

**THE SLATE INDUSTRY OF PEMBROKESHIRE AND ITS BORDERS**

BY  
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# The Slate Industry of Pembrokeshire and its Borders

Gordon and Mary Tucker

**Summary:** *Slate in Wales normally implies the slate industry of North Wales, mainly in the counties of Caernarvon and Merioneth. There was however, another, although smaller, concentration of the industry in Northern Pembrokeshire, extending thinly into the counties of Carmarthen and Cardigan, and even into Brecon. This article gives an account of the slate industry of Pembrokeshire and its borders, an historical gazetteer of known slate quarries in that area and detailed descriptions of a few of the more interesting sites.*

## I. Introduction

Pembrokeshire slate was well-known in the nineteenth century and was used, because of the variety of colours in which it could be obtained, very widely over England and Wales (even in North Wales) and also to some extent in Scotland and Ireland. An example of its use in North Wales in competition with the local product is on the roof of the original building of the University College of North Wales at Bangor. This, built in 1908 at a time of considerable unemployment in the North Wales quarries, caused much local controversy.<sup>1</sup> The quality, in terms of durability and fineness, of Pembrokeshire slate was, in the best cases, as good as that of the North Wales product; and it could well have been regarded as more attractive in colouring, ranging from purple-black to blue, green, grey and silver-grey, including also 'rustic' slates in which mineral inclusions led to random rich orange and brown colourations. It must be said, however, that much of the Pembrokeshire slate was of inferior quality, and used only locally; a large proportion of the slate roofs west of Fishguard have needed to be coated with cement mortar to make them weather-proof. In the so-called slate quarries in Carmarthenshire, Cardiganshire and Breconshire, remote from the Pembrokeshire border, it is doubtful if the rock was really slate at all, and its main use was as building stone.

The total output of slate from South West Wales was always much smaller than that from North Wales, and in the nineteenth century was probably

between 5 and 10 per cent of the latter. No reliable or meaningful figures are available; no proper returns were made from South-West Wales for Robert Hunt's *Mineral Statistics* of 1858, and he merely reported 'There are numerous quarries for local purposes in these two counties [Carmarthen and Pembroke] but there are not any which can be regarded as permanent quarries opened for commercial purposes.' This was not strictly correct, but certainly the main development started in the next decade.

In the last decade of the nineteenth century, the three south-western counties were recorded in the Mine Inspector's Reports as producing a total of the order of 10,000 to 17,500 tons of slate per annum. It would, however, have been much greater a decade or two earlier. At this period the annual output from North Wales was of the order of 250,000 tons.

It is even more difficult to assess the relative sizes of the industries in terms of the number of workers employed. The Census Enumerations recorded names and occupations at ten-yearly intervals from 1841, and the returns up to 1871 are available for inspection but they evidently had no standard definitions of terms. For parishes in Pembrokeshire we find slate quarriers, quarriers, slaters, slate makers, etc. For the parish of Maenclochog in 1871 there are shown a total of 16 people who could conceivably be employed in slate quarries; in earlier years there were fewer, yet in a newspaper article a few years later<sup>2</sup> we find a statement that Bellstone Quarry (in that parish) had formerly employed 200 men. For the whole of South Wales the Occupation Abstracts gave the number of slate quarriers as 79, 140 and 141 for 1871, 1881 and 1891 respectively, while the corresponding numbers for North Wales were 8,364, 13,576 and 12,366. On the face of it, this would suggest that the industry in the south-west was only about one per cent of that in the north.

One factor influencing the interpretation of the census returns is the use of the word 'slater'. The *Oxford English Dictionary* gives only one meaning for

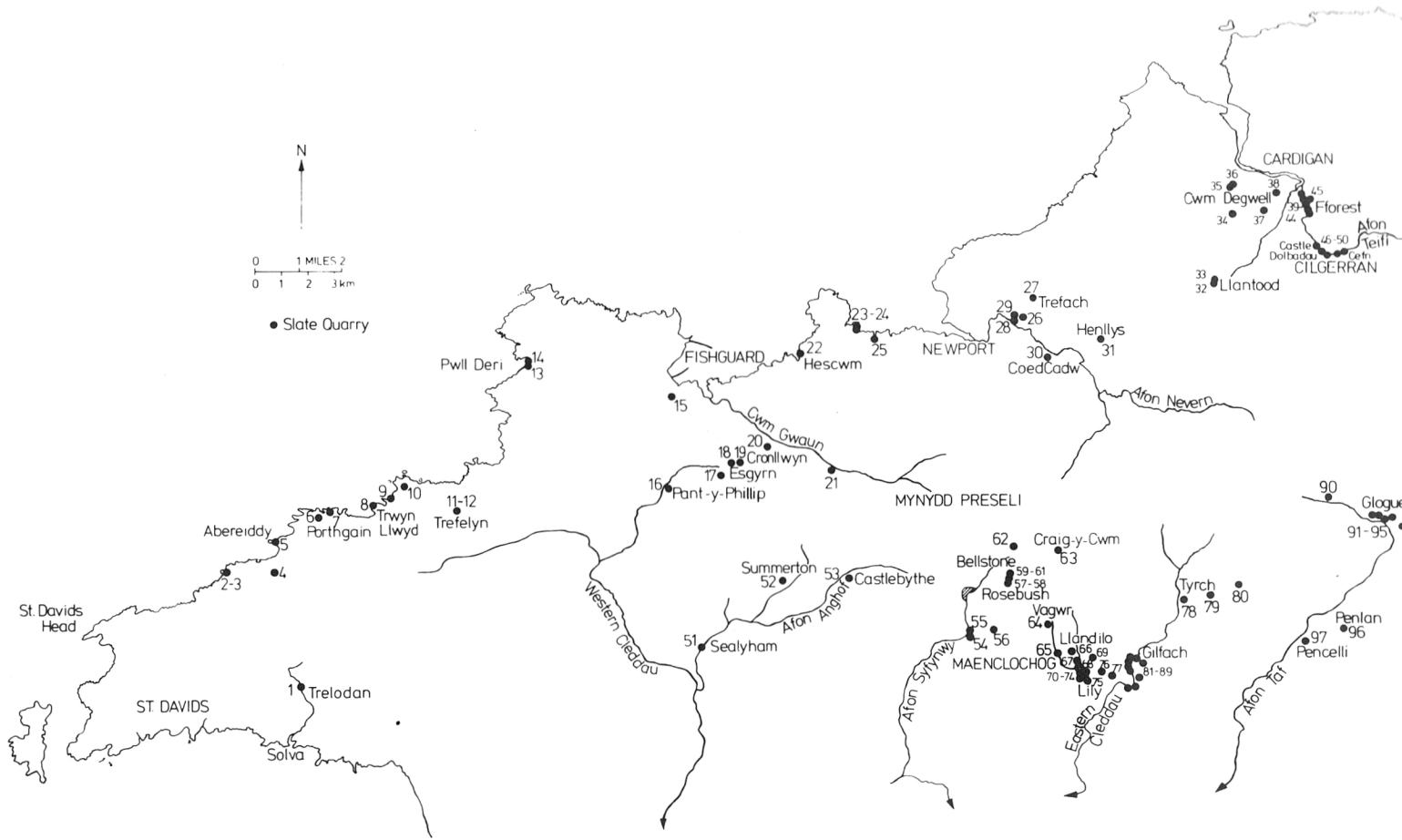


Fig. 1 The distribution of slate quarries in and near Pembrokeshire. The numbers correspond to those of the gazetteer.

this as far as the slate industry is concerned: 'one whose work consists in laying slates'. Nevertheless it seems reasonably certain, from examination of the Census Enumeration Returns, that in Pembrokeshire at least, the word also meant a person concerned with making slates at the quarries. As there were more slaters in the south-west than quarriers, this makes a significant, but not calculable, difference to the earlier figures.

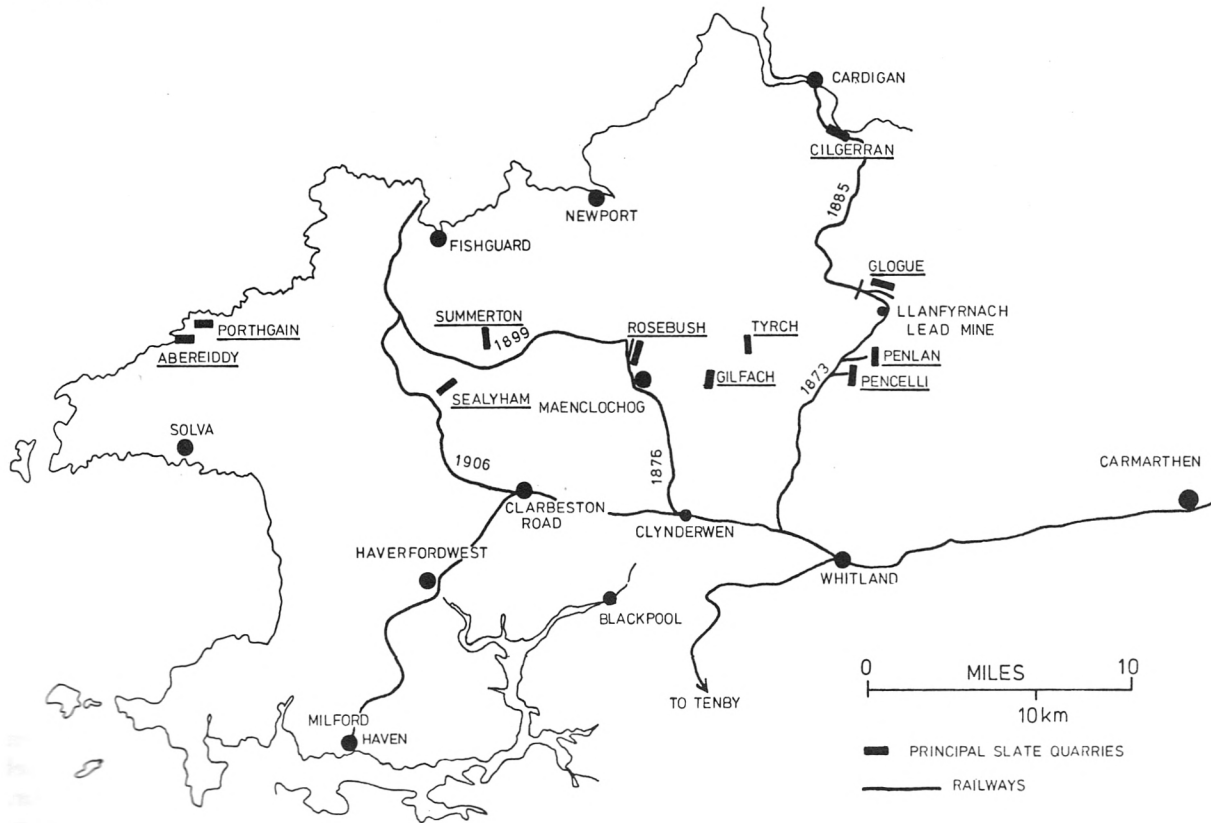
We have discovered records of, and inspected on the ground, over 100 slate quarries in South-West Wales, mostly in Pembrokeshire. In some of these the rock may not have been true slate in the geological sense, but it was either described as slate in advertisements or legal documents, or was worked as slate as far as we can judge from the spoil tips. Ninety-seven of these are shown in the map in Figure 1. Many were very small, and none were as large as the main North Wales quarries; nor was quarrying carried on as continuously over long periods as in the North. There were bursts of activity coinciding with temporary upsurges in demand and the consequent initiatives of a limited

