OAKELEY SLATE

The History of
The Oakeley Slate Quarries
Blaenau Ffestiniog

PART THREE
1920 – 1968
From Peace to War and Back again

Graham Isherwood
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1920-1968
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Continued from:-

PART ONE
1800-1889
From Beginnings

And

PART TWO
1889 – 1920
From Amalgamation to the Great War to the Great Fall
In the years following the First World war, the Oakeley Quarries faced many problems. Some were familiar - that big fall in 1912 having affected the western workings from floor 1 down to M within the area of walls 22 to 30. The Back Vein, mostly in the Upper and Middle Quarry was either cut off or worked out. The North Vein, apart from the isolated section on G floor, was not in work at all. The main workings here were in the New Vein, these being developed both east and west from various points of access on all floors from G downwards. While most of the rather narrow New Vein in the Middle and Upper Quarries had been worked out, there were still isolated parts which were available. A summary of chambers at this time reveals that there were 47 chambers in work in the New Vein compared to 3 in work and 2 nearly ready in the Old Vein - a vast change in the state of things.

The main areas available for development were:

i) The New Vein in the Lower Quarry on the existing floors to east and west. This was limited to the east by the old L.&N.W.R. tunnel.

ii) The Old and New Veins in the Lower Quarry to the west of chamber 31 under Cwmorthin, assuming access could be obtained. There were possible problems here due to the flooded Cwmorthin workings and the danger of any heading striking an unsuspected fault and letting in the water. There was also the problem of the long haulage to the eastern inclines.

iii) Any Back or North Vein which might be found on the lower floors, provided again that access could be found through the collapsed Old Vein workings.

iv) The Glany Pwll or "Olive Vein" which had been proved in the trial chamber on Lefel Fawr. The main bulk of this lay to the south of and on a level with the top floors of the Upper Quarry and would require access. This would open up the Architectural side of the business, allowing Oakeley to compete with the Lake District Slate trade - or so it was thought.

v) The Old and New Veins below floor O, as yet unworked, the quality of the rock being unknown, requiring costly sinking driving and pumping to make viable. The fact that the quality of the veins seemed to decrease as they went deeper was also a worrying concern here.

vi) The New Vein from floor DE upwards in the west beneath Cwmorthin. This had been worked up to floor 5 from floor 3 in the Middle Quarry for several chambers width and the prospects were being investigated by a long southward level from Chamber 32 Old Vein.

The state of these various areas in 1920 was as follows:

i) In progress, as the normal course of development.

ii) This was to be accessed by the new incline in chamber 34 Old Vein on DE, but this was in temporary abeyance.

iii) Required driving to access.

iv) This was apparently the most promising, as we shall see.

v) These were considered to be costly and put on one side.

vi) This trial continued until 1924 when it reached the "Lingula Flags" which underlay the slate deposits, thus proving there was no workable New Vein under Cwmorthin. The level had been driven a total of 430 feet without proving any worthwhile slate veins.

In the open quarry there were four possibilities:

i) The Peak Quarry in the Old Vein, this was limited in scope to the east by the surface tramways and the huge deposits of waste linking Bonc Siaff and Bonc Goedan.

ii) The removal of the "Pen Balance" rock mass between the Holland Old and Back Vein sinks. This would enable the untopping(!) to proceed west from floor 8 down to DE and enable both Old and Back Vein walls to be recovered fairly cheaply. This was the only apparent development area open to the Middle and Upper Quarries, apart from the Glan y Pwll vein.

iii) The removal of the fall and untopping to the west of the Upper Quarry sinks.

iv) The opening out of the old Glan y Pwll workings.

Of these, only iii) was not in actual consideration or operation, the Upper Quarry in particular working almost exclusively on blocks from the fall of the western bon, with some additional work in the isolated wedge of Old Vein which had originally connected Pen Balance with the main ridge running up to Carreg Blaenllym, and which was being accessed by a short air worked incline from the tramway connection between the floor 8 Old Vein and Floor 8 Back Vein.

**Glany Pwll - The Olive Green Dream and the Upper Quarry.**

The old Glany Pwll Quarry lay among the crags of Craig Nyth y Gigfran, high above the Barlwyd and just below the tips of the three high floors, 14, 15 and 16 of the Upper Quarry. It had had a chequered history, but had always been a minor concern. The land was disputed, at one time working of the quarry was reputedly stopped by injunction, as it was thought to be on the Tan y Bwlch Estate.
The quarry had begun in the 1840's and by the late 1860's an incline had been built connecting the quarry with the F.R. at the old Dinas Junction. The drum house of this incline was built close to the mountainside, about half way up. What evidence remains and what little can be seen on old photographs suggests that a second incline rose from this point at a very steep angle indeed to a drumhouse which was much higher up. This incline, if inclined it was, served several slab built platforms. It seems possible that some form of aerial ropeway was used to lower the blocks to the lower incline. Slate making was carried out at a slab mill at Glan-Dwr.

There were at least two small open quarries, from which several chambers were opened. The northernmost of the open workings being buried by the Oakeley floor 14 tip. Robert Roberts noted in 1901 that "£15,000 had been spent by the late Glan Y Pwll Company in testing the vein for 500 yards further to the west than the open quarry main level."

The "Olive" designation of the Glan Y Pwll Vein (it was also referred to at times as the "South Vein" - but this was confusing as that was also the name given at times to the New Vein) came about because of its colour, and it was this colour which was to tempt the Oakeley Company to try to work it from the Upper Quarry. This would provide work for the Upper Quarry and also give additional entry to the architectural market. It must be said that the "green" colour is not particularly evident today, indeed, it is far less "green" than the veins of Nantlle or Dinorwig.

Operations began in the middle of 1922 with a belief in a "good substantial bed of slate." To prove this a trial was made on floor 10 for both New Vein and was to be extended to reach the Glan Y Pwll vein beyond it. Thomas Jones and his son both concurred that "there is the prospect of a considerable Quarry being opened out here. The old underground workings of the Glan Y Pwll Co. were stopped in consequence of an injunction obtained against the old Glan Y Pwll Co. for carrying their workings into the Oakeley property. There is no prospect of increasing the output from the Upper Quarry unless until the Glan Y Pwll Vein can be brought into a yielding condition." The Upper Quarry fall working was suffering interruptions due to the "falling of the overhanging top layers" from the western bon. The output from the Middle Quarry was "steadily diminishing - but for the blocks derived from the Lower Quarry it would scarcely be worth running the Middle Quarry Mills at all. The removal of Pen Balance etc. westward is a necessity."

The Joneses inspected the old workings during the autumn and made a plan. They referred to a "great thickness" of a "Valuable and Workable Deposit of rock." The Manager too "traversed most if not all of this property with Assistant Evans." He had, "Not the slightest doubt, that here remains a fine pocket of Slate deposit of good quality but so situated that it is most difficult to operate upon, owing to the fact of the configuratively nature of the surface ground - strongly advise the driving of the proposed level on floor 11 to get a working connection between the quarries." He proposed using the miners from the test level on floor 10, which by this time had proved unsatisfactory, and also working from the Oakeley side so that compressed air could be used.

Some work was done on the Glan Y Pwll side. One of the old tunnels on approximately floor 12 was cleared and a tramway laid in it, but as nothing effective could be done until the floor 11 tunnel was driven through from Oakeley, the men were withdrawn in May 1923. Three rockmen and six clearers were at work on the floor 8 untopping and working the outcrop at Pen Balance. Virtually the only work in the whole Upper Quarry. It was thought that sufficient rock had been released from the Back Vein for 12 to 18 months work. The workable rock that had been found should keep the quarry going for at least 5 years, so that any produce from the Glan Y Pwll workings could go to help the Middle Quarry. Two-and-a-half inch holes were being drilled into Pen Balance in walls 9, 10 and 11. The resulting blast was expected to bring down the rock and stop working the Middle Quarry floors 3, 2 and 1 for a while. There were now only 2 bargains at work in the Upper Quarry and 19 in the Middle Quarry - a reduction of 7 in 3 months.

Jones now "Confidently expect... in driving a workable thickness of Oakeley New Vein will be intersected and this will give access for opening and developing..." he hoped to feed part of the Middle Quarry mills with the output. However, in order to get any produce down to the mills, the tramway connection to the upper floors needed to be restored. The old incline from floor 10 to floor 13 had apparently been dismantled, apart from the drumhouse, and so would need re-equipping. Jones thought that this would lead to double handling for the sake of one floor, and proposed that the carrier incline from floor 10 to floor 8 be extended up to floor 11, thus slabs would only require single handling. At the same time he suggested that the level of floor 11 be reduced by about two feet so that the tunnel being driven through to the Glan Y Pwll would be both self draining, and would intersect the old Glan Y Pwll tunnel on the level.

The Glan Y Pwll workings "confidently expected can be gradually developed for 10 bargains on each of 3 or 4 floors," while the new incline would re-open the Upper Quarry on the surface enabling them to get at and work the Old and New Veins.

In August 1923, the Board decided to postpone all non-pressing works of development. The Glan Y Pwll operations were being held in any event, awaiting the level through. Thomas Jones pointed out that even if the Glan Y Pwll workings were not carried out, the new incline would assist the mills. Pen Balance was also stopped. Down below, the old Lower Mill of the Upper Quarry was now steadily subsiding, due to the pressure and drag of the Middle Quarry main tip. Many of the roof timbers and shafting were twisted and strained. It was decided to unroof it in order to save the materials. "We may re-erect it

if the Glany Pwll development calls for it." Middle Quarry was in even more trouble, the "diminution of Middle Quarry working is very rapid in the past year due to unfavourable New Vein rock west of chamber 18." This was on all floors down to DE. Two chambers on DE being worked from the Middle Quarry were still working, and a level was being driven south east for chambers 12 and 13 to follow the working of those chambers from floor C above.

By November, the floor 11 level had penetrated 62 yards towards the Glany Pwll workings, with 82 yards to go. In the process it had passed through 128 feet of "apparently workable slate rock" which was "very encouraging." A trial chamber was proposed and work was now to begin on the new incline. 13 roof principals had been removed from the Lower mill, leaving 11 in position. 11 saw tables and dressers were also removed, leaving 9 behind for future use. It would appear to be the northern end of the mill which was abandoned at this stage, the same end which had been buttressed at an earlier stage. Two years worth of rock had been uncovered on floor 8 Back Vein. Only one Old Vein chamber was now in work in the Middle Quarry. "If the make of each quarry were separated, then the Middle Quarry would not show any profit."

Construction of the new incline was "well in hand" by the 8th. of March 1924, although the drumhouse on floor 11 had not been started. Only 15 yards of the level on floor 11 remained to be driven by July, the incline bed was 8 yards above floor 10, and all seemed rosy. The output from the Back Vein was now 60 tons per month, 10 mill men being fed with rock by 3 rockmen and 8 clearers. It was now proposed to sink to floor 7 in the same area. In the Middle Quarry, all the C floor chambers were fast exhausting, while the only new chambers being opened were for slab work. A "big blast" was hoped for at Pen Balance to impress the Directors! 600 lbs. of Gelignite was to be used, bringing down 150-200,000 tons of rock.

By February 1925, work had begun in earnest, nine blocks having been obtained from the trial chamber. 2 rockmen were at work, keeping two mill men working. There seemed to be the possibility of three chambers at least. Work had begun driving west at the junction (presumably of the Glany Pwll old level of the new Oakeley connection) to get under the upper chambers. Work had also begun on an incline up the face of the cliff from the end of the floor 11 tunnel to reach the old southern quarry on floor 12. The new incline was now being worked, but as the drumhouse could not be completed - the masons were at work elsewhere - it was being worked by an air winch. It had now been decided to re-enter floor 12, this was to be connected to floor 11 by a short gravity incline. The earlier Back Vein reports were now shown up as too optimistic, as the men were "running out of rock" on floor 8 to feed the mill! Pen Balance, it was said, was "proving obstinate and difficult."

Bad weather stopped much further progress in the open. The Joneses reported in May that the New Vein trial chamber had been stopped and the level was being driven further west from it, hoping to open a further trial. One of the old Glany Pwll chambers was keeping one mill man going, but it was very steep and had a bad top. The base was being cut away to drive further west. The rock continued to promise well. Work was continuing on the incline on the cliff face, so that work on the old chambers could begin, but the want of compressed air at the location meant that the old hand methods were being used.

By August rails were about to be laid on the cliff incline, which had been cut and graded. The old chamber had been widened at its top and the base had been cut for a level to be driven west. The north level had been stopped in posty rock. Unfortunately the trial level west from the junction had run into "small" rock, while another trial chamber had been stopped as the rock was too "jointy." Work had begun in the Back Vein on a sink for an incline down from floor 8 to floor 7. A new ledge was cut between the levels of floors 6 and 7 to join the old incline from floor 8 to floor 5, "where blocks and debris can be lifted up to 8 and dealt with by the oil loco working along that floor." The sole access to the inclines here and the untopping was via the old "Engine Level." It was recommended that the old fall over walls 6 to 12 should be recommenced, as it was good rock. Jones gave the reasons for stopping the clearing years ago as bad trade due to the war and the "then active movement to nationalise mines and quarries."

The prospects were not encouraging anymore, and by November all work was given up, officially "stopped until the spring weather" - a line of rails had been roughly laid on the cliff incline, but that was all. It was "Not intended to abandon the working." Working of "boulders" on floor 12 was equally unsatisfactory. A new floor 7 was being formed on the north face of Pen Balance and connected to the old 8 - 5 untopping incline, which was now being worked by the inevitable air winch. Meanwhile, down on floor 5 work was in hand for re-starting the old untopping towards Twr Babel. The tramway being re-laid from Lefel Fawr up to the face.

Work had still not restarted at Glany Pwll the following June, the Joneses remarking, "The only point proved is that the intervening rock is not encouraging." Further work was again postponed in August to the following year, never to be resumed. The only thing that could really be said in its favour was that it had helped in some measure to keep the Upper Quarry working, though whether, considering the cost of driving the long connecting level and the cost of the new incline from floor 8 to 11, it actually paid, is questionable.

With the abandonment of the Glany Pwll scheme, the viability of the Upper Quarry as a whole was in doubt. Some work was now done on re-entering the old workings by timbering through falls. One Old Vein chamber had been brought back into use by December 1926 in this way, the route had been closed by falls for over 35 years. The clearing of floor 5 Back Vein
was given up in the new year, as it would "take many years," the men were transferred to the floor 8 workings. Which were still supplying three saw tables in the mill by June.

Revolution! In late June, 1927, the Board authorised the untopping of the Old and Back Veins above floor 11. This lasted a year, the untopping being abandoned again by August 1928 and the men transferred to Pen Balance to work on walls 10 & 13 on floors 2 to 5 inclusive - this was the lower part of the mass where it extended down into the western end of the sink. The Back Vein was now keeping four tables in work, but the timbered level to the west had been abandoned as it had reached wall 22, which was "much crushed" Two chambers had been brought into work in the New Vein with a prospect of perhaps more. By December, however, the activities at Pen Balance were condemned by the manager as never covering the outlay.

February 1929 brought an improvement in outlook in both Old and New Veins, while the incline in the small sink from floor 8 was removed to work the rock. At Pen Balance the work on the side face disclosed a level in the narrow vein on floor 7 whose existence was unsuspected!

The relative success of the work on floor 8 underground in the New Vein indicated to Percy Jones, who had now replaced his father, that there was "a good body of New Vein below worth proving on 5." This will be dealt with later. As far as the Upper Quarry was concerned he felt that there was "little to go."

By March 1930, three chambers were at work on floor 8 New Vein, and the Back Vein was keeping two tables occupied, but by September work was suspended, the tramways and cranes left in position. The mill seems to have continued in work until 1932, when it was suggested that the floor 11 untopping be re-started, but this was not done and the mill closed down.

The Upper Quarry remained silent until October 1937 when the subject of the untopping was raised once again, it being remarked that the mill had been re-roofed with discoloured North and New Vein Slates after the February gales. The mill was ready for work and some untopping was done, but this was soon given up again and in 1938 the Upper Quarry closed for the last time. The Upper Mill being sealed up with its machinery and the old "oil" locomotive intact.

**Floor 5 - The Hope of Middle Quarry.**

Having dealt with the demise of the Upper Quarry, it is necessary now to see how the Middle Quarries fortunes changed. As has already been mentioned, the principal areas of work here lay in the New Vein on C and DE floors, together with what could be gleaned from the Pen Balance work which had proved difficult. However, as the test levels showed, the workable New Vein faded out to the west of chamber 18, and as both C and DE floors had reached this point, the workings on floors 4, 3, 2 and 1 all having been exhausted and either cut off or abandoned, the outlook was not favourable. In an attempt to get as much slate out as possible, the west wall of chamber 12 was being worked from floor C up to floor 1, while a new level under a whinstone was being driven in an attempt to re-open chambers 15, 16, 17 and 18. 5 chambers were being worked in this area, and one for slabs. The total for the Middle Quarry in 1926 being: 14 New Vein bargains, 5 Old Vein and 1 fall clearing. The following year, even Percy Jones had to admit that there was "not much hope" for further workings. One chamber had exhausted and no new ones had been opened, the end appeared to be in sight.

In early February 1929 Percy Jones was actively proposing that the Middle Quarry mills be shut down and the work concentrated at Bonc Siafft and Bonc Coedan. However, The Manager, J. Lloyd Humphreys, who had taken over from Robert Jones in late 1926, seems to have taken it into his head to look around the Middle Quarry workings. He could see that 50% of the present sources were not going to last longer than two years - so new sources were urgently needed. For some reason, whether word of mouth, or study of the plans, is not clear, he examined the old abandoned New Vein workings which had been worked from floor 5, and found that chamber 11 had been worked much further into the New Vein than he would have expected. - were the maps not up to date in this area, or, as the writer can testify, very difficult for even the staff to interpret, suggesting that the vein was very thick there. The success of the workings on floor 8 in the same vein suggested that it was worth driving a level west from chamber 11 to determine the extent of the vein in this area.

He requested Percy Jones to survey and inspect the workings, as far as possible. This he did and had the following to say in his report of the 15th August, 1929: "The conclusions we have arrived at are that the underlying trap rock makes a considerable bend to the south east, with a corresponding thickening in the New Vein." "This body of New Vein has been very little worked on floor 5 and the floors above and having regard to the prospects, convenient situation, and facilities for disposing of the rubbish, I strongly advise thorough tests being made."

"The old plans show there are long levels on floors 6 and 7 from chamber 16 to chamber 20a along which no chambers have been opened. These levels may or may not be driven under the New Vein chert, and if so the intention to get at these and identify the position, and, if indications warrant, eventually open chambers. I have agreed with Mr. Humphreys to drive a test level on the line of pillaring from the forebreast in chamber 11 south through the second dyke, and if the rock is favourable, to open a chamber (11 South) under the dyke, and then drive west and roof up to regain communication with

floor 6, the original connection on that floor with the outside having been cut off by the collapse of Holland's bon many years ago.”

In early October the Middle Quarry suffered a significant loss - albeit a temporary one when a fall from floor down to DE blocked both C and DE, burying the lower part of the Middle Quarry main incline. To keep the blocks moving, track was laid in the old DE tunnel beneath the southern bon to connect with the C incline. It was September 1930 before the incline connection was re-established. Although the slide was “inconvenient” as Jones put it, quite a quantity of Old Vein rock was obtained from it, especially on DE.

Work on floor 5 proceeded apace, the level being driven 40 feet in "good rock" between August and October 1929 and by March 1930, Jones was able to report that a test level going south was being driven in wall 12, while the floor level of chamber 12 was being lowered by three feet to take the tramway from the new level so as to allow for driving a level through wall 13 and also continue the main level west through wall 14. Chambers 10 and 11 which had been reopened under the second whinstone dyke were being roofed. He proposed that the blocks from the new floor were dropped down the forebreast of chamber 11 to floor 3, as this would enable them to be trammed out to the main Middle Quarry incline and hauled up to the Mills. It would appear that floor 5 had no other tramway connection at this time, that through Lefel Fawr having been taken up. Work was still going on on floor 3 at this time, working the slice of wall 12, and now wall 10 was also being reduced in thickness for slabs.

By September 1930, the forebreast of chamber 15 was being undercut. However, it had been discovered that the tops of the chambers worked from floor 3 came up above floor 5, so this undercutting was having to be done when connecting the chambers to the new level. The indications along the opening level between chambers 13 and 15 were discouraging, so the level was turned south in both chambers, hitting solid rock in both almost at once. Chambers 10 and 11 under the whinstone were now ready for rockmen, all the rubbish produced so far being tipped underground. It was now proposed to construct a small incline in chamber 11 down to floor 3, rather than slide the blocks down. Including floor 5, there were now only 11 New Vein bargains in work.

The following year, however, a small incline was constructed from a platform knocked through into the side of Lefel Fawr, at chamber 9, down to the large area of flat ground that had been created on floor 4, where Pen Balance was being attacked. This enabled the slabs to be sent directly to the Middle Quarry incline.

In October 1931 the manager reported as follows: "The main development area in the Middle Quarry for the last two years has been floor 5 chambers 10, 11, 14, 15 have already been opened. The first two are in rockmen and are yielding very well, in another two months chamber 16 will be added to these. Slate produced on this floor will compare with any in the quarry. Before we can work chambers 15 and 16 together, about 14 yards of a tunnel must be driven in wall 16. There will be no other development work in this quarry until the Cwmorthin drainage level is through.” This latter scheme will be described in the next chapter.

At the same time Percy Jones described matters this way: "New Vein development, chambers 10 and 11, 10 middle section, 11 south, under the south whinstone are now producing strong and coarse New Vein similar to that extensively worked on floor 3 below in chambers 11 to 16 in the time of the late Mr. Robert Roberts' management. Chambers 13, 14 and 15 have been widened ready for rockmen and number 16 is now being widened. New short level to be driven from chamber 15 south to the old chamber 15 north already widened above the level of this floor for the purpose of tipping rubbish from chambers 15 and 16 and levels and chambers subsequently opened to the west. At present the level west is temporarily stopped in the west side of chamber 16 agreed to the continuing of driving a short level north in wall 16 to be driven west on top of chamber 16 so as not to interfere with the working of that chamber. The rock in number 16 is of unusually fine texture and leads me to believe we have passed from the New to the Old vein through the diagonal cross drop which I believe crosses the vein at about this locality. If I am right we may reasonably expect to get some Old vein to the west but how far before we strike into old workings it is impossible to say, probably chamber 17 and possibly chamber 18 at least.”

However, the appearance of Iron Pyrites in the rock, and the high cost of the chambers invoked a query from London, to which Humphreys replied in October 1932 “Floor 5 - Mr. Parker asked me to report on the chambers on this floor. Before our time it seems nobody suspected the existence of an unworked section of New Vein in this area. We opened out 5 chambers, stopped one chamber in March last and have four at present in work. During the first six months of this year the average cost per ton of these four chambers was 6/8/- They are new chambers, some of them in the first thickness after the miners opened them out. The quality is excellent, one chamber has a coarser slate than the other three. On the whole, the coarser slate is the freer from pyrites. We came across bands of pyrites in the outer chambers in their initial stages. The indications are that these bands are passing away to the north. No-one can predict what lies before us. It is an entirely unexplored ground to the south, except that surface and other indications point out to a thickness of unworked slate rock. It is true that these chambers do not pay at present but there are scores of such chambers which have not paid while in their initial stages but which we worked profitably for many years after. In one, chamber 14, we have just struck a hard substance. As to the pyrites in these chambers it is not likely that we shall meet as much in future. As to the cost of working these
Hope was still high that the old levels on floors 6 and possibly 7 would lead to new expanses. It was decided to reach the floor 6 level by driving an inclined shaft upwards from the position of chamber 17. Unfortunately, the "hard substance" in chamber 14, and the level were to be disappointing, as Percy Jones' Report of February, 1933 shows only too well:

"Floor 5 New Vein. 3 chambers are in work, 11 resumed, plus 15 and 16. 15 & 16 are of fine quality, 11 more typical of Middle Quarry New Vein. The Incline shaft up chamber 17 north recently knocked through into floor 6. The tunnel is in the bottom layers of Old Vein and blocked at chamber 15 and chamber 21."

"I consider it premature at the moment to say that floor 5 will be a hopelessly uneconomic venture. I am bound to confess the striking of the Trap Rock in chamber 14 south has completely upset the hopeful views held. We are in the presence of a big diagonal cross drop from chambers 14 to 17 and west of this point in more settled ground we may find the New Vein to be workable, but not, I believe, of the exceptionally fine texture of that now being worked in chambers 15 and 16."

In October 1933 J. Lloyd Humphreys produced a list of the Middle Quarry chambers and their expected life.

<table>
<thead>
<tr>
<th>Chamber</th>
<th>Vein</th>
<th>Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE.10</td>
<td>Old</td>
<td>6 months. Open workings.</td>
</tr>
<tr>
<td>DE.12 &amp; DE.13</td>
<td>New</td>
<td>3 years. Occasional supply of slabs.</td>
</tr>
<tr>
<td>DE.15</td>
<td>New</td>
<td>1 year. Keeping two tables going.</td>
</tr>
<tr>
<td>DE.18</td>
<td>New</td>
<td>3 years.</td>
</tr>
<tr>
<td>DE.20</td>
<td>New</td>
<td>6 months.</td>
</tr>
<tr>
<td>DE.21</td>
<td>New</td>
<td>2 years.</td>
</tr>
<tr>
<td>C Open</td>
<td>New</td>
<td>1 year.</td>
</tr>
<tr>
<td>C.7</td>
<td>New</td>
<td>2 years.</td>
</tr>
<tr>
<td>Flr.1.9</td>
<td>New</td>
<td>18 months.</td>
</tr>
<tr>
<td>Flr.3.13</td>
<td>New</td>
<td>6 months.</td>
</tr>
<tr>
<td>Flr.4 Open</td>
<td>Old</td>
<td>2 years.</td>
</tr>
<tr>
<td>Flr.5.11</td>
<td>New</td>
<td>Cannot gauge thickness of the</td>
</tr>
<tr>
<td>Flr.5.15</td>
<td>New</td>
<td>vein in this district. Producing</td>
</tr>
<tr>
<td>Flr.5.16</td>
<td>New</td>
<td>costs are gradually reduced.</td>
</tr>
</tbody>
</table>

Chambers Ready:

<table>
<thead>
<tr>
<th>Chamber</th>
<th>Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE.19</td>
<td>3 years. Re-opened.</td>
</tr>
<tr>
<td>Flr.4 Open</td>
<td>Narrow</td>
</tr>
</tbody>
</table>

In addition there were chambers on G floor in the far west which will be dealt with in the section on Cwmorthin. Three were in work with an expected life of 4 to 5 years and four ready with a life of up to 6 years.

From 1934 onwards there were usually at least four chambers in work on floor 5. For a time they were "grouped" as a single working, but were soon separated again with the abandonment of that flawed scheme. Chamber 17 was opened and roofed separately from the abortive incline shaft to floor 6, and was brought into work in mid 1935 when chamber 13 was also brought back into work. All were producing "strongs."

Despite the worries, the main level, now dubbed "The Exploration Level," was continued on, being turned somewhat to the north from chamber 17. It soon passed through "mixed and unworkable rock, the forebreast being in line with the west side of chamber 19, clear in the Old vein." This proved optimistic, and in fact by February of the following year, 1936, the level had holed through into chamber 19 Old Vein, which was "full of fall - this is to be worked." The level was further advanced until October when it holed through again into chamber 20 Old Vein, "Very wet and full of fall."

From then on the chambers which had already been opened continued in work, with a part of wall 11 being worked in chamber 11 to add to the output. Floor 5, though it did not hold out its earlier promise, nevertheless had proved a useful source of rock, it was only the capriciousness of the mountain which prevented it being a greater success.

**Trouble with water**

One of the main areas for development in the open was the "Peak Quarry" at the old eastern end of the Old Vein sink. An access way around from behind the Arches incline building to the top of the Arches had been made to enable the chamber over the Arches to be filled in, and it was from here that work had begun towards the end of the war. At the same time, a level was driven through the bon into the tops of the old "North Old Vein" chambers to the east of the Arches, enabling them to be worked from DE upwards and southwards and at the same time provide space for tipping into the abandoned floors below.
The principal aim was to widen the sink at the level of DE floor and remove both surface debris and the ground under the old W.S.Co. slab mill site, thus enabling, in time, the whole of the slate on that horizon to be recovered. So rapidly did the work go that by December 1922, Thomas Jones was able to report that, "The Peak has entirely disappeared." However, he was now concerned that the line of working to the east might affect the bon, and hence the stability of the ground supporting the Bonc Siafft old mill, which was just above. In fact it was 1975 before this subsidence took place! In another matter he was more rapidly proved correct, for he was worried lest the working away of the solid ground to the east which formed a barrier between Taly Waenydd and the quarry would allow the drainage water from the mountain behind and beyond into the quarry, and pointed out that that was one of the reasons that area of rock had been left so long untouched. The working of this area by the present company has done just this - and in times of heavy rain a considerable waterfall pours into the quarry into the open top of chamber B14.

Robert Jones, the Manager at the time, pooh-poohed these fears to some extent, although he said he found it difficult to explain. "Today is different from the old times," he said, "the water is not now such a problem, ...the water now flows much to the north," which he felt had been overlooked by Jones.

By February 1923, chambers DE.B10 and DE.B11 on the "North Old Vein" had been roofed up to daylight behind the old slab mill ruins. In the course of clearing the peak area, old levels had been found referred to as "Arching under the tips" these were the remnants of the old floors A, B and C of the Welsh Slate Co. One in particular worried Jones, this he called the "old adit water level on C" which had had a water tight dam built across it by Robert Roberts (when is not known). Oddly, considering his later remarks, Thomas Jones did not comment on the dam at this stage but merely went on to say that there was nothing to prevent the company working the Old Vein outcrop as an open quarry, as there was "now no water in the ponds above the old slab mill."

However, second thought seemed to have occurred to him, for in May he was writing to say that they, "Ought to feel the way cautiously in the East Peak - a large quantity of water drains down this slope. It is necessary to replace the dam in the Old C floor, as in heavy floods the surface water cannot get through the tips fast enough to prevent it backing up into the quarry and the dam is necessary to prevent this." One wonders if in the interim period between reports he had had a look back to see why the dam had been built in the first place!

The dam was not rebuilt and on the 10th and 13th November, M, N and O floors were flooded by over 10 inches of water. Jones wrote, with, one suspects, a certain amount of bleak satisfaction, "During my recent inspection a similar rainfall - though not to the same extent - occurred on the 30th. October and I personally saw the back flow of the flood water coming down from Llyn Ffridd in conjunction with the water from R'Allt Fawr and from the back of the quarry ponding up in the "ceuant" or hollow until it found its way back into the quarry through the abandoned timber level on C floor under the old slab mill... It was coming down in a huge volume into the old big chamber under the east end of the bon... it was clear to me that this was caused by the gradual silting up and solidifying of the debris from many floods which has gradually choked up the open character of the debris through which the waters find their way down to the G drainage level at its outlet near the high level bridge, so that when any exceptional flood takes place the mountain waters cannot find their way quickly enough through the debris, and consequently pond up in it until it reaches above the level of floor C and rushes back into the quarry itself, drowning not only the lower floors but also the pumping level on G where the big pumps are. There is only one possible remedy...namely to reconstruct the dam in the old C level... and make that absolutely watertight. Secondly to drive an inclined shaft from the New Vein on DE at chamber B11 up to the old C floor on the pond side of the dam... by cutting a small level on DE level from chamber B10 to the DE traffic tunnel, the flood water would easily find its way along the DE level to and down the South Shaft to G floor and out through that level." The dam was duly replaced and the suggested level and shaft driven. One up to Thomas Jones!

The initial blame for the flooding had been placed on the main looms - the large storage area for flood water in the west on floors L, M and N. It being at first thought that the L pond had overflowed onto the K floor, through the K levels and then back down again, having short circuited the drainage system, Thomas Jones' detailed account laid that to rest, but the problem of water was a significant one, and one which exercised the management on many occasions. Indeed the "big dam" as the storage looms were referred to was a particular hindrance in the centre west of the quarry, where it effectively blocked off the Old Vein workings entirely.

When things are bad...
1921 began badly, on the 4th. January 1 hour 15 minutes of work was lost, the current going off four times during the morning, on the 6th. 33 minutes were lost, and on the 10th. no less than 2 hours 10 minutes, on the 17th. the "voltage of the current is very low" and caused a stoppage of 20 minutes. It was described as "a poor wet month with much strain on the pumps."

In February the old troughs to the Bonc Siafft old mill were replaced by pipes and "joined to the pumping chamber." These were presumably the troughs which conducted the water from the turbine head pond to the north of the mill through.
The shortage of compressed air was very much felt due to the expansion of the workings again after the war. The installation of an electrically driven compressor on L floor underground in 1919 had only been a partial solution, and in March 1921 discussions were held with representatives of Ingersoll Rand over new machines. In the event, a complete new setup was rejected, T.J. Williams being struck with an illustration in the catalogue which looked like a marriage between one of the big 200 h.p. haulage motors and a two stage compressor.

Now it just so happened that it had been decided to abandon the Twr Babel and Ffridd Inclines, and work had begun on their dismantling, Twr Babel being first, so that Ffridd could be used to lower the materials. Further discussions took place and it was decided to go for a hybrid constructions, using the old Twr Babel motor, it being left to Williams to order the appropriate parts from Ingersoll Rand and put the whole thing together.

The quarry had plans for the Ffridd motor and drums as well. With the shortage of tipping space becoming somewhat desperate in the lower quarry, and the terminating of the Ffridd incline and its tip, it was decided to rebuild the gravity incline which connected the Middle Quarry with Bonc Goedan as a power operated one, using the redundant Ffridd machinery. Work had begun on the new incline bed, which was to be the east of the original one in early 1920.

In October 1920, the Miners Federation of Great Britain had struck for an advance of wages and their demand was met, but in 1921, the mines, which had been under Government control during the war, were given back to their owners. They instituted wage cuts, with the result that on the 1st. April, 1921 the miners walked out. The effect was a gradual diminution in the availability of coal...

By the 18th April the shortage of coal was such that the Middle Quarry steam driven compressors had to be stopped, and to eke out the supply of air, the miners were put on the night shift - to their displeasure. This meant running the electric compressors both day and night - with alarming effects on the electricity bill.

On the 20th, the Quarry was visited by some of Blaenau's Councillors, who requested the loan of some coal. This was considered and on the 23rd. 3 quarry wagons of coal were despatched from Penybont on "loan" to the Council.

In May troughs were laid across chamber 9 to conduct water from the "big dam" on L to the "new" drainage level under the New Vein, the connecting level between the two being almost completed.

The bedding of the new C to Middle Quarry incline was completed by the 20th. May, while advantage was taken of a prolonged dry spell to discharge water from the M and N floor dams into the pump looms so that the water levels might be lowered, and even, if the opportunity was available, that N might be completely drained, allowing access.

The dry spell did continue, so much so that shortage of water began to be a problem! Llyn Ffridd was rapidly emptying and so a pump and piping was arranged at the foot of the Vertical shaft to re-circulate water from the shaft sump back to the head tank. Pumping commenced on the 30th. June.

In July the Quarry became involved with trials of a battery electric locomotive, a possible alternative, as their own steam locomotives were "getting very old." After some correspondence, the quarry engineer remarked, "I am afraid that our current will not charge their batteries. If that is so, we must have a small converter to transform our alternating current to that of Direct Current, or get a small D.C. Dynamo ourselves etc." Presumably all the old D.C. equipment had either been scrapped or sold.

"I understand that the firm who manufactured the Electric Loco now working at Greaves Quarry, have means of charging the batteries with Alternating Current by having a Mercury Arc Rectifier, an apparatus it appears of their own design which does away with the necessity of Transformation from one current to another for charging the batteries etc." Of course, had the original D.C. scheme at Oakeley been continued, there would have been no problem...

The electric loco arrived at the L.N.W.R. station on the 19th. September 1921, and awaited their men to take charge of the load. On the 23rd. Mrs. Inge and a party of 7 visited the quarry, including her two daughters. They "rode behind the electric loco from the Incline to the Office" and it "drew 6 or more loads to the tip." From this it would appear that it was being tried at Middle Quarry.

However, by the 28th. decisions had been made, "It is our interest not to go in for this or any other like machine, for one we are not yet ready to adopt it in the only place indicated by them, which was pointed out to them by us as the most likely place for its possible success... I quite agree with them, when they say that a heavier machine than the one demonstrated here would be more suitable there.”
In the meantime, the consequences of the coal strike and discussions with the union were becoming significant. The summer had proved to be a dry one, which meant that the combination of a shortage of coal and water affected pumping, compressed air supplies and haulage, this had partly been obviated by pumping the water which worked the Vertical Balance back up by electric pump but...

"Owing to the continued drought and the exhaustion by this weekend of the Llyn y Ffridd waters and all others, the inevitable consequence follows, viz. - that we must curtail our working operations, especially those of floors I and H, dependent floors entirely on the Vertical Balance Shaft &c. We however at present think we may carry on a bit longer by having a few of the slate bargains on each floor to send out their blocks only, leaving the Rubbish behind to be cleared afterwards &c.; to work on this system requires that the said blocks must be hauled up to G floor by the Arches Incline, then sent down to K floor by the same incline to be then lifted up the K Balance, thence to the sheds. The North Vein must be totally stopped, on G floor, so will the western part of I floor &c. I can assure you that it is with the greatest difficulty that we have been able to carry on as well as we have, everything seems topsy turvy. There is a great need for coal - one truck arrived yesterday from Plas Power, two trucks from Wynnstay's." Evidently the G balance could not be used, suggesting once again that it had NOT been converted to electricity...

Fortunately showers of rain descended on the 15th. and so on the 18th. the manager wrote, "You, I know, will be glad to understand, that we have resumed our ordinary mode of working once more, the night shift has been done away with, and we are able to carry on as we have been doing for the last few weeks, that is to say pumping to the Vertical Balance Shaft, none of the other quarries that had stopped are able to go on and are idle." The quarry had been three months on the night shift.

On the 20th. the lower portion of the Ingersoll Rand compressor arrived, and the Twr Babel cable was finally removed.

Robert Roberts' funeral took place on the 1st. August, 1921, the following day the current failed all morning and by 11.30 the manager closed the works. The power was restored by 1.30, but too late, for the men had gone home, the cause being described as a "pole which went on fire and so collapsed." Roberts' shade no doubt smiling sadly at the fulfilment of his prophecy of the consequences of Oakeley putting all their power in the hands of another company.

After the drought, came the flood, on the 8th. Votty had 2 or 3 floors under water, "pumps and all" while Greaves were one floor under. Oakeley, however, remained clear.

There was some thought of trouble now with the quarrymen's union, over a reduction in the day rates and minimum wage, the Manager commented on the 18th. August, "Some scores of these men are here today applying for work &c. which I should think would be a very strong argument and even a lever in the forthcoming Meeting this week, for the extension of the working hours and because I fail to see why if they (the union) took advantage of the dearth of men, why should not we follow the same course now things are changing etc."

The dining time in winter was now changed from 11.30 - 12 to 12-12.30 to increase the morning shift, which was 8.30-1.30.

On the 15th. September the current stopped suddenly. the quarry was unable to raise the Power House at Cwm Dwli on the telephone lines which were carried on the transmission poles, only reaching the linesman's house at Roman Bridge, and he could not get the Power Station either. There was still no current at noon, so the quarry was suspended and the men sent home. Contact was made with the shift controller at the Power Station, a Mr. Paton, who said the suspension was unnecessary, but in the event the power was only restored at 3.30 - "the poles had been burnt away by faulty contact with the current."

It did not help when a first trial of the new compressor coincided with a fault on the line and once again contact could not be made with the power station. There are implications that on either this or another occasion, the quarry ran foul of the power company by attempting to lift a very heavy load on an incline without first informing the power station, which they were required to do. This would enable the power company to put one generator on spinning reserve, so that as the load came on from the hauler, the generator could be brought onto line to balance it. The story is told that on one occasion this was not done and the incline stalled with the load half way up, and the power cut off. There followed a somewhat acrimonious dispute over the telephone line between the Oakeley and the power station attendant. In the end the load had to be lowered back down the incline on the brake and the proper procedure gone through.

The new compressor had been assembled in the old engine house of the Middle Quarry Incline, next to the steam boiler house, an old boiler doing duty as an air receiver as on C floor - it is not known whether this had already been used as a reservoir for the steam compressors, which had had their own shed next to the chimney.

The management had now got the bit between its teeth, in so far as relations with its employees was concerned, and alterations were made to the standard practices: "Re: better attention to working hours. - No millmen or tipmen to leave his working place until the buzzer goes & must be "at their stalls" when the same goes in the morning. As regards Pitmen
(Miners, Rockmen, Clearers etc.) they are also required to pass a certain point which has been decided upon before the Buzzer goes in the morning, and shall not be allowed to enter the Lower Quarry Tunnel in the afternoons before the sound of the Buzzer at closing time. From this you will see that no more assemblages will take place at Penybont as heretofore for over 50 years.”

On the other hand they reacted well to work for them - T.J. Williams got a cheque (how much was not said) for his work on the new compressor, which was “being assisted with one of the steam ones.” A portable compressor was now thought necessary for work at sites well away from the existing compressed air network.

A visit by the Inspector of Mines, G.J. Williams, was almost brushed aside, he was told that the bulk of the alterations which he wanted doing still remained to be done because the quarry had been very busy with other “more important matters” such as the new compressor, incline etc. His reaction is best left to the imagination.

Unfortunately, the new compressor, despite Williams' ministrations was not a complete success, the compressor - or the motor - was running below design speed and as a result "It has not really been up to our expectations in its air supply," so the old steam compressors soldiered on.

Plans were now afoot for a new incline in chamber 2 from K floor downwards to relieve the congestion on the lower floors which had resulted from all the traffic from L, M, N and O having to be raised up the K3 incline. The initial plan called for a conventional approach, but the management were concerned that this would involve disturbing the North Spar which formed the roof to make room for the drums. They wished to move the drums back, and build them on solid ground, the tracks not going under the drums at all. This was rejected.

New "special rules" were to be introduced, but they were "unintelligible" said the manager. The men, unhappy about a reduction in wages, now complained about Tuesday the 27th, December, as the Quarry said it was not a holiday, but as Christmas Day had fallen on a Sunday, the men felt entitled to it in lieu.

On the 28th, December, the Bonc Siafft substation was stripped of slates and timber by storm and credit was given to the Power Co. for their handling of the bad weather, it was still untouched by the 9th. of January, 1922. The special rules were now described as "flabbergasting."

...Things can only get worse.
Disaster struck at the Middle Quarry on the 11th.: 

"I am sorry to have to report a most unusual event which took place soon after mid-day today at the Middle Quarry in consequence of which, no work was done this afternoon on the Middle Quarry Main Incline. It appears that the Driver heard a strange noise emerging from the Hauling Motor when working, he at once stopped it, and a thorough and minute inspection of it was made by our engineer, and for an hour or two failed to trace the mischief. At last it was located, for it appears that Three Arms of the Rotor had cracked, one quite through, it is a repairing job which we are undertaking to-night, by supporting them with Iron Clamps &c. and we have every hope it will be finished by to-morrow morning, in time for the ordinary starting time, at any rate we expect so, arrangements are being made for out Fitters & Smiths to stick at it until tomorrow morning if necessary &c."

Unfortunately, luck was not with them: "After working hard all through the night until this morning our Engineers &c. completed the repairing of the above which they hoped satisfactory, but unfortunately after trial it was found that this was not the case and the clamping of the cracked spokes still remained troublesome, and even dangerous to manipulate the machine in that state, and so we decided better not to attempt doing so, preferring instead to have another go at it, so as to avert the very possible complete smash-up of the whole Machine. Consequently we again decided to suspend the Middle Quarry at Midday today, I wired you to that effect, as I considered this matter as of the gravest and serious importance (on the strength of your later instructions) I wired to Captain Williams Ellis, to come up and give us his advice etc., unfortunately he was down the mine at the time, but he very kindly instructed his electrical engineer to call on us, which he did and expressed his opinion that we had taken the right course in stopping the machine from working, as the whole thing might at any moment blow up & he also in conjunction with our Williams, suggested a new form of support & clamping which says might prove effectual, but was not quite sure of success, in any case he ventured to say that the rotor will never again be quite reliable &c."

“Captain Williams Ellis has very kindly promised me that he also will come up to the Quarry at 4.30 p.m. today, to inspect the said Machine, and he no doubt will give his opinions, advice and suggestions as what course to follow under the circumstances, again the Fitters must work hard through the night, and by morning we should be able to define what shall be done &c.”

"If a new rotor must be procured, I am afraid we shall no be able to get one with all pressure at least within a month or six weeks time, which is a serious matter, if we find this too long a wait, as undoubtedly it is, we have only one alternative to
adapt. (and that will take considerable time) that s to remove the rotor of the now ready New Incline by the Office, this Rotor is a perfect duplicate and fit of the broken one, of course it would be a great pity having to adopt this course, when we consider that now the Incline is quite ready for working. I shall wire you the result of to-night’s repairing in the morning, and further write you fully during the day &c.”

