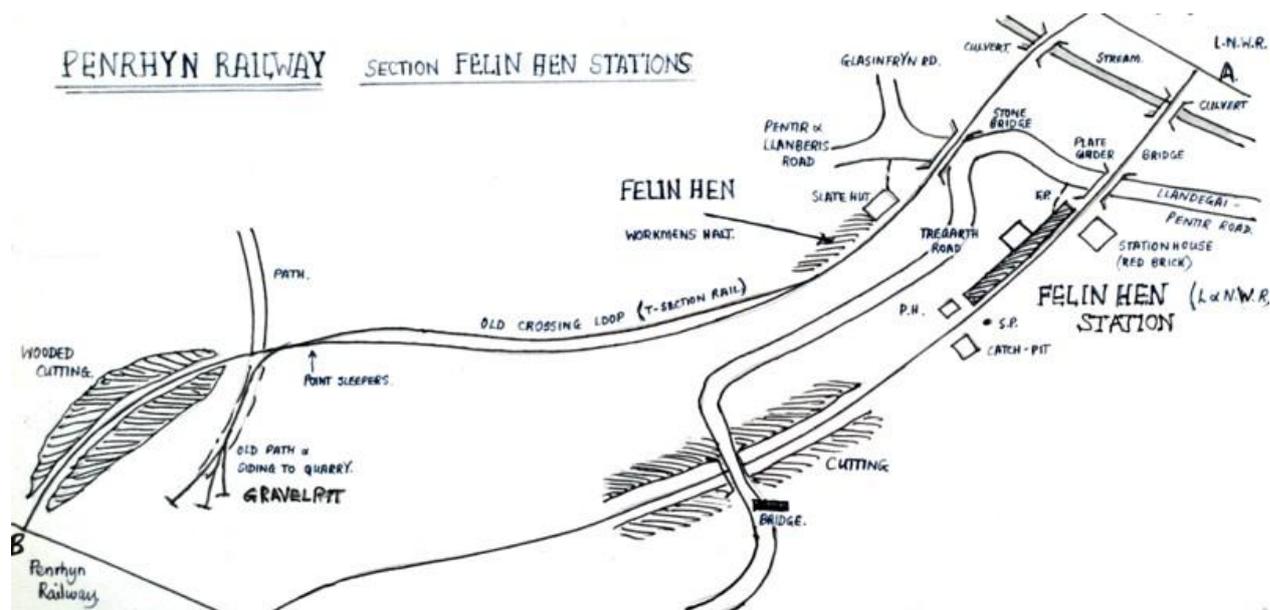
Near the foot of the tramway's Marchogion incline, the newer line diverged to the right and immediately passed beneath the main A5 road (592721). The present bridge is new, and roughly on the site of a larger arch which carried the accompanying standard gauge siding. It was provided during recent road widening in case either line should be required to be re-laid at some future date. Whereas the LNWR siding trackbed climbs and curves away south to join the main line outside Llandegai tunnel, the Penrhyn Railway continues straight ahead on a riverside ledge, and passes beneath the Chester and Holyhead Railway's lofty red sandstone Cegin Viaduct.....



Many of the wooden sleepers and parts of broken chairs are to be found still in situ on this stretch of track, but the route has become very overgrown in recent years. The rails were removed as early as 1965 for re-use on the Festiniog Railway. By the first overbridge at Minffordd, the line has been joined by the L&NWR Bethesda branch, built in 1884, running down from the main line to the west. Both lines and the river between them cross a minor road (drivable) by an interesting variety of bridge building: the stone arch of the Penrhyn, plate girder on the standard gauge, and a wooden footbridge - the road has a picturesque ford thrown in for good measure.

The now rather unhealthy-looking six-arch L&NWR brick viaduct at Glasinfryn (587691) strides across the stream to bring both lines to the same side: adjacent to the northern end is an old mill which has seen various uses, its four storey shell and an engine-house stack remain after a long period of dereliction.

From the village of Glasinfryn, one might also conveniently visit another nearby but smaller mill, Felin Uchaf at Pentir (567668) that is in somewhat better repair. Its roofed-over 8 ft diameter waterwheel features an unusual arrangement whereby the drive is transmitted back over the stream by an overhead layshaft to enter the mill building. This machinery is thought to have been used for general farm purposes.



