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Part IIIC Profitability, Capital and Investment.

(i) Messrs. Turner & Morgan, 1829-43

In the absence of any documents from this period, a detailed discussion of the financial affairs of Messrs. Turner & Morgan is impossible. However, using other sources, it is possible to gain some insight into the sources of capital and the general trends of investment policies.

Most of William Turner's wealth was derived from his partnership with the Casson brothers in working the Diphwys slate quarry, Ffestiniog and his association with Thomas Asseton at the Dinorwic Quarry, Llanberis. Born at Seathwaite, Lancashire in 1766, the sixth child of a slate quarry proprietor, William Turner was educated by his god-father, the Rev. Robert Walker, after the death of his natural father in 1773. Whilst still only a very young man, William Turner set off to seek his fortune in North Wales, financed by a £50 gift from his brothers. Near Llanrwst, in the Conway Valley, he found a vein of slate and he persuaded the landowner, Mr. Williams, Pwll-y-crochan (Colwyn Bay) to join him in partnership to open a quarry. However, after a while, W. Turner concluded that the Llanrhychwyn Quarry, Llanrwst was not a profitable venture and with much regret terminated the partnership.

William Turner continued his journey over the mountains to Ffestiniog, where he found a number of quarrrmen working a small open quarry on Diphwys farm. The land happened to be up for sale and W. Turner rushed to conclude a deal with the vendor, several days before

the quarrymen, who were taken by surprise. However, he had insufficient funds to finance the Diphwys Quarry and thus invited two friends from Lancashire, Thomas and William Casson, to join him in the venture and later, Hugh Jones (banker), Dolgellau also joined the Company. Diphwys became such a prosperous concern that Thomas Assheton Smith, of the Vaenol estate, offered W. Turner and H. Jones a share in the Dinorwic Quarry, in 1809. Turner became managing partner, receiving an eight share of the profits, which were substantial; e.g., his income for the half year ending June 1826 was £2,254. This arrangement lasted until 1828, when T. Assheton Smith died, but Turner remained as manager for a period under his successor.¹

With income obtained from the Diphwys and Dinorwic Quarries, William Turner, now residing at his newly-built mansion, 'Parkia' (sic) near Caernarvon, began several ventures in the Nantlle valley. His first speculation in that area was at Pen-y-bryn Quarry, in 1801, as part of a syndicate of four persons, including the landlord, Richard Garnons, Caernarvon. The partnership split up c. 1818 after a disagreement and the Company was £920 in debt in that year, having worked mostly at a loss.² William Turner had moved east into the adjoining property c. 1816, opening the Pen-yr-orsedd Quarry on land leased from the Kinnel Estate, Abergelle. This was more successful than Pen-y-bryn, but the lease was sold to an Englishman sometime between 1824-28.³

Soon after the completion of the Nantlle Tramway, in 1828, William Turner, now in his 62nd year and his son-in-law, John Morgan, manager of the Old Bank, Caernarvon, joined in a partnership to develop slate reserves on Richard Garnon's land, a few hundred yards south-west of

Pen-y-bryn. This new quarry was originally named "Gloddfa Turner", but was renamed "Dorothea", in honour of L. Garmois' wife, c. 1830-40.⁴

There was very little overburden and bad top-rock covering the slate bed on the site of the first pit (Quarry A) at Dorothea and thus development costs were smaller than usual. Also, the Nantlle Tramway passed within yards of the quarry and the transport costs were less than those of several competitors. With these advantages, Dorothea was quite a successful enterprise, but by 1833-4 the easiest available rock had been worked out, and a large amount of overburden had to be removed. This work was commenced, but to everyone's surprise, a 'new' slate vein was discovered south of the pit, during the construction of a canal. This actually was a continuation of the original slate body, behind a post of bad rock and was of exceptional quality. Unfortunately c. 1840, a vein of bad rock was uncovered and prospects appeared grim, but a trial shaft south of the pit, near the Lower Nantlle Lake, uncovered another good body of rock and thus a third pit was commenced. Soon pits 2 and 3 were combined into one large quarry (Quarry B), served by a steam winding engine, which was only the fourth in the Nantlle valley.⁶ Quarry B was the mainstay of the Dorothea Quarry in the 1840s. Some prospecting was done on the western side of the property, where the purple slate was discovered c. 1843, but very little development was carried out.⁷

Due to the advancing age of W. Turner, his fourth son, Thomas (b. 1812) became general manager in the 1840s and as a direct consequence of his increased responsibility, the concern is said to have produced annual losses of about £2,000.⁸ This resulted in closure c. April 1848

and the lease was offered for sale.⁹

ii) The Dorothea Slate Company, 1843-92.

The Dorothea Quarry was closed from April to November 1848, when the "Dorothea Slate Company, Caernarvon" purchased the assets of Messrs. Turner & Morgan.¹⁰ This was the first instance of an investment in the slate industry on a large scale, by local people.

It appears that the site remained unsold for many months after work was suspended, despite having been inspected by numerous potential buyers, all of whom having declined to purchase. It is claimed that Thomas Jones, agent of the Glynrhonwy Quarry, Llanberis, inspected Dorothea for his master, J. W. Greaves (also the proprietor of Llechwedd slate mine, Ffestiniog) and had appraised the quarry in an allegory:- "many a young damsel looks good at the fair, but you follow her home..."¹¹, implying that whilst Dorothea (the damsel) appeared to be a promising proposition, in reality it had been dressed-up for the sale, and was normally not as good as it looked at present.

Certain other persons, namely a group of quarrymen leasing a small quarry ("Tŵll Banog") close to Dorothea, held the opposite view and nurtured a desire to become important capitalists by taking over this large, prestigious quarry. As the months passed by and the quarry remained unsold, the Tŵll Banog quarrymen's desire is said to have become an obsession and they decided to form a Company to raise the necessary finance. Such a task would have been nigh impossible for uneducated men, but probably through the influence of one of their

number, John Robyns,¹² (a prominent local Methodist deacon)¹³ the aid of the charismatic Methodist preacher, the Rev. John Jones, Tal-y-sarn, was enlisted. The latter was an extremely influential person and was at the height of his popularity during this period. Apart from being an experienced quarryman, he had family ties with William Turner, via Mrs. F. Jones, whose god-mother was Mrs. Turner.¹⁵ It is suggested in the Rev. J. Jones' biography that in the 1840s his financial situation was unsatisfactory, due to the burden of keeping his family of seven children solely on the profits of the general store, run by Mrs. F. Jones. He had apparently seriously considered emigrating to join his brothers and sisters in Wisconsin, U. S. A. and was probably glad of the opportunity to supplement his income by a business speculation.¹⁶ The Rev. John Jones took complete responsibility for organising the formation of the Company and the sale of the shares and it also appears that the Turner family gave every assistance possible.¹⁷

There is some confusion regarding the setting up of the new Company. One of the original shareholders, John Griffiths, writing in 1889,¹⁸ gives a fuller account than the remaining original documents, but some of his statements can be proven as incorrect; his main points are, however, supported by circumstantial evidence. John Griffiths stated that the nominal capital was originally £2,000, made up of forty £50 shares. From the schedule of shareholders, it is probably significant that the first eighty shares (No. 1-80) were sold mostly by local people, whilst a contingent from Llangernwy, Denbighshire, held a block of 20 shares (No. 81-100); in addition, all save four persons held two, or an even number of shares. This supports John Griffiths' statement that upon the realisation that the Company was under-capitalised, an additional

10 shares were issued and later, each share was divided into two (of £25 value); it appears that the extra capital was raised by selling shares in Llangernyw.¹⁹

The changes in the shares and capital was possible for two reasons:-
(a) the Deed of Agreement setting down the constitution of the Company, was not signed until 9 January, 1850, 14 months after the purchase of the quarry; and (b) the Company was worked under the Cost Book system which meant that liability was unlimited and the capital could be increased as require.²⁰ The increase in capital was probably necessary because of the rather high price of £3,000 paid for the assets (£1,500 for the lease and the remainder for the plant, machinery and fixtures).²¹ Half the amount had to be paid within three months of the transfer and the remainder of the transfer within two years; this meant that under the original arrangement, the Company had a working capital of only £500 for 1849. The additional shares were being sold in September 1848, at the date of the completion of negotiations with William Turner,²² and the final sale arrangements were settled on 10 November, 1848.²³

The contingent from Llangernyw were probably recruited by the Rev. J. Jones who, as a young lad, had worked on his sister's farm in that district.²⁴ The shareholders from Llangernyw were:-

John Hughes (senior), a mason,	2 shares
John Hughes (junior), Ty'n-y-ffynnon Inn	3 shares
Hugh Hughes	do. 2 shares
Owen Hughes	do. 1 share
John Hughes, Cefn Coch farm	1 share;; from later share transfers, the above appear to have been a family group;
Maria Ann Williams, Plas-yn-blaenau (sic)	2 share

Leah Williams, Plas-yn-blaenau (sic)	2 shares
Cornelius Davies, Mostyn, colliery agent, per Hannah Davies (née Williams)	2 shares
Robert Roberts, shopkeeper	4 shares
Nathanien Jones, "College"	<u>1 share</u>
TOTAL	20 shares (£500 value).

Notably missing from the original list of shareholders is John Hughes Williams, Plas-yn-blaenau,²⁵ who eventually became chief shareholder. It is probably significant that his three sisters, Hannah, Leah and Maria, had each received £350 on 19 August, 1848, in settlement of their grandfather's will: John H. Williams, the executor, only inherited a smaller amount, plus his father's estate (Plas-yn-blaenau).²⁶ Although J. H. Williams was offered shares in the Dorothea Company in September 1848,²⁷ he declined the invitation and it is possible that his financial position was unsatisfactory, for his estate was offered for sale on 14 August, 1849,²⁸ though it was subsequently withdrawn. However, between April and September 1853, he purchased 24 Dorothea shares from 16 quarrymen, at about £100 per share (four times cost price). Six of that group had already sold half their holdings to the Rev. J. Jones' brother, the Rev. David Jones, in July 1850.²⁹

It is difficult to accurately identify the number of quarrymen holding shares in the Dorothea Company. The total number of shareholders from the Nantlle area was 25 and the majority lived in small-holdings; only eight can be identified on the first extant Dorothea pay-book, 1857,³⁰ but the majority had sold out by this date. Rev. J. Jones' family held 18 shares after July 1850, viz:-

Rev. John Jones, Ty Glas, Tal-y-sarn	5 shares
Mrs. Frances Jones do.	1 share
John Lloyd Jones do.	6 shares
Rev. David Jones	6 shares

There were nine other miscellaneous persons in the original shareholders list, including two ships' masters and a slate merchant, viz:-

Ellis James, Vaenol estate (farmer)	2 shares (a friend of Rev. J. Jones ³¹).
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Robert Williams, Caernarfon	1 share (ship's master)
Robert Jones, Caernarfon	1 share (do.)
Thomas Owen, Caernarfon	2 shares (slate merchant)
Thomas Asbury, Dublin	4 shares (unidentified)
Thomas Parry, Bethesda	2 shares (do.)
Robert Jones, Bontucha (sic) possibly Bethesda	2 shares (do.)
Evan Jones, Upper Bangor	2 shares (do.)
Owen Owens, Caernarfon	1 share (do.) ³²

The quarrymen who founded the company were in a minority and had little control over the running of the concern. This is illustrated by the fate of William Owen, Hafodlas, Tal-y-sarn, (one of the Tŷll Banog quarrymen), who had probably superintended the works since November 1848 and was elected officially to the post of quarry manager in January 1850 (through a ballot of shareholders at the first bi-monthly Company meeting).³³ He fell foul of John Lloyd Jones (eldest son of the Rev. J. Jones), a very ambitious young man and through the latter's influence as proxy for the Jones family, William Owen was forced to resign in July 1851. The official Minutes only records the resignation of W. Owen, but John Griffiths (an eye-witness) categorically

states that a power-game was involved, though he would not name the second party, because J. Lloyd Jones was still alive when the account was written, in 1889.³⁴ It is very probable that William Owen returned to work Tŵll Banog, which was still held on lease by John Jones, Hafodlas (his brother, or son) as late as 1878.³⁵ The ex-Dorothea quarrymen-shareholders, in 1853-4, attempted to use the profit of the sale of their shares to promote a new Welsh Company. This was promoted to re-open the abandoned Coedmadog and Hafodlas Quarries, adjoining Tŵll Banog. The scheme nearly succeeded; the nominal capital of £5,000 (500 £10 shares) was raised, but one of the two landowners objected to a single clause in the final indenture and consequently the venture ended in bitter argument.³⁶

