

CWMORTHIN
And
OAKELEY
QUARRIES
Floor Heights

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CWMORTHIN AND OAKELEY FLOOR HEIGHTS

Cwmorthin Floors and Designations

The floors at Cwmorthin were labelled by numbers from a notional base on Floor 1 at Cwmorthin Lake Level upwards to Floor 9, and downward by means of Letters from Floor A down to E. An extension deep below E floor was labelled G as it was designed to eventually link up with the Oakeley floor G, although this never actually happened.

The fact that Oakeley Floor DE and Cwmorthin Floor E are very close in level has nothing to do with their respective names being similar or vice versa – that is a pure coincidence. Both were begun under different circumstances at widely different times and by very different companies.

For the origin of the Oakeley Floor DE naming etc. see my notes below on Oakeley Floors.

As a general rule, the lowest part of a quarry floor which gave onto the surface was at the adit entrance, so that any water would drain naturally out to the entrance from the workings. On the tips or open quarry workings, the floor level would drop towards and onto the tips, and then might rise slightly at the ends.

With purely underground workings the lowest part of a floor was at the foot of or adjacent to an incline where the lwms or underground sumps were located, pumps there forcing the water up to a higher floor which did have drainage channels to the outside.

Cwmorthin exhibits a mixture of these arrangements.

In the Back Vein (Cwmorthin North Vein) Floors A to E this results in the chamber floors West of the Incline being higher than at the foot, with the same effect being noticeable going East. This is why there is deep water at the foot of the incline but which gradually shallows as you walk eastwards along floor E towards Oakeley. In these days, if the water rises high enough, it flows down a roofing shaft in Chamber 4E East into Chamber 44 on Oakeley G floor. (Another bit of coincidental numbering!) Initially, in Oakeley days after the dewatering of Cwmorthin, water from the Cwmorthin G floor sinking and the E floor lwm at the foot of the Back Vein incline was pumped along pipes against the slope of E floor up the ramp to Oakeley DE Back Vein and discharged into a conventional drainage channel there which carried the water back along the main DE floor drain to the other side of the mountain! After the Oakeley G floor Back Vein was driven forward beneath Cwmorthin, the pump discharged down the roofing shaft instead.

Floor 1, is of course the Lake Level, and was the point of discharge of the Back Vein pumps when Cwmorthin was working on its own. This therefore sloped downwards from the present head of the Back Vein incline to the Lake Level entrance, and, if it was accessible, we would find that it sloped upwards towards the east. All the rest of the higher floors emerged onto the surface and therefore would slope continually upward as they progressed eastwards towards the Oakeley boundary.

In the Old Vein (Cwmorthin South Vein) Floors 2 and above drained directly to the surface. Floor 1 appears to have been wholly underground and could drain via the long connecting level to the Floor 1 North Lake Level. Floors A to E were similarly arranged to the Back vein floors, sloping down to the Old Vein Incline and being pumped upwards to Floor 1, or possibly to Floor 2 and raining along the Smoke Flue Level there to the surface. If this was the case, it might explain the presence of the well built drainage channels from the area of the floor 2 and floor 3 Adit mouths towards the Lake. Again, after the dewatering by Oakeley. Water from the E floor sump at the foot of the Old Vein Incline was pumped along the Floor E level, up the ramp to Oakeley DE and then discharged into the DE floor drain. After the G floor was driven forwards, the water could be discharged down a roofing shaft to G as in the Back Vein.

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The purpose of this preamble is simply to explain that the actual height of the floors and their separations could vary quite widely from one end to another, following the broad descriptions given above.

Cwmorthin Floors

So what of the Cwmorthin Floors ? The Oakeley Company themselves surveyed the workings to ascertain their positions relative to their own workings, and the British Electricity Authority did their own surveying in the late 1940's and early 1950's with regard to their proposed flooding of Cwmorthin for a pumped storage scheme – heavily opposed by the Oakeley Co. who were certain that the workings could not be sealed against the water pressure. Where the location of the measurement is known, I have included it.

Floor 9 (1400? ft AOD approx.)

Short trial adits only, marks the limit of the 1930's untopping.

Floor 8 (1360 ft AOD approx)

Trial adits only, some chambers possibly worked to this height in Old Vein from Floor 7 South, but no access or access to top of chambers only.

Drumhouse of Main Incline to Floor 6

Highest floor of the 1930's untopping.

