

THE SLATE ISLANDS OF SCOTLAND: THE HISTORY OF THE SCOTTISH SLATE INDUSTRY¹

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I

The Scottish slate industry is much less well-known, even in Scotland, than the corresponding industry of North Wales. No doubt this is mainly due to its much smaller size, and perhaps also to the geographical remoteness of its location. Apart from some minor quarries which we shall mention later, it was concentrated in two main places: Ballachulish, about 10 miles (16 km) S.S.W. of Fort William, and the so-called Slate Islands, of which the most important was Easdale, about 11 miles (18 km) S.W. of Oban. The industry had certainly started in both places before the end of the seventeenth century; in Easdale before 1631 and at Ballachulish in 1697.² As demand for slates expanded in the eighteenth century, new quarries were opened, and in the Slate Islands some of the new quarries were in the islands of Seil, Luing, and Belnahua. The industry reached its peak production around 1900, declining thereafter quite rapidly at first, but then more slowly, finally dying out in the early 1960's—thus following much the same pattern as the Welsh slate industry. The peak output from Ballachulish and the Slate Islands, taken together, was probably just over 32,000 tons (about 25 million slates), in the year 1904, with a value of about £60,000.³ The number of workers employed by the quarries was at its peak of perhaps 600–700 some decades earlier; increasing mechanisation had enabled output to increase while the number of employees decreased.

This paper is concerned principally with the industry in the Slate Islands. Although at first (and probably for the first two centuries or so) it was the dominant component of the Scottish slate industry, the main reason for the limitation of the coverage of this paper is that, while there is quite good documentation of the industry in the Slate Islands, practically none has so far been found for that at Ballachulish. The Slate Islands were part of the estate of the Breadalbane family, and many of the records of the Marble and Slate Company of Netherlorn, formed in 1745 with the Earl of Breadalbane as one of the partners, have been preserved in the Scottish Record Office.⁴

The slate outcrop which runs southward from Seil and Easdale through Belnahua, Luing, and the east side of Scarba and Jura provided the basis for the industry in the Slate Islands. The slates were usually dark blue or almost black; they were split along true planes of cleavage, but the thin laminae were somewhat uneven

and undulating. Crystals of iron pyrites occurred abundantly in the slate, limiting the thinness of the split slates but not affecting their durability. The beds are much folded. In each quarry a succession of beds was worked, individually from two to six feet thick, the combined thickness varying from twenty to seventy feet.⁵

Seil and Luing are sizeable islands, each some 5 miles (8 km) long by about $1\frac{1}{2}$ miles ($2\frac{1}{2}$ km) wide, with rocky hills reaching 479 ft (143 m) on Seil and 269 ft (81 m) on Luing. Easdale and Belnahua, on the other hand, are diminutive islands, the former roughly 700 yd (630 m) and the latter roughly 300 yd (270 m) square, with no substantial elevation. The consequence is that Seil and Luing have been merely slightly scarred by the quarrying, whereas Easdale and Belnahua have been entirely dominated by it. There is still a resident population on Easdale, but none on Belnahua.

During the period of the slate industry, these parts were undoubtedly very inaccessible, and the only reasonable transport medium was the sea. Slates were transported by ship from piers built as close to the quarries as possible, mostly around the middle of the nineteenth century; before the piers were built, the slates had to be transferred to the ships by small boats. Between the workplaces and the shore, pack horses were used at first, but tramways were introduced in the nineteenth century, some with mechanical haulage. In the winter, conditions could be very bleak and rough, and shipping generally was at a very low level of activity during the winter months.

II

The Marble and Slate Company of Netherlorn was formed in 1745 by the purchase of the quarries on the island of Easdale as a going concern.⁶ The origins of the industry seem obscure, but it was certainly in full swing in 1744, for seven 'crews' of slate carriers were employed at Easdale then, each crew comprising four or five men. The owner or tenant at that time was Colin Campbell of Carwhin, and the Company purchased the 'effects' at Easdale, i.e. the slates awaiting sale, tools, boats, materials, etc.—for £826 18s. 8d.

