

20) Dinorwic Quarries and the old villages

The main workings of the Dinorwic Slate Quarries themselves covered an area exceeding one square mile, fronting onto the whole length of the northern shore of Llyn Peris and reaching up the slopes of Elidir Fawr almost as far as the eye can see, to a height of over 2,200 ft above sea level. These two views contrast the quarry in around 1860 (left) with steam power evidently already in use (for driving rock drills), and (right) on the day the workings finally closed down in 1969, seen from across Llyn Peris.....



To explore the remains of such a vast enterprise thoroughly would take several days, and the visitor with little time could do worse than to walk up the first few levels of the much smaller Vivian Quarry, situated immediately behind the workshops complex at Gilfach Ddu. This small satellite quarry started at a time of peak demand in the late 1880's and was operating for only a few years; consequently it retains several features of the working methods once carried out on a much larger scale in the main area. It has been laid out with footpaths, fences and steps so that it may be explored in safety. The quarry was worked in terraces or galleries as at Penrhyn and the main part of Dinorwic, and continued downwards into a pit or "twll" now flooded, at the bottom level. A tramway ran into this area directly from the works yard under the distinctive archway at the foot of the inclines leading to the main quarry. The higher levels were served by another incline at the further end of the present Lake Railway platform, but this is extremely steep and the summit may be reached much more easily by the marked steps and footpaths. Our picture (right) shows the drumhouse.....

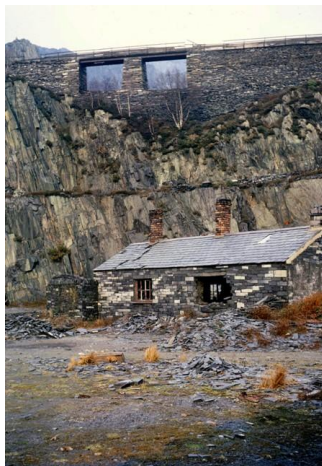


Because of the very steep location this incline was of the transporter variety, whereby the wagons were conveyed on a triangular framework running on broad-gauge lines rather than ascending or descending directly on their own wheels. Parts of the mechanism and conveyor frames are to be found at various levels, one of which has a double drum house with two sets of winding gear and parallel sets of lines down the hillside (this is a result of the location requiring separate movement of waste rock and good slate). Also on the levels are the "gwaliau" or huts for the workmen engaged upon splitting the slate. These are a crude and early form of workshop which were superseded elsewhere in the quarries by large, mechanized mills. Each level also had a solidly built circular blast-shelter, some of which are still to be seen between the working faces and the dressing area.

In the main quarry, the principal dressing sheds were situated in a vast complex on the shore of Llyn Peris known as Wellington Mills (591596) but this has largely been demolished to make way for the contractor's huts of the Dinorwic pumped-storage power station scheme. These first two pictures were taken looking into the area prior to this work starting.....