number of leading speculators. Our knowledge of the history is largely confined to the nineteenth and early twentieth centuries, and even for this recent period the records are sparse, fragmentary and very scattered. Yet it is known that there was slate quarrying at least in that part of Pembrokeshire around Newport and Nevern from as early as 1600.<sup>3</sup>

One feature of the Pembrokeshire slate industry which we believe was not present in North Wales until the middle of the present century was the making of hard engineering bricks from the slate debris. This was certainly done experimentally, with success, at the Glogue quarry around 1882, and it was done with commercial success at Porthgain from 1889; in 1895 this latter slate-brickworks was claimed to be the only one of its kind at work in the United Kingdom. In the south-west, the demand for sawn slate slabs appears to have been of the same order as that for roofing slates; the latter were produced in the same range of sizes as in North Wales.

Transport of the slate from the quarries was by road for the most part, slate for export to more distant parts being taken to harbours such as Fish-

Fig. 2 The ports used for slate traffic (Fishguard, Newport, Cardigan, Blackpool, Porthgain and Solva) and the railway links with dates of opening.





guard, Newport, Cardigan, Blackpool (near Narberth), Porthgain and Solva. When the large quarries at Rosebush and Glogue were expanded in the 1870s and 1880s, railways were built primarily to link them to the Great Western Railway<sup>4</sup>—see Figure 2.

The industrial archaeology of the slate industry in South West Wales is difficult. It is now usually very difficult to determine how water power was obtained for sawing, haulage, etc., even though it is known from the records that it was so used. There was a certain use of steam power, but remains of this are also scant. Some of the quarries have been disturbed in recent times, either by continued working as at Gilfach, or by removal of spoil as at Glogue. Most quarries, however, remain undisturbed by man; it is nature that has interfered with and obscured the remains.

## II. Gazetteer

Listed below are the quarries in Pembrokeshire and its immediate borders (i.e. within a few hundred yards of the old county boundary), which we believe, on documentary or field evidence, to have been slate quarries. Several very small quarries have been omitted as too insignificant for inclusion; they probably only provided road metal or material for road-side banks, and not roofing slates or slabs. There were also a few other quarries, known about but not yet located.

The numbering, which corresponds to the numbering on the map in Figure 1, has been determined chiefly by convenience, but is based on a general west to east direction, following each main river valley before proceeding to the next. The names given are the names by which the quarries were identified where these are known, otherwise they are the names of the nearest named place. Where the size of a quarry has been indicated only by words, 'small' means a superficial area of less than about 300 sq. yds, 'fairly small' means about 300–1,500 sq. yds, 'fairly large' means about 1,500–7,500 sq. yds. It must be emphasized that there is no easy way of defining the size of a quarry; the terms are used only in relation to Pembrokeshire standards. The county is Pembrokeshire except where stated otherwise. The length of entry has been determined largely by the importance of the quarry or quarries concerned, and to a lesser extent by the amount of information available.

References for this work number several hundred and clearly cannot be listed individually. The main sources are the early and large-scale Ordnance Survey maps, documents in the National Library of

Wales and in the Dyfed County Archives, together with some in private hands; the *Tithe Awards*, nineteenth century issues of the *Mining Journal*, and local newspapers for the period concerned.

- 1 *Trelodan*, SM 798260 (approx.)  
Presumed site now lost under airfield; masses of slate fragments in made-up ground. Plans of 1860 for operating commercially on a large scale, with slate exported from nearby port of Solva, probably came to nothing and quarry remained very small.
- 2–3 *Castell-Coch*, SM 776304 and 776306  
Two small quarries, described as 'slate' in 1884.
- 4 *Cae-Rhys*, SM 794303  
'Local' slates advertised in 1880. May be same as Porth-y-Meibion Quarry, advertising slates in 1870.
- 5 *Abereiddy*, SM 795315  
A large quarry excavated among the sea-cliffs, extending downwards below sea-level (see Plate 1). Produced roofing slates and slabs, black, but not of the best quality. Believed opened about 1840, certainly using steam engine before 1848. In 1855 incorporated with Trwyn Llwyd and Porthgain quarries (q.v.) into Barry Island Slate and Slab Co. and thereafter had no independent operation. By 1860 had a 2 mile tramroad to convey products to Porthgain for sawing, in the case of slabs, and for export; apparently tramroad taken up after bankruptcy in 1860, but later relaid. Row of seven cottages for workers. Quarry probably abandoned in 1880s but worked sporadically in 1890s and early 1900s. It had four galleries in 1868, but only remnants can now be seen. The quarry has now been opened to the sea, forming a sheltered lagoon of just over one acre in area. (See Section III)
- 6 *Porthgain*, SM 812325  
A fairly large quarry excavated downwards in the level hilltop above Porthgain harbour. Produced roofing slates and slabs, blue, but not of good quality. Believed first opened 1855 when Barry Island Slate and Slab Co. was formed incorporating Abereiddy and Trwyn Llwyd quarries (q.v.) with Porthgain. Two rows, each of seven cottages, built for workers. Drainage tunnel to coast, tramway with inclines to harbour. Horse power used for winding and traction,

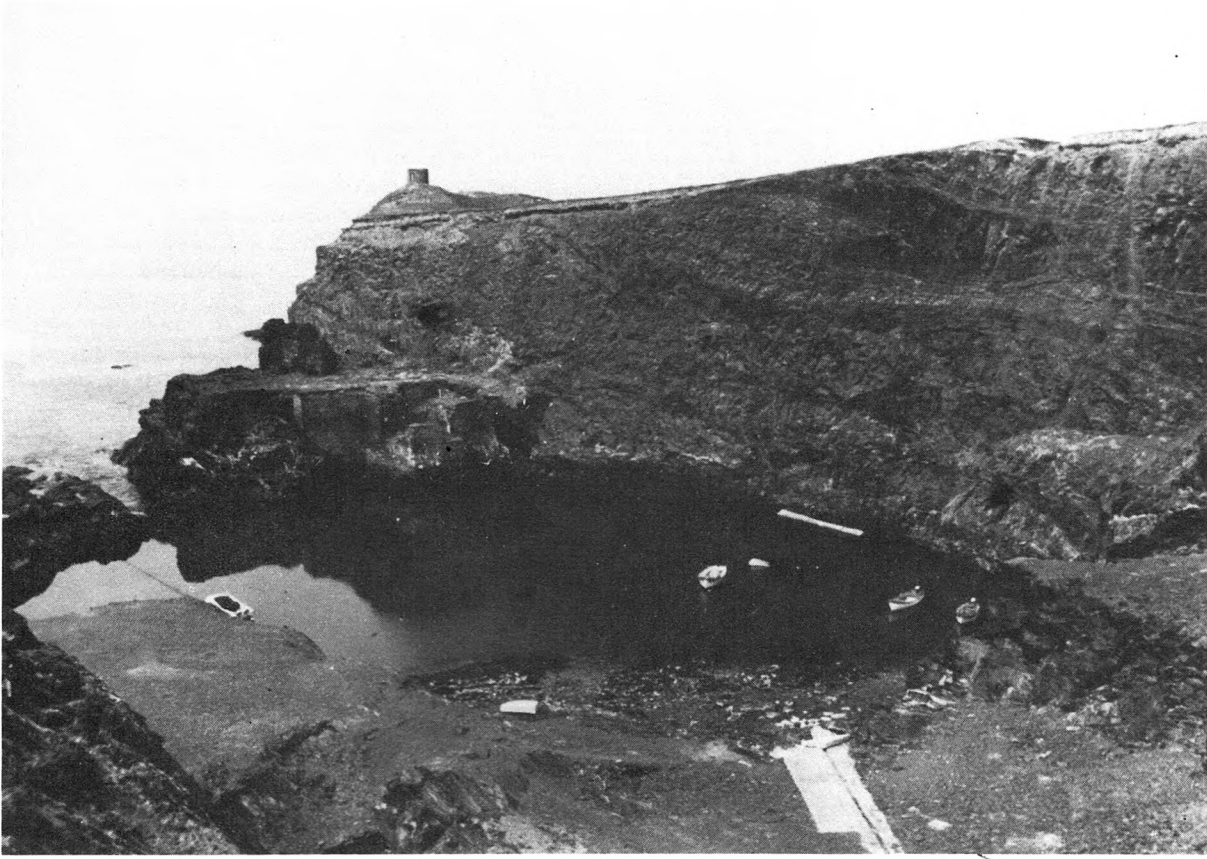


Plate 1 Aberiddy Quarry (No. 5), looking north-westwards, showing how the flooded quarry has now been connected to the sea.

water power for sawing; in the 1860s a windmill was apparently also used. In the late 1860s the group of quarries was known as the St. Bride's Quarries, and had a rather chequered career until 1889 when the syenite granite at Porthgain was exploited and the slate debris was used for making good engineering bricks. Slate as such thereafter played a rapidly diminishing part in the business, and its production ceased in the early 1900s, by which time the quarries were worked by the Forest of Dean Stone Firms Ltd. of Bristol.