William Owen was succeeded as Dorothea manager by the Rev. John Jones, but his son, John Lloyd Jones, deputised during his father's frequent absences on preaching tours. J. Ll. Jones took over the position of purser, or general manager (jointly with Thomas Owen, Caernarfon) after his father's withdrawal from the quarry, following a leg injury sustained as a result of an accident at the works in October 1854; the Rev. J. Jones died in August 1857.³⁷ In this period, c. 1853-4, J. Ll. Jones began to expand his business interests and became involved with several other quarries independently from Dorothea, e.g. Pen-yr-orsedd and Vron, Nantlle and later Braich-goch and Llwyn-gwern, Montgomeryshire.³⁸ Thus, in the late 1850s, the Dorothea Quarry was managed on a day-to-day basis by John Robyns, one of the original quarrymen-shareholders.³⁹

John Hughes Williams, Plas-yn-blaenau, Llangernyw, took little

interest in the running of the Dorothea Quarry in the 1850s, despite his large investment; this was probably due to the remoteness of his residence from Nantlle, plus an ignorance of slate quarrying. It is impossible to explain why he invested such a large sum (£2,400) in the Company in 1853-4, when the slate trade was experiencing a recession, but the reason must be tied to his association with the Rev. J. Jones' youngest daughter, Margaret, whom he married in November 1859.⁴⁰ The available statistics show a distinct curtailment in sales from 1850-8; the Company was overdrawn at Messrs. Williams, Granville & Williams' Bank, Caernarfon, receiving an unspecified loan in 1850 for a term of two years, at 5 per cent interest. An extension for repayment was requested in February 1852, but in September 1852 a dividend was declared in preference to settling the debt. In that month, a resolution calling for the sale of the assets was narrowly defeated on a second ballot, after a 41 votes to 10 majority in favour in the first ballot.⁴¹

J. H. Williams only received £660 dividend for the period 1853-56,⁴² and in the face of such a poor return, appears to have offered a exchange with John Ll. Jones, whereby the former took over the Pen-yr-orsedd Quarry, using his Dorothea shares as payment.⁴³ This proposal fell through, for in January 1857, J. H. Williams was attempting to sell the shares via a London broker, but was advised that it was not only the wrong time of the year for selling, but also a period of trade recession.⁴⁴ A new quarry lease, on much more favourable terms, granted in June 1857⁴⁵ may have accounted in J. H. Williams' testimony in September 1857 that he was pleased with the state of the quarry and satisfied with the management's future plans,⁴⁶ and in April 1858 he purchased one additional share from another of the local quarrymen.⁴⁷

However, as the following Table shows, his income from the Dorothea shares remained low:-

YEAR	TOTAL DIVIDEND	SHARES HELD BY J. H. WILLIAMS	AMOUNT RECEIVED BY J. H. W.
1856	£4 per share (Final divi)	24	£96
1857	£9 do. (Interim & Final)	24	£216
1858	£9 do. do.	25	£225
1859	£10 do. do.	25	£250
1860	0	25	0
1861	0	25	0
1862	£5 do. do.	34½	£168
1863	0	34½	0
1864	£10 do. (Interim dividend)	38½	<u>£385</u>
TOTAL			£1,340 48

In unknown circumstances, John Lloyd Jones, in 1860, sold his Dorothea shares to John H. Williams, now his brother-in-law; by an agreement dated 12 April, 1860, the latter agreed to pay £250 each for 7 shares (ten times their original value) in instalments, plus interest. J. H. Williams became the new chairman,⁴⁹ and moved to Ty Coch, Caernarvon, in this period, presumably to be closer to the quarry. Thomas Owen (slate merchant), Caernarfon, either relinquished his post as purser (general manager), or was removed and Thomas Lloyd Jones (second son of the Rev. John Jones), formerly joint-purser, was elected sole purser in 12 April, 1860;⁵⁰ T. Owen broke his ties with the company on 25 October, 1861, selling his two shares to J. H. Williams.⁵¹

Although J. H. Williams was residing in Caernarfon, it appears that the day to day running of the concern was superintended by T. Ll. Jones

and John Robyns, who lived in the agent's house on the quarry bank and as the local management had not changed, it is not surprising that the trading account of the company continued to fluctuate between profit and loss, viz:-

YEAR	TRADING BALANCE	SALES	EXPENSES OTHER THAN WAGES	QUARRY WAGES
1861	£257 loss	£17,246	£4,523	£12,729
1862	£2,639 profit	£23,334	£5,725	£15,538
1863	£ 457 "	£25,706	£7,143	£17,858
1864	£ 794 "	£22,891	£5,463	£16,509 ⁵²

These figures were very disappointing and in addition, the Company had an overdraft of £4,000 at the North and South Wales Bank in 1862, secured by the personal guarantees of a number of shareholders. The account had been transferred to this bank in August 1860 and the overdraft limit was doubled to £4,000 in October 1862.⁵³ In the face of such poor results, it is not surprising that in 1864 the Company requested its bankers to search for a buyer for the Dorothea Quarry⁵⁴ and probably to make such a transaction easier, several of the largest shareholders signed an agreement, in February 1864, selling their holdings to J. H. Williams at £400 per share, provided that he disposed of the same within six months.⁵⁵

The two surviving prospectuses issued in 1864 give the usual glowing account of the Dorothea Quarry, but one states categorically that in its highly developed condition, the concern should have been yielding up to 33 per cent more profit, taking into account production and sales figures.⁵⁶ However, no buyer could be found and after six months Thomas Lloyd Jones and John Robyns sold their shares to J. H. Williams at £300 each (on 15 August and 13 September, 1864, respectively)⁵⁷

and T. Ll. Jones resigned his post in 14 October, 1864.⁵⁸ Soon afterwards, on 15 November, 1864, Mrs. F. Jones sold her 7 shares to J. H. Williams, her son-in-law and all these transactions were to be paid in installments, spread over a number of years.⁵⁹

J. H. Williams blamed the works manager for the poor profits and John Griffiths' account of this episode suggests that there was a deep rift in the Company.⁶⁰ In December 1864 J. H. Williams appointed a new manager to replace John Robyns; the successful candidate, John J. Evans, was actually the second choice for the post, the original favourite, Robert Owen, manager at Holland's Quarry, being persuaded by his old employer to remain at Ffestiniog. In hindsight, this was a remarkably fortunate turn of events, as J. J. Evans proved to be an outstandingly able manager. The effect of his appointment was startling - profits rocketed, as shown in the following table:-

<u>Year</u>	<u>Trading Balance</u>	<u>Sales</u>	<u>Expenses other than wages</u>	<u>Quarry wages</u>	<u>Dividend paid</u>
1865	£4,234	£26,793	£6,045	£15,920	£1,000
1866	£4,010	£26,130	6,403	16,957	3,000
1867	£4,201	£28,661	6,952	17,167	3,000
1868	£8,675	£36,215	8,096	19,644	6,000
1869	£8,413	£42,400	10,250	23,738	6,000
1870	£4,678	£34,959	9,326	22,456	3,000
1871	£4,485	£31,399	8,058	21,156	6,000
1872	£5,560	£38,969	8,768	23,000	6,000
1873	£8,769	£45,337	11,205	23,803	6,000
1874	£10,553	£45,917	9,996	24,220	8,000
1875	£14,738	£50,960	9,340	25,431	16,000

<u>Year</u>	<u>Trading balance</u>	<u>Sales</u>	<u>Expenses other than wages</u>	<u>Quarry wages</u>	<u>Dividend paid</u>
1876	£10,714	£46,912	£7,903	£28,295	£16,000
1877	10,882	50,772	9,214	30,676	12,000
1878	11,439	45,476	9,594	38,472	0 ⁶¹

J. H. Williams' holdings continued to increase and by the mid 1870s he held 71½ Dorothea shares; thus, in 1875, e.g. his income from the quarry was £11,440. No dividend was declared in early 1879 (for 1878) due to the death of J. H. Williams on 11 March, 1879, aged 68 years.

John Hughes Williams, (residing at Glanbeuno, Caernarfon) revised his will (originally drawn up in 1873) on 10 March, 1879. His wife had died c. 1873 and his five children were minors, the eldest son, John Albert Alexander Williams being 16 years old. The 71½ Dorothea shares were placed in a special trust, separate from other railway stock and residential properties in Liverpool, bequeathed by J. H. Williams. His executors, Cornelius Davies (brother-in-law), Rev. D. L. Williams, Llanwnda and Evan Evans, tanner of Caernarfon, were appointed guardians of the children and trustees. The trust stipulated that:

(a) when the eldest son, J. A. A. Williams, came of age in March 1884, he was given control of 24 shares;

(b) when the youngest son, Ivor Hedd Glynne Williams, came of age in May 1890 the control of the remaining shares passed to J. A. A. Williams, who became sole trustee (so as to conserve the power of the heir); however, the income from these shares was to be distributed amongst the other children, as was the case from 1879-90.

(c) the income of the two daughters, Anita and Evelina, was to remain theirs exclusively, even when they married.⁶²

The character of the Dorothea Slate Quarry Company had changed radically since the 1850s. Company policy had originally been decided by ballot of shareholders at bi-monthly held at the quarry office. The minutes were recorded in Welsh up to the late 1850s, but in English thereafter.⁶³ After J. H. Williams had purchased the majority of shares, none of the remaining shareholders who were mainly residents of Llangernyw, bothered to attend the Company meeting. In August 1879, at a special shareholders' meeting Cornelius Davies (who had managed the Caernarfon head office since 1860) and his son, Robert Norman Davies (who left the employment of the North & South Wales Bank) were appointed to take complete control of the Dorothea Quarry and there were only annual Company meeting thereafter;⁶⁴ after 1865 the bill-heads of the Company read 'John Williams ' Co.' although the old title was retained on legal documents.

The Quarry statistics for 1879-91 show:-

Year	Trading Balance	Sales	Expenses other than wages	Quarry wages	Dividend paid
1879	£ 961 profit	£36,613	£7,425	£21,912	0
1880	6,149 "	37,280	7,795	26,187	£6,000
1881	6,393 "	46,715	9,432	28,469	8,000
1882	4,585 "	39,451	8,319	20,176	0
1883	4,147 "	43,072	8,211	27,308	6,000
1884	2,921 "	44,660	8,817	30,312	0
1885	15,171 loss	13,134	9,220	16,343	0
1886	2,824 profit	34,139	7,155	27,828	1,000
1887	4,811 "	42,023	7,891	30,725	1,500
1888	2,801 "	44,050	8,866	31,284	2,500

<u>Year</u>	<u>Trading balance</u>	<u>Sales</u>	<u>Expenses other than wages</u>	<u>Quarry wages</u>	<u>Dividend paid</u>
1889	£2,562 profit	£41,605	£8,696	£30,087	£2,500
1890	2,543 "	39,524	8,521	28,942	1,000
1891	1,605 loss	27,647	7,039	19,834	3,500 ⁶⁵

The above figures show a significant reduction in profits compared to the period 1865-78, due mainly to the general reduction in prices which occurred in the 1830s. Of special interest in the table is the massive loss suffered in 1885 in consequence to a massive landslide and subsequent flooding of the whole quarry complex; the loss made in 1891 was also due to landslides. The dividends were only partly affected by the trading balance; due to the accounting system. J. H. Williams set up a reserve fund (for accumulated profit) in 1860, commencing with an adverse balance of £981 carried over from the previous management. From 1860, the trading balance was paid directly into the reserve fund, from which a suitable dividend was withdrawn, as required. The reserve account totalled £23,465 in 1884 and thus the £15,171 loss made in 1885 could be sustained without the Company collapsing financially; the fund had been rebuilt to its 1834 total by 1895.⁶⁶

(iii) The Dorothea Slate Quarry Company Limited. 1892-1970

At the annual general meeting of the Dorothea Slate Company on 29 April 1892, it was resolved that the Company be registered under the Limited Liabilities Act.⁶⁷ This proposal was put forward by the chairman, J. A. A. Williams and carried by his use of the 71½ 'Glanbeuno' trust share-votes. The reason behind this move was financial; J. A. A. Williams had been alarmed by the near loss of the quarry in the 1885 flooding and two huge landslides in 1891 were a reminder that the chances

of the works being lost through another disaster were high. The Dorothea Company was financed under the Cost-book system, which meant that the liabilities of the shareholders were unlimited. In the event of the quarry being catastrophically lost, the main burden of the financial liabilities rested upon J. A. A. Williams, as sole trustee of the major share-holding.⁶⁸

The new Company was merely a reorganisation of the old, though the nominal capital was doubled to £10,000, made up of 200 £50 shares. However, like the old Company, only 100 shares were issued and only £25 per share called-up: the shareholders and the size of their holdings were identical. The transfer of capital was effected by selling the plant and machinery nominally to the new Company for £2,500, which meant that each shareholder received £25 per share, which was equal to the amount called-up on the shares of the new Company. The slate stock, valued at £7,290 and the Reserve Fund of £10,290 were merely transferred from the one Company to the other.⁶⁹