Write he did, "Many thanks for your letter of yesterday’s date, as also for the reply to my telegram of today confirming receipt of my own this morning; After a strenuous and hard all night work by our fitters &c. I was glad to find this morning that they had completed the Job in a most excellent manner, and on putting the machine on trial it was found that the screeching noise inside the Motor had vanished, of course we are not using the machine at its highest capacity in order to avert any possible work that may still lurk undiscovered, as well as allowing the clamping bolts &c. to settle down, owing to these being open to slackening and get loose, a close watch will be kept and a slow motion and load will be the order for some time at least."

"As promised, Captain Williams Ellis came up at 5 o’clock last night and inspected the Rotor and also the repairing work done which he I think well approved of, he also approved of the further proposed additional repair of the coming night and expressed his opinion that it was the only possible step to take and if successful would not in his opinion be clear of further trouble and the sooner it was replaced all the better."

Three days later, the repaired motor behaving itself perfectly, and with no sign of any further problems, the manager wrote as follows:”.In view of your instructions mentioned in your postcard of having the New Incline Rotor exchanged for the damaged one as soon as possible &c. I had an interview with our T.J. Williams on the point, with the result that it would be a great pity and heavy expense to again dismantle one for the other, especially as it is our firm conviction that it is now in a workable condition, and he informs me that it is bound to give ample warning of any other defect arising &c."

Having due regard to this I hope you will allow us to carry on for a further few days at present before making any other move &c. "I may say that every due care and inspection is made of the Rotor during the day, and although in work since Friday morning, the Clamping appears not to have budged showing what good work done &c. in addition to already good work done due T.J. Williams tells me that again means to further strengthen it will be undertaken as soon as possible, by further clamping the boss and which in his opinion will make almost more reliable than when new &c.

I am writing to the Bruce Peebles re Rotor etc."

The final repairs and strengthening of the rotor consisted of sheet iron plates cut to shape to fit between the webs of the spokes, the whole being bolted together through the remaining web. Oakeley's motors were insured against loss of work caused by faults, and the money paid for a new rotor, which arrived at the station on the 5th. May, 1922. This should, of course, have been fitted to replace the repaired one, but once again T.J. Williams pointed out that this would mean, in effect, dismantling the wall of the motor house, as this was the only way of getting it in or out, the motor having been originally fixed in position on the plinth before the walls of the house were built. This, he said, would take quite a while, first to take the old rotor out, and then to put the new one in, then rebuild the house. As the repaired motor was working perfectly well, why bother? His advice was followed. The insurance company, however, took a dim view of this, and refused to insure the repaired motor unless the new rotor was fitted. It is indeed a testament, both to the strength of the original motor, and to the patching of Williams et al. that the motor continued to work the incline in its repaired state until it was finally shut down in the 1960’s - the patched rotor can still be seen at Gloddfa Ganol. It is thought that the origin of the problem lay in the rotor casting design, although no problems seem to have occurred with the others of the BS90 class, of which this was one. Interestingly the new rotor supplied by Bruce Peebles had its boss strengthened by shrunk on collars.

....And Worse.

It did not help at all that the inspection of the Electrical Inspector of Mines on the 13th. September had annoyed the quarry. As became usual, the Inspector was new to Slate Mines, but in this case his complaints had merit. He found the H.T. side of the sub-station was deficient in “Treatment of Electric Shock” and “Electricity Regulations” notices, the earthing conductor to the framework of one switchpanel was badly corroded with no earthing conductor for the other panel to be found. He did not like the fact that the 500 volt cables passed through the "tower" immediately over the 10,000 volt switchgear and bare bus bars, and demanded that they either be removed or screened, invoking "Regulation 1 in support of this requirement." He also found unarmoured 500 volt cables passing through and under iron floor plates without any protection, and invoked regulation 2!

On the Quarry side of the sub-station he demanded that the local lighting circuit be changed, as it was the switch and fuse could not be made dead! This he remarked was necessary everywhere else. Bare metal on the main switches was inadequately protected by wooden boxing. Unarmoured cables required mechanical protection by enclosure. The conducting floor required covering with hard wood gratings, the rubber mat having been removed at the time of his visit to gain access to cover plates.
In the saw setting shop the unarmoured cables required protecting again, and there was no fuse on the lamp circuit which had four lamps in series on 500 volts.

In the C Incline motor house the iron lamp pendants and lamp holders were not earthed, and again there were no fuses between the lamp circuit and the supply. Parts of the lighting circuit consisted of unprotected insulated wires. He felt the motor slip rings and terminals should be better protected.

At the C compressor the pole line entered the house without a guard or warning notice, the terminals of the current transformer were bare and uncovered, the lamp holders were not earthed and the fuse was in the wrong place again.

Underground, there were unarmoured cable connections to switchgear, meter terminals and motor terminals, "open" wiring to lamps and the lamps were not earthed. These remarks applied at the L floor compressor, the pumps and the K floor hauler. He did not like the old-fashioned design of switchgear used on K floor.

The Inspector commented, "Mr. T.J. Williams expressed his desire and intention of making all the alterations that I pointed out were necessary, but he protested that Mr. R. Nelson when he visited the mine saw the same plant and did not object to the details to which I have taken exception. There is so much to do to bring all the plant into compliance, both above and below ground, that additional help will be necessary, in my opinion, if the work is to be completed within a reasonable time."

T.J. Williams had his own comments to make, after the report was received, "...You are aware that we are under two different acts. All outside Plant being under the Factory and Workshop Act. All underground being under the Metalliferous Mines Act. This gentleman visited the Quarry with Mr. G.J. Williams on September 13th 1921.

I went round with them to all the places where he makes remarks, and he did not feel inclined to go round all, as he expected that all the other places were something like, so all the items he points out are applicable to all the rest of the plant.

I told him that Mr. Nelson had been here twice since the Plant was put up, 15 years ago, and only pointed out a few remarks re some earthing required here and there, and a few lamp holders, which were all put right immediately, and that we fixed up about two more plants, since our first Installation, and of course made these similar to the others. I told them that I could not understand things of this kind, for another Inspector to come round in 15 years after our Installation was put up and condemn our Transforming Station, Type of Switches, and the Cable work about our Mill Switches &c.

Mr. G.J. Williams said that we would have a lot to do to put things right, I said that we were not afraid of work, and that he had given us a good deal of work to do from time to time to alter this and force that, but this gentleman is a terror compared with you, and they both laughed. However, to do all these items means a good deal of work and money to buy things for the job. The Switches have all their terminals on the outside of the box, to make a continuous connection of metal round the cables, we must have some new End Terminal Boxes on a few of the underground cables, Isolating Switches on K floor, Small Light Iron Switches, fuses and etc.

All our light Cables, lamp holders, Switches, Fuses &c. at 1200 Gallon Pump, 800, 500, Compressor on L floor, and other places will have to be altered.

There are a few remarks pertaining to the Power Company, which we should inform and get Mr. Paton to do himself, as he told me that we were to inform the Power Co. Re. the 500 Volt Cable in the same Tower as the 10,000 volt Cable, of course there is a risk here, but nothing has occurred yet.

He states that I impressed my desire & intention to make these alterations, what I said was, that if he could compel us to do these, of course we would do them, if they were reasonable and fair. He never suggested uncovered cables in the Towers to our bare pole lines, I asked if he could compel us to do this and he said No, so he is suggesting screens."

...And Worse Still.

1922 began with the accident to the Middle Quarry Motor, this being followed by an influenza outbreak. By the 9th of February, 81 were absent from Lower Quarry, and 23 from the Middle Quarry, this rose to 126 by the 13th, 135 the following day, 138 the next, plus three staff and two days later had topped 150. It was abating by the 22nd, with only about 100 absent.

Relations between the management and the men suffered a serious turn for the worse at this time. With the previous years' cuts, the N.W.Q.U. now claimed that while the price of slates had fallen by 10%, the wages had fallen by up to 18%! Naturally, the various quarry proprietors associations, and the individual managers denied this, claiming that less work was being done, in proportion with the shorter hours of work. Extended meetings and discussion eventually led to an agreement on a standard sliding scale for the pay, but the proprietors were adamant that the day wage, on the sliding scale should be used to determine the minimum wage. This to be less than or equal to 2/3 of the day wage rate, which meant that the minimum wage was not fixed!
In May the ramifications of this decision began to be felt. The men apparently preferring (in so far as they would prefer any cut at all) an all round reduction. The manager reported, "The trouble that arose in Greaves' Quarry last week during their lettings...it appears that a good many of the Bargain Takers objected to the contract terms offered them &c. and before long matters assumed a very ugly aspect and dimensions and I am further informed that the men were on the brink of a stand out ....rather a nasty spirit prevails there."

Meanwhile, the "Wire Winder from Dolgarrog" - the home base of the North Wales Power Co., was beginning to know the Oakeley quarries very well. The O floor pump had failed in March, requiring his presence, then the K.3 Incline motor failed on the 7th. June, the lower floors having to be "suspended" until the winder was sent for, arrived and completed the repair. "Our men worked as hard as Niggers all through the night" said the manager - it was not to last.

The terms of work were to be formally introduced on the 12th. of June, and were promptly rejected by the N.W.Q.U. There meant trouble, and had been expected, "The FLAT has gone forth," the Manager had written on the 8th, "that no workman turns up to the Quarries on Monday next, unless something turns up at Caernarfon today &c.".

A meeting at Caernarfon produced nothing, and so on the 12th. the Manager reported, "No men turned up this morning, the works closed, Manod Quarry is in work." All the staff were present. The strike lasted a week at Oakeley, all the men returning on the 19th, and the letting for the new pay were completed without dispute on the 27th. The day wage had fallen to 9/1d., the minimum being 6/6d. roughly half that of 1920. Precedent had been set, and the sliding scale was kept.

...And even worse.

Two days after the letting disaster struck at the heart of the Lower Quarry haulage system, the Vertical Water Balance shaft feeding Bonc Siafft:

"I very much regret having to report to you a very serious accident, which took place...shortly after 8 a.m. today, and the cause of which at present is difficult to explain, be that however as it may, the result is exceedingly serious, so serious indeed, that in our opinion, is beyond any repairing, for such is the carnage that both cages or carriers are smashed up hopelessly with chains and other Irons, & Timber intermixed all together &c.; but very fortunately this occurred without causing any harm to the men down below or those above, which is really a marvel of an escapade &c.

As usual, it appears that a loaded "sled" (small slate block) had been boarded on the carrier below and signalled, after which the Brakesman opened the water valve to counter balance the same for lifting &c. when by some means as yet unexplained the Top-carrier whilst under the filling process suddenly plunged down, lifting the other one up, so far as we could afterwards see which no doubt after reaching nearly to the Top landing dishooked itself from the carrier, which also fell down the Shaft, followed by both Balance and Winding Chain, the sight of which at the bottom as you can imagine, was a mess of entangled carriage etc.

We made a very thorough inspection but so far failed to find anything amiss or any fault in the Machinery - Chains, Brakes or anything else, the cause may be due to a wrong manipulation of the Gear, or to misjudgement or calculation, this is difficult at present to find out, but is having our attention &c.

As regards the interruption caused by this accident I am pleased to inform you this is, or will not be very serious, as we are already diverting the whole traffic around the other way, such as using the Old Water Carrier from G floor to DE floors, as before, certainly the Traffic on this account will be much more congested &c. but we shall manage there is no doubt, the Blockage of the Shaft will only interrupt the North Vein only as long as we shall take to clear away the Debris in the Shaft, after which we shall again resume our operations there as heretofore (in a few days we hope)."

The solution to the accident was found very shortly, the Manager writing two days later, "I certainly should have informed you, that as soon as we had inspected the derelict shaft after the Mishap, we came to the only conclusion possible, that the whole damage was caused by the Brakesman's carelessness and neglect and nothing else, in short, he lost his head, when he should have more firmly gripped the Two Brakes, both of which are even now in good order, but a little twisted due to the shock &c. finding this to be so, I instantly discharged him. His name is William Handel Chart and on this duty for the last five years giving every satisfaction &c." A later letter notes that there were 30 tons of chains tanks and carriers always hanging on the top gear, and that required six men to work it, the chains being renewed every five to six years. The shaft and timber guides were "practically uninjured" but the "head gearing" was damaged and twisted - apart from the ruined cages and carriers.

The traffic diversion was not a great success, although it initially allowed work to go on..."Owing to the SHAFT accident, our second avenue of egress and access to the mine was entirely closed up from G, H, I and partially K floors, necessitating the adoption of another route. This route for a time acted very well, but being the one and only one, it was considered to be unequal to the demand, as it left no margin in case of a short blockage of only a few minutes, which would paralyse the bottom floors in no time."
The solution was to re-open the disused Pen y Bont mills and Lefel Galed, so that the load on the C Incline was reduced. The most easterly of the two mills was in operation by the 17th. July, 20 saw tables and dressers being fully employed, "We have every reason to believe that this move will eventually prove to be of great value in the way of manipulating the Traffic etc.," Robert Jones wrote, "the great drawback here is the lack of Tipping room or space, but there is sufficient to last us for 4 years or so."

Thomas Jones described the distribution of blocks as:

To Pen y Bont:
"Peak" Open working,
Back Old Vein DE.B10 & DE.B11,
The whole of the Eastern New Vein workings on H, I & K.

To Bonc Goedan & Bonc Siafft mills:
Centre & west on I, K, M, N & O up K Trwnc & C Incline,
To Middle Quarry mills:
Blocks from "Sink" on G, New Vein on L, 2 New Vein chambers on DE, 3 on F & G North Vein.
To Middle Quarry Floor 5 tip:
All Lower Quarry rubbish.

Thirty nine out of fifty one saw tables and dressers were still in work at Bonc Siafft mills, but the feeding by locomotive from the head of the C Incline was much more costly than the old shaft. The tramway to the North Vein had been restored by building a temporary bridge across the shaft sump. The old Bonc Siafft mill was stopped entirely by February 1925, all its work being done at Pen y Bont. The new Bonc Siafft mill carrying on.

Two New Inclines
The new incline whose motor had at one point been suggested as a spare for the damaged Middle Quarry rotor had been constructed alongside the bed of the gravity connection between the Middle Quarry and Bonc Goedan. The intention being to use it to haul all waste from the Lower Quarry up to the Middle Quarry tip, Domen Fawr, for tipping. The machinery had come from the Ffridd Incline, now dismantled, the Twr Babel Motor going into the air compressor mentioned earlier.

It may be that new equipment was considered at one stage, for the incline bed was begun in 1920, before the two untopping inclines were dismantled. The new bed was completed by June 1921 and trials made in December 1921, although the official opening date for the new incline was the 30th. of January, 1922. The new incline had three tracks with an additional weighing machine on a loop connecting the incline foot to the C incline. It would appear that the two westernmost tracks served to raise blocks and waste - and return the empties - from the C incline, while the remaining track lowered finished slate to connect with the erstwhile "Coronation Road" to Spion Kop. The centre track was suppressed at a later date. The incline was always referred to as "No.5" - presumably because it served floor 5, or as the "C to Middle Quarry hauler."

Even without the accident to the Vertical Balance, the traffic had been congested in the Lower Quarry. Floors M,N, and O were served by the K.3 Incline, and as this had to handle all the traffic, it was proving to be a considerable bottleneck, especially as the vast majority of the output and development areas lay below floor K. It was increasingly responsible for very costly accumulations of wagons and stoppages with the result that both work and output were hindered. Work had already begun at the time of the accident on a new incline in the next chamber, K.2, the site of the earlier K to L incline, and the failure of the balance added urgency to the scheme. By August 1922 the bed had been formed from tipped rubbish between M and L, although the drum house had not been started. The sinking of the incline from M to N would be in solid rock, which Thomas Jones felt required careful setting out. The new incline was to have three tracks, one for each floor. Inclines were very much on Thomas Jones' mind, the Chamber 34 Incline was still stopped, and he now was recommending that the Arches Incline be extended up to DE floor, with a connection on G. This would connect G, H, I and K floors directly with DE by a single power incline, obviating the double handling of the Arches Incline and the Vertical or G balances.

Chamber 1 in the Old Vein was filled up to make room for the landing for the new K.2 incline on K and the L floor bridge removed. The bed of the incline was completed and pitches with rough slabs and ends. By December the sinking and roofing from M to N was in progress while the old east level on N was being enlarged to make a landing. It was intended to operate the new incline with the K Trwnc motor (yet again). The new incline was expected to be in operation within a month or two - or so the manager thought.

Thomas Jones reported in February 1923 on the state of construction so far; "The Drumhouse is constructed in a very substantial manner, with a mortar built masonry ramp at its back to protect the machinery from possible falls from the chamber above. Three drums are in position and the old level across walls 2 & 1 on K have been enlarged for dealing with a good supply of empties. The incline bed and rails from K to M are completed, the landings on L and M being enlarged."
The shaft from M to N has been sunk, but the rails are not yet laid. The landing on N has been extended and enlarged on the east and west sides to permit of Traffic from either side. It should be extended to O floor." He advised that this should in fact be done at once, so that if M and O floors were stopped, it should be capable of handling all the traffic and "the old, inconvenient & expensive O to K incline can be closed down and all operations transferred to and concentrated on the new O to K incline. This will pay for itself when in full work."

The Board took up his suggestions and within two months a new landing was being driven on O floor to get in line with the new incline, the intention then being to roof up to N floor. The old motor from the K.3 incline was removed and put in position to work the new incline, while a new 100 h.p. motor was obtained and put in place to work the old one!

The new incline went into operation on schedule on Monday the 23rd. July, 1923. Thomas Jones going overboard about it, "Plenty of side room, well graded, well lighted, convenient landings on each floor." It was laid on longitudinal instead of cross sleepers, the whole bed being paved with sawn ends, apart from where it was in the solid rock, this being intended to prevent "unrailing accidents." The angle of dip was 32.5 degrees, and the motor was capable of running traffic at up to 650 feet per minute, although it was felt not wise or safe to exceed 450 ft. per minute. Success, he felt, had been marked, L, M and N were now being operated without any accumulations of loaded wagons or unloaded sleds or wagons, the bargainsmen and clearers being kept well and quickly fed with them. "Altogether," he said, "a creditable piece of work, to my son, who laid it out, to the manager and his assistants who have carried it out and to Thomas Williams the Mechanical Engineer."

Roofing up from O to N continued into 1924, O floor in particular not benefiting from the new incline. The suggestion was now made to raise the level of K floor at the foot of the K Trwnc to the same as the Arches incline, as well as opening out around the foot to deal with the traffic on that floor.

The decision to use the old motor seems strange, and was criticised in February 1925 as "too weak" only being capable of dealing with one wagon at a time! This caused an accumulation of traffic and loss of time in waiting. Thomas Jones wanted a 200 h.p. motor fitted! Shortly afterward the connection between the new incline and O floor was brought into use, and the old incline was blocked up temporarily on top of M floor to form a landing for L, enabling the incline to lift the traffic from the western districts of L floor. The feed of empties to the new incline from the K Trwnc was also causing difficulties owing to the constricted connection, so an additional route for empties along one of the traffic levels through the tipped up "back vein" chambers was brought into use.

In 1926 the floor M traffic level adjoining the incline was widened for traffic standage and the bridge over the incline widened to take two tracks. At the same time a start was made on preparing a masonry bed for the extension of the Arches Incline up from G to DE to relieve the strain on the K Trwnc and to clear the traffic on K. It was expected to be complete by August, but work was still going on at that time to widen space behind the drumhouse. This was needed to erect a set of sheaves for the winding ropes. The problem here was that there was insufficient space beneath the drums and the "crimp" of the incline for a proper landing, so the ropes were to be diverted horizontally to the sheaves fixed by the entrance to Lefel Galeed, and then down under the drums and stage to the crimp, giving a workable landing. To prevent the slack ropes dropping and becoming entangled, a "net" was slung between the drumhouse and the sheaves to support them, unfortunately obscuring the view of the tracks beneath from the photographers. The incline was in full work by the Autumn, a "cavity" which had been bridged over had been built up and the steel girders recovered.

The K.2 Incline proved to be one of the last works in which Thomas Jones was involved. After a trip to the West Indies in early 1926, he went through the quarries on his return and developed Bronchial Asthma which developed into Pneumonia of the left lung. He was laid up at Erw Fair for a month. He passed away on the 4th. February 1927 after a period of 27 years unbroken service to the Oakeley Quarries as consulting engineer. His son was appointed as his successor. J. Lloyd Humphreys, the manager commented, "He had been closely associated with all of us at the quarry for so many years, and with generations of managers and other officials, that his periodical visits will be very much missed." In his time he had prepared no less than 148 quarterly reports on the state of the quarries fro the Directors, his son, however, increased the interval to six months.
27. WHITHER NOW? 1922-1936

The Lower Quarry.

A second hand compressor was bought in late 1922, it had been used previously by the Moelwyn Lead Mine. It was hoped that this would improve the compressed air situation. Thomas Jones suggested that the existing air pipes were incapable of taking the output from it, as it was intended to place it in the old Arches Incline boiler house on DE as the Manager said it was too big to go underground. However, this Jones thought, was not a great help, as the source of air was not centrally located. There were only 350 yards of workings to the east but over 1250 yards to the west. The stoppage of the chamber 34 incline for 3 or 4 years and the fact that no preparation had been made for western development meant that the quarry would be "faced in a measurable time with a diminution in output unless something is done." He referred to the large area of New and Back Vein undeveloped and unopened under Cwmorthin due to the lack of air at that end.

Mention has already been made of the problems caused by the "big dam" and the flooded workings, as these were primarily confined to the Old Vein, exploration could go on "under" the dam in the New Vein. A trial level on floor L was driven west from Chamber 9 with the intention of getting round to the untapped portion of the vein. M floor was described as "making big slates" well in advance of N floor, it being thought possible to stop for 12 months or more. The development of the New Vein on M and N west of chamber 9 waited on the results of the trial on L. On O floor, chamber 9 Old Vein was in work, no.10 abandoned as unsafe. 5 Old Vein was filled from the N floor tip, and chamber 6 being tipped into while the incline was being constructed. There was thought to be no advantage in pressing on after N floor, as it would have to be halted, so there was no loss in slowing down development and work on O floor. Higher up, on G floor North Vein, a ventilation shaft had been driven through from chamber B5 to the vertical shaft, all of the floor could be stopped without affecting other operations.

This was done and by May 1923 the G floor was stopped, and so was O "due to lack of trade." They were still driving a level in chamber 32 on DE for the New Vein under Cwmorthin. It was decided that as it was unsafe to open chambers 17 to 22 on G as the walls were full of bad Bevels, the chambers would be tipped in to support the walls.

The time had arrived, Jones declared, to open into the New Vein on K floor from chamber 14 Old Vein and develop west up to chamber 22 - there was a series of chambers here which could be opened before the broken ground from chambers 23 to 30 was reached. The traffic level was clear as far as chamber 31. He had inspected wall 36 on DE, the walls west of 30 were all sound and free from disturbance, there was no sign of crushing or thrust North, South, East or West of Wall 31.

He was uncertain as to the possible result of extensions, especially on L floor. The trial level on L in chamber 9 had entered bastard rock and it was hoped it would pass through this, there seemed to be a great bend in the trap rock at this point. He was concerned for the development of M, N and O west of chamber 10, as this depended on the trial on L. In the New Vein the walls on N and M were already showing signs of great strain, if any development in the New Vein was possible below the intended P floor, then they could only be opened to a very narrow width, after a long bolster, or pillow of rock was left unworked below P. Any extension in the Old Vein on or below floor O to the west of chamber 10 offered little encouragement. There were 98 working bargains, practically all of which were expected to exhaust within ten years, and many within three to five years. The average output being 15 to 16 tons per bargain per month. He thought that to open 100 bargains underground in ten years would be both strenuous and costly.

He therefore proposed that to safeguard the western development area, the Cwmorthin "ponds" should be drained. The Old Vein was already connected to Cwmorthin floor C leaving a 95 feet deep "pond" which could be drained by driving an 80 yard level from DE and tapping the water on Cwmorthin floor E. The Back Vein "pond" was 240 feet deep up to Cwmorthin Lake Level and could be drained from DE by a level about 115 yards long over wall 36 into the Back Vein chamber 10 on floor E. He had no doubts that the walls and chambers of the ponded Cwmorthin Back Vein were still sound and whole. The chamber 34 incline would then permit the extension of the floors from DE downwards under Cwmorthin to the lake boundary, traffic being hauled by a petrol or electric loco to the main inclines. Cwmorthin did not pay as a separate concern, but when connected through, this would not be a problem. Only ten feet or so of water would remain to be pumped, which was a small matter. The area should provide for 25 to 30 chambers from G floor downwards, which would pay to work them. Cwmorthin, he asserted, was the main future reserve. He suggested that the new compressor should be placed near chamber 34, electrolytic copper was only 73 per ton and the loss of air pressure there was greater than the loss of current. He urged that preparations be made for sinking down to P floor in chamber 4.

All Jones' plans were effectively halted when the Board decided to postpone all "non-pressing" works of development in August 1923. This did not prevent him commenting on the fact that consideration ought to be given to working the rock on either side of the L.&N.W.R. tunnel. He pointed out that the agreement dated the 18th November 1885 was only an easement which was granted to the railway, in which the quarry had agreed not to work within 20 feet of the tunnel all round, a barrier of 60 feet probably being necessary. The only problem might lie in the location of the Trawsfynydd fault. The L floor trial was now to be driven up to chamber 13 to find better rock, the results being "discouraging."

The worries about water now caused an order for a new "Sulzer" pump to be made, while trials of the "Sisko" rock drill were going on. This was used as a channeller and open side cutter. It cut a clear 3" wide by 27" long channel at one fixing. So
impressed was the manager that he sought sanction to purchase it. A further trial with the Kellow drill, which had been modified since its pre-war trial, had not been much more successful, with a water pressure of 440 to 450 p.s.i., a hole 7 ft long had taken just over 12 minutes to drill - this in hard rock. The best result had been in a chamber when holes 69” long had been drilled in 6 min. 55 sec. and 7 min. 50 sec. The quarry was not greatly impressed.

Work began in November on driving the new DE level towards Cwmorthin. The K floor tramway was re-laid up to chamber 14 to start opening a series of New Vein chambers from 14 to 22 under the lower whinstone. The Sisko drill was still doing "excellent" work, minimising the great waste caused by the normal methods of cutting an open side and free bottom. By March of the new year aslant was driven through wall 15 west from I to K to carry air pipes down to the extension, along with a walkway. Preparations were being made for placing the new Sulzer pump in chamber B4 east Old Vein on L floor, draining the water to it from the mouth of the "big pump level" under chamber B2. The rising main was to go up the side of wall B4 to discharge on G floor. The old level in wall B2 on M was going to be dammed to form a lwm, impounding the water in B3, B4 and B5 on M floor.

Before the pump was installed, flooding reached 4 feet deep on M at the incline junction, stopping the whole quarry for a week. M was cleared by the end of the second week, N on the 10th. January 1924 and O on the 2nd. February. A new pump had been purchased to deal with the flood, being set to work on the 12th. December. Of 300 gallons per minute capacity driven by a 22 h.p. motor, it worked continuously for 696 hours. It had paid for itself "handsomely" the cost being only 150.

F floor New Vein from chamber 17 to 22 was abandoned in July as unprofitable. Jones was annoyed that no preparation for sinking below O had yet commenced and suggested sinking from the old K incline. Trade he said was now good and the prospects continually improving.

The installation of the new pump, combined with the re-damming of the old C floor level prevented further floods, despite a rainfall of 75" in the six months prior to February 1925. December alone had contributed 15.93". Indeed, so much improved was the situation that once again advantage was taken to discharge water from the "big dam" in wall 12. This enabled the L lwm to be completely emptied. The roof dams on M in chambers 13,14,15,16 and 17 were examined. The ponded water up to wall 18 on M and N was to be drained out through the N dam and pumped up to L to be dealt with in the usual way.

"It is confidently hoped," wrote Thomas Jones, "that these floors M and N can be conveniently and inexpensively kept clear of water and it will release a large area to the west of locked up Old Vein rock on M and the whole of N floor; with O to follow later on and give us some encouraging possibility of increasing "Old Vein" output although the slates may be small, as that was the reason given for ponding up floors M and N to which, as my reports will prove, I strongly objected."

The establishment of the second Sulzer pump on floor L made it the major pumping floor of the quarry. A diversion of drainage water coming along the New Vein on K floor from the broken ground west of chamber 23 into the L floor lwm was achieved by the construction of a low dam in wall 24 on K. The drainage channel on L to the new Sulzer pump was cemented and deepened, sluices were placed so that the water could be diverted either to the "old pumps" - the G shaft pump - or to either of the Sulzer pumps.

Further work had been carried out in relation to the big dam, "The Old Vein part of floor N west of chamber 10 has been dammed up in wall 11 for the last 17 years in conjunction with L and M floors. The L floor pond is properly sealed off from M and N floors, so the N dam has been broken down and N inspected by the Managers on the 27th. April. It was examined very carefully as it is intended to construct a side dam in the branch to chamber 11 and a small dam in the roof of chamber 13. Floor N will be safe - M will be left as a reserve space in times of flood as part of the L pond to be drained in dry periods."

It was now intended to drive south on N from the bend in the traffic level in wall 17. Work had at last begun on the sinking to P from chamber 7.

This focusing of attention in the central areas of the quarry which had long been abandoned was explained as follows: "The disturbed character of the New Vein at the East end of the Quarry on all the floors from H down to O and the irregularity of its deposit has compelled us to materially modify our expectations of the reserve of workable slate to be found there. The heavy cost in driving levels in search of the chert and opening chambers in different sections on each floor seriously operates against profitable working in this part and makes its future doubtful. Attention must therefore be directed more to the centre and western portions of the New Vein where we know the vein can be followed downwards in a regular and continuous series of chambers to replace those working out." Emphasis was placed on the need to expedite the sinking to P in chamber 7 Old Vein and then drive right away for the New Vein. An incline was also needed in chamber 29 Old Vein from I to K and L to open out chambers from 21 to 31 which had been worked on K. The L floor lwm could be dammed off from the west in wall 27 Old Vein. A short gravity incline in chamber 30 would bring in H floor Old Vein and I, K and L Old Vein to the west could also be got at. To reach those workings the ordinary way by driving a level from chamber 15 west would take at least six years and
another ten in opening, so Thomas Jones thought, the traffic road on I could be maintained with little expense through the broken ground.

N floor had restarted by November 1925, but there was a problem of ventilation, as it could not be roofed up to M or L in the usual manner due to the presence of the water. It was hoped that O could follow immediately to provide ventilation from below.

Both Pen y Bont mills were now at work, bringing the saws there in operation up to forty, to gain room, the mill tip was being carried on the north side of the high level bridge, along the flank of the Middle Quarry tip towards Dinas, the intention being to eventually cross the Dinas Incline by means of a bridge.

However, other thoughts prevailed a plan was put forward to divert the old Dinas Road by a footpath through the bridges under the L.& N.W.R. (by now, of course, a branch of the L.M.&.S.R.) and the F.R. and thence along the tip, this adding many years of life to the mills tip, if it was restricted to mill dressing waste only, sawn ends and blocks could go back over the high level bridge and be tipped along the Middle Quarry tip to fill gaps. In this case there would be no need to incur the expense of a Bridge over the Dinas Incline or long haulage along the tip. Although the basic idea was put into practice, the road was not diverted as the scheme was overtaken by a later more massive alteration - the "Dinas Scheme." However an agreement with the North Wales Power Co. about the new transmission line, meant that the wayleave for the line would take up the space that was suggested for the footpath. The alternative suggested was to go under the F.R. and along the east bank of the river to Dinas and the level crossing of the L.& N.W.R. could be done away with, "to that Co.'s great relief."

By June 1926, the sink from chamber 7 was down the full depth to floor P, drainage only taking half an hour in the morning to pump out the nightly accumulation of water. It gave the Jones some little pleasure to be able to report that at long last it had been agreed to recommence operations west of chamber 32 on H and I floors by constructing a small gravity incline down from H to I in chamber 29. The tramway on I had been restored and an air pipe laid, although no actual work had begun.

From Steam to Petrol
The quarry locomotive receive scant mention in the various managers reports - except when they were new or old. Horses were the mainstay of the quarries' internal haulage, both in the open and to a certain extent underground where there were adequate pathways to get them from floor to floor. It was the 1920's when the changeover from both steam and horsepower to petrol and later diesel took place.

The first to be acquired was the "oil loco" which worked the Upper Quarry Upper Mills floor, floor 8. This had been obtained in 1920 for £385 and had proved itself so well, that by 1926 serious consideration was given to further purchases. A "second hand loco" was purchased early in the year "It appears to be powerful machine... a bargain," wrote Percy Jones, "it has been put to work on the Middle Quarry tip." In November Humphreys asked Williams to prepare comparative costs for haulage by "motor" and "petrol" locomotives on floor 8, and for the DE central section between the two major inclines and the haulage to the mills - the steam locomotives always worked on the main surface levels and the tips, never in the sink.

The floor 8 loco was working over a distance of 1200 yards drawing an average of 84 tons per day, which it was thought could be increased by 200%, given the quiescent state of the Upper Quarry. One horse, he said, was not equal to the work, so the work was costed for two horses. This gave a gain in maintenance of the loco over the horses of £257/4/3 in favour of the loco!

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The board were convinced and instructions were issued. "Re the petrol loco," Humphreys wrote on the 9th. December, "We have only been able to secure one - for working the DE level. We hope to secure another to do away with the 2 horses now working between the two inclines." By February 1927 the G and F balances were out of use, and two petrol locos were at work. One working through the tunnel and the other "clearing all the traffic between the two inclines, enabling us to do away with four horses and three carters. A direct saving on wages and helps with the increased traffic." The two locomotives were of Baguley manufacture and were driven by petrol engines. A third was added in 1927, but afterwards all further additions were of the diesel driven machines produced by Ruston & Hornsby of Lincoln.

In the search for workable rock, someone noticed that the New Vein in the pump chamber on G looked worthwhile and so levels were driven from the archway to the erstwhile vertical balance and from the foot of the abandoned G balance southwards to test the vein. By June one level had turned east and a roof for the first chamber, G.B8 had been commenced, there were "good indications we should get 2 chambers to the east of the pump and 3 to the west, if the pump is removed."

The sink to P was down 60'6" below O and the levels had turned east and west from the foot. By June the 25th. 1927 they had struck the first chert. In May, 1928 the air hoist which was hauling up from P was replaced by a petrol-paraffin one, cutting the hoisting time from 15-20 minutes to 1 and a half! The first blocks being produced from chamber 9 in August and the main
level driven west for chamber 8. Chamber 6 was being roofed while it was not intended to open chamber 7. To bring the story of P floor to some sort of conclusion, the east level was driven through 1928 and 1929 to get in line with the K.2 incline to allow for its extension to P floor. This had still not been completed by 1931 when Percy Jones suggested sinking down from O floor of the K.2 to speed things up, this would require the O rope of the incline, so he also suggested that the old K.3 incline be re-connected to O floor, which would, he said, be no great expense. Humphreys estimated it would take four months from April, by June it was down 2/3 of the distance, the traffic roads being re-arranged to help the old incline on K. The shaft was through and widened on the 3rd. December, and work had begun on a lwm and space for a pump. From 1932 onwards floor P joined the quarry as an increasingly important development zone.

More Electric Problems.
Concern over the electrical supply had prevented the commissioning of the additional compressor in the old Arches Incline boiler house, and in mid 1926 the Board asked for an up to date inspection of the electrical plant to be carried out by M.I. Williams-Ellis, of the Llechwedd Quarry, to ascertain the reasons for the very high consumption figures.

After visiting the works with T.J. Williams, he tabulated the consumption since 1918 as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918</td>
<td>848,200 units.</td>
</tr>
<tr>
<td>1919</td>
<td>1,009,800 ..</td>
</tr>
<tr>
<td>1920</td>
<td>1,308,100 ..</td>
</tr>
<tr>
<td>1921</td>
<td>1,376,000 ..</td>
</tr>
<tr>
<td>1922</td>
<td>1,603,300 ..</td>
</tr>
<tr>
<td>1923</td>
<td>1,606,300 ..</td>
</tr>
<tr>
<td>1924</td>
<td>1,601,000 ..</td>
</tr>
<tr>
<td>1925</td>
<td>1,658,100 ..</td>
</tr>
</tbody>
</table>

He pointed out that consumption had practically doubled, and felt that these worked out rather on the high side for the output, Llechwedd's consumption being about 66 units per ton of slates made. he suggested several factors which might account for the heavy increase and the high consumption:

1) Faulty wattmeters - these had not been tested for many years.
2) Increased haulage due to the water balance "having been done away with" and more work in the lower workings.
3) Increased pumping, as the steam engine was not being used to drive the beam pump, and there was insufficient water to drive the turbine for more than a week at a time. He also felt the "foot-gallons" of water pumped was greater due to the lower workings.
4) Two extra compressors in work since 1918, which, with the C compressor seemed to be consuming up to 2,600 units per day. This was the largest single item of consumption.
5) The load factor of the motors was very low, for the installed horsepower.
6) Four of the haulers were "very much too large for the work they have to do, with the resultant exceedingly low "power factor" and "efficiency"."
7) The N.W. Power Co.'s line was overloaded at times, giving a heavy drop in voltage.
8) The general Power factor among the motors was low, consideration not having been given to that point on installation.

He suggested that a second set of meters be bought as a check, that every possible effort be made to stop the water getting down into the workings and that the air drills ought to be tested for consumption. He though smaller drilling machines might be equally satisfactory. Any leaking joints or pin pricks in the air pipes ought to be tracked down and eliminated. With regards to the large haulers, he could only suggest throwing them out and replacing them with more suitable plant, as nothing could be done with them to improve things as they stood.

The overloading could only be mitigated by once again putting the miners on the night shift, all channelling and heavy driving being done then. This meant that the compressors were running almost continually, which was one of the reasons for the Board's inquiry. However, help was at hand, for the North Wales Power Co. were well aware of the problem, and had started work on a new Power Station just to the south of Maentwrog. This was a hydro-electric station, the reservoir being formed by inundated a large tract of land close by the village of Trawsfynydd.

The new station was going to supply power at 33,000 volts, which required a new substation to be built at Oakeley to handle the transformation. This was built at cost by the Oakeley Co. for and on behalf of the Power Co. and was sited at Bonc Goedan, close by the elevated tramway to Spion Kop, to the north east of the mill. It was to serve the two Oakeley sub-stations, as well as the other feeders to the Blaenau Quarries at 10,000 volts, thus relieving the old line from Cwm Dwli.

The TanyrAllt Drainage Scheme
The quarry also made an attempt to reduce costs. In air compressing it was proposed to use the old vertical shaft to accommodate a hydraulic air compressor by the firm of Hydrautomat at a possible cost of about 2,000. This was not proceeded
with. A more workable scheme went by the name of the "Tan yr Allt" Drainage Scheme. This was completed in February 1928 and was described as follows:

"The object of the scheme is to control and divert the water before it reaches the flat area above the quarry. On the south sloping ridge a main water course has been constructed from the top of the ridge to a point on the saddle and then directed west to Cwmorthin lake. This is fed by several artificial drains collecting water on the eastern slopes, passing the water westwards and thus creating an artificial watershed on the top of the ridge, passing the top water over the ridge. Water on the face of the ridge from below this level is caught by opening a drain and a pipeline carried along the bottom of the precipitous ground and thus intercepted before it reaches the flat and diverted to the east. The flat forms a large collecting ground absorbing water which gets into the workings about 24 hours later."

It was just in time, in December 1927 "not a single building was left undamaged by the gales. The Vertical balance Mill front was stripped. A low estimate of the cost of repairs is £460." Constant attention to the pumps was required. Two pumps worked for 124 hours without a break, shifting about 17,250,000 gallons. "we were fortunate compared to other localities not far from us," commented the Manager.

The following month was no better, "Not within the range of living memory have we been so handicapped with extremely bad weather during the last month of the old year and the first six weeks of the new" wrote Humphreys. The rainfall for January alone was 23.09 inches and up to the 9th. February another 17.02 inches had fallen. The gales were more serious, the manager thought. Some roofs had been repaired for the eighth time.

By May, the weather had abated and the New Quarry Office on Bone Goedan was completed, the staff moving in on the 2nd. June, the finishing touches being made in the Tan yr Allt Scheme in July. Despite a new policy by the Board to open out new chambers as quickly as possible, Humphreys commented, "We are many years in arrears with the development in the Middle and Upper Quarry and a few years in arrears at the Lower Quarry...." The western working in the Old Vein under Cwmorthin on floors I and H was now suspended. The long haulage and absence of tipping facilities made it uneconomic to work only three chambers at that distance. There were hopes for the working of the proposed incline in chamber 34 and the DE traffic level put to the use for which it was formerly intended. In the New Vein under the pump chamber on floor G, the new chamber B8 was in work under the Arches and a level was being driven east towards the pump chamber from the old traffic level in wall B1, it being the intention to open up the DE New Vein chambers down to floor G. The L floor main level was stopped "temporarily" in wall 26.

Lefel Dwr - the G floor drainage adit - was inspected in August, especially the timbering which formed about half the length. Only a little accumulation of debris was found, this was to be cleared and some of the timber to be restored. This was "important as a fall would be a serious matter."

The electricity crisis, in so far as supply, though not consumption, was concerned, was over by October 1928, as Humphreys remarked; "With the new generating Station recently opened at Maentwrog we now have a much better supply of current. When necessary we can run both centrifugal pumps on L in the daytime. The Electricity Inspector under the Mines Dept. has compelled us to make several alterations and additions this year, but we are better equipped and protected than any other mine or quarry in the district. Now that we have a good supply of electricity and as we are very short of compressed air, we are erecting the compressor purchased some time ago on DE floor. We hope by this means to enable all the miners and channellers to work the day shift. "The night shift had been running for over two years.

In the open sink, a short gravity incline was constructed from F floor down to G, thus allowing the old F balance to be done away with, the traffic from F being hauled up the Arches incline from the connection on G floor. There were now no water balances left in the Oakeley Quarry, an era had ended, many years after Robert Roberts had suggested that they be done away with as old-fashioned and out of step with the times, indeed, they had all outlasted him.

The winter of 1928-29 was bad again, 24 inches of rain falling in November alone, but despite this the output of slates and slabs had increased compared with the previous year. On the subject of the gales, Humphreys commented, "I am sorry to report that we suffered from the recent gales, Quarry buildings were damaged and several houses had to be repaired. The gales, however, played more havoc in South Wales, and we made every effort possible in the quarries to meet the urgent demand for slates in that district." Its an ill wind....!

In February, 1929, Humphreys had "...A proposal which I venture to think will appeal to you on examining the cost of haulage along the various floors from floor K to floor C, the new office level, and along the three inclines that connect these floors and also after careful survey of the possibilities in and around the mills, I have come to the conclusion that you have everything to gain and nothing to lose by sinking the old Vertical balance shaft from floor G down to floor K. At present we have the Vertical balance mills with 50 saw tables or spaces for saw tables of which only 31 are working." There were 18 at work in C mill. Slabs were taking anything from 40 to 150 minutes to reach the mills, having to be lifted by the K Trwnc, then the C incline and finally loco hauled up the gradient to the Bone Siafft Mills. Humphreys suggested that the old shaft be deepened down to
the K floor. It would be in solid ground all the way, and with modern haulage gear, electrically operated, it should be possible to make two journeys every five minutes over the depth of 440 feet. He quoted chapter an verse over the figures showing that it cost over £51 to ship 1000 tons of slabs to the Bonc Siafft mills in the present way, but only £14/14/2d via the shaft. He contended that if the Pen y Bont Mills were brought up to Bonc Siafft, which was an economic move, then the whole of the output from the lower workings might be brought up the new shaft. Slabs for the C mill would then roll by gravity down the gradient to the mills, while only the waste would need the haulage up to Middle Quarry tip. His figures were impressive, and Percy Jones backed him up with his "full approval" an outlay of only £6,000 would produce within 12-15 months a haulage plant that would save about 350 per annum on haulage costs. It was, he said, "economically sound."

The abandoning of Pen y Bont he also recommended, "by means of an expensively built retaining wall use is being made of all the available space between the Ffestiniog Railway and river for the north west side of the high level bridge - it can only last 3 to 4 years, when we must either construct a costly bridge over the Dinas Incline, or lift all rubbish to Middle Quarry &c. or propose to concentrate all the milling of Lower Quarry at Bonc Siafft and Bonc Goedan. The extension of the New Mill and Bonc Goedan mill can be done gradually without disarranging the output."