The harbour at Porthgain, which was important to the slate industry, was improved by the erection of two piers in 1851 (and there is reference to the building of another pier in 1863); it was further improved and deepened in about 1900. There are extensive and massive remains of buildings, railways, etc. at Porthgain, but these mainly appertain to the later granite

working. (See Section III)

7 *Henllys, SM 817328*

Small cliff-side quarry, working independently of, although close to, Porthgain. Advertising 'slates of all sizes' in 1870, similarly in 1879; 'disused' 1889.

8 *Trwyn Llwyd, SM 832329*

A fairly large quarry cut into the sea-cliffs (see Plate 2). Produced mainly slabs. First opened in the 1840s, and worked always in conjunction with Aberiddy, and, later, Porthgain (q.v.). The slate was taken away either up an incline and then by land, or (in the early days at any rate) by boat. Believed abandoned after 1879. Sawing done on site, probably powered by steam engine. Extensive remains of buildings. (See Section III)

9 *Pwll-Llong, SM 840331*

Probably slate—no documentary evidence found; small.



Plate 2 View southwards of the remains of buildings above Trwyn Llwyd Quarry (No. 8), which lies below bottom right-hand corner of picture.

- 10 *Longhouse, SM 845337*  
Small quarry, advertising 'local' slates in 1879.
- 11–12 *Trefelyn, SM 864327 and 868326*  
Two small quarries advertising 'local' slates and 'sizes' in 1879. Disused by 1891.
- 13–14 *Pwll Deri, SM 893384 and 893385*  
Two small quarries, high in cliff. Latter has a gallery, both have spoil tips with coarse slate. No documentary evidence of slate.
- 15 *Windy Hall, SM 948374*  
About 70 yds wide, rock walls 50 ft high; large spoil tip with slate-like fragments, but advertised as 'stone quarry' in 1884.
- 16 *Pant-y-Phillip, SM 948336*  
About 200 yds wide, but rock-face only 20–30 ft high above flat floor at road level. 'Slate Quarry' c 1830 and 1864, expanding up to turn of century. Waste sold in recent years for 'slate crazy paving' and for filling.
- 17 *Pant-y-wrach, SM 967341*  
Very small quarry, advertised in 1887 as 'a valuable slate property ... the veins are exposed, ... light blue colour, fine straight grain ... thick solid blocks'; evidently not seriously exploited.
- 18–19 *Esgyrn, SM 975347 and 971346*  
Two very small quarries, intended to be worked by the Esgern Slate Quarry Company in 1866, and by another company in 1873 which became bankrupt before producing any significant amount of slate.
- 20 *Cronllwyn, SM 985352*  
A large quarry (see Plate 3), with three galleries, a width of about 100 yds, rock face about 120 ft high, cut into a hillside, with downwards penetration and drainage through a gully. Extensive spoil tips. Believed working in the 1840s with tramway and buildings, and that main exploitation



was at that time. Taken over by Pembroke Slate Co. Ltd. in 1865, but the quarry had by then been nearly worked out and the company failed in 1867; believed untouched since then. Vegetation now clothes much of the quarry but it remains very conspicuous. No building remains.

21 *Cwm Gwaun, SN 010344*

Small overgrown quarry just up a side valley, with spoil tip showing green-black slate. Within 100 yds of bottom of quarry, and below it, is a drainage adit. No documentation found.

22 *Hescwm, SM 997389*

A small cliff quarry with land access; produced slates of reputedly poor quality in second half of nineteenth century.

23-24 *Chwarel Pwdr, SN 019399; Chwarel Jerry, SN 020397*

Two small cliff quarries which relied on boat transport. One of these was possibly the Craig-y-Dyffryn quarry which was making 'locals' of good quality in 1879; both shown on 25-inch OS maps.

N.B. There were reputedly numerous slate quarries in the cliffs of Newport Bay, but it is difficult to recognize them or distinguish them from rock falls and there appears to be no documentary evidence. George Owen, writing in 1603, stated that good black slate was exported from these cliffs to other parts of Pembrokeshire and even to Ireland.

25 *Fforest Farm, SN 026394*

'Capital slate quarries' active here in 1845; only 'Old Quarry' in 1888.

26-29 *Trefach, Lower Mill Quarry, SN 084404; Upper Mill Quarry, SN 0864 10; Iet Goch Quarries, SN 081400 and 081404*

All small quarries, the first being the largest (but only about 300 sq. yds in area) and the only one to show signs of commercial working in the nineteenth century, with sheds; it was advertised as 'slate quarries' with 'plant to be taken at valuation' in 1874 and 1878. George Owen, writing in 1603, refers to quarries between the river Nevern and the sea as producing a 'russet' slate.

Plate 3 Cronllwyn Quarry (No. 20) looking westwards.



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30 *Coed Cadw, SN 094387*  
 Much slate spoil and slabs here, but only a tiny quarry—no other quarry near.

31 *Henllys, SN 113395*  
 Larger quarry, about 70 yds by 30 yds.

32–33 *Llantood, SN 157418 and 158419*  
 Two small quarries.

34 *Pant-y-Grundy, SN 163443*  
 House now built on flat floor of old quarry.

35–36 *Cwm Degwell, SN 163454 and 164455*  
 Small slate quarries on each side of the narrow gorge, the former in Pembrokeshire, the latter in Cardiganshire.

N.B. Quarries 30 to 36 were named by George Owen in his *The Description of Pembrokeshire*, written in 1603, and published without revision in London, 1892.

Some of these quarries may have been worked more recently than the seventeenth century, but no documentation, other than indications on maps, has been found.

37 *Dolau, SN 178446 (Cardiganshire)*  
 Small slate quarry in hillside, densely overgrown.

38 *Ridgeway, SN 180452 (Cardiganshire)*  
 Small slate quarry, marked on 25-inch OS map of 1888.

39–44 *Forest Quarries*  
 A series of six separately named quarries, but actually more-or-less contiguous over a half-mile length of the west side of the gorge of the river Teifi between Cardigan and Cilgerran (see Plate 4).

39 *Quarry Carnarvon, SN 190450*

40 *Quarry Ffynon, SN 191449*

41 *Quarry Tommy, SN 191448*

42 *Quarry Bach, SN 192447*

43 *Chwar Gigfran, SN 193445*

44 *Quarry Forever, SN 193444*

Fairly large quarries, with vertical faces perhaps 100 ft high. Large spoil tips down to river bank. At northern end, the river bank has been built up with stone blocks to form a quay for loading slate on to boats (see Plate 4). As far as is known, the quarries have always been worked as one unit. Probably operating before 1800, but main development in the 1870s. Apparently badly run down by 1883, and 'disused' by 1905. Quarry Tommy, at least, had a tramway to take slate out of quarry, and this passed



Plate 4 The old slate quay at the Forest Quarries (Nos. 39-44) on the river Teifi, viewed up-stream.

through a stone-built tunnel which still exists and provides the best means of access to the quarry. It is not clear where the slate was dressed or what, if any, machinery was used.

45 *Rosehill, SN 193448 (Cardiganshire)*  
 Fairly large quarry on eastern side of Teifi gorge, opposite the Forest quarries. Overgrown; much spoil. Shown on OS maps, but no other documentation found, unless this is the same quarry as entered in lists of 1906–8 as *Penllech-yr-Ast* in the same parish of Llangoedmor, in which one or two men worked occasionally to produce 'coarse slate'.

46 *Castle (Cilgerran), SN 196431*  
 Fairly small, probably very old quarry which is reputed to have provided the slate blocks from which the adjacent castle is built.

47 *Dolbadau, SN 198429*  
 Fairly small, but deep quarry immediately below town of Cilgerran. Flat floor, some 30 ft above river, now accommodates two cottages. Rear rock face some 100 ft high, but deep downwards excavation now filled in. History not known; records suggest quarry was used from 1880s to 1938, but confusion

- arises because the nearby Cefn quarries (q.v.) were worked in conjunction for at least some of the time, but with offices at Dolbadau. Produced mainly slabs. Level of activity fairly low; six workers in 1906–12; turnover £824 in 1929 and £354 in 1934.
- 48 *Pwdwr, SN 200428*  
Fairly small, very old and overgrown quarry immediately below town of Cilgerran, forming a deep narrow gully. Remains of hut with fireplace. OS of 1888 shows a crane. No other documentation found.
- 49 *Plain, SN 204428*  
Fairly small, believed to have worked at least 1846–1914 under control of Stephens family. In 1912 J. W. Stephens Slate and Slab Co. at 'Plain (Kilgerran)' employed twenty-four men.
- 50 *Cefn, SN 205429 to 208430*  
Very extensive quarry workings in gorge of river Teifi, with large masses of spoil piled up on river bank, also large spoil area above quarry, now much altered by bulldozing. Known to have worked from 1879, but probably earlier. For much of the time was associated with Griffiths of Dolbadau (q.v.) but may have been a separate company. Produced mainly slabs. Probably had a steam engine in 1880s; neither machinery nor buildings now remain.
- 51 *Sealyham, SM 960275*  
A large quarry, better documented than most, produced roofing slates and slabs, the former in the full range of sizes, colour blue. Believed first seriously worked in 1825, and by 1848 had penetrated below river level and used a waterwheel-driven pump. Somewhat intermittent working until 1877, development being opposed by the Edwardes family of Sealyham House, who were the land-owners, because it would spoil the view from their carriage drive through the woods in the valley of the river Anghof. Deaths removed this opposition, and a succession of companies expanded the workings until about 1885, since when the quarry has been abandoned. In 1876 a great flood had swept away the protective embankment between quarry and river; in consequence the expansion began by diverting the river into a new channel. New pumping machinery (believed water-powered) was installed; two steam engines were used for haulage up the quarry incline and on the very large spoil tip.
- The quarry is now flooded, very inaccessible but very beautiful among trees and dense vegetation. Many physical remains, but some very puzzling. (See Section III)
- 52 *Summerton, SM 991300*  
A large quarry on the flank of a hill at a height of 600 ft, excavated downwards as well as into slope, and with underground mining almost certainly (see Plates 5 and 6). Huge amounts of spoil. History rather obscure, but believed opened in the 1830s; known to be working in the early 1860s, 'disused' by 1889. Had slate-sawing mill driven by waterwheels. Physical remains numerous and interesting. (See Section III)
- 53 *Castlebythe, SN 017301*  
About 100 yds wide, in hillside, large spoil tip. Opened before 1840, possibly worked into twentieth century.
- 54 *Blacknuck, SN 063278*  
About 65 yds across, shallow, in bank of small valley, spoil tip showing rather coarse slate. Referred to as 'slate' in 1876, out of use by turn of century.
- 55 *Dyffryn, SN 063282*  
Indicated on a map accompanying a lease of 1867, but actual quarry not found; possibly never fully opened. Not shown on 25-inch OS maps.
- 56 *Trebengig, SN 073281*  
A small quarry. Apparently worked commercially c.1876, as it was reported that it was difficult to get its slate to market.
- 57–58 *Rosebush, SN 078298 and 079301*  
The first is a very large quarry with five galleries; the second a fairly large quarry partly excavated downwards (see Plate 7). With the adjacent Bellstone quarries (q.v.), this is the largest slate quarrying complex in South-West Wales. There was a quarry here in 1842 and reputedly there was extensive working before a period of idleness in the late 1850s and 1860s. From 1862 to 1869 there were many changes in management, but probably little exploitation until the quarries came into the hands of Edward Cropper in 1869, with J. B. Macaulay in charge locally. For ten years or so the quarries were very active. In 1871 Cropper