However J. A. A. Williams encountered several problems; the first was the refusal of the Board of Trade to register the new Articles of Association, because of the omission of a clause to limit the calls on share capital; this had to be amended by a special Deed of Agreement, signed on 5 August, 1892, by all the shareholders, limiting the calls to £25 per share. Then, an Interim Articles of Association was registered on 8 September, 1892.⁷⁰ A more serious problem was the opposition of J. A. A. Williams' brother and sisters, the beneficiaries of the Glanbeuno trust. They objected to the new Company scheme for two reasons:-

The beneficiaries had no wish to retain the status quo, whereby J. A. A. Williams retained the total executive power within the Company. Although this state of affairs was explicit in their father's will, the other children, especially Arthur Wynne Williams, wished to exert an influence over the policy decisions of the Company and this desire was probably fuelled by J. A. A. Williams' profit-at-all-cost policy. The new Company was to have only one director, J. A. A. Williams and the Glanbeuno trust beneficiaries were determined to gain seats on the Board. The beneficiaries also considered that the new Company was under-capitalised: with a nominal capital of £10,000, the trust shares were only worth £1,800 and it was considered that these were priced too low; also the plant and machinery was being sold at a very low price of £2,500.⁷¹

Despite the united protest of the beneficiaries, J. A. A. Williams used his 71½ votes to carry through the Final Articles of Association, (clearing up some minor constitutional details) which were registered on 13 April, 1893.⁷² However, the beneficiaries were not prepared to let the matter rest and they obtained legal opinion. Whilst it appeared that the trust vested complete authority in J. A. A. Williams, the legal advisors thought that a Court of Law might consider it improper for a trustee to oppose the wishes of the beneficiaries, but it was suggested that a compromise be reached, if possible, to save the unpleasantness of litigation.⁷³ In March 1893, J. A. A. Williams offered to sell his interest in Dorothea for £13,000, but this was considered far too high a price by the beneficiaries, who offered £9,600; this was unacceptable to the former, who threatened to take the matter to Chancery.⁷⁴ He was advised, however, to avoid this move, since there was a distinct

possibility that the Court might nominate extra directors on an equal level as himself, a worse situation than voluntarily giving the beneficiaries representation on the Board of Directors.⁷⁵ The beneficiaries were themselves preparing a court action to remove J. A. A. Williams from the trusteeship, but c. May 1893 the latter conceded and the legal battle was avoided. Under the compromise agreed, the Company was to have three directors: J. A. A. Williams (managing director), Arthur Wynne Williams (his brother and Evan Evans, Caernarfon (former executor of J. Hughes Williams and one of the three original trustees), representing the two married daughters, Anita Potter and Evelina Scott (nee Wynne Williams). The registered office was in Caernarfon and the secretary was Robert Norman Davies (their cousin).⁷⁶

The mid and late 1890s was financially an exceptionally good period for the Dorothea Quarry (and the slate industry in general), matching the mid 1870s, viz:-

YEAR	TRADING BALANCE	RESERVE FUND	DIVIDEND PAID	WAGES	GROSS SALES
1892	£ 3,588 profit	£13,325	£ 2,500	£21,404	£31,617
1893	5,860 "	14,684	3,000	22,537	37,829
1894	8,218 "	19,003	5,000	24,888	45,886
1895	11,818 "	22,729	10,000	30,170	50,005
1896	14,330 "	24,559	11,000	32,909	59,879
1897	13,356 "	22,820	11,000	56,525	34,328
1898	8,315 "	17,429	7,5000	35,581	54,079
1899	5,638 "	14,855	5,000	33,502	52,609
1900	8,830 "	16,382	5,000	33,032	55,250

The years following the great Penrhyn strike (1900-03) were very

different:-

YEAR	TRADING BALANCE	RESERVE FUND	DIVIDEND PAID	WAGES	GROSS SALES
1901	£ 6,547 profit	£13,224	£5,000	£33,603	£59,086
1902	6,875 "	8,470	5,000	34,148	59,913
1903	11,801 "	9,450	5,000	33,835	65,789
1904	11,983 "	8,182	2,500	34,508	59,383
1905	7,948 "	9,678	3,000	30,183	53,476
1906	1,964 "	9,027	2,000	28,907	59,579
1907	2,834 "	9,692	2,000	29,787	55,153
1908	749 "	8,372	0	23,726	41,895
1909	1,168 "	8,900	0	17,203	37,675
1910	2,211 "	11,398	0	16,798	33,197
1911	3,778 "	15,076	0	16,210	36,259 ⁷⁷

Two significant trends can be identified in the above statistics; the first is the substantial reduction in the trading balance after 1904. This was due to the deep trade recession that affected the slate industry, with a marked drop in the prices, resulting from the after-effects of the Penrhyn Quarry strike: these were a glut of slate following the resumption of production at that quarry and the reduced market for Welsh slate due to competition from tiles and foreign slates; secondly, the Dorothea reserve fund diminished rapidly after 1897, until 1909, although there is a gross inflow of cash shown in the above table (i.e. the balance of the profit minus the dividend). This anomaly is explained by the extraordinary expenditure of the Company, financed from the reserve fund (not included in the table); this amounted to £54,569 from 1893-1907.⁷⁸ The most significant expenditure financed by the

reserve fund was as follows:-

Flood prevention schemes (river diversions) 1893-1907	£ 5,398
Purchase of Cwm Silyn sheepwalk, 1893 (for water rights)	2,094
Purchase of Ffridd Farm, 1901	do. 4,250
Dorothea Quarry Cornish pumps, 1899-1906	12,570
Net adverse balance from operating the Pen-y-bryn Quarry 1893-1932	41,361

The initial sum for the development of Pen-y-bryn and the purchase of Cwm Silyn (£5,557) was obtained from the North and South Wales Bank, in 1893, as a loan, which was repaid from the reserve fund, in installments ending in 1898. Ffridd Farm was paid for (in 1901) by an overdraft, repaid in 1910 and the Company chairman, J. A. A. Williams gave a £4,000 six year debenture (possibly interest-free) in February 1903; this was followed by another, for the same amount (with 6 per cent interest) from Mrs A. Wynne Williams: although this was due for repayment on 1 January 1910, the last installment was not paid until 1914. Details of the Company's Bank Account are not clear, but the overdraft limit was raised to £5,000 (from £2,000) in July 1901 and to £10,000 in October 1904, to finance the new pumps; this extra limit was covered by the value of the Company's freehold properties and in 1906 the overdraft totalled £9,780: in January 1910 the limit was reduced to £3,000, subject to the issue of a debenture for that amount to the bank.⁷⁹ The most significant figure in the above table is the massive loss made by the Pen-y-bryn Quarry. Over £30,000 was spent on the development of that pit and no profit was made until 1920, but due to the cutting back of expenditure on overburden removal after 1909, a huge landslide composed of worthless top-rock filled the lower 45 yds of the quarry on 25 December, 1920 and very little profit was made in the following years. The 'fall' added to the problem of high production costs due to a greater than normal degree of wastage

from the Pen-y-bryn rocks and after the freehold had been purchased in 1932, the Company was able to close that quarry, without prejudicing the attached water-rights.⁸⁰

John A. A. Williams' ties with the Dorothea Company came to an end in 1911, following a dispute with the Glanbeuno trust beneficiaries. This was almost inevitable following the bitterness which had emerged in 1892 over the interpretation of the powers of the Dorothea shares trustees. This question had, in fact, arisen for the second time in 1897 during negotiations with an English syndicate, which had offered to purchase the Dorothea Quarry. The main promoters of this syndicate were Councillor Thomas McCraith, J.P., silk merchant and former mayor of Nottingham; Thomas Ford, chartered accountant, of London; Herbert Portaway of Thannington, Bradford and David Lloyd George, M.P. (Caernarfon Boroughs), solicitor for one of T. Ford's business partners. The syndicate had approached the Dorothea Company in June 1897 via a Bethesda solicitor and the initial part of the negotiations was taken up by the investigation of the bona fide of the promoters; the role of D. Lloyd George was kept secret for some time. The initiative having come from Messrs Ford, George, McCraith and Portaway, the Dorothea directors offered to seal out at the very high price of £150,000, this figure being based on the maximum valuation of £100,000 made by the quarry manager. The figure was reduced to £130,000 in July 1897, but D. Lloyd George considered this too high, having come to the conclusion that although the financial returns were good, the workings were not in a good condition; this fact had been noted in a private report by the quarry manager to his directors, dated 21 August, 1897, the main fault being the presence of a large amount of debris from old landslides. Lloyd George was also suspicious

of the motives of the vendors in wanting a clear sale; they had refused part payment in shares of the "Dorothea and Pen-y-bryn Slate Quarry Company Limited" which was to have a nominal capital of £180,000 made up of 90,000 6 per cent £1 preference shares and 90,000 ordinary £1 shares.

The strategy and viewpoint of the individual members of the Wynne-Williams family is difficult to decipher because of the lack of relevant original correspondence, but it appears that there was a difference of opinion, once again, about the role of J. A. A. Williams as trustee of the 71½ Glanbeuno shares. The beneficiaries met at their London solicitor's office on 25 August, 1897, to discuss whether J. A. A. Williams had a legal right to sell the trust shares. In fact, the latter only required one or two other shareholders (3½ share-votes) added to the 71½ trust votes, to obtain a majority to carry through a resolution at an extraordinary general meeting, authorising the sale of the assets. However, the legal adviser was of the opinion that J. A. A. Williams was only entitled to vote with his personal holding of 24 shares and that each of the beneficiaries had the right to his or her personal share-votes. This does not indicate whether the beneficiaries were in fact hostile towards the proposed sale, or whether they merely wished to be given a voice in the decision. However, this opinion was not put to the test; the syndicate had been given an option to purchase on 29 June, 1897, ending 30 August, 1897, but this was extended one month upon the request of D. Lloyd George (so that a consultant's report could be evaluated). The sale fell through, probably because Lloyd George's suspicions and on 14 October, 1897, Herbert Portaway informed the Dorothea Company that he had failed to raise sufficient capital to purchase the concern outright

and he was attempting to raise the money elsewhere; he failed and the matter was closed.⁸¹

The question of the limit of the authority of the Glanbeuno trustees was raised a third and final time in 1911, in connection with another proposed sale of the Dorothea Quarry. The landslide of November 1910 and the partial flooding of the pits highlighted the perilous position of the Company even after spending such huge sums on protection works. J. A. A. Williams became convinced that the concern had no future and that similar occurrences were inevitable, whereby the workings might be irrevocably lost. In such circumstances the Dorothea shares would be worthless and thus he decided to realise the Trust's assets before it was too late.⁸² On 16 January, 1911 he informed the Board that he had offered the 71½ trust shares to Arthur W. Kay Menzies, Caernarfon, who had holdings in the Alexandra, Tal-y-sarn and Llanberis Slate Companies; the offer amounted to £15,000 for the trust shares alone, or £21,000 for all 100 shares, subject to the other shareholders' approval.⁸³

The beneficiaries, headed by Arthur Wynne Williams, were totally opposed to the proposal, claiming that a better price could be obtained on the open market; however, it is unlikely that they wished to sell, the reasons being partly sentimental, partly a dislike of Kay Menzies personally and also they were optimistic that the worst period was now over and that the quarry would once again yield large dividends. J. A. A. Williams sought legal advice and his solicitor was of the opinion that he could invoke his power over all 71½ trust shares to overrule the beneficiaries; another course of action would have been to attempt to gain the support of the remaining shareholders, whose full 29½ votes

plus his own 24 would carry a vote on the matter.