Floor 7 South (1310 ? ft AOD approx)

Highest main working floor in the Old Vein

Main floor of 1930's untopping. Site of 1st compressor under Oakeley 1920's-30's.

Floor 7 North

Shallow floor at top of Back Vein – not worked to same extent as South floor.

Floor 6 (1250 ? ft AOD approx)

Main working floor; Drumhouse of Main Incline to Mills.

Site of 1920's-30's Oakeley Magazine

Floor 5 South (1207 ft AOD at North Engine House)

Main working floor.

Floor 5 North (1209 ft AOD at old Drumhouse)

Main working floor; Drumhouse of gravity incline to Lake Floor

Drum, Engine & Boilerhouse of "North Sink" steam incline to Back Vein

Floor 5 Oakeley North Vein (1219 ft AOD at adit entrance)

Isolated working of 6 chambers 1927-39; Connected to Lake Floor area by ropeway.

Floor 4 South

Main working floor

Entirely underground, accessed by connecting level from Floor 4 North

Floor 4 North (1170 ft AOD at adit entrance)

Main working floor; Site of small Barracks

Latterly accessed from North Sink Incline

Floor 3 South (1129 ft AOD at adit entrance)

Main working floor

Tip tramway connected to main incline to mills and bridged over it.

Floor 3 North (1129 ft AOD at adit location?)

Main working floor; Connected to Lake floor via old Floor 5 to Lake incline (?truncated use)

Floor 2 South (1092 ft AOD at adit entrance)

Limited development hence: Used as "Smoke Flue" for South Sink (Old Vein) Incline boilers .

Connection at extreme eastern end to Oakeley Floor 4 1893

Floor 2 North (1092 ft AOD at adit entrance)

Main working floor.; Drumhouse of short incline to Lake floor; Site of small barracks

Site of Electric Incline drumhouse from Lake Floor (1930's)

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Floor 1 South

Main working floor

Site of Drum, engine and boilerhouse (underground) of South Sink (Old Vein) Incline
Linked to floor 1 North by long level with small workings in Stripey and Narrow Veins
Connection at extreme eastern end to Oakeley Floor 3 1893; No direct connection to surface

Floor 1 North (1066 ft AOD at top of Back vein Incline)(1055 ft AOD adit entrance)

(Note level of Cwmorthin Lake given as 1050ft AOD)

Main Working floor

Site of electric incline drum and motor working Back Vein Incline; Site of compressor 1936

Floor A South (1022ft AOD Ch.38)

Main working floor; Some additional workings in Narrow and Stripey Veins

Floor A North

Last Main working floor south of fault in Back Vein

[Mills Floor (1007 ft AOD at Cross Mills)]

No workings – level given for reference only

Floor B South

Main working floor

Floor B North (973 ft AOD Ch.12E)

Main working floor with limited workings south of fault and main parallel workings north of fault, both in Back Vein

Floor C South

Main working floor; Original foot of South Sink Incline 1890

Site of main pump and lwm; Site of “Floating Bridges” during flooded period 1902-31

Connected directly at eastern end to Oakeley Floor 1 and drained that way 1902-31

Floor C North (926 ft AOD Ch.12E)

Main working floor

Floor D South (869 ft AOD Ch 5E)

Development floor

Floor D North (877 ft AOD Ch.12E)

Main working floor

Floor DE Oakeley Old Vein (832 ft AOD Ch38) (827ft AOD Ch 34)

Drainage from both Cwmorthin Old Vein and Back Vein collected here and carried east towards Oakeley. Known in Oakeley as “Lefal Cwmorthin”!

Floor E South (821 ft AOD Ch 5E)

Development floor and bottom sump, pump here and also in Oakeley times.

Connected to Oakeley floor DE by sloping level 1931

Floor E North (812 ft AOD foot of Incline)(825 ft AOD Ch 6W)(826 ft AOD CH.38)

Main working floor; Site of sump and pumps (various)

Site of Electric Incline Ch 1 west sink to G floor

Connected to Oakeley Floor DE Back Vein 1933

Floor G North (721 ft AOD approx) (Quoted as “90ft 6in below floor E”)

3 Chambers only

Floor G Oakeley Old Vein (754 ft AOD Ch38 equiv. Ch 12E Back Vein)

Note difference in level! Would have sloped down from Ch.44 to connect to foot of Cwmorthin Incline in 1 W.