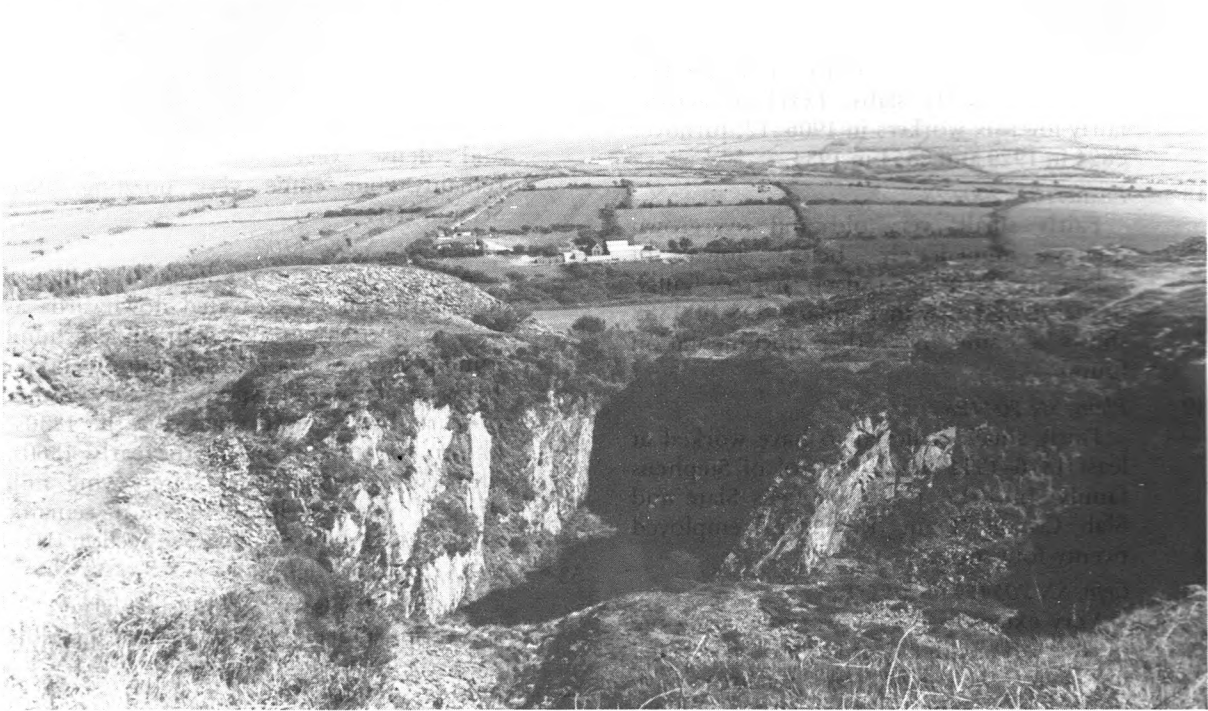


Plate 5 The flooded central part of Summerton Quarry (No. 52) looking Southwards.

Plate 6 Part of Summerton Quarry (No. 52) looking northwards, showing the stone piers on the western lip of the quarry (centre) and the western mine entrance or 'cave' (right).







Plate 7 Rosebush and Bellstone Quarries (Nos. 57-61 from right to left) looking eastwards.

arranged the building of the railway from Narberth Road (GWR) to Rosebush, opened in 1876. Tramways, with inclines and tunnels from the quarries to the spoil ground and dressing sheds, were built; water power, using a turbine probably driven by water from the flooded second quarry, was utilized, and a windmill was also tried but without success. A village of twenty-six cottages was built for the workers and a hotel and other amenities were later provided in an effort to develop a tourist traffic as the slate industry ran down, finally ceasing in about 1900. Little now remains apart from the quarries themselves, the spoil, the village, and a few ruined buildings. (See Section III)

59-61 *Bellstone, SN 079302, 080303 and 079304*

Three fairly large quarries, the first two with gallery working (see Plate 7). The first has also a deep excavation downwards which was connected by a tramway incline (partly in tunnel) to the spoil ground on the west. As the spoil ground was at a much lower level, the tunnel would presumably have been used also for drainage. The implica-

tion is that this quarry was the one most recently worked. Quarrying here had started before 1843, and the sett was still independent of Rosebush in 1882; it is probable that common ownership with Rosebush was established only after slate working ceased. The remains of some cottages and quarry buildings still exist. (See Section III)

62 *Pantmaenog, SN 080313*

A small quarry; a deep cleft in a hillside; much spoil, of which some has recently been removed for roadmaking; evidently an old quarry. No documentation found.

63 *Craig-y-Cwm, SN 097311*

At elevation of 1,400 ft AOD, the highest quarry noted in this gazetteer. Shown as slate quarry by OS c.1870 and 1880, but disused by 1888. Believed to have been worked commercially.

64 *Vagwr, SN 094284*

A fairly large quarry now filled in, and detectable only by shallow cliff and bare base of former spoil tip. The quarry was shown on map accompanying lease of 1866, as being on the north side of the road, with spoil tip on south side. Opened before 1840.



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65 *Temple Druid, SN 098272*

Probably opened before 1840, and reputedly used to provide material for the small mansion called Temple Druid in seventeenth century. Commercial development for a short period around 1870, and then probably also in 1880s when 'aqueduct' from the fish-pond in grounds of mansion supplied a waterwheel driving slate-saws and planers. At this stage main product was slabs. Re-opened in 1920s by Temple Druid Slate Quarries Ltd., with office in London, to provide 'olive green, plain and rustic roofing slates'. In spite of this history, the physical evidence suggests a small scale of working; maximum width of quarry is about 60 yds, and maximum height of quarry face is about 40 ft; spoil tips small. Spoil shows evidence of hand-sawing and power-sawing.

66 *Llandilo, SN 103273 to 103276*

An extensive and complex series of interconnected small quarries (including a tunnel link), now very overgrown. Main development after 1888, but little is known of the history.

67 *Llandilo, SN 105270*

This quarry is a gully in a hillside, penetrating about 150 yds with a width of about 40 yds. Large spoil tips. Opened before 1840, working in 1860s, tramway to spoil tip in early 1900s, believed to have continued work until 1937. Rustic slates made here. Abandoned slate-shearing machine (by Turner Bros.) on spoil tip.

68 *Teilo Vale, SN 106268*

A small commercial quarry operated as 'Teilo Vale Sea-Green Slate Quarries' 1912-14, and probably also in 1920s. Produced roofing slates. Used tramway. Maximum workforce of seventeen. Remains of small stone-built sheds; very overgrown.

69 *Llyn, SN 112272*

A small quarry, not marked on any known maps, thought to have been worked in 1930s. Large slabs of slate on spoil tip.

70-74 *Teilo Valley, SN 108268, 106265, 108265, 107264, 108264*

A series of small slate quarries, all marked on OS maps and probably worked for local purposes in earlier centuries. Several have relatively large spoil tips. All very overgrown.

75 *Lily, SN 110262*

Excavated as narrow gully about 150 yds long. Probably first opened before 1840, but main working was as Lily Quarries Slate and Slab Co. from 1865. Large spoil tips; bases of at least two buildings remain. Stone-walled leat, about 3 ft wide and 200-300 yds long, brought water-power to flat dressing floor. All now very overgrown. Certainly not worked since 1900.

76 *Llangolman Farm, SN 115265*

Small hillside quarry, now flooded and overgrown, with little spoil to be seen. Probably supplied material for big roadside banks built of blue slate fragments.

77 *Pencraig, SN 119264*

A small quarry producing slate of a sort, about 30 yds across cut into a shallow hill. Believed to have been worked before 1842 but not since.

78-79 *Tyrch, Lower quarry SN 146294, Upper quarry SN 156296*

Two quarries always worked together (see Plate 8). Probably first opened between 1864 and 1887, but main development between 1887 and 1910. The lower quarry is at an altitude of about 550 ft AOD, beside the stream that is the main headwater of the Eastern Cleddau river; the upper is at about 1,000 ft AOD on the open mountain. The extension of the lower quarry eastwards into the hillside had cut away the public road, and a new stretch of road had therefore to be built, involving an embankment with a large culvert across the mouth of the quarry. The spoil had evidently encroached on the stream, which had to be diverted to a new course 100 yds to the west. The upper quarry was merely a cutting into the slope of the hillside, forming a shallow arc 80-100 yds across. Silver-grey slate from lower quarry; rustic slate from upper.

P. F. Campbell worked the quarries 1923-38; order books indicate annual production around 300 tons of roofing slates, used all over Britain.

Lower quarry now flooded, reputedly to depth of 45 ft; must originally have been drained by culvert; rock faces up to 100 ft high. Spoil ground large, but much spoil removed. A few slate-built small buildings remain.

80 *Klondyke, SN 167300*

As name implies, probably opened about



Plate 8 Lower Tyrch Quarry (No. 78) looking eastwards.

