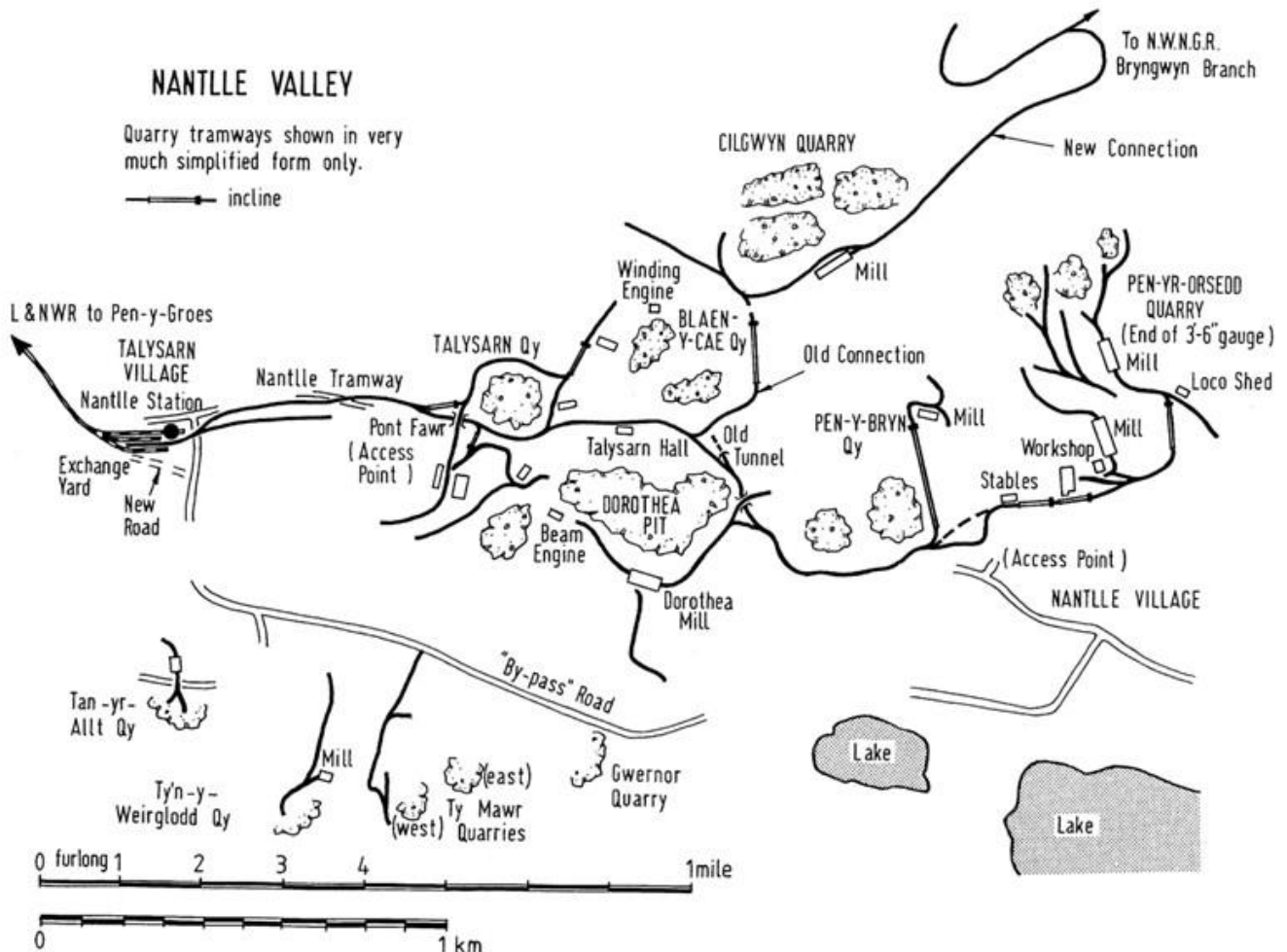


23) Nantlle vale (Dyffryn Nantlle)

Nantlle vale is one of the three great slate quarrying areas of North Wales, the others being the Bethesda - Llanberis area in the north, and that of Ffestiniog further south. Each of these areas used different techniques to extract the slate (although producing a more or less standard product) which has resulted in markedly different topographical characteristics in each area. The reason for these differences is the varying formation of the slate beds in the surrounding rocks. As has already been seen at Penrhyn and Dinorwic, the slate strata of Cambrian rock outcrops directly on the side of the mountain there, and can be extracted by simply quarrying into the hillside. At Nantlle however these same beds have a much steeper, near-vertical dip and outcrop on the valley floor. In order to quarry this slate, pits have to be dug down into the strata and the slate blocks hauled out. This form of quarrying and the vertical dip of the beds have led to the characteristic landscape of deep, vertically sided pits (twllau), now frequently flooded, and overlooked by the slate rubbish tips.