Unfortunately, the shaft scheme fell foul of the Under-Managers, who pointed out that unless it was possible prevent any subsidence from the sinking, and to keep all waste away from the shaft, then it would provide a direct route for surface water to the heart of the workings, potentially faster than any pumps could cope with. Faced with this objection by the practical men who had to tend all their lives with the lower depths, both management and Percy Jones withdrew.

The problems of the deeper floors continued, now it was the turn of the L floor development workings to be in jeopardy due to the "long and heavy haulage from chambers 24 and 25."

Air was still a problem in the west, but the new compressor on DE was now hailed as a "boon" as the average working pressure had been raised from 45 p.s.i. to 60 p.s.i. "we have almost stopped the old steam compressor at Middle Quarry," Humphreys reported in July 1929, "the coal consumption was two trucks per week, it is now down to one truck per fortnight."

The autumn months brought the expected heavy rainfall, on one occasion the L dam was allowed to rise, to save pumping, to 23.5 feet above the valve, but was all cleared off in two days. "There is no doubt of a gradual subsidence of the land at the back of the quarry," wrote Humphreys, echoing the fears of the men regarding the shaft extension.

Meanwhile, what of the beam pump, that Williams-Ellis had remarked was only being worked by steam, as there was insufficient water for it to work more than a week at a time? It appeared that there was something seriously wrong with it, and after consultation with the makers, Messrs. Gilbert Gilkes, of Kendal, a new turbine was ordered. The old one was 100% too much water, and one report speaks of the water falling straight through the casing without impinging on the rotor at all! It had been at work for 38 years.

The new machine was erected under "great difficulties," there being too much water to carry on undisturbed through August and September. "The weight of the pipes and thrust is such that we have to anchor the new plant firmly to the rock on both sides of the level. The erection is complete and were it not that three of the fitters are ill, the whole plant would be complete. It will be running next week."

Humphreys October report goes on, "The O to K motor stator (75 h.p.) has been repaired several times - we do not have a similar sized replacement."

"Boiler and Pumping Engine on Floor G - You will no doubt recollect that we had a steam plant as well as a turbine to drive the old Beam pump. There are two large Cornish Boilers and a Marine type engine. The plant has been kept up and in readiness consuming coal and requiring the attendance of a man, but has not worked for at least 12 years. Now that we have a guarantee of supply of electricity from 3 directions, vis Snowdon, Dolgarrog and Maentwrog and also that we have a new Turbo machine for driving the pump, I recommend that the boilers be scrapped and the engine disposed of. The fact that it has not been working for such a long period proves that it is not required. the boilers were kept up because that was the only means by which we could keep them uncorroded. We would save coal, the cost of attendance of one man, and later on work the remainder of this old chamber which to all appearances contains good New Vein rock."

"After putting the new compressor on DE, we put all the miners and channelers on the day shift. The dry period assisted and brought the consumption of electricity in one month to nearly half. We cannot guarantee this, the bill fluctuates with rainfall. The August bill was £620/12/7, but the September only £368/16/11."

"Mill Lighting - In winter the mills are very dark with an 8 hour day being the maximum, in snow many hours are wasted. I estimate the cost to be £200. Although the pit is not directly affected by light, the consumption of blocks slows and therefore everything slows."

As can be seen, Humphreys had a finger in everything -as he had to have - nor he was not above making his opinion plain.
The Dinas Scheme.
By this time, the Ffestiniog Railway was beginning to be in serious trouble, its mainstay was the seasonal tourist traffic, with slate second, but even so, it was a far cry from the railway it had been, before the First World War. It seems clear that the quarries were well aware of the problem, and in the case of Oakeley in particular, were concerned about getting their output away with the least involvement of the F.R. The quarry leased wharves at Porthmadog, on the quays, at Minffordd, on the Ffestiniog Railway's interchange yard with the Cambrian and by now the Great Western railway, and at the L.M.S. Station Yard at Blaenau. These, it would appear were inadequate to hold the output being produced....

J. Lloyd Humphreys report for the 26th. October 1929 continued in this vein;

"Traffic & the Stacking of Slate Blocks - I have had several conversations with Mr. Ashmore and Mr. Parker about this matter from time to time. In my opinion no scheme of establishing a new route or a new method of stacking would be satisfactory unless it meant a reduction of cost or at least a check in the tendency to increase the present costs. I have already pointed out in a previous report that you have a quay almost ready made at the foot of one of our inclines and that quay could contain nearly 2,000 tons of slate stock. In my opinion no scheme of transit from the quarry could be workable unless the output was brought down and through Pen y Bont, stacking in the quarry on the mill banks is very inadvisable, nobody knowing quarrying conditions would advise it. I strongly advise using your own land, a wise provision made many years ago ensures an entrance to the existing L.M.S. wharf without going over any other property except your own.

At present all the traffic to the L.M.S. wharf is over the F.R. at the rate of a farthing per ton. May I suggest for your consideration to use the land between the Pen y Bont mills tip and the railway to the west? The area of this plot is 6,944 square yards, two-and-a-half times the area of your present Minffordd wharf. It abuts all the way on the L.M.S. Railway and is connected with the quarry at one end and the L.M.S. wharf at the other. The cost of levelling up would not be heavy as you have the Pen y Bont tips near by. By clearing a passage along these tips, we would at the same time obtain ground for a Tramway between the tips and the stream. The whole produce of the quarry could come down a short gravity inclined plane.

This would ultimately mean that the whole output of the Quarry for the L.M.S. Railway could come down along your own land. A rough estimate of this work would mean;

building a retaining wall along the L.M.S. Railway: £266/5/-;
levelling ground: £360;
tramway: £43/6/8;
Incline from Pen y Bont to the level of the plot; £303/6/8;
contingencies: £60,
say £1032/16/4.

This wharf could be made self contained without joining with the L.M.S. wharf, therefore no provision is made at present to bridge the main road and the cutting through a small piece of rocky ground. Up to the present, there is nothing to beat the small slate wagons for the transport of slate, neither is there anything to improve on the gravity inclined. May I respectfully suggest for further consideration of this matter with plans and estimates drawn out? You could bring the stacking grounds nearer the quarry, avoid a farthing a ton on a substantial proportion of the output and give facilities for a quicker return of wagons without paying any wharfage rent."

Percy Jones also thought this a good idea and work began early in 1930, by which time the "concentration of the mills" at Bonc Siafft and Bonc Goedan had begun. The southern of the twin Pen y Bont mills was gradually being "de-equipped" and the tables removed to the old Bonc Siafft mill, which was being structurally strengthened at the same time. Humphreys original suggestion of the "plot" of land being merely a storage wharf made little economic sense without a direct connection into the L.M.S. yard, and so the final scheme emerged:

"Tramway to L.M.S. Railway Station. This project... for an independent Tramway access for the Quarry on the Oakeley Company's own property to the Railway Company's yard is in the light of certain developments in connection with the existing arrangement an urgent necessity. Its completion will remove as far as possible any hindrance to transport between Quarry and railhead from outside agencies.

The work of construction is already taking definite shape. The diversion of the side stream has already been completed and the walling along the main stream between the railway and the Pen y Bont tips has been raised to support the foot of the proposed incline diagonally up the face of the tips up to the Pen y Bont mills level.

The actual route of the tramway has not been finally settled as I understand the Railway Company are considering our proposal to lay the tramway partly on their own embankment. It is the present intention to make this line with a falling gradient to the Station yard so as to be self-acting as far as possible in favour of the load, locomotive hadlage being confined to deal with up traffic and empties, goods and materials as required at the quarry.
The question of preserving the present level crossing road access to the foot of the Dinas big incline has to be considered. I myself cannot see the necessity for its preservation for vehicles provided a suitable road access is made in substitution to the foot of the new short incline under construction at the Pen y Bont tips. The Quarry company’s wharf at Pant yr Afon, has, in the period under review, been adopted as a slate loading wharf in addition to dealing with general goods required at the quarry. But it remains to be seen what tonnage of slate can be accommodated at this conveniently situated wharf if used as a slate storage depot."

Considerable progress had been made by September, “The New Incline down the Pen y Bont tips and drumhouse has now been completed, also a length of the new tramway therefrom in the direction of the Railway Station and debris from the Lower Quarry is being transported there to form the new embankment. It is a substantial piece of work carried out in the usual Oakeley manner throughout. A new bridge over the Dinas Road having a span of approximately 10 feet and a width of 18 feet and equipped with two parallel tramroads has been completed and the retaining wall and embankment for a distance of 90 feet between this and the L.M.S. railway bridges alongside the stream were under construction.

On checking the levels, I found the rails on this bridge approximately 2'6" higher above the ground than those at the railway bridge over the Glan y Pwll Road, so that there must be a falling gradient from the Dinas Road bridge to the latter and may necessitate a slight modification of the broad gauge sidings."

To the quarry, of course, the standard railway gauge was broad gauge indeed! March of 1931 brought further progress, Percy Jones reporting as follows:

"This new work is fast nearing completion. So far as the embankment is concerned, this is nearly complete, but filling may be necessary for some time to maintain the necessary rail gradient as subsidence takes place in the freshly tipped embankment.

The wharf siding wall alongside the proposed broad gauge siding has been built almost up to the occupation road bridge near the chandlery and appears to be standing well. The tramway bridge across the Glan y Pwll road has not yet been commenced, my information is that the Railway Company’s estimate for this was so much in excess of the figure at which it was considered your company could carry it out that I am not surprised to hear that you decided to carry out the work with your own men."

The manager himself reported in April, 1931 that tipping had been completed and the whole was completed, as far as the Oakeley side was concerned. They were already saving 5d. a ton on haulage for waste by bringing it through the Lefel Galed for tipping at Dinas, to the side of the established embankment. This was possible now, of course, because with the transfer of machinery to Bonc Siafft, the slab traffic through the tunnel had been greatly reduced, making room for the waste trains. He was glad too, that permission had been granted for the quarry to build the bridge connection to the L.M.S. wharf. The whole scheme was completed by the winter, from then on, only slate bound for Minffordd, or the Great Western had to pass from Oakeley over Ffestiniog Railway metals.

One of the perpetual problems which beset the quarry and which was to become even more pressing as the years passed by, was the availability of the miners. These men were responsible for the driving of the levels, sinking shafts, the initial opening of chambers and other specialised work which the ordinary rockmen were unable to cope with. The number of miners employed was a good guide to the state of the quarry. In 1930, the Oakeley had lost 4 through death, 4 others had left, one was dismissed, so that by 1931 some 32 were employed there, with another 6 at work in Cwmorthin.

"It becomes daily more difficult to obtain and to retain good slate miners," the manager wrote, "the majority are at work driving for or widening new chambers. Several long drives are under way at present:

1) Long tunnel on DE towards tapping the Cwmorthin water.
2) Long drive west for the North Vein on Floor G.
3) In the extreme west under Cwmorthin for Back & North Vein on G.
4) Traffic level under the New Vein chambers on N.
5) The new traffic level on P to join the K2 Incline.

Of course, one problem of keeping the miners was that their work did not seem, from the non-quarrying point of view, to be productive of output. They used high explosive which shattered the rock, so their levels only produced rubbish. All in all, they were essential to the future life of the quarry, but not obviously so on paper. During his tenure, Humphreys had been able to reduce the cost of driving, apart from any reductions in wages: In 1929 the cost per yard of driving had been £4/7/1, but by 1931 this had been reduced to £4/-/

Draining Cwmorthin
Economy was the watchword of the '30's, one economy being a reduction in the number of men employed at Cwmorthin, to be described subsequently, as the work there had diminished. Indeed, all work in the west was awaiting the "holing through" of the drainage level from the Old Vein on floor DE into the bottom of the Cwmorthin Old Vein "pond." By November 1931 the level was estimated to be about 12 yards short of Cwmorthin floor E, and driving was stopped while a small diameter pilot hole

was drilled to test ahead of the miners. Early the next month, the level "struck the joints along which it (the water) gushes through."

The pilot hole tapped the workings on January 6th. "The flooded area", Humphreys commented, "contains 15 chambers with water to a height of 95 feet. The height of water is being lowered at 2.75 inches per hour. By the time this report is in your hands, we shall be able to walk on Cwmorthin floor D." In another week E would be near, however, some form of mechanical pumping would have to be employed at the last stage. They were unable to ascertain the condition of walls and roofs, or the depth of silt, some bridges were still up, but were "quite unsafe." Some 15,000 cubic feet or 97,500 gallons of water would be left in the bottom tunnel, which, they thought, could be cleared in about 16 hours with a small pneumatic pump.

The drainage level in the Old Vein was 373 feet long and had cost 528. By the 2nd March the water level was down to 1ft. 9in. The floor difference was found to be about 11 to 12 feet, giving about 10 feet of water to be drained by pumping. Until this was cleared, Humphreys pointed out, it was impossible to make a report. Work now began on the Back Vein drainage tunnel, whose length was estimated to be 250 feet. This was thought to be a much bigger problem than the Old Vein as no-one knew the ground, and the chambers were flooded up to their roofs.

Various problems.
While this had been going on, the economic situation was struck home with a vengeance. Humphreys, writing in December, 1931, put it this way; "The men are aware of the adverse economic conditions and, as far as the quarries are concerned, they have accepted the conditions imposed on them as inevitable. Wherever slackness was found, it was met by disciplinary measures. Knowing, as we do, the Quarries of the neighbourhood, we are convinced, whatever our shortcomings, we have nothing to learn in this respect from other concerns.

The London Office now wanted costs reduced to £5 per ton - a matter considered "difficult" by the quarry. Mr. Parker, it seemed, was no longer happy with either the wages system, or the number of chambers in work. An edict went forth that there had to be a reduction in the number of chambers, so January, 1932, found Humphreys writing:

"We reviewed the whole of the workings on the Oakeley side and classified the chambers into two main groups:

a) Those which had a good yield of large sized best quality slates;
b) Those which produced a low percentage or inferior quality, mostly middle sized slates.

While it is not always safe to condemn a chamber because it does not pay at present, we had to decide on a policy in these cases on the grounds laid down by Mr. Parker. We decided on the 20 chambers to be stopped, some permanently, some temporarily. Two main reasons for this course were:

a) That some chambers proved costly in their working up to the present
b) Others showed no signs of recent improvement."

This reduction was reflected in the labour force. Forty rockmen, and sixteen slatemakers and clearers were displaced by this. Humphreys tried to retain men who had been trained on site, but this meant getting rid of 16 State Pensioners, 3 slatemakers, 9 rockmen, 22 clearers and sundry workmen, 3 miners and 1 fitter, giving a total loss of 54. He was especially sorry to part with several of the State Pensioners. This gave an effective immediate saving in the wages bill of some £480 to £490. The poundage in the chambers was also reduced.

By the 21st January 1932, the Back Vein de-watering level was in about 100 feet, while the Old Vein workings of Cwmorthin had been inspected by Percy Jones. He found the Old Vein on floor D cut by posts and dykes and of a poor thickness. Progress west had been limited by the old Cwmorthin company, he felt in part due to the fear, more imagined than real, of striking faulty rock below the lake and letting the water in. The depth of the lake was unknown. He had looked up one of his old surveys and his examination only re-confirmed his then view, that the reasons for closing Cwmorthin at the time were good, and that they might have a better chance with the Back Vein.

Unfortunately, it was now discovered that Level Dwr had collapsed! Repair work was urgently required for fear of the drainage becoming blocked and the whole of the drainage water "backing up" towards the quarry. Humphreys suggested making a slabbled level through the fall, giving a passage about 4 ft. by 5ft.6in. high. However, the conditions were appalling, and as a result the timbermen attempted to secure a narrower passage, 4ft. wide but only 18 inches high, this was clearly insufficient. They had by May cleared over 7 tons of debris from the fall, but it was estimated that some 40 to 50 tons still remained to be cleared.

Humphreys was still concerned over development, and now wrote regarding the Chamber 34 Incline, which he insisted was an urgent necessity. "Fifteen years ago, part of the scheme was approved," he said, "an inclined shaft was sunk from DE to G for the purpose of working the west portions of this quarry with incline connections in solid ground. Some chambers around 34 on floors F and G had been in work up to 1915, but as men became scarce, the need to concentrate work nearer the inclines arose. There was also a series of falls cutting of all access on G."

- 27 -
Now, however, he pointed out that there were three chambers on G in the west Old Vein, numbers 36, 37 and 38 which were part worked, a level had been driven to the Back Vein on this floor and a trial chambers opened, but no produce could be brought out from it without the Incline. "After draining the water from the Cwmorthin Back Vein," he continued, "we can link to G floor in both veins. The Incline shaft is through and the bedding ready, but widening is needed. At the top we have a direct connection to the DE main level." Work on the incline was sanctioned in June.

In October, however, more trouble blew up, and Humphreys replied to London in no uncertain terms over the matter of complaints about the Oakeley slates...

"Classification of Slates - I am sorry that there are several complaints of the quality of our slates. I cannot say whether there are more than the usual crop of complaints in times of depression, but this I am certain: that the quarry yields as good a slate as it always did. It is true that there is a great falling off in the Best Old Vein produced and consequently Medium Old Vein followed. The latter quality is the most popular, commending even a higher figure than Best New Vein. The percentage of the latter to the total make is nearly 40 while the Best and Medium Old Vein is only 15. After these qualities come the strongs in both veins, in fact the process is the same in all veins, all the lower grade qualities contain slates refused in the higher qualities or otherwise considered unfit for inclusion in them. There is nothing more natural than this classification and the most experienced slatemakers and slate dealers will assert that any interference with it is likely to do more harm than good."

"Some months back, complaints were made of excessive pyrites in slates, one slate was as good as another and no-one was able to say how much pyrites was passable. The result was passing slates with pyrites to the next quality, strongs. Then came the complaint that the strong quality contained too many light slates, therefore a still further grade was necessary. Later we were requested to make strongs more uniform in thickness, which was followed by complaints from the wharves that they were over their computed weight. All this points out to the danger of interfering with the natural selection of qualities. I am dealing with this from the quarry point of view, I am well acquainted with the other!"

"But there is yet a more serious aspect. The present talk about a defective classification is due largely to the fact that a higher grade slate is sold as a lower grade, Best sold as Medium, Strong Best as Strong Medium, beating our Strong New Vein. We have been beaten more than once in quotation against samples. The same applies to the two lowest qualities. We have made our damp course quality which was at one time used exclusively as damp course, so good that the slates are used in many cases as roofing slates. This does not confirm the view that there is a fault in our classification. Any increase in the number of qualities is surely not desirable. Quarry Inspection, therefore, becomes more and more difficult because of the complications mentioned above. The upgrading of slates is to the advantage of the company and the men, but the slate inspectors are forced to downgrade several slates because of the recent complaints. Of all the mills, perhaps the inspection is most difficult at the Middle Quarry Mills, where one man deals with both mills and more variety of slates. I hesitate to make a suggestion in these bad times, but considering the ages of the inspectors, it is time that a smart young slatemaker should be trained for this special work. As a staff, we have considered this matter carefully, and the only other suggestion we can make at present is to employ the two men who are training apprentices part time to help the slate inspectors in the process of selecting and picking slates. In view of the fact that we do not add to our apprentices at present, the two men can undertake this additional work."

Towards amalgamation?

However, there were new problems in the wind. As long ago as 1898 Charles Hoare, of Hoares Bank, "Thought a lot of Greaves Quarries and the desirability of a possible amalgamation with the Oakeley Quarries in some form or other." With the depression, and the reduced market, the idea came up again and negotiations began in late 1932 or early 1933 between representatives of the two Quarry Boards.

Unfortunately, or perhaps fortunately, depending on one's point of view, in the midst of it all, in a cloud of confusion over the Oakeley estate, Mrs. Inges' marriage portion and various legal tangles too complex for this writer to make sense of, the Oakeley Company amalgamated with, or took over, again depending on your point of view, the Votty and Bowydd Quarry with effects that the Greaves did not like.

The initial negotiations between Greaves and Oakeley got bogged down in the particularly grey area of valuations. Greaves' own records refer to the Oakeley capital valuation as being £244,000 compared to only £90,000 for the Llechwedd quarry, Greaves intended to purchase Mrs. Inges' 19/36 share of Llechwedd for £20,000, however Hoares apparently (hearsay) persuaded Mrs. Inge that Greaves wanted to buy her interests in Llechwedd and Tal y Waenydd for the £20,000 so as to be able to sell them back to the Oakeley Slate Quarries for £49,000!

On this "rock" the whole issue began to break asunder, one more quote from the Greaves' records will do, "When negotiations started, Oakeley had a large reserve in the form of investments in good securities and our idea was that this reserve would provide money for our untopping scheme, but I am afraid that this reserve has been greatly reduced by the purchase of Votty and other extravagances. I do not think we could agree to Mrs. Inges ultimatum that the purchase should depend on the subsequent amalgamation with the Oakeley." In the event, the amalgamation fell through, leaving some bitter feelings at Board level, and some most strange happenings at Oakeley, where the amalgamation with Votty brought a new "temporary" General
Manager in the form of Captain Percival, of Votty, with some ideas all of his own about wages and bargains, which, as we shall see, once again caused Humphreys to take up his pen in defence of Oakeley.

In the west the dewatering level for the Back Vein was not proceeding at the hoped for rate. A 5.5 inch hole was being driven ahead of the level, the whole being done by Messrs. Isler - a French firm after whom the level was eventually named - Lefel Ffrench or should that be Lefel Ffrainc? Anyway, the rock proved harder than expected, and the effects on the bit were to break and wear some of the diamonds and their setting. The bit was replaced by one made of “Stellite”, but this drastically reduced the drilling speed to 12” per day. The Oakeley engineers, however, were optimistic that they could easily modify the whole arrangement, and were hoping for 20” per day as a result. Fifty feet remained to be driven by February 1933, of which 27 feet had been drilled. A trial level on Cwmorthin Old Vein floor D disposed of the hope of finding any economic New Vein beneath Cwmorthin - the future had to lie in the Back and Old Veins.

The bore hole penetrated through to the Back Vein of Cwmorthin on the 21st. April, 1933, and the draining down of the estimated 45 million gallons contained in the Back Vein workings was completed to bore hole level in 4 weeks. The cost had been £393/8/6d. plus the costs borne by the Oakeley Company for tool setting, compressed air, mechanical assistance and lighting. The level was subsequently driven through along the line of the bore hole, and the residual waters pumped out. Preparations were now completed for laying track suitable for a petrol loco along the DE level to serve the chamber 34 incline, as it was thought too long for horses.

In the collapsed Lefel Dwr, the timbering was completed, as far as was considered necessary, but the walling and flagging which had been considered were left in abeyance. At the other end of the level, in the sink, a quay wall was constructed across from the old G balance site curving across the erstwhile F balance to the slab embankment of the K Trwnc. This was filled behind, the intention being to help support the K Trwnc platform.

One of the ideas which Mr. Parker had been keen on was taken up by Captain Percival as well, that of “grouping.” This idea, which was a break with the traditional bargain system, involved grouping a number of chambers, usually close together physically, the output of blocks from each chamber being put together and the group treated as a single source, thus poor producing chambers were intended to be helped by the output of better chambers. This broke the close bond between the rockmen and the slatemakers, the rockmen being paid by the ton, rather than from the output of the slatemakers, with poundage allowed on the quality of the rock. The slatemakers were paid purely on their output of slates. This was not popular with the men, nor with the quarry management, who could see the immediate effects on the ratio of the make to waste, but the instructions came from on high and so were tried, until sufficient evidence proved otherwise.

A list of chambers in work with their life expectancy made by J.L. Humphreys in October 1933 gives some indication of the workings at that time, part relating to the Middle and Upper Quarry has already been quoted.

The total number of working chambers at this time was 83, 17 in the Old Vein and 66 in the New Vein.

Table 27.1 Value per ton for Month ending 30th. September 1933.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Best</td>
<td>2.0</td>
<td>2.5</td>
<td>12 14 6</td>
<td>19 9 0</td>
</tr>
<tr>
<td>Mediums</td>
<td>9.0</td>
<td>10.0</td>
<td>10 16 1</td>
<td>9 14 6</td>
</tr>
<tr>
<td>New Vein</td>
<td>38.5</td>
<td>43.5</td>
<td>10 17 9</td>
<td>9 16 0</td>
</tr>
<tr>
<td>Strong ::</td>
<td>36.5</td>
<td>34.5</td>
<td>9 0 10</td>
<td>8 2 10</td>
</tr>
<tr>
<td>Seconds</td>
<td>8.0</td>
<td>6.0</td>
<td>7 0 0</td>
<td>6 6 0</td>
</tr>
<tr>
<td>Thirds</td>
<td>4.5</td>
<td>1.5</td>
<td>4 13 2</td>
<td>4 3 10</td>
</tr>
<tr>
<td>Slabs</td>
<td>1.5</td>
<td>1.5</td>
<td>10 0 0</td>
<td>9 0 0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>Average. 9 12 9.5</td>
<td>8 15 6</td>
</tr>
</tbody>
</table>

TABLE 27.2 Working and Ready Chambers with Life Expectancies Floors P - M in 1933

<table>
<thead>
<tr>
<th>Floor</th>
<th>Chamber</th>
<th>Vein</th>
<th>Life</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Working:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>do.</td>
<td>Old</td>
<td>2 Yrs.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>do.</td>
<td>do.</td>
<td>3 Yrs.</td>
<td></td>
</tr>
<tr>
<td>5,6,7</td>
<td>do.</td>
<td>New</td>
<td>18-20 Yrs.</td>
<td>Grouped yielding excellent slates</td>
</tr>
<tr>
<td>8</td>
<td>do.</td>
<td>do.</td>
<td>18 Yrs.</td>
<td>New, good prospects</td>
</tr>
<tr>
<td>P Ready:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>do.</td>
<td>Old</td>
<td>5 Yrs.</td>
<td>Partly opened, lower part</td>
</tr>
<tr>
<td>10</td>
<td>do.</td>
<td>do.</td>
<td>5 Yrs.</td>
<td>Opened under south dyke.</td>
</tr>
<tr>
<td>4</td>
<td>do.</td>
<td>New</td>
<td>8 Yrs.</td>
<td>Opened low to leave support</td>
</tr>
<tr>
<td>9</td>
<td>do.</td>
<td>do.</td>
<td>20 Yrs.</td>
<td>Ready for rockmen</td>
</tr>
<tr>
<td>O</td>
<td>B3Nth.</td>
<td>do.</td>
<td>1 yr.</td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>do.</td>
<td></td>
<td>6 Yrs.</td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>do.</td>
<td></td>
<td>2 Yrs.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>do.</td>
<td>do.</td>
<td>2 Yrs.</td>
<td>Yielded consistently for 10 years.</td>
</tr>
<tr>
<td>5</td>
<td>do.</td>
<td>do.</td>
<td>9 Yrs.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>do.</td>
<td>do.</td>
<td>7 Yrs.</td>
<td>Have to exercise great care</td>
</tr>
<tr>
<td>7</td>
<td>do.</td>
<td>do.</td>
<td>7 Yrs.</td>
<td>in working these because</td>
</tr>
<tr>
<td>8</td>
<td>do.</td>
<td>do.</td>
<td>9 Yrs.</td>
<td>of lateral pressure.</td>
</tr>
<tr>
<td>9</td>
<td>do.</td>
<td>do.</td>
<td>9 Yrs.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>do.</td>
<td>do.</td>
<td>10 Yrs.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>do.</td>
<td>do.</td>
<td>10 Yrs.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>do.</td>
<td>do.</td>
<td>5 Yrs.</td>
<td>First of a new series.</td>
</tr>
<tr>
<td>N Working:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5 Nth.</td>
<td>do.</td>
<td>New</td>
<td>6 Yrs.</td>
<td>Not good so far, improving.</td>
</tr>
<tr>
<td>B4</td>
<td>do.</td>
<td></td>
<td>1 yr.</td>
<td></td>
</tr>
<tr>
<td>B3 Mil.</td>
<td>do.</td>
<td></td>
<td>8 Yrs.</td>
<td></td>
</tr>
<tr>
<td>B3 Sth.</td>
<td>do.</td>
<td></td>
<td>4 Yrs.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>do.</td>
<td>do.</td>
<td>3 Yrs.</td>
<td>Has yielded excellent slates for 2 tables for 17 years.</td>
</tr>
<tr>
<td>6</td>
<td>do.</td>
<td>do.</td>
<td>6 Yrs.</td>
<td>do. For 12 years.</td>
</tr>
<tr>
<td>7</td>
<td>do.</td>
<td>do.</td>
<td>6 Yrs.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>do.</td>
<td>do.</td>
<td>5 Yrs.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>do.</td>
<td>do.</td>
<td>6 Yrs.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>do.</td>
<td>do.</td>
<td>4 Yrs.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>do.</td>
<td>do.</td>
<td>4 Yrs.</td>
<td></td>
</tr>
<tr>
<td>N Ready</td>
<td>B6 Sth.</td>
<td>Do.</td>
<td>10 Yrs.</td>
<td>Good yielding chambers</td>
</tr>
<tr>
<td>B4 Sth.</td>
<td>Do.</td>
<td></td>
<td>4 Yrs.</td>
<td>Preceded these on higher</td>
</tr>
<tr>
<td>B6 Nth.</td>
<td>Do.</td>
<td></td>
<td>6 Yrs.</td>
<td>Floors.</td>
</tr>
<tr>
<td>M Wk</td>
<td>B6 Nth.</td>
<td>Do.</td>
<td>6 months.</td>
<td></td>
</tr>
<tr>
<td>B7 Sth.</td>
<td>Do.</td>
<td></td>
<td>9 Yrs.</td>
<td>Good prospects.</td>
</tr>
<tr>
<td>B6 Sth.</td>
<td>Do.</td>
<td></td>
<td>5 Yrs.</td>
<td>Following good exhausted</td>
</tr>
<tr>
<td>B3 Sth.</td>
<td>Do.</td>
<td></td>
<td>8 Yrs.</td>
<td>Chambers on floor N.</td>
</tr>
<tr>
<td>3,4,6</td>
<td>do.</td>
<td>do.</td>
<td>5 Yrs.</td>
<td>Grouped.</td>
</tr>
<tr>
<td>8</td>
<td>do.</td>
<td>do.</td>
<td>6 months.</td>
<td></td>
</tr>
<tr>
<td>M Ready</td>
<td>B8 Nth.</td>
<td>Do.</td>
<td>6 Yrs.</td>
<td>A thickness of bad rock to</td>
</tr>
<tr>
<td>B7 Nth.</td>
<td>Do.</td>
<td></td>
<td>6 Yrs.</td>
<td>Be cleared from each chamber</td>
</tr>
<tr>
<td>20</td>
<td>do.</td>
<td>do.</td>
<td>7 Yrs.</td>
<td>But good yielding rock in</td>
</tr>
<tr>
<td>21</td>
<td>do.</td>
<td>do.</td>
<td>7 Yrs.</td>
<td>View.</td>
</tr>
<tr>
<td>22</td>
<td>do.</td>
<td>do.</td>
<td>7 Yrs.</td>
<td></td>
</tr>
</tbody>
</table>
# Oakeley Slate - 27. Whither Now? - 1922-1936

TABLE 27.2 Working and Ready Chambers with Life Expectancies Floors L - DE in 1933

<table>
<thead>
<tr>
<th>Floor</th>
<th>Chamber</th>
<th>Vein</th>
<th>Life.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>L Working</td>
<td>B10 Nth.</td>
<td>Do.</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B9 Nth.</td>
<td>Do.</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B8 Middle.</td>
<td>Do.</td>
<td>2 Yrs</td>
<td>A good yielding chamber.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>do.</td>
<td>1 yr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 Nth.</td>
<td>Old</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 Sth.</td>
<td>Do.</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td>L Ready</td>
<td>B10 Sth.</td>
<td>New</td>
<td>6 Yrs</td>
<td>Re-opened chamber.</td>
</tr>
<tr>
<td></td>
<td>B9 Sth.</td>
<td>do.</td>
<td>10 Yrs</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>do.</td>
<td>10 Yrs</td>
<td>Good section of New Vein</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>do.</td>
<td>10 Yrs</td>
<td>here, but a long haulage.</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>do.</td>
<td>10 Yrs</td>
<td>This section ought to have</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>do.</td>
<td>10 Yrs</td>
<td>a separate incline from K.</td>
</tr>
<tr>
<td>K Working</td>
<td>B12</td>
<td>do.</td>
<td>7 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B9</td>
<td>do.</td>
<td>1 yr.</td>
<td>Worked mainly for slabs.</td>
</tr>
<tr>
<td></td>
<td>B1</td>
<td>do.</td>
<td>4 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Old</td>
<td>1 yr.</td>
<td>Re-opened &amp; now yielding</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Old</td>
<td>2 Yrs</td>
<td>bottom of Old Vein.</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>New</td>
<td>4 Yrs</td>
<td>Wet chambers, good material.</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>do.</td>
<td>7 Yrs</td>
<td>do.</td>
</tr>
<tr>
<td>K Ready</td>
<td>B7</td>
<td>do.</td>
<td>2 Yrs</td>
<td>Will be ready in 6 weeks.</td>
</tr>
<tr>
<td></td>
<td>B1</td>
<td>do.</td>
<td>4 Yrs</td>
<td>Top part of floor L.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>do.</td>
<td>8 Yrs</td>
<td>Reopened virgin ground nearly to floor H.</td>
</tr>
<tr>
<td>I Working</td>
<td>B13</td>
<td>New</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B12</td>
<td>do.</td>
<td>6 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B5</td>
<td>do.</td>
<td>2 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B4</td>
<td>do.</td>
<td>4 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 Nth.</td>
<td>do.</td>
<td>2 Yrs</td>
<td></td>
</tr>
<tr>
<td>I Ready</td>
<td>5</td>
<td>Old</td>
<td>3 Yrs</td>
<td>Reopened. Good large rock.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>do.</td>
<td>5 Yrs</td>
<td>Both commencing this month.</td>
</tr>
<tr>
<td>H Working</td>
<td>B12</td>
<td>New</td>
<td>6 months</td>
<td></td>
</tr>
<tr>
<td>G Working</td>
<td>B5.6.7</td>
<td>do.</td>
<td>5 Yrs</td>
<td>Grouped.</td>
</tr>
<tr>
<td>F Working</td>
<td>Fall</td>
<td>Old</td>
<td>1 yr.</td>
<td></td>
</tr>
<tr>
<td>DE Working</td>
<td>B12 Sth.</td>
<td>do.</td>
<td>6 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B11</td>
<td>do.</td>
<td>3 Yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peak</td>
<td>do.</td>
<td>5 Yrs</td>
<td></td>
</tr>
<tr>
<td>DE R</td>
<td>B12 Nth.</td>
<td>do.</td>
<td>6 Yrs</td>
<td>Reopened, ready in a week.</td>
</tr>
</tbody>
</table>

Other chambers not included in the list were those working at a high cost/ton and the North Vein on G.

There were 169 rockmen at work and 170 slatemakers, the average wage being 9/1½d. per day compared to 9/7d for 1932 and 10/4d for 1931.

These figures and the expected lives of the chambers and their distribution in the quarry speak for themselves.

Up on Tan yr Allt, the wooden troughs were replaced with galvanised steel, in the hope of reduced maintenance and improved durability. Consideration was now being given to the idea of sinking to a new floor Q, below P, but this would take the best part of two years, it was thought. The dewatered Back Vein of Cwmorthin was now examined. Most was "inaccessible and dangerous", the roofs from D upwards having collapsed in several places. The chambers to the west of the old incline were good however. If for no other reason, the dewatering was a good job, thought Humphreys, "as the water will no longer be a menace." By March, 1934, a test level had been driven in chamber 4 west of the old Cwmorthin incline, which proved the Back Vein to be about 160 feet thick, and "gives bright promise for future development of this Vein on Oakeley floors below Cwmorthin." The chamber 34 incline was now being properly equipped with an electric motor and two drums. The power cables were fixed in position by September and the whole thing was ready for testing. However, the shortage of compressed air at these extreme extensions of both the Oakeley air network, and that being supplied by the compressors at Cwmorthin was considerable, and both Humphreys and Percy Jones were certain that what was needed was a new compressor situated close to the chamber 34 incline would suit both, especially as the cables were already there.
Output and demand was now on the way up again, and part of the Middle Quarry Slab Mill was converted for slatemaking by replacing a Hunter saw and two planers with 6 conventional saws and dressers. Further alterations were to be made in 1936, further reducing the slab making capacity. It was "doubtful that slab making, per se, ever paid its way." Percy Jones and Humphreys now disagreed over the manner of sinking to Q floor, Jones suggesting that the shaft should be sunk between the cherts rather than in the Old Vein, as this would save time in driving when the level of the new floor was reached. Humphreys was not so sure. A trial for the Back Vein on floor K in wall 14 of the old Vein proved successful, proving a thickness of about 125 to 130 feet of good rock. "This will be the main development area in 1935" wrote Humphreys in November.

"An Unwarrantable Interference"

It was at this point that Captain Percival called a Joint Conference (sounds grand) between the Oakeley and Votty Staffs, the subject being the methods of pay, grouping, the bargain system, and the output. The meeting did not go to Captain Percival's taste, and he evidently put his feelings strongly in a letter which has unfortunately not survived. Humphreys' reply has survived, however; "In his letter," wrote Humphreys, "he refers to the present operating losses at the Oakeley and Votty Quarries. At Votty, he admits some of the losses were unavoidable. The reasons for the alleged present operating losses at the Oakeley Quarries are not very clear. A 'considerable proportion of good yielding chambers' are referred to. It is not recognised that these good chambers have been worked to their full capacity for years, and during the same period, fresh chambers which were at that time costly were closed down. Development was in arrears, not actually the development of chambers, but more especially the traffic tunnels to and from the chambers. It is admitted that the profits of the Oakeley were expected to tide over the interval before Votty could stand on their feet and to counterbalance any loss at Votty."

"High wages are attributed to be the cause of high cost of production, the experience in the Oakeleys, as in the Votty, is that high wages do not necessarily mean high cost of production. In fact when wages were high, the cost per ton was low. Greaves are cited as an example of effectively reducing costs, it is not mentioned that in doing so walls were indiscriminately undermined, resulting in collapsed ground at every point in that quarry."

"The whole blame for the present condition of the Oakeley Quarries is attributed to the poundage system, but an alternative reason is offered, viz. too great a leniency in letting. As to the latter, it is significant that men and union officials are constantly complaining of too stringent letting terms. Though the onus of proving that the poundage system is wrong lies with those who oppose it, I may remind those opposing it that it is invariably the case that the protagonists of other schemes are people who have no practical knowledge of slate quarrying or mining. A list of names occurs to one and in every instance ignorance of actual conditions and experience is the cause of their escapades into other spurious ineffective schemes."

"The poundage system is based on:
1) Knowledge of the slate rock and rock conditions and of the capability and skill of rockmen to deal with it.
2) Incentive to produce, conditions of letting should be such as to secure that the interests of employer and employed are safeguarded.
3) The fact that it enables the workman to make the best out of every material whether large or small, good or poor.
4) The fact that it enables the workman to systematically plan out his work, keeping the walls in good condition, not only for his own benefit, but for the benefit of those working chambers following him.
5) Cooperation between partners, constant consultation between the sources of supply and demand."

"It is not correct to say that the basis of the original poundage system was straight letting, as we find that wages and poundage were allowed forty to fifty years ago, with costs allowed or not allowed as the case might be. The allowance also of full or partial costs was also a custom. The standard wages are double what they were 30 years ago while the nominal quarry value of slates, slatemakers bills, is practically the same, hence the need for a higher rate of poundage. the rates of pay today are not in any way proportionally above the standard rate that they were 30 and 40 years ago. Several old customs regulating wages then would not be tolerated today."

"It is substantially correct to state that payment by results is impossible in a slate quarry or slate mine. While results are often estimated and anticipated, both parties in the bargain stand to lose or gain. The poundage system enables a chamber to be worked from its first producing month and the lever to regulate the wages is the poundage. It has worked in good and lean times and in large and small concerns. Inability to work the poundage system is not confined to those who have no experience of slate rock and bargains, but even to quarry workers such as miners, labourers, mechanics and clerical workers. While ignorance of the characteristics of slate veins is bad on the one hand, inability to calculate slatemaker's bills, wages and poundages is quite inexcusable on the other. It is either the one or the other who always condemn the poundage system."

"I agree that the acid test of any wages system is to produce a reasonable profit on working under normal conditions, but another important proviso must be added, viz. economy in suitable rock production, the tonnage rate on blocks even when baited with some kind of bonus on slate producing is never conducive to economise in material. The Ffestining slate beds are different to those of the Bangor and Caernarfon districts in as much as the produce cannot be classified according to Veins. Rocks in the same beds differ in texture and sometimes in colour and very often in cleavage. In some areas in North Wales new
wages schemes have been imposed on slate workmen by people who are not conversant with practical slate quarrying and mining."

"As the poundage is apparently held responsible for present conditions in the Oakeley Quarries, it is rather significant that the absence of it in Votty is not held responsible for an appalling loss in working and an extravagant waste of material. According to their own figures, there was some profit in Votty up until 1931 while the poundage system was in force and overwhelming losses since 1932 up to October 1934 after its abandonment. I mention this not to reflect in any way on person or person, a well thought out and ingenious scheme has been tried out as a palliative. On the figures supplied for 6 consecutive years 1929-34 here are the averages for the two quarries:

<table>
<thead>
<tr>
<th></th>
<th>Oakeley</th>
<th>Votty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make</td>
<td>1330</td>
<td>481</td>
</tr>
<tr>
<td>Tons/man/month</td>
<td>1.76</td>
<td>1.73</td>
</tr>
<tr>
<td>Producers %</td>
<td>55%</td>
<td>55.9%</td>
</tr>
<tr>
<td>Average wage</td>
<td>10/6d.</td>
<td>10/7d.</td>
</tr>
<tr>
<td>Letting standard</td>
<td>9/6d.</td>
<td>9/6d.</td>
</tr>
<tr>
<td>Make/man/day</td>
<td>3.19</td>
<td>2.81</td>
</tr>
<tr>
<td>Value</td>
<td>29/-d.</td>
<td>24/9d.</td>
</tr>
</tbody>
</table>

"Grouping was tried at Oakeley under pressure from Mr. Parker, but after over 12 months fair trial we found it detrimental to the interests of both employer and employed. The skill of systematically producing blocks was more or less ignored under the grouping system as one chamber as intended to cover the defects of another. Other methods of attaining results were tried and found wanting, only to fall back on the well tried and credited poundage system."

"Further to the foregoing remarks, I fell bound to point out that the quarry has suffered from what we as a staff consider unwarrantable interference. I may summarise some of these briefly."

"When a call came for best Old Vein Slates and thin Best New Vein, we had a premium of 5% on Best Old Vein as against Medium and on Best New Veins as against Strongs in order to induce the slatemakers to make thin slates. After a call came from Scotland, Manchester and other centres for thick slates, most of the slate inspectors were instructed to provide thick slates. Later still instructions came to make the whole slates thicker and heavier and a letter to that effect was sent to each inspector warning them that if these instructions were not carried out, they would be drastically dealt with. The result was that the whole quarry was turned to splitting thicker with a consequent loss in value. Not until last July did we get free from this, this interference in the classification of slates dealt a heavy blow on the value per ton and not only that but interfered with the custom of splitting which was equal to the best in the district. Now that we are gradually getting to normal classification without sacrificing quality, the tendency is upward again. Finally to interfere continually with customs and schemes tends to cause uneasiness. We have plenty of evidence of this in the district, the last letting to slate bargainers has been studied thoroughly, not more than 8/-d. per man per day has been allowed to underground workmen where there are slates coming under the bargain system. Though we must admit it comes at a very bad time in the year."

Whether this missive had the desired effect is not known, but there was certainly a considerable rift between London and Blaenau at the time, which was only to be mended by the war.
28. A CWMORTHIN INTERLUDE 1925 - 1939

Inspection and Consideration

In early 1925, it was decided to “do something” about Cwmorthin. It will be remembered that the quarry had effectively been abandoned since the early years of the century and it was obvious that a thorough inspection would be necessary in order to determine what produce could be expected from the old workings. Percy Jones reported as follows in February 1925:

“The manager and myself went over to Cwmorthin and made a careful inspection of the surface outcrop workings on floors 7 and 8 of this quarry and found on going underground into floor 7 the operations of the late company and of the workmen who were afterwards allowed to get what they could and to rob the upper parts of the walls has resulted in practically wrecking the inside and brought down a good deal of rock underground rendering it absolutely unsafe and unsafe to open any chambers on this floor. “

“On floor 8 we found the old level had been driven for about 60 yards in the middle of the vein, with no attempt at chambers as it is too near the surface for opening underground workings. Therefore it leaves us no alternative but to start by open untopping to get at the rock uncovered by that operation. After fully examining the adjacent locality we found the most convenient and cheap tipping ground is available by utilising the old collapsed Back Vein sink. The sides of which have largely collapsed and which can never again be worked and after it has been tipped across to carry on the tipping in a North westerly direction parallel with the Cwmorthin Lakeside where there is space to receive a very large quantity of debris with a high tip and a convenient direction. The convenience of this tip ground will greatly reduce the cost of untopping and the tips of both 7 and 8 floors can be carried on simultaneously and start within 200 yards of the actual untopping. “

“The manager and myself have carefully considered and agreed upon the most convenient points on floors 7 and 8 to start the untopping operations and as to the line of the proposed bon which must be cut for the untopping on floor 8 it will be for some time almost entirely in drift... solid rock on that floor until it has gone into the breast of the hill but on floor 7 the slate rock showing in the old quarry where that level commences to go underground suggesting that we may expect to have Old Vein rocks much more quickly and once they commence to produce blocks there should be a progressive but not large increase of output. “

“The first steps are to provide rubbish wagons and rails and to put into working order and condition the top incline from floor 8 to floor 6 and the long lower incline from floor 6 down to the mills floor. The drum of the floor 8 incline wants replacing altogether, that of the floor 6 incline is in fair condition and only needs clearing of rust and oiling and the roof of the drumhouse repaired. Both inclines require new rails, sleepers, ropes and rollers. “

The next necessity considered was the provision of mill facilities for sawing, splitting and dressing of the slate.