1900. It is a cutting into the open mountain-side, large spoil tips. No documentary evidence has been found.

81 *Gilfach, SN 130271 (Carmarthenshire)*

The largest and most important of the slate quarries on the Eastern Cleddau river. Origin unknown, but very active by 1865. In 1873 had tramways, office, smithy, sheds, etc. and extended 100 yds into hillside. By 1888 extent was 150 yds, with width of 75 yds, but the tramway had apparently been removed; presumably the quarry was then not being worked. Renewed activity in 1896 extended quarry to 250 yds by 1905, with the development of galleries on the north face, and tramways on quarry floor and on galleries. The Precelly Green and Rustic Slate Co. Ltd., worked the quarry 1919–39. The quarry is still worked on a small scale by Mr Glyn Absalom who bought it in 1954 and incorporated it with Cnwc quarry in his Pembrokeshire Slate Quarries Ltd. He

formerly made roofing slates, but now concentrates on fireplaces and ornamental panels using the variegated rustic slate.

The product of this quarry was, around the turn of the century, known as Whitland Abbey slate, although this name had earlier been used at Dan-dderwen (q.v.). (See Section III)

82 *Gilfach-ddofn, SN 131269 (Carmarthenshire)*

A small quarry, probably disused for a century. No documentation found.

83 *Little Gilfach, SN 128268 (Carmarthenshire)*

A small quarry worked for some years in the 1870s as part of Gilfach (q.v.), with tramway, sheds, etc. There is no authority for the name Little Gilfach, which is used only for convenience.

84 *Cnwc, SN 126272*

Full name Cnwc-y-derin, also Garn, also West Gilfach. In commercial production 1865 and 1880. Purchased by John Absalom in 1908 or soon after, along with the Dan-



Plate 9 Western quarry at Glogue (No. 91) looking south-eastwards, showing post-1900 tunnel-incline at bottom right.



dderwen group which were probably immediately abandoned, and operated around 1920 as the Garn Green and Rustic Slate Quarries Co. Still worked by Mr Glyn Absalom, together with Gilfach (q.v.) as Pembrokeshire Slate Quarries Ltd.

85–86 *Dan-dderwen, SN 126267 and 127265*

In 1864 these quarries were the 'Danyderwen Flag Quarry' and the 'Danyderwen Slate Quarry' respectively, and appear to have been well-established then, although under separate ownership. Common management was established in 1866. The flag quarry had a tramway and buildings in 1888, when they were known as the Whitland Abbey Slate Quarries. This name seems to have been transferred to Gilfach (q.v.) by 1896. The flag quarry became a 150 yds long gully before abandonment, but the slate quarry remained very small.

87 *Cwar Glas, SN 129263 (Carmarthenshire)*

Nothing is known of the history of this small quarry except that it was part of the Gilfach organization in 1873.

88 *Llwyn-yr-ebol, SN 127260 (Carmarthenshire)*

89 *Clyn-gwyn, SN 124260 (Carmarthenshire)*

Two sizeable quarries (about 150 yds wide with rock face up to perhaps 50 ft high) which were probably always worked together. The Cleddau Valley Slate Quarries Co. in 1877 acquired the rights to half a mile of the Carmarthenshire bank of the Eastern Cleddau river including the existing quarries which they intended to extend. The slate here was blue, although a green vein was also mentioned. The size of the quarries and the amount of spoil indicate extensive working but it is believed that the quarries have not been worked since the early 1880s.

90 *Pen-Cware, SN 202333*

Fairly small quarry with a comparatively large spoil tip. Probably working before 1830; nothing else known.

91–92 *Glogue, SN 218328 and 221328*

Two associated large and conspicuous slate quarries, reputedly worked from about 1685 by a workforce of twenty to forty, and probably employing at least fifty men in 1831 (see Plate 9). Both quarries had been opened northwards into the southern edge of the slate vein. Both quarries exceeded 100 yds in width in 1854. All sizes of roofing

slates were produced, together with slabs. Used tramways and water power by about 1860. Worked by the long-established owning family, the Owens, at least from 1854 to 1886 and later by a London company—the Glogue Slate Quarries Ltd.—from 1919 to 1926 with a labour force of about eighty, and new machinery.

The railway from Whitland, built largely for the slate traffic, was opened in 1875 and was a boon to the quarry. Production was then well over 2,000 tons a year. In 1882 John Owen experimented successfully in making hard engineering bricks from the slate debris (of which there was 24 tons for every ton of slates produced), and in 1883 tried to form a company to manufacture 140,000 bricks per week—but without success. (See Section III)

93–95 *Imperial Slate Quarries*

93 *Cwm-Gigfran or South Glogue, SN 223327*

94 *Cwm-Llwyd or Clara, SN 226326*

95 *Spite or Lilac, SN 230324*

Three fairly small quarries; the origin of the alternative names is not known. All had been worked before 1840, but it was in 1865 that they were incorporated into the Imperial Welsh Slate Co. Ltd. By this time the first quarry had tramways and sawing/planing machinery and was producing slates and slabs. The second quarry produced only slabs, and both it and the third quarry had then ceased work. All 'disused' by 1888. Now overgrown.

96 *Penlan or Elwyn Valley, SN 207283 (Carmarthenshire)*

Small quarry, opened around 1878 and made slates and slabs. Connected by tramway about three quarters of a mile long to the railway just north of Rhydowen Station. Worked for only a short time. Now overgrown.

97 *Pencelli, SN 192278 (Carmarthenshire)*

Small quarry, opened around 1877–8, with incline and tramway connection to the Whitland and Cardigan Railway. Unsuccessful; spoil tip small, quarry now overgrown.

### III. Field Evidence at the Slate Quarries and their Associated Works

A study of the physical remains of the quarries and

their associated works has as its object, not only the recording of the remains, but more particularly the elucidation of the method of working, especially when, as in this present project, the documentary sources shed little light on the matter. It has to be added that in this case the physical remains are generally also very unhelpful as often only the rock face and spoil tips remain. However, there are some good examples of fairly comprehensive remains, and these will be illustrated later.

First, some general comments on methods of working will be given. One of the most obvious features of the working of slate quarries in North Wales is the system of galleries by which the rock face is made accessible. In the Pembrokeshire quarries, which are smaller, galleries are less common; they are to be found (sometimes only a single gallery) at the following quarries:

- Aberiddy (No. 5)
- Trwyn Llwyd (No. 8)
- Pwll Deri (No. 14)
- Cronllwyn (No. 20)
- Rosebush (No. 57)
- Bellstone (Nos. 59, 60)
- Gilfach (No. 81)
- Llwyn-yr-ebol (No. 88)

Mining as a method of working appears to have been used only at Summerton (No. 52), which is also the only quarry to have indications of the use of an aerial ropeway. Tunnels for access and/or drainage are not uncommon: those at Glogue (Nos. 91, 92) probably had the dual purpose; Porthgain (No. 6) had separate tunnels for access and drainage; Tommy (No. 41), Rosebush (No. 57), and Bellstone (No. 59) had access tunnels; and Cwm Gwaun (No. 21) had a drainage tunnel. There were drainage gulleys or channels at Cronllwyn (No. 20), Summerton (No. 52), and both Tyrch quarries (Nos. 78, 79). Tramway inclines were used at Aberiddy (No. 5), Porthgain (No. 6), Trwyn Llwyd (No. 8), Sealyham (No. 51), Pencelli (No. 97), Rosebush and Bellstone and the two quarries at Glogue through the tunnels already mentioned.

Water power, used principally for sawing and planing of slate slabs, was probably used at several quarries where we have so far found no evidence of it; however, it was certainly used at the following: Porthgain (No. 6), Sealyham (No. 51) (here used also for pumping), Summerton (No. 52), Rosebush (No. 58) (turbine), Temple Druid (No. 65), Lily (No. 75), and Glogue (Nos. 91, 92) (turbine). It was probably used at Tyrch Lower quarry (No. 78).

It is clear from this brief account that only a small proportion of the slate quarries in Pembrokeshire

and its borders could be regarded as technically well-developed; the great majority were quite small, unsophisticated affairs—and not necessarily less successful in business on that account. Most of those which survived into the twentieth century were in the latter class.

### Descriptions of the Remains at Some of the More Interesting Quarries

Given below are rather fuller descriptions of the present remains at a number of quarries. As space permits a detailed account of only one quarry, we have chosen Summerton for a more extended treatment.

#### *Aberiddy*

At Aberiddy, the most obvious feature is the flooded floor of the quarry, which forms a lagoon of just over one acre in extent, now joined to the sea by a narrow channel which has been blasted through the rock, so that the lagoon is tidal; it is used as a haven for small boats. The cutaway cliffs are very evident, and to the north, a vertical fault is apparent. Apart from the channel cut to the lagoon, other changes have been made since the 1907 OS maps, by what agency is not known to us, with the peculiar result that a former gallery of the quarry, with building remains on it, now stands as a tiny island to the south of the lagoon, whereas once it was connected to the tramway terminal. This terminal was at an altitude of about 45 ft, and the very gently-sloping tramway formation, running down to Porthgain, can be followed easily at first, then with much more difficulty where it crosses fields which have been ploughed. From the other side of the little Eddy valley however, with suitable light, the line of the tramway stands out clearly, even through the vegetation in the fields.

Another former gallery, to the north of the new channel to the lagoon, has quite extensive and substantial building remains. No doubt the very exposed situation necessitated strong buildings.

Some 100 yds along the tramway is the powder magazine and about 70 yds beyond that, to the south, are the remains of an unusually substantial building with buttressed walls. About 50 yds south of the tramway was a row of seven cottages, represented now by the bases of their walls.

#### *Porthgain*

At Porthgain the physical remains of industry are all-pervading.<sup>5</sup> The stone industry has destroyed all evidence of the earlier slate industry in the vicinity

of the harbour, and of the tramways. However up on the hill to the west is a maze of tramways and buildings, most of the latter being of brick. The main line of the tramway runs off to the granite quarries at the coast. On the hill itself, about 200 yds west of the harbour, is the old slate (slab) quarry, roughly circular in plan, of about 100 yds diameter, excavated to a depth of about 60 ft. At the bottom can be seen the tunnel which runs down to the wharf at the harbour. It is quite easily entered at the harbour end. The other principal remnant is the leat running down the side of the valley.