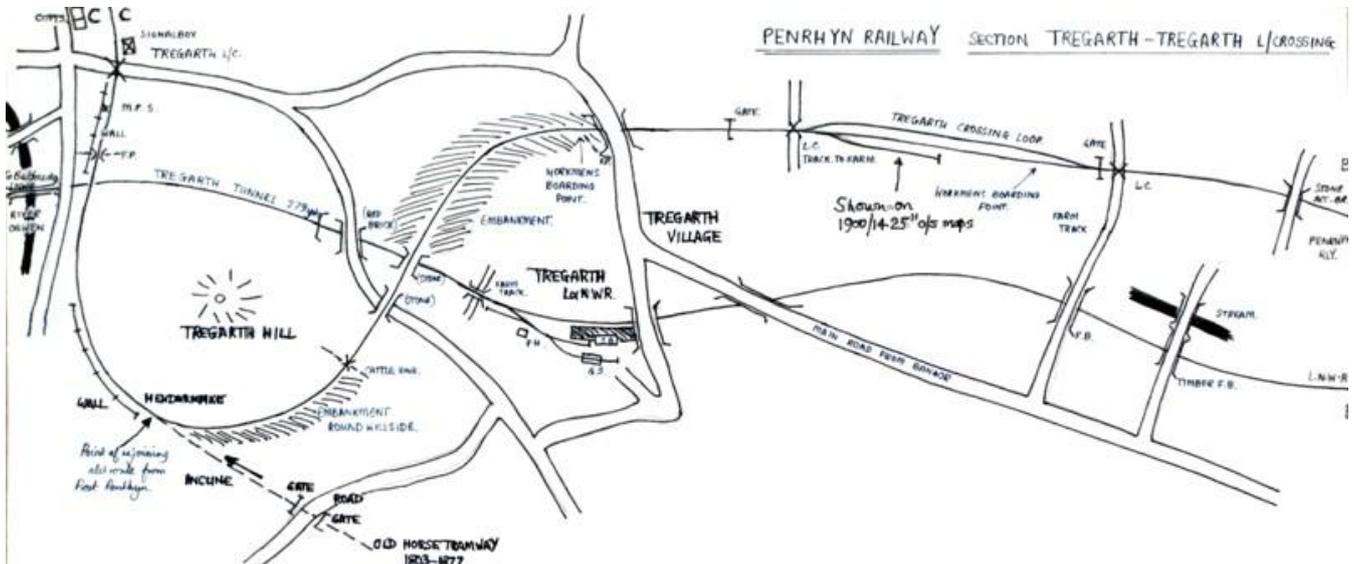
The railways finally leave the Cegin Valley beyond Glasinfryn, cross over each other and then run parallel to cross the main road at Felin Hen. Both lines once had wayside halts here; the Penrhyn for workmen only, but the L&NWR had a proper station building with a staff cottage adjacent, which still stands. The narrow-gauge embankment has been obliterated north of the road, but the halt was on the south side, followed by a long passing loop. Both routes shortly turn abruptly eastwards and climb steeply towards the Ogwen Valley at Tregarth. A scheme to construct a branch line from the Penrhyn to

a timber plantation at Moel-y-ci was proposed by the Government “Home Grown Timber Department” during World War I; limited evidence on the ground suggests that this may at least have been started.

Tregarth station building, the principal halt on the L&NWR Bethesda Branch (602680) is a remarkable survival of the company’s standard timber structure in virtually unaltered condition. It has been used since closure to passengers in 1951 and freight in 1963 as a community meeting place, being well sited in the centre of the village.....