The partners in the Company were a group of four kinsmen, all Campbells, together with Messrs. John Willson & Son, merchants in Edinburgh. All five contributed £100 each. The four Campbells were:

John, Earl of Breadalbane

Charles Campbell of Lochlane

Colin Campbell of Carwhin (the previous owner or tenant, and father of the 4th Earl)

John Campbell, 'cashier of the Royal Bank of Scotland'.

This partnership appears to have continued until 1753. From 1754, only Colin and John Campbell remained in the company as 'the only and joint and equal copartners'. The new agreement with

the quarriers of 1769, which we shall discuss later, was with Colin Campbell alone; he was then 65, and died in 1772. There is then a gap of over twenty years in the records; in some minutes of 1799, we find a John Campbell dealing with affairs.

The quarriers worked in crews of four or five men, and each crew accounted separately for the slates they produced. The seven crews on Easdale when the Company took over had produced by Martinmas (11 November) 1744 an unsold stock of slates averaging 92,000 slates per crew plus 16,000 apparently made by a single individual, making a total of 660,500 which the Company purchased from Colin Campbell at 16s. 8d. per 1,000. During the following year (which presumably was from Martinmas 1744 to Martinmas 1745), the same seven crews plus a new one which must have begun work later in the year produced 499,000 slates for which they were paid at 9s. 6d. per 1,000. The eight crews at Easdale gradually stepped up their production (as may be seen in Table 1) to a figure of over 1.1 million in 1750, still at 9s. 6d. per 1,000. In 1751, new quarries were opened at Ellanabeich (then written Islanabeich) on Seil, with three crews; and at Blackharbour, Cullipool (Kyliepole), and 'Inniedow' on Luing. The names on Luing are not properly understood; in later years Millbay and Kayliepool quarries on Luing were in operation, and after 1760 all the Luing quarries were generally lumped together. There were usually four crews on Luing, although there had been as many as six from 1751 to 1755. The Luing crews were paid more for their slates than those at Easdale and Ellenabeich; 12s. od. at first, then 11s. od. The Easdale rate had risen to 10s. od. by 1756, and the Ellenabeich rate to 10s. 6d. The varying rates were probably related to the difficulty of working rather than to the quality of the slates.

Each crew had a set of tools provided by the Company which the men 'are obliged to uphold sufficient, unless when the largest Mells [hammers] break, and cannot be roled or repaired.' Each set of tools was valued at 50s. od.

The Company also bought from Colin Campbell the following for the benefit of the men:

'Four Boats, which the workmen are likewise obliged to uphold, and redeliver at their Removal, or two Guineas for each, being the prime cost	£8 8s. od.
81½ stone Iron for the use of the works at 3 shillings per stone	£12 4s. 6d.
279 pound weight of powder for blasting at 1 shill per pound	£13 19s. od.
404 Bolls Meal lying in the Girnelt at Easdale, or given out to the Quarriers since Marts. last 1744 at 10 Marks per Bol	£224 8s. 10d.

(N.B. In Scotland a Boll was generally equal to six imperial bushels; a Girnelt or Girnelt-house was a granary). The meal was sold to the crews as required, at cost price.

The conditions under which the men were employed in these early years is not clear; the only clue is a comment in the accounts that in 1751 the Kyliepole crew 'have a tack of the above for 3 years from Whitsd. 1749.' A tack was a form of tenancy; but whether such a periodic agreement was typical is not known.