*Trwyn Llwyd*

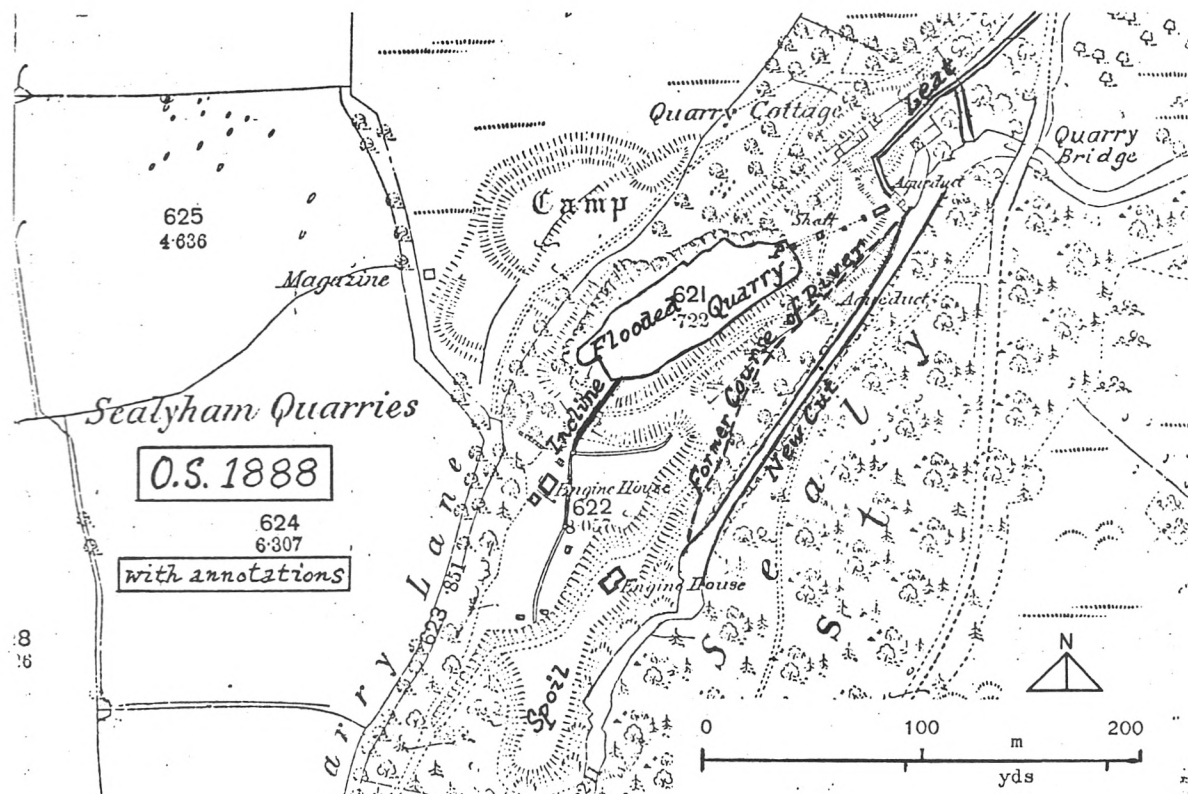
The quarry itself is at the foot of the cliff, and an inclined plane cuts through the cliff to the south to provide a means of hauling up the produce. About 30 ft from the top of the incline is a large and substantial building of rather complex layout, now represented only by the base of the walls; its overall plan is about 60 ft square. One of its compartments

looks from its position as though it might have housed a small haulage engine for the incline. Probably slate dressing was carried out on a small scale, but as the main product was slab, there would probably have been facilities for sawing since it would hardly have been economic to cart the rough rock to Porthgain. Indeed, the spoil heaps around the building show that sawing was done: there are numerous pieces of rock with saw marks. Whether steam power was ever provided for this is not known, but the saw marks are so regular that they must have been made by machine.

*Sealyham*

At the present day, this quarry presents a most beautiful appearance. Set in the steep, wooded side of the Anghof valley, with its flooded bottom forming a picturesque lake, backed by the high cliffs to the north and west often brilliantly lit by the sun, it is a place of peace. The inclined plane to the south-west up which material was hauled by the engine indicated on the map (Fig. 3), can be

Fig. 3 Map of Sealyham Quarry (No. 51) as in 1888. This part of the First Edition 25-inch OS map, with annotations by the present authors.



detected, but the engine house, like the other shown on the spoil heap to the south-east, cannot be recognized by anything more than extra-thick undergrowth and an occasional rag-bolt.

The new river channel can be easily recognized by the gorge cut in the rock, and a part of the old channel is detectable. The leat shown in the map (Fig. 3) is still there, but it is much more complicated than the map suggests; there have been one or two diversions. There were probably three stages of development; the first when the leat supplied a mill (and a small stone structure with a low arch on the river side may be the remains of this), the second when the quarry was first pumped by water power in the 1840s, and the third after the river diversion in 1878. In this last stage, two aqueducts carried the leat firstly over a deep channel from what looks like an old drainage adit, and secondly over the old river channel; the positions of these aqueducts are easily recognized

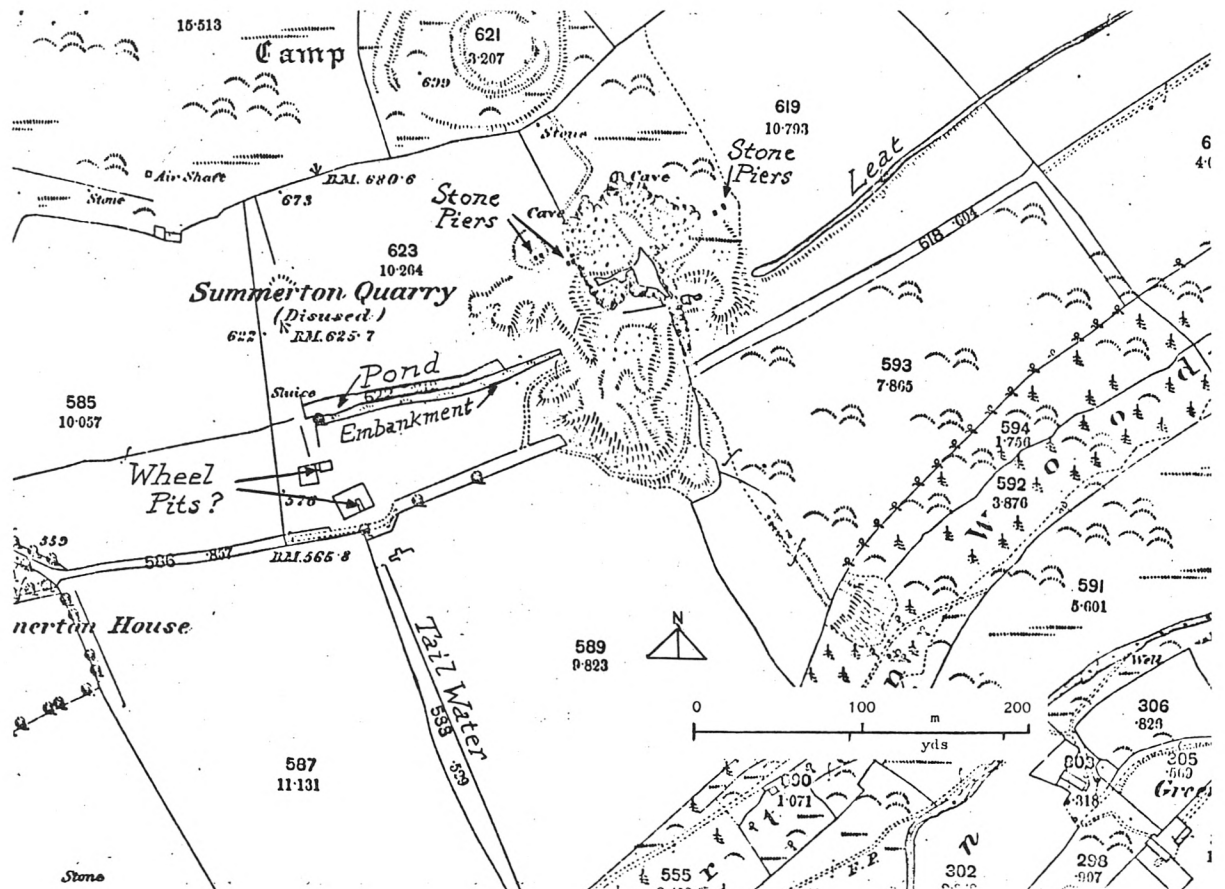
although the aqueducts themselves have gone. There is no very clear indication of where the water wheel or wheels were located. We could not find the line of structures, including a 'Shaft', extending east-north-east from the flooded quarry in the map, but we did find a shaft in a different position.

The site is so overgrown that an accurate survey has proved impracticable at present. Clearly much more work is needed here.

*Summerton*

At the present day, the quarry itself is practically unchanged from last century, with comparatively little vegetation growing over it. The ground slopes downwards from the north, so that at the northern edge the quarry face is about 100 ft deep. Spoil is piled everywhere, but chiefly to the south, where it encloses the quarry, making it a deep pit, flooded at the bottom, although there is a narrow drainage

Fig. 4. Map of Summerton Quarry (No. 52) as in 1888. This is part of the First Edition 25-inch OS map, with annotations by the present authors.