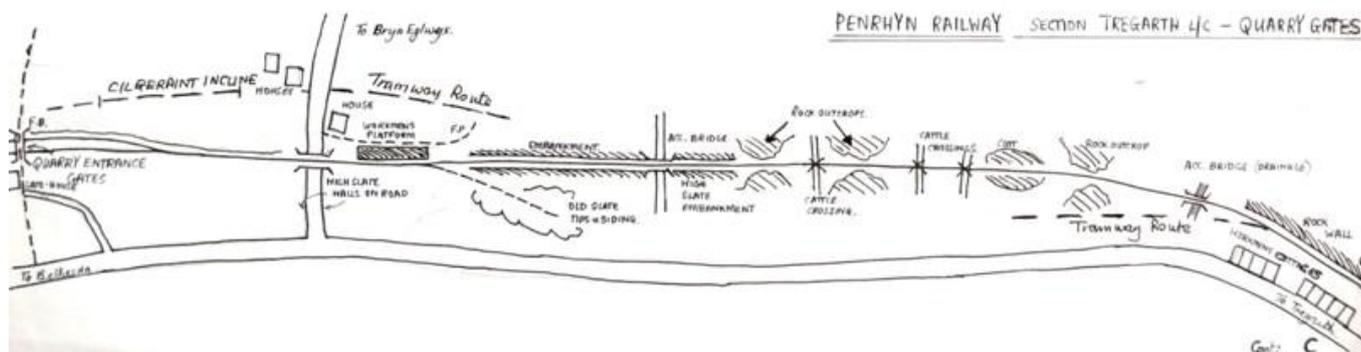
In contrast, Penrhyn workmen joined their train in the middle of a boggy field to the east: roughly at the half-way point of the line, there was also a long passing loop here which superseded that at Felin Hen and remained in use until the 1950’s.



The standard-gauge line now pursues a direct course to Bethesda via the 279 yards long Tregarth tunnel as already noted in section 9, followed by a high stone single-arch bridge over the rushing Afon Ogwen. From here followed a straight run of some three quarters of a mile across flat fields to the terminal station at Bethesda, now largely demolished although a terrace of railway workers' houses survives nearby. Our picture shows the fine station building shortly before its demise.....



The Penrhyn Railway, as we have seen, circumnavigates the hill and is joined by the 1800 route at the top of its Dinas incline, before re-crossing the LNW line above the eastern portal of its tunnel. From here may be seen the road bridge over the river, Pont Coetmor, built in 1784 together with a new section of turnpike road to replace Pont Twr beyond Bethesda, which was in poor repair. The building adjacent was once a corn mill, Melin Coetmor, but is now used as an outdoor pursuits centre. The old road, still known as “Hendurnpike” (the old turnpike) continues as the B4368 towards the mighty workings of Penrhyn Quarries to the south, and was crossed by the narrow-gauge railway at (610676), recognisable now only by the little green-painted crossing keeper's hut.



The last mile to the quarries is easily negotiated on foot along the 1878 line. Passing behind the quarrymen's houses, the old tramway route drops virtually unseen away to the left, and runs parallel almost to the start of the workings; slate sleepers with chair marks and fixing holes may still be seen. At St. Anne's, the railway crossed the road on a high slate-slab bridge and entered the environs of the Coed-y-Parc workshops (615664); the tramway crossed on the level, but now on the west side in front of the cottages, and it had to surmount the short Cilgeraint incline (now largely covered by tipped waste) in reaching the same entry point to the quarry proper.