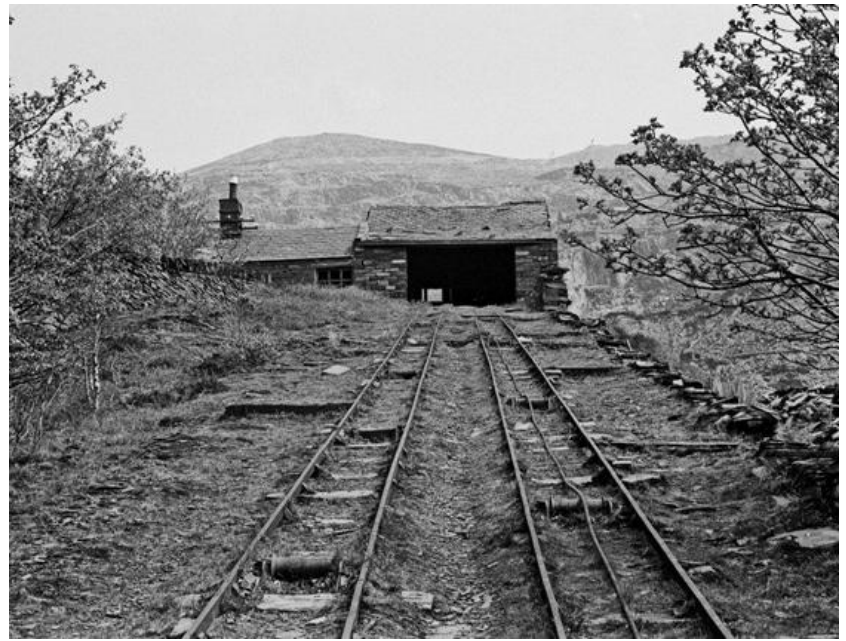
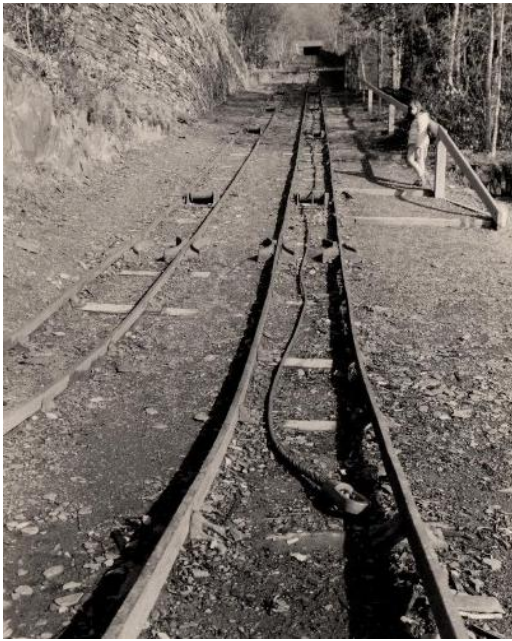


And these are within this lake-level area, which is not now accessible to the general public (the last two pictures by David Mills).....

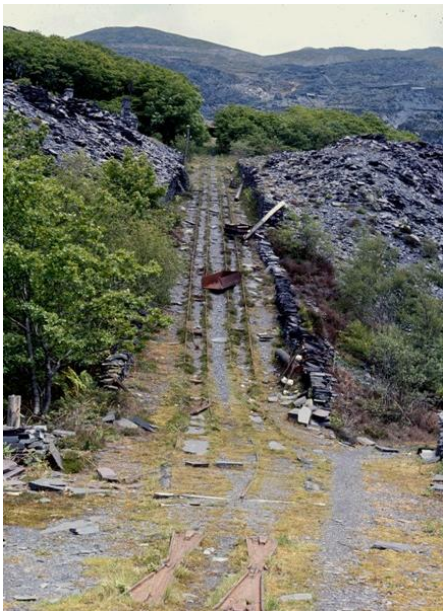


Most of the quarry levels also had their own mills, some quite sizeable, and examples from both the steam- and electrically powered era survive in disrepair. All of the quarry galleries were named, after countries, people (both local and nationally famous) and contemporary events; it used to be said that the more energetic visitor could complete a round-the-world trip in an afternoon! Some parts of the old workings have been rendered inaccessible by rock falls and many more so by the power station work: all must be considered dangerous and demanding extreme care in exploration. In terms of relatively easy walking routes, the quarry can nowadays be split into two separate sections, the west side leading up to the oldest workings and thence naturally on to the quarrymen's villages of Dinorwic and Deiniolen, and the east, accessible from the far end of Llyn Peris: we deal will briefly with each in turn.....

From the main quarry and country park entrance between the two lakes a public footpath, formerly the "zigzag path" built for the convenience of quarry workmen, leads right through the west side workings and provides easy access for limited exploration at various points. After an initial steep section, the path crosses the main railway "A" inclines coming up from the workshop area by the second drum house. These are largely intact with all equipment and rail tracks, and may eventually be restored as an operational exhibit by the museum authorities. Our pictures show (left, by David Mills) the full extent of the A1 incline, and (right) the top part of A2, with its drum house and adjacent "caban" (staff mess room) to its left.....