It was feared that an impending court-action between the Dorothea landlord and A. Kay Menzies (Tal-y-sarn Quarry) would prejudice the proposed sale, but this question never arose because it was discovered that the Tal-y-sarn Company had only recently received a £25,000 mortgage and therefore Menzies' credit was suspect. J. A. A. Williams insisted upon a cash deal, and Menzies backed out of the negotiations. Then, the former was advised to offer his 24 shares to his brother. His asking price was £5,000 plus a further £2,500 for his share of the freehold lands and as Arthur Wynne Williams could not raise this sum alone, it was proposed that the holding be split between several persons; these were of necessity members of the family or close friends. A. Wynne Williams took 4 shares, Dr. John Hope Potter (his brother-in-law) 3 shares, Robert Norman Davies, company secretary, (his cousin 3 shares, William John Griffiths, quarry manager, 1 share and Sir Thomas Edward Roberts, Plas-y-bryn, Caernarfon, descendant of the Rev. J. Jones' family (who had retired from a business in England) bought 9 shares and was elected onto the Board of Directors. The remaining four shares were to have been purchased within one year, but were eventually retained by J. A. A. Williams, though he resigned from the Board and broke off his connections with the area. Charles T. M. Scott, A. W. Williams' brother-in-law, was originally committed to purchasing 3 shares, but withdrew on the pretext that he could not raise sufficient funds. However, it is known that in February 1911 he had commissioned a prospectus on the quarry, probably to sell his wife's shares, if these became free of the trust and this may explain his possible reluctance to become financially more involved in the Company.⁸⁴

By far the greatest problem facing the reconstituted Board was the appointment of a new trustee to replace J. A. A. Williams, who wished to be discharged. Arthur Wynne Williams, being a beneficiary, was disqualified and Dr. Potter's objection to a director being a trustee prevented Sir T. E. Roberts or R. N. Davies being nominated. Ultimately the trust was vested in the Public Trustee on 4 August, 1911, but only after each beneficiary deposited securities covering the un-called capital value of their shareholding. For this purpose, railway stock and property on Liverpool, from the estate of John Hughes Williams, deceased, was transferred to the Public Trustee, but obtaining that belonging to the youngest son, Ivor Hedd Glynne Williams, proved difficult because his estate had been vested with the Master of Lunacy in 1892.⁸⁵

The new director, Sir T. E. Roberts, was almost immediately concerned by the imbalance in the Company's finances, namely the fact that the reserve fund (of accumulated profits) was, in May 1912, six times greater than the paid-up capital. The Company accountants were consulted and they suggested that the excess might be distributed amongst the shareholders by allotting the 100 unissued shares pro-rata, according to the individual holdings, although clause 54(g) in the Articles of Association had to be modified.⁸⁶ Discussion of the matter lapsed, but in 1919, the accountants were instructed to investigate the options available. The proposal considered was an increase in the Company's nominal capital from £10,000 to £100,000 made up of 2,000 £50 shares, obtained by dividing the reserve fund.

Due to taxation problems, the accountants suggested two schemes:-
(a) the creation of a new, separate Pen-y-bryn Quarry Company, having

a nominal capital of at least £40,000 and empowered to take over that quarry from the Dorothea Company for about £33,000; or (b) forming a totally new Company to take over the Dorothea Company. Expert opinion advised against both alternatives because the taxation position was uncertain; rather, they were advised to follow their original intention of issuing bonus shares.⁸⁷

The procedure was complicated, commencing with a resolution to increase the capital, passed at a director's meeting on 11 December, 1919. At an extraordinary general meeting on 20 March, 1920, certain clauses in the Articles of Association were altered and it was resolved that £57,500 be capitalised. This was done in the following manner:-

(a) £2,500 was raised by calling up the remaining £25 on each current share;

(b) From the £57,500 total, £2,500 was then distributed as a dividend, so that the net result for each shareholder was zero, but the total was numerically reduced to £55,000;

(c) the remaining unissued 100 £50 Dorothea shares, plus another newly created 1,000£50 shares (amounting to £55,000) were allotted to the shareholders as a bonus, in the proportion of £550 worth per current share held;

(d) 800 additional £50 shares were created, bringing the new nominal capital up to £100,000 but, these were never issued.⁸⁸

Some difficulty was experienced with the tax authority, who claimed £7,376 Excess Profit Duty, but this was eventually settled on "terms favourable to the Company"⁸⁹

The original recommendation of the accountants, namely the setting

up of a new Pen-y-bryn Quarry Company, was revived in 1926, after the final of a series of massive landslides at Quarry C, Dorothea. These landslides raised the question of the safety of that quarry and the financial outcome of a 'fall similar to that in December 1834, when all the pits were flooded. There was a distinct possibility that the whole of the Dorothea Quarry might be completely lost and the legal complications surrounding the termination of the leases could possibly lead to the situation whereby the Pen-y-bryn Quarry would also have to be given up and the large sum of money invested in the latter would have been lost. The Dorothea Company accountant was instructed to prepare a report on the options available. This report suggested that the pen-y-bryn lease, plant and machinery and stock could be sold to a new Pen-y-bryn Company (made up of the Dorothea shareholders) at £36,000, payable in shares. The new Company's nominal capital would then be £36,000, with the shares distributed amongst the Dorothea shareholders. Having effectively transferred the Pen-y-bryn assets to another Company, these would not be affected if the Dorothea Company got into difficulty and the latter could be wound-up, if required, or money could be borrowed from the new Company towards the cost of restoring Dorothea (if the requisite powers were included in its constitution). One added advantage of the latter would be that the Pen-y-bryn Company would be equal creditors with the Pant-du estate if the Dorothea Company failed to save the quarry and went into liquidation. The only foreseen obstacle to this plan was the possibility of consent to transfer the Pen-y-bryn lease being withheld by the landlord. The problem remained hypothetical, because, due to the inclusion of special clauses in the draft new Dorothea lease, negotiated in the late 1920s, that Company was given powers to terminate the Dorothea Quarry lease only in the event of a

catastrophic landslides or flooding and after 1938, that Company owned the Quarry freehold.⁹⁰

The financial statistics for 1912-43 are shown below:-

Year	Net Trading Balance	Quarry Balance (if different)	Reserve Fund Balance	Dividend Paid	Quarry Wages	Gross Sales
1912	£ 4,043 profit		£17,998	£1,000	£17,780	£41,637
1913	2,463 "		18,636	0	19,017	37,628
1914	933 "		19,410	0	18,839	39,702
1915	1,139 "		20,435	0	19,254	36,438
1916	2,589 "		22,983	0	18,799	38,542
1917	4,251 "		27,199	0	17,494	26,787
1918	7,328 "		33,550	2,000	17,731	33,163
1919	9,701 "		40,748	6,000	27,130	51,230
1920	7,479 "		36,394	7,500	48,643	107,385
1921	18,404 "		42,941	8,100	61,629	112,914
1922	8,426 "		43,543	0	66,459	104,470
1923	14,779 "		58,318	0	59,913	100,341
1924	10,977 "		66,572	6,000	61,474	129,890
1925	11,133 "	£8,031 profit	66,073	7,200	65,211	117,982
1926	2,289 Loss		55,984	0	61,981	95,068
1927	1,046 profit		57,211	1,650	66,778	100,130
1928	178 "		57,452	1,320	87,978	93,573
1929	1,602 loss		54,359	1,200	63,496	75,301
1930	817 profit		55,191	1,500	60,422	66,959
1931	342 loss		32,869	1,200	52,079	70,530
1932	1,480 profit	£ 37 profit	32,150	1,200	64,723	70,481
1933	2,145 "	1,107 "	32,096	1,500	53,913	89,189

Year	Net Trading Balance	Quarry Balance (if different)	Reserve Fund Balance	Dividend Paid	Quarry Wages	Gross Sales
1934	846 profit	81 loss	£31,192	£1,650	£59,518	£67,087
1935	2,163 loss	3,889 "	27,678	1,200	53,431	66,756
1936	3,899 "	5,557 "	22,578	1,200	57,701	66,762
1937	4,933 profit	3,471 profit	26,311	1,500	57,021	71,916
1938	2,033 "	5,778 "	26,349	1,200	57,040	67,378
1939	5,188 loss		22,636	0	37,480	45,387
1940	155 profit		25,646	600	21,002	33,599
1941	707 "		26,817	600	39,141	55,452
1942	4,074 "		31,629	1,200	40,656	48,241 ⁹¹

Several points arise from the 1912-42 statistics, but perhaps the most important is an illustration of the difficulty of interpreting the Company balance sheets, due to the complex accounting methods: although a large amount of the reserve fund had been distributed in 1920 the balance appearing on the 1920 balance-sheet is only £4,354 less than the 1919 figure. Also, Company investments had a significant effect upon the net profitability in the period 1932-38 and in other years, balanced the effects of Income Tax. These investments were £10,000 5½ per cent Exchequer Bonds bought in 1920 and later replaced by £30,000 5 per cent War Stock, 1929-47 and £10,000 3½ per cent Conversion Stock.⁹²

The performance of the Dorothea Company in 1912-13 shows the effect of the trade recession that preceded the First World War. However, the concern was atypical in that it continued full-time production through the period of hostilities and after 1915 Government military contracts for roofing barracks, etc. produced good sales, mirrored in the trading account. From 1919-22 the slate industry enjoyed a short-lived boom,

but even the face of housing cut-backs and competition from tiles, the trade remained buoyant until the economic collapse of 1928. However, the Dorothea Company suffered its first adverse trading balance since 1891, in 1926, due to a massive landslide. This 'fall' was indicative of the need to develop new reserves at Dorothea and this was carried out from 1933-7, accounting for the apparently poor trading figures. Unfortunately, when the time for reaping this harvest arrived, so did the Second World War and the £5,183 loss made in 1939 was entirely due to the cessation of building work, leading to the stock-piling of slates on the Quarry bank. However, in 1941, slate quarrying was taken over by the Government, as an essential industry and sales were allotted to the quarries via a supply committee, but the main market was for repair work and there was only limited use of slate for military establishments; thus the profits made by the Dorothea Company were less than in 1914-18.⁹³

The Dorothea Company had only two directors from 1912-35, Arthur Wynne Williams (Chairman) and Sir T. E. Roberts, who died in 1926 and they held 120 and 108 shares respectively. The latter was succeeded by the former's eldest son, John George Wynne Williams, who initially only held one share transferred from his father (but inherited 73 shares upon the death of A. W. Williams in 1947). In November 1935, John Sydney Mathew, of Portmadog, proprietor of the Graig-ddu and Manod Quarries, Pfestiniog, purchased 24 Dorothea shares from D. Grimaldi Davies of Bath, at £22. 10s. each and was elected onto the Board of Directors. A friendship existed between J. S. Mathews and J. G. Wynne Williams, and the latter was elected onto the Board of the Manod Company, at an unknown date, though there were no formal links between the two concerns. J. G. Wynne Williams' brother, Arthur Ivor Wynne Williams was co-opted onto the Dorothea Board of

Directors in February 1940 (being the consultant engineer), but held no shares until 1952 and similarly, William Owen, who had succeeded Robert Norman Davies as secretary in 1915, was co-opted at the same date.⁹⁴

The slate trade collapsed in September 1939, at the outbreak of war, but in contrast to 1914, the Government used corrugated iron rather than slate on the roofs of military buildings and thus the demand for slates was virtually nil in 1940. However, the blitz stimulated such a high demand for slate for repair work, that the Government set up a Director of Roofing, to control the slate quarries. This intervention lasted from 1941-6 and covered all aspects of quarrying, e.g. allocation of orders, price control, purchase of new machinery and development work was discouraged. In consequence to the artificial situation, the Dorothea Company made large profits in 1942-4, because production costs were reduced. However, all the best rock was worked away and the profit, which should have gone into the Reserve Fund (for the financing of future overburden removal) was decimated by the very high wartime tax rates. The problems of the industry were compounded by the refusal of the Government to allow an increase in prices in 1946 (although labour costs had increased), plus a ban on slates over 13 ins. long for the roofs of new houses; although the repair trade was creating more demand than the quarries could supply, this was only a passing phase and the future of the industry looked bleak.⁹⁵

Full control of the slate industry was returned to the quarry proprietors in 1946, but no compensation was paid for the almost irreparable damage done in the name of the war effort. Two official reports were commissioned in 1947-8 and the possibility of the industry

being nationalised by the Labour Government was being aired in 1949. It appears that the conclusion drawn by the Government was that the industry was very disorganised both technologically and in marketing and that there had to be a reorganisation as a pre-requisite to obtaining financial assistance from the Treasury. In the case of the Nantlle valley, it was necessary for the three remaining larger quarries - Crown, Dorothea and Pen-yr-orseidd - to amalgamate, so that any new machinery would be shared by three sites. This was totally unacceptable to all three, because of the varying nature of the rock (whereby the labour force could not profitably be transferred from one pit to another), the immobility of most of the plant (e.g. the cableways), the distance between the quarries and the reduction in employment which would occur (because of duplicating of office, managerial and fitting staff).⁹⁶

In 1946 the Dorothea Company was faced with a five year backlog of development work and to overcome this problem, which was made worse by a shortage of skilled labour and increased labour costs, a programme of mechanisation was initiated, averaging £3,000 per annum from 1949-59. The quarry was beset by landslides in the mid-1950s, which severely cut production because there was only one large working face in operation. The true state of the sales market is difficult to gauge, because only the financial data is available and increases in prices make comparison difficult; however, the general trend was that of decline. The trading balance for this period alternated about the break-even point. The benefit of the expenditure on mechanisation can be seen before the disastrous years 1958-62, with moderate profits being achieved and despite the poor performance in certain years, the Company paid some dividend every year, up to 1961.⁹⁷