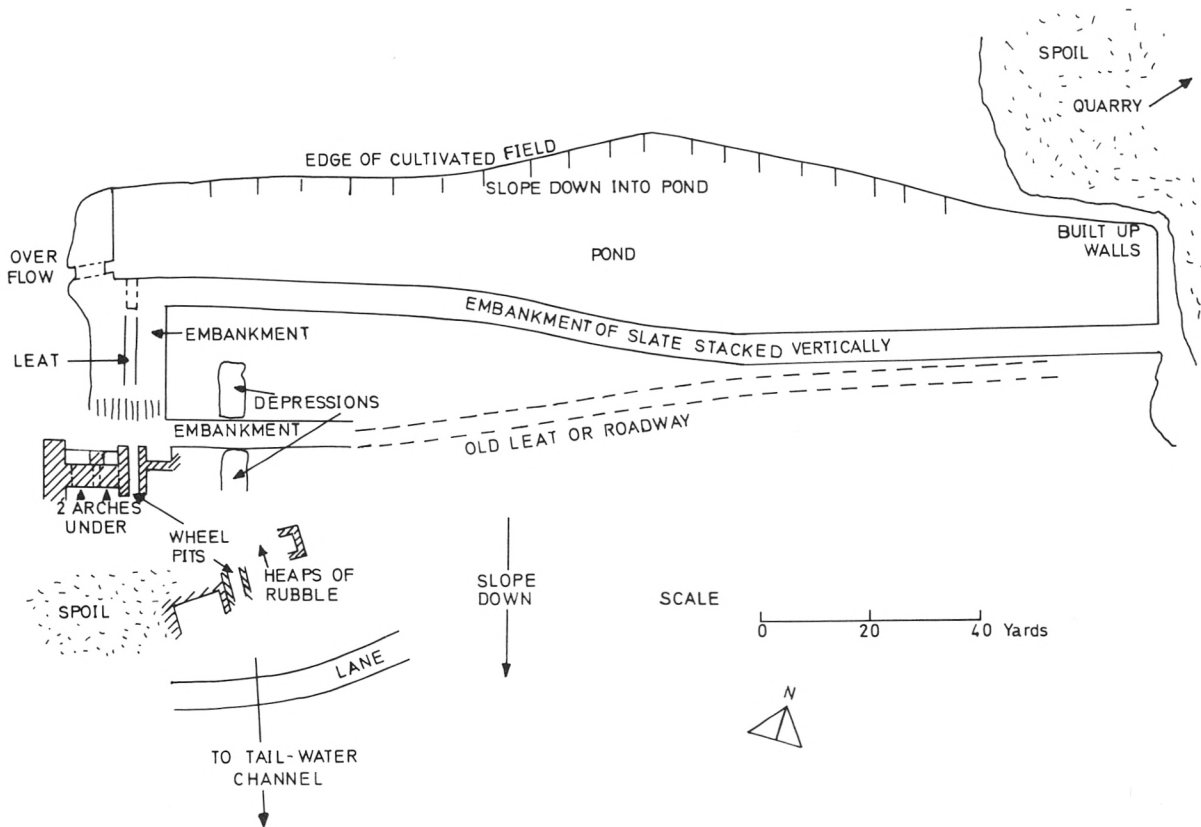
gully through the rock and spoil. The spoil obviously engulfed the leat and roadway, necessitating a southwards diversion of the road (it is only a small bridle road) as shown in the map of Figure 4.

At each side of the quarry there are stone piers standing on its lip, one pair on each side, with an extra pair standing a little way back on the west side, as shown in Figure 4: also on the west side is a rather larger structure actually overhanging the lip. These piers were probably the supports of an aerial cable system used for bringing up the produce and spoil of the quarry.

To the west of the quarry, at a level well below that of its lip, lie the remains of structures indicated in outline in Figure 4; these are set out more clearly and in more detail in our own survey shown in Figure 5. The most obvious feature is the long embankment running westwards which we consider formed the dam of a pond as shown. Among the heaps of ruins and piles of stone at the western end, there are two structures which we interpret as wheel pits. This must have been the site of the slate mill, where blocks of slate rock were sawn into slabs.

The spot heights shown in Figure 4 show that the pond is at about 600 ft AOD and the tail race from the lower wheel pit at about 570 ft. This would give sufficient head to work two small overshot water wheels in series, so that it is possible that two water-powered mills were in use simultaneously. However, we think another explanation is more likely. The map accompanying some sale particulars of 1865<sup>6</sup> showed the leat continuing past the quarry for over 100 yds, with a small building just below its end; there was no indication of a pond. In Figure 5, just below the embankment, we show the line of an old leat or roadway. It is not now easy to determine which it is, but taking it in association with the depressions at its end, which line up almost exactly with the lower wheel pit, it seems probable that it was the leat as shown on the 1865 sale map, providing power via a diminutive pond to a slate mill beside the lower water wheel. Then when in the course of later operations, the spoil tip blocked the leat, new hydraulic arrangements were made, involving the big embankment and the new pond, together with a new saw mill and water wheel. The problem of water supply to the new pond was

Fig. 5 Plan of the present remains of the works associated with Summerton Quarry (No. 52); authors' survey.





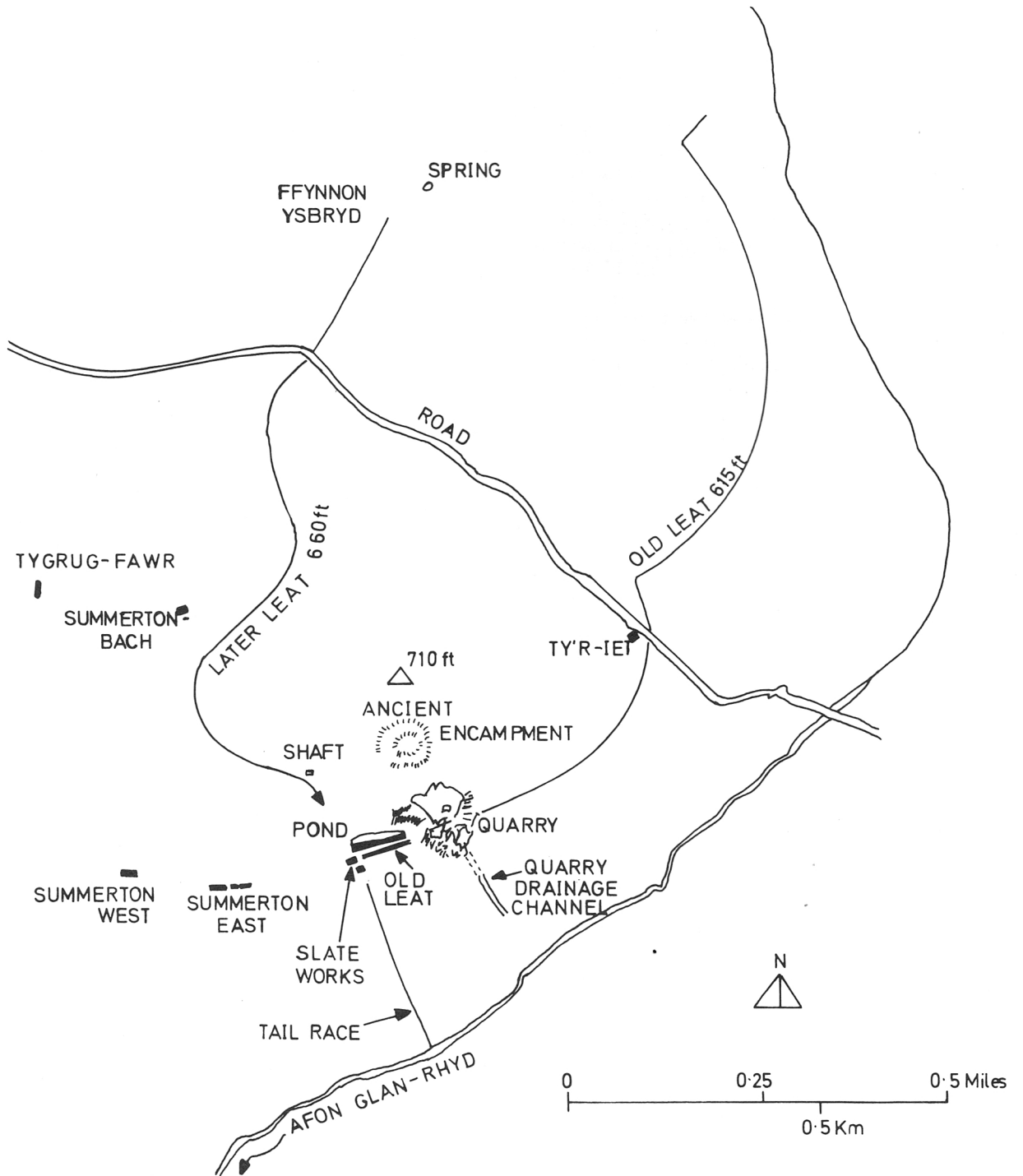


Fig. 6 Map showing leats for Summerton Quarry (No. 52) as understood by the authors.

puzzling until it was explained by Mr E. N. Luke, the elderly farmer of Summertown West Farm, whose father came there around 1900. It appears a new leat was constructed at a height of about 660 ft AOD (although there is now no positive sign of it at the Summertown end), where the water was brought steeply down the hill into the pond. When drawn accurately according to the contours, its route appears as shown in Figure 6. On this map, we have also shown the route of the earlier leat, which is indeed shown on the First Edition one-inch OS map, so probably dates from before 1830. (Incidentally, this is our earliest indication, albeit not very positive, of the likelihood of machine sawing of slate in Pembrokeshire.)

This system of leats seems fairly definite. The older leat not only has good map evidence, but can be traced on the ground over most of its course. It is very easy to see where it crosses the road at the farmhouse called Ty'r-iet. As far as is known, the upper leat is not shown on any map but it can be seen quite clearly where it crosses the same road further to the north west, at grid reference SM 988310.

We have only one reservation about the hypothesis put forward above. There is some indication of stone-walled culverting under at least part of the spoil tip at the level of the lower leat, and there is therefore a possibility that this leat continued to be used for some time after the spoil spread.

Reverting to the quarry itself, it is interesting that two 'Caves' are shown on the OS map (see Fig. 4). Standing on the spoil tip to the south, one can see these caves clearly, and it is indeed possible to enter them for a short distance. An 'Air Shaft' is also shown on the map, about 300 yds to the west of the quarry. This shaft still exists; it is well constructed and stone-lined, although now filled in. The local tradition is that there was mining of slate in the lower stratum, and that the underground gallery (or one of them) extended at least to the air shaft. Thomas Martin had used the word 'mine' in 1862, and had possibly really meant it.<sup>7</sup>

#### *Rosebush and Bellstone*

The 1888 edition of the 25-inch OS map is remarkably explicit in regard to these quarries, and with our annotations (Fig. 7) should be readily intelligible. No indication of how or where the water power was used is given, nor have we found any indication on the ground. The tramways and winding drums have gone, although the tramway

formations and bridge abutments generally remain; we could not find the tunnels. The locomotive shed and dressing shed remain as ruins. The GWR marker post presumably indicates the original limit of the railway, coinciding with the boundary between the Rosebush and Bellstone properties. There has been some removal of spoil, but otherwise the quarries remain more or less as abandoned last century.

#### *Gilfach*

As this quarry is still being worked to some extent, it is not so overgrown as most. There is, however, very little indication of how it used to be worked. The heavy hand of present-day practice, with large bulldozers gathering up the rock after heavy blasting, leaves little of old structures. The galleries have been almost entirely removed, but there are interesting indications of their former existence on the northern face of the quarry in the shape of several long channels or cuttings leading through the lip of the quarry to platforms which must have been part of the old galleries and which still show signs of old sheds and machinery. These channels were presumably for the tramways which are indicated to the north of the quarry face in the Second Edition 25-inch OS map (Fig. 8).