Quarrying at Nantlle goes back many hundreds of years. The first slate quarry in Wales was probably that at Cilgwyn, which produced roofing slate for local use on a small scale in the mediaeval period. Very little in the way of systematic working of the slate was attempted until the roads to the nearest point of shipment (Caernarfon) had been sufficiently improved to justify expenditure on development. This situation had come about by c.1800, whereupon the Crown common land began to be leased to local gentlemen and merchants who started to capitalise and enlarge the existing quarries and open new ones. Although more money was now available, none of the early companies was wealthy enough to undertake quite the same sort of extensive development that was being carried out at Penrhyn and Dinorwic at this time. As a result, no large quarry to rival the two giants emerged despite early hopes for Cilgwyn, and the pattern of a number of quarries run by different companies - the ownership frequently changing due to bankruptcy and sale - was to remain.



The district can best be approached from the west along the road from Talysarn village. This was the original line of the main road to Rhyd-Ddu (B4418) and it passed straight through the quarrying area until

encroachment of the pits forced it to be rerouted in the 1920's. A 3 ft 6 in gauge horse-drawn tramway carrying slate from the pits ran down to the old L&NWR branch terminus station at Talysarn until as late as 1965: the course of this can be seen (489531) first on the right then on the left side of the road, in some places tunneling under the front gardens of the adjacent houses. This line was the sole remaining portion of the 3 ft 6 in gauge Nantlle Railway of 1828, established to expedite the transport of slate from the quarries to the port of Caernarfon, to which it originally ran. The construction of the railway eliminated the long haul over difficult roads to the port, but the sections west of Talysarn were later taken over by standard gauge railway companies who rebuilt and realigned them: that beyond Pen-y-Groes by the Carnarvonshire Railway Co. in 1867, and that between Pen-y-Groes and Talysarn by the L&NWR Co. in 1872.

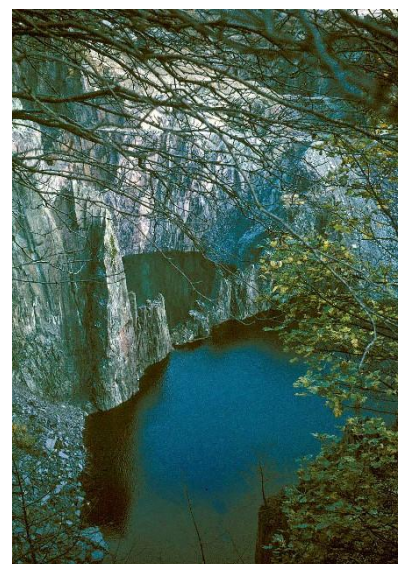
The road and railway eventually pass under separate arches in a tall slate slab bridge known as Pont Fawr (494532; pictures right). This bridge connected parts of the Talysarn slate quarry, and the most notable event in its life was in January 1879 when a quarry locomotive fell off it and was destroyed. Our colour picture shows the Nantlle Tramway rails still in place in 1967.....