Upper or Cross Mill

The upper or cross mill has shafting and dressers though the sawing tables have been removed, but the water wheel and the siphon which supplies power to it are in position. It only requires the troughing and a cistern to feed the siphon and the roofs and walls repaired. the mill which holds ten tables could then be operated by water power from Cwmorthin Lake, as it was in former times. It is conveniently situated near the foot of the feeding incline from the working floors.

Lower Mills.

1/4 mile lower down are the two adjoining blocks of the lower mills containing 10 in the upper and 11 in the lower parts together with a number of dressers. the shafting pulleys and underground water wheel of the driving gear are all in situ and this cheap power could be restored at a moderate expense, although the operation of these mills by water power from Cwmorthin lake is attended by some small amount of uncertainty in summer and long periods of drought. So the question of supplying more reliable and costly sources of power such as oil or gas driven engines is worthy of consideration, and I understand that the manager and the mechanical engineer have been instructed to prepare comparative estimates of costs to re-install the cross mill and the upper 10 tables of the lower mill and for operating or both of them by oil, gas, or water power.

In addition to the preliminary work described above were the necessary working tramways, weight tables and sidings on floors 8 and 7 and the tramway connection between the incline bottom and the mills, it was also obviously necessary to repair the main tramroad and inclines from the Mills down to the Ffestiniog Railway.

Percy Jones continued: “My present view is that a large output of slate from Cwmorthin is not to be expected at any time as I think the probable output from the concern at any future time is not likely to exceed 300 to 350 tons per month. At the same time it will be all Old Vein slate, with the smaller sizes predominating, although the outcrop indicates a moderate production of large sizes and in any event it can be cheaply developed as an open quarry for two and possibly three floors in depth as although the ground rises very rapidly towards the Oakeley Quarries I do not think that the vein will be found to improve in quality as it outcrops higher up the mountain.
The proposed allocation of £5,000 to carry out these various works will go a long way to preparing for the initial production, but I anticipate it will be found necessary to expect 20% to 25% more before this quarry can be sufficiently reopened to produce from 250 to 300 tons per month. Its situation necessitates it being carried on as a separate concern but under the control of the Oakeley Quarry manager. In this connection it is fortunate that a convenient and safe footway through the new level to the old GlanyPwll Quarry can be cheaply made which will connect floor 11 of the Oakeley and floor 8 of the Cwmorthin in a fairly convenient manner with a minimum of bodily exertion.”

30/3/1925
During February and March, both the Oakeley Manager, Robert Jones and the Chief Engineer, T.J. Williams, prepared estimates and reported back to the Board as a result of which Percy Jones was called in again:

“In accordance with your request, I recently attended at Cwmorthin Quarry with the Manager and Mr. T.J. Williams the chief Quarry Mechanic and inspected the levels on floors 7 and 8 Cwmorthin so far as accessible, took aneroid readings along the outcrop between the Upper Quarry and Cwmorthin to the site of the intended untopping, went through the mills considered and discussed the estimates prepared by Mr. Robert Jones and Mr. T.J. Williams and beg to report as follows:

QUARRY DEVELOPMENT: I was agreeably surprised to find that much good work had been done by the two men clearing the accumulated rubbish, preparing the site of the tramways and inclines down to the mills floor to receive the permanent way, it would be advisable in order to avoid confusion between the floor numbers at the Oakeley and Cwmorthin lies respectively to adhere to the Oakeley numbers when dealing with Cwmorthin, and I find on checking the altitudes, the top Cwmorthin Level, that from which the dam was removed and which we call for purposes of identification, "the old dammed level" is on the same horizon as the Oakeley floor 11, the floors therefore, of the proposed open quarry would be:

Floor 10 - Cwmorthin equivalent floor 7 and the lower floor of the untopping.
Floor 11 - Cwmorthin equivalent floor 8.
Floor 12 - New floor Cwmorthin, 50 feet above floor 8.
Floor 13 - New floor Cwmorthin, 50 feet above floor 12.

The old dammed level goes in a diagonal direction N.E. for about 50 yards, and the breast has not yet struck the clay slant, although very near to it. It is in good Old Vein rock and I am fairly of opinion that the level should be driven on until it strikes the clay slant and then proceed under it. Before proceeding far the upper portion of the old chambers opened by the Cwmorthin company will probably be driven into and it should be a simple matter to re-roof, widen and work these chambers as the depth of cover increases as progress is made going east. Ultimately this level may tap the old Upper Quarry chamber 27 and in any case should be productive of a regular supply of slate blocks. I have no doubt, nor has the Manager that good Old Vein slate can be quickly won by this method and so anticipate the production to be got by the old and slow processes of untopping. The prolongation of this level and re-opening the old Cwmorthin chambers would in no way hamper the ordinary process of untopping. The position of the first chamber, No.13 of the old Cwmorthin company allows of an ample depth of cover of about a floors depth of consolidated slate rock.

The old general plan of the Cwmorthin Slate Quarry shows a series of ten open chambers before chamber 27 of the Oakeley Quarry is reached and the maximum cover to the surface of the summit above floor 11, i.e. about chamber 22 Cwmorthin, is approximately 350 ft. The outcrop of Old Vein on the saddle between Oakeley and Cwmorthin appears to have thinned and there appears to be a pinching of the New Vein in this part, but on the other hand there is a fine outcrop of Back Vein and I think it desirable in fixing the line of the North Bon to take this in and work as much of the Back Vein outcrop as is possible.

MILLS AND MOTIVE POWER: I have carefully considered the mills with a view to their convenience, structural condition and economic working and to my mind there is no question that the Lower or Pen yr Allt mill is the only one worth spending money on.

The Upper or Cross mill is cramped and in a very dilapidated condition. It contains only one saw table and five dressing machines and will require a considerable sum of money to make structurally sound and apart from the replacement of the missing mechanical parts and reparations to the water wheel etc. and from what I saw, would say that the Manager's estimate of 700 is rather below than above the probable cost needed to put this mill into complete effective working order. And having regard to the alternative, frankly say that it is not worth a moment's consideration.

PEN YR ALLT MILLS. The upper part of these mills known as London hall is a comparatively modern well built capacious structure with ample headroom and good roof lights all in a good state of preservation containing eight tables and eight dressers. It would be a simple matter to put in two more tables if required by placing the present tables a little closer together, although as far as we can see, the eight tables should be sufficient to cope with the output from the proposed development for some time to come. The estimate of essential repairs prepared by the Manager appears to be a complete one and I think it would be desirable to replace and repair the roof and doors in the older and lower parts of the mills in which is situated the water wheel and additional tables and dressers. This is not, of course, of pressing necessity but I think it prudent to spend a
Oakeley Slate - 28. A Cwmorthin Interlude - 1922-1937

little money to prevent rust and decay of fittings in this mill which are of value. if this suggestion were carried out, it would increase the estimate by about £96.

MILL - MOTIVE POWER: With regard to the mill power suggestions have been made that instead of repairing the present water wheel rodding etc. an oil engine of 36-40 b.h.p. should be installed in replacement. personally I find it very difficult to ignore the economic factor in mill drive and it stands to reason that once the existing water power is restored by means of necessary repairs to troughing and water wheel, the running costs should be practically nil. There would be surplus of power as the wheel is theoretically capable of 25 h.p. and formerly drove from 14-16 tables and dressers. I am aware of course that considerable time and effort is necessary to put the water wheel into sound and working order but the iron work, so far as I could see, appeared to be in good condition and once it is put into complete repair, little or no trouble or expense should result under normal working conditions. This readily available and ample natural power now running to waste should not, I feel, be neglected, having regard to the moderate outlay necessary to restore it as a useful, reliable and economic power factor and an invaluable adjunct to the quarry. Prolonged droughts and frost and snow are possibilities to be considered, but with a definite arrangement with the Yale Power Co. with regards to the periods of Lake draw-off, the trouble from drought is unlikely to arise and with respect to snow, it would be a simple matter if deemed advisable to cover over the comparatively short length of open conduit. The advantages of cheap power are so manifest that the risks of stoppages from these causes might well be taken.

If it should be found upon a close and detailed examination that the existing water wheel is beyond repair, the question of replacing it by means of a low head turbine should seriously be considered. It is a practical scheme, the substitution being a matter of first cost only, the running costs being negligible.

OIL ENGINE POWER: The alternative proposal involving the purchase and installation of an oil engine, could, I agree be put into operation in less time than it would take to restore the water power, but the disadvantage of annual running costs quite apart from the mechanical troubles inseparable from this type of prime mover. At a neighbouring Quarry where a 38/42 b.h.p. Crossley Oil Engine using crude or residual fuel oil has been working for some time, I have been able to obtain data of actual running costs. It is thought that this was a reference to the Llechwedd Quarry’s experiments in this direction.

This engine cost about 480 complete with oil tanks. The consumption works out at about 1 gallon and 1 quart, or about 10 pints, per hour and with the cost of oil at approximately 1/- per gallon the weekly consumption of fuel oil works out at about 2/12/6d. To this must be added the wages of an engine attendant, say 10/1d. per day, 3 per week and the cost of lubricating oil, say 2/-. The weekly cost therefore amounts to about 5/14/6d. or an annual equivalent of 286, interest depreciation and renewals should be provided for so that it is reasonable to assume that an oil engine of this power would in running costs alone incur an expenditure of from 320 to 350 per annum. The experience gained at that particular quarry is not in favour of the high speed oil engine, but I am prepared to admit their experience may have been unfortunate. It would be necessary, of course, sooner or later, to have a small compressor fixed up at the quarry driven by either an oil engine or petrol engine.

Should the directors agree upon the restoration of the water power from mill use, a review of the agreement with the Yale Power Co. dated 11th. November 1908 will be necessary. The arrangement was, as you are probably aware, that for a yearly rent of 40, they were empowered to construct a siphon and pipeline to draw off the water down to 5 ft. below the ordinary outflow of the lake. the tenancy being an annual one and subject to six months notice on either side. owing to the frequent use made of the siphon, especially after the quarries had stopped for the day, and as it is essential that the draw-off should cease after 4 p.m., especially in dry weather, to enable the Lake to fill, and to provide storage for 15 hours of the 24, the Yale Co. should be served with notice to terminate the agreement. And a modification of the existing agreement could doubtless be arranged whereby both the parties would benefit. The siphon is intended to be used only when the lake is below the natural outflow level or when the overflow is of insufficient quantity, and it is clear that the Yale Co. largely depend upon the Cwmorthin supply to augment their principle power supply. This is proved by their application of September 1923 to lower the siphon from 15 to 20 feet below the overflow level.

With regard to the Manager’s estimate for repairs to the drum houses, new ropes, etc. Percy Jones considered the figures reasonable, but pointed out that no estimate had been given for the 2,376 yards of tramways which would “probably cost to lay on the basis of present prices about 7/6d. to 8/- per yard.” He summarised the estimated cost of reconditioning the Cwmorthin Mill (London Hall) Inclines, Tramways, Water wheel etc. and putting into satisfactory working order as follows:

Floor 8, Upper Incline, Drumhouse, drums, ropes etc. \(\text{£110}/\text{10/-}\)
Floor 6 to mills, blocks only, repairs to drum etc. \(\text{£83}/\text{12/-}\)
Slate traffic inclines, Middle Incline Tai Muriau, slate traffic from mills, drumhouse repairs, removal of old ropes & reinstatement with those now on lower incline \(\text{£22}/\text{-}\)
Lower incline to Tanygrisiau, slate traffic, repairs to drumhouse, new ropes \(\text{£78}/\text{10/-}\)
Total \(\text{£294}/\text{12/-}\)
Tramways including inclines, providing and laying 20 lb. rails, oak sleepers, fishplates bolts spikes and incline rollers for floors 7 & 8 and along both inclines: 2376 yards at 8/- = £950

Mill. Estimate repairs & reinstatements necessary for the new mill -
London Hall - Mr. R.H.Jones’ estimate including
the restoration of the water wheel, troughing etc. £660
To which should be added glazing and repairs to the roof of the lower or old part of the mill and to protect the machinery and interior fittings. £95/8/-

Estimated cost £2,000

To which should be added the cost of providing shelters for the men at the quarry, powder magazine and office for foreman. Existing buildings could conveniently be adapted after necessary repairs. I estimate the total cost at £2,150. I have not dealt with the capital which should provided to be expended solely upon the untopping. it is more than probable that at the end of eighteen months and at the most two years from commencing operations, the quarry will be self-supporting, having in view the possibility of working the exposed Old Vein slate rock at the entrance to floor 10 at an early date of operations which should be shortly followed by the produce from the proposed underground development on floor 11.”

The whole untopping proposed, the plans and sections not having survived, covered an area 200 yards long by 100 yards wide, over four acres at the horizon of the floor 10 -Cwmorthin floor 8.

The Work Begins
Work began almost immediately and by early August “Development work” was proceeding on floors 11 and 10. On floor 11 there were four clearers untopping at the back along the line of the intended bon, two miners driving east under the clay slant cutting a ledge across the old Cwmorthin Co.’s Old Vein chamber 11 which was opened up to that floor. This was intended to be driven steadily on towards the Oakeley floor 11. On floor 10 there were four rockmen on the outcrop slate rock above the level mouth and six clearers on tops and rubbish. two mill men had been started to make slates in the restored half of the lower mill by hand but were not yet fully occupied. A new portable air compressor had arrived at Tanygrisiau and a new shed was being built for it on floor 10, near to the work. The long lower quarry incline had been restored and was in work up to floor 9, the drum of the short upper incline had been repaired and the tramroads laid to secure floors 10 and 11. The two inclines and tramway between the Ffestiniog railway and the mills floor were restored and in working order and the London Hall part of the lower mill containing 8 saws and dressers had been put into working condition. Jones adding “The twin pelton wheels for driving the mill have arrived with the necessary feed pipes, but they are awaiting the breeches junction pipe which delivers water into the pelton buckets. The headwater course has been cleared of accumulated vegetation. There are two miners at work in this quarry. “

By November some problems had arisen, due both to the site and its location:
“Floor 11 outside: Untopping going on by the three gangs of clearers, have agreed for two men to be put on as soon as space is available for them to work as the progress of the this advanced untopping is too slow. The question has since arisen whether it is wise to press on outside operations in this exposed part during the winter months when so little progress is made and money wasted in the wet and stormy weather.

Floor 11 inside: The two miners driving east under the clay slant towards the Upper Quarry have struck into an old chamber with the top part badly fallen in making it impossible to advance safely so we decided to turn the level south through the whinstone which was underneath the old chamber and go easterly under that in order to find solid ground to drive in and to open a trial chamber as soon as they find solid ground safely to warrant it.

Floor 10 outside: There are three rockmen and a smasher with four clearers clearing tops and working Old Vein outcrop on this floor, about the mouth of the old traffic level and sending occasional blocks down to the mill. This part is rapidly being brought into yielding shape but the overburden above this point and above floor 11 is considerable and it will be difficult to increase production rapidly.

Floor 9. This floor must be opened into rapidly in the near future to get at the more the more solid rock below floor 10 and as there is rather a long level to be timbered through tip before the rock can be reached it would be as well to start on this floor quickly, ready to follow on after floor 10 as soon as room is made on that floor. This level can be started at any time as the men would be working underground and would be independent of the weather.

New weigh houses and tables were being provided on floors 10 and 11. the incline from floor 11 down to 9 had had one road laid and was in operation on a limited scale. The incline from floor 9 down to the mills level had had two roads laid and was working “very satisfactorily”, letting down such blocks as were obtained and taking up all materials for development.
Oakeley Slate - 28. A Cwmorthin Interlude - 1922-1937

The report went on:

Mills: The twin pelton wheel has been very satisfactorily installed in the lower mills, the water conduit and pipeline to drive it are completed. The machinery was put into operation on the 17th. September last and found to work most excellently and smoothly and the erection of this motive plant reflects great credit on the designer and on Thomas John Williams, the mechanical engineer of the quarries for the perfect ways it has been adapted to and connected with the old mill machinery. The 8 tables and dressers in the Upper or London part of the mill with the shafting and pulleys have been thoroughly cleaned and put into complete working order for production and three of them are converting the blocks sent down from the quarry. At the time of my visit about 10 tons of manufactured Old Vein slates were stacked on the bank, from 20” x 10” downwards in size. It is not yet practicable to make larger sizes from the outcrop rock so far being dealt with. 28 men - 3 rockmen, 1 smasher, 6 millmen, 14 clearers, 1 tip man, 2 miners and 1 air motor driver are at work, with 15 others on temporary repairs etc.

Preparations are being made for erecting an explosives magazine for 6,000 lbs. of mixed explosives on an old branch tip on floor 9 which can be conveniently reached by a side from the incline top transporting the explosives to the magazine. The local government inspector has approved the site which will be very convenient. They are also adapting the old back part of the cross mill for the purpose of carpenters shops, smithy etc.,

Tramways and inclines down to the F.R. are now in working condition, but difficulties are met with in getting the balance wagons of sawn ends unloaded at the bottom end by the railway company as up to the present we have no slates to send down.” - This was hardly surprising, what the F.R. men though of it all was probably unprintable!

Despite the severe winter, work went on and by the 19th. February 1926. the solid rock made its appearance on the floor line of Floor 11 outside, here there were 6 clearers and 2 smashers at work pushing on with the clearing of the drift overlying the outcrop rock. The overlying drift was increasing in depth, but there was every indication of this thinning as work proceeded southwards. It was decided to divert the tip level in the old Cwmorthin Back Vein open pit to run along the side of the broken outcrop of Back Vein to form a platform with a view of ultimately winning some of the Back Vein which was there thought to be of considerable thickness. “Should this rock prove to be workable to yield slates, it would provide a much needed increment to the output of Cwmorthin.”

Unfortunately Floor 11 underground was proving disappointing, the test level in driving east turned south to get under the second chamber filled with fall found that the character of the slate rock passed through had altered and was full of hard bands and quite useless for slate making. So they turned the level to the north-east to get under the whinstone and then to proceed eastwards. This level so far proved a thinning of the Old Vein and it was hoped it was merely a local effect of the underlying hard which could be seen further up the hillside on the surface.

On Floor 10 working the outcrop continued on “satisfactory lines” between it and floor 11 by four rockmen with two labourers. Sufficient rock was being got out to keep four tables in work in the mill. Only strong mediums were being produced so far. An air winch was being set up for sinking down to floor 9.

Percy Jones commented: “It is much to be regretted that the results of re-opening old Cwmorthin have so far proved unsatisfactory, the favourable indications of the partly worked outcrop on the upper floors certainly warranted the optimistic views held by the late manager and ourselves. It is, however, quite evident that very little accessible solid rock is left in these old and wrecked workings and the only hope of salvation therefore lies in the yet unproved body of the North Vein where conditions being favourable, a series of chambers could be opened on three floors.”

Gales damaged the mills, one roof being stripped, the magazine was nearly complete. Since the commencement in October 1925, some 69.31 tons of finished slates had been produced up to the end of January, with a total of 37 men at work.

By June the floor 11 level had been abandoned, having run into a third chamber where a wall should have been according to the old plans! The rock had obviously been robbed from floor 10, and so there was little point in continuing the expensive driving, and the miners were transferred to “Floor 4” - the old Cwmorthin Floor 1 Lake Level to try and make the old workings safe for extracting some blocks fallen at that level and of working parts of any accessible walls. The untopping on floor 11 was still going on, the drift getting deeper and sinking had commenced down from 10 to 9 to get at an “undervein” level , but it was feared that this would be found robbed also.

Down on floor 4, the tramway was re-laid underground as far as the head of the Old Vein underground incline with the object of rescuing some of the fallen blocks of the Back Vein and of working some of the rock in the Back and Old Vein walls. No extra expense was involved in trying to get slate on this floor, no pumping or winding being required. It was felt too early yet to send any blocks of Back Vein rock to the mills. Jones commented “I regret to say that looking at the Cwmorthin position as a whole, I do not expect that more than a small output is likely to be obtained from this worked out property, as our experience so far proves that it has been more thoroughly exhausted of workable rock than any of us anticipated or could have foreseen.”
The magazine on floor 9 was described as "unnecessarily costly" to comply with Home Office regulations. 6 tables were now at work in the mill, with 41 men at work, plus a foreman. There was still no power to work the Cross Mill.

August brought the complete stoppage of the untopping on floor 11 Old Vein, as the Old Vein was only 15 feet thick owing to the slip! Clearing was being continued on floor 10 and the sinking down to 9 was also going ahead to get at the stubs of the walls. A short level had been driven on floor 4 to try the "little vein." In the Back Vein it had been found unsafe to work any further, and a piece of Back Vein wall nearer the outside was to be tried. It was thought that there was a good piece of Back Vein rock above floor 11, so a level might access it after clearing. However, if this also proved a failure, then any prospect of a reasonable return on Cwmorthin was felt to be doubtful.

**The Underground Hope**

All outside operations were abandoned in the December. The compressor taken down from the shed on floor 10 to floor 8, and installed in the old Back Vein surface Incline boiler house. The pipes were taken down the incline shaft to the Lake Level. Work was now confined to floors 4, A and B. Before the new year it was hoped to get the Old Vein underground incline working from floor 4 down to B. 2 test levels were being driven on floor 4, one in the Old Vein and one in the Back Vein. By January, 2 chambers on B had been prepared and one on floor A.

To begin with the underground incline was worked by an air-hauler. Unfortunately the portable compressor did not produce good results, 20 to 30 minutes being required to haul a wagon from floor B up to floor 4, a distance of only two floors. Whether this was due to the length of the pipes or the feebleness of the hauler was not stated. However, from contemporary remarks in the main Oakeley reports, it is clear that this problem was not confined to Cwmorthin, and air-haulers were not looked upon as anything more than a very temporary measure during the early stages of development. As a result, it was replaced in February of 1927 by a petrol hauler which did the same work in 2 to 3 minutes!

By June all 8 tables in the mill were fully occupied and 33 men employed. "No.4 chamber" on the Lake level was stopped as the rock was "too small and the cleavage poor" but work was now beginning on thinning the wall of "No.5" Two new chambers were being opened "No.7 and No.8" in the Narrow Vein, between the Back and Old Veins, with a petrol store in the new level near the incline head. Chamber 3 and 7 were in production, along with chambers 0, 1, and 2 east on floor B in the striepy vein. After inspection, it looked as though the North Vein might be attacked from the level of floor 8, where the north spar had been found. It was hoped to get underground here before the winter. 65 tons had been produced so far.

By October 1927 The work on the new North Vein level was satisfactory, and output had increased to the point where some 56 tons per month was being made from the other workings.

In the following May Humphreys, the current Oakeley Manager was able to report that Old Vein had been found of "excellent quality - enough to last many years" in the old smoke flue level on “Floor 5.” Access was by the old adit level, and the rock was said to have good cleavage.

In his report for the 14th August 1928 Percy Jones was glad to report that the prospects at Cwmorthin looked brighter. On floor 4 in the Narrow vein two chambers, “0” and “1” were in work, with “2 West” being roofed. On floor B chamber “1 East” was in work in the Narrow Vein, with clearing going on in chambers 3 east and 8 east. A temporary stairway was in use in “8 East” from A down to Oakeley. A "new ladder way" in chamber 33 on DE connected floor D Cwmorthin and the old Oakeley Middle Quarry floor 1 drainage level to the main DE level. This route saved over an hour in travelling time between Oakeley and Cwmorthin compared to the surface route!

On floor 4 chamber 9 west was being widened and roofed up to floor 5 above. On floor 5 the smoke flue level was now reopened with "promising indications" it was much covered with soot, and Jones opined that it had been abandoned due to the smoke fumes! A new level was being driven in chamber 8 on the Wythen wen. Here there was promise of at least 3 chambers to work the lower thickness of the Old Vein which would be cheap to obtain. A short connecting incline had been completed down the “meadow” to floor 4 opposite the entrance. The North Vein level was now in some 80 yards, and a new trial chamber opened to the surface under the North Spar some 136 feet long. Rock getting was to commence "soon" the rock being of a "coarse texture" The output from the 45 men at work including 6 miners was now 80 tons of slate per month which was "highly acceptable" Five bargains were now at work, however compared to seven the previous year.

Humphreys commented in October that: “The Narrow Vein continues to yield well. The Culverts undermined by last years floods were repaired. The new chamber in the North Vein would be ready in two weeks, the new level showing better promise.”

By Mid February 1929 work was confined to floors A and 4 where the bulk was of medium quality for many months, and floor 5 where Best Old Vein was being obtained. Floor B was exhausted. Both Humphreys and Percy Jones were now convinced that there was a workable very thick bed of North Vein which could easily be worked. A “ropeway” was constructed down to the lake level from the tip outside the North Vein adit, although there was felt to be little urgency to get the North Vein into
production, as sales for it were always limited. All the output from Cwmorthin went via Minffordd Yard and the Great Western Railway, while Oakeley's went to the exchange yards in Blaenau.

By February of 1929 Percy Jones was able to report that Cwmorthin production now averaged 70 tons per month from 45 men. The opening of the old underground bargains in solid rock had resulted in large proportion of the make being of Old Vein quality, however, the expected life could not be long. The trial chamber in the North Vein had just commenced. On floor 4 three chambers were in work in the Narrow Vein, with no prospects of any extension. In the Old Vein a temporary incline had been constructed in the “rough pathway chamber” and was extended in depth to tackle blocks lower down in the chamber. In the smoke flue level, where working was described as “most unpleasant” levels had been driven in the walls on either side of chamber 8. A new chamber had been opened and was in production. Percy Jones was now disappointed with the character of the North Vein rock, the slates were thick and rough, especially from the upper parts, but became better lower down, away from the spar. The “ropeway” previously mentioned consisted of a wire rope and compressed air winch, blocks being lifted off wagons at the North Vein adit mouth by the winch and then lowered down the ropeway to the lakeside where they were re-loaded onto wagons and sent down the tramway to the mills. The ropeway limited the load to 12 cwts. This was felt to be satisfactory for the small output, but a proper incline would have to be constructed to deal with any increase in future. The eight saw tables were still kept fully in work.

Humphreys Report for 6th. July 1929 brought some comfort: The "fall" on floor A was "now improved" yielding an output of Old Vein blocks. 3 chambers were still in work in the stripy vein on floor 4. The North Vein had now been proved to be of some 200 to 160 feet thickness, and should provide 20 years worth of work The slate was "only poor near the slant, the slate is straight and clean, and well appreciated." It was not considered possible to have more men at Cwmorthin as they were limited there by the supply of compressed air.

By early August 1929 Percy Jones was able to report that production had now topped 95 tons per month "an output surprising for so few chambers." However, he was quick to remind the board that their life was limited, no more than 2 years at best, with the work on A getting fallen blocks not lasting more than 12 months. 52 men were now employed at this site. The deep retaining walls under and to the east of the Pen yr Allt Mills (London Hall) which had been undermined by the heavy floods of the previous winter were now being fully rebuilt and strutted with substantial timbers. In the North Vein, the level was now passing through 4-5 yards of a "coarser" thickness.

In his October report, Humphreys gave Cwmorthin's average output as 77 tons per month for the last 10 months. To assist with the compressed air situation, a "crude oil engine and compressor" was purchased for £300 and £165 respectively. It was hoped that they would soon be ready for work.

Work continued throughout 1930: The slant in the North Vein had now petered out, a new chamber being opened under the North Spar. Only one chamber was now in work on the Lake Level, and two on the smoke flue level. The pathway to through chamber 8 to Oakeley was to be "restored" when the chambers were exhausted. The compressor and engine had now been installed in the Old Smithy by the Lake side, opposite the old office. "Cwmorthin House" was occupied in March by the Quarry Foreman, Thomas Williams, having recently been redecorated. This, it was thought would "ensure good timekeeping." All 8 tables in the mill were still fully occupied, but if the North Vein output came true it was thought that the lower part would need to be re-equipped. Work was in hand to restore the tramway bridge across the river by the mills which had been destroyed in the floods of two years previous, the girders being laid in position. 85 tons were made from 47 men.

In September the portable compressor which had been in the old incline boiler house on floor 8 was moved once more, this time down to the stable at the lakeside, to act as a stand by. The telephone had been extended to the mill (from Oakeley?). An additional 166 feet had been driven in the North Vein level, without striking the dirty slant which was thought to mark its upper limit. 116 yards of workable slate had been proved. It was possible to develop the rock in two sections. However, the treacherous roof meant that chambers would have to be kept to narrow dimensions. 7 or 8 could be opened under the Wythen wen, with a possible life of 2 years. The rock was of a lighter colour, like the new vein. 2 chambers were already being worked intermittently, with 2 in the Narrow Vein and 2 in the Old Vein. Work in the smoke flue level had reached chamber 12 east, but timbering work here was suspended and Jones said "The plans do not help us much, it is a gamble.” He advised stopping.

By March of 1931 the development program for the North Vein had grown to 3 sections. A new chamber was roofed up “3’ from the bend”. However, the tops of the chambers were unstable, producing a disproportionate amount of waste as a result. Four chambers were in work in the North Vein now, while in chamber 8a on the smoke flue level, a slice was being taken from the chamber wall, much to Jones’ disgust and disquiet. A 35 yard trial for the New Vein failed when it ran into bastard slate. The tip grounds for the mill were, however, rapidly filling up, and it was hoped to divert the parish road as a temporary measure. Humphreys wanted the Cwmthrin miners to work five days per week, as they were independent of the Oakeley.

In June a bad thickness of rock had now been encountered in the North Vein “south section”, while the "middle section" was too near the outcrops. Humphreys was now suggesting that slate making should be stopped, but carry on working otherwise until the water was drained from the Oakeley side, and then recommence.

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Humphreys warmed to this theme in October, suggesting that the pipeline should be renewed from 1.25” to 3”, as the supply of air at the extremities was very low. Channelling there was being done by day. He looked forward, he said, to the dewatering. In the mean time he again suggested that the number of men should be reduced. The bulk of the output was now the North Vein, the Old Vein was expected to exhaust within 6 weeks. The output had now considerably diminished to only 35 tons per month.

One good note was that the path between the quarries in chamber 8 had been re-established.

By November five North Vein chambers were in work, with one each in the Narrow and Old Veins. Unfortunately there was no market for the North Vein slate being produced and stock was increasing, Jones called it a "poor show."

In May of 1932 Humphreys emphasised that there was no suggestion to re-equip the Back Vein Incline, but as we shall see, with Cwmorthin, predictions had a habit of reversing themselves.

The dewatering, as already described, did not prove to be the succour which was hoped, and by 1933, all was halted. Only the compressor was kept running. A test level 95 feet south from the forebreast of chamber 3 west in floor D proved the Old Vein to be 150 feet thick. However, it also satisfied the management and Jones that the whole of the 95 feet was "in the New Vein of a disappointing and unworkable character." However, it was estimated that there was something like 50 yards width of Old Vein on D, which strengthened hopes for development of the vein on G floor. Jones advised stopping the driving of the level, "This and the smoke flue... disposes of any hope that there exists in the old Cwmorthin workings any "New Vein" of economic value.” Any future hopes had to lie in the Back and Old Vein. Work however continued into 1934:

In March the test level in chamber 4 west on floor D struck the chert after passing through jointy rock of fine texture. The whole length of the new test level was 85 feet. "Therefore the Vein is over 160 feet thick, including the chamber, which gives bright promise for future development of this vein on Oakeley floors below Cwmorthin. Chamber 39 on G west is the last chamber we can expect under the North clay slant. ” said Percy Jones

Low lift pumping was taking place from old floor E Back Vein in September, the air compressor still working. Wrysgan was leased, Percy Jones commenting that it was "never likely to be a serious competitor in the market." The chamber 34 incline was now being equipped and as there was a serious shortage of compressed air at Cwmorthin - the "surface compressor is inadequate in volume and pressure so far underground, a supplementary is needed, I suggest one near to the incline now the power cables are there.” Jones still thought it premature to sink the old Back Vein Incline to open G further to the west.

By November work was going on on G floor in the Back Vein to drive the floor westward under Cwmorthin floor E, but for ventilation only. The new chamber 34 incline hauler was now complete and in work, "accelerating" the western workings in Oakeley. It was thought that the line of the Cwmorthin Back Vein incline might be reached in 9 to 10 years!

By the following July the final chamber “Z42” on the G floor Back Vein had roofed through into Cwmorthin floor E, giving essential ventilation to the long level. Dams were now being constructed in Cwmorthin to the east of the Back Vein incline to pond up the water from the shattered workings above and then divert it along the Lake level.

In August 1935, despite all remarks to the contrary, preparations were being made to re-equip the old Back Vein incline. However, rather than work from the original engine house on the surface, it was decided to abandon the upper part, which was redundant anyway, and erect a new haulage gear at the Lake Level. This required excavation. The laying of permanent track was now proceeding as rapidly as circumstances permitted. The incline was to be electric. The dams on A and B adjacent to the incline were now complete. The compressor in chamber 34 was also installed around this time, supplying some 450 cubic feet per minute. It "fulfilled a long felt want,” said Humphreys.

By February 1936, the permanent track was in position, 203 yards long. The incline motor needed housing the new drum position was "inclined to be rather a wet spot." The old shaft to the surface which had been used for the air supply was now sealed off with a slab wall. Meanwhile the Blackstone oil engine driving the surface compressor was in trouble, the concrete foundations having collapsed. This created a long wrangle with the insurance company who refused to pay out, saying that the bed had been incorrectly built in the first place. It was suggested in the mean time that it be moved underground to join the hauler, this would provide the possibility of driving it with electricity, if required, as the cables would be there for the hauler, much as they had been for the chamber 34 incline and chamber 33 compressor. Jones felt that sinking the Back Vein incline any lower to say G would be "premature.” The chamber 34 incline was being extended down to H.

**Final Developments**

By October work was in full swing Jones reporting that the upper Back Vein had been 4 years in "idleness” and no less than 37 in the Lower Back Vein. Cwmorthin was now connected to the Oakeley air network, with the compressor installed in the chamber next to the incline. The remains of a wall was being worked in the Narrow Vein, fall clearing was going on the Back Vein near the compressor. On floor E, the fall was being cleared in chambers 3 and 4 east, solid rock being worked in 5 and 8 east while preparations were being made to work chamber 3 and 4 west. All rubbish was being tipped in chamber 2 west. All 8
tables were win work in the mill again. 33 men were employed including 2 miners. Jones now claimed he was “justified in advising sinking of the Back Vein incline to G floor as about 130 feet to the east was chamber 44, which was being dealt with by the Oakeley inclines.” Otherwise, it would take too long for Oakeley to reach the area, and rock could be got immediately.

It was intended to sink down from the chamber 1 west in the Back Vein down to the level of G, rather than continue the old incline. Despite Jones’ exclamatory hopes, by May 1937 the same tones reappeared, it was now “difficult” keeping the mill fully occupied pending the completion of the incline down to G. The clearing in the Back Vein had been abandoned. A sunken pump from Diffwys was placed at the foot of the Back Vein incline on E to deal with the water. It was intended to sink in chamber 1 west, work east and west, and roof up to the original Back Vein incline from below. In the event, this was not done, sinking of the chamber 1 incline was completed by October, 85 feet below E floor. A haulage set was erected in the chamber at the top, again using ex-Diffwys equipment, but as the motor and gearing was at floor level, shear legs were used to raise the haulage rope to sufficient height to clear the crimp.

A second incline, also electrically powered, was constructed on the site of an older one, just outside the Lake Level entrance, raising rubbish up by one floor for tipping. Presumably chamber 2 was full. This was equipped with a 12 h.p. motor, the cables being laid along the Lake Level from the main Back Vein incline. Three chambers were opened on the new G floor, two east of the incline and one west. The final extensions of the North Vein workings came to six chambers in all, but the difficulties of sales brought it to a halt. The war brought ultimate closure of the underground workings, although all the machinery was left intact on a care and maintenance basis. Indeed the equipment was kept up after the war, but as recorded in later chapters, nothing came of it.
**Silicosis**

While it is not the issue here to debate the matter of the silicosis inducing nature of the slate dust produced by drilling, blasting and in the mills, the medical evidence being beyond doubt, it is necessary to give the lie to the old story that the quarry "did not care and did nothing about the dust" - like many another industry though, it did take the force of law to make changes felt.

In 1930, the "Workmen's Compensation (Silicosis & Asbestosis) Act" 20 & 21 Geo.V, Ch.29 was passed. Whether as a result of this, or simply in an admission of the dusty work done by the drills, the Quarry sought tenders from Messrs. Bell & Smart of London, the makers and suppliers of the "Hay" Dust Trap for drills and of Compressed Air Ltd. of Cardiff, makers of the "Sgonina" Dust Trap, the prices given being 6.10s. and 9.9s. respectively.

The North Wales Quarrymen's Union however was also concerned about the mills and wrote in August 1930, suggesting water dripping on the saws, fitting the dressing machines with some suction device and wanting something doing about the floors. The manager replied that he did not know of a single complaint from Officials or Men of excessive dust. He accepted that water could be dripped onto the saws - this was already done, but the dust was, he felt, very little, and nothing further could be done. The answer for the dressers was to water the rubbish before clearing, the blocks were always damp, so was the floor.

Evidently the "Hay" Dust Traps were taken up, being supplied by the "Hardy Patent Pick Co." of Sheffield, for in August a row broke out over the design, which Oakeley said was incorrect. Hardy's reply that it was in accordance with the drawings. Oakeley was not satisfied and the matter was referred to Captain Hay, the inventor.

At this time there were 19 saw tables in Bonc Siafft New Mill, 13 at the west end and 6 at the top. In the old Mill there were 2 in the east end, 18 in the bottom and 12 in the top. Bonc Coedan had 18, Middle Quarry No.1 had 29, No.2 15, while there were 7 in the Slab Mill, 26 at Pen y Bont and 9 at Hollands old Upper Mill. Giving a grand total of 156. An order was despatched to Bell & Smart on the 30th September. Matters took a bad turn in October when one Joseph Williams died in Liverpool and the Coroner saw fit to make suitable remarks about his old employment.

Further correspondence on the subject of dust and mills now brought into focus the report of Captain Hay to the National Joint Council at Caernarfon on September 29th. 1930. This made the following points: -

1) That the first point to be considered was the general tidiness and cleanliness of the sheds. -
2) The floors should be made level and constructed either of concrete or slate slabs cemented in position. -
3) No accumulation of debris and general rubbish should be allowed on the floors. -
4) All accumulation of dust on rafters, beams etc. should be removed. -
5) All slate waste and dust should be well watered before removal. -
6) In the case of slate splitting, as it had been indicated that this must be carried out on soft ground, this ground should be kept thoroughly dampened.

"As the tests have shown that dust concentration in dangerous quantities are produced by circular saws, dressing machines, both revolving and guillotine type, hand dressing & slate splitting, it will be necessary to adopt some form of localised dust extraction for all of these operations adjacent to the point where the dust is produced. This is considered to be the only practical solution to the difficulty."

"From rough experiments carried out with the circular saws, it is obvious that water may be considered useless as a means for suppressing the finer and consequently more dangerous slate dust particles."

"Suction or negative pressure adjacent to the point where dust is produced can be obtained either by means of a mechanically driven suction fan or by a Venturi "ejector" operated from the compressed air supply."

Humphreys had already commented in the December of 1930, "There are several matters to be considered when dealing with the tidiness and cleanliness of a slate mill. Some mills have an accumulation of small blocks ready for sawing, blocks for apprentices, and smaller pieces for adjusting slabs on the saw table surface. We all agree it is very desirable to keep the floors clear of all rubbish, but it must be remembered that we are dealing with a commodity which has a very high percentage of waste in its extraction. Waste is split off, sawn off, trimmed off, and scraped off. This is unavoidable, the percentage of good slate to waste in any slate mill may be anything between 1 in 4 to 1 in 12. I am afraid that any flooring with slabs or concrete would be no remedy at all. It might make matters worse. It would certainly conduce to the breaking and smashing of blocks. As to the other recommendations, we see no objection in applying them, especially spraying and damping. So far as our quarries are concerned, with a low congestion of dust, we are at present taking records with our conimeter." It was now noted that the "Sgonina" Improved Pattern Dust Trapping Apparatus Mark V had been approved by the Chief Inspector of Mines.
T.J. Williams now suggested spraying in the Middle Quarry and Bonc Siafft Mills, but pointed out that there was no pressure in the DE or C mills. The Pyrene Company, better known for their Fire Extinguishers, were now putting forward "foam suppression" of dust using a chemical mixture. Williams thought this could be mixed in a pump or on a truck. Casks of water could be arranged to drip onto the saws. He suggested writing to firms for details of exhaust fans.

The Pyrene Company arranged to visit the quarry, but difficulties cropped up regarding their proposed method of dust suppression, which involved adding the foam to the water supply to the drill bit. Oakeley pointed out that they did not use "wet" drills; unless they were using very "heavy" drills for hard rock. The miners' holes in particular were usually driven with Jack-hammer drills in a flat form or upwards. However, experiments with the foam supplied were not to the workmen's taste - the water content was only 10% and it stayed "tacky" for a fortnight - making it difficult to get off clothes. Also, when it did dry, the dust was released as bad as before.

Despite these minor hiccups, Pyrene persisted, could Oakeley buy the parts to convert one of their drills for test purposes. Humphreys thought not! He pointed out that they were using the "Hay" Dust Traps, which relied on the hollow pistons for the suction, but the hole was too small for water. Ingersoll now offered to send one of their "BBRW" Jack-Hammer wet drills for testing. Humphreys pointing out that that meant they would have to find a pump to supply the water!

By January 1933, 6 rock drills were in use with water jets or sprays, 24 had dust traps, while 110 were being used "without water jet etc. because there is ample ventilation and a strong current of air."

A letter from the Divisional Inspector of Mines, re the Votty quarry, which had dust traps, reported that the men were reluctant to use them. One miner said he would use one if it was available - in fact eight were available, but none in use!

In September 1936, a post-mortem on an ex-employee revealed silicosis as the cause of death. While in September it was commented that "A Doctor's Certificate is Valueless, it must be endorsed by the Medical Board Headquarters at Sheffield. Unofficially, slate is not a silica rock."

Medical evidence, and the compensation act now had effect on Oakeley's labour force, both past and present. Those who had been at risk, and were now suffering in their old age began to bring increased pressure to bear on the slate companies and Oakeley and Votty in particular began to experiment with finding the best (and cheapest) way of reducing the dust, in all working places, but full scale dust suppression plants for the mills were not set up until after the war.

**Deeper and Deeper Still.**

The attempt to sink to Q between the cherts proved dangerous, and was abandoned, with an air of "I told you so" from Humphreys towards Jones, who had suggested it. Instead work began to sink in Chamber 6, Old Vein. By the 30th. August 1935, the sink was down 151'6" on the slant at an angle of 31 degrees. Q floor was to be found at 193 feet above sea level, 670 feet below DE floor. In order to safeguard the rock, a "pillow" of rock 25 ft. thick was to be left unworked below P, and unpierced apart from the necessary ventilation. By October 1936 a new inclined shaft had been riven down to Q from P and all was ready to install the permanent winding gear. This was also intended to serve the extension down to R, when that was sanctioned.

The chamber 34 incline was extended down to H floor in 1936. At the same time, the North Wales Power Co. now requested that the motors be fitted with regulating devices to try to improve the low power factor of the Oakeley motors. Modifications were made to the C compressor, the Middle Quarry Compressor and the mill motors, but the large haulers remained unaltered - despite them being the main culprits!

1936 was also the time of the longest strike in the quarries history until 1986, lasting from the 16th. March until the 18th. May - 44 weeks. This was known as the "twopenny" strike. Once it was over, however, a new timekeepers office was erected in chamber 4 Old Vein, "To command the pathways from N, O, P and Q and will doubtless prove of benefit to the company in the supervision of the men."