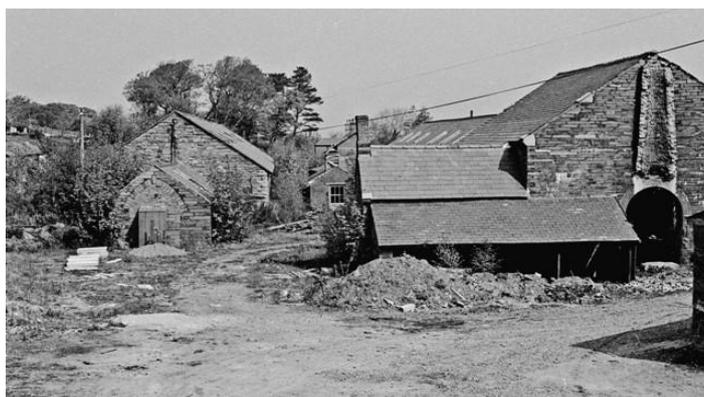
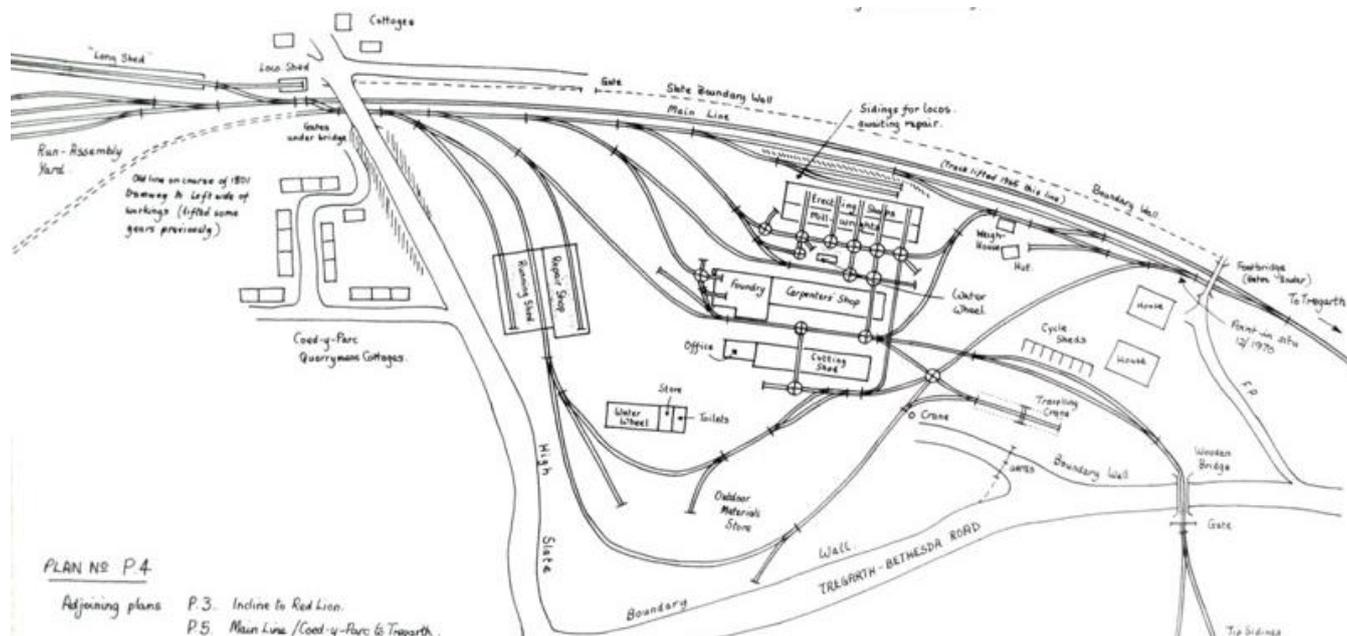
Penrhyn Slate Quarries have been operating almost continuously since the sixteenth century, and in the heyday of the late nineteenth century could boast, amongst other things, the largest man-made hole in the world. Penrhyn and neighbouring Dinorwic, on the other side of the same mountain, employed over 3,000 men each at this time; likened to two children tucking into a giant plum pudding, it was once said that they should surely join up within a hundred years. Nature, however, has decreed otherwise, and still the deep-shadowed terraces with their long waste tips are dwarfed by the mighty mountains.



Although Penrhyn still operates (one of only six or seven North Wales quarries out of some two hundred once worked), both methods and markets have changed dramatically since the Second World War. Slate won and dressed by machine is conveyed by lorry, and finds eventual use as often for decorative as structural purposes. The steam railway system predictably plays no part in this, and the quarry internal system passed into oblivion in 1965, three years after the main line to the port had closed.