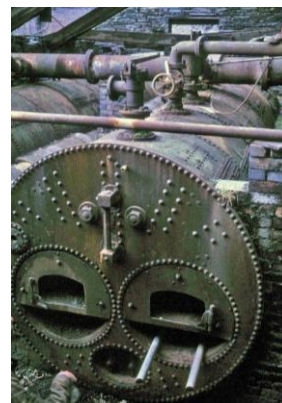
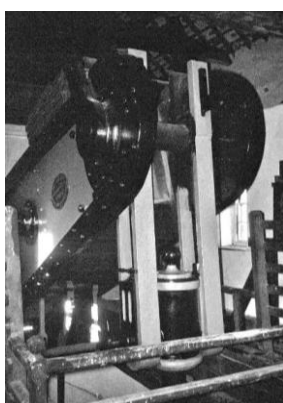
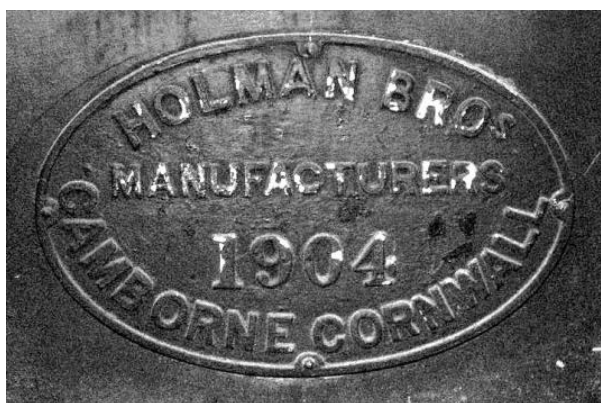
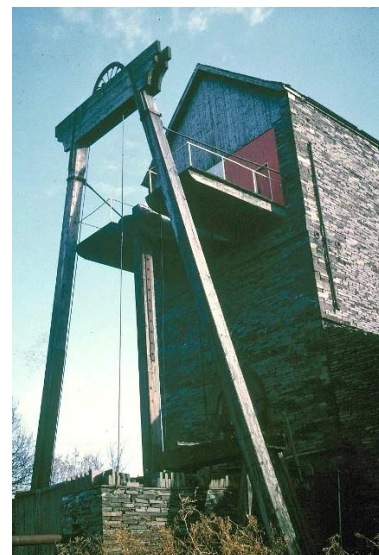
On passing under the bridge one enters the main quarrying area, where to the left can be seen the water-filled pit or "twll" of the Talysarn quarry.

As all the quarried slate in the Nantlle area had to be raised up out of deep pits (waste rock included) a method other than the simple gravity inclines used elsewhere had to be found to bring the material to the mills and tips. The system adopted was the use of aerial ropeways, known variously as "Blondins" or "Jerry M's". A cable was strung across the pit, along which ran a small cradle with a wheel at each end. From this cradle hung further cables, terminating in a chain sling that could be attached to the body of the tram wagons. One of these wagons, running on temporary railway lines at the base of the pit, would be loaded with slates and moved into the central area to be attached to the chain of the "Blondin". It was then lifted vertically to the top surface level of the pit; whence the cradle with wagon attached could then be hauled in horizontally until over the landing stage at the upper level. Here the wagon is lowered onto further tracks; the waste could be tipped and good slate taken to the mills either on this level or on a lower one down conventional inclines. This was the system at its simplest; often the waste and good slate would be landed at different points, and frequently there would be several Blondins in operation over one pit. A landing stage for the Talysarn quarry can be seen on the left of the pit; from there the slate was taken on the level to the tips and mills across the high bridge.

On the south side of the road two inclines leave the main tramway route and if the shorter, left-hand one is climbed, a walk round the tips will lead to an impressive general view of the workings. Directly ahead can be seen the vast 600 ft deep pit of the Dorothea Slate Quarry, started in 1829 and named after the wife of the landlord, Richard Garnons esq. (1774-1844); it was worked until 1970 and has since become flooded (photo right by David Mills). A path leads down from here to the best-preserved and grandest relic of the Nantlle Vale quarries, the Dorothea pumping engine. This is a Cornish beam engine with 68 inch diameter cylinder, built by Holman brothers of Camborne in 1904, used to keep the great main pit dry. It cost the company £1,925 new and was one of the very last of the big Cornish engines built. It worked continuously until 1955 when it was superseded by electric pumps, then was retained for emergency use. It is basically complete, with the steam winch and shearlegs used for replacement of the wooden pump rods, and two Lancashire boilers survive in the roofless boiler house. Although mainly in a good state of preservation (some restoration work having been undertaken by the Industrial Steam



Preservation Group) the future of this fine engine at the time of writing is uncertain. All except the first of this set of pictures were taken by David Mills.....



This picture shows the Dorothea Quarry war memorial plaque, made, naturally from its own slate, which is positioned on the main side wall of the engine house.....

The image below looks across the valley from the north side of the Talysarn Quarry pit, with the engine house right of centre, and an incline to its left. The roof of the large Dorothea mills building is seen left of centre; the big pit is to the left again and below, hidden by the trees here.....