By 1958, the effect of the cessation of large-scale overburden removal during the war, became apparent. Although a concerted effort had been made to overcome the arrears, much effort had gone on untopping the western Tal-y-sarn Hall side of quarry D, where Owen Giller (manager 1935-45) had erroneously expected good slate. His successor, H. H. Jones continued this scheme for many years, probably because of the large amount of capital already invested, which would have been lost unnecessarily if a full trial was not conducted. However, in 1956-7 the weak eastern face of Quarry D gave way on several occasions and it was obvious that the thick grit 'cap' on that side had to be removed, both to stabilise the face and to secure the long-term future of the quarry. It was estimated that about 263,000 tons of largely worthless rock had to be removed and the cost, inclusive of additional machinery and extra labour was £51,000; the plant required would cost £4,000 and 16 men were needed, costing £8,000 per annum for about 6 years. The Company's Reserve Fund amounted to £38,362 in 1959 and therefore outside assistance was required. The Government passed the Distribution of Industry Act in 1958, which provided financial assistance for industry in specified development areas and the Dorothea Company applied for a loan of £25,000 for 3 years, under the terms of the Act. Simultaneously, a loan of £4,500 was requested from the Ministry of Power, under the Fuel Efficiency Scheme. This sum was granted (for 3 years at 6 per cent interest) and was used to convert the three remaining steam winding engines to electricity (at a total cost of £5,000). However, negotiations with the Development Areas Treasury Advisory Committee (DATAC) dragged on for months and when the Local Employment Act, 1960 became law, a fresh application had to be made to the Board of Trade Advisory Committee (BOTAC). On each occasion the civil servants questioned the statistics presented by the

quarry Company and it is apparent that they had no knowledge of quarrying practices and refused to believe the information presented. Their interpretation of the statistics was totally incorrect, leading to wrong conclusions and eventually BOTAC more or less accused the Company of falsifying the situation. The loan was refused and it was made quite clear that no assistance would be forthcoming whilst the Company had any reserve funds. The Dorothea directors were utterly dismayed, as this decision went against the whole concept of the legislation. The local M.P., Mr Goronwy Roberts, was enlisted and he advised that yet another application should be made. However, this was also refused and no official reason was ever given.⁹⁸ One theory, which is based merely on unsubstantiated evidence, is that the Committee had been advised against assisting the slate industry, because this was officially classed as 'dead'.⁹⁹

The figures for 1943-69 are as follows:-

Year	Trading Account	Profit/Loss A/C	Calculated Reserve Fund Balance	Dividends	Wages	Gross Sales
1943	£3,475 profit	£2,633 credit	£32,633	£1,200	£39,750	£56,673
1944	6,359 "	6,037 "	36,337	1,200	43,869	70,785
1945	3,965 loss	3,913 "	33,913	600	29,247	31,902
1946	4,827 "	281 "	30,231	600	36,542	47,913
1947	82 "	571 "	30,571	600	35,768	47,937
1948	1,864 profit	5 "	30,005	900	43,418	57,798
1949	902 "	226 "	30,226	900	42,256	54,991
1950	326 loss	1,111 Debit	28,839	900	43,371	56,168
1951	1314 profit	1,008 "	28,992	600	46,504	59,491
1952	1,183 "	205 "	29,795	600	49,179	64,695

Year	Trading Account	Profit/Loss A/C	Calculated Reserve Fund Balance	Dividends	Wages	Gross Sales
1953	£5,319 profit	£4,513 credit	34,513	900	£50,251	£69,254
1954	7,218 "	2,032 "	32,032	1,200	47,300	73,642
1955	6,425 "	6,044 "	36,044	1,200	49,344	71,115
1956	5,459 loss	1,160 "	31,160	600	51,097	59,641
1957	4,125 profit	4,539 "	34,539	600	45,102	65,189
1958	985 "	5,351 "	35,351	600	36,623	57,254
1959	2,908 "	8,362 "	33,362	1,200	37,660	51,327
1960	1,138 loss	5,466 "	35,466	900	33,430	52,652
1961	928 "	3,266 "	33,266	600	37,775	53,552
1962	4,976 "	2,490 debit	27,510	0	40,087	52,840
1963	2,086 profit	468 "	29,532	0	38,850	58,495
1964	8,207 "	6,834 credit	36,834	1,200	44,296	71,691
1965	8,867 loss	4,868 debit	25,132	0	52,759	69,111
1966	1,364 "	13,944 "	16,056	0	47,411	84,912
1967	6,872 "	20,467 "	9,533	0	41,728	58,762
1968	5,028 "	25,219 "	4,731	0	41,282	76,543
1969	9,680 "			0		

By 1962 the Dorothea Company was faced with the dilemma of running a quarry where the existing reserves were being rapidly worked out, but having unlimited new reserves which could not be exploited without a large injection of capital investment. The only alternative to closure was to use up all the Reserve Fund and borrow the remaining amount. Thus, in 1963, £25,000 was borrowed from the Midland Bank Ltd., secured by the 830 acres of freehold land owned by the Company and in the first period, from 1962-5, the Reserve Fund (about £30,000 nominal) was preserved, but was

almost totally used up in 1965-9. From June 1963 to November 1964, about £21,550 was spent on new plant and machinery and building modifications, but a grave error was committed in that an application for a Government grant was made afterwards, rather than before-hand. Thus, the only assistance obtained was £1,300 from the Board of Trade.¹⁰⁰

The modernisation scheme was to be in two phases and the results of the first part can be seen in the statistics: after making losses for 1960-2, a profit was shown for 1963-4, reaching a good figure of £8,207 in the last year. Unfortunately, the slate industry suffered a major recession in 1965, largely due to the financial policies of the new Labour Government (the "credit squeeze"). The Dorothea Company returned a massive trading deficit of £8,367 in that year and the vital second phase of the development scheme had to be postponed because of the lack of finance. It was never implemented and this was the direct cause of the closure of the quarry four years later, after the available workable rock had been removed.¹⁰¹

The shock of the collapse in the market in 1965 was so bad as to force the Company to reappraise its financial basis. An immediate sales drive was launched, with the managing director visiting all the slate merchants, etc., in the U.K., and this resulted in the capture of agencies from other quarries, but failed to open any new outlets. The success of this campaign can be seen in the sales data which show only a marginal fall in the yearly total of £71,691 in 1964 to £69,111 in 1965. However, it was thought inadvisable to rely solely on one product (roofing slate) and thus several new commercial enterprises were started, all based on slate. One of the first was industrial tours: visitors to Dorothea were taken

around by a guide after paying an admission charge of 2s. 6d. This had actually started around 1962, but only one man was employed and the concept was not commercially developed, but was merely a side line, the main custom being educational parties. It is difficult to comment what would have been the result of commercialising this idea at that particular period, when the Welsh tourist industry was only starting to develop; even in the 1970s, when the Llechwedd slate mine, Ffestiniog started their "Quarry Tours", the commercial risk was great. However, because of the upsurge in interest in industrial archaeology in recent years, the latter (and several others) has proved immensely successful.¹⁰²

Another venture associated with tourism was the Slate Craft Department set up at Dorothea in 1965. This was one of the first commercial ventures into the slate gift trade and the products ranged from clock cases to engraved slate discs for table-mats and anti-bird devices on milk-bottle tops. The problem was once again the infant stage of the tourist industry and although a selling agent had been appointed and reaction at trade fairs was favourable, there was insufficient turnover to justify the diversion of skilled slatemakers (which were in very short supply) from the prime product of the Company - roofing slate. In addition, the agent failed to promote the new product sufficiently and the managing director had too many commitments to take on this additional role. Thus, the craft venture was given up and others took up the idea, on a small scale; it was not until several years later that craftware became popular in the growing tourist industry.¹⁰³

The main subsidiary of the Dorothea Company was to be a roofing specialist division, providing a direct outlet for Dorothea slate, in

competition with J. Tuxford & Co., Conway, which only bought slate from the larger quarries, which could supply the large orders required. The subsidiary was titled the Dorothea Building and Construction Company and its business was enlarged from the original concept. Because the Dorothea management had no experience of the building trade, a supposedly expert manager was employed, supervising a relatively small workforce. Of the first two contracts, one broke even and the others made a small loss, but the third was an immense disaster. The job was a sub-contract for laying a concrete foundation for a supermarket at Llandudno Junction and the manager vastly under-estimated the tender. Quarry employees state that the foundation was made up entirely of concrete, rather than with an under-layer of hard-core, resulting in the amount of material cost to the Company exceeding the value of the contract. The manager resigned on "health grounds" and an experienced person from Messrs Taylor Woodrow Ltd., (Trawsfynydd power station contract) was brought in to sort out the problem. Nevertheless, a loss of £9,000 was sustained and the Building Company was hastily closed down. However, the total liabilities incurred was £15,294, chargeable to the Dorothea Quarry account. This was maintained as a debit until liquidation of the Dorothea Company, so as not to increase the annual loss of some £5,000-9,000, but this liability brought the final bank overdraft up to £32,000.¹⁰⁴

The other diversification ventures of the Dorothea Company had mixed results. Because of the economic failure of the new expensive sawing machinery (see Part IIIB(i)) for slatemaking, the plant was switched to manufacturing slate slabs and flooring 'tiles', as the Architectural Department. These products were relatively successful, but the high price militated against them. Tiles were produced from 1965 until early 1969,

when the department was closed, with the loss of about 10 jobs. Another product of the architectural department, "wall boards", was a failure. This was an innovation designed at Dorothea and consisting of pre-formed sections of wall cladding, with the slates glued onto panels, which could be directly attached to wall, without the problems of the old-style cladding (which was hung in a similar fashion to roof structure). Several contracts were won for school buildings in the North of England, but the very first one completed showed defects in the adhesive and slates kept falling off. Specialist advice was enlisted, but it was felt that this product was too risky to continue and the final contract was completed with slates nailed in place. This episode took place at the same time as the Building Company was failing and after that experience, the management became very wary of new products in strange fields and were fully aware of the financial implications of replacing faulty materials.¹⁰⁵

From the 1890s the shares of the Dorothea Company had been dissipated amongst an ever-increasing number of persons, due to the splitting of share-holdings in bequests; very few shares were actually sold to other persons. The Wynne-Williams family still held the majority of the shares, but the original 71½ shares held by John Hughes Williams had been distributed amongst his children and great-grandchildren. After John A. A. Williams, the second managing director of the Limited Company was his brother, Arthur Wynne Williams, who was appointed in 1911 (see above). A. W. Williams remained at this post until his death on 3 March, 1947, aged 80 years. He was succeeded by his eldest son, Lt. Col. John George Wynne Williams, who died suddenly on 10 December, 1958, aged about 60 years. The next managing director was his brother, Major Ivor Wynne Williams, assisted by his relatively young nephew, Mr. Michael John Barnard Wynne Williams; the

latter took over after his uncle's death in August 1968 (aged 73 years). During the early 1960s, A. I. Wynne Williams and M. J. B. Wynne Williams purchased a large number of shares from their distant relatives, some of whom were residing outside the U. . . and by 1968 there were 29 shareholders, with the joint managing directors holding 516 out of 1,200 issued shares. Other changes in the Boards of Directors were as following:

- 1) William Owen, secretary (elected in 1940) retired in June 1950, aged 78 and was replaced by Evan Glyn Jones, who was not elected a director;
- 2) M. J. B. W. Williams was elected on to the Board in March 1953;
- 3) Capt. J. S. Mathews retired in 1960 (having been on the Board since 1935)
- 4) Sir Reginald Williams, Bart. (who had extensive experience of quarrying in Africa) was elected a director in 1966, although he held no shares.¹⁰⁶

After 1965, the eventual fate of the Dorothea Company was sealed, although the managing director did all in his power to save the concern. His greatest problem was the lack of adequate finance, which led to cash-flow problems. Because of the erratic nature of orders and variations in demand for different sizes of slate, plus the equally erratic output of the different sizes, a large stockpile had to be maintained. The slate-makers were paid weekly for their produce, but those slates might remain in stock for several months. In the absence of financial reserves, the short-term deficit between wages and the realisation of the stock had to be covered by a bank overdraft, for which interest was payable. During a period of trade recession, the problem was greater, because a large stockpile had to be carried for a long period. In addition the situation arose whereby the Dorothea management had to sometimes cut down large slates to supply orders for smaller sizes (at some financial loss) because of the

complementary problem of having to place a limit on the amount held in the various sizes categories. In an attempt to control the situation, the slatemakers were instructed not to produce certain sizes, depending on the amounts in the stock-yard, but the inescapable result was a large increase in wastage. There was no point in controlling over-production by reducing the labour force, because of the cost of redundancy compensation and the virtual impossibility of enticing these men back into the industry when trade improved.