The hub of railway operations was where the routes from Bangor entered the quarry environs at Felin Fawr, Coed-y-Parc. Here were situated the quarry engineering workshops, foundry, and a large slate dressing and finishing mill. The buildings of the locomotive erecting shop, with overhead traveling crane, and of the foundry survive, and there are also two iron pitchback waterwheels. enclosed in their own buildings and apparently set almost completely below ground level. However, the whole area of

the works complex is built-up ground, on massive slate-slab walls best seen from the road, and the Afon Caledffrwd running beneath was channeled to feed water to the wheelhouse tanks. One of the wheels, of 36 ft diameter built by De Winton, powered slate dressing machinery in the large mill since demolished, and the other, 26 ft in diameter, drove machine-shop equipment and the foundry blower. They were last used circa 1930 and are now in poor condition though basically complete. The railway route passes alongside the workshops and under a bridge to enter what was once a marshalling area at the foot of a chain-worked incline leading up to the main mills level.....



A further group of buildings to the east of the 'B' road, now occupied by a car body repairer was formerly the Ogwen Slate Works. Below, and beside the river bank at the junction of the Afon Caledffrwd and Afon Ogwen is a substantial slab-walled building housing the remains of another 40 ft diameter waterwheel. This is accessible by footpath from the nearby footbridge (616667) and was built as late as circa 1902 in connection with an experiment in crushing slate waste to make breeze blocks, but disused after some five years. Slightly to the north of the footbridge the main drainage adit from the Penrhyn Quarry workings empties into the Ogwen; the slate slab arch is dated 1849. The adit, with branches, was of 5' x 7' cross-section and 1837 yards long. Two powerful hydraulic pumps were installed by De Winton at the far end to drain the quarry pits. They were superseded by electric turbine pumps in 1907 but were retained for emergency use and still survive. They are, however, virtually inaccessible in a rock-hewn cavern at the end of a tunnel in the heart of the quarry, and the wooden floor covering the 250 ft deep pump shaft and supporting the huge pump castings is becoming badly rotted.

Also supplied by De Winton were at least four of the famous hydraulic balance lifts used for raising loaded slate wagons from the quarry floor to the dressing mills. Of the original total of eight sets, two survive, the headgear of one being beside the Company offices and car park (620654). The other on the level below is the "Princess May" shaft, and is one of those equipped by De Winton. These lifts were

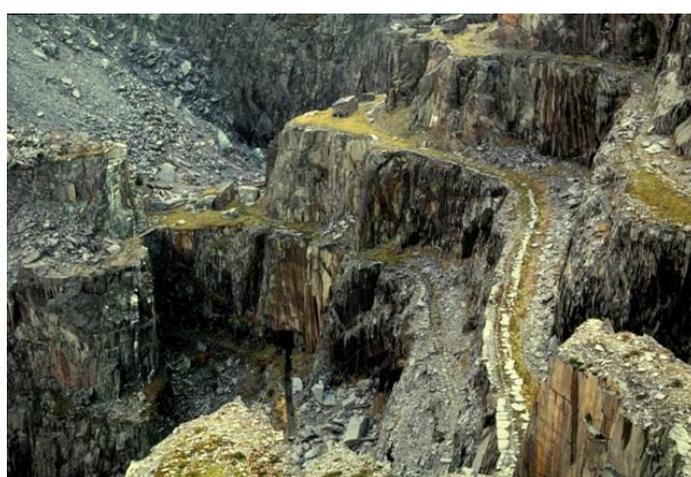
in use until rail transport at the quarry was abandoned in 1965-6, and hopefully the machinery of one might be preserved in situ.....

Today mighty lorries and excavators feed the modernized mills with slate blocks from the quarry galleries, which extend to some 1150 ft in total depth from the bottom of the excavated pit almost to the top of the mountain backdrop. This system of quarrying in terraces was initiated by James Greenfield (Manager 1799-1825) and was later adopted by several other concerns, including nearby Dinorwic on a similar scale, where the slate vein outcropped on the open hillside.



Although roofing slates are still produced, recent exploitation of the flooring and decorative stone markets has enabled the survival of the quarry, operated since 1964 by Sir W. Mc Alpine and Co with a workforce of about 350. The mill equipment consists largely of modern multi-bladed gang-saws, surface grinders and polishing machines, but roofing slates are still dressed by hand in the traditional manner, and the craftsman sits alone at his bench in the midst of the roaring machinery. The Fullersite (slate-dust) plant was originally commissioned circa 1924 to reduce waste rock to the form of granules or powder for use in papermaking, cosmetics, and as a road surfacing.