The old twin 18" pipeline from Bone Siafft to the turbine shaft was found to be badly pitted (!) and was replaced by a single pipe 24" in diameter of riveted steel. A Blondin aerial ropeway was considered to "command the open fall."

The Q incline was brought into operation by the 31st. May 1937, while preliminary work was begun for a new incline in wall 22 between K and M floors. A "new oil loco" was reported in use on M floor. While a second hand steel headgear was purchased for use at Bonc Siafft, in another attempt to revive the Vertical Balance, this time by using the old shallow shaft.
some 50 yards to the north, as the old shaft was so fraught with difficulties. This became something of a "cause célèbre" amongst old employees and the management who vied with one another to support or debunk rival schemes.

Of the alternative schemes now mentioned, one was to use the old shaft from G to the Bonc Siafft Mills and sink a new shaft further to the north from G to K. Another was to simply cut the arches incline on G floor, and take traffic off it at that point to transfer it direct to the Bonc Siafft mills by the old shaft. It was considered that this latter scheme was expensive as it would stop traffic direct to the Penybont Mills.

Meanwhile down on N floor in the new vein, 3 chambers were lost due to bad roofs - especially between the Old and New veins in the region of N7 and O9 - this was an area which was to give trouble for the rest of the life of the quarry. A ladder was raised by the securers on N, the "longest ever raised in the Oakeley." It was 126 feet long with 12 supporting guy ropes.

The high level bridge between DE floor and the Penybont mills was once again repaired, this time by replacing a timber span with a steel girder 46 feet long, the timbers had been in situ 50 years.

**The 1937 Historical Review.**

It was in 1937 that the Quarries went into print - they had always set great store by their publicity material, having had produced a range of advertising signs and having taken part in a variety of exhibitions in this country and abroad. Indeed, the same photographs were used by both Oakeley and Votty, to the confusion of some present day historians. One photograph permanently labelled Votty unmistakably shows the infamous promontory of wall 8 with Twr Babl Engine house and incline clearly visible in the background. Even recently one photograph of the main Middle Quarry Incline in all its glory has been published with a caption identifying it as the Votty Quarry!

The foreword to the Quarries' "Historical Review" of 1937 put it this way: "Just over 25 years ago we had the pleasure of sending our many Friends a short descriptive booklet concerning our Quarries and Product, on the occasion of the Coronation of His late Majesty King George V and Her Majesty Queen Mary."

"Now after quarter of a century we celebrate the Coronation of Their Majesties King George VI and Queen Elizabeth to whom we tender our respectful wishes for a long, happy and prosperous Reign. We produce this booklet to mark the event of their Coronation."

"The last 25 years have been replete with happenings - the Great War by which the face of Europe was completely changed; one of the greatest trade slumps in our history - while science has made remarkable strides forward, and social conditions have changed out of all knowledge."

"In 1911, motor traction had passed its teething stage, and as a rapidly growing baby, had come to stay. Aviation was but an infant in, as Shakespeare says, "the mauling and puking stage" - although such stalwarts as Rolls, Cody, Bleriot, Hamel and the Wright brothers were continually in the news with their splendid endeavours to convert a somewhat ailing baby into a healthy child. Wireless telegraphy was well established, but as yet we were spared broadcasting Crooners!"

"In offering this booklet to our friends in the Trade, we are aware that most, or much of its subject matter will be known to the seniors; we hope, however, that it will interest the juniors, many of whom we dare say may well have been small children in 1911 - or indeed, as yet unborn."

"And so, although roofs may come and roofs may go, those covered in with Oakeley and Votty Slates go on for ever!" The booklet, illustrated with a variety of photographs, very briefly traced the history of the Oakeley and Votty Companies, gave a description of the Slate Veins found in the quarries, together with a chemical analysis and physical description. One comment was made referring the reader to the lack of lime in Oakeley and Votty slate, lime being the characteristic of "inferior slate" - a reference to the cheaper continental slates from France and Germany then being imported in increasing quantities.

Working methods were described and reference made to a form of work described nowhere else in the records: "More violent explosives, Gelignite and Dynamite being reserved for removing the hard and useless rock - such as the chert - and for boring new tunnels - and here we might state that we have been experimenting with "heat mining" - or the method of applying great heat to the rock face and causing immediate disintegration. It is hoped by this method to speed up the work of tunnelling at best a very slow and expensive method at present. The apparatus used for heat mining can be likened to a plumber's blowpipe on a large scale. Oil fuel and compressed air only are used. The effects of the heat are rapid and the partially calcined rock may easily be brought away from the face with a species of rake made for the purpose." Reference was made to the problems of flooding and the installation of a "Hydrostat" pump at Votty."
"The process has recently been acquired by us and we have installed a factory near our Quarries at Blaenau Ffestiniog. The process is known to the Trade as "Colloids.""

"A still more recent development is the treatment of slate by heat to produce Synthetic Pumice as lightweight aggregate for Partition Walls."

Tables of slate sizes, thicknesses and weights were given, together with a table of "Advantages of using Oakeley and Votty Slates." This was put in this manner;

"There are many people who ask us what advantage they gain by using slates in preference to other roofing material. We think that we might mention the following;"

"1) ECONOMY. Slates being half the weight of tiles, there is a large saving on roofing timber. Further, slates can be laid at a flatter pitch than tiles, so that fewer are needed."

"2) DURABILITY. Our slates can be relied upon to last upwards of a century or more with fair usage, provided proper nails are used. The chief cause of slates falling off a roof is invariably the corrosion of the nail-heads."

"3) COST. The first cost is practically the last cost, as repairs are negligible."

"4) RELIABILITY. Our slates are absolutely watertight, and do not laminate or warp. They are fireproof and do not absorb water, and are unaffected by frost or the acids of smoky atmospheres."

"Further in the case of alteration or addition to buildings, it is always possible to obtain an exact match both in colour and size. We do feel and claim that no other known roofing material can offer all the other above advantages, and if objection is raised to the "quiet" colour, the colloidal colouring process already mentioned removes any such objection."

"Slate as a roofing material has also another great asset which may not be generally known or recognised. It does not harbour moss or vegetation, so that districts which rely in large part on rain water from roofs as a source of supply are assured of uncontaminated water."

"Lastly, do not forget that our slates are an ALL BRITISH PRODUCT!"

This was followed by a list of some contracts, buildings etc. which had been roofed with Oakeley & Votty Slates. A list was then given of prizes awarded:

"We glitter with gold metals and have been awarded these as follows:-
Vienna, 1873.
London, 1874.
Philadelphia International Exhibition, 1876.
Antwerp, 1885.
Melbourne, 1889.
Paris (two), 1889.
Brussels Grand Prix, 1910.
Crystal Palace Festival of Empire, 1911."

The booklet ended with the following invitation:

"In conclusion we would extend a most hearty invitation to all those interested to pay our Slate Mines a visit. They are well worth seeing - if only to see how the Hand of Man has, in face of great difficulty and expense, and indeed of peril, compelled Nature to disgorge her store of treasure for his use."

"We recommend stout footgear, a mackintosh and a walking stick. We remember one visitor arriving for his trip underground in a pair of patent leather shoes. The state of these (and his feet) at the conclusion of his visit can be left to our readers' imaginations."
"It will only be necessary to communicate with our Head Office in London, our Quarry or Despatch Offices in Blaenau Ffestiniog, when everything will be arranged for what we hope will prove an interesting and instructive visit. The Addresses and Telephone Numbers of the above Offices are to be found at the beginning of the book."

These were:

**HEAD OFFICE**
329-333, ABBEY HOUSE, VICTORIA STREET, S.W.1.
Telegrams: "OLDVEIN SOWEST," LONDON Tel. ABBey 1452

**QUARRY OFFICES**
OAKELEY QUARRIES, BLAENAU FFESTINIOG, N.WALES.
Telegrams: "OAKELEY'S" BLAENAU-FFESTINIOG Tel. Blaenau Ffestiniog, 2

VOTTY & BOWYDD QUARRIES, BLAENAU FFESTINIOG, N.WALES.
Telegrams: "VOTTY" BLAENAU FFESTINIOG Tel. Blaenau Ffestiniog, 29

**DESPATCH OFFICE**
THE OLD HOSPITAL, BLAENAU FFESTINIOG, N.WALES.
Telegrams: "OLDVEIN" BLAENAU FFESTINIOG Tel. Blaenau Ffestiniog, 78

**SHIPPING PORT**
PORTMADOC CAERNARVONSHIRE

**The last fall.**
Despite many setbacks, by 1938 the quarry was on an even keel, Cwmorthin was at work again, both on the surface and underground in a new floor G, isolated from its Oakeley parent and accessed by a new incline from Cwmorthin's floor E Back Vein. Output for 1938 had been up on the previous year. The last remaining Penybont mill had, however, been closed and was now used as a storage shed. At Bonc Coedan, to save haulage, mill waste was being tipped through the embankment which carried the tramway from Bonc Siafft to Spion Kop Incline. Immediately below this, to make room for the tip an old row of cottages, known as "Hen Dai" were dismantled. Work was also going on with the abortive untopping on floor 11, and with the various attacks on the Back Vein in the Open on Floor 8:

1938 - Make of U. Qy. Floor 11: 5t.9cwt.
Cost: 316.11.5
Value: 43.0.0

Floor 8 New Vein & B.Vn sink: Make: 149t.18cwt.3q.
Cost 1048.0.2
Value 1396.11.7

1939 - Make of Floor 8: Make: 596t.2.3
Cost 5008.13.1 (inc. Outside charges @ 2 per ton)
Value 5548.18.3

However, in February, 1939, came an unlooked for disaster, best described in the Manager's own words:

39 FALL 23/2/39
Mrs. Inge & gentlemen.
You have already been advised of the serious collapse which occurred on the top of the Lower Quarry on the 17th. inst. Though it occurred in an area with more or less constant traffic, and above the only walking ingress and egress of the Lower Quarry, not a single accident of any kind happened to any person. Signs of cracking were noticed now and again, and though supporting walls were built, they were totally inadequate to withstand the "fall" when it came.

**CAUSE:**
The old Ch.B.8 Old Vein once worked from floor DE down to floor K was tipped up, and the portion from DE to daylight worked at different periods. The roof of this chamber became dangerous and though supports were made, the roof finally collapsed. This affected the walls on both sides and consequent drag right to the surface. The top part was no doubt helped by the water-logged cracks after a heavy downpour of rain all day.
EXTENT:
From East to West the collapse is from wall B9 to wall B6. In height it is from floor De to the surface. It is difficult to ascertain the depth, but all the chambers below on G are intact. My first and foremost concern after satisfying ourselves that there were no casualties, was the waterways on floor G. The main archway stood the impact of heavy boulders. A short timbered level was in danger of collapse, but we double-propped this as the first operation. The access to the main archway thus became safe.

INSPECTION:
was immediately organised. I closed the whole Quarry for Saturday morning in order to deal with electric cables and compressed air pipes. Personally I was in doubt about the K balance, and on Sunday we announced that work (as usual) would resume on Monday. Clearers, timbermen and electricians were engaged night and day in the meantime.

DAMAGE:
You might recollect that the Arches Inclines were worked through two small bricked archways, one serving floor H and the other floors I and K. The brickwork of both stood well except the entrance to both. A huge boulder, some few thousand tons (Back Vein Red Hard) covered the arches well but destroyed the Incline bedding above. Even if we cleared what boulders and debris accumulated on floor G, hundreds of tons remain to slide down as soon as space permits. Other damage was the inevitable smashing of timber, rails, pipes, cables, girders etc. If the break-line was deeper on the surface our 18 inch C.I. pipes supplying the turbine would be in danger. On this matter I have a suggestion to make at the end of this report. The only entrance to the pumping chamber on floor G is completely blocked. We must find another access by boring through to the water level.

TRAFFIC:
thad to be re-arranged. All work was stopped on floors DE, G, H and I Surface changes also had to be effected.

DISPLACEMENT OF MEN:
naturally resulted. Twenty-five men were out of work for this week. I am taking advantage of the incident to do away with a few men whom we no longer consider efficient.

OUTPUT:
There is not much slate in the “fall” itself except at the bottom of it. On the east side immediately at the back of the Peak there was a projecting mass of slate interspersed with igneous rocks. Several appeals have been made from time to time during the last thirty years for permission to move this. If that operation had been carried out things would be much easier in this area today. In order to keep up the output and possibly to increase it, I am arranging to press on clearance at once in this district. After the initial stages, say four to six weeks, I am convinced we shall win a considerable portion of Old Vein. After a little clearance we can at the same time carry on with the development of the Peak.

The loss of output on floor H will not be so much. On floor I we had two or three good yielding chambers. Two of these I have again decided to block, tipping the blocks to floor K and re-load. Therefore the net loss, temporarily will be six chambers. Every effort will be made to wipe off this loss at an early date. All these are temporary measures and I must ask your indulgence to shape future policy as we go along. I have no hesitation in asking you to let me put all available pressure on floor DE forthwith, but we must feel our way towards floor G as there is a considerable amount of stuff to come down and retaining walls must be built. Before deciding on the latter I have now ascertained from Mr.T.J. Williams and his assistant that the Arches Incline Winding Machinery can be used for this purpose.

LOWER QUARRY WALKING ENTRANCE:
This was entirely blocked, and even if the men could wriggle out in the vicinity of the old entrance, they would be running a risk. Instead of which the men, on the afternoon of the fall, had to make a detour by underground paths of over two miles and climb five galleries. At the time there was no other safe egress. They tramped through beyond the old Cwmorthin boundary and back again to the line of the present office.

This brings me to the report I made some time ago, in which I strongly recommended having another entrance to the Lower Quarry. The area is getting larger and deeper hence the congestion of traffic becomes more acute on the one point. The incident of this “fall” is a most powerful argument for the scheme I submitted last year. I have discussed this with Mr. Percy Jones, and, I believe, he cannot suggest a better scheme. My experienced colleagues are also in favour of it. Indeed there is not a single suggestion of an alternative scheme. Another suggestion which I am bound to make is referred to on page 2.

PIPE LINE:
These pipes are Cast-Iron 18 inches in diameter. The break-line of the present fall is so near these pipes that we ought to consider having them removed from the zone of danger and have a straight line of pipes from the Ffridd Lake to join up with the turbine pipes. When originally laid down the water served the Vertical Balance Shaft. This is no longer necessary."
"As to the damage due to Electric Cables and Air Pipes, I am submitting a detailed report to Capt. Percival. In order to help show the magnitude of the fall and its bearing on the inclines I enclose photographs with short explanatory notes."

He also submitted a separate report to the General Manager:

"I took the Govt. Inspector round yesterday showing the outside as well as under the fall. This new Inspector is unbearable at times with his coal mine notions, rules and regulations. The first thing he asked for was that we ought to fence off the fall. I told him it had not yet finished falling. Then I took him to see the temporary path arrangements."

"The only effect of the fall is on one of the chambers on floor G. In fact there is no breakage lower down than half way between DE and F in one of the chambers, but the debris has fallen and rolled down to G. It cannot go any further."

"As to Mr. Smethursts’s plan of the lay-out of the compressed air system, I think I told you before that it was out of date the week after it was made."

"..... The Beam Pump as I advised you before has been out of commission for many months. It is partly dismantled because the girders were broken in several parts. We have new girders ready strengthened, but we cannot take them in until the place is cleared."

And on the 24th. to Captain Percival:

"I have not included the following in my report to the directors as it might be too long and perhaps difficult to understand:"

"From No.1 Substation (Middle Quarry) along the C incline we have a ring main cable feeding K carriage Incline, and the H, I & K Arches Incline. In the latter place we have a set of Isolating Knife switches. From this point the ring main cable runs down to floor G and up to No.2 Substation near the V.B. Mills."

"At the top of the arch we had a small substation fed by both mains from No.1 and No.2 Substations and at the back we have a disconnecting box. Though practically under the fall this box is intact but the cables are very much damaged. This little substation contained a switch to cut off K floor from I floor. This cable is also damaged. [...also a switch & cable to work L pump, this cable has been therefore damaged..."

"We cannot work the L shaft pump until we cut a hole from the New Vein Tunnel to the water Tunnel on G. This we propose doing by channelling. I shall be able to run a cable & connect it to the damaged existing cable so that we can work this pump from a junction box at K carriage incline motor house"

"The Quarry is now worked in two sections. One from No.1 substation and the other from No.2 (V.B. Mills). This is how we manage to work the haulers and the old and new Sulzer pumps. The only pump not working is at the foot of L shaft. I am sure that you will be able to follow this."

"The other part of the Quarry is worked from No.2 Sub Vertical Balance where we have two sets of cables running down the Vertical balance shaft to a small substation, had another disconnecting box on the main cable at this point which has been disconnected & stops the current to go along the arches. From this small sub we have three cables running down, one connected to main cable box on I floor which feeds both the K haulers, one to work L floor Compressor and one to work the new Sulzer pump, so all our underground motors are able to work."

"Air pipes. The main air pipe from DE compressor have been cut, they used to run down and along the I arch incline to I floor, this can be diverted down K carriage & connected to our existing line of pipes on I floor. T.J.W."

And on the 13 April 1939-

"...namely the first concern is to get the level cleared which leads to the beam pump chamber, and secondly to start clearing the top as soon as you have progressed far enough with clearing on floor DE. The question of providing an incline for clearing floor G can be dealt with later, when we can consider the plan put forward by Mr. Smethurst along with any other alternative suggestions that may be made."

Again on the 21st April:

"We are carrying on with the clearing on DE as quickly as possible. The rubbish is getting very steep in places and we are up against very big boulders which must be blasted as we go along. We have also cleared a passage on floor G towards the pumping chamber. We have got a hole through, but small debris slides down continually to block the passage."

"Congestion of traffic is very serious at times. We thought at the end of last week it would be very serious indeed as some debris came down from the top, rebounded on the rock and went down the K balance passage right down to the bottom.
This necessitated putting the securers to work over Saturday and clearing the K balance on Sunday."

"Perhaps you will remember that there was a small opening between the K balance and the foot of the Arches Incline on floor K. We have now made this opening large enough to allow traffic to come through. We have also equipped part of the Arches Incline from higher up than I floor down to K floor. We have just started getting blocks down from I to K but I cannot say it is a very convenient method though it is the best we can think of at the moment."

Captain Percival's reply of the 15th. May 1939 has survived:

"...glad to hear that you have been getting some good blocks from floor I and that the temporary incline here using the lower part of the Arches Incline, is working well. I note that the single cylinder air winch you have put in here is on the weak side, and that you propose as soon as possible to replace this with a double cylinder winch you have available. No doubt this will be an improvement."

The effects of the fall and the subsequent outbreak of war were immediate and sad, and in November Humphreys found it necessary to put things clearly:

"In view of the concern that exists owing to the rapidly declining output of the Quarries I consider it to be my duty as the official responsible for the accounts to bring to the notice of the Manager comparative figures most likely to help in the reduction of Costs. The years of comparison are 1924 and 1938 because these years appear to be fair in terms of number of men employed, number of chambers in commission, and the standard rate of wages per day:

<table>
<thead>
<tr>
<th></th>
<th>1924</th>
<th>1938</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Men</td>
<td>698</td>
<td>735</td>
<td>+37</td>
</tr>
<tr>
<td>do. Chambers</td>
<td>88</td>
<td>100</td>
<td>+12</td>
</tr>
<tr>
<td>Standard Wages, Slatemen &amp; Miners</td>
<td>9/1</td>
<td>9/4</td>
<td>+3d.</td>
</tr>
<tr>
<td>do. Clearers</td>
<td>8/4</td>
<td>8/6</td>
<td>+2d.</td>
</tr>
<tr>
<td>Make in tons</td>
<td>19159</td>
<td>16021</td>
<td>-3138</td>
</tr>
<tr>
<td>Value.</td>
<td>206940</td>
<td>161775</td>
<td>-45165</td>
</tr>
<tr>
<td>Output in Blocks</td>
<td>66836t.</td>
<td>65090t.</td>
<td>-1746t.</td>
</tr>
<tr>
<td>Output in Rubbish</td>
<td>134429t.</td>
<td>112636t.</td>
<td>-21793t.</td>
</tr>
<tr>
<td>Aggregate days worked</td>
<td>190555</td>
<td>193939</td>
<td>+3384</td>
</tr>
<tr>
<td>Number of working days</td>
<td>280</td>
<td>275</td>
<td>-7</td>
</tr>
<tr>
<td>Value per ton</td>
<td>10/16/0</td>
<td>10/1/10½</td>
<td>-14/2</td>
</tr>
<tr>
<td>Cost per ton.</td>
<td>6/11/1½</td>
<td>6/19/7½</td>
<td>+17/8</td>
</tr>
<tr>
<td>Estimated outside charges</td>
<td>2/0/0</td>
<td>2/0/0</td>
<td></td>
</tr>
<tr>
<td>Balance per ton</td>
<td>2/14/0½</td>
<td>1/2/3</td>
<td>-1/11/10</td>
</tr>
<tr>
<td>Cost per ton of slate bargains:</td>
<td>3/7/10</td>
<td>3/16/1½</td>
<td>+8/½</td>
</tr>
</tbody>
</table>

The cost per ton of Miners is higher but the aggregate cost with number of men employed on miners work is not appreciably higher. The cost per ton of clearers can be ascertained but the several classes such as Slabmen, Slatepackers, Horses, Loco drivers and Weighers transferred in recent years from Miscellaneous Class to Haulage Class have altered the bases of calculation and rendered same difficult for a precise comparison, but in the miscellaneous Class the figures on equal bases have been ascertained.

<table>
<thead>
<tr>
<th></th>
<th>1924</th>
<th>1938</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per ton:</td>
<td>8/6.25d</td>
<td>14/0.25d.</td>
<td>+5/6d.</td>
</tr>
<tr>
<td>Aggregate cost</td>
<td>8174</td>
<td>11237</td>
<td>+3063</td>
</tr>
<tr>
<td>Electric Current cost.</td>
<td>6122</td>
<td>6376</td>
<td>+ 254</td>
</tr>
<tr>
<td>Workmen's Compensation</td>
<td>542</td>
<td>779</td>
<td>+ 237</td>
</tr>
<tr>
<td>Cost of Injuries Only.</td>
<td>4064</td>
<td>5497</td>
<td>+ 1433</td>
</tr>
<tr>
<td>(The Employers bear about 55% of this expenditure.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Cost per ton of the staff is also compared, that is, Assistant Managers and Clerks, excluding Slate Inspectors:-

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff (Outside &amp; Inside)</td>
<td>4/1.5d.</td>
<td>5/6.5d.</td>
</tr>
<tr>
<td>(Excluding Mgr. - Including Mgr.)</td>
<td></td>
<td>+1/5d.</td>
</tr>
</tbody>
</table>
Oakeley Slate – 29. From Peace To War Again - 1937-1946

<table>
<thead>
<tr>
<th>Staff (outside)</th>
<th>2475</th>
<th>3351</th>
<th>+ 876</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff (inside)</td>
<td>1135</td>
<td>1640</td>
<td>+ 505</td>
</tr>
<tr>
<td>Staff (engineers)</td>
<td>400</td>
<td>696</td>
<td>+ 296</td>
</tr>
<tr>
<td>Staff (Slate inspectors)</td>
<td>811</td>
<td>1499</td>
<td>+ 688</td>
</tr>
<tr>
<td></td>
<td>4821</td>
<td>7186</td>
<td>+ 2365</td>
</tr>
</tbody>
</table>

With the further deterioration of the Quarries during the present year, 1939 the figures resulting in the various calculations show considerable depreciation with the number of men steadily declining. November at 577, the foregoing data must cause much concern.

The Course of the War

The outbreak of war did not find the quarry "unprepared," nor, as a recent newspaper report has it, was the quarry's immediate reaction to lay off a large number of men. Rather, the quarry allowed those men to leave who had a definite commitment in the event of hostilities such as Reservists, Territorials, St. John's Ambulance men and so on. Otherwise the quarry tried to continue as normal.

However, an almost immediate effect was the passing of the "Emergency Rules" which controlled buildings. These required permits to be obtained for housing developments and such non-essential construction. This had an unfortunate result, from the quarries point of view of immediately drying up any new orders, as older ones were completed. Only Government orders were unaffected, but as might be expected, they had other matters to attend to.

As the cash flow slowed and virtually stopped, the quarry, in common with the others in North Wales, was faced with a considerable problem. Basically work could be divided into production and development, with the former funding the latter, but with sales coming to a standstill and unsold slates beginning to pile up on the wharves at the quarries, the transhipment points and at Porthmadog, it became a debatable point how long the quarries could continue without an injection of money. As it was, wages and such limited development as was to be done were being paid for by the capital laid by in the immediate pre-war years of profit. This was naturally limited in quantity and the day when it ran out could not be long delayed. An alternative, as Maenofferen was reputed to have done in the First War, was to lay off the production side and concentrate on development, so that production could be rapidly built up when the situation returned to normal.

By mid-1940, the conditions were approaching the critical point, and the quarries as a body approached the Government of the day asking them to buy up their stocks and thus give them the cash to continue, without having to lay off men. The ministers hummed and haaed and finally refused. The consequences of this act were seen by 1941 when the Cwmorthin operations were shut down, apart from pumping, and the Middle Quarry was closed. Only the No.5 Incline and the "Big Tip" remaining active for waste tipping.

About 120 men were dismissed, principally slatemakers and surface workers, the miners being offered work in the Lower Quarry. Few took up the offer, for the two sections of Oakeley still considered themselves as places apart. Lower Quarry Men felt uncomfortable at Middle Quarry, and vice versa. Thus the men began to drift away, the fear of further lay-offs accentuating the trend. The quarry was very concerned, especially over the loss of experienced miners and rockmen, neither of whom it could afford to lose, but the management found itself powerless.

However, with the beginning of the "Blitz" and the ensuing massive damage to buildings, the Government rose to the occasion and declared the Slate Quarries a reserved occupation. Too late! Money was released and permits hurriedly granted, the slate stocks began to move again, but the damage was done. The skilled men were in short supply, and while there was no shortage of slatemakers or rubbishers and the ancillary men, the rockmen and miners, the very lifeblood of the quarry were noticeably absent and few could be induced to return.

Meanwhile, what had been happening? The quarry was, in point of fact, far less extensively worked at the outbreak of this war than it had been on the earlier occasion and so the contraction in area worked was not as violent. The outliers were the first to go, as has been mentioned, while the sinking of the tunnel through the 10,000 ton boulder to restore the H.I.K Arches Incline, the proposed sinking to R floor below Q and the extension of the far western workings under Cwmorthin on L, M and N were all temporarily abandoned.

Problems were, however, developing of their own accord. All the accessible western workings on N were exhausted by 1940-41 and a bad augury of things to come was the fencing off of Chamber 9 on O floor New vein, which had a bad roof. This section of the mine on all the lower floors was to prove increasingly troublesome as the years went by, Chambers 8 and 9 on Q floor soon being fenced off for the same reason. The roof of Q.9 collapsed the following year, which threw increasing strain on the N floor roof which was just as poor. The layers here between the Old and New Veins were very thin, and their strength was not helped by the doubtful practice of tipping waste into the Old Vein chambers from K floor downwards in the same area.
The loss of the H-I-K Arches Incline threw all the traffic from the quarry onto the old faithful K-Trwnl, a load the old warrior carried, though not without qualms from the engineers. The motor was frequently referred to as “under-powered” and the whole system was under strain. A partial solution to the problem of access to H and I floors, already mentioned, was the abandonment of H floor and the re-equipping of the lower portion of the Arches Incline to lower blocks from I down to K.

Strange requests reached the quarry Office, one requirement from the war Office was for precise cubes of slate, which it was suggested were intended for coast defences. The quarry also found a ready and burgeoning market for sawn ends, hitherto reserved for quarry building only. After considerable argument with the North Wales Power Co., over ownership, they took down the power lines to the moribund Diffws Quarry and then proceeded to sell them to the M.o.D.. This naturally resulted in a further row with the N.W.P.Co., this time over the price, which was finally settled at 30/- a pole.

In the flurry of anti-paratroop and invasion warnings, concern was expressed over the safety of the Lower Quarry Magazine, highly visible on its promontory above PenyBont. A Royal Engineer Officer visited the quarry and after considerable discussion, it was decided to transfer the explosive stocks to one of the worked out chambers on DE floor in the Peak Quarry where it would be convenient both for that area of working, and for the underground in general. This was immediately taken in hand.

The operation was about 2/3 complete, following various visits from the Officer concerned to check progress and to check that the flat areas of the quarry were well obstructed with poles to prevent paratroops landing (the quarry was well known for its large flat areas of ground!!!), when a new District Officer arrived on the scene, following the formation of the Home Guard. This Officer immediately sought out the location of firearms and other explosives with which an invasion could be opposed. As a result, a thoroughly infuriated Humphreys found himself ordering his men to return the carefully stored explosives back uphill to the magazine from whence they had been removed such a short time before. Management's opinion of the Military took something of a nose-dive after this episode, to say the least.

Other than these events, the year passed peacefully, consideration was given to storing the National gallery treasures at Oakeley during the war, but in the event, Oakeley's continued working, and the ease of access to the site, albeit not for the paintings, was against it, and a home for the collection was found in the Manod Quarry chambers, high on the east side of Blaenau.

One source of concern during the war, not surprisingly with little money coming in, was the cost of electricity. The pumps and compressors had to be kept going, even in the reduced circumstances. The principle costs for 1940 were as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressors; C, M. Qy., DE., L......</td>
<td>£981.10.00</td>
</tr>
<tr>
<td>Haulers; M. Qy., C; K-Trwnl, K2 &amp; K3</td>
<td>£330.04.07</td>
</tr>
<tr>
<td>Pumps; Old &amp; New Sulzer, N, O, P...</td>
<td>£757.06.03</td>
</tr>
<tr>
<td>Transformer Losses...................</td>
<td>£462.11.10</td>
</tr>
<tr>
<td>Total.....</td>
<td>£2531.12.08</td>
</tr>
<tr>
<td>All other uses.......................</td>
<td>£2022.14.07</td>
</tr>
<tr>
<td>Total.....</td>
<td>£4554.07.04</td>
</tr>
</tbody>
</table>

Little could be done to alleviate this, apart from bringing the working areas nearer the surface and reducing the pumping and haulage. This was mitigated against by the shortage of good rock at the higher levels and the need to prevent the over-flooding of the storage dams. One area skimmed was regrettably that of maintenance and replacement, a legacy which was to have lasting effects after hostilities had ceased.

The removal of many of the fittest men left the quarry in something of a quandary. The problem of silicosis now meant that the doctors could certificate men as unfit for underground work or work in the dusty environs of the mills. This led to men being found work in the open parts of the workings, better for them, but not necessarily productive for the quarry, and the war years provided a backdrop to the continuing long and bitter arguments between quarry and Unions over silicosis and compensation.

The decline of the Ffestiniog Railway with the war followed much the decline in output of the quarries, only more so. Oakeley, with its direct connection to the L.M.S. simply stopped using it, while Votty only required it for the transfer of slate from its mills to the L.M.S. and G.W.R. wharves.

**Schemes and yet more Schemes.**

One aspect of the need for more outside work was the renewed consideration of untopping the quarry, preferably away to the west away from the main inclines. With eventual victory in sight, or at least appearing possible, the need for areas of
expansion once the peace returned, was evident, and from 1943 onward several schemes were developed and proposed to gain access to the unworned reserves of slate in the walls to the west...

The Vertical balance shaft, always a reminder of "the way things were" especially in regard to reduced costs, raised its head again in what became known as the "Shaft & Tunnel Scheme" raised by J. Jones Evans of Aely Bryn. This involved driving a tunnel directly into the old shaft on DE floor, and re-equipping the shaft from there to the surface. This would in effect halve the load on the C-Incline and allow blocks to be sent direct to Bonc Siafft. A double drum was suggested, electrically driven. The manager, however, pointed out that this would do nothing to relieve the congestion on K or DE. He also pointed out that where Evans wanted to drive the tunnel was "the break line between the cross-bon between the 1939 fall and the wall of the K balance." What was needed, Humphreys averred, was something to replace the K-Trwnc.

An alternative scheme involved the erection of a "Blondin" aerial cableway between DE floor and Bonc Siafft. This would have had a span of over 1,020 feet, with a lift of 210 feet and a maximum load of 6 tons. Plans were drawn up, but the scheme was rejected on cost grounds, apart from the fact that a blondin was always single-acting - it could only raise one wagon at a time, whereas the existing inclines, even working on only two tracks could raise and lower four wagons on each track simultaneously.

Many of the untopping schemes favoured the Back Vein - it was the nearest to the surface, apart from the North Vein, for which there seemed to be no market. Percy Jones commented in May, 1943:

"The experience is that the Back Vein of the Upper Quarry yields exceptionally good Medium Quality slates, straight with but few contortions throughout the vein and it is also fairly free from Crych. The cleavage is very good and the texture fine. The pliability and cleavage was always such that any young apprentice slatemaker (rubbisher) could venture to take a block from any Chamber in this strata and be sure of a successful splitting."

"Faint, some very faint, colour bands are frequent but do not affect evenness or straightness of slates. these faint bands are the only reason that prevents a fair proportion of these slates from being classed as the best quality."

The chambers from Q into X have yielded very evenly right throughout the period. Joints, cross or diagonal were more frequent in the slates from chambers Q to U2 or V but did not mar the make of a high proportion of large sizes. From this chamber V on to Y and the boundary these joints disappeared and the rock became considerably larger and yielded longer pillars and very slightly blocks."

The following year, for some reason not made clear in any of the reports available to the author, Percy Jones and the Quarry Management got at cross purposes and remained so. Part of his August report for that year shows it clearly.

"UPPER QUARRY UNTOPPING - The weather being favourable during my visit, I again in company with Mr. Cuts, Mr. Humphreys and two undermanagers inspected the site of my suggested untopping proposal of the Back Vein outcrop and adjacent old workings on the Upper Quarry side bon above floor 12 and extending to a point higher than the horizon of floor 16."

"The area embraced extends from the side bon over chambers 18, 18a, 19, 20a, 21 and 22 of the Back Vein and, so far as I can trace, chambers 22a, 23, 24, 24a, 27, 28 and 29, some of which were worked as late as 1891 above floor 13. Therefore the tops of these chambers would be a little lower than floor 14 and this surmise is supported by the old plans of the Back Vein workings."

"All these old workings are inaccessible and probably involved in the big fall of the Upper Quarry, but the walls are, I believe, still standing. It is the unexhausted chamber forebreasts and walls which, even if broken, form a potential hidden asset which in my view, justifies the substantial financial outlay in order to provide some future reserve to counter balance the declining output elsewhere."

"In no sense is an underground operation and I assume in time its development would assume in time four or five open gallery workings and as such entail the entire removal within a defined area of a mass of intrusive bedded hards and worthless top rock. Once this is accomplished, I believe workable slate rock will be uncovered and further extension of untopping rendered unnecessary for some years to come. If my views are confirmed I see no reason from a Geological point of view why the uncovering should not be eventually continued northwards to Cwmorthin."

"At my request Mr. J.J. Williams, the Quarry Accountant, referred to old records of the Upper Quarry workings from 1884 until 1891 and after patient search was able to supply me with the tonnage cost and value of Back Vein output from the three floors 11, 12 and 13."

"13, the top floor, and nearest to the outcrop, produced between the years 1884 and 1891 a total of 8,000 tons of good Medium quality slates. The value based on 1938 prices would bring in approximately £80,000 at an estimated cost of
£56,000. The latter figure is largely hypothetical, I agree, but I quote these basic figures as evidence of the existence of workable rock underlying the area in question. Floors 11 and 12 are more extensive and yielded a proportionately larger output per floor. The appearance of the outcrop over chamber 21 rather discourages, the prospect of the rock being very sparry and contorted due. I have no doubt, to cross faulting. This and the thick but lenticular diabase known as "Holland’s Hard" over the Back Vein evidently frightens the Quarry Management and they apparently have condemned the proposal without considering what possibilities supported by figures and plans lie immediately below.”

“I would remind them, and all interested of the great tonnage of hard which has been blasted, lifted and tipped in the process of excavating a large open quarry pit down to DE in order to recover the stumps of the Welsh Slate Company’s Old Vein walls with results so satisfactory a nature as to be remarkable. Of this I can speak with personal knowledge and the support of the fall clearing records. The older members of the quarry will bear me out in this.”

“I regret to have to say so, but it seems to me that there exists a studied personal animus towards the proposal merely because it emanates from em and if my assumption is correct it is regrettable that this unhealthy tendency should intrude into the councils of the company. In this particular case I should have welcomed any due considered and constructive criticism and I deplore any attempt to stifle the due consideration of this or any other bona-fide proposal which might arise from a sense of personal bias as it seems to me that a willingness to co-operate in matters such as this would do much to hasten the solution of the major problems that are confronting the company. However, in leaving this aspect of the matter my feeling persists that this explanation of the scheme has to be considered in the nature of a minority report. Although I believe that there are some among the quarry staff who agree with the substance of my conclusions, I can therefore appreciate the difficulty facing the board in view of the different opinions. Furthermore I know of no-one outside the employ of the company who has the technical knowledge and experience to enable him to give a strictly impartial opinion. I can only repeat however, that in spite of the opposition, nothing will shake my confidence in this project in that it is likely to provide the company with a reserve of such workable slate rock with such favourable factors as tipping, free drainage, gravity haulage power. That should go to make its exploitation a reasonably profitable venture with the expectation of a long and productive life.”

Phew! As can be surmised from the above, Percy Jones had clearly had enough, and following the rejection of this report, had little to do with the quarry further, delegating the matter to his assistant, Viner. On what exactly caused it all, both records and surviving staff are silent. It has been suggested that Percy Jones was in fact ill, and that what the staff thought to be reasoned arguments, he took as personal affronts, although none were intended. Humphreys’ letter, immediately after the above report was received makes this clear:

“I cannot conceal my surprise in reading Mr. Percy Jones remarks in his report, the scheme mentioned by him emanated after a rough sketch which he made from the quarry gateway, over a mile from the spot sketched. The quarry staff gave immediate consideration to his proposals, examined and re-examined the ground, each one being free to express his opinion without any attempt to influence anyone’s judgement. there is absolutely no personal animus behind our disagreement.”

“When Mr. Percy Jones visited the spot with us he failed to show a yard’s thickness of workable slate in the Back Vein, he saw and recognised all the converging hard’s some conformably others intrusive taking the place of workable slate. Under and beyond these excavations on the outcrop we believe there are unexhausted chambers. Evidently many of the walls are standing but the roofs and tunnels have collapsed leaving no access of any kind to any of the old workings. This includes all the floors 10 to 16 inclusive. We agree with Mr.Jones that untapping on a large scale is desirable, but the question is, would clearing such a mass as he indicates be a profitable proposition.”

“He mentions the outcrop over chamber 21 as not encouraging. The fact is, even if the outcrop were cleared the area of walls and chambers 20 to 23 had the worst cleavage in the whole quarry. All the members of staff visited the outcrop indicated but I do not know of a single utterance in favour of Mr. Percy Jones plan. He mentioned on the spot that a long tunnel could be driven westwards to go beyond the bad ground but he knows also that such a tunnel can be driven only from floor 8 or floor 12 through partly solid but mostly broken ground requiring timbered levels. The shortest levels to an approved ground would be over 800 feet long.”

“We have again carefully examined the ground this week and can summarise our views: 1) We are convinced that clearing the tremendous amount of top rock mentioned would never pay. 2) There is no prospect of reaching good rock on the top floors until the line of chamber 26 is reached. 3) The easiest way to that ground is from the Cwmorthin side. To test this, the old level on or about floor 15 should be driven towards the Oakeley side. The advantages of this are: a. The ground has been tested e.g. Holland and Cwmorthin Back Vein. b. The lie of the beds is towards the West, not east. c. Ample tipping ground nearby without adding a ton of rubble upon workable slate. d. There is no Holland Hard on the west side, the whole mass having died away.”
The disadvantages are:

a. No incline tramway connection with Cwmorthin.
b. Part of Cwmorthin Quarry must be re-equipped.

"If there are any other points not clear in the foregoing, I shall be pleased if you will let me know. I can only add that we are studying the interests of the company and have no ulterior motive."

What may be clear from the above is that both Jones and Humphreys were both right and both wrong. Both wished to develop new rock for the company, and while they disagreed as to the exact area involved and what might be found there, it is a pity that they seem to have allowed this to grow out of proportion. Both were wrong, (with hindsight!) in that they could not easily conceive of any method of working the quarry other than by level, tramway and incline. One wonders where the workable slate was that Humphreys was afraid of burying, if it was workable, why was it not being worked?

With the Blitz, the London Office had been evacuated to Blaenau, and accommodated in the Old Hospital, displacing the Shipping and Despatch Office to Erw Fair, which was the Manager's House! The shipping Office had moved up to the Quarry from Porthmadog in 1934, following the opening of the direct connection between the quarry and the L.M.S. In late 1944 the London Office was re-established and the Shipping Office returned to the Old Hospital.

The Last Untopping Scheme

Curiously enough, the following year, J.L. Humphreys himself put forward a scheme for untopping the Back Vein again, albeit this time at a lower level. It was, as he admitted, an old scheme, put forward originally in 1930 in one of Mr. Parker's reports, and approved of by Percy Jones - why he felt it necessary to add that is curious.

Cutts and Fordham, the General Manager and Company Secretary, had made a visit to the Quarry in late 1944 when owing to the many cases of men certified unfit for underground work and the demand for slates exceeding the supply, Cutts had said, "What about North or Back Vein, we can sell anything today."

Humphreys stated that, "The proposal comprises 3 main galleries on floors 8, 5 and 2. The main entrance on floor 8 is from the Old Vein northward to the Back Vein and ultimately to the North Vein. The cutting must be made in the top rock and soil and the walls exposed towards higher ground. No slate can be promised from the North Vein on this floor for a couple of years."

"Some untopping would proceed from floor 5 but the slate is nearer. Less overburden lies here than anywhere else in the whole quarry. Good slate was produced here some years ago. Floor 5 alone would last about four or five years but its continuance would depend upon clearing floor 8.

"Floor 2 would follow as it bears the same relation to floor 5 as 5 does to floor 8. We are actually working the Old Vein and producing on this floor now and propose cutting northwards as in the others bearing westward to follow the uncut ground between 2 and 5. If it is decided to work the North and Back Veins in the open, the advantages are:

i) Both veins are proved in the area recommended.
ii) While on floor 8 the rubble must be cleared and hauled to the tip end, the rubble on floors 5 and 2 can be disposed of on ground near by.
iii) On floor 2 mechanical means for loading and unloading can be applied.
iv) The quality of the slate is good. The North Vein is represented on buildings in the quarry which have given less trouble than any others for roofs for the last 40 years.
v) All the Back Vein chambers which proved so remunerative in the past were opened from the point mentioned on floor 2. Eastwards there is no Back Vein, neither is the North Vein in that direction recommended until the pocket near the old shaft is reached.

This is really a big scheme, it can be made as big as the board wishes. In my opinion some form of mechanical contrivance is inevitable."

For once, the idea seems to have been taken up, and the board instructed Humphreys to join with Viner (?) and produce a joint report into the prospects of establishing an open quarry at the Upper and Middle Quarries.

"The Available Area is that which lies to the west of the line of the old floor 5 Holland Tunnel, embracing as it does the big area of ground between that and Cwmorthin. It will be appreciated therefore that this area is situated a considerable distance away from the present mills. It has been worked extensively underground in the Old and Back Veins, and to a lesser extent in the North Vein on the lower floors. There have been falls from time to time and the system of cracks covering its surface provide all the evidence that we are dealing with an unstable honey combed mass which would be very difficult to work on orthodox quarrying principles."
"We estimate that a full scale untopping operation would take some 3 to 4 years to get underway and that we should have to be prepared to move a large tonnage of hards and broken rock from localities to which it would be extremely difficult to transport mechanical appliances."

"Of the four veins, New Vein, Old Vein, Back Vein and North Vein, it is the Back Vein that has been by far the most profitable in the underground workings in this area and in view of the fact that it is in a favourable position on the surface we think that any scheme to develop this area must always depend primarily upon the likely output from the Back Vein."

"Owing to the occurrence of the underground falls, it is now impossible to penetrate any appreciable distance into the available area, by means of the former traffic levels except on floor DE, which is of course too low for our present purpose and therefore it will be understood that we are dealing with a mass, the present condition of which we have no knowledge apart from what the surface indicates."

"However, these surface indications support our suppositions that there has been no wholesale caving in of the area and therefore there is every reason to expect the Back Vein walls to be standing and solid. It is these walls, eight in all, together with the unworn forebreasts that are the objective and they are accessible for about five floors upwards to floor 8 with a western limit in the region of chamber 28."