although the managing director was able to increase the Dorothea Company's share of the slate market, the financial problems outlined above ensured that little cash was available for continuing the development of the workings. The amount of available workable rock was determined by the scale of over-burden removal and this had virtually ceased after 1965, due to the lack of finance. This was the limiting factor that brought about the closure of the Dorothea quarry in the autumn of 1969. Apart from the known commercially valuable rock under the large grit 'cap' in Quarry D, no other economically workable slate body had been discovered; all the potentially best quarrying sites required a large investment to uncover the deposits and the light of the predicted state of the slate market there was little justification for increasing the Company's overdraft.¹⁰⁷

Several of the other small North Wales slate quarrying concerns also suffered from the same financial problems as the Dorothea Company and on several occasions, mergers had been suggested. In the mid-1960s negotiations commenced between the three largest Wastlle Companies (Crown Quarries, Dorothea and Pen-yr-orsedd), but the proposed combination did not materialise, largely due to a conflict of interests. In 1969, when

it became apparent that the closure of Dorothea was imminent, the Quarry Company entered into talks with several concerns, regarding take-overs and mergers, but with no result. Thus, at an extraordinary general meeting, on 31 March, 1970, the Dorothea Slate Quarry Company Limited was wound up voluntarily and Mr. A. Vendle, of A. H. Jones & Dyson, Caernarfon, was appointed receiver. No final balance sheet is available, but rough calculations suggest that the known liabilities were balanced by the value of the freehold land (the major asset) and the latter was sold to a property-development company, at a unknown price.¹⁰⁸

PART IIIIC NOTES

1. J.E. Vincent (ed.), The Memoirs of Sir Llewelyn Turner, (London 1903), cited by J. Lindsay, History of the North Wales Slate Industry, pp.80-2, 114.
2. *ibid.*, pp.78, 98.
3. U.C.N.W., Nantlle MS 19 shows that W. Turner was still at Pen-yr-orsedd in 1824; J. Griffiths, Chwarelau Dyffryn Nantlle, p.57.
4. *ibid.*, p.29.
5. *ibid.*, pp.37-8.
6. *ibid.*, p.41. The Dorothea engine was the fourth at Nantlle, not the third (as stated by J. Griffiths) because the original engine at Hafodals Quarry (1807) had been broken by a landslide, and was replaced c.1812 (J. Lindsay, *op.cit.*, p.154); R. Williams, "Hunangofiant Chwarelwr" Cymru 1899, Pennod I.
7. Dorothea MS 911.
8. *ibid.*, MS 615.
9. *ibid.*, MS 911; J. Griffiths, *op.cit.*, p.29.
10. *ibid.*, p.30, but he quotes the year incorrectly (as 1849 rather than 1848).
11. *loc.cit.* (translated).
12. This was his signature, though some MSS name him John Robinson. After 1865 another John Robinson (later of Tal-y-sarn Hall) was involved in several speculations in the Nantlle area.
13. W. Hobley, Hanes Methodistiaeth Arfon, Dosbarth Clynnog, "Cesarea M.C."
14. O. Thomas, Cofiant y Parch John Jones, p.78.
15. O. LL. Owain, Cofiant Mrs. F. Jones, p.24 (footnote).
16. O. Thomas, *op.cit.*, p.619.
17. Dorothea MSS 1, 5. Thomas Turner acted as salesman until 1851, and it is suggested from the MSS that Llewelyn Turner acted as legal adviser for the new Company during the transition period.
18. J. Griffiths, *op.cit.*, p.31.
19. *loc.cit.* His statement that Rev. D. L. Jones bought the additional 10

- shares is not borne out by the share certificates (Dorothea MS 8).
20. Dorothea MS 1, minutes of meeting, January 1850.
 21. J. Griffiths, op.cit., p.31.
 22. Dorothea MS 911.
 23. ibid., MS 1252.
 24. O. Thomas, op.cit., p.57.
 25. His usual signature was "John Williams", but his full name is used in this essay.
 26. Dorothea MSS 1797, 1802.
 27. ibid., MS 911.
 28. ibid., MS 1802.
 29. ibid., MS 8.
 30. ibid., MS 676.
 31. O. Thomas, op.cit., p.647.
 32. Dorothea MS 8.
 33. ibid., MS 1.
 34. loc.cit.; J. Griffiths, Chwarelau Dyffryn Nantlle, op.cit., p.32.
 35. G.A.S., MS 392.
 36. J. Griffiths, op.cit., p.17.
 37. Dorothea MSS 1, 5.
 38. R. Williams, "Hunangofiant Chwarelwr", Pennod III, Cymru, 1900.
 39. J. Griffiths, op.cit., p.33.
 40. Dorothea MSS 1, 5, 8; Baner ac Amserau Cymru, November 1859.
 41. Dorothea MSS 1, 5.
 42. ibid., MS 5. Calculated from data.
 43. ibid., MS 921.
 44. ibid., MS 927.
 45. ibid., MS 930.
 46. ibid., MS 1.
 47. ibid., MS 5.
 48. ibid., MSS 5, 8. Calculated from data.

49. *ibid.*, MSS 1, 1811.
50. *ibid.*, MS 1.
51. *ibid.*, MS 1813.
52. *ibid.*, MS 5.
53. *loc.cit.*
54. *loc.cit.*
55. *ibid.*, MS 1248. These persons were Mrs. F. Jones, Thomas Lloyd Jones, John Robyns, and Cornelius Davies, holding a total of 18 shares.
56. *ibid.*, MSS 934-5.
57. *ibid.*, MS 1823.
58. *ibid.*, MS 1.
59. *ibid.*, MS 1829.
60. J. Griffiths, *op.cit.*, p.33.
61. Dorothea MS 5.
62. *ibid.*, MSS 1259, 1260, 1845-7.
63. *ibid.*, MS 1.
64. *ibid.*, MSS 1, 5, 2108.
65. *ibid.*, MS 5.
66. *loc.cit.*, and computation from data.
67. *ibid.*, MS 2.
68. Supported by correspondence in *ibid.*, MS 1945, pp.22-3, and MS 1284.
69. *ibid.*, MSS 20, 1404.
70. *ibid.*, MSS 5, 907.
71. *ibid.*, MS 1284; *ex.info.* Mr. M.J.B. Wynne Williams.
72. Dorothea MS 5.
73. *ibid.*, MS 907.
74. *ibid.*, MS 1284.
75. *ibid.*, MS 1945, pp.22-3.
76. *ibid.*, MS 1284.
77. *ibid.*, MSS 5, 20.
78. *ibid.*, MS 1273.
79. *ibid.*, MSS 5, 20, 44, 1009, 1273.

80. *ibid.*, MS 20, and see Part IIIA (ii) above, for details.
81. Dorothea MSS 5, 1247.
82. *ibid.*, MS 1257.
83. *ibid.*, MS 3.
84. *ibid.*, MSS 1204, 1257-8.
85. *ibid.*, MS 1204.
86. *ibid.*, MS 1203.
87. *ibid.*, MS 23.
88. *ibid.*, MS 3.
89. *ibid.*, MS 20, annual report 1921.
90. *ibid.*, MS 1282.
91. *ibid.*, MS 20.
92. *loc.cit.*
93. *loc.cit.*
94. Dorothea MSS 20, 2112.
95. *ibid.*, MSS 20, 1383, 1401; The Welsh Slate Industry (Report of a committee set up by the Ministry of Works, H.M.S.O., 1947), p.27.
96. Dorothea MSS 20, 1383, 1401.
97. *ibid.*, MSS 20, 2074 p.98.
98. *ibid.*, MSS 1422, 1424, 1480.
99. ex.info. Mr. M.J.B. Wynne Williams, who accidentally saw the Welsh Office file on this matter, whilst at a meeting in Cardiff.
100. *ibid.*; Quarry Manager's Journal (reprint), February 1964; Dorothea MSS 20, 101, 2114.
101. *ibid.*, MSS 20, 2074 p.98.
102. ex.info. Mr. M.J.B. Wynne Williams, Mr. R.H. Davies (Llechwedd Slate Mine, Blaenau Ffestiniog).
103. ex.info. Mr. M.J.B. Wynne Williams.
104. *ibid.*, and Mr. L. Jones.
105. ex.info. Mr. M.J.B. Wynne Williams.
106. Dorothea MSS 77, 2112, 2114.
107. ex.info. Mr. M.J.B. Wynne Williams; Dorothea MSS 20, 2114.
108. *ibid.*

Part III D

Transport outlets for Dorothea slates.

The Nantlle valley is located on the western margin of Snowdonia, about 3 miles from the west coast of Caernarfonshire. The nearest suitable harbour was Caernarfon, some 8 miles distance from the slate quarries. In the early eighteenth century, slates from the small quarries at Cilgwyn mountain, Nantlle, were transported to the coast at Foryd, near Caernarfon, in panniers carried by ponies. These slates were loaded onto small vessels, and carried across the Irish sea, and coastwise to English ports. When the scale of quarrying increased towards the end of the eighteenth century, the bridle-paths were replaced by better tracks, which allowed the use of carts. By the late eighteenth century, a new turnpike road served the quarries on the floor of the Nantlle valley, and the copper mines at Drws-y-coed. In 1801, 350 carriers and quarrymen of the Cilgwyn, Hafodlas, and Pen-y-bryn Quarries drew up a petition protesting at the Caernarvonshire Turnpike Road Commissioners' increased vigilance in enforcing the rule that only broad-wheeled carts should be allowed special rates; the Nantlle men used narrow carts, and had to pay the full toll. This petition shows that about 170 of the carters were farmers who depended on the additional income to pay their rents.¹ The Cilgwyn Quarry Company, in 1802, employed 91 carters, most of whom owned only one cart each. The average loading capacity of a cart was 18 cwt., and carriage rates averaged 10-11 shillings per ton. After c. 1803, when a new quay was constructed at Caernarfon specifically for the slate trade, the amount of slate shipped from the Foryd quay declined, especially after the extension of the new harbour, c. 1821.²

In 1801 the Penrhyn Quarry, Bethesda, was connected with its harbour at Abercegin, Bangor (later named "Port Penrhyn") by a horse-tramway, resulting in the reduction of haulage costs from 4 shillings per ton by cart, to less

than 1 shilling per ton.³ The success of this scheme instigated a desire amongst several of the leading Nantlle valley quarry proprietors to reduce their cartage costs, by jointly promoting the construction of a tramway from the slate quarry at Caernarfon to the quarries. The proprietors of the Cilgwyn, Pen-y-bryn, and Tal-y-sarn Quarries met in February 1813 to discuss the sponsoring of an Act of Parliament to this end, and it was calculated that carriage would be reduced from 14 shillings per ton to 4 shillings, and that the high breakage allowance of 1 cwt in 20 would also be reduced. The Hafodlas Quarry was included in the scheme in 1814, and it was proposed that each of the four Companies should contribute £3,000 each. However, the Nantlle Tramway was not authorised until May 1825 and the first slate shipment was sent by rail in July 1828.⁴ The reason for the delay is not known, and whilst negotiations were being conducted at Nantlle, the Dinorwic Quarry, Llanberis (managed by William Turner) was, in 1824, connected to the harbour at Felin-heli ("Port Dinorwic") by a horse tramway.⁵

The Nantlle Tramway commenced at the slate quay, Caernarfon, and ended at Richard Garnons' 'Cloddfa'r Lon' Quarry, Nantlle, a distance of about nine miles; the gauge was 3 feet 6 inches and the traffic horse-powered. The tramway was constructed by a private company, which ran a conventional passenger service, but mineral rolling stock was provided by the quarry proprietors, who paid a toll for the privilege of using the railway. In 1848 the toll rates were as follows:- slate, 2 shillings 11 pence per ton; coal (back-carriage, from Caernarfon), 8½ pence per ton; wood, 1 shilling 7½ pence, per ton; iron, 3 shillings 3 pence, per ton.⁶ The individual quarry Companies (including some from the Llanberis area) leased specific areas of the Caernarfon quay from the harbour trustees; each Company maintained a shipping office at the port, and orders were, in the nineteenth century, usually dispatched from the stockpile maintained at Caernarfon,

rather than direct from the quarry. Dorothea was the last quarry to continue this practice, and from 1911 that company fell into line with its competitors.²

The track of the Nantlle Tramway passed through the Dorothea liberty, and it is possible that the proximity of the railway was an important factor in William Turner's decision to leave that land, in late 1828. His contracting arrangements for slate shipments are unknown, but after 1849, the Dorothea Slate Company gave the contract to one of its shareholders, William Owen, Pen-y-bryn Farm, but from 1857-60, the company chairman and salesman, John Lloyd Jones, was responsible for the cartage: after that date, the Company appears to have provided its own horses and haulier.⁸

All the Caernarfonshire slates were transported to the markets exclusively by coastwise shipping from the small harbours, of Caernarfon, Port Dinorwic and Port Penrhyn until 1852. In that year, the Chester & Holyhead railway, opened in 1848, laid a mile-long branch line to Port Penrhyn and in the same year, a branch of the same railway company, extending towards Caernarfon, had reached Port Dinorwic.⁹ At Caernarfon, a $\frac{1}{4}$ mile gap separated the termini of the standard gauge and the Nantlle Tramway, causing great inconvenience and cost for quarries wishing to dispatch orders by rail to the Midlands; the slates had to be taken to the main-line station from the quarry, in carts.