Some of the character of the old quarry may still be seen in the largely un-modernised levels to the west of the mills complex, which may be reached via the old access road from Douglas Hill (608656). Derelict mills, incline winding houses, weighing machines and water tanks are to be found on each main level, with others between them disused at an even earlier date, overgrown, and partially obscured by tipped waste.....





Directly from the main mill sites great fingers of waste rock stride northwards into the open heathland, some reaching to nearly one hundred feet high at their furthest extremity; a lasting reminder that even in such a vast and efficient concern as Penrhyn the saleable product was unlikely ever to exceed one tenth part of the total material worked. At the opposite end, the levels narrow and run onto the gallery system of the actual quarrying areas, and good views may be obtained of the whole system of the workings extending over about one mile, and half a mile in width.



Two of the aerial ropeway systems or “Blondins”, an alternative method of raising loaded wagons from within the quarry pit, survive virtually complete and may be examined (617645). These particular examples were constructed in the early years of the present century and were probably electrically powered from the start, but similar apparatus had by then been in use for about forty years, driven by horizontal stationary steam engines. Also prominent, on a high headland overlooking the whole quarry is the signalling station, from which blasting times, shift changes and meal breaks were announced, originally by bugle, but later by a large brass bell, suspended within the wooden gallows. The attendant's hut is adjacent, and is afforded but little shelter by the rock face behind.

The area to the west of the quarry, a bleak moorland tract even today, was owned by Lord Penrhyn, and developed as accommodation for his workmen in the form of neat smallholdings around a rectangular grid of good roads. Tan-y-Bwlch and Douglas Hill are almost 1,000 feet above sea level, and the lanes marking the inhabited areas converge into but one narrow road leading over the mountains to Deiniolen and Llanberis. From somewhere about its midpoint (590640) the waste tips of both Dinorwic and Penrhyn quarries may be seen simultaneously, and lend some credence to the “plum pie” theory of the Victorian writer, though even today (with new power station and reservoir works) nature still most definitely triumphs over man hereabouts.

Penrhyn Quarry suffered a lengthy industrial dispute from 1900 - 1903, as a result of which several small quarries were started or reopened in the vicinity of Bethesda, on a “workers co-operative” basis by the North Wales Quarries Society. One such was at Pant Dreiniog, right in the centre of the town (624672), but now largely obliterated by reclamation of the waste tips. Those at Llanllechid were re-workings of older quarries: Tan-y-Bwlch, of the London-based Port Bangor Slate Co. had started in 1862 and still retains a carved slate nameplate set in a wall (628683; *photo: DVM*).....



Nearby Bryn-Hafod-y-Wern, run by the Royal Bangor Slate Co. from 1845, is a large and deep flooded pit. There was once a 30 ft waterwheel here, whose reservoirs were supplied by a tunnel-leat system from the Afon Caseg reputed to be no less than seven miles in length.

All the co-operative workings were relatively short lived (ceasing circa 1911), since once Lord Penrhyn had relented to increasing Union strength over wages and “exploitation” the giant neighbour was able to tempt again with offers of greater security and better working conditions. Some

measure of the wealthy landowner's influence is seen in Bethesda's main street, where all the hostleries are on the same side of the road; that not administered by Lord Penrhyn, who frowned upon such indulgencies by his workmen. Significantly, also on the same side was the old “lock-up shop” (622668). The village of Tregarth, where those few loyal workmen not supporting the great strike had to be rehoused for their own safety, was permitted no hostelry at all!