"It will be gathered from the foregoing that we have agreed that there is an immense tonnage of unworked rock of good quality still left in the available area, but that its systematic recovery on recognised quarrying lines would mean the allocation of a large sum of money probably in the region of 40,000 for uncovering operations, the establishment of working floors and traffic facilities etc., and furthermore would involve a considerable time lag before an appreciable output could be obtained. We agree with the general consensus of opinion that the slate industry will have to face a very uncertain future upon the completion of the present housing programme and therefore we consider that any scheme for the exploitation of this area which necessitates a large outlay on the slow dead work of preparation with the consequent long delay in producing results cannot in our opinion be justified."

"We have therefore approached this problem with a view to deciding whether or not these two factors cannot be eliminated or at least minimised."

"The Back Vein is exposed in its full thickness on the old North and South bon or Holland bon, and it is obviously here that it can be most economically attacked. As the Board will have seen during its visits to the locality there is no direct access to this point of attack, but fortunately we have in the existing floor 8 to 11 incline an alternative traffic base which is ideally situated to deal with the rock coming from this bon."

"With regard to the method of working this rock we have thoroughly examined this problem and have come to the conclusions that the only practicable way is a series of slicing operations designed to pitch the rock down to the level of floors 11, 10, 9 and 8 from where it can be loaded onto the existing tracks radiating out from the existing floor 8-11 incline."

"This procedure would be something of an innovation at your quarries and the initial slicing would have to be regarded in the light of an experiment into the mechanics of the question, i.e. as to the position of repose of the fallen rock, the type of tackle needed to bring it to the loading points, the condition of the rock after its sliding fall, the important question of whether or not we could leave the rubbish underfoot and at the same time not hamper the ensuing operations."

"In the event of it being found necessary to clear rubbish in order to expose large blocks, ample tipping space is near at hand, the important consideration is of course to boost our output to the limit in the shortest possible time with a minimum expense and we consider this proposal gives us the best chance for doing so."

"It seems that the industry can rely upon the present demand continuing for a considerable period, and if, as it is reasonable to suppose, this operation would yield an increasing output as soon as the weathered outside rock has been brought down it scarcely seems to be material as to the manner in which we get it."

"The foregoing proposals concern the available area lying above floor 8 we have also examined the question of working North Vein on floor 5. It was from this locality that the excellent roofing on the Bonc Siafft New Mill, Smithy and Carpenter's shop came from many years ago, and we have recently sampled the rock here with favourable results."

"This bench on floor 5 has no connection to the mills nor is it likely to have in the future but a block can be readily slid down to the level of floor 2 for loading there. There is unlimited tipping space adjacent and in the event of this operation turning out well it would be possible to expand it considerably and profitably employ mechanical clearing in order to get at the Back Vein, which lies to the south covered with broken rock."
"We therefore seek the Board's authority to commence at once the following programme:
Back Vein:   a) To lay an air line up from floor 8 to the Holland Bon.
Hollands Bon       b) To commence a full scale trial operation with say 2 rockmen and 6 clearers. The same to continue until sufficient unweathered and solid rock has been brought down to furnish a reliable indication of the general mechanisms of the problem as previously outlined. We estimate this trial operation would cost approximately 240 per month and then this proposition will prove itself or otherwise within 6 months. In this connection we have reason to think that this operation will make available rock, the yield from which can be considered as a set off against the expenditure incurred. A further joint report to be submitted to the Board relating to the results of the operation together with our final recommendations.

North Vein  To make the necessary preparations for starting here Floor 5 with two rockmen and four clearers with expansion should results justify it."

This report has been given virtually in full for several reasons, primarily because it is the last major proposal to survive in toto, and gives a clear indication of the Management's thoughts about the future. Like many another such proposal in the years gone by, the low cost experiment was carried out, but the expansion was vetoed.

To end this description of the war years one can do no better than to use a final extract from Percy Jones' last report, describing events which would otherwise have gone unremarked:

"Arched Inclines: I was particularly gratified to see that an incline tunnel had been driven through the large boulder lying across the entrance to the Arches. The rough dimensions of this tunnel are 37' long by 16' wide to allow for three tracks, owing to the thinning and pointing end of the boulder on its west side adjacent to the entrance to the pump chamber, concrete or a similar kind of strong support is to be built to prevent possible sliding of the mass. A wise precaution. The great thing is that communication with the lower quarry workings has now been re-established and it is to be hoped that further falls of the bon will not occur."

"The Old Dewintons Beam Pump; I have to place on record that the Board at their meeting on the 2nd. May last decided to dismantle this time honoured and faithful servant after some fifty-eight years service."

"Debris Conveyor: A proposal to install a conveyor in the old Pen Balance sink from floors 8 to 7 to deal with rubbish from the floor 8 open working was also considered by the Board, but it was decided to defer a purchase of this plant until more is known of the prospects on floor 8."

"I believe all the matters requiring attention have been covered in this report and I conclude with all good wishes for the continued prosperity of the company, faced though it is with ever increasing hazards due to mining difficulties and fluctuating markets all quite beyond the control of those whose responsibility it is to direct and finance its future."
30. HOPE RENEWED 1946 - 1953

The end of the war brought a resurgence of hope to the quarries, both management and workforce looked forward to expansion and full order books as Europe struggled to rebuild. The "boom" if boom it was, was short lived and the long decline set in. Over the next quarter century the legacy of the past came home to roost with a vengeance. The lack of capital investment in new machinery and the consequent ageing of existing plant, the failure of the deep level drainage scheme and the consequent crippling cost of essential pumping, the hasty expansion of the deep workings to get away from the fall and the failure to establish barriers to support the workings above, the dumping of waste into old vein chambers above thin new vein roofs, the inability to accept new and radical methods of working with which the open quarrying could have been made effective, all contributed to a downward spiral of output and employment against a background of vastly increased competition from the mass production based tile industry.

Unfortunately, the retirement of Percy Jones and his replacement by Viner, who had "grown up" so to speak, under Jones tutelage, but without his intimate knowledge of quarry past and present, the regular formal reports ceased, so too, as times and working practices changed, did those of management, only the briefer day-to-day letters continued. The days of the great schemes were over, and the following account has been culled from the quarries letter books, articles and remarks in "Caban", the quarry magazine (see below), inspection records and the personal reminiscences of men and management.

A Bitter Winter.
The year 1946 was very much in the way of a transition period, the restarting of the quarries being hampered by the frequent and unfortunate absence of the manager, J. Lloyd Humphreys, through illness. Indeed, this came to the point that he was unable to continue and so the under-manager, John Williams, took over officially on the 1st. January 1947, although he had in effect been acting as manager for some time previously. He took over at a difficult time, the winter of 1946/47 was particularly severe, with severe load shedding by power stations and power cuts in many areas. The coming changeover of authority from the private companies to the British Electricity Authority, with whom Oakeley was to have more than a little to do, was not welcomed in several quarters, one of them being the North Wales Power Co. The supply to the quarries dependent as it was on long pole routes over the mountains and the fickle nature of the hydro-electric stations in the middle of a deep-freeze was becoming increasingly uncertain. Strikes were threatened and as 1947 dawned the grip of winter increased and as the southern coal fired stations began to run out of fuel, despite the diverting of northern power via the National Grid to the southern region, the outlying districts began to feel more than the pinch. On the 9th. January Williams commented "the voltage of our electricity supply is rather low." This did not help the quarry as the pumps were going day and night to deal with the water which made its way into the workings. The rain was continuous - except when it was snowing! There was "a tremendous flow of water into the mine."

By the end of the month all the compressed air and water pipes were frozen up continually and the underground traffic on K floor was completely blocked as "ice formed a barrier several yards long and we could get neither loaded wagons and trolleys out or empty ones in."

February brought no respite, of the gang of 5 who normally worked the C-Bank to DE floor incline, only one turned up for work, absenteees topped ninety. On the 6th. 14 loads of slate were despatched to the L.M.S. wharf (the use of the title L.M.S. continued in the quarry long after nationalisation of the railways). Rumours swept the town, Maenofferen was going to give trolleys out or empty ones in."

Insulation in many instances has gone so brittle that the constant variation in loads due to power economy increases the risk. Frost is another, especially with compressors." He referred to several repairs that had been necessary since 1943 - the rewinding of a pump motor, of the K2 Incline motor, a new steel band fixed to a 60 H.P. motor, the repairs to a second hauler and another pump motor. the diesel locos were no better, JP3 174139 had a new crankshaft, JP2 174505 had broken teeth in the gear box while JP2 174540 had broken its crank shaft. Spares were on order but delivery......

In view of the temperatures prevailing, and the possibility of having to shut down the quarry and its plant for an uncertain duration of time, Williams wrote as follows, "It must be remembered that many of our motors etc. are old and anything can happen. Insulation in many instances has gone so brittle that the constant variation in loads due to power economy increases the risk. Frost is another, especially with compressors." He referred to several repairs that had been necessary since 1943 - the rewinding of a pump motor, of the K2 Incline motor, a new steel band fixed to a 60 H.P. motor, the repairs to a second hauler and another pump motor. the diesel locos were no better, JP3 174139 had a new crankshaft, JP2 174505 had broken teeth in the gear box while JP2 174540 had broken its crank shaft. Spares were on order but delivery......

In the middle of it all came a letter from the London Office demanding an explanation of why the output was only 1.39 cwts. per man day! The manager explained the low output in terms of poor rock. 22 loads were got away to the wharf on the
13th, and 20 on the following day. The quarry was now totally without electricity, even for pumping. The DE tunnel, Lefel Galed, was full of ice and needed clearing. By the 26th, only 11 men, the rump of the engineering staff, were at work, it was decided to restart the following week and permission was obtained to run the machinery and motors generally for a short time from then onward.

However, the optimism was ill-founded, Greaves were now short of water for their turbines and a new fall of snow topped 8 inches. It was decided that when the quarry eventually re-started there would only be a five day week instead of a five and a half day week. there was reported to be consternation at Maenofferen at the news. The new hours of working were to be 7.30 to 4.00 and 7.30 to 11.30 on Saturdays, though how this was a reduction to five days was not made clear!

On March 3rd 4 channellers were started, but by the 7th, the manager reported that there was no difference between the inside and the outside of some of the buildings, the snow was equally thick everywhere! Then came the thaw.....

Water now poured into the mine from the melting snow and thawing ground above, but the quarry was prepared, the great storage looms behind the main dams on L and M were ready, the main pump looms were as empty as they could be waiting the onslaught. There were avalanches on R'Allt Fawr, tearing down the drainage troughs so a gang of men was collected urgently and despatched up onto the mountain to repair the damage.

It was, however, the 17th. of March before it was decided to resume full working on the following day, and notice was given to the men on the B.B.C. Welsh Bulletin at 6.30 p.m. Absentees the following morning were pleasingly few.

**Some Innovations.**

Thomas Jones had often suggested the use of modern "mechanical contrivances" to speed up the work of overburden removal and similar matters, and Percy had done much the same. The ideal spot for this was the peak quarry where both old slate waste and genuine overburden had to be cleared to allow access to the old vein walls. In late 1946 it had been decided to obtain a suitable "mechanical contrivance" and in January 1947 an "Osgood" petrol driven excavator had been ordered. This finally arrived on the 27th. March, however, of the two men who delivered it, neither could drive it, much to the chagrin of the quarry management and engineering staff. The problem of getting the excavator down to the Peak quarry site was another matter which required consideration. It was clearly out of the question for it to go down in one piece, and so it was decided to partially dismantle it and lower it down the C-Incline. It could then be driven carefully to the quarry and re-assembled there. This, Williams averred, would all take time!

The new Town and Country Planning Act now brought the Slate Mines and Quarries to the end of their carefree exploitation of land for quarrying and tipping. A Ministry official visited the quarry determined to find out the current and future extent of tipping, a shade of further official intrusion to come. He departed apparently satisfied, but as we shall see, there was a fundamental lack of understanding between them.

The management were in any case more concerned with the problem of lighting, a problem, it will be remembered, which had interested Robert Roberts over fifty years earlier. It was suggested that the mills be lit by fluorescent lights, and possibly the landings at the top of the K2 and K3 inclines. The only problem, apart form the cost, appeared to be the need to provide transformers to reduce the quarry 500/550 volt supply to the 240 required by the lamps.

April 1947 was occupied by dismantling the Osgood and building a wall and girder at the top of the C-Incline to enable the machine to move onto the incline bed by going around the back of the fitting shop and old boiler house. Two ropes were to be used to guide it down the incline to floor DE.

**A change in Management.**

The Back Vein workings in the open on floors 5 and 8, the remains of the last untopping scheme were re-started now the better weather had arrived. Floor 5 being mainly clearing. This operation brought Williams into conflict with London, for he had partially justified the re-starting by saying it gave employment to those who through age, or the ravages of silicosis, could not work underground or in the mills. This brought a stiff response from London, "The main consideration is NOT to be employing men above ground. Getting slate is the serious business. Workings must stand on their own two feet or be abandoned!" This proved too much for Williams, and for a number of reasons he retired, his place being taken by Gwilym Wyn Humphreys, J Lloyd Humphreys son.

He was a "third generation" Oakeley man. He had come straight from school to the company in 1918, beginning work on the wharves at Porthmadog and in the shipping, despatching and sales departments. In 1934 he had entered quarry work, spending two years in the office and eleven on the underground staff, starting as a timekeeper and eventually becoming one of the several "Under-managers" who had a mobile and wandering brief around all the workings, inspecting, advising and generally keeping their fingers on the pulse of the workings. He referred more recently to Williams, who had been with him as undermanager until his elevation, as his "mentor" saying that he had a wide knowledge of the quarry and had known both Percy Jones and his father, Thomas, well.

His first letter to London referred to the "tussle" involved in getting the Osgood down to DE floor. This was lowered sideways on its tracks, sliding down the incline rails under the control of two of the incline drums and brake gear. On a couple of occasions it threatened to come of and make its journey more rapidly than intended, but in the event the descent was completed without major incident and it was able to inch its way through the narrow clearances behind the K Trwnc and H-I-K Arches Incline buildings to the peak, several compressed air and water pipes having to be moved out of the way temporarily. It was a fortnight, however, before an experienced driver could be engaged to work it. Consumption was thought to be 20 gallons per hour of petrol, which was thought to be "very expensive" - petrol then cost 1/9d. a gallon. Two buckets had been provided, a dragline and a clamshell together with a dragline job. In June wagons which had been converted to use with the excavator were hastily rebuilt - two of the original conversions having gone over the tips when the end doors failed to open! The welder, using his newly acquired equipment, made up six with open ends like the conventional waste wagons.

One of Humphreys first tasks was to justify the continuing Back Vein operations, which he did in terms that London understood. The output from floor 8 had risen from 46 to 63 tons at a cost of £1051, but the make was worth £1125. He felt that the extension to floor R was long overdue. He suggested, "sinking to R between the whinstone and first chert, then driving through the cherts for the new vein and then opening for sinking - this affected the roof of chamber 6 in the New vein, one of the best in the whole quarry." He suggested, "sinking to R between the whinstone and first chert, then driving through the cherts for the new vein and then finally roofing up to link with the P-Q incline." On the 17th July 1947 the board approved the sinking to R, but left it to Viner and Humphreys to determine the best method between them.

The quarry was visited on the 22nd July by a party conducting a report on the Welsh Slate Industry. The visitors were one Professor Hibberd, whom we shall meet again, Mr. Halliday, R.W. Williams and A.V. Stephenson for the Ministry of Works. Amongst other ideas they suggested coal cutters to cut free sides. The manager wrote that he was careful not to suggest they were against the ideas because they were new - in fact the suggestion was one made frequently by Mines Inspectors when they first arrived in the slate mine district, but which had been repeatedly proved impracticable when confronted with the hard dense slate. The party had also considered compressed air to be wasteful and kept suggesting electricity as a preferable energy source. "One commented that he had not heard or seen a single leak from the compressed air system and said that was something approaching a miracle in his experience and complimented us on the efficiency of our compressed air staff."

Problems with Power.
September 1947 brought notices from the Ministry for Power. The quarry had already been warned in June that electricity cuts could be expected for three or four years until the wartime damage and delayed construction of new power stations could be remedied. Now came the blow, the electrical load was to be spread, Oakeley's consumption was not to exceed 560 kW., whereas normal consumption was thought to be of the order of 850 kW.

The engineering staff thought that this might be achieved by pumping at night and staggering the incline haulages so that the large motors would not be going "on-line" at the same time. This was presumably to be arranged by the internal telephone or strict time-tabling, the exact details of the arrangements not having survived.

The next fortnight was spent formulating plans and carrying out trials as follows:

Monday: The maximum demand was 432 kW. with no main pumps on L operative, all the inclines operation staggered, and the compressor run normally. The traffic was congested and the flow of blocks slow.

Tuesday: Demand had increased to 480 kW. with less stagger(?) on the inclines, but traffic was still congested at times.

Wednesday: The demand reached 536 kW. with the P compressor and the P-Q hauler on at the same time, but working was described as "fairly normal."
Thursday: The demand was the same with one 125 h.p. pump working from 9 to 12 but when the second, 165 h.p., pump went on demand went up to 592 kW. The manager commented "We cannot work the quarry within the limit without stopping the pumps... Pumping outside normal hours will cost us more as we will have to take on more men for night pumping... at least 10 a week extra in wages. During wet weather they are kept going all the time up to 72 hours. If this occurs this winter we will have to stop all the other motors..." The load shedding was to start on the 1st. of October.

On the 18th further information was to hand, "The peak periods are to be 7.30 a.m. to 12.00 a.m. and 3.00 p.m. to 6.00 p.m. i.e. we can pump from 11.30 to 3.00 without restriction and as the load begins to drop from 3.15 we may then pump continuously. Pumping will only have to stop for 1/2 and hour or so. The load is 160 kW. on L floor and 60 kW. for N, P and Q. the company will have to ask for a special meter reading."

Even so the manager was unhappy and asked London to try for a re-assessment of the allocation to 600 kW. to safeguard the pumping. he also wanted some allowance for the new lighting in the mills which was estimated at 25kVA at Bonc Siafft and 15 kVA at Bonc Coedan.

An odd event in early October was a total confusion over the subject of packed meals. The quarry staff were totally non-plussed when a lot of the men turned up for work without their customary sandwiches, expecting ready packed meals for them. Needless to say there were none, and what the men thought of the whole episode has fortunately not been recorded. Wages rose in the same month by 1/- a day.

London informed the Quarry that they could assume that the 600 kW. would be agreed to, confirmation from the Ministry anticipated when a lot of the men turned up for work without their customary sandwiches, expecting ready packed meals for them. Needless to say there were none, and what the men thought of the whole episode has fortunately not been recorded. Wages rose in the same month by 1/- a day.

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On the mechanical side, concern was now expressed over the state of the old K Trwnc incline timber headgear. There was, Idris Williams the engineer said, "A limit to patching." In the peak, the Osgood was not at work due to the danger of collapsing overburden. The channelling machines were "very old," Ingersoll Rand having discontinued manufacture of them 15 years previously, the fitters were at work on them every day, keeping them working. On the positive side, the new diamond saw at Bonc Siafft was set to work in October also, blocks up to 5 inches thick being sawn. This was not particularly startling, but the speed of cutting obtained with the impregnated blade was said to be the main advantage. An "EIMCO" compressed air driven mine loader was ordered from Ingersoll Rand to help with clearance work underground, delivery being expected in February 1948.

The question of R floor, which had still not been started, raised its head again in early November, disagreement occurring again between Viner and the management. This time it was over who should do the sinking, Viner wanting it to be let to an outside firm of contractors due to the shortage of miners, an ever present problem. Humphreys and his staff were very worried about this idea, especially as the cost considerations of a competitive tender might tempt the board, while they were concerned over both production and safety. Humphreys put it this way, "Contractors go all out for yardage... this is dangerous....the quarry is used to the care needed when sinking etc. especially near other workings." His advice was accepted and it was in the event decided to sink directly for R from the old sump at the foot of the P-Q incline, work beginning on the 22nd. November 1947. Viner, not in the best of the company's books by now, and not pleased at the quarry's attitude to his advice either began a "long overdue" survey in December.

The heavy rains of November played merry hell with the load shedding attempt, forcing demand over 600 kW. on the 18th. by pumping 4.23" of rain in 24 hours. By the 25th the pumps had been going for 4 days without let up to deal with an 8" downpour, but at least the level of the water behind the big dams on L and M was going down steadily.

A sign of the times in early December was a break-in at the Office, the lock being cut round. One positive improvement was the invitation extended to a representative of Oldham Batteries to come and demonstrate their electric mining lamps. Humphreys was very impressed with the lamp and the Oldham rep., one Dr. Statham, offered to lend the quarry 5 lamps free of charge for 2 to 3 months as a trial.

The Eimco loader arrived in late January 1848, and was initially put to work in the open on floor 2 to gain experience with it, but by the end of the month it had been transferred to clearing rubbish in chamber B) south on L floor, where they could not keep it sufficiently supplied with wagons! It was rail mounted and so dependent upon available tramway track for its working place, although the "shovel" head was able to swivel to either side to pick up material.

"WE" and "CABAN" go forward together.

It was at this time that a combination of ideas from men and management brought about a temporary rejuvenation of the old "family feeling" in the quarries. Harry Cutts, one of the directors and soon to be Managing Director and Secretary, wanted to improve labour relations and the relationship between London and Quarry offices and sought to create an atmosphere he liked to describe as "WE" in the sense of "We of the Oakeley Quarries, management and men together."
The start of it all was later put on record in this fashion, "Like so many other good ideas in Blaenau, it began in the heart of one of the quarries. In one of the cabannau, to be exact, whose members conceived the excellent idea of endeavouring to run a local eisteddfod. A little thought showed that this would involve more time and effort than one Caban could take on single handed, instead, they decided to form a Male Voice Choir, which began to practice on the spot, during every dinner break."

"Soon this was no longer enough. The choir was flourishing, and if it was going to compete in local events it needed more time and space for properly organised practices; and so the story moves on to a room in Blaenau, hired from the local Education Committee, at which the Choir met for weekly practices. It was then that someone put forward idea No.2 - that the Choir should hold a supper to celebrate its success to which should be invited the Management of the Quarries."

"And it was during the speeches of that supper - one of the leading members of the Management in turn expressed idea No.3 - one which he had hoped for a number of years to put into practise one day. That idea was the establishment of a centre at which members of Oakeley and Votty would be able to meet, not only for choir practice (and this time without any hire charges) but for games, sports, meetings and other recreation."

"For this purpose the Company offered to make over the Old Hospital, and, later, adjacent land which it is hoped ultimately to turn into a sports ground for outdoor games of all kinds."

"So far so good; but the finest building will not make a Club without a committee to run it. And as this was a club whose members should be drawn from every part of the quarries above and below ground, to do the job properly their committee must be drawn from every part of the quarries too. That is just how the men in charge were ultimately selected - as representatives of the Cabannau so that each section of the quarries would have its own spokesman among those at the Club."

This article came from the "idea No.4" - not expressed at the supper, that the Quarry should produce a Magazine to allow the Cabannau and the Club to express themselves in print as "CABAN" "The Magazine of the Oakeley Slate Quarries Co. Ltd. and its subsidiary, the Votty and Bowydd Slate Quarries Co. Ltd." Ruthlen Publications Press, of London, who also produced "INGOT" - a magazine for the steel industry, produced the first three issues. The material was organised by a Mr. Storey, who brought his own photographer. From issue 5, October 1950, editions were printed by R.E. Jones & Sons Ltd., the Quay, Conway and the 'London' connection of publishing was broken in favour of more local and "in-house" preparation. Storey had apparently made himself unwelcome, and his place was taken by Glyn Rees, who later became News Editor of the Liverpool Daily Post, and he in time was followed by Idwal Owen, the editor of the North Wales Weekly News. The photographer after Storey's time was Bob Bird of Wallasey, who the Manager, Humphreys, described as "...really excellent. he was in the R.A.F. during the war as a photographer and one of his assignments was concerned with developing the "bouncing bomb" of dambusters fame. he was in a rather small boat on the Clyde when the bombs were being proved and tested."

To the quality of the photographs and their variety, the author of this epic can only say "AMEN"

The Club Committee were elected on the 5th. March and subscriptions were set at 2/6d - the same as the fine Robert Roberts used to impose for breaking the rules many years before. Mid March saw the old Hospital being renovated and cleared etc. The quarry fitters were despatched to attend to the necessary services, the plasterers were to follow the next week an then the painters!

A dart board was installed in early June, along with a Piano. The Club was officially opened on the 11th. June by Mrs. Inge, William Edward Oakeley's surviving daughter.

Progress with the sinking to R went on apace, by the 20th. March the sink was down 15 feet on the slant from the old sump at the bottom of the P-Q Incline. 50 feet depth was reached by the 28th. April, at 33 degrees, but the miners were doing the sinking on the night shift, much to their displeasure.

It took altogether 23 weeks from start to finish for the sink to reach the planned level of R floor, 117 feet down on the slant from Q. The miners had been "persuaded against their will to work the night shift." The level was then to be turned west and eventually south through the cherts to reach the New Vein.

Meanwhile, load shedding had ceased on March the 25th., to sighs of relief from all concerned. It was now suggested that a diesel loco be placed on P to handle the haulage between the two inclines and the main working areas. The EIMCO had now moved down to Q floor. Core drills were wanted to replace the old channellers. The diamond saw broke! An unwelcome visitation came from the Weights and Measures Inspectorate, who took the test seals of all 3 main quarry weighing machines - they all bore the stamp "V.R." and an indecipherable date. All were now illegal causing consternation at head office! They continued in use, of course, until suitable replacements could be obtained.
August brought new notice of the winter load shedding schedule. The quarry now wanted an increase from 600kW by about 40-45 kW due to the installation of the heating and lighting. Another EIMCO was ordered, the original now having migrated back up to N floor. It was then to move to floor 2 in the open, and then back down to R floor, where it could help with the cleaning up after the miners. It was certainly a busy machine, and Caban caught it in one or two of its many working locations.

In 1949 the National Eisteddfod was held at Dolgellau, and Oakeley was one of the features, the following appeared in “Caban” for October 1949:

**OAKELEY ON SHOW AT “THE NATIONAL”**

Time was when the National Eisteddfod was a big event in the slatemaking year. Some of our older readers may remember the Competitions in the Crafts Section, for slate splitting - and the rivalry they caused throughout North Wales. For months beforehand, eyes were open everywhere for the most promising slabs of slate...and rumour having it that such things were not incapable of disappearing, when other enthusiastic competitors were around, the owner of a really first class piece would bury it in the ground, or hide it in some remote spot until the date of the contest.

Those days are over. No more are there awards for Champion Splitters. But some of the old tradition was revived when, this year, the Quarries were asked to produce an exhibit for the Exhibition in the grounds of the "national" at Dolgelley.

The two who went with a dressing machine and a lorryload of slabs, to show what Blaenau can do and how we do it, were Philip Owen and Robert Thomas Jones. And their display of splitting and dressing rapidly became a major attraction.

Altogether, some 11,000 people watched the exhibition; there were times, say our demonstrators, when it felt as though they were all gathered round our stand at once!

By everyone who saw it, the display was voted an outstanding success and more than worth while. It isn't every day that we have a chance of showing the general public what the traditional industry of Blaenau really means in skill and experience. Eleven thousand people will go back to their homes with a new respect for those slates under which they have spent a lifetime without giving them a second thought.

So great was the interest in the display of splitting and dressing that it had to be carried on as an almost "non-stop" performance whenever the Eisteddfod grounds were open."

While on the subject of R floor, the extension of the P-Q incline to the new floor was steepened during September to avoid the diorite, which was very difficult to cut through. 7 yards of level had been driven by then, and a sump made to the east of the incline to suit a pump. This was installed in October, driven by a 10 h.p. motor, this, together with a second driven by a 22 h.p. motor on Q and the 12.5 h.p. diamond saw motor were now additional loads on the supply... fortunately the request for 650 kW maximum load was accepted.

By November 20th, R floor was 77 feet in when the problem of "weekly pay" arose. This was an issue which broke out with remarkable frequency after the war and was brushed under the carpet, but it would not go away. At this time, the old bargain practice of paying the "gang" foreman the total money, he then distributing it to the various partners, still held sway. However, more and more men wanted to be paid directly, week by week for their own work, rather than in the time honoured tradition.

The new EIMCO was now reported to be "floating round the U.S.A. looking for a port where the dockers are not on strike. It finally arrived on the 23rd of December, but due to the holiday, was not unpacked until the 30th. There were no tools with it, but a couple of safety helmets. The flanges were not satisfactory for Oakeley's track and had to be turned. The machine was set to work by the 4th of January. The quarry proudly informing London that they no longer required an engineer, but they were going to keep the manuals!

The mill heaters were now working(!), these for the main part consisted of bowl type electric fires, positioned individually near the splitting positions. They had guards on them, but these were soon knocked out of shape, and out of the way too, to allow the essential cigarette to reach them... until the inspector called when they were restored, for a little while anyway. The caplamp trial was an equal success, in a different way. The battery was felt to be rather heavy, but the rockmen who had used them had no complaints! Oldhams were asked to quote for 170 lamps, on a hire basis, the estimated cost being 4d. to 5d. per week, plus the wage of a lampkeeper. It was unanimously agreed to put them in the building on DE near to the blockhouse. There was expected to be an 8 months delay, so candles continued to be consumed at the rate of 2lb. per man per week at 1s.4d. per pound.

Chemical closets were now adopted on K, M,N,O P and Q floors, while the fitters succeeded in adopting the drifter type of rockdrill to channelling.
The problem of dust which had last exercised the management in the 30's now raised its head again. While reasonably satisfactory pneumatic extractors had been supplied for the air drills, the dust in the mills was remarked on heavily by the Inspectorate in their periodic visits. One visit in April 1949 resulting in formal written displeasure, the Inspector in question complaining that nothing was being done. This was, in point of fact, untrue. Work had been going on for some time to develop a suitable type of device which could cope with the old fashioned "iron" saw tables. However, the main trials appear to have been based at Votty, where a complete plant was being installed, so nothing did seem to be happening at Oakeley. Lord Robens, then plain Mr. Alfred Robens, the Parliamentary Secretary to the Ministry of Fuel and Power, visited the completed Votty plant in the Autumn of 1949, and commented, "I had expected to find some improvement, but what I have seen passes all my expectations. Results are remarkable." The principle problem lay in the location of the "hoods," the extraction points above and below the saw blades which were intended to remove the dust by suction. Those below soon became clogged with debris, while those above were vulnerable, to say the least. As will be seen, despite this "successful" development, which resulted in similar plants being installed at Oakeley, like many another innovation, it was soon being complained of as ineffective!

Happy New Year?
Caban heralded the New Year of 1950 in this way:

NEW YEAR GREETINGS FROM SIR CHARLES R.A.OAKELEY, BART.

"Caban" provides me with a most welcome opportunity of sending you my very best wishes for this New Year. I send these greetings both as Chairman of the Company and as President of the Club, and also on behalf of my fellow Directors, with every hope that we may be successful in our work and find great enjoyment there and in all our other activities.

May it be a Prosperous and Happy Year for all!

HARRY CUTTS NEW YEAR MESSAGE FOR 1950.

I cannot very well come round and give to you individually my very best wishes for this year we have just started, but I trust you will believe the greetings I am sending by this message are just as deeply sincere - I heartily wish you all a most happy and prosperous New Year.

You know that some improvements have been made during the past year. We want, with your co-operation, to continue the process of making the quarries as efficient and as pleasant to work in as we can. Now, when "co-operation" is mentioned I do not look on it merely as a catchword; I believe that we should strive to realise its full meaning, for the welfare of all of us and our Industry. You can rely on me, for my part, to keep that well in mind; you yourselves can do much by maintaining that happy spirit of comradeship that illumines the daily task, and upon which I think we can justly pride ourselves.

To those who are away ill I should like to send a special word to them to let them know that we have not forgotten them, and to wish them a speedy return to health.

Lastly, a greeting on behalf of all who work in the quarries to our friends in the trade, whose support we have so greatly valued over so many years. I assure them that they can rely on our effort, not only in 1950, but also in the years ahead, to supply them with the material which is an essential part of so many homes and buildings.

An unusual interlude occurred in April 1950 when the Council requested the quarries to arrange for "rock cannon" to be fired for the visit on the 28th. of that month of the then Royal Highnesses Princess Elizabeth and the Duke of Edinburgh. The Quarry wrote to London who replied, "By all means arrange for the bangs that the Council requires." The rock cannon - holes in very large rocks filled with gunpowder, but not tamped home and ignited by finger like trails of powder on the surface of the rock - existed in a number of places, Oakeley's were on Craig Nyth y Gigfran above GlanyPwll, Llechwedd's were on Bwlch Gwynt while Votty's were above Cwm Bowydd. The quarries were closed at 2 p.m. for the visit.

A minor row now developed with Crosville, the 'bus company, over bringing men to the quarry. The quarry wanted them brought right into the quarry to Bonc Coedan, thus reducing the time wasted, and saving the men a wet walk at beginning and end of the day in Blaenau's usual climatic state. Crosville were not amused, they had, they said, already extended the service up to the quarry gates at no extra cost, but this was too much. The quarry - or the men - would have to pay extra for the increased journey. In any case, they pointed out, the quarry road surface would do their buses no good at all.

This was an argument to be heard again some thirty years later during a long hot summer when the dust from the unsurfaced quarry road blew about wilfully into the air intakes of the buses bringing tourists up to Gloodfa Ganol and Llechwedd. The bus company called it a day after the bus engines gave up trying to cope with silicon indigestion. The passengers then being de-bussed at the quarry gates and having to walk up the long dusty road...
However, back in 1950, the cost of the bringing the quarry road up to scratch was thought to be excessive, Crosville were adamant and deaf to entreaty, they would not come into the premises, unless the increase of 1d. per man per day was met. Management hummed and haahed, and gave in, the quarry would find the extra for the men from the 16th. may onwards. In early June the surfacing of the road was under serious consideration, and in September it was finally agreed that the road would be surfaced by W.O. Williams (Wil Scraps) of Harlech, who would do the job for £1250!

Correspondence flowed between Blaenau and Oldham over the caplamps. They were to be numbered consecutively, and so were the helmets for them. The charging equipment needed to be arranged for 500-550 volt input, not 110 and so on. Delivery took place on the 5th. of October 1950, the lamp room being fitted up during the following week. The red letter day for the quarry was the 18th. October when they were issued to the underground men for the first time. However, there was an unforeseen snag - a large number of the men did not wear belts to which the batteries could be attached! As canvas ones cost 5/4d and leather ones were expensive at 9/4d, the quarry took the easy way out and decided the men could find their own for the present time.

The Town Planners at Cardiff had raised their particular official heads in July 1950, requesting that the extent of the workings be shown on an Ordnance Survey map. Then in August came a further request notifying the quarry that it was required to make a planning application for its tips. The application had to show the estimated areas required for twenty years hence. It was at this happy moment that Viner announced he was going away to America for some months. Humphreys promptly demanded that he bring the plans up to date before he left! Viner promised to start his survey on the 7th. November. He was clearly in a hurry, and also disenchanted with the quarry, for on the 7th. December, he sent the plans to the quarry from his Llanrwst office in the care of a bank official, or at least he gave them to him to take to work in Blaenau with him. Unfortunately the man was off work the following day and left the parcel of plans at the railway station. This was only discovered after frantic telephoning around Llanrwst by the quarry, the quarry car being despatched to recover them as they were clearly too important to be left lying around where anyone might pick them up, or worse. What little remained of Viner's reputation at the quarries took a nose dive after this episode.

The usual load spreading instructions had brought consternation in October, when the Quarry was notified that their allowed maximum was to be 502 kW only - impossible to comply with without shutting the quarry down, or running the risk of severe flooding in wet weather. The C compressor, which had been idle for some time, was re-started on the 18th. of November, sending the load flying past any previous limits. Fortunately saner thoughts prevailed at the Ministry, and a maximum of 900 kW was agreed on the 21st. November, at which point the quarry breathed a collective sigh of relief and went back to work normally.

The trials of the dust plant at Votty complete, plans were now made to deal with the Oakeley mills. It was decided that C, always a dusty mill, was to be dealt with first. The work was entrusted to Keith Blackman & Co. of Manchester, who had worked closely with the company engineers on the trial installation. Work began on the Oakeley site on the 21st. November. Similar plants were ordered for the Bonc Siafft mills. That for the old mill was to deal with 18 saws -giving some indication of the decline in use of the mill, and 21 saws in the new mill. The relative costs were to be £500/15/- and £588/-/. The new mill was the dustier of the two and was next in order to be done. It was hoped to complete the Bonc Siafft installation within two months of starting.

The Hydro Electric Scheme.

January had brought details of a proposed Ffestiniog Hydro - electric scheme. This had come about as follows:

During World War II, the amount of electricity supplied by the various generating companies throughout the country had increased considerably, indeed all plant was virtually working at maximum capacity, especially at the peak load times of evening and morning. It was during the war that the North Wales Power Co. were asked to carry out what would today be called a feasibility study of using the high rainfall of the mountains of Wales to provide a supply which could be used to offset the peak loads. In fact the idea being to supply about 5 hours worth of power per day, all year round. The idea for the scheme seems likely to have been taken from the considerable hydro-electric schemes in Scotland which had been successful by placing several small stations en cascade to use the same water.

The N.W.P.Co. produced eight schemes named after the districts involved. These were Plynlimon, Mawddach, Ffestiniog, Upper Conway, Dolgarrog, Snowdon and Nant-Ffrancon. Three existing power stations were to be enlarged and a further seventeen new ones constructed. Nothing was done however, until after the war when, as has already been described the loading situation became even more acute, and the British Electricity Authority was formed and faced with the severe problems took another look at the plans.

The Ffestiniog scheme consisted of two separate operations. One was to enlarge the Trawsfynydd reservoir which supplied the Maentwrog station of 1928, allowing for a 50% increase in output, while the second was to utilise the water on the western side of the valley which had already been partially tapped by the old Yale Power Co.

The most northerly part of the scheme involved diverting the waters of Llyn yr Adar to the north of Cnycht via a pressure tunnel to the stream which fed Llyn Cwm y Foel. This was to feed a second tunnel to which were to be added the waters of Llyn Croesor, via an aqueduct, while Llyn Conglog would be dammed and its water fed by tunnel to Llyn Cwm Corsiog, the outflow also feeding the tunnel. This combined supply was to feed a generating station to be constructed in Cwmorthin, on the western shore of a greatly enlarged Llyn Cwmorthin. The plan envisaged a large dam across the mouth of the valley from just below the Wrysgan Quarry across to Cwmorthin Quarry itself, the effect being to raise the level of the lake by nearly 100 feet from 1050 ft. to 1123 ft. above sea level. Water from this dam would then feed a second generating station at Tan y Grisiau, on the shores of a second reservoir which would drown the old Ffestiniog Railway line and the Moelwyn tunnel beneath 20 feet of water. The outflow from this reservoir would feed yet another generating station at Rhyd y Sarn, replacing the old Yale station, whose dam in the valley above would have to be removed. It was, quite naturally, the proposal to raise Llyn Cwmorthin's level by such an amount which horrified the Oakeley Company.

In late February, the B.E.A. wrote to the quarry requesting that Oakeley men clear the entrances to the Cwmorthin Quarry workings which had fallen in. The quarry was not amused and replied pointing out that unfortunately their men were fully occupied and not available.

The quarry letters at this time often referred to failures of plant and machinery, events which were to occur with increasing frequency and severity as the years went by and the machinery got older.

For example, on the 20th. January the K Trwnc hauler developed a fault in the bearings and pinions and traffic was diverted via the Arches Incline. The Ruston locos were particularly troublesome, on the 3rd. of February only one was in service, this situation continuing until April. Humphreys and his engineers complaining bitterly of the difficulty of getting spares from Ruston and Hornsby. In March the transmission line to the old No.1 transformer house at Middle Quarry failed, blowing the fuses at the fitting shop, slab mill and Middle Quarry main mill. The Bonc Siafft and C mills were, of course, on a different circuit and were able to carry on. The K Trwnc motor was the cause of much concern. It was of Metropolitan-Vickers "Metro-Vick" manufacture, built in 1915, and obtained second hand. The frame at the base had been broken some years before and the core of the rotor had had several blowouts and was loose on the axle to boot! Not to be left out, the Caban photographer created a stir when he snapped the wharf loaders supposedly taking their lunch in the Caban at the ex-L.M.S. station in Blaenau. Unfortunately, he chose to do this at 3 o'clock, not 12, causing a certain loss of work. The men in the photograph were smiling, but not so Humphreys!

The mill motor switches came in for comment also. They were the originals, installed in 1906 and had given good service but had started to cause trouble. Oil immersed switches were suggested with auto-transformer starters, 5 or 6 were needed, but one was thought to be enough to start with. (At least one of the 1906 switches survived in use to the end, nearly twenty years later.) The Air Receiver Inspector was unhappy about some of the compressed air receivers around the quarry, demanding that they were used at much reduced pressure as they were unsafe. The quarry engineer, Idris Williams, thought the report "too drastic" and informed the manager that he "would clear out the No.2 receiver, repaint it inside and then test it to 160 p.s.i." - double the working pressure. He wanted to raise the working pressure, not reduce it. No. 2, he said, had been in its present condition for years, there had been no sudden deterioration. Williams's faith was entirely justified and the receiver was officially passed for 80 lbs pressure on the 18th. May.

Meanwhile the B.E.A. was preparing to drill two test holes on the dam site in Cwmorthin. A 100 h.p. motor which had been sent away for repair was asked to be returned untouched as the price quoted was thought to be too high! The quarry intended to repair it themselves. In the mean time its place had been taken by a 125 h.p. motor so the repair itself was not so urgent. Williams was instructed to do what he could for it when it arrived.

June brought a number of disappointments, the apprentices were now taking call up for national service at 18 and so were disappearing after having been trained, Keith Blackman & Co. would not be ready to start with the old Bonc Siafft mill until the end of July at the earliest and it had become apparent that Viner was not likely to return from his sojourn in America for some time, so what was to be done about the regular 6-monthly survey of the workings which was required by statute? Messrs. Cole, Turner & Co., Mining Engineers of Nottingham were approached and were prepared to quote for the job. They suggested 5 per day plus expenses as a starting point. This was accepted and their surveyors, Messrs Erskine and Tooley, called to commence work on August 4th.

Meanwhile... work had begun on a replacement steel headgear for the K Trwnc. It was intended to do the major job of replacement during the summer quarry holiday, as soon as the new headgear, constructed from R.S.J.s was prepared. Work began on stripping the old timber gear down on Friday the 14th. July, and continued all the following day. Its condition was found to be very poor indeed, especially those parts which had been invisible to view by virtue of being buried in the ground. Humphreys remarked, "It is incredible its structure has stood so much strain in recent years." All traffic in the mean time went via the Arches Incline. The new headgear was erected on the 24th. July, and the pulleys etc. fixed but, "2/3 of the work is still to be done." Even by the 5th. of August it was reported that "The K Balance is not in full work yet, but raised 20 loads today of small rubble for filling up the raised roadway." The opportunity had been taken of re-grading the sidings between the head of the balance and the foot of the C Incline.
The interim period had not been without incident. The wire rope of a little tugger hoist on floor P had fouled the drum. The controller arm of the Arches Incline hauler snapped off after a lunch break(!). The drawbar on the first couple of wagons of a run going up the No.5 incline to middle quarry broke, the runaways smashing up the roadway.

A new Divisional Inspector of Mines visited the quarry on the 21st, July with the usual problems occurring, the manager complaining “He had never seen a slate mine before and was not acquainted with the methods of working.” A month earlier he had remarked “We seem to be appointed educational agents to the Ministry of Works.”

The K Trwnc had only just been restored in time, for on August 17th. the Arches Incline broke down completely and the old faithful (now rejuvenated) carried the whole load again. A new controller hut had been built for the Trwnc at the top of the incline, the level of the landing having been raised by 8” to improve the gradient. New compressed air lines were laid during August while a compressed air driven fan was installed in R floor to help with the ventilation and was promptly recorded in Caban. Down on R the roof for the first chamber “R.7” had begun.

September brought the usual notice of load spreading, the allowance this time being a “very generous” 952 kwh., and was described as giving the quarry an “ample margin.” A reduction in the load of 10-15% was required from Monday to Friday between 8 and 9.30 a.m., 10% from mid-October onwards and from February to March, with 15% from November to January. Additional motors now on load included one in the smithy driving an air fan for the fires, and fan motors for the dust suppression plant in the mills. The Bonc Siafft dust plant was finally completed and in work by October 20th.

Viner’s abandonment of the quarry was completed in October, when the quarry staff, desperate for further information to counter the B.E.A. proposals, were permitted to call at his old office in Llanrwst, which had been taken over by a firm of solicitors, to collect what they could. Emlyn Jones and Humphreys found the whole of the contents of his office dumped into one small room, files, letters, folders, maps plans and all, all piled up on the floor.

A new innovation in November was the use of a 4-wheel drive lorry used to transport materials onto R’Allt Fawr, which was found to be most satisfactory, and a great improvement on previous methods. A Rugby pitch (Union, of course) was laid.