The first proposal to extend the standard gauge railway into south-west Caernarfonshire was c. 1855-6, and it was estimated that the transport costs for Nantlle slates would be reduced to about 11 pence per ton.¹⁰ This proposal failed, but in 1867 the Nantlle Tramway Company began an unauthorised regauging at an intermediate point, several miles south of Caernarfon (so as to possibly conceal the illegal action until most of the work had been

completed). The consequence of having a disjointed section of a different gauge track was the necessity of two transshipments in transit. The quarry owners became bitter about the extra cost, greater breakages and delays, and in unknown circumstances, the London & North Western Railway Company (which had taken over the lines north-east of Caernarfon in 1859¹¹) took over the Nantlle Tramway in 1867-8, and proceeded to construct a standard gauge railway south from the old Caernarfon terminus, running adjacent to the tramway, which was retained in use until the new track had been completed.¹² The L.N.W.R. line ran from Caernarfon to meet the Cambrian Railway at Afonwen, near Pwllheli, and was opened for traffic in 1868. The line diverged from the track of the tramway at Pen-y-groes, 7 miles south of Caernarfon, and the three miles of 3 foot 6 inches gauge horse-powered railway remained in use. This situation did not please the quarry proprietors and to appease their demand for a direct main line connection, the L.N.W.R. constructed a 1½ mile long branch line to Tal-y-sarn ("Nantlle station"), on the fringe of the main quarrying area. A large transshipment yard was provided because up to 2 miles of the horse-tramway, penetrating the heart of the quarrying area, remained in use. The Railway Company unofficially promised to continue the re-gauging the whole distance, to the stock yards of all the main quarries, but in reality the Tal-y-sarn station yard had been designed as a terminus. After 1872, the L.N.W.R. officially renounced any alleged promises made to the quarry owners, and suggested that the remaining system could be rationalised by laying a third (inside rail, for 2 foot gauge (which was used in the internal railway systems of all the quarries) on the Nantlle tramway; thus, only one type of wagon would be required, and the quarry locomotives could run to Tal-y-sarn station. This proposal was to be carried out at the cost of the quarry companies, but it was unworkable for several reasons. Firstly, experience showed that it was impossible for the quarry owners to co-operate,

Due to petty jealousies and mistrust. Secondly, every quarry served by the Nantlle Tramway had a stock of 3 foot 6 inches gauge wagons, and track in situ, and there was no advantage in replacing these items, because the practice of loading once at the quarry stock-yard and subsequently re-loading onto standard gauge rolling-stock would continue. Thirdly because of the comparatively short distances involved, plus potential problems with shunting using locomotives, there was no strong economic reason for replacing the horse-drawn trains: rather, the reverse was true.¹²

Only one Nantlle quarry Coedmadog obtained a direct connection with the standard gauge line, nine years after the construction of the Tal-y-sarn station. This quarry lay adjacent to the station yard, but for some reason, the private connecting line (300-400 yards long) was not constructed until 1881.¹³ John Robinson, managing director of the Tal-y-sarn Quarry became the main spokesman for the quarry proprietors. In 1872-3 he proposed a private scheme to build a standard gauge extension from the Tal-y-sarn station yard, leading to the Tal-y-sarn Quarry with a branch line to Dorothea. However, John Hughes Williams, Dorothea Quarry chairman unaccountably blocked the proposal by refusing a way-leave through his freehold property, Tre-grwyn Farm, which occupied a key position in the route. J. Robinson retaliated in March 1873 by threatening Dorothea's right to tip into the Lower Nantlle Lake, in a law-suit claiming damages to a flood-gate due to reckless tipping. It is not known how strong was the case against the Dorothea Company, but the possible repercussions of a judgement for the plaintiff must have been too serious to risk, and therefore J.H. Williams sold Tre-grwyn Farm to J. Robinson.¹⁴ However, the private line was never built, probably due to the failing financial position of the Tal-y-sarn Company in the mid 1870's, and a second attempt by J. Robinson in 1889, some 13 years after he became sole proprietor

of that quarry, also came to nothing.¹⁵ The N.N.W.R. had considered, c.1887 a 2 mile extension from Tal-y-sarn to Nantlle, running south of the river Llyfhwyr and the Lower Lake, but the project was shelved because none of the quarry companies was prepared to lend money to assist the scheme. This may have been because each quarry had to somehow gain access to this line, which would have skirted around the main quarrying area, but in addition, no Company would have acted alone in any scheme that would also benefit its competitors.¹⁶

After 1889, with one notable exception, the Nantlle quarry proprietors accepted the reality that there would never be a direct link from the quarries to the standard gauge line. However, they had other grievances, notably the high carriage rates, which discriminated against the Nantlle area. The other North Wales slate districts had fixed surcharges over the given carriage rates from Bangor station (L.N.W.R. local headquarters), on inland dispatches of slate, e.g., Ffestiniog and Port Dinorwic paid 5 pence per ton over the rate from Bangor to the destination. The Nantlle surcharge varied from 1 shilling 5 pence - 1 shilling 10 pence., but calculating on a mileage basis (to compare with other districts), to gain parity with other areas, the Nantlle surcharge should have been only about 7 pence per ton.¹⁷

Negotiations between the representatives of the larger quarries, including Dorothea, and the L.N.W.R. were prolonged, commencing in July 1882.¹⁸ By 1893 there had been no progress, with the L.N.W.R. adamantly refusing even to impose a fixed surcharge for inland shipments. However, in March or April 1893, the parties came to an agreement whereby the surcharge remained variable, but did not exceed 1 shilling per ton over the Bangor rate. Other grievances were not resolved, namely the Nantlle-Caernarfon quay rate, and that for the reverse direction ("back-carriage") for coal and machinery, etc., Whilst

the quarry owners won their appeal to have the Caernarfon quay rate reduced from either 2 shillings 11 pence or 2 shillings per ton.¹⁹ to 1 shilling 10 pence., they were totally opposed to the new figure being nominally split, viz:- 1 shilling 7 pence main-line rate, and 3 pence toll for the remnant of the Nantlle Tramway. The tramway toll had previously been inclusive, but the charging of it separately from the main rate was unacceptable to the quarry proprietors, whose position is shown in a letter dated 22 April, 1893: "It appears to be forgotten that, owing to the failure of your company (the L.N.W.R. Company) to carry out their repeated promises to continue the 4 foot 8½ inch gauge (railway) up to our quarries, we are put to an expense of over 1 shilling per ton to get our slates to Nantlle station (i.e., Tal-y-sarn station)..."²⁰; this expense was additional to the railway charges, and included the hire of horses and wages of the haulier and loaders.

Another important grievance was the surcharge on back-carriage of coal to Nantlle, which had been coluntarily imposed c. 1868 to cover the maintenance costs of the Nantlle Tramway, pending re-gauging. By 1893, with no likelihood of the work being completed, the quarry owners were indignant that this charge should still stand, especially since the 400-500 per cent increases in coal consumption since the 1870s meant that the revenue was more than sufficient to cover the maintenance of both the tramway and the L.N.W.R. branch line.²¹

Although the largest of the Nantlle quarries had initially united in their negotiations with the L.N.W.R. their interest differed. Tal-y-sarn and Dorothea were very involved with inland transport, due to their main markets being mainly in the U.K., but Pen-yr-orsedd (W.A. Derbyshire) was only interested in the Caernarfon quay rate, as most of its slate was exported. In March or April, 1893, W A Derbyshire, John Menzies (Alexandra

quarry, Llanberis Slate Company) and Francis Turner (several small quarries) secretly journeyed to Euston, and concluded a separate deal with the L.N.W.R. directors, being the reduction to 1 shilling 10 pence per ton mentioned previously. However the result of this clandestine action was the renunciation by the L.N.W.R. of its new agreement fixing the Nantlle surcharge. Although the Dorothea secretary, R.N. Davies, proposed to carry on the fight, John Robinson of the Tal-y-sarn Quarry, who had been the chief negotiator, was totally dismayed by the lack of solidarity, and gave up the struggle; he increased his prices to cover the cost, charging an uniform 1 shilling 3 pence over Bangor rates on his customers.²²

Having apparently won one victory against the L.N.W.R., W.A. Derbyshire in November 1893 astounded the railway world by commencing an action against the same Company in the High Court. Although the matter had commenced with a dispute over the payment of carriage rates, Derbyshire brought a case against the Railway Company, alleging that the latter had failed to honour their promise of providing him with a direct standard gauge connection. The L.N.W.R. successfully countered this claim by enlisting the support of the Dorothea Company. R.N. Davies, company secretary, testified that the other quarry proprietors were satisfied with the existing arrangements, and that they feared that a standard gauge line, with heavy locomotives, running in close proximity to the deep quarry pits, would cause landslides, and endanger life and property. The Dorothea Company was said to be particularly worried by the threat, and refuted suggestions that the quarry would benefit from the new railway; in fact, because of the layout of the site, it would not have been possible to bring the standard gauge to the Dorothea stockyard without great cost. Apart from this, the Dorothea Company had a special interest in retaining the Nantlle Tramway because its vital water supply, running from the Pen-yr-orsedd Quarry, was only guaranteed by the Dorothea Landlord's

control of the latter quarry's outlet tramway; this balance would be upset if the L.N.W.R. built a direct connection to Pen-yr-orsedd.²³

W.A. Derbyshire lost the law-suit largely through the counter-evidence of the Dorothea Company, and eight years later an opportunity arose to have his revenge. Derbyshire persuaded his landlord's estate agent to insert a clause into the agreement being negotiated with the Dorothea Company (regarding trespass rights for a new river channel). The latter was required to persuade its landlords, J.W. Gwynne Hughes, to grant a way-leave for a standard gauge railway access to Pen-yr-orsedd, via a route south of the old Lower Nantlle Lake. The Dorothea Company readily complied with the request because it required the new river diversion to provide new tipping ground. The Dorothea directors believed that W.A. Derbyshire could not raise the huge sum necessary to construct this railway and this move was interpreted as a bluff, to be used against the L.N.W.R. However, the Dorothea landlord refused to grant the way-leave, and consequently both the Pen-yr-orsedd railway and Dorothea river schemes were abandoned.²⁴

The Nantlle Tramway remained the sole outlet for the Dorothea produce until the Second World War, when some of the slate was being delivered to local customers by the Company's private 2½ ton motor lorry. From this period, the Company constantly ran one lorry, the last being capacity used on both local and long-distance routes. After the war, road transport became increasingly important, largely because of changes in transport economies. Loading costs increased, and lorries were preferred by both quarry Company and customer, because there was minimal handling of the material, compared to the two additional stages involved in rail transport (apart from the common loading at the quarry, and unloading at the destination material sent by rail had to be transhipped at Nantlle station, and at

the station closest to the destination. The last direct shipment of slate by rail from Dorothea was in 1958.²⁵

Although the access road to the quarry was narrow, no difficulties were experienced because the lorries used were relatively small, compared to modern articulated vehicles, which could not have used that road. Most of the produce was carried by local haulage contractors, and the remainder by the company lorry, which was retained because of its utility uses.²⁶

PART IIID NOTES

1. J. Lindsay, History of the North Wales Slate Industry, p.171.
2. *ibid.*, pp.107-110.
3. S. Turner, The Padarn and Penrhyn Railways, p.40.
4. J. Lindsay, *op.cit.*, p.108.
5. *loc.cit.*
6. Dorothea MS 911; ex.info. Mr. J.I.C. Boyd.
7. Dorothea MS 883.
8. *ibid.*, MS 116. Payments to William Owen ceased in 1857.
9. S. Turner, *op.cit.*, pp.45, 56, 89.
10. Dorothea MS 1007.
11. S. Turner, *op.cit.*, p.89.
12. ex.info. Mr. J.I.C. Boyd; Dorothea MS 1164.
13. G.A.S., L.N.W.R. MS 87.
14. Dorothea MS 5.
15. *ibid.*, MS 1164; G.P. Jones private collection; ex.info. Mr. D. Clayton.
16. Dorothea MS 1164.
17. *ibid.*, MS 1242. Quoted in letter from J. Robinson to C. Davies, 22 March, 1893.
18. *ibid.* A meeting had been held on 5 January, 1874, but the matter had died down in the interim. The first important series of meetings was held on 11 July, 1882, attended by representatives of the Cilgwyn, Dorothea, Pen-yr-orsedd, and Tal-y-sarn Companies.
19. *ibid.* It was proposed in 1874 that the rate of 2s. 11d. per ton be reduced to 2 s., but it is not certain if this was done.
20. *loc.cit.* Quoted in a letter from J. Robinson, Tal-y-sarn Hall, to the L.N.W.R. Company, 22 April, 1893.
21. *loc.cit.*
22. *loc.cit.* Correspondence between J. Robinson and C. Davies, March-April 1893.