Just beyond the engine house are an interesting collection of buildings, inclines and earthworks around the edge of the main pit. A smithy is on the left; behind and above it the remains of one of the aerial ropeway stations. The wooden head-frames hang out over the sheer side of the pit, and the building formerly

occupied by the horizontal steam winding engine survives with its lean-to boiler house alongside.

Towering above this site is a vast dry-walled slate-slab bastion on the edge of the slate tips which once supported another cableway system; it is visible just above centre of the left hand picture above. The landing stage and the building that housed two overtype locomotive boilers for powering stationary steam engines can be identified (picture right, by David Mills)



Nearby, one of the quarry steam locomotives, the small Hunslet “Dorothea” remained in very derelict condition in its collapsed shed until 1972, when it was finally removed for preservation. In the background of our 1969 picture, below left, some of the wooden headframes for the Blondin ropeway systems are seen.

A long transporter-type incline connects the waste tips with ground level. Following the edge of the pit brings one to the site of the huge main Dorothea dressing mill (complete until recently; picture below right). The engine and boiler house at one time used to drive the line shafting can still be found at the rear of the buildings.



Returning to the Talysarn quarry at (495533), the track of the main Nantlle tramway can be followed. On the hillside above this (498536; at the top of Blaen-y-Cae quarry) there is a small steam winding engine used for driving the aerial ropeway, inscribed “Henderson Cableway, Aberdeen, Scotland”. This machine comprises a complete unit with winding drum, two inclined cylinders with reversing gear, and driving position. It was probably latterly powered by compressed air.....

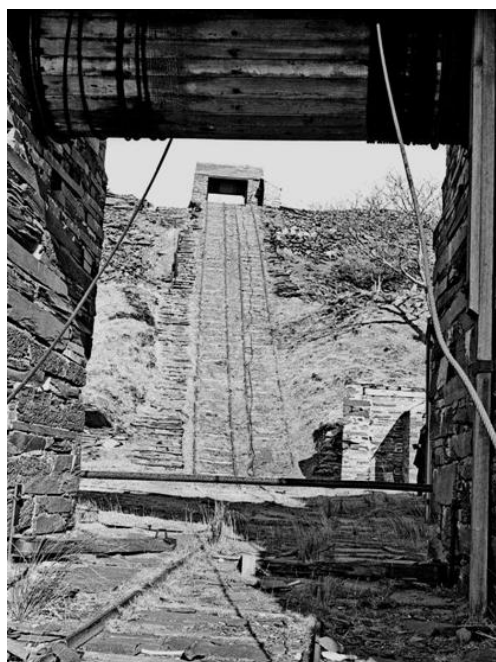
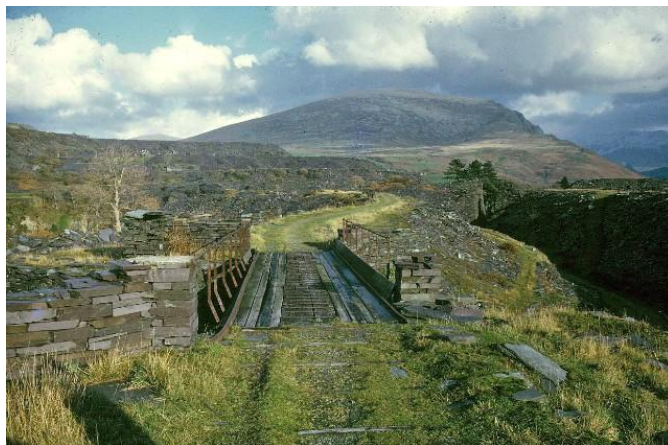