Beyond Bethesda, Telford's London road is rejoined by the old turnpike at Port Twr, where there is a much-altered tollhouse dating from 1819; the road then climbs east of the Penrhyn Quarry tips into the mountains of the Carneddau. Pen isa'r Nant (631650) is a former dairy farm in the Regency Gothic style by the prolific Benjamin Wyatt, built to supply poultry and dairy produce to Penrhyn Castle. Lord Penrhyn's road then lies on the opposite side of the valley to the present A5, and is still passable by car. There were various small copper workings on the hillside adjacent to the road, which rejoins the A5 by Llyn Ogwen, at Ogwen Cottage. The garage workshop here was once a honestone mill, to which stones were brought for dressing from outlying quarries, and the site of the waterwheel on the west side may be seen. Under the present arch of the Ogwen bridge at the point where the river leaves the lake, there survives another interesting, earlier and much more frail construction. Beyond Llyn Ogwen, the road descends towards Capel Curig, and Lord Penrhyn's Road again diverges, being seen as a grassy track some 150-300 yards south of the present (Telford) route (680603) and remaining separate most of the way to the old inns at Capel Curig (see sections I & IV). We must, however, retrace our steps directly from Bethesda to the commercial centre of Bangor, the principal township of North West Wales, and gateway to the Isle of Anglesey.

Keith A. Jagers November 1978

Updates – December 2011

Slightly less than half the route of the **Penrhyn Quarry Railway** – from Port Penrhyn Quay to Coed Howel – has become Lon Las Ogwen (“Ogwen green way”), a fine cycle and pedestrian route. It is accessible at Bishop's Mill, close to the L&NWR viaduct, both from Maesgeirchen and the Llandegai industrial estate. All the bridges and the ford at **Minffordd** are virtually unchanged from 40 years ago; the greenway is accessible here also. It switches from the Penrhyn Railway route to the L&NWR Bethesda branch trackbed at **Coed Howel Mill**, skirting the site of the latter. The main mill building and chimney have gone, but the cottages remain, also a delightful little lattice bridge on the approach driveway, under the LNW line. On the other side of the new Expressway road, **Glasinfryn viaduct** has been refurbished to carry the cycleway.

Felin Uchaf at Pentir is restored as a holiday let; the waterwheel survives but is no longer roofed over.

The bridge by which the LNW Bethesda branch crosses the Penrhyn line survives, used by the cycleway, but the PQR route is either obliterated or indistinct and quite impassable for much of this stretch. The cycleway joins the main road by the former **Felin Hen station**, where the LNWR station house survives in residential use alongside the brick bridge abutment. A new steel foot and cycle bridge

was installed in late 2011 across the main road at Felin Hen, but is off-line from the original railway route. It appears to have been designed without consideration for possible future railway use. Two small sections of the PQR route are in use for private property access. The designated Lon Lan Ogwen path now lies along the roads, through Tregarth village to Coed-y—Parc, where it rejoins the Penrhyn Quarry Railway briefly before skirting the quarry tips on its way to Llyn Ogwen.

The OS maps for 1914-20 period show no evidence that the proposed **Moel-y-Ci** tramway was ever built. The short section of earthwork we noted in the 1970s *is* shown on these as far back as 1889; it seems to be just a farm track.

Tregarth station building has unfortunately long gone. The adjoining road bridge has been infilled, but the parapets remain. Bethesda station yard has been redeveloped with small industrial units, and there is new housing along Station Road. However the terrace of railway cottages survives, on the north side near the main road junction, now with rendered walls but identifiable by the distinctive LNWR red brick eaves corbelling. The former Purple Motors bus workshop & offices opposite has been much modernised.

At Pont Coetmor the PQR route ran immediately to the west of the roadway, high up on top of the stone retaining wall but now densely wooded. Near the old road bridge, **Melin Coetmor** is a listed structure, now restored but appearing unoccupied at present. There is a proposal to extend Lon Las Ogwen cycleway from here along the old LNWR branch route into Bethesda, and a longer-term, though very expensive commitment to also renovate and open up the tunnel and viaduct section westwards to Tregarth village.

Back on the Penrhyn route at **Hendurnpike Crossing**, the little green-painted crossing-keeper's hut is an amazing survival amidst the road improvements of the last 40 years. The **Penrhyn Railway Society** intends to eventually rebuild the last mile of the line from the Coed-y-Parc end, as far as here, and clearance of the route has started. The high slate walls and bridge over St Anne's Road were demolished long ago for safety reasons, and will be difficult to reinstate. Higher up, the old tramway route in front of the cottages can still be identified, and is in use on the south side as an access driveway to Mill Cottage.