23. Dorothea MSS 1162, 1242.
24. *ibid.*, MS 5.
25. *ibid.*, MS 2074.
26. *loc.cit.*; *ex.info.* Mr. M.J.B. Wynne Williams.

Part III E

Marketing and Sales.

This topic involves discussion at different levels, and is comprised of the following parts:-

- i. the individual sales structure of the Dorothea Company;
- ii. advertising and marketing, within the context of the slate industry generally.
- iii. prices and price control agreements.

(i) Sales structure.

It is not possible to comment upon the sales outlets of Messrs Turner & Morgan because of the lack of Company records, but it is known that in the 1840's, the slate salesman was Thomas Turner, son of the proprietor. He retained the agency for two years after the Dorothea Slate Company took over the quarry (1848), but the ambitious John Lloyd Jones, eldest son of Rev. J Jones, an important figure in the company, requested the post, and in the light of the majority shareholding group he could command, it is not surprising that Thomas Turner's agency was terminated. However, he was given a generous six month's Notice from June 1850, as a measure of the new Company's gratitude.¹

Thomas Turner's commission had been 2½ per cent, and this was also the rate given to John Lloyd Jones. In the next decade he travelled widely throughout the U.K. including Ireland, securing new outlets, supervising the discharging of cargoes and collecting bad debts, and his average income was around £350 per annum (which was more than the wage of the quarry manager); in addition he had income from his private quarry ventures. The Company accounts were not well kept in the 1850s, and in 1860. J. Ll. Jones claimed £1,544 unpaid commission. The new chairman, John Hughes Williams was unable to verify the claim because there were no proper accounts available, and eventually £1,250 was paid.² Another of the important shareholders, Thomas Owen, Caernarfon (joint general manager) was a slate merchant, and

purchased an average £100-200 worth of slates from the quarry per annum from 1857-61,³ but it is not known if he was granted any special terms apart from the usual credit facilities and a discount if accounts were settled within a specified period, which were allowed to every regular customer on the "Merchant's List". The latter was the system employed by all the North Wales slate quarries, with each building up a network of sales outlets (in the form of slate merchants, builder's merchants and building contractors) for its own produce exclusively.

When John Hughes Williams replaced John Lloyd Jones as Dorothea chairman in 1860, he also inherited the sales agency, but at a 2 per cent commission. It is not clear whether his income was derived from the total sales of the company, or from his own private contracts only (customers inherited from the old salesman). After J.H. Williams' death in 1879, the joint general managers, Cornelius and Robert Norman Davies, shared the agency, at a restored $2\frac{1}{2}$ per cent commission.⁴ The whole system is rather obscure, and the only subsequent reference to the subject is a note of the appointment of John George Wynne Williams (the managing director's son) to the Manchester sales agency, in August 1913, but he left to join the East Africa Company in February 1914.⁵

Sales and slate shipments had been handled at the head office, at the slate quay, Carnarfon, from 1860, at least. At that date, Cornelius Davies (the chairman's brother-in-law) was appointed shipping agent, and he was succeeded by his son, Robert Norman Davies, who also became the first company secretary of the reformed Limited Company, 1893. Subsequently, all the Dorothea Company secretaries were also shipping agents. R.N. Davies was employed from October 1879 until his death on 20 September, 1915; he was

succeeded by William Owen (who had commenced as junior quarry clerk at Dorothea, in 1886) from November 1915 until his retirement in July 1950 (aged 78); the last secretary was Evan Glyn Jones, Llanberis, appointed on 12 January, 1951 and serving until 1970. The last named also acted as an independent slate merchant, obtaining his stock from the Dorothea Company.⁶

(ii) Advertising and Marketing

The marketing philosophy of the Dorothea Company must be discussed within the context of the North Wales slate industry in general. Up to 1917, the quarry proprietors were organised in two loosely-defined associations, one based on the Ffestiniog area, and the other around Caernarfon. In 1917, the North Wales Slate Quarry Owners' Association was founded, but this failed to produce lasting co-operation within the industry, which was continually dogged by petty rivalries. By 1934 only the Ffestiniog concerns, plus Dorothea remained in the association, the remainder having withdrawn, and even after reforming, in 1943 (due to enforced wartime co-operation), there remained a distinct conflict of interest between the small concerns and the two large Caernarfonshire quarries (dinorwic and Penrgyn).²

Up to c.1900, Welsh slate had little competition from other roofing materials, save for the import of American slate in the 1890s, in consequence to the unavailability of the home produce as demand out-stripped supply, and the very high prices resulting therefrom (e.g., Dorothea was, in 1897 charging 9½ percent premium on their old price list (issued in 1894)³. Because the slate trade was virtually a seller's market, no advertising was necessary, and each Company had developed its own individual marketing system in the form of Merchants' Lists, i.e. sales outlets in the form of builders' Merchants, etc. However, after 1900 (and especially after the Penrhyn Quarry strike, 1900-03) cheap foreign slates were increasingly imported into the U.K. and after the 1914-18 war, clay tiles became increasingly competitive, making

deep inroads into the traditional slate market. This was due to an increase in the cost of slate, largely because of increased transport costs plus aesthetic considerations of the current school of architecture, influenced by William Morris (who detested slate).²

From the mid- 1890s onwards, several schemes for combined marketing had been proposed, e.g., in 1897 an English syndicate tried unsuccessfully to amalgamate the dividend-paying slate quarries into a single mammoth company, which would have controlled the slate market, and in 1901 the National Association of Slate Merchants attempted to persuade the Caernarvonshire Quarry Owners' Association to set up a slate stock bureau, to handle sales, fix prices and arrange common specifications. Nothing came of this proposal, nor of another effort within the Owners' Association, in May 1913. The latter was for the appointment of a representative, to promote advertising and marketing, to combat the threat of the clay tile, but the scheme collapsed due to the withdrawal of support by the Penrhyn Quarry.¹⁰ The situation improved slightly after the formation of the North Wales Slate Quarry Owners' Association (in 1917), and some advertising literature was published, though this was aimed at the building trade rather than the public. Some of the quarries, e.g. Penrhyn, issued individual advertising brochures, but again this was for the builders rather than the ultimate customers. Dorothea did not engage in any advertising whatsoever, relying entirely on trade reputation and the patronage of the sales agencies.¹¹

A generalised assessment of the attitudes of the quarry proprietors towards advertising and marketing reveals three recurring points: disinterest, mistrust, and inexperience. Most of the proprietors and their management were conservative in outlook, and disliked advertising as an unpalatable

modern innovation, and were convinced that the reputation of slate would be sufficient to ensure continued sales levels. They totally failed to understand that the dominance of their product in the nineteenth century was due to economic factors, and that the latter had changed by the twentieth century, thus making Welsh slate increasingly less competitive in a changing market. Further, the quarry owners showed considerable hostility towards economists who pointed out these facts of life (notably D. Dylan Pritchard, who was effectively told to mind his own business by J.G. Wynne Williams, the Dorothea chairman, in a bitter exchange in the press).¹² There was also a large degree of mistrust between the individual proprietors, which was accentuated as the slate market shrunk, and competition increased. Because of the large variety of produce within the slate industry (in colour, texture and quality), combined marketing for the North Wales industry was fraught with possible problems, notably that some types of slate (and thus particular quarries) might become more popular due to corresponding and complementary combined advertising, and thus some Companies might gain ground at their competitors' expense. Thirdly, none of the management in the quarries, nor the shipping agents had experience in professional marketing and advertising, and thus, additional staff would have to be employed for this purpose (on an individual basis). Only the Dinorwic Quarry employed a professional person as a marketing consultant, in the 1960s; other quarries either could not afford the finance for an advertising budget, or were simply not prepared to spend the money for this purpose.¹³

One of the leading exponents of the virtues of advertising was Mr M.J.B. Wynne Williams, who joined the Dorothea Board of Directors in 1953, and became joint managing director in 1958. He was able to persuade the Owners' Association to exhibit at the Ideal Homes Exhibition, at Olympia, London, in the early 1960s, and this is said to have generated some interest in slate as an architectural material. However, Mr Williams failed to gain

sufficient support for his proposal of employing a professional marketing director to represent the association. Thus, he was faced with a dilemma of desperately requiring to expand the Dorothea Quarry sales (after the trade recession of 1965), but could not promote his own slates without also benefiting his competitors, who could ride on the publicity of the product. Nevertheless, Mr Williams decided to launch a sales drive because of the critical position at Dorothea, and from 1965 onwards, he became a frequent correspondent in both the local and national press, and in trade journals, bringing the virtues (and even existence) of the product to the attention of a wide sector of the public. In addition, Mr Williams visited as many U.K. slate merchants and builders' merchants as possible, but was unable to open any new outlets; however, he was able to capture some agencies from other slate companies. The overall effect of Mr Williams' promotional activities was an increase in the orders received by the Dorothea Quarry, such that this aspect of the business was in a healthy position by 1969, when the available supply of slate rock at the quarry was exhausted.¹⁴

(iii) Price control

The degree of co-operation between the quarry Companies in the determining of price levels varied according to the economic climate. Generally, a united front was presented during trade booms, when excess premiums were imposed on the standard list price; however, during trade recessions, it was not uncommon for some Companies to exceed the agreed discount. In the absence of documents relating to the various owners' associations, it is difficult to comment on the role of the Dorothea Company in price fixing and maintenance. It is known that Dorothea was not a member of the first official owners' association, the Caernarvon Slate Club, set up in 1872; every other company shipping slate from Caernarvon joined this organisation.¹⁵ However, the Dorothea Company was involved in the Caernarvonshire Slate Quarry

Owners' Association, set up in 1884. One function of this organisation was to fix and maintain prices, preventing damaging price-wars, which could severely damage the finances of the smaller companies. The effect of this association can be gauged by comparing the price lists of the Caernarfon area quarries: with few variations, all the major quarries charged identical prices, even during the very bad trading years of 1905-09. The only exception was Pen-yr-orsedd, Nantlle, which undercut the standard price, and also included the cost of carriage in its prices: this was extra in all other cases.¹⁶ After the demise of the North Wales Slate Quarry Owners' Association in 1934, an immediate price war commenced,¹⁷ but this does not appear to have seriously affected the Dorothea Company, because the subject is not even mentioned in the annual directors' report.¹⁸ Profit margins would have been squeezed to some extent, although this would have been more than compensated for by the reduction in production costs in the late 1930s, due to reorganisation of working practices at the quarry. Slate prices were controlled by the Government from 1941-6, according to the essential industry classification imposed during the war. This caused great consternation after the cessation of hostilities, in 1945, when the industry was refused permission to increase prices to cover the large increases in labour costs, and finance the five-year backlog of development work suffered because of the war.¹⁹ The Owners' Association had been re-formed in 1943, and appears to have been a more cohesive body than its predecessor, and harmful competition was avoided by co-operation.

PART III E NOTES

1. Dorothea MS 1.
2. *ibid.*, MSS 5, 1252.
3. *ibid.*, MS 116.
4. *ibid.*, MS 5.
5. *loc.cit.*
6. Dorothea MS 2108.
7. D. Dylan Pritchard, The Slate Industry of North Wales (Denbigh, 1946), pp.10-11; Sales brochure of the North Wales Slate Quarry Owners' Association, 1920; ex.info. Mr. M.J.B. Wynne Williams.
8. Dorothea MS 563, p.446; J. Lindsay, History of the North Wales Slate Industry, pp.253-5.
9. *ibid.*, pp.255-60; D.D. Pritchard, *op.cit.*, pp.39-41; The Welsh Slate Industry (H.M.S.O., 1947), pp.22-7.
10. Dorothea MS 5.
11. Sales brochure, *op.cit.*; ex.info. Mr. M.J.B. Wynne Williams.
12. Dorothea MS 1488, press cuttings 1950s.
13. ex.info. Mr. M.J.B. Wynne Williams.
14. *ibid.*
15. D. Dylan Pritchard, reprint of article in Quarry Manager's Journal, August, 1944, p.74; J. Lindsay, *op.cit.*, p.250.
16. Dorothea MS 518; J. Lindsay, *op.cit.*, p.248.
17. *ibid.*, p.287.
18. Dorothea MS 20.
19. *ibid.*, annual report, 1946; The Welsh Slate Industry, p.27.