During the first ten years of the Company's activities, the number of slates sold each year was practically the same as the number of slates produced by the crews. In the first year, 1745, the sales totalled 1,030,400, thus accounting for all the slates bought from Colin Campbell and for most of those produced during the year. What sort of sales organisation the Company had is not recorded, but it must have been quite effective, for the slates were sent to all parts of Scotland, as indicated on the map in Fig. 1. The majority of the slates went to the East Coast, involving quite a long distance by sea. Slates were sold at 16s. 8d. per 1000 at Easdale, the cost of transport being the responsibility of the purchaser. A small number of slates (perhaps ten per cent of the total) was sold at 15s. od.; probably these were smaller or inferior slates. As the rates paid to the quarriers rose in the 1750s, so the prices charged for the slates rose to £1 per 1000.

As the typical individual sale was between 20,000 and 30,000 slates, this may be taken as a fair indication of the capacity of the small ships used for their transport. A thousand slates weighed about 1.2 tons and at this time the ships had to be loaded from small boats.

The large gap between the payment to the quarriers and the prices charged to customers did not entirely represent the profit to the Company. Each year there were payments to 'The Master's crew for opening Quarries', amounting in 1756, for example, to £38 os. 6d. The significance of this item will become clearer when we deal with the Agreement of 1769. It represents payment for extra or unproductive work. In 1757 the net excess of receipts from sales over the total cost of manufacturing the slates was £542, and the partners were paid a total dividend of £300.

Turning now to the question of growth of the Company's business, Table I presents the figures for sales of slates each year. There was a steady and rapid growth over the first decade, and during this period there would have been little difference between sales and production. Thereafter, however, a period of fluctuating sales occurs, with some obviously difficult years. Since the crews would presumably maintain production at a fairly constant rate, there must have been some periods of hardship for them. There is a suggestion of labour troubles in the temporary appearance, from 1763 to 1765 of a new basis of payment for the crews, namely the day wage. Then in 1769 came the New Agreement between the management and the quarriers, which we will discuss shortly. In 1770, the first full year under this agreement, the number of crews and the sales were greatly increased; it is unfortunate that records for subsequent years appear to have been lost. By the turn of the century, sales

It would be very useful to know if the Agreement was successful and was extended beyond the initial two-year period mentioned in it. The unfortunate gap in the records after this date prevents our finding out. Our next information on the method of working comes thirty years later, by which time the system was quite different.

The basis of employment of the quarriers in 1799 is set out in a memorandum which was appended to the minutes⁸ of a meeting held by John Campbell at Easdale on 28 August 1799. The crews are now once again paid in money by the Company, at a rate per thousand slates which is inclusive of preparatory work in clearing the ground, and which is based on the slates sold and not on those produced, with provision for day work in special cases.⁹ There was also a note setting out the basis of payment of the Overseer. He had a net income of about £125 per annum, made up of a salary of £25, plus 'stoppages' of slates from crews valued at £30, a half share of profits on stores valued at £45, the house and surplus rent of Dunmore (the house still exists) valued at £20, and £20 11s. 8d. 'allowed in name of ship's grieves', minus a salary of £15 he had to pay to Mr. McAllum. It is also recorded that the clerk was paid £31 p.a.

Two other interesting matters relating to the quarriers' work are dealt with in the minutes of 28 August 1799. One, relating to small slates, we transcribe in full:

As the Slates under Size which were formerly allowed to the Quarriers as a perquisite may now be disposed of to some advantage on account of the high duty lately imposed on the Slates of the Ordy size—Resolved that these small slates shall henceforth be considered on the same footing with the others, that is, shall be accounted for to the Co. by the Quarriers and sold for the Co's behoof.

The other matter related to unsold slates at 'Balliviccar' (Balvicar) Quarry. There were half a million slates unsold there because there was a prejudice against them at Glasgow, and it was resolved to try to overcome this. It was recorded that

Mr Archd. Campbell [the overseer] says the Balliviccar Quarries are not more profitable and rather more difficult to work than the other Quarries and that the Shipmasters grudge much to go thro' the Cowan to load.

Once again we wonder what sort of sales organisation the Company had and how it would try to overcome the Glasgow prejudice; there were no entries in the accounts for payments to agents or salesmen.