At the **Coed-y-Parc** workshops site, many of the old buildings have been renovated and are in multiple commercial use, with ample visitor parking available. The former locomotive shed and other structures are being meticulously restored by the Penrhyn Railway Society as their workshop and future operating base. It is also intended that one at least of the waterwheels will be restored. Here are some recent photos of the site, the first showing the point at which the Lon Las cycleway re-commences as an off-road route (compare with our 1970's photo above).....



This view (right) shows the former locomotive repair shops, with the former Penrhyn Railway “main line” running alongside. It is hoped that track will be relaid along this section shortly, using actual original rails and components repatriated from the Festiniog Railway, where they have been in use as sidings at Minffordd since 1962!

The former **Ogwen slate & tile works** buildings are now occupied by The Real Car Company, a specialist in vintage Rolls Royce and Bentley vehicles, always with an interesting stock!



Caledffrwd Mill in the valley below has been restored as B&B and residential accommodation, but no original machinery was left in the derelict shell. Just to the north (616667), the 1849-dated arch of the main **drainage adit** from Penrhyn Quarries survives, fenced off in the middle of a field.

In 2007 McAlpines sold its **Penrhyn Slate Quarries** operation to Welsh Slate Ltd (Lagan Group), which continues to provide roofing slates, aggregates and architectural material. More or less the whole of the large former quarry site is worked, and most of the historical features mentioned and illustrated above have either been obliterated or extensively modernised. The workings are securely fenced off and signed, even in the older parts to the north-west side near Douglas Hill, and there is in any case little of historic interest to be seen now. The two **Water Balance Lifts** that were retained are close to the main visitor's parking and reception area. The Princess May lift, adjacent to the quarry office building is sadly rusting and neglected; that named Sebastopol has been cosmetically restored but is not currently operable. It may be possible to arrange to view and photograph these during normal working hours with prior permission from the site security office, and accompanied by an employee.

The spacious **quarrymen's cottages** plots along the Tan-y-Bwlch and Llwybr Main roads at Mynydd Llandegai remain as desirable residences, some quite heavily modernised.

Pant Dreinog quarry pit has been infilled, and the tips removed; it was on the west side of the eponymous industrial estate, with tips to the south, the whole area bounded by a footpath. The **Port Bangor** workings are now used by the Outreach Rescue Organisation for training purposes, including some of the former underground tunnels. At **Royal Bangor** nearby, the pit is flooded and the extensive tips are fenced off as private land.

The former Pont Twr **tollhouse** is now divided into two cottages, much modernised, on the east side of the A5 nearly opposite the road junction. Lon Las Ogwen cycleway skirts the vast quarry tips on the west side on its way up the Ogwen Valley, passing close to the site of the Penrhyn Quarry Hospital in the woodland. **Pen Isa'r Nant** is a listed building, now in residential and business use, accessible off the main road. The former route of **Lord Penrhyn's road** continues up the valley as a public bridleway, past remaining evidence of **copper mine** workings around Ceunant (see "Mine Explorer" website for details and exact locations of these). Ogwen Cottage is now an outdoor pursuits centre of the Birmingham City Council education dept; the former **honestone mill** building at the rear is converted to provide additional accommodation.

The old **packhorse bridge arch** under the main road bridge Pont Pen y Benglog nearby is a restored and listed structure. Lord Penrhyn's road continues eastwards, south of the A5 and parallel to it, as a good footpath for some 3-4 miles.

Added October 2012:

This picture from the road bridge at Coed y Parc shows the new Penrhyn Railway track in place, with spur into the loco sheds. The ¼ mile approx run to St Anne's Road was officially re-opened in June 2012, the 50th anniversary day of the 1962 closure. However the site is **not open to the general public** as much work still remains to be done before this would be possible.

More good news is that many of the old Penrhyn Quarry steam locomotives that went to Canada and the USA in the 1960s have now been returned to the UK; these are *Marchlyn*, *Ogwen*, *Glyder* and *Winifred*, and it is to be hoped that *Cegin* and *Nesta* might follow them home soon. . Pictured right is *Winifred*, still in very much the same condition in which it left the quarry in 1965.....