Buildings still at Gilfach include the old quarry office, built of slate; two old slate sheds on the spoil heap (one containing a Day & Millward 7 cwt lever-arm weighing machine and also a four-wheeled frame on rails of 6 ft gauge, presumably for moving slabs on to a slate saw), and a galvanized iron shed, used at the present day as the dressing shed, with a motor-driven trimming machine.

We have not solved the problem of the form of power used here. There are references in promotional reports of the nineteenth century to the availability of water power, but we saw no indications of its use. Equally we saw no indications of old engine houses and maps were of no help.

#### *Glogue*

Apart from the removal of spoil, which has destroyed most of the signs of the old tramways, and the ravages of time and nature, there has been little interference here, and much of the old layout can be traced. Figure 9 shows the arrangements in 1888, and the leat, pond, and tail race shown there still exist, although without water. The saw-mill for sawing and planing slate slabs can still be traced amidst thick undergrowth by its footings, but there

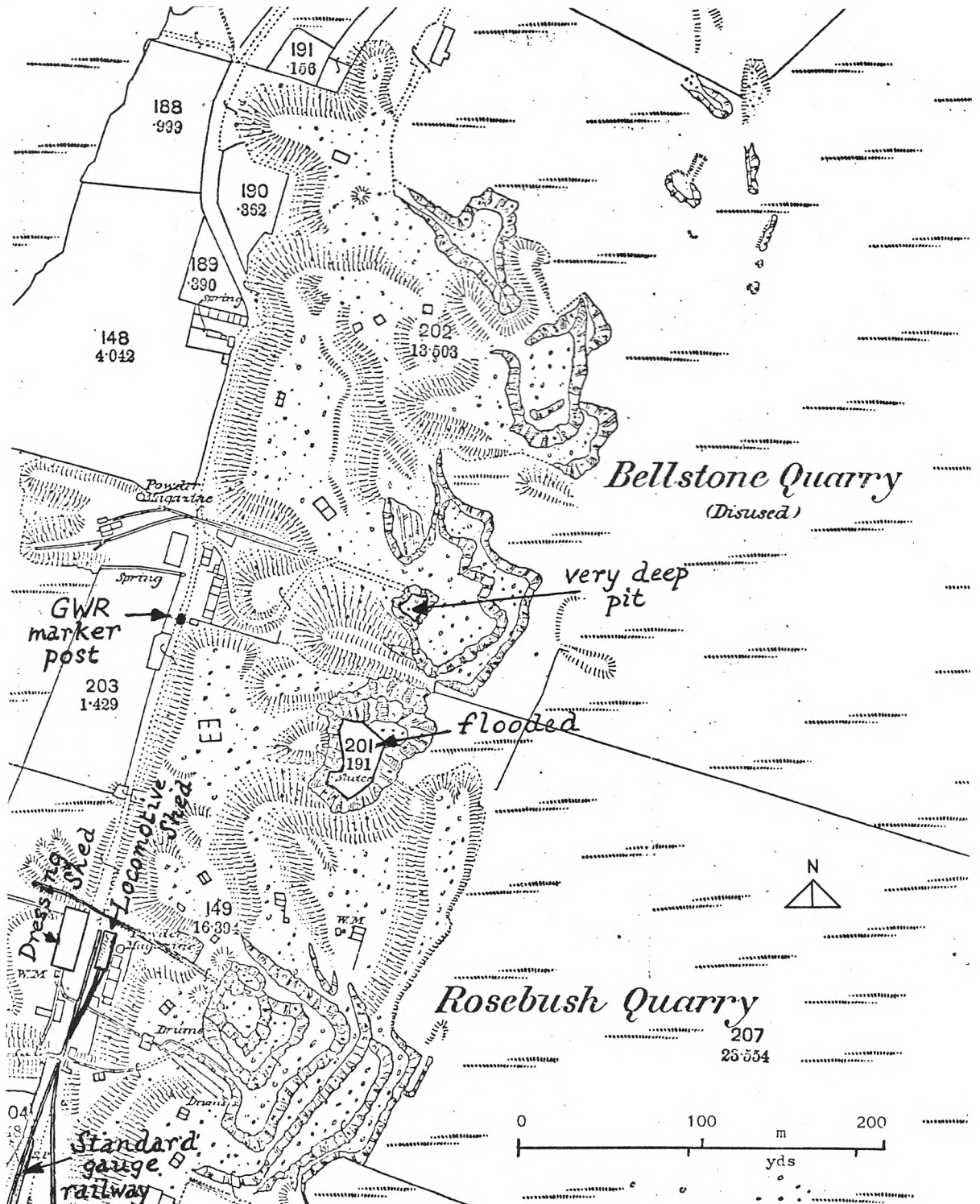


Fig. 7 Map of the Rosebush and Bellstone quarries (Nos. 57-61). This is part of the First Edition 25-inch OS map of 1888, with annotations by the present authors.

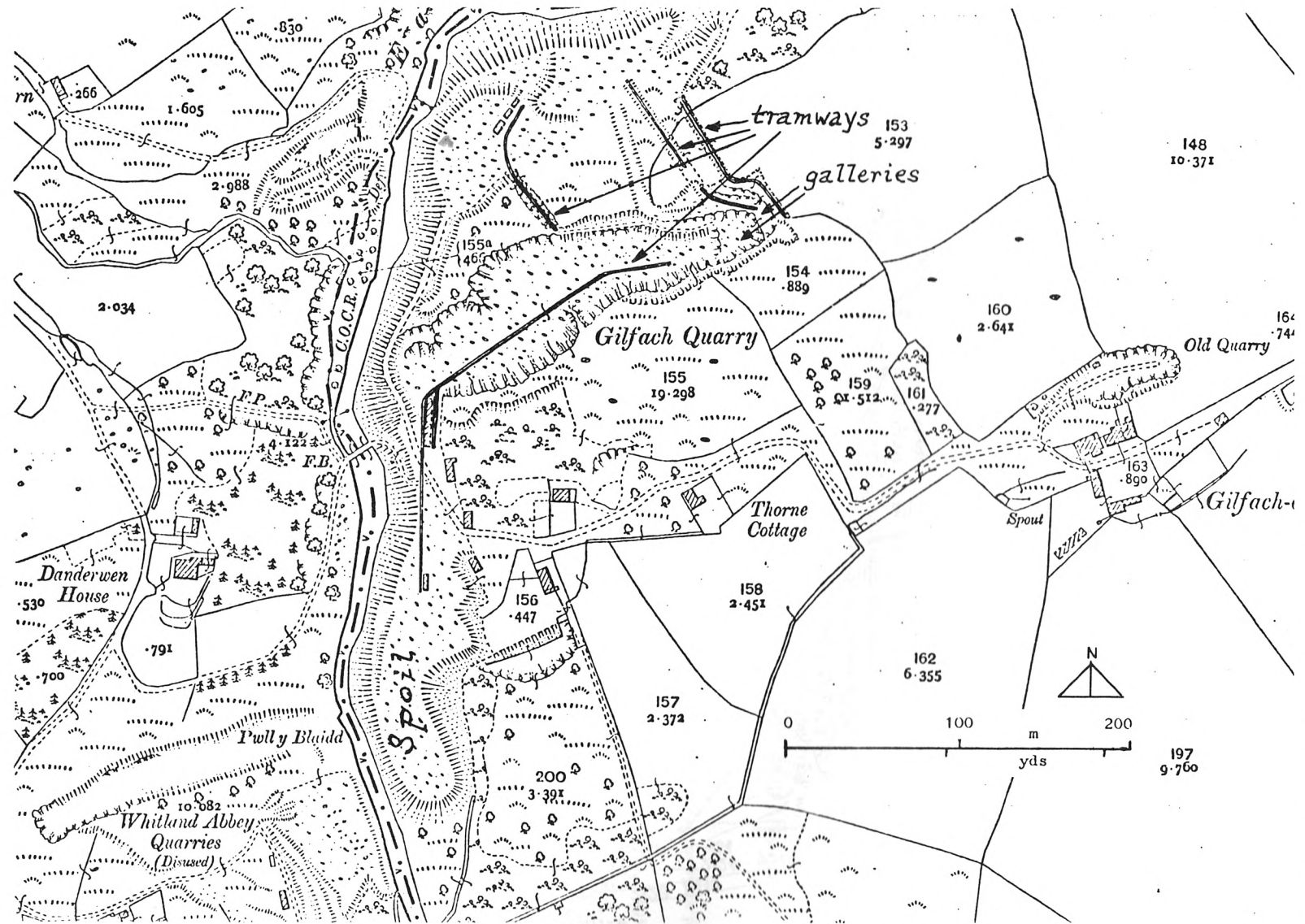


Fig. 8 Map of Gilfach Quarry (No. 81) as in 1905. This is part of the Second Edition 25-inch OS map, with annotations by the present authors.





is no clear indication of the turbine site. It is known that a turbine had been installed by 1869, and it is possible that the rectangle shown on the map near the pond was the turbine house.

There is still a piece of tram rail embedded in the road where the tramway crossed it near the saw mill. The tunnels can still be seen in the quarries, and also a deep hole in the bottom of the western quarry which, as Price explains,<sup>8</sup> was probably made after 1900 to provide an incline down to the mill area. The standard-gauge railways have all been removed.

#### Acknowledgements

We are greatly indebted to numerous people for help of various kinds: farmers and others for giving us access to their land, and various libraries and record offices for their facilities, particularly the Dyfed County Archives, The National Library of Wales and the Newspaper Library of the British Library. We would particularly like to acknowledge the very useful discussions we had with Mrs Catrin Stevens of Maenclochog and the helpful references she gave us to some of the more obscure quarries; also the help given with regard to particular quarries by Mrs G. Absalom of Llangolman, Mr and Mrs G. Nicholas of Tyrch, Mr E. N. Luke of Summertown West, and Mr C. Darley of Summertown East.

#### References

The main locations of our sources of information have been indicated in the introduction to the gazetteer, and no attempt has been made in this paper to list the hundreds of individual references for all the facts quoted. The following are the few specific references made in the text.

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