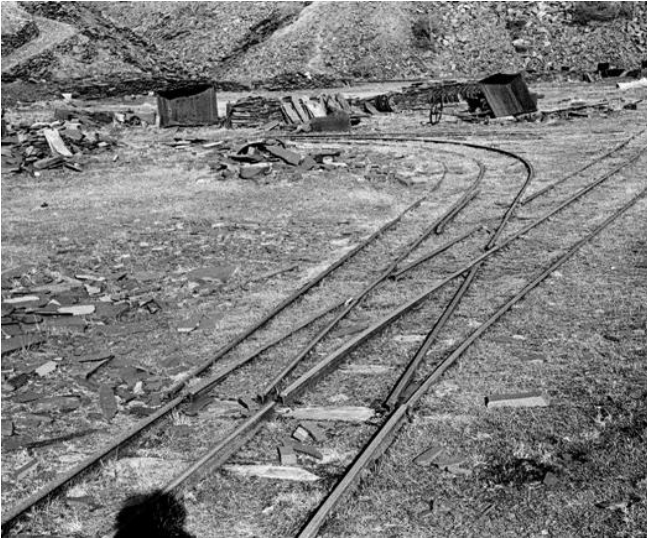
The Nantlle Tramway curves round the back of Talysarn Hall, with its stable block (right) adjacent. This was a small mansion standing beside the former main road, predating the quarry workings but now ruined and almost engulfed by them.

The entrance to a tunnel on an abandoned alignment of the tramway can be seen on the left. There are several branches and inclines to quarries, including one around the far end of the large pit into the Dorothea quarry mills.

The principal route meanwhile tunnels under the erstwhile main road and emerges into more open country (photo right, by DVM), where at least two former alignments may be discerned. An incline leads off to the left to serve the mills of the Penybryn Quarry, whose now rubbish-filled pits were worked from 1770 to 1930. All the various routes converge again to terminate at the foot of the final inclines leading up into Pen-yr-Orsedd Quarry (508537). Here on the right is an old stable block for the horses working the tramway, which was later used as a rail-road transshipment shed. There are remains of a small cast-iron waterwheel on the end of the building, once used to power chaff cutting equipment installed within. The building is shown near top right in our photo, which is looking westwards from near the top of the second incline, and also shows the drumhouse of the lower incline.....

Our next set of pictures shows the inclines themselves in more detail, with track still largely in situ in 1970, and extensive dual-gauge arrangements around the yard at the top.....





Pen-yr-Orsedd Quarry, reached easily via the inclines and flights of steps, was opened in 1816, and is the last quarry in North Wales where “Blondins” can still be seen at work. The electric drive and steel pylons now used represent an improvement on the older types we have previously seen, but much of this equipment is nevertheless over 60 years old.....



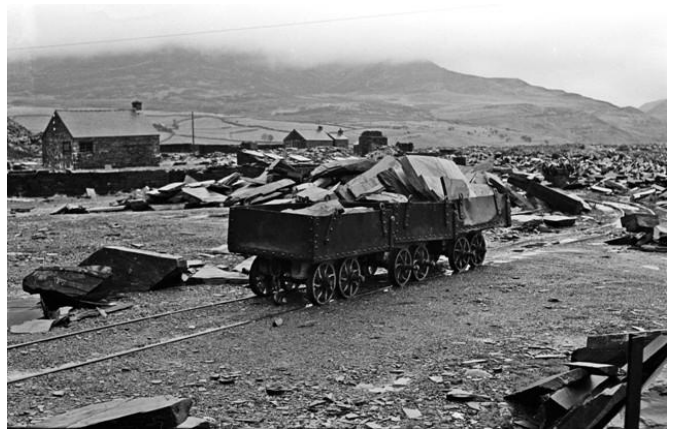
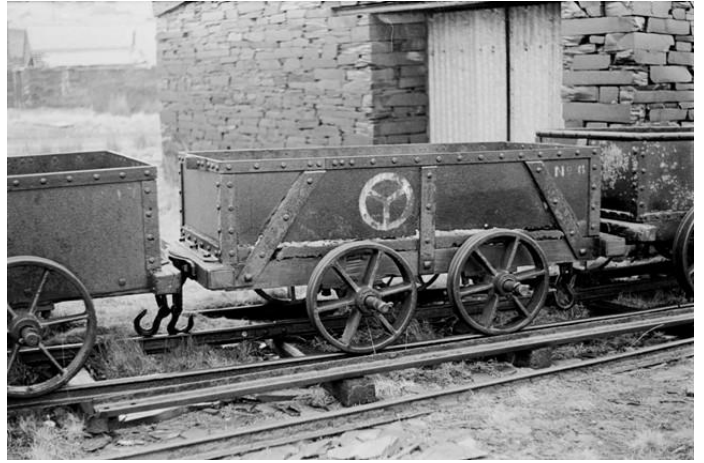
Only one of the three pits is now worked (508543), and although a bulldozer is used at the bottom quarry level the slate is still loaded into wagons for hoisting up on the wire rope; the only other access to the pit, used by workmen, is by the traditional vertical wooden ladders fixed to the rock face. The wagons when landed on the rails at the pit top are nowadays hauled to the mill by a farm tractor, the last of the narrow-gauge diesel locomotives having ceased work a few years ago.