1951

The new year brought an epidemic of influenza, absentees rising rapidly to over 100 and remaining at over 50, including staff, for nearly three weeks. The R7 roof was now through to Q floor, improving the ventilation on R. The “old colloidal factory” on the railway wharf was dismantled, while the expensive 100 h.p. motor had finally been rewound and returned to its place on the P compressor, allowing the ancient 125 h.p. motor to be returned to spare status. Viner was now expected back in May, though how this was revealed is not clear!

A serious accident occurred on the PenyBont to Dinas incline on the 25th. February. 16 loaded wagons in pairs were to be lowered. The first 14 were dealt with safely, but the last pair were not hooked onto the winding rope. Containing 2000 20x10 slates, both wagons, weighing at least two tons apiece, crashed down the incline, one going through the wall at the foot into the Barlwyd. The other landed face downwards at the foot. 3 wagons were damaged, two very seriously, the roadway damaged and the wall needed rebuilding! The slates were smashed and Humphreys inquired if they were covered by incline insurance. “NO,” he was told, “Book it as “breakages” in the wharf records.”

The caplamp installation, which was to be maintained at 160 lamps, was visited in March by Colonel Williams Ellis of Llechwedd with a view to a similar installation at that quarry. A shortage of sulphur at Cooke's explosives Penrhynedduaeth led to a shortage of gunpowder. Work had now begun on stripping the No.2 Mill at Penybont. It was hoped to recover 1.5 to 2 tons of scrap lead from the roof, the price being 140 per ton at the time.

On the subject of the Cwmorthin scheme, the company was informed that “The Authority (B.E.A.) would see to it that no water would be allowed to escape.” Into the workings of course, but how this was to be achieved was not revealed at that time.

An unusual visitor on 2nd. June was one Hal Linker. “From International Films of Hollywood, he filmed in colour the top of the K balance, blasting in the peak, haulage, splitting and dressing in the Mill and like most of his countrymen, he was in a tremendous hurry.”

Down below the quarry, the Rhivbryfdir area was being converted from D.C to A.C supplies, signalling the end of the old Yale system.

Viner finally gave notice that he would not be returning in June(!), and the management decided that they had better come to some permanent arrangement with Cole, Turner & Co. over surveying. What with the B.E.A. forming plans for
raising the level of Cwmorthin, and requesting Oakeley's help over the old workings which they had to deal with, it was essential that Oakeley had some professional help, both on its own account and so that it could check and contest the proposals of the B.E.A.'s own consultants. Cole Turner & Co., Humphreys said, had been in far too much of a hurry the last time, they ought to "walk around and get acquainted with the place in their minds eye and not just on paper."

On July 16th. the K Trwnc was halted with a faulty coupling and traffic was as usual diverted via the Arches, being restored to the Trwnc by the 23rd. The Osgood excavator was now out of action, its dipper assembly having fractured. Down at Penybont, a considerable quantity of timber was recovered from the old No.2 Mill building. It yielded some 3000 24x14 slates, 2000 24x12, 4000 20x10 and 4000 other sizes. Men were then put to work "gleaning" slates from the walls, mainly of 4.5" sizes, 678 worth of slates was produced for 391, a profitable exercise. The No.1 Mill was "roughly repaired."

Another odd visitor was notified by the London Office on the 16th. August when the quarry was asked to provide facilities for Ifan O. Williams of the B.B.C. who was building up a program of "unusual things" and wanted to record the quarry hooter. "Please do not ask us why," they commented. There was a power failure the following day for 10 minutes, the voltage when restored being only 8,000 instead of the usual 10,000.

An article in Caban drew the blue pencil of Humphreys on the subject of pumping and power, "800" became "some hundreds," "often" became "on occasion," "takes as long as six weeks" was emended to "a long time," and so on.

The yearly news of load spreading brought total astonishment. the quarry allocation was given as 792 kW. (as opposed to 952 the previous year), on top of which a 25% reduction was called for giving 594 kW. "Impossible!" declared Humphreys, even a 25% cut in the 952 to 594 was not on! He complained that they were quoting the previously achieved reduction, not the normal working load as a basis for a reduction. Their official figures, he pointed out, only required a reduction of 20%, so why were they demanding 25% from Oakeley?

During September the Surveyor Erskine and two "young assistants" arrived, and having had a look round with them, Erskine went back to the midlands, returning the next week to pick them up.

Complaints were now brought against the quarry from London concerning slates which were 1/8th over size, as well as "fading" and "breaking up." The quarry demanded samples for testing before accepting any responsibility whatsoever. The samples were duly produced and it was with some glee that Humphreys was able to report that as the slates sent for testing reacted to acid, they could not possibly be from Oakeley!!

**New Surveyors.**

It was now decided to employ a new firm of mining consultants to endeavour to oppose the B.E.A. schemes. The local council, via their local town planning officer, a Mr. Tuck, had decided to object to the B.E.A. scheme publicly in order to force the B.E.A. to disclose its full plans, which they were keeping pretty close to their official chests. A "confidential booking" was made at the North Western Hotel in Blaenau on the 6th. November for two "engineers" from the firm of W.J. & C.P. Bates, Mining Engineers, of Newcastle, Staffs. This company now also took over the surveying from Cole, Turner & Co, C.P. Bates being their chief surveyor.

December brought another accident to the K Trwnc after a pumping shift had ended on the 25th. After landing correctly at about 6 p.m., the driver put the controller in again. The carriage already at the top shot up into the headgear, but as it was dark, inspection was postponed until the following morning. One can also possibly imagine other reasons why the men were not inclined to indulge in an inspection at 6 p.m. on Christmas day! However, in the morning, the top axle was found to be bent, the headgear damaged. Traffic was once again diverted via the Arches, with consequent congestion. The balance was, however, working by 9.45.

C.P. Bates arrived himself on the 4th January 1952. he was shown the main workings down the K Trwnc, thence via the K2 Inclen Newyd to M floor and the rest. Humphreys recalls that Bates "knew nothing" of slate mining when his firm took on Oakeley's work - he was soon to learn more! He returned with E.H. Tabbenor, his chief assistant, on February 14th. This time the trip underground was more extensive. They went along the DE floor New and Old Veins west to the chamber 34 incline, then down to G, through the Old Vein and Back Vein to Cwmorthin's western workings. They then returned on G, crossed the incline and went back towards Oakeley as far as chamber 27 where the level was crushed. They retraced their steps to the incline, went down to H and they traversed that floor to chamber 40, back to the fall and broken level at chamber 26, then back and down to I. They went along I from chamber 22 to 34, returning via I to chamber 10, down to K floor, west there to the roof in chamber 13 from M floor, back on K to chamber 6 tip, down to L to see the old and new Sulzer pumps, and the shaft pump. They reached the office at 2 o'clock and then went on to tour Votty! Truly an underground marathon! Tabbenor today says that he was a young man in those days and everything was new and interesting.

The B.E.A. becoming rather suspicious of Oakeley's intentions and lack of assistance, advised the quarry that they wished to inspect the workings themselves. Their consulting engineer and advisor was Professor Hibberd of the Royal technical

college of Glasgow. Bates, acting for the Oakeley, now engaged Emeritus Professor Fearnsides of Sheffield University as an expert geologist and adviser. he visited the Quarry in April 1952.

The B.E.A. War opens - and closes.
The B.E.A.'s scheme to avoid water going into the Oakeley was now revealed. they proposed to install a cementation curtain in the rock to the eastern side of the dam from the surface, wherever that might be, down to 800 feet above sea level (between F and G). Behind this was to be an inspection gallery at the floor 2 level. One of the problems confronting the authority was the identification of the original ground level and its condition beneath the Cwmorthin tips. It was the Oakeley Co.’s contention that the ground was severely cracked and damaged and the Board's scheme would endanger their western workings, not merely by the presence of the water, but by the increased pressure of the water both against the dam and underground, forcing it through the cracks into the workings. One recalls Robert Roberts’ remark about not raising Llyn Cwmorthin by even an inch. The floor 1 level was literally at the edge of the Lake and it seemed very likely that much of the ground where the dam was intended to be placed would be cracked as well.

In an attempt to allay the Oakeley fears, Messrs. Freeman Fox & Partners, of "Vron", Trefi, put forward a modified scheme in which the level of Llyn Cwmorthin would not be increased, but the waste would be removed and the cementation curtain would now be at the floor 1 level. This was equally unsatisfactory to Oakeley and a full scale collision course was set.

Mr. Humphreys has described the end of the "B.E.A. war," as he called it, in this manner: "In May 1952, the Oakeley Co. was due to appear before a Select Committee of the House of Lords, but before doing so, a meeting was arranged between the B.E.A. and ourselves in the Oakeley Slate Quarries Company's solicitor's office in London. I was one of the Oakeley team with Bates and Fearnsides, Mr. Harry Cutts also being present. For the Oakeley appearance before the Select Committee two K.C.s had been engaged, Messrs. Thesiger and Rougier. The latter, a French-Canadian, apart from being a barrister, was also a qualified mining engineer! They were not present at the meeting. The following Saturday morning in the same week the two barristers came to the quarry and I walked with them underground from Oakeley to Cwmorthin answering innumerable questions on the way. Mr. Harry Cutts had arranged to meet us by the Cwmorthin lakeside bringing with him some sandwiches. He was there all right, waving a piece of paper on which was written a telephone message saying the B.E.A. had withdrawn the proposal." Professor Fearnsides retained his connection with the quarry, becoming friends with Humphreys and visited the quarry several times after the "war" had ended. He was particularly interested in the development of floor R and the insights it gave into the geology of the mine.

Now, retained as surveyors to the Oakeley and Votty Companies, it was essential that Bates & Co. had as much information available to them as possible and so another visit was arranged to "raid" Viners old papers, with the permission of his sister in law. The papers were now housed in a loft above the Central Cafe in Llanrwst, and access was gained by courtesy of one Griffiths, a local estate agent. The party was three strong this time, Humphreys, Jones and Tabbenor. Humphreys recalls that it was so hot and stuffy in the attic in the middle of June that poor Tabbenor fainted. E.H. Tabbenor was the chief surveyor to Oakeley and Votty until both concerns closed, although his company changed, becoming Durnford, Leed and Wardell of Wolstanton by 1964, in turn becoming K. Wardell and Partners, in which form it is still in being, Tabbenor now being one of the senior partners, with many memories of being asked to climb into impossible places deep in Oakeley to survey and record the work done. Significantly, apart from the B.E.A. affair, no new plans were produced, all work being based on the Jones' surveys of 1928-31, and plans kindly reproduced from the master tracings for the author carried the Jones' date stamp indelibly on each sheet!

Peace?
The influx of visitors to the quarry, invited and uninvited was beginning to worry the management and in June, after a particularly heavy visitation, it was decided to discourage the casual uninvited guests who simply appeared by putting up suitable warning notices which it was thought would keep future visitors at bay.

September brought the usual demands for load spreading, the figure given this time being 880 kW, the usual hot air was emitted until it was realised that this was 952 less 10% (much less!), Votty was allowed 480 kW in comparison.

In connection with the on-going problems of dust suppression, the quarry was informed that the mass-radiography unit would be visiting them shortly, and preparations were made for the unit to carry out its screening in the new C messroom, near the office. The announcement was greeted with trepidation by Humphreys who feared, rightly, that a good number of his most experienced workforce would be affected by the visit.

One of the problems first pointed out by Captain Williams-Ellis in the 1920's - that of the low power factor of the massive Oakeley motors - had been partially dealt with in the 1930's, but not entirely corrected. Now, with escalating costs, and much more stringent regulations concerning the maintenance of voltage and frequency, further alterations could not be avoided. The problem was different at the two sub stations. No.2 sub-station, at Bonc Siafft, required relatively little correction, as nearly all the motors it supplied were high speed, and ran continuously during the working day. No.2 sub-station, however, supplied the main haulers at Middle Quarry, C bank and No.5, as well as the C and Middle Quarry compressors.
These, of course, varied in speed and load, especially the old 200 h.p. haulers with their liquid resistance starters whose effects on the supply was considerable. They were also going on and off every few minutes and rarely achieved full synchronous speed. Providing suitable condensers for the No. 2 sub-station was no problem, as they could be accommodated inside the existing building. No.1, however, needed at least six large condensers which would not fit in the 40 square feet of space which was all that remained in the low tension room. The rated voltage of the units was also thought to be a problem, they ought to be suited for 500-550 volts, but the supply often surged to over 600! It was wisely thought that this was best left to the supply authority to sort out as they had requested it.

It was decided to erect a dust plant in the Middle Quarry Mill at a cost of £330, this time the plant was to be driven by the existing mill shafting instead of an independent motor. The bulk of the plant arrived on the 31st. of December and work began on the installation immediately.
31. THE INDIAN SUMMER 1953-64

Happy New Year?
The new year of 1953 brought its own problems. Overburden needed clearing in the Peak quarry on DE, very little slate having been produced of late. The visit of the mass x-ray team had proved, as expected, very disturbing, the manager commenting, “It is inevitable that we will lose some men thereby. Unfortunately they may be our most experienced men.”

A lovely piece of "English" resulted when the quarry ordered a new drifter drill, with the hope of adapting it to channelling to replace the old machines. It came to pass that the Quarry ordered it before asking permission from London, so that when the invoice arrived London was not amused. After some pause, London wrote, “In the circumstances, it will be in order for you to order the drill you have already ordered.”

Spion Kop was the next incline to be hit by an accident on the 4th February 1953 when the rope chain with which the wagons were attached broke. 2 wagons ran away and were smashed, one injuring Llew Owen, who was trying to jump clear.

An interesting suggestion made in July was to use the old beam pump turbine to produce electricity to offset the bill. This had no governor gear, but this was not felt to be a problem. The intention was to move it to the foot of the old vertical balance shaft where water would be available for 6-7 months of the year, 24 hours a day. In dry weather this would be reduced to 8 hours. It would probably drive a 149 kW generator or even 220 kW, if of new design. “This could supply 2 pumps at night, the 123 kW and the 93 kW, or one pump and a compressor during the day. This would use more water, but the water would be available when we need it most, at pumping time.” This was thought to save 200 kW on load, and would pay for itself before very long. Nothing was done and the turbine continued to rust quietly away in its chamber beneath the Arches incline building.

The imminent coronation of Queen Elizabeth II brought up the issue of the rock cannon again, and it was agreed to fire them in the evening to commemorate the event. Caban recorded the event in this manner:

Elizabeth II
The hour of mourning for a beloved Sovereign over, "Caban" joins with the Chairman, Directors, Management, and all at Oakeley and Votty in the loyal and sincere wish that the reign of Queen Elizabeth may be long and peaceful, and that under the stimulus of her rule the nation and Commonwealth will advance in right wisdom and prosperity.
No throne has commanded more respect and affection as well as the loyalty of the Sovereign's subjects.
In extending condolence to the Queen-Mother we in Merioneth are particularly mindful of the sterling example which the late King and his Consort set to happy family life.
It is to the continuation of this influence, and of the record of unremitting and willing service at home and overseas so faithfully observed by the Royal Family, that we confidently look in the person of our new Queen, and that of her Consort, the Earl of Merioneth.

Coronation Celebrations.
Oakeley Quarries contributed in no small measure to the animation and the gaiety which marked the Coronation celebrations in Blaenau Ffestiniog.
On the great day itself there was a characteristic "salute" of 1,800 "cannons," fired in train from Nyth y Gigfran overlooking the town, with a corresponding contribution from Votty. The discharge of shots was timed to a nicety, leaving no one in doubt as to the exuberance with which we greeted the Coronation of our new Queen Elizabeth II.
The Oakeley Quarries Company also donated prizes for the best decorated houses in the town. These were awarded on the occasion of the Coronation Carnival, the first prize going to Mr. I. Knight Griffith, Bod Eirwen, Manod. Consolation awards were made to six other competitors, the balance of the prize money being devoted to the Old Age Pensioners' Cabannau.

In an attempt to even out demand and power factor effects, the Middle Quarry and C inclines were now worked on a stagger, with the natural consequence of "some congestion." On June 23rd. a derailment on the P-Q-R incline resulted in traffic being held up for some hours from the bottom floors.

A complaint now came from the Planning Officer and Mineral Valuer over the projected outputs and waste tipping. This came about when Edward Jones, the Mineral Valuer rejected the quarries own estimate of 12000 tons per annum output (giving about 120,000 tons of waste per year), and inserted his own of 8000-8500 tons. Humphreys commented acidly, "How could he possibly arrive at it, I do not know." With hindsight, perhaps Jones was clairvoyant.

The Arches Incline was now "resting" again, acting as standby in case of failure of the K Trwnc. In re-jigging an article for "Caban", Humphreys revealed that on the perennial subject of brewing tea, the Q and R Cabannau brewed their own, as did P, N and O, while K supplied I, K, L and M.
London wrote on the 7th July notifying the quarry of an impending visitation as follows, “British Movietone News (in
the person of Peter White) want to take a few shots of slate quarrying... rather a nuisance to you, but we might as well get
any publicity that is going as no doubt otherwise they will go elsewhere.” The manager commented that they had "Refused
hundreds (of visitors) this summer - if we took all the visitors that apply, we would do very little else at this time of year."

October brought a meeting between Humphreys and a self-appointed "Committee of 8" - this came about after a period
of fencing between men and management. Humphreys finally agreeing only to being present in the same room with them in
an informal meeting, committing himself to nothing and making notes.

The Committee wanted:
i) reversing gear on all the saw tables.
ii) lifting appliances in all the mills.
iii) heating in the mills.
iv) precautions against a S-E wind blowing dust & debris about from the dressing waste pits at the C & old Bonc Siafft mills.
v) an arrangement so that the slate makers did not have to clear their own dressing waste from C mill.
vii) a better arrangement for disposal of the dressing waste from the Middle Quarry and more warmth in the Middle Quarry
mess room.

Humphreys merely noted in a letter to London that 17 sets of reversing gear had already been installed of the 20 that had
been bought.

In an attempt to solve the problem of the effects of the large 200 h.p. haulers, the company now sought to replace them with
smaller, higher speed motors. The haulers, it will be recalled, had been commented on many years before as slow and over-
powered for the work they had to do. Now that was even more true, the C incline, which had had four tracks in work at the
start of the century only had two in regular use, while of the Middle Quarry Inclines 6 ropes, only those serving C and DE
floors were in any regular use at all, the centre track of the No.5 incline was equally disused. W.O. Williams had a motor
at £100, while Metro-Vicks wanted £400 for a new one.

Dr. F.J. North of the National Museum of Wales, "Not the least of our admirers," as "Caban" put it, asked for and received
enlargements of a good number of the photographs which had appeared in "Caban" for part of the displays on Welsh Industries
at the Museum in Cardiff.

Heavy rain in mid-November found the pumps going continuously. The new peak hours were now from 7.0 a.m. to 12.30
p.m. and from 3.30 p.m., the manager commenting, "If we could reduce our maximum demand to about 2/3 during peak
time, then we would be charged for that only,... but the penalty is too severe,... a single failure to obey instructions by an
incline , pump or compressor driver for 15 minutes would penalise us for the whole year!" The magnetising charge was
waived, temporarily.

On the 23rd. December, the C compressor belt was replaced. The first belt had lasted 21 years from its original installation,
the next had lasted only three years, that being replaced by a second hand one, which had lasted until September 1939(!),
and that had lasted until 1953! The quote for the new belt was 43/- per foot, and although the machine was in use only for
about 4 hours per day for peak demand (of air!), it could not be done away with.

1954

The Inspectorate now pointed out that of all the Oakeley mills, the Slab mill was the only one without a dust plant, and
something ought to be done about it! So it was put in hand, E.R. Owen of the Britannia Foundry, Porthmadog, quoting
£33/10/- per table, having quoted £31/10/- for the original Middle Quarry Mill installation. The slab mill installation was to
be of the same type, driven by the shafting. Owen's quote, the manager complained, seemed to be a lot of money, in view of
the low demand for slates. Owen reduced their offer, bringing it down to £228 in all, and it was accepted.

A new "NEVEN" diamond saw broke up, 7 segments being stripped off the blade - it had been guaranteed to cut 30,000 feet,
but had only achieved 4843.5 feet when it failed.

This year saw the retirement of Robert John Davies at the age of 80, one of the many quarry veterans. He had worked the
Middle Quarry Main Incline as a driver for many of his 61 years of service to the quarry, having been present at the switch-on
to electric power in 1906, and his time had worked as pump and compressor attendant.

Avalanches in March smashed the troughs on R’Allt Fawr. While on the 31st. the manager angrily reported that 28 men had
absented themselves without permission to go to an international football match at Wrexham. On the C incline, four out of
the five operating crew had gone, no one knowing anything about it until it was too late to do anything. Humphreys had
interviewed the men on their return to work, but "very few will agree it was wrong in principle to be absent." It was a sign of
the times, for in another letter to London he remarked on the lack of support for the Club, it was, he said, "Not what we had
hoped."
A potentially nasty accident occurred on the 8th April at the diamond saw in Bonc Siafft mill, when a man raised the guard on the saw while it was working, reached up to pull it down again and his clothing got caught in the saw, "he was stripped absolutely naked." Fortunately the other man was near the switch and cut off the power or it could have been much worse. There was clearly, "a need for men to be specially trained to use the saw."

A fall in K11, Old Vein, blocked the roadway.

The summer brought an influx of visitors, as "Caban" remarked; "While the Snowdonia National Park, though round about us, does not, strictly speaking, include us, there is no resisting the appeal which our Oakeley Quarries continue to make as one of the attractions on the sight-seeing tour of the park."

"Inevitably during the summer months visitors succeed in breaking through our reserve - we are, of course, as busy in the summer as in all seasons of the year - to make appointments to view the many features of our work on the surface and underground."

"Young people particularly are fascinated by the skills of the men who win and make the slate." Some people's accounts of their visits are reproduced in the appendices.

The No.5 incline now saw a change in plant when a second hand 100 h.p. of B.T.H. manufacture from W.O. Williams was installed, the old motor becoming a spare. It was too large to remove, however, and so remained in place, the new motor driving the old shaft via a set of v-belts. Despite the fact that the new motor was only rated at 400/440 volts and running on Oakeley's somewhat notional 500 volt supply, there were "no signs of heating." This lasted until the 16th. of August when the motor failed completely, causing the old faithful 200 h.p. to be re-connected again. The changeover took less than 1/2 a day. The L floor compressor load setting was now reduced, reflecting the lessening demand for air in the middle floors. W.O. Williams was now a regular supplier for many items, one example being the replacement of the older winches with lighter "Holman" types.

An article in "Caban" on the Securers and their techniques of rock-bolting to pin loose sections of roof or wall in place bore unexpected fruit when the National Coal Board, no less, consulted the quarry on the subject. They were in dispute with a United States patent of 1941, No.554,077. The N.C.B. wanted to know how far back the Quarry had been using rock bolts - did their use pre-date the patent? The patent was for a "system" of rock bolting, which the Oakeley freely admitted theirs was not, but on the other hand, the bolts described were certainly of identical purpose, design and function to those sued for eighty years or so in the Oakeley. The N.C.B. asked to visit (!), came, and were shown bolts old and new together with a demonstration, and departed with a free sample and a signed declaration by the securers and others to the effect that they had been using rock bolts for over thirty years! The N.C.B. were able to negate the patent claim - and complimented Oakeley for their help.

The B.E.A. now raised its head again, first of all in relation to improving and extending the existing hydro-electric reservoir of Llyn Trawsfynydd. This attracted men from the quarry, 12 leaving in early October, 7 towards the end of the month and a further 13 in November. 2, however, returned while 2 others went to Maenofferen and Llechwedd. In the following January 28 men were lost to the scheme, while 26 had returned from it!

The dreaded 'flu returned in late November, Humphreys commenting "After the flood, the plague!" In contrast, he noted, "Output appears to have improved."

The winter weather once again brought its share of problems, the Bonc Siafft dust plant broke down in December, while the February of 1955 was so bad that it took four hours to move a run of wagons from the foot of the Spion Kop Incline to Dinas. On one day only 8 wagons of slates could be moved to the wharf due to ice on the track.

The thaw brought a recurrence of an old problem, Lefel Dwr was found to have collapsed. It was revealed that no inspections had been carried out during the previous year due to the rain. The manager wrote that he did not know how long it had been blocked (!) as the water seeped through. At the fall the roof was very low and working was unpleasant. The quarry had had to obtain waterproof clothing for the men working on the spot. Work continued on the level into March, at a very slow rate. The men were "willing and doing their best, but are new to Oakeley conditions.... we do not have skilled timber men as in 1931." Referring to the last collapse.

A serious accident happened on the 26th March on the P.Q.R Incline. "A load of rubble was being hauled up, just before it reached the top, the axle of the haulage set broke clear in two. The load crashed to the bottom of the incline and of course damaged the trackway, compressed air pipes and water pipes etc. The spur wheel of the set was undamaged, but the pinion had one tooth completely stripped and many others damaged... the lathe is antiquated and work on the new axle slow. Idris Williams etc. were at it for 16 hours and the work is not finished yet. It is a blessing no-one was injured."
On the same day the manager reported on the progress on Level Dwr again, "The men have worked an average of 11 hours per day and Sunday to clear it. They were nearly through, but heavy rain on Wednesday caused a further collapse, and rain is still falling. Two-thirds of the level is in solid rock, the remainder arched stones, slate reinforced by timber propping - the stone work has given way." The Middle Quarry water had "free drainage via G" - one presumes he meant in the open, as underground water was collected by the old drainage level on floor 1 and out via the old Middle Quarry Limit Level tunnel, discharging somewhere in the tips above the Barlwyd.

"Caban" took the opportunity to feature the work in the level in a short illustrated article; "Checking the Main Drain at Oakeley."

"With all our production floors hewn from the solid rock, thus ensuring the soundest and stoutest natural supports, it may appear odd that timbermen are required in a slate mine, seemingly to reinforce the strength of the mountain in which we work."

"John Arthur Jones and William Evans are the Oakeley timermen. Like the miners they have a multiplicity of tasks, though, chiefly, they maintain a system of supplementary timber supports in the upper floors where traffic levels emerge to pass under broken ground."

"In addition they have the care and maintenance of the roofing sections of the main water disposal adit, known as G level, which drives underground for three quarters of a mile at a slight gradient to emerge into daylight near the British Railways main line tunnel entrance in Blaenau Ffestiniog, there to pour its unending flow of water from the mine into a mountain stream hastening to Cardigan Bay."

"The G level is a main drain into which finally goes the full product of the whole de-watering system of the Oakeley underground workings at the rate of many thousands of gallons per minute; the leated and piped water from the surrounding catchment area; the overflow from the high level reservoir; surface water from the quarry top and seepage through an area of broken ground traversed by the adit."

"The mine is drained by dams from which water is pumped upwards to the adit from floor to floor. Directed and natural drainage from the surface cascade into the adit at appropriate points. The outward flow is natural and constant."

"Roofing timbers consisting of stout uprights and neatly fitted cross-members are essential along several sections of the water tunnel. It is the timbermen's job periodically to wade down the adit, plunging through curtains of water at the intakes from above to inspect, repair and replace where necessary..."

The K Trwnc broke down again on the 4th, May, but a spare motor was switched in to replace the failure, the delay being about an hour. Most motors had a spare mounted nearby at this time, as a precautionary measure. Work also began in May on stripping the last Mill at PenyBont, as it was no longer required and the dismantling of the other had proved so profitable.

The Oakeley - Votty Club Annual Summer Sports was held on the 21st. July, 1955, with a record attendance. The event also being the occasion of the crowning of the "Quarry Queen."

Events which did not augur well for the future were beginning to occur. There was a fire on the 10th. August in the booster station of No.3 Sub-station, one transformer being damaged. In September the manager reported gloomily that they were "Down to our last pair of miners."

The Quarry was visited in October by Mr. Nigel Birch, the Minister of Works and M.P. for West Flintshire. He had spent the earlier part of the day looking around the Dinorwic Quarry, near Llanberis. He was accompanied by Mr. Geraint Walters, the Director for Wales of the Ministry of Works. After being greeted by Messrs. Humphreys and Cuts, for Oakeley and Mr. T.W. Jones, the M.P. for Merioneth, he donned oilskins and a safety helmet. Following the usual route via the C Incline, K Trwnc and K2 Incline, he descended to P.B1 for the by then standard demonstrations of agility and skill by the rockmen.

At the foot of the K2 Incline, on his return, "...some men were waiting for transport to the surface after their days work, and the Minister cheerfully beckoned them to join him and the other members of the party on the truck. The men needed no second invitation." As well they might, since it was the same truck they usually used!

On his return to the surface, the Minister retired to the Quarry office for a "private" discussion with the quarry officials and the local M.P. on the problems of the slate industry. "The Minister was informed that the demand for Ffestiniog Slates in practically all sizes was such that some 200 additional men could be taken on between Oakeley and Votty quarries immediately... He appreciated that the was to produce the slate, not to find markets for it, and that the real difficulty was to get the men." "Caban" did not say that the men most needed of all were the miners.
November brought another serious accident, this time at Spion Kop. Five loads out of 111 had been safely crewed. "While they dealt with the sixth and seventh, the men on top of the incline unhooked two empties after the brow, but they ran back immediately and rushed down to the bottom. Two men were there dealing with the full loads, they heard shouts, saw the wagons coming and tried to save themselves. One was struck, not seriously." Two days later the facts emerged, "The wagons were brought up possibly too slowly by brakesman John Douglas Jones. An 18 year old, Robert Francis Jones, unhooked too soon despite cries of 'Don't! Don't!' The trap was closed. We have now made the trap so it cannot be closed except by holding it." The manager now complained that there was "not a single platelayer we can rely on to maintain the track etc. How about loading slate into lorries for transport to the wharf?" The writing was thus clearly on the wall for the gravity inclines. A census for British Railways (London Midland Region) of ex-L.M.S./L.N.W.R. slate wagons which were leased to the quarry in late November revealed no less than 228 to be on the premises and wharves, with 7 out of use damaged.

On the 22nd, November the DE compressor broke down when 2 bars of the 100 h.p. motor burnt out, the old faithful C compressor promptly being put into full work to carry the load. The following day the manager wrote that he was now unable to load any slates for the wharf as the men were away at a football match at Wrexham again. "I wish," he wrote, "they would hold these International Football Matches further away."

Fun and games took place in December when Cohen's men began dismantling the old F.R. Dinas branch at PantyrAfon, "recovering rails for the line from Portmadoc." The quarry foreman on his way to work found Dinas goods shed door ajar and workmen's tools inside. The men thought the shed belonged to the railway. The foreman pointed out that it belonged to the Oakeley Quarry, but told them they were welcome to use it, provided they took care etc. Unfortunately, when he passed the next day he found the remains of some ex-L.M.S. wagons, cut up on the spot. When he made enquiries, the men told him that they had been told by the railway company to cut up any F.R. wagons. They were not aware of the difference between them, or that there might be non-F.R. wagons around. They were told to stop! The men's foreman accepted responsibility at once, but for the two wagons it was too late. The question which vexed the quarry was, who was to claim - the quarry or B.R.? In the end it was agreed that the two wagons were simply to be replaced. A new lock to the quarry in late November revealed no less than 228 to be on the premises and wharves, with 7 out of use damaged.

On the lighter side, the Oakeley Silver Band had an unexpected gift when Mrs. Inge, the surviving daughter of W.E.Oakeley, returned to them the silver cup for the Welsh Championship which the same band of 1897 had won outright after winning it three years on the run. The cup had been presented to W.E.Oakeley and had been kept at Plas Tan y Bwlch until then. With the cup she also presented the band with a photograph of that old winning team.

1955 marked a watershed in the fortunes of the Oakeley Quarries, from now on it was going to be a battle for survival as the quarry management fought the long defeat.

The Ffestiniog Pumped Storage scheme.
A new Hydro-electric Power Act was passed in 1955, but this time its effects on Oakeley were to be far less than the previous scheme, as the Ffestiniog Power Station proposed by the Act was not to involve the dangerous Llyn Cwmorthin, except as a feeder. The eventual design to be followed utilised Llyn Stwlan, nestling beneath the Moelwyn peaks as an Upper of two reservoirs. It had in any case been used as a reservoir before that for the Moelwyn Quarries, being adapted in 1898 to increase its capacity for the Yale Power Co. The lower reservoir, which was to flood the Ystradau valley, to the south west of Tan y Grisiau would effectively flood also the route of the Ffestiniog Railway, then only gradually awakening from its wartime sleep. The arguments between the British Electricity Authority, later the Central Electricity Authority and ultimately the Central Electricity Generating Board and the railway company were to go on for many years, and will not be mentioned further here!

The pair of reservoirs so formed were to act as a "pumped storage" generating scheme, the first in Great Britain. Work on the access roads began in mid 1957, followed shortly by the dams and power station. The first unit of the new station was commissioned in December 1961, the fourth and last in March 1963.

The main effect of the scheme, was, however, to draw men away from the quarries for the relatively higher pay of the site work, a situation to be repeated in the ensuing years, though to a lesser extent, by the construction of the Trawsfynydd Nuclear Power Station. This was authorised to proceed in July 1958, following a public inquiry. Work began immediately on Llyn Trawsfynydd and on the station in 1959, going into full operation in January 1965.

In February 1956 Humphreys commented on the fact that a "Diesel Train" had started running on the Blaenau line - Coal, he remarked, had been delivered by road for some time. As no steam engines of any kind were in use by this time, this can only have referred to coal for the smithy and heating stoves.

The Central Electricity Authority now proposed to upgrade the transmission lines to the quarry to 33 kV and at the same time upgrade the 10 kV transmissions to 11 kV and install new transformers. A note by the engineer revealed that two of
the four original transformers of 1906 were still in commission, although they were only on stand-by, as installations of 1925-28 in No.1 and 1935-38 in No.2 were actually on line.

The ex-PenyBont mill slates found a use in May when a 100 foot section of the old Bonc Siafft mill was covered with them, not a single new slate having to be withdrawn from stock in the process.

The North Wales District Committee of the Welsh Board for Industry visited Oakeley towards the end of July, and Caban recorded the visit: "Following one of their meetings held at Blaenau Ffestiniog, members of the Committee - on which industry and Government Departments are represented - with their chairman, Mr. Derek Graesser of Sandycroft, Cheshire, were welcomed at Oakeley by Mr. Harry Cutts, our Managing Director and afterwards conducted on a tour of the mine and mills which lasted about two hours."

"Under the guidance of Mr. Cutts, Mr. Gwilym Humphreys the Oakeley Manager, Mr. I.W. Williams, the quarry engineer and Mr. W. Thomas, an undermanager, the visitors entered three underground chambers on P floor and showed the liveliest interest in the various operations entailed in winning slate from the bowels of the mountain."

"Rockmen demonstrated their function by clambering up the precipitous rock in P.9 and afterwards neatly splitting a huge block of slate weighing about six tons which had just been brought down from the working face of the chamber."

"A striking illustration of the effectiveness of the dust suppression equipment employed throughout the quarry was afforded when, in the course of a drilling operation, the dust bag was momentarily removed to reveal a cloud of dust emanating from the deepening hole in the block."

"In P.10 the party approached, somewhat gingerly, a roped off opening in the floor of the chamber running at a steep angle to the floor below, and their attention was captured by a securer who swung down into the gaping hole on a heavy rope to test the “roof” for any sign of looseness. This was an example of the safety measures which are constantly observed in the mine."

"Returning to the surface, the visitors entered Bonc Goedan Mill to see the remaining stages of slate production - block-sawing, splitting and slate dressing - and inspect samples of the finished product."

"From the general reaction of the visitors to what was for many of them a new experience it was apparent that they had greatly enjoyed the tour and found it an enlightening experience."

"Three points on which Mr. Derek Graesser particularly commented were the vastness of the underground chambers, the skill and apparent ease with which the men split the blocks of slate exactly as they desired, and the partnership system of working a bargain and making the slates."

"Mr. Graesser said to Caban that before his visit to Oakeley he had no conception of what it was like in a slate mine. "I have had a lot of ideas about slate quarrying knocked out of my head," he remarked. "I was very impressed with the conditions underground, the lack of dust and the clean atmosphere generally. Working conditions in this quarry are far better than those in any other industries I have seen."

A use for the waste slabs on the tips was found during the year, when the Gwynedd River Board bought the waste material to use for river defences, the particular scheme to receive attention at the time being the River Artro at Llanbedr, near Harlech, some 3000 tons being incorporated in a half mile length where erosion had been severe. "The slate should last hundreds of years," commented Alwyn Jones, the Board Engineer.

In August 1956 the Old K Incline - the K# - motor broke down due to a broken circuit in the motor. The replacement of the motor was accomplished by taking the spare K Trwncc motor underground from its normal home and took two days. The old motor was 56 years old and it was decided to repair (again) the old 75 h.p. motor and the 100 h.p. motor rather than buy new ones. The rainfall for the 11th-18th stood at 10.77 inches, as measured by the gauge at Middle Quarry, while the total for the first 18 days came to 14.62 inches.

The Osgood excavator now required so many repairs it was questioned whether it was worth while.

Another visit to Oakeley recorded in Caban occurred in September, 1956, when the Lord Mayor of Birmingham, the Lady Mayoress, his daughter and members of the City Council. "During the party’s tour of the Oakeley workings the point emerged that Birmingham was faced with the problem of re-roofing many pre-war council houses. Councillor Thomas, the only Welshman on the City Council - he once worked in a Ffestiniog Quarry - has been seeking to impress upon his colleagues the virtues of Welsh Slates and endeavouring to persuade them to specify slate for the re-roofing work."
"To quote Councillor Thomas: “I have succeeded in bringing with me today the chairman of the house building and public works committees and I am hoping that as a result of this visit they will be impressed not only by the industry itself but by the value of slate as a long-life roofing material.”"

The sting in the tale was at the end of the article - it appeared that "Councillor Thomas’s" brother had worked at Oakeley since 1945, and a third brother was conductor of the Oakeley Choir - 'enough said.

In October Humphreys commented that it was debatable whether the Quarry Club should be kept open as it is "flogging a dead horse."

On November 5th., appropriately enough, a fire was discovered on top of the K2 "New" Incline. An electric fire had caught fire when a coat fell on it, this was a common danger, men were known to put there coats over the haulage motors to dry them, obscuring the cooling vents in the stator casings!.

This was the first year since 1946 that the number of chambers in work at any one time had fallen below 30, it was never to rise above it again.

1957
The old motors were repaired again in January. The quarry smiths made a sternplate for Mr. Cutts boat and sent it off by rail. He replied that it would be "cleaving the waters of the Thames this summer."

The Osgood broke down again in February. Harry Cutts retired and was replaced by one A.D. Fordham as Secretary and General Manager. Once again the friendly personal link between Quarry management and London was broken to some extent despite protestations to the contrary.

On the 28th. February the Management agreed at last to pay wages individually, rather than to the foremen of the gangs. The issue is put to the Cabannau and accepted by vote.

Once again Oakeley was host to a Minister for Welsh Affairs when Mr. Henry Brooke, the Minister of Housing and Local Government spent nearly two hours at the quarry.

"In fact, the Minister, who afterwards confessed that he had been fascinated by the experience, stayed some twenty minutes longer than his time schedule allowed, and many of those minutes were spent in earnest discussion on the techniques of slate mining with Mr. Gwilym Humphreys, the Oakeley manager over a cup of tea in the office.

"The Minister obviously did not want to go away without a clearer understanding of the methods of chamber working and of extracting slate from the mass than had been possible during his rapid inspection of two chambers on Q floor, about 900 feet underground. " He wished to know how a new chamber was started, how a 6 ft. layer of slate was cut from the whole face of a chamber, and how the rock to be extracted was separated from the pillars which are secured as supports for the floor above.

"All these points Mr. Humphreys explained to the minister with the aid of specially drawn diagrams.

"Such interest was typical of the persistence with which the Minister delved into many aspects of Welsh Life and Industry in the course of his general tour, the purpose of which was to acquire a first hand knowledge of Wales....."

"...For the journey underground the minister wore regulation helmet, rubber boots and a borrowed raincoat." He carried away with him the traditional gift of a slate fan. "

Despite the almost moribund state of the Quarry Club, Sir Charles Oakeley, Bart. was re-elected Chairman of the Club at the A.G.M. in May 1957 along with other officials - the Quarry could hardly do otherwise. Both the Choir and Caban continued, the latter recording Official visits such as those mentioned above, as well as recording the events in the Quarry Cabannau above and below ground. Publication had levelled off at two issues a year, and with the conclusion of the major series "From Floor to Floor - Going Down in Oakeley and Votty" in the October 1955 issue, the contents began to lose something of the spirit of the earlier issues.

On May 10th. the Quarry was visited by the B.B.C. Television Company who went around filming without permission in the mills and interviewing the men. The Quarry protested as it did not know what they had photographed! The Quarry was at the time being visited by the Minister for works. "This modern journalism by T.V. is becoming a nuisance, especially as the programs do not seem long enough or serious enough to give a true picture to the public."

In June an accident occurred on the K Trwnc due to a failure of the signal bell. W.O. Williams bought Cwmorthin Mill for £450. The July electricity bill topped the £1000 mark.
In August a 100 h.p. motor was bought second hand from the Gresford colliery for £50. While on the 8th, the N floor pump failed. For once the motor was not at fault, but the cable supplying it was. It took a long time to find the burnt cable.

The closure of the Dorothea Quarry in Nantlle, the largest in the area, caused consternation in Blaenau, and at Oakeley a reassuring notice was posted, stating that Oakeley was in no danger of closing.

A fall of rock in the peak quarry partially buried the Osgood, while an accident occurred on the No.5 C to Middle Quarry Incline when the driver failed to disengage the power while landing a load. The wagon was "overwound" into the drums, smashing the drivers platform on the way. It turned out that a protruding split pin on the switch lever had caught under the edge of the safety plate. The plate was promptly modified to prevent it happening again.

In September it was finally decided not to repair the Osgood, even though it had not received a "direct hit" from the fall. On the high level bridge, deteriorating timbers on one of the subsidiary spans were replaced by 14x6 steel joists and the width reduced to 8 feet for safety.

October brought an accident on the "officially approved" man carrier in use on the P-Q-R Incline. One Bob Edwards fell at a point where the roof was low. The men complained that he had struck his head on the roof. However, no-one actually had seen the accident take place, and when the carrier was tried again under the low place there was a good 5 to 6 inches clearance above a man's head. A notice on the carrier said "No Standing" and the management could not see how he could possibly have struck his head if he had been sitting down properly.

### Alarms and Excursions.

A curious episode occurred this way, "The Police telephoned last evening following a statement by a shepherd that water was pouring through the Llyn Ffridd Dam and he had told them that his father remembered this dam bursting in the 1870's as a result of which children lost their lives in Talywaenydd! William Thomas and I were on the dam at 8.00 p.m., but it was just the same as it usually is in a heavy flood, water lapping over the top."

The rain was becoming a severe problem though. On the 30th, of October the rain gauge read 2.87" of rain in 10 hours. The manager wrote, "There was an inrush from the Cwmorthin area which we were not able to control. Up to a few minutes ago the water was gaining on the pumps in the main reservoir although the three main ones have been kept on continuously. The gain has, however, slowed down - it has not rained today." The "reservoir" referred to, was of course the main storage levels on floors L and M behind the "big dam".

On November the 3rd he was able to report that the level in the main reservoir was only 23 feet, it had come down 7 feet in the last twelve hours. In other words with the water over 30 feet deep and gaining on the pumps there had been a real danger of the water over-topping the dam on L and flowing out through the K levels, thus circumventing the normal water control channels. However the danger had passed, by the following day the level had fallen to 12 feet by 9 a.m. and it was hoped to be able to stop pumping by midnight. The three main pumps on L had been running continuously for 184 hours.

In fact the pumps were stopped when the "indicator" showed a depth of 6 feet behind the dam. It was estimated that the pumps had shifted over 35.5 million gallons of water. It rained heavily again on the fifth and the pumps had to be turned on again during the ordinary shift of work. The manager commented, "The stoppage of a few hours only of a single pump might at one time have made evacuation necessary." It appeared that something was wrong with the rain gauge, as it was consistently reading below those of Llechwedd and McAlpines. The total rainfall for December turned out to be no less than 21.27 inches.

Caban recorded it in this fashion:

""Glaw 'Stiniog" - Ffestiniog Rain - is a catch phrase which conjures up in the minds of North Walians a picture of a dripping countryside - and our quarrymen know its meaning only too well! Outside the Snowdon mountain range, the Oakeley quarry rainfall record is one which nobody envies and elaborate and efficient arrangements have been developed to canalise the water which cascades from the hills in rainy periods and to ensure that the underground workings are kept dry."

"At the end of October the drainage systems of Oakeley and Votty were severely tested. During the four days from the 27th. to the 30th. between 12 and 13 inches of rain fell - the heaviest spell of rain ever experienced at the quarries - and it led to the sternest battle against water which the staffs had ever had to wage."