The level here may be followed eastwards round to the foot of, then up the third and fourth inclines, which are also well preserved, if desired; a good impression of the sheer scale of the quarry workings may be obtained by so doing. Here are two views on these inclines, with detail of the track – simple flat iron bars in special chairs nailed to wooden sleepers – and the rollers which guided the haulage cable.....



The public path meanwhile continues up the hillside and shortly passes a double row of roofless cottages on the right hand side (589603, picture right; the row may also be entered at the opposite end, from half way up the third incline).

These were the quarrymen's barracks where those employees living further afield such as Anglesey spent the weeknights, returning home only at weekends. Called "Dre Newydd" (New Town) these were specially built to accommodate such workmen, in conditions which although hideous to modern eyes were probably little worse than those prevailing in some of their homes at this time. Rendered long derelict by improved means of transport, the "street" is now due for restoration as a museum piece.



The footpath now runs past several very different and imposing houses once occupied by senior quarry officials, before joining the “top road” beyond Dinorwic Village. This point may also be reached with considerably less effort by bus from Caernarfon, or by car. A tramway crosses the road by the engine shed here (590611) and this may be followed eastwards for a short distance on a high slate ledge to regain the main quarry workings once more. Alternatively, by continuing on up the main A3 and A4 inclines, one also reaches this point at the top of the latter.

The first large building, now derelict and stripped of all reusable timber and slates, was the Village Mills, a later mechanization of the dressing processes which used all-electric power: the substation is adjacent. Just around the corner, also regrettably stripped but still identifiable by the large slate slab chimney stack, are the Steam Mills (594606), built in 1847 and noteworthy as representing the first application of steam power to slate dressing. The original machinery, well documented in the contemporary press as the herald of a new era in North Wales, has long since been removed. The buildings, tended carefully by the quarry concern well after they ceased to serve their intended purpose, now bear the open wounds of recent indiscriminate destruction resulting from the proximity of the power station project; their significance it seems has now been totally forgotten (pictures below).....



The group of buildings opposite the Steam Mills comprised foundry (picture right), stores, workshops, canteen and pay office. Although all of these have similarly been vandalized over the last two or three years, most were still in active use up to the end of the quarry operations in 1969. From this major intermediate level, the inclines continue their unrelenting ascent skywards into the mist, but the topmost levels at something over 2,000 ft may be more easily reached if desired via another of the old workmen’s access roads at (594613).



Here is a reminder of the very last steam locomotive to work in the quarries, on Twllwndwr level (about 6 down from the top on this side), “Holy War” in 1967 (b&w) and summer 1968 (colour). We enjoyed several sessions with the driver here



(who must have got fed up with the many enthusiasts who turned up to see it at this time!), occasionally

having to seek shelter while blasting was being carried out and large lumps of slate rained down all around us.....

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| <p>DINORWIC QUARRIES</p> <p>DANGER NOTICE.</p> <p>Blasting Operations commence at every hour lasting for a period of eight minutes, excepting during meal hour, when blasting commences at 12.55, ending at 1.3.</p> <p>W. W. VIVIAN, Director and General Manager.</p> | <p>Chwarelau Dinorwig.</p> <p>RHYBUDD O BERYGL.</p> <p>Dechreuir saethu bob awr, a pharheir am yspaid o wyth munyd, oddieithr yn ystod awr giniaw, pryd y dechreuir saethu am 12.55, a therfynir am 1.3.</p> <p>W. W. VIVIAN, Cyfarwyddwr a Rheolwr Cyffredinol.</p> |
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Back at the Dinorwic village bus terminus, hereabouts were the original quarry workings of the 1790-1820 period, and the upper terminus of the 1824 tramway down to Port Dinorwic. This route was as we have seen quickly discarded in favour of the lakeside railway route after subsequent workings were opened lower down the mountainside, for these necessitated an undesirable upward lift of the slates before they could start their journey proper out of the quarry.