A small hut on the very edge of the pit directly beneath the cableway is occupied by the man controlling operations. He signals via a bell code to the driver in the engine house when to lower, raise etc, and is also responsible for positioning the wagons on the track as they descend. The hut itself is equipped with hooks so that it may be picked up and moved by using the ropeway as required, to maintain a good view of the proceedings.

The electric winch-houses are often some distance from, and out of sight of the pit, resulting in complicated lengths of wire rope running over pulleys in channels in the ground. Two of the engine houses originally contained steam winding equipment and can be identified by their split level design, with the former boiler house at the back being at a lower level than the main engine room. A pile of ash outside one further confirms its use. These two examples are on the left of the road going up out of the quarry from the topmost working level.

This area contains fairly extensive railway trackwork of 1 ft 11¹/₂ in gauge, some of which is still in use, together with a short length of the 3 ft 6 in gauge track. Several wagons of the latter system were once used to carry finished slates down the main tramway to Talysarn, but they now stand derelict.....





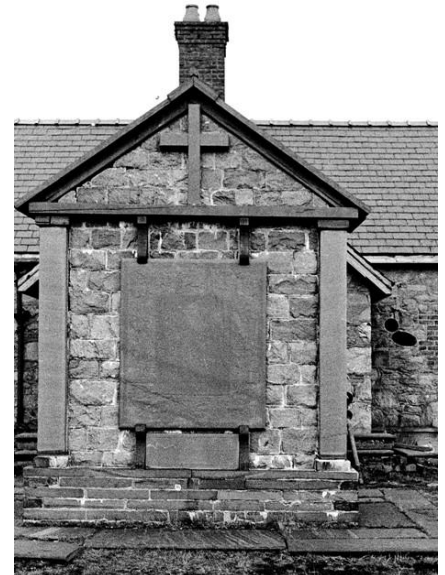
In 1977 four steam locomotives were stored hereabouts by their owners pending restoration.....



The next main level down the hillside contains the workshops complex (picture right), where the quarry machinery is maintained.

This is entered through gates into a small courtyard; the various buildings around which contain several interesting machine tools.

Adjacent to the workshops is a large old dressing mill, once powered by a big centrally situated waterwheel whose wheel pit and operating platform can be seen. The northern end of the building has fallen in (bottom left of picture) but the southern part was in 1977 being adapted for use as a narrow gauge railway museum and contains several quarry diesel locomotives and other stock brought in from elsewhere. A small building attached to the southern end still contains an old slate planing machine built by De Winton and Co., but no longer in operation.



Also on this level until very recently was the beautifully carved slate plaque quarry war memorial (right) depicting scenes in the quarry and at the battlefield at the time of the First World War. This has now been removed for display to a wider audience in Nantlle village.

Our last pictures at Pen-yr-Orsedd show the dual-gauge connecting tramway between the works and mills level, together with its incline.....



Beyond the quarrymen's cottages in the village, the slate-strewn landscape ends abruptly. At one time this upper part of the Nantlle valley was instead worked for copper and lead, though with far less intrusion onto the scenery. The first of these sites to be reached is the Symdde-Dylluan or Tal-y-sarn Copper Mine (538533). This was started by Cornishmen in 1761 and was in good production by 1800, when women from Anglesey (the "Ledis Copor") came to work here. Latterly the ore was sent out via the Nantlle Railway to Caernarfon, thence to Swansea for smelting. Two waterwheel pits will be found by the riverbank not far from the road, and mark the site of the ore-dressing mills. Some of the adits on the hillside above can still be entered. Cottages once inhabited by the miners survive at (541534).

On the opposite side of the valley are lead workings of the Mountain Lode mine operated by a London company for a few years around 1860. Several adits were connected by tramways and inclines, and the main incline can still be easily traced leading down under the road at (532533) to the riverbank, where the

ore dressing was done. A chute leads into an upper building used for crushing, and the mill building below has a waterwheel pit. Judging by the lack of spoil tips production at this site was minimal and short-lived.

The most famous of the Nantlle Vale mines was Drws-y-Coed (546534) but the extensive remains here were unfortunately bulldozed circa 1966. The main shaft is hard by the road, with a dressing mill adjacent. The waterwheel was protected by a huge wind-wall, which still stands, and was fed from reservoirs higher up the valley. An interesting feature is the wooden drainage pipe leading from the shaft, exposed during the recent demolition and left intact. Most of the remaining area of the valley floor was once given over to settling pits for ore separation, and there is also evidence of tramways bringing in ore from other outlying shafts further up the valley.

Returning westwards, the present main road through the valley was constructed in 1932 as a “bypass” to completely avoid the still-expanding quarry workings; the river hereabouts was “canalized” for the same reason. Adjacent to the road further extensive slate workings will be seen on the south side, these being an isolated group not connected to the Nantlle Tramway. They may be easily explored and contain some buildings and other features of interest.

Keith A. Jagers November 1978

Updates – February 2012

The route of the **Nantlle Tramway** eastwards through Talysarn village from the old station is firstly a green verge, and then an access way still walled off from the main street. After some bungalow frontages, the line crossed over the road at the Cavour Street junction; the tunnels under the chapel steps and house gardens have been filled in. The route is then largely obliterated, and the **Pont Fawr bridge** and its high approach walls have been completely removed, presumably for safety reasons. It was about 100 yards east of the new roundabout, just before the flooded **Talysarn Quarry pit** on the left.

The **Dorothea beam engine** and its house are listed grade 1, but nonetheless looking sadly neglected nowadays; the site has had several owners making any restoration negotiations or activity difficult.....



The nearby incline (upper left of the LH picture) is easily visible and walkable; the smithy is a ruin and the **ropeway tower bastion** is still impressive, though with some ominous wide cracks in its walling (right, above). The flooded Dorothea quarry pit is used for training in underwater diving techniques. The huge **main mill** is utterly ruinous, with just parts of the walls still standing.

The **steam winding engine** at the top of Blaen-y-Cae Quarry is a remarkable survival, not much changed from our photos, no doubt due to its inaccessibility.

Talysarn Hall and its stables remain in increasing dereliction (pictures below), and the flooded quarry pits are still impressive.....



The various **Nantle Tramway routes** are still for the most part easily discernable and walkable, though the whole area is much more densely wooded and overgrown than previously. There are several interesting slate-built tunnels, bridges and buttressed structures to be found along the way.....



The area around the foot of the main **Pen-yr-Orsedd inclines** is heavily wooded, and the lower incline is obliterated by a twisting quarry access road constructed in the 1970s. However the upper incline is still traceable and its drumhouse stands derelict. The “old” Pen-yr-Orsedd Quarry operation finally closed down in 1979, but part has subsequently been re-opened on a limited scale, and access beyond this incline is not currently possible for security reasons. However the non-worked areas have reportedly been looked after sympathetically by the Nantlle Valley local heritage group; the surviving **Blondins** are Scheduled Monuments. Most other ferrous material – mainly the tramway tracks and wagons – has long since been removed for scrap. Of the **workshop and mill buildings**, some are in use, others conserved, with the rest remaining derelict pending attention.

The Pen-yr-Orsedd **war memorial** now stands just inside the entrance gates to Baladeulyn Chapel in Nantlle village, but facing north its delicately carved details are difficult to photograph, as always.

At **Simdde Dylluan copper mine**, the waterwheel pits are still evident near the river; most of the site has been landscaped, but there are some building remains and adit entrances are still visible. The **miner’s terrace** of cottages at Drws-y-Coed is a roofless ruin.

The **Mountain Lode incline** passes under the main road just west of the bend, and its cutting is still clear on the NE side. At **Drws-y-Coed mine** the waterwheel wind wall remains are somewhat diminished so much less impressive than formerly; the dressing mill buildings are ruinous beside the road, and incorporated into a new farm structure behind. A tramway embankment is still clearly visible a few yards eastwards, on the north side of the main road.

Of the **old slate quarry workings** by the Nantlle by-pass road, from east to west, Gwernor is overgrown, Ty Mawr East is an inert waste material tip site, but **Ty Mawr West** is still being worked on a small scale for its valuable green slate. At Ty’n y Weirglodd the old tramway incline can be seen from the main road ascending between the landscaped tips. A minor road passes through the tips of the Tan-yr-Allt workings.