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Oakeley Floors

To describe all the Oakeley floors would be rather tedious, so I'll just give the approximate heights and the locations of the measurements. To summarise, there were three separate Quarries which made up Oakeley originally each with their own labelling system.

Upper Quarry (Originally Hollands' Quarry 1827-1878)

This had floors beginning at Floor 1 – their Limit Level or Lefel Fawr and rising to floor 9, with two lower floors; Floor A and Floor B. These two overlapped with the Middle Quarry upper floors, causing some difficulty at amalgamation. There were huge chambers in the Back and North Vein some well over 100ft wide.

Middle Quarry (Originally the Rhiwbryfdir Slate Company or Matthews' Quarry 1838-78)

This has floors beginning at Floor 1, their Limit Level and rising to floor 6 – they may have also referred to these as the “1st Floor”, “2nd Floor” etc.

Lower Quarry (Originally the Welsh Slate Co's Quarry 1825-89)

Development here resulted in some later odd labelling. There were initially a number of lettered floors with relatively small intervals (25-30ft) these were Floor A (The Office floor), Floor B, C, D, E, F and Floor G, the latter being their Limit Level. At a very early stage floors A and B were worked out, the height of floor C altered slightly, and floor D (if it ever existed) suppressed, being merged with floor E at the level of floor E to form DE.

There was also some confusion over vein naming. The Old Vein was intersected by steeply inclined hards which in the WSCo. area divided the vein into two parts. The WSCo. referred to the more northerly part of this as the “Back Vein” while the Middle Quarry used Back vein in the more accepted sense of referring to the completely separate vein which lay to the North of the Old Vein. Under these circumstances problems and differences of opinion were bound to occur – and did!

Lower Quarry Floors A and B overlapped with the levels of Middle Quarry floors, but as they had been worked out very early there was no problem over amalgamation. The Middle and Upper Quarries overlapped considerably and in the end numbering was based on the Middle Quarry, the Upper Quarry numbering disappearing. However in some areas there were two floor 5's – One belonging to the Upper Quarry and one the Middle, but as the differences in height were small, the old upper quarry floor 5 became merged with the middle quarry floor 4. The deeper floors were quite regularly spaced with the exception of P and Q where an extra “pillow” of rock was left to strengthen the workings at that depth, the Old and New veins being relatively close together and both being well worked. The main workings were in Old and New Veins, with older extensive workings in the Back and North veins around the middle floors.

The floor height table is on the next page.

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Floor Separations and Heights

Oakeley	Height AOD
Floor 16	1650 ft – Oakeley Quarries only, top of veins
Floor 15	1590 ft – Oakeley Quarries only
Floor 14	1472 ft – Oakeley Quarries only
Floor 13	1419 ft – Holland’s Quarry top floor (Floor 9)
Floor 12	1419 ft
Floor 11	1370 ft
Floor 10	1319 ft
Floor 9	1269 ft
Floor 8	1217 ft – Holland’s Upper Mills Level
Floor 7	1155 ft
Floor 6	1116 ft
Floor 5 MQ	1105 ft – “Gloddfa Ganol” Tourist Site Level, Middle Qy Mills Level
Flr 5 Back Vn UQ	1087 ft – Holland’s Limit Level & Lower Mills Level
Flr 4 MQ	1056 ft
Flr 3 Old Vein	1011 ft - Approx Level of Bonc Siafft/Bonc Coedan
Flr 2 Old Vein	964 ft
Flr 1 Old Vein	919 ft – Rhiwbryfdir Quarry Limit Level
Flr C Old Vein	881 ft
Flr DE Old Vein	801 ft Ch B3; 821 ft Ch 31; 827 ft Ch34; 832 ft Ch38; – Penybont Mills Level, “Lefel Cwmorthin”etc.
Floor F	769 ft Ch B3; 793 ft Ch 38
Floor G	726 ft Ch B3; 754 ft Ch 38 – Welsh Slate Co. Limit Level – Main Drainage
Dinas Station (FR)	690 ft
Floor H	669 ft Ch B3; 702 ft Ch 38
Floor I	614 ft Ch B3
Floor K	553 ft Ch B3; 562 ft Ch 3 – Main Traffic Floor
Floor L	503 ft Ch 3 – Main Pump Floor
Floor M	445 ft Ch 3
Floor N	388 ft Ch 3
Floor O	333 ft Ch 3
Floor P	277 ft Ch 3 - Main Pump Floor
Floor Q	193 ft Ch 6
Floor R	131 ft Ch 6 – Bottom Floor