The early workings are a jumble of levels, tips, inclines and tunnels (photo right; this was as far as we dared venture, as the "bridge" in the foreground over a deep chasm looked to be of questionable integrity!)



This situation resulted from the haphazard amalgamation of separate small enterprises started by individual quarrymen. Despite these problems, long since eliminated in the main quarry, some parts continued to be operated until comparatively recently. Some of the more interesting non-standard features have however regrettably disappeared since closure: the large winding and pumping engine at Allt-Ddu pit (left below), with massive wooden beams driving the pumps; and the unusual 4 ft-gauge side-loading transporter incline at Brynlllys (588612, right).



Traces of the latter, together with the transporters (right) themselves may still be seen, but there is little else of interest here now.

The route of the 1824 tramway follows the present Dinorwic to Deiniolen road fairly closely away from the quarry as far as Pen-y-Bigil, where the cutting of the present road was that used by the tramway track. The lane continuing ahead where the road turns sharply downhill leads via a slate embankment, past the cottage “Pen-yr-Incline” (578624) to the uppermost of the two Craiglwyd Inclines carrying the tramway down to Deiniolen. The inclines are easily walkable and are also quite accessible from the village at the bottom end (576628), being conspicuous on the hillside when viewed from here despite over 130 years of disuse (pictures below).....



Here are some other views along the route of the 1824-43 Dinorwic tramway, the first two on a very well preserved stretch at Clwt y Bont, to the south and west of Deiniolen village.....



This little stone bridge under the tramway (below left) was near Ynys Llech Arian, adjacent to the main road but now obliterated by widening and straightening work on the latter. Nearby we found this discarded broken cast-iron sill (sleeper) from the tramway track, uncovered during excavations for drainage pipes in connection with the road work; it is now in the Penrhyn Castle museum.....



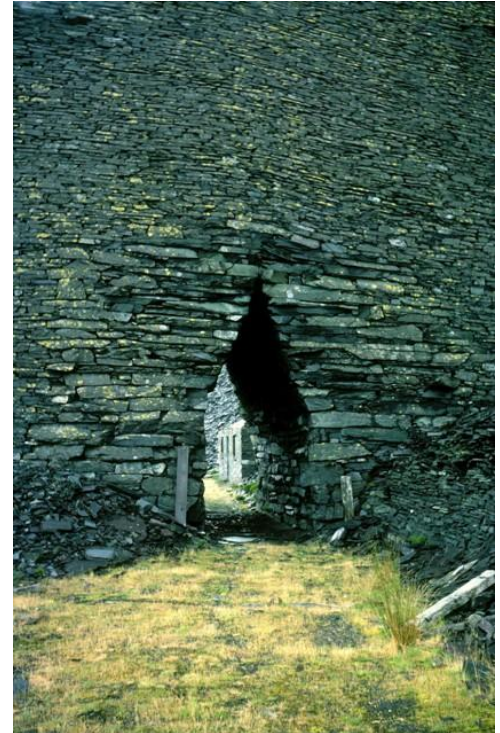
The present village of Deiniolen is of relatively recent origin, being an amalgamation of old quarrying communities shown on nineteenth-century maps as Rhiwen, Ebenezer and Clwt-y-Bont. The only item of industrial interest is the school slate mill (570632). This was one of three owned by the same company, founded circa 1850, and carrying out the final finishing and framing processes on slate brought down from Dinorwic until 1917. A 36 ft diameter waterwheel supplied by De Winton and Co. (1870) survives in full working order but almost totally enclosed, in the centre of the building. It drove the mill line shafting via a ring gear like that on the big wheel at Gilfach Ddu, but in this case having an externally toothed ring as opposed to the internal arrangement of the latter. The mill was used during the Second World War as a store for bombs and ammunition and later as a motor repair works. It is now a light engineering factory, whose owner is keen to ensure the preservation of the old machinery.

The only part of the Dinorwic Quarry complex which has survived relatively intact and undisturbed is the set of upper levels on the east side, accessible on foot from the village of Nant Peris. A public footpath, temporarily diverted, heads the correct way for most of the distance. These levels, cut out of a somewhat steeper hillside than those to the west, were isolated by a major rock fall in the workings in the early 1960's, so were missed out by the quarry road system built in the following few years and have also escaped being encompassed by the present power station



construction operations. The pathway once used daily by those quarrymen living in Nant Peris leads up the side of the enormous waste tips to emerge on a level just below the principal east-side dressing mills at Dyffryn (599597). The whole of the main mill building has been demolished but its extent may easily be traced; the auxiliary structures still standing comprise latrines block, pay office and incline drum house with homely “caban” attached. Our picture (above right) shows the former smithy, part demolished a little distance away.

Some idea of the volume of traffic handled from here is given by this incline, which had to be quadrupled on its lower sections circa 1900 to cope with the loadings from the dressing sheds. The main east side inclines (now trackless) recommence their ascent from Dyffryn Mills level on a colossal dry slab-wall construction, in parts over 50 ft high and pierced by characteristic pointed arches to accommodate the main level tramway tracks.....

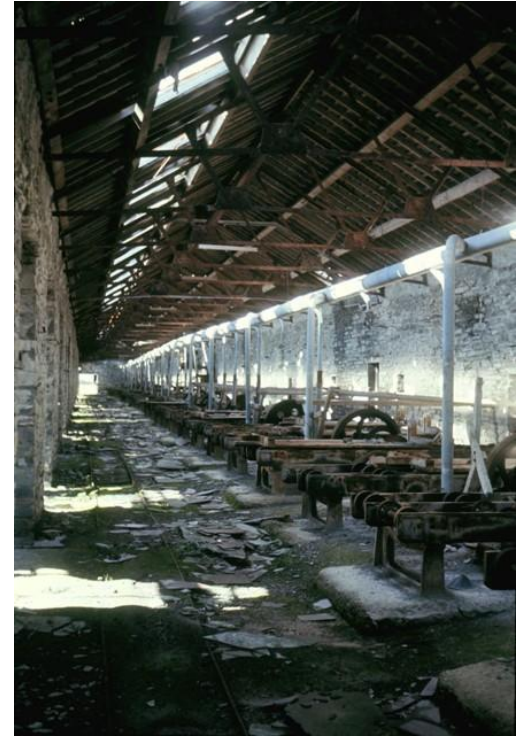


Rails-in-situ commence just below the summit drum house of this remarkable incline and they are intact in most of the workings beyond this point. 3” x 1” steel bar rails slotted into the wooden sleepers or held in crude iron chairs are used for the inclines and other sections not traversed by steam locomotives, whereas the “main line” on each working level and out onto the waste tips is in a heavier bullhead section in conventional chairs with wooden keys. The winding drum house is complete with drum, cable and brake assembly; the operator’s caban with stove, cupboards and benches is adjacent. The name of this level was “Ponc Roller”. The tracks divide left and right to the working face and tips, there is a shed for a diesel locomotive and a weighing machine (pictures below) over which the wagons of waste rock passed, for even the latter had to be assessed and accounted for!.....



Straight ahead is a further gravity incline which ascends past several more levels and beneath a bridge before terminating abruptly at the sheer rock face behind the “Australia” level drum house. The ingenious

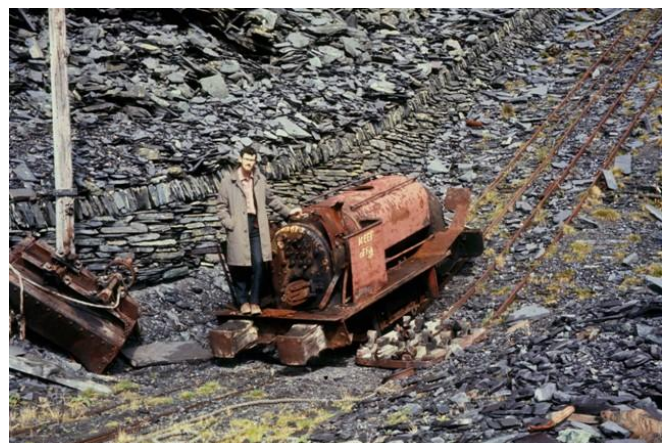
arrangement for balancing the incline when accepting wagons off the spur lines coming in from the intermediate levels may still be studied on this particular example, since most of the apparatus has remained undisturbed after closure. "Australia" was an important level, and most of its buildings also survive relatively intact. Empty wagons arriving at the incline head turned left via a wagon turntable to enter the dressing mill, and from here a track also leads back over the bridge just mentioned, then on to the waste tips. This curious arrangement not found elsewhere in the quarry was necessitated by the acute lack of space at the summit of the incline.....



The dressing mills are relatively modern (1923) and were all-electrically operated from the start. The central part comprises 36 Ingersoll-Rand slab-sawing machines spaced down its length, driven from line shafting contained within one wing, and connected to the motor and control unit in the middle. The opposite wing housed the manual dressing processes (splitting and trimming) and two tramlines run the whole way down either side of the sheds. Ducting leading from each of the saw tables was provided for dust extraction purposes. The survival of a dressing mill of this size enables one to visualize the scale of operations needed to roof the countries' buildings before the era of the manufactured tile (picture below right). This building is perhaps four times the size of that to be found in a typical North Wales quarry, yet it was only one of ten or twelve similar sheds once in operation at Dinorwic, with perhaps upwards of a hundred men employed in each.

Outside at the far end of the mill is the engine shed (until recently containing the locomotive "Alice", the last to remain in the quarry though not the last to work), with the pay office and a blast shelter opposite.

Here are the mortal remains still in the shed in 1970; against all expectations it was laboriously brought down the inclines and taken away for preservation a few years later, as seen here.....



Beyond, an incline leads off upwards yet again to a further set of levels which were once joined to those on the west side (it is thereby but a short step from Australia to Egypt!). This incline and the one above it are

of the transporter type with carriers running on 7 ft gauge tracks but were gravity operated, unlike similar ones in the lower quarry pits which had to be water-balanced in order to raise loaded trucks.....

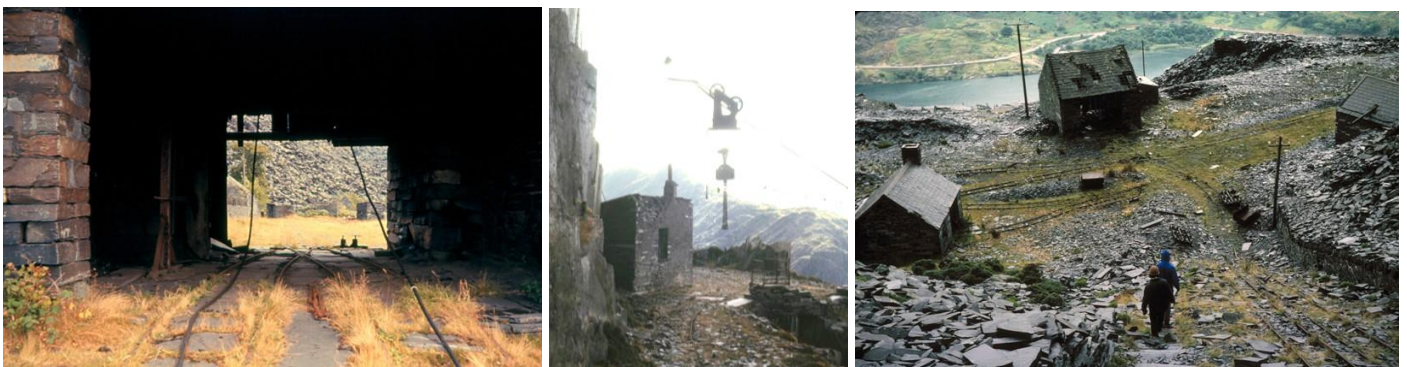


The “ships wheel” operating the ratchet brake was used to control the working of the incline, from the hut at the summit. The level here was called Egypt, or in Welsh “Aifft”, and the one above it Panwrs, where there are several of the old wooden-bodied slate trams in the vicinity of the transporter. Yet another incline heads upwards to terminate at the topmost level once traversed by a steam engine, “Lernion”, whose shed could boast of being the highest locomotive depot in the United Kingdom at 1,860 ft above sea level. Beyond is the virgin grass of Elidir Fawr, punctuated by only a few short-lived trial levels; here the quarrymen finally gave way to sheep.

Beside the foot of the Australia - Egypt transporter incline is a large building (picture right) housing two giant air compressors, which supplied power for rock drills throughout this side of the quarry. One is a vertical compound machine, the other a two-cylinder Ingersoll-Rand horizontal simple; both these were electrically driven by large motors. The main gallery tramroad leads past this building to terminate in the debris and sheer rock-face left by the disastrous 1961 rock fall. This effectively spelt the end for this section of the workings, which became quite inaccessible by even the roughest of quarry roads. One might wonder how they ever managed to get the compressors up here, and whether the scrap dealers will ever find it worth their while to get them down again.



Here is a last look at some of the quarry features as we make our way back down to lake level once more.....



The old workings of the Gallt-y-Llan slate quarry, noticed on the opposite side of the valley from Dinorwic below Nant Peris, are themselves quite extensive (as a climb through them will verify) although rendered miniscule in the presence of their giant neighbour. There is little of particular note to be seen here

and access is difficult now since the CEGB contractors have moved in. Adit entrances and spoil heaps nearby are outward signs of the Old Llanberis Copper Mine, worked by Charles Roe & Co of Parys Mine fame on lease from the Assheton-Smiths from 1796. The ore was crushed by water driven stamps (“dawns-chwech” or the “dancing six”) beside “Stamps Cottage” (601588), then taken down to Caernarfon and shipped for smelting in South Wales. Further remains; adit, crushing-mill and barracks, of the New Mine are below the main road at (596589); they appear threatened by the rising waters of the lake when the power station scheme is complete. Here are some pictures of this site in recent years.....



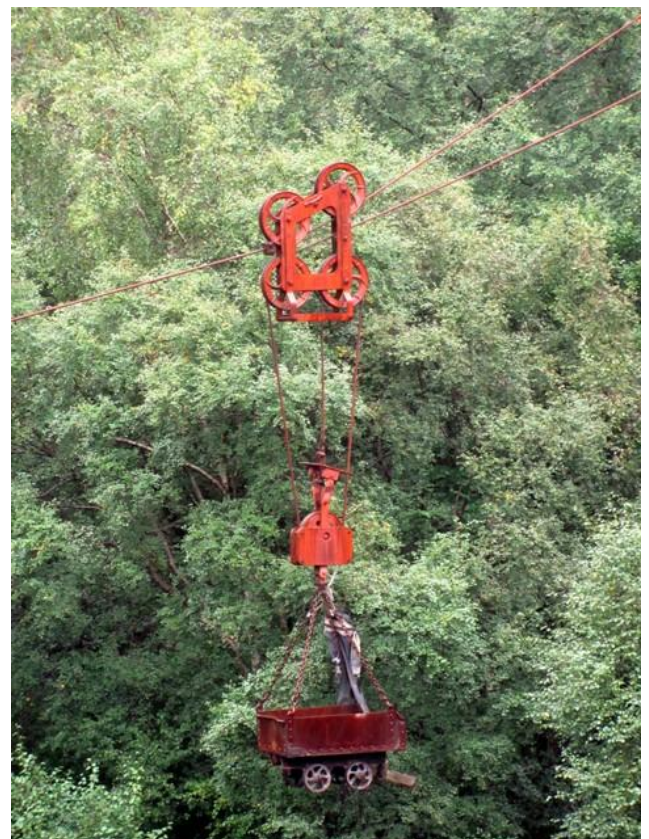
The contractors are engaged upon an altogether bigger excavation: their modern tunnel will divert the waters of the feeder streams away from Llyn Peris, and under Dolbadarn Castle, to emerge directly into Llyn Padarn below. This tunnel bisects the lower levels of the copper mine workings and will thus no doubt render them completely inaccessible for evermore.

Keith A. Jagers

November 1978

Updates – February 2012

The lower section of the Vivian Quarry **transporter incline** has been restored to full working order, and is demonstrated from time to time (below). There is also a surviving Blondin suspended over the main pit....

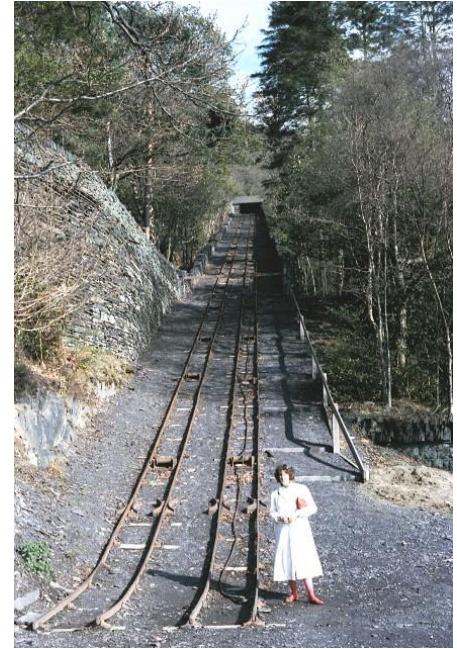


The Dinorwic Pumped Storage electricity generation scheme has been operational for many years; public excursions by road vehicle into the old **Wellington area** of the main quarry are run in season, starting from the “Electric Mountain” visitor centre near the main Llanberis village car parks beside Llyn Padarn.

There is now a public footpath running right through the **main quarry area**, about half way up the workings, largely following the route of the 1960s lorry roads, affording excellent views but fenced off on either side mainly on safety grounds. It is accessible from the old zigzag path, the former main “A” inclines, from Dinorwic village or from the Nant Peris end of the lake, joining all these together and so forming a variety of interesting walks. The bottom (**A1**) **incline** has been conserved by the museum/country park authorities, as seen here.....

The “**Anglesey**” **barracks** have also been conserved, though remaining largely in ruinous state. The **Steam Mills** site is also ruinous, with most ferrous material long since removed for scrap.

The pictures below give a flavour of what the quarry looks like nowadays, and are typical views from the public path. The eastern side, from Dyffryn level up to Australia and beyond, remain largely unchanged, with rusting machines still in the **Australia mill**, and the **compressor** bodies also in situ; only the most portable metal items have disappeared. This area is nowadays (officially) “out of bounds” however!



On the old tramway route, the **Craiglwyd inclines** remain walkable but much more heavily wooded these days, with access via the narrow lane leading to Pen yr Incline Cottage or from Deiniolen village at the lower end. The **Glandinorwig slate mill** in the village remains in commercial use, with its old waterwheel and some machinery intact.

As for access to and remains of the rest of the old **Dinorwic tramway**, perusal of the Google satellite images along the route will indicate what is viable, and those parts less so or completely obliterated. For greater detail of the exact locations, the oldest 25" – 1 mile Ordnance Survey map edition dated 1889-90 is very useful; any part which is not shown on this has clearly long gone!

The **Gallt y Llan Quarry** is still clearly visible from the main road, and accessible by a network of footpaths. **Stamps Cottage** is so ruinous as to be just a pile of stones. The old **copper mine** levels beside the first public lay-by and picnic area near the eastern end of Llyn Peris remain evident, but it is strongly recommended that no attempt at access be made! The remains of the **New Copper Mine** near the next lay-by westwards, on the shore side of the road, are now virtually indiscernible.