"Chiefly it was a battle of the pumps. It went on day and night for over a week at both quarries, and there were tense and anxious moments as the level of underground reservoirs in which excess water is collected - some are 60 feet deep - rose inch by inch towards the critical point."
"But victory went to the batteries of electrically driven pumps operated by relays of experienced pumpsmen. Extracting water at the rate of more than 8,000 gallons per minute, the pumps raised and discharged into the surface water courses nearly 80,000,000 gallons of water from the two quarries during the vital period."

"Thus was the efficiency of the drainage arrangements proved under extraordinary pressure and throughout the trying period the slate chambers and tunnels were kept free of water. Underground work went on uninterrupted."

"It was not the four-day rainfall alone which accounted for the situation with which the quarry staffs were confronted. It was because the rain came at the end of an abnormally wet month on top of a summer of high rainfall."

"As a result the ground around the quarries was already saturated and when the month-end rain came, torrential at times, the water simply ran off the surface. Troughs, leats, trenches and ditches could not cope with it all."

"From the 27th. to the 30th., 12.8 inches of rain was registered at Oakeley (1,000 ft.), and 12.24 inches at Votty."

The EIMCO loader was still at work on K floor where Caban gave this account of it:

"A remarkable machine is the EIMCO loader. Air power drives it on rails, forward and in reverse, operates the scoop to bite at the rubble and raise the scoop in an overhead movement to tip its load into the "trailer" truck attached. It has an expert handler in Robert Jones, a native of Bethesda, who has been a rockman all his life. Now 64, he has worked at Oakeley for 16 years and for some time has been using one of our pneumatic loaders - he calls it "yr hen greadur" (the old creature) - in a cavity on K floor at the base of a rock fall which occurred seventy years ago. From the rock-fall Robert Jones extracts first-rate blocks of "old-vein". As he observed: "We get some lovely slate here." ...Robert Jones' rockman partner is John S Jones (the S is simply included to identify him from the other Joneses) who is 66 and has worked at Oakeley for twenty years."

October also saw the retirement of Owen Griffith, a slatemaker at Bonc Coedan, the oldest employee at 77, who had spent over 63 years at work in the quarry. At his retirement, he still was walking the mile or so daily and up the long steps to the quarry to arrive say about 6 a.m., well before the starting hooter.

Another autumn event was further repairs to the high level bridge at PenyBont: "The central span of the bridge is some 80 feet high and is maintained by the British Transport Commission, but the two end spans are the quarry's responsibility. The job was to renew one of the end spans, and this was carried out under the supervision of Idris Williams, the Oakeley Engineer, with Evan G. Jones, the quarry carpenter, as his chief assistant."

"The work involved the removal of the two main wooden beams and cross members, their replacement by steel joists, resurfacing and relaying the railway. Working about 35 ft. above the embankment which falls steeply to the floor of the ravine, the men, making ingenious use of winch tackle and metal rollers, removed the massive wooden beams and manoeuvred two heavy steel joist across the gap in which the new span was built up."

Trouble arose at the end of the year over the traditional Christmas Party due to costs. A combined party was suggested. Objections flowed as to how they were to exclude the TB and silicosis cases! Separate parties were decided on. "We will not finance the pensioners party if the children do not have one" was one comment. London conceded defeat and the children's party went ahead the Quarry saying, "Please send 200 hats and balloons as usual."

1958
This year brought its own crop of visitors and events, one sad one was the death of one of the Quarry Board, not an event usually calculated to produce much great interest in the quarry, but this one was different. Caban put it well:

"Everyone at the Oakeley and Votty Quarries will have heard with much sorrow of the sudden death of Captain R.M.C. Howard. They will remember his charming personality and particularly will they remember his determination as a director of both companies to visit the depths of the mines despite his severe disability, and his keen interest in the quarrymen and their work. Mr. Howard served with the Grenadier Guards in various fields in the war and it was in Italy, during the battle of Monte Camino where he earned the D.S.O. by his courage, that he received the wounds that were to cost him the loss of both legs. Undoubtedly he will be greatly missed, both on the Board and on the occasions of the directors visits to North Wales."

His usual mode of transport around the quarry was in a waste wagon which had been specially cleaned out for him and made more comfortable than its normal spartan iron. Two men looked after him and accompanied him around the quarry, lifting him in and out of the wagon as he required. A frequent event after directors visits was a letter from him to the quarry manager containing a small gift of money to be given to the men who had helped him during his visit.

Yet another "Minister for Welsh Affairs" visited Oakeley in February 1958 in the person of Lord Brecon, who had a personal as well as ministerial interest in slate production. He owned a family limestone business in Breconshire. He was
accompanied by the Director for Wales of the Ministry for Works, and old hand and veteran of several Ministerial Oakeley
visits. On this occasion Q floor was the scene of the Ministers education in the work of the rockmen.

Even the cover of Caban was becoming difficult to make up. July's was a montage of shots from previous editions.

From the Club - according to Caban - came the idea for a weeks round of events by the quarries to celebrate the "Festival of Wales", this was "acknowledged to be one of the most successful community enterprises locally for many years." The climax was the crowning of a "Slate Queen", much after the fashion of the local "Rose Queens" of Lancashire.

1959
January, 1959, marked the tenth anniversary of "Caban" and a suitable editorial marked the occasion. Reading between the lines one can see a plea for support for more than just the magazine:

"Ten years have passed since Caban made its first appearance. Everyone knows that it derives its title from that much older institution, the stone built or rock-girt Caban, above or below ground, which is traditionally the centre of the quarry's social life and the place where the mid-day meal is taken and information and ideas exchanged. Caban, the magazine, has a similar function and we like to think that during the decade of its existence it has in its pages recorded the story of Wales's oldest industries in all its facets."

"Time has seen many changes, notable in mechanisation and electrification and, in the last ten years, the introduction of dust-extraction equipment, but the basic method of winning the slate has persisted through centuries and even today the operation of slate splitting remains an individual skill demanding the expert eyes and hands of craftsmen as it did when the slated roof was "invented" a very long time ago."

"Caban has, too, in work and picture reflected the lives and culture, the hobbies and pursuits of the quarrymen and to turn back the pages is to discover the remarkable variety of their interests. And like other industrial and staff magazines Caban has modestly provided testimony in various ways of the quality of Welsh slate mined at our quarries and now found roofing buildings of all kinds in all parts of Great Britain and many countries overseas."

"It is no exaggeration to say that in the past ten years Caban has described and illustrated every operation in slate quarrying literally from floor to floor. It has also recorded the visits of Ministers of the Crown directly concerned with conditions in this Welsh Industry, and of official delegations from cities and towns interested in our products. Its contents have included articles from contributors ranging from professors to school children and their interesting observations have been welcomed for their enlightenment in helping us "to see ourselves as others see us.""

"But how well Caban fulfils its function as a staff magazine depends upon the support it receives from the men themselves; it is the medium through which they can express themselves, whether in poetry or prose, in Welsh or in English, and without that sustained personal interest Caban cannot truly reflect life in our quarries. To quote from the first issue of Caban in May 1949, "This is our magazine and we want everyone to have a share in it. What is your Caban going to send us for the next number?"

"In concluding this brief note on the tenth anniversary of Caban, we hope that it is of interest not only to the men who work in our Oakeley and Votty quarries and their families and friends in the town of Blaenau Ffestiniog, but also that it enables our many customers and associates of our company to keep in touch with the source of the roofing materials which they so widely use."

The same issue contained details of visit by the Lord Mayor of Swansea when on his way to a meeting at Caernarfon, his visit was confined, however to the Bonc Goedan Mill, and he did not venture underground.

In response to a request from Dr. F.J. North, of the Department of Geology of the National Museum of Wales, examples of the many tools used in the quarry were despatched for display. He also asked for "obsolete tools and appliances" so the quarry sent him a "jumper" drill.

The Oakeley choir now had a woman conductor for the first time.

In May, Members of the National Federation of Roofing Contractors who were attending the half-yearly meeting of their Federation at Llandudno, and were treated to the now standard tour of underground chambers and mills Oakeley appeared on Television in May also, this time in Children’s hour! The filmwork had been done by the B.B.C.'s regional film unit under the direction of Elwyn Thomas - presumably with proper consent and scrutiny this time!

Caban recorded that "A relic of the steam age at Oakeley - a Kidbrooke locomotive - stands forgotten by the quarrymen but it is frequently the object of enquiry by light railway enthusiasts who learn of its existence through devious channels! The Kidbrooke was last in active use some 25 years ago."
A pleasant change was the mild summer. Although July was wet, August was notably dry, recording only 1.6 inches of rain.

The Oakeley participation in the National eisteddfod at Caernarfon was a shadow of its former self, the quarry only being represented by a selection of enlargements from Caban, and a couple of slate "fans."

Sir Charles Oakeley died in November: "The untimely death of Sir Charles Oakeley on 22nd. November came as a sad shock to his many friends and associates. Sir Charles was chairman of the Oakeley and Votty and Bowydd Companies for many years. His keen interest in both companies and all who work with them was particularly manifest during his periodic visits to the quarries which he always so much enjoyed. This interest and his friendliness there will be as greatly missed as his presence in the chair at Board Meetings.

For myself, I have also lost a great personal friend
- Harry Cutts."

1960

In January prospects were reported to be "not as good as they were 12 months ago." Down on R floor in particular there were problems. In R.6 a lot of spar and foot joints had appeared which suggested to Humphreys and the other staff that the Glany Pwll Trap rock was not far away. He decided to send the miners in to test the ground with levels. Their investigations effectively signalled the end for R floor as a source of slate for it appeared that they were in the presence of a bulge in the trap rock, effectively "pinching out" the slate vein.

The first chambers on R had been put into production in mid 1952, and production had averaged three chambers in work from then on. The highest number in work at any one time had been four. Chamber 5, the furthest east was widened and opened but not worked. R.6 and R.8 proved to be the longest lasting, being in almost continuous operation from 1952 to 1959, R.7 only lasting from 1952 to '55, R9 from '54 to '59 and R.10 from '57 to '60.

Abandoned as a production floor from 1960 onwards, it was nevertheless retained as an emergency storage area for flood water. It was inspected regularly as part of the mine up until 1962 when it was described as in "good order." After that the water troubles described below prevented inspection.

In April, the Quarry Choir was disbanded, and while Oakeley tendered for the Lake Tryweryn contract, another public works scheme which drew men away from the quarries, they withdrew it the following month as they felt unable to match the terms required. It was also decided not to advertise in "Y Cymro" in future.

Letters in another newspaper - the Daily Post - by one Wynne-Williams got several quarry managers hot under the collar. While his first article, Humphreys said, reflected his views in many ways, they should not be made publicly, but a further letter headed "Using Small slates" aroused his fury, "I expect you have seen... his generous invitation to all and sundry to claim for broken slates in transit."

The same month, Colonel Williams-Ellis of Llechwedd was quoted as saying "He would do his best to keep open, but it was very difficult."

McAlpines, working on the Pumped Storage scheme wanted slabs, but the quarry said they were unable to supply them as "...the machinery is very old. There is enthusiasm here as well, but we are working onanism a shoe-string as you know."

The Quarry reacted to a Board decision not to raise salaries with "philosophic" acceptance although they were "disappointed", there had been a warning the previous year not to expect a raise as a matter of course, there was, however, uneasiness about the lack of any pensions scheme.

The quarry exhibited as usual at the June Festival week at Rhyl, with demonstrations of splitting and dressing. McAlpines working at Stwlan and Tanygrisiau were refused again asking for slabs as "our present machinery is just not good enough to do the work accurately enough."

C. Bates, the surveyor, died in June, his partner Lee being consultant to Votty. An electric crane was installed in the New Bone Siafft Mill. The dust plant was no misbehaving, there were complaints about excessive dust in the mills from dressing, the C mill being especially bad in hot weather, there appeared to be no suction for the dressers. On a lighter note, the manager commented on the "Jenny-Lind" in the slab mill, a polishing machine, "Why is it called that? Does it make a noise like a Swedish nightingale?" he asked. Strangely enough, the answer, to be found in an old quarrying and stone-working magazine says just that!

The Board of Directors paid their Annual visit to the Quarry in June, it was to be Harry Cutts last.
It was now suggested that the dressers be totally enclosed, while Fordham, the General Manager who said he had “no faith in water” suggested calcium chloride! Exactly how he expected this to reduce the dust was not stated, and the reactions to his suggestion have not survived - fortunately. It only went to show the increasing distance between the Board and the real world of the quarry.

On the 20th July the manager wrote, "While I was away some men from the L.M.S.(sic) came to the quarry and the wharf, I believe, to check the number of L.M.S. wagons there. I am told they were satisfied more or less by the approximate count." Once again the high level bridge was in need of repair, this time requiring re-surfacing with timber. More worrying was the fact that it had been tampered with where the power cables were carried across the side of the bridge.

Water drip was not liked in the mills to reduce the dust due to the “blowback”, not to mention the suction drawing up the damp dust and becoming clogged.

Men were withdrawn from the open workings of the Peak as the overburden looked threatening, hundreds of tons collapsing the following week.

August brought the comment that "Very little use is being made of the Old Hospital now, there is no real interest, it is only due to the zeal of a few that anything has been done. There have been no committee meetings since the start of the year."

Problems arose over new explosive regulations, while "A man from the War Department wants to use Nyth y Gigfran for climbing practice for an army unit - there will be no great difficulty there."

"As usual at this time of year by now," Humphreys wrote, "the K3 Incline has broken down. The motor raised four blocks in the morning, flashed over in the afternoon and failed to respond." It was replaced by the sister 75 h.p. motor. The failed motor had only been completely rewound less than four years previously. It had only been in place the last July anyway. It was in an awkward location to work and in consequence there was no output from O, the K3 incline having no connection to that floor at the time.

Back to drip feed, it turned out the men did not want it at Bonc Siafft either, they wanted covered machines with suction. Humphreys wrote, "I have told them that we do not have the facilities to do this work."

Future developments were considered in October, these included conveyor belts in the mills, dust extractors on individual machines, tugger hoist cranes, travelling cranes in the mills, further diamond saws, new larger rubbish wagons and heating apparatus. Few, if any, came to fruition.

The Arches Incline and I floor bridge were damaged on the 24th. October when a boulder was dislodged from DE floor and fell down over the retaining wall. The cause was unknown. It ran down the incline and became lodged between I and K on the Incline and had to be blasted piecemeal to remove it, with consequent disruption of traffic.

The issue of wire saws arose yet again on the 15th. November when it was understood that the Westmoreland Green Slate Co. was using one successfully. Humphreys wanted to go up and see it. A letter was despatched which brought the discouraging reply that "we have found no reasonable use for the wire saw that we have!" It was a duplicate of that in use at the Broughton Moor Quarry, made by Gilbert & Kellest. Another letter was despatched to Broughton Moor who were quite happy with their saw. They wrote that they had brought down 15,000 tons, Humphreys commenting, "It makes ones mouth water and regret that the idea of operating on similar lines and the signal failures at Oakeley had to be discarded. No wonder they have been able to so substantially reduce their prices."

A visiting Mines Inspector expressed himself unhappy with the K Trwnc braking system in December, especially as it was used for carrying people. One drum had a brake the other had not. The two drums were separated by a low dividing wall carrying the bearing, thus one drum had the brake band between itself and the wall.

A pension trust fund was at last set up, to the relief of the staff.

In February 1961 British Railways notified the quarry that they were willing for the quarry to buy the narrow gauge wagons which they leased from them at £6/2/6d. each. The quarry wanted to offer £5 each... The following month a working time reduction was made.

In May the principal equipment underground in Cwmorthin was put up for disposal, apart from the electric mains and the pumps. The plant included the old Blackstone oil engine and compressor. Transformer losses were felt to be still very high, especially due to the still low power factor of many of the motors.

The old Sulzer pump bearings were dismantled on the 31st. October and restored by the 5th. November, in time for the winter rains.
On the 6th, November the Middle Quarry Compressor flashed over, taking a day to repair it.

"Caban" carried the following sad news;

"Death of Mr. Harry Cutts.  
Our readers will have already learned of the death of Mr. H. Cuts on 16th. November. Harry Cutts joined the companies in 1934. he was appointed General manager and Secretary in 1943 and became Managing Director in 1953. Although he retired from that position at the end of 1956 he remained a director of both the Oakeley and Votty companies. 

He was entirely devoted to the interests of the quarries and all those who work there. By his death both companies have lost a very wise councillor, and all associated with them, a very dear friend."

With his passing, the "WE" feeling that he and Humphreys had tried to create, died with him.

On the 19th December, E.H. Tabbenor and his assistants called for the regular 6 monthly inspection and survey but there was "very little for them to do." Mr. Tabbenor himself recalls that much of the work they did in this period was merely a matter of being directed to wherever something had been done and making a note of it - the plans themselves changed very little compared to the frequent redrawings and revisions of previous decades.

On the 27th. December the manager reported the existence of "many fractured valves and pipes."

Only one issue of Caban was produced in 1961, and none the following year, thus it was 1963 before the unlooked for closure of Votty was recorded. As described in an earlier chapter, it had been amalgamated with the Oakeley in 1933/34, although both had continued with their own individual local management after some initial teething troubles. There had been little exchange of equipment or men. Indeed the Barlwyd had always been something of a frontier as far as men were concerned, men familiar with the veins and thicknesses in Oakeley and Cwmorthin found the different arrangements and nomenclature of the Bowydd region hard to accept, and the reverse was true of their counterparts in Llechwedd, Votty and Maenofferen. Indeed, this is still true today, and the author once promulgated a fascinating argument between an ex-Oakeley and an ex-Maenofferen simply by getting them looking at one of the quarry plans. Both ended up agreeing that neither was entirely sure what the other was talking about!

The story of the Votty is long and complex and, unlike Cwmorthin, Votty was never physically linked to Oakeley and so will have to await its chronicler. It had an end on connection with the Ffestiniog Railway at Duffws Station and leased the track between the foot of its incline and the ex-L.N.W.R. yard when the F.R. closed in 1946 to move the slates. It appeared frequently in "Caban" in both word and picture, but it seems clear that it was considered to be the less important of the two concerns. The closure was described in "Caban" in these terms:

"Caban records with regret the closure of the Votty Quarry which had been operated since 1874 by the Votty and Bowydd Slate Quarries Company, which in 1933 became a subsidiary of the Oakeley Company."

"The decision to close the Quarry in October (1962) was reached by the Directors with the greatest regret. The step was taken not because of any lack of demand for slates but owing to circumstances at the Votty Quarry, the reduced scale of production having been for some time been far from sufficient to cover operating expenses."

"The majority of those employed at Votty are now working at the Oakeley Quarries, every effort having been made by our Company to provide work for those who wished to be transferred there." A photograph of all the staff and men prior to closure was reproduced.

In fact, relatively few men changed sides of the valley, some going to work at Llechwedd and Maenofferen, where they understood the veins. Despite all denials to the contrary, the closure cast a shadow over Oakeley itself, and its future.

1964 - A year of many partings.
The North Wales Drilling Co. in the person of Mr. Nicholls began to work on the North Vein at the Ffridd tip level, east of the old incline engine house. It was intended to drill 12 4-inch holes about 40 feet deep each.

Some ex-Votty quarrymen started in January and MANWEB released all the transformer power lines to the quarry. Thoughts now turned, inevitably, to the chamber walls and the problems and possibilities of working them. A report from I.C.I. on surface blast effects on underground workings was studied.

On January 18th, Sir Keith Joseph, then Minister of Housing and Local Government and Minister for Welsh Affairs visited Oakeley. His trip underground was shallower than any of his predecessors had been, reaching only chamber K.B1 for the usual demonstrations, before being shown the mills. He said that he had enjoyed his visit very much, "I am most
impressed by what I have seen," he said, "particularly the beautiful end production, the sturdy, self-reliant men of judgement handling it, and the great investment decisions that have to be made by management. These are the things that impress one. The production is by men who seem craftsmen to the ends of their fingers, with much hard work, but with great delicacy of touch and judgement."

"We are very much in favour of the use of slate whenever it is suitable to the surroundings, which is often the case in Wales," he later added, "and, generally, we are delighted to welcome the use of slate." A true politician's answer!

A bulldozer made its way up to the North vein site, up the old Ffridd Incline bed without mishap, while a farm tractor was tried in the Bonc Siafft Mill for removing the waste - it was "very worn as a result, slate is not the same as muck!"

"Is it true," Humphreys wrote, "Llechwedd are going to spend a lot of money on opencast development?"

On May 5th, there was an accident on Spion Kop incline, a loaded wagon ran away and overturned about 1/6th of the way down, about half the contents being lost. The "trap," it was pointed out, was intended to protect the men, not the slate!

The trial blast in the North Vein at Ffridd was a "90% failure."

Problems now arose with the C.E.G.B. regarding drawing off water from Cwmorthin Lake. This was a complex situation involving both the U.D.C and the C.E.G.B., as well as the old arguments with the then Yale Power Co.

Heavy rain in July brought the water in the P floor dam (not previously mentioned) to 24 feet in depth, it had, "Never been higher." The "New" pump on P failed in November, the "tar dripping from the cable."

"The crack that broke the quarries back."
The major problem which had developed underground and which was to have the most serious consequences for the safety of the lower workings, particularly with regard to drainage and pumping, lay in the are of chambers 4 to 8. As described earlier, when the new floor Q was opened, it was decided to leave a "barrier" thickness or "pillow" of rock untouched between P and Q or 25 feet, pierced only by the access incline and the necessary roofing shafts for ventilation, that is, the chambers were not to be worked through. This idea, first raised at the 1895 Inquiry, to provide greater support to the chamber roofs and provide a longitudinal "stay" was one which was also needed at a higher level, and its lack was acknowledged by the quarry staff as providing a certain weakness. As far back as 1933, J. Lloyd Humphreys had noted with respect to these chambers that considerable care was needed in working them "due to lateral pressure." The lack of this additional stay was most noticeable between M and N and between N and O floors, but in the heady desire for production and open up chambers and working floors rapidly, nothing had been done.

The original workings on n and O were in the Old Vein, indeed O was the last floor with substantial workings in the Old Vein. P had only three or so chambers and Q and R none at all. Unforeseen, then, were the consequences of the working of the New Vein chambers beneath the Old. The Old Vein in this area was worked away in full, including some sections, which, with hindsight, should have been left intact. Later still, the Old Vein chambers were tipped in with waste, to save hauling the rubbish to the surface for disposal.

All circumstances therefore combined to create a potentially dangerous situation; a thin chert roof, additional un-supportive loading, the length of the supporting walls and their depth.

The original attempted sinking to Q between the cherts had so damaged the roof of that chamber that abnormal means of extraction had to be employed for the rock in it. The "bad top" to P.7, Tom Roberts remembers, resulted in that being worked from O.7 with a channelling machine and blocks were lifted out - the fall described below came from the bad top, but by then they had got what they wanted. Chamber O.8/P.8 was worked in a similar manner and was described in "Caban" thus; "It is known as 'Sheep's Hole' - The method of working differs from the normal, the rockmen winning the slate from below them, instead of above and hauling the cut sections of slate by block and tackle to the railway on the platform of rock."

Tom also remembers that O.8 and P.8 had a bad reputation for accidents, In one in 1938 a man had his head crushed by a slab, while after the war a man was cut in two by a "plwg" sliding while his mate had gone down the tunnel to the passbye with some slabs.

Chambers 5 and 7 on N were worked until 1939, by which time all the western chambers on N New Vein were exhausted. Towards the end of the war and into the peace, there were spasmodic falls into these chambers which were worked periodically for blocks, but it soon became clear that the chert between the veins was seriously flawed, for water from the Old Vein percolated through into the New Vein. By December 1949, the chert had broken above the traffic road in chamber 6, causing the traffic to be diverted via the Old Vein levels.

It was only a small foretaste of what was to come in 1964. Tom Roberts, one of the Oakeley securers, whose photograph and
lofty stature grace a number of "Caban's" pages remembers it vividly. He put it something like this; "There were platelayers laying a track across the old filled chamber - N.6 it was - and they had just laid the track one day, and left it to finish the next day. Well, when they left it, it was straight across from level to level, but when they came to it in the morning, it was hanging down like this see, like an incline." Tom's graphic descriptions with his hands and the expression on his face are impossible to do justice to in print - suffice it to say that the floor of the chamber had subsided somewhat and the track, the rails bolted together, had subside with it between the unmoving levels.

"They called us to look at it, and we took one look at it, and told them to get out of it, and so we fenced it and left it. It was giving way underneath. By 5 o'clock it had collapsed, all of that floor and into the next and the manager came down and looked into the hole with us. there were some large slabs at the bottom. he said, 'Look now, there are some good slabs in there, we shall get something out of this.' But we told him no, it was not finished and to leave it. Soon afterwards it all gave way and the Old Vein broke and fell into the New Vein and everything was buried and smashed. Then you could see all the way into the New Vein from the Old Vein." Thus there was a direct connection between the workings in the veins through which the drainage water could find a path - as it was to do in no uncertain manner, as we shall see.
Trial by Water

Further catastrophe struck in December when the "Main Dam" on L and M overflowed at last onto floor N. The emergency dam on that floor overflowed on the 14th. December onto O and thence down to P. This cascade stopped only when the main dam level dropped to 45 feet.

From P the water cascaded down the P-Q-R incline, flooding R to the level of the passbye on Q floor! A temporary air pump was being installed to be followed by an electric one. By the 16th. pumping began on N, the L and P dams being down to 3 feet on the 21st. which was described as "normal" but even after pumping all week, on the 23rd. December there was no sign of emptying the emergency dam on n floor.

The pump situation was not helped on the 4th. of February, when a slab rolled down the P-Q-R incline off a trolley and smashed into the electric pump which was anchored on a truck further down the incline. This was out of action for nearly a week at a bad time of year.

As an aside, the manager pointed out that although water power had been given up long ago, the demand for water to cool the diamond saws and suppress the dust was as high as ever with appropriate problems in freezing weather or drought.

The inconclusive trials in the North vein were abandoned in May.

On the 14th June the H-I-K Arches Incline motor broke down again, the fault this time being at the bottom of the stator ring, a particularly inaccessible place. The Insurance was not initially notified. The failure resulted in the complete stoppage of chambers IB.10, G.B6 and G.B9 presumably blocks from G were being lowered to H, for, as far as is known, after the driving of the tunnel through the "10,000 ton boulder" there was not tramway access to G floor. The manager wrote, "It is a reflection too, on the hand to mouth existence we have led for a number of years that there are no alternative good places to which the men could temporarily be transferred to maintain production."

The Insurance Company were finally informed on the 23rd. June about the motor failure and a full inspection of the motor made. "4 bars are burnt, two on the bottom row and two on the top, the insulating material is badly deteriorated, which was to be expected really as the motor is 60 years old. 20 bars need to be separated, a complete rewind is necessary. This means pulling out one wall of the building and erecting gear to handle the motor. The repair may take 3 months, and only half the motor stator will be new." It was suggested that they should adapt a 100 h.p. motor "using the existing motor shaft as a counter shaft similar to the C & Middle Quarry hauler which has been working for 11 years through a series of V-belts. I may add also that the H-I-K Incline is the only other exit from the mine should anything happen to the K Carriage hauler." On the 30th. June it was decided that the old motor should be removed and the 100 h.p. put in its place as soon as possible.

The water resources act now came into effect, with serious consequences for the quarry.

End of The Dinas Tramway

June, 1965, saw the final abandonment of the Spion Kop - Dinas -Exchange station tramway for transporting finished slates, the lorries taking over from the 20th., loading at the Bonc Siafft mills. On the 24th. the manager commented, "On the whole we manage fairly well in clearing the mill, but still find that we have not enough trailers, and we must try and remedy this as soon as possible. We have of course 13 trailers in use and another two on order, but the big one we have we cannot very easily take into the mill...The main problem is getting the trailers unloaded so as to get them back into the mill and this arises because some are kept fully loaded in expectation of lorries for despatching."

Cwmorthin raised its head again in December, with much the same hopes and thoughts as forty years previously - "We considered the size of the face for following operations. We take floor 7 as our main floor at present, and suggest we clear the few tips towards the small incline southwards, so as to enable us to get a free-side to a length of at least 800 feet, and keeping in mind that something similar will be done at floor 8 later and of course on floor 9. We do not propose at present to do anything about overburden on floors 7 and 8 as regards Back Vein, but we hope to work north in Narrow and Old Vein level on floors 7 and 8 and taking the Narrow Vein Hard as Bon, we shall be able to carry on North for a considerable time, primarily we have floors 9 and 10 in Old Vein and North Vein north, but eventually we must remove overburden on Back Vein as well."

December proved very trying with 24.92 inches of rain alone, an electric bill of £1,750 plus 1 days pumping! The pumping was now described as "a millstone around our necks." The Gwynedd River Authority now demanded its water resources levy under the Act. "Apart from requiring us to pay £5 for each license to use our own water, they also are asking for the installation of water meters," the manager complained.

January, 1966 brought discussion of extending the quarry roads to replace the internal tramways, which were still in use, "There are 1,000's of tons of good quality roofing and slab here in the narrow and old veins." There would be "No problem
Problems with Pipes

February brought problems when the delivery pipes from the N pump to L floor failed. Only in the last week had a new length been connected and "In doing so the other lengths finally gave way." 100 yards of 6 inch diameter piping was needed. In the meantime that section of piping system remained out of commission. "It is very doubtful indeed if we can do further temporary patchwork - worse luck!" was the managers comment.

At Cwmorthin, Glyn Williams was now engaged in building a "road" down from the working site to lake level - but his machinery got bogged down on floor 3 and there were "tremendous difficulties" in getting it free again. A familiar comment was now heard in the manager letters on Cwmorthin, "It does not look very promising at present." G.W. Humphreys called in at the quarry, but refused comment on Cwmorthin, merely saying that he thought floors 11 and 12 at Oakeley a good idea, as they had not had the 3" and 4" diameter drills in the old days. A drilling rig was taken up to floor 12 in consequence and trial holes driven in the North, Old and Back Veins. At Cwmorthin a machine was at work by March, clearing rubble.

The air compressor and drilling rig were removed to Cwmorthin at the end of March, 13 holes being planned, 5 vertically on floor 7, 25 feet deep and two on the cleavage on floor 7 North about 40 to 50 feet deep. these had not been possible on floor 11 due to the angle needed for the drilling rig. Snow delayed the work.

Negotiations were now in hand over a 40 hour week.

April brought new concern over the pumps, this time the main pumps on L. "I have to report the serious condition of the delivery pipes of this pump. One section is being boxed in ordinary concrete to try and carry on for a longer period. These pipes are nearly 50 years old and could at this stage collapse at any time as they are badly corroded and patching up in one section can lead to more disturbances in other parts. It is a major item of expense but it seems that we have no alternative except prepare another pipeline alongside the old. The length of the pipe will be nearly. 600 feet and the diameter of the pipe is 9 inches - we have sent for quotations."

The "concrete box" was fixed by the 29th. April but, "We must get new pipes from floor I to the L pump. These are in bad condition and also in the worst possible place to relay... we shall have to disconnect about 200 feet before we can relay the length below, as the place is too congested." The congested place was a shaft from the floor of the erstwhile "back vein" chamber on I floor down to the very top of the old Sulzer pump chamber on l - the top of the chamber being at the height of K floor and very narrow.

Cwmorthin was now "going well" but a blast in late April "failed in its task of moving anything further inside the faces and all we have had are the outer weathered faces."

More trouble arose at the beginning of June when the "New" Sulzer pump foot valve began to misbehave. It was also discovered that the main valve of the L floor dam had corroded and it was impossible either to open or close it. 200 feet of 9 inch pipe was still needed for the old Sulzer pump and it looked as though permission for it was not likely to be forthcoming. "We have already done some patching in one section," pleaded the manager, "but it is too risky to leave it long without renewing the pipes. It will take some months to get the pipes and then it will be a major job to put them into use."
A week later R (or P, the letter is unclear) floor flooded over the weekend, the fault was traced to the foot valve of the N floor pump, but it could not be got working. A downpour on the Saturday evening and night flooded R to a depth of 3 yards, soaking the pump and its motor. The water which should have been trapped on N flowed down to R via O, P and Q. The troublesome foot valve was withdrawn on the Monday morning "after considerable difficulties and removed the trouble. Possibly it will be all right now." The rainfall had been 2.5 inches.

On the 17th the quarry considered adding another pipe to the N floor dam and 2 courses of bricks to raise its height and therefore capacity. In other words, the N dam, unlike those on L and M was only a wall across the level, not a solid plug. The intention was "Just to see if we can in any way prevent this overflow that accumulates so quickly on this small dam and floods so alarmingly often our P floor."

On the 22nd, the manager felt obliged to explain further, "Surface water on floor P, especially from the west, is on the increase. We find that much more water percolates from a particular wall on N west, also in O.7 and O.6. All this passes over our dam on N thus causing much more surface water on P than the loom can hold during non-working hours, thereby flooding floor P by morning. We must have in the very near future someone to come in every working day except in very dry weather at least two hours before we start work." Possible alternatives mentioned included opening a new loom by the existing one, but this was felt to be too near the existing pair of pumps (?). Another suggestion was to drill 2.5" holes in the roof of P.7 and P.8 so that the water would go down to R floor! A bigger pump on R floor, say of 300 g.p.m. lifting direct to P, would then cope with the drainage. The new pump would be needed as, "The present pump is inadequate to clear the water. We must keep the R as empty as possible."

Disaster struck on the weekend of the 25th. The dam on N was only holding 1/2 its previous quantity with no overflow, P was registering 6 feet at 10 a.m. with no change at 3 p.m. despite the pumps! "The bulk of the water which used to come to n ad P passes south to O.7, builds up in the back of 0.7 New Vein and then runs over to P.8 and P.7 in torrents, thereby flooding the main level on P and beating both pumps on P this morning and flowed down the incline to R. The water is 2 feet deep at the junction of Q floor and up to the base of the pumps on P... the position is pretty grim..... After seeing the uncontrollable volume of water this morning on P floor, (it) has given us grave doubts as to the future working of the bottom floors."

Two days later the securers were sent in to build a dam in chamber 8 on P New Vein, to let the chamber flood. The pumps on P would then deal with the water from P.7. "Three shifts of pumping have been necessary this week as we have no storage on P for it. Surface water takes only 1.5 hours to fill the dam at the foot of the P incline, in 8 hours it would flood floor R by means of the incline."

It was subsequently intended to dam P.7 to a height so that water could be turned to Q or P as necessary. This was to be 6 feet high, so that the water would go to Q.7 or Q.8 - the path of water was from N.7 Old Vein to P.7 New Vein. The main dam on P was only about one yard in height, just sufficient to divert the water to Q and R. Elfed Jones, the Engineer, suggested that the pump could be used in R under water by encasing it and its cable in a steel container and controlling it from Q.

The dam in P.7 was "some feet" in height by the 12th. July and clearing for the foundations had been done in P.7, but there was too much water to start building.

In the meantime, concern had been expressed over the production from "such a small heading" at Cwmorthin, driven using tungsten tipped drills. Clearing at Cwmorthin being cancelled in July, while a blast on August 3rd was "successful."

The wire saw(!) was brought into practical use in July, with some success, but the quarry was concerned for finding suitable places where it could be used best.

The men at work on the P dam were now sent to work "on the Mountain" where Glyn Williams had brought an excavator, the idea being to cut new routes for the stream and build a "barrier" to keep the surface water from the cracked ground.

Transformer losses were again high and it was decided to switch all the plant off for 24 hours and then on again to check.

The "tips of the Iwerddon stream" collapsed on the 16th. September and it was decided to make a slab passage through them.

On the 5th, October, the excavator at work "on the mountain" collapsed into a hollow in the wet and soggy ground, the new "barrier" being ruined in the process of getting it free.

The Spion Kop incline was now scrapped while the November output was described as "disastrously low."
Work now began on the New Vein walls on floor 5 in chambers 11 and 12. 2 inch holes being drilled into them to bring down large quantities.

December gales affected the electricity supply, bringing down poles etc., as well as the roof of the old Hollands’ Upper Mill. The dam at the foot of the K2 incline to P was now filling up with rubbish and sludge. A sludge pump was tried unsuccessfully, and manual methods had to be resorted to.

Air pressure was lost on floor 5 on the 19th. and a fitter was "sent for." The main dam proved slow in emptying now. As regards the wire saw, the manager wrote, "Our efforts to get this seem to be everlastingly baulked by labour difficulties." There were also problems in getting the men to man the pumps on overtime. Arguments now arose as to whether the remainder of the internal tramways should be replaced by roads. There was now no rail communication with floor H via the Arches, "The rails were lifted many years ago."

In February, 1967 the manager and Elfed Jones visited the Dorothea - by them under new ownership. "We are miles ahead of them in our mill workings," the manager wrote, "We never saw such dusty and untidy mills both in Dorothea and PenyrOrsedd. They had quite a few good working slates being made and the thinness of the Dorothea slate was astounding and how they market it without complaint we do not know." They did like the idea of fork lift trucks, considering them of immense value and suggested their adoption at Oakeley.

Proposals now came from London on a new wages scheme based on tonnages, this was instituted in June, but a number of men refused to touch it. Resignations occurred amongst both men and staff. The scheme was based on the grouping of chambers and the divorce of the rockmen from the mill men - each chamber or group of chambers was expected to produce a minimum output of blocks - "A Quota" - Although little positive evidence has survived the men working there were certain that they were moved around from chamber to chamber to keep their wages low and their output high - they retaliated by producing tonnage without care. Precisely the arguments that J. Lloyd Humphreys had used in the '30's to oppose the tonnage and grouping based system them.

Glyn Williams was now working at Cwmorthin on his own behalf, and in March the manager walked through to Cwmorthin, the trip taking him one and a half hours. Williams was back at Oakeley in April, this time constructing roads from Bonc Goedan up to Middle Quarry and from there up to the old Upper Quarry sink.

In October considerable work was entailed when a quantity of earthing wire was stolen from the old Upper Quarry mill, fortunately the circuit was disconnected at the time, but it was a dangerous and worrying precedent. The culprits were subsequently caught.

In the sink, the need to concentrate operations had resulted in the refurbishing of the track through the old communication level on DE floor beneath the southern bon, thus reconnecting the New Vein workings on DE with the C incline. This allowed a diesel to be used for haulage and at the same time allowed the old Middle Quarry incline to be done away with.

The areas producing slate here were the lower parts of chambers 12 and 13 in the New Vein, where large slices were being taken out of the walls. There was no problem with chamber 13, which had been worked clear down to DE, but chamber 12’s floor was on C floor level. The solution, rather than work away the whole floor was found to be simply cutting a slot or "hollit" in it on the cleavage plane through to working space underneath. A cable was then slung across the slot and blocks lowered by hoist to the floor beneath.

The summer of '68 was dry - too dry - at one point Llyn Newydd was supplying the saw tables and Llyn Ffridd the underground, in either case only two days supplies remained.

In contrast October 1968 brought a resurgence of the water trouble. By the 4th. the manager was reporting that P floor was constantly under water. The men too, began to complain and demand that something was done. London was concerned over the pumping costs and wrote a barely disguised "What the hell is going on?" type of letter after worrying communications from the quarry, and demanded that at least one pump be shut down, as it had been during the war when the turbine pump had been dismantled.

The manager replied, "Our pumping program is, as you will know, vastly different now (from 1942). In times of heavy rain we have to shut down on L so that we can clear the bottom floors with the two pumps going at full capacity and the third pump has more than enough to do to clear the back vein. These two pumps just about manage to keep the bottom floors and the flood water on L and then when we have managed to clear the bottom floors of water we concentrate on the big dam, which goes up alarmingly. By cutting one pump off on L we have very little hopes of getting the upper hand on the water, in fact it is not little hopes we have but no hope at all of keeping the L dam down, and once this dam starts overflowing, we have had it!!"

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The problem was exacerbated on the 7th November when the switchgear for the pump at the top of the Back Vein incline at Cwmorthin was "so delicate that it fell down last week and effected a breakdown to the pumping line to Cwmorthin. We are cutting a new cable and hope to reconnect. The head pumper (a title not mentioned before) and J.R. Jones think that as long as the culvert that runs on the lake floor and the B floor dam are open, no excess should come to Oakeley."

In November 1968, Erwfair was sold - by now much of the old quarry property had been disposed of, including Dolawel, the Old Hospital, even Dolawel field...

December brought its own fears, "The G tunnel timber has been left these last 7 or 8 years" and as it carried all the quarry drainage, the possibility of a complete collapse and blockage was too frightful to contemplate. The men now refused to clear the snow. The Manager bemoaned the fact that Percy Jones and Lloyd Humphreys had not been able to agree over the Back and North Veins in the Upper quarry, "We are in a somewhat different and more difficult position now... regarding the old Hollands Quarry, apart from Lefel Fawr... no one alive now has the faintest notion of anywhere in the floors from 8 upwards." A peculiar statement, for present day excavations and projected operations on and around Pen Balance and the collapsed western bon by the present companies are simply the result of study of the quarries’ own plans, which were in the office at the time in question. It is true that the exact thickness of any walls under the fall is uncertain, but good slate has already been extracted close to the surface using relatively simple equipment - so it could have been done years before!

On the 10th December 1968 the rotor of one of the L pumps failed, to be followed by the failure of a 10 inch delivery valve on the Old Sulzer pump. It had, on examination, clearly been fractured on installation in 1906, and had been held in place by the nuts until then. Equally clearly, though it was not stated explicitly, the valve had never been previously examined. The pipes, the manager wrote, were "in no condition to be tampered with." Again it is clear that the renewals of the rising mains had not been carried out...

1968 is the last letter book to survive. 1968 was the last year of underground inspection of the quarry, but equally there is not hint remaining of what was to come.

It is worth pausing, therefore, to consider the situation revealed by that last inspection and to consider the problems which had developed to this point.

In February, 1968, the chambers in work were as follows:

<table>
<thead>
<tr>
<th>Floor</th>
<th>Chambers</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>two open (Peak)</td>
</tr>
<tr>
<td>G</td>
<td>B.9, B.11, B.12 Old Vein</td>
</tr>
<tr>
<td>I</td>
<td>B.1, B.8 New Vein</td>
</tr>
<tr>
<td>K</td>
<td>B.7 New Vein</td>
</tr>
<tr>
<td>L</td>
<td>B.6N, B.6S New Vein</td>
</tr>
<tr>
<td>M</td>
<td>none</td>
</tr>
<tr>
<td>N</td>
<td>1, 3 New Vein</td>
</tr>
</tbody>
</table>

To support these meagre chambers on each floor, it was necessary to keep the pumps working as follows, one on Q, two on P, one on N and three on L, together with compressors on DE, L and P. Haulages in operation were the C Incline, No.5, the K Trwnc, the K2 "New" Incline and the P-Q-R. Clearly a hopelessly uneconomic situation.

It seems likely that crisis point was reached in early 1969 and the underground workings were given up. Statutory returned show that in 1968 66 men were employed above ground and 33 below, for 1969 the comparative figures are 29 and 12 respectively.

It is also said that the problem of productivity, especially in this latter period of the quarries life was in some way exacerbated by a great reluctance in the London Office to let the surplus labour go. One manager at least has been heard to remark that there was never any shortage of Slater makers or other ancillary workers - it was the essential miners who were difficult to find.

Closure happened with a suddenness catching all unprepared. A visitor to Oakeley in the last days took some photographs of new products, and promised to bring them back when they were developed, but before he could do so, the news was broached that Oakeley, the last of the giants, was closing.

Glyn Williams, who had already been scratching around at Cwmorthin and had quite a lot to do with both Oakeley and Llechwedd as regards roads and so on, became interested.
The Oakeley Board, so it would appear, had earlier made the decision that two choices were open to them, either to sell the quarry as a going (?) concern, intact, with the Oakeley name, commercial contacts, organisation, and good will - or to realise what could be realised from the hulk and to sell the site as a disused quarry.

Like Cwmorthin nearly 70 years previously, the quarry as a whole would not sell, and after negotiations, Glyn Williams et al., as the "Ffestiniog Slate Company Limited" bought the site. Just like the Oakeley take over of the Hollands' quarry, the new owners were allowed limited access to the site while the old company closed its books and scrapped its plant, thus ensuring continuity of operation.

Much of the machinery was removed for scrap, some being sold to the new company, but the underground deeps were to be closed up and the "big dams" blown open to flood the workings. The mountain itself had the last laugh, however, for, it is said, whether by accident or design, while men were still at work trying to recover the machinery from the lower floors, the L dam either blew prematurely, or gave way. In any event, a tidal wave of water poured from the flooded chambers to the west, eastwards flowing down into the empty chambers towards the bottom floors. The men working ran and climbed for their lives as the mountain waters filled the depths which had been denied them so long. With no pumps and no power to control it, the water rose steadily until at the level of G floor it halted, through the L drainage level and old beam pump shaft it welled up, like an inverted siphon, the water spilling out of the shaft coaming into the old choked Level Dwr.

Total darkness had returned to the depths of the mountain, and Oakeley's long day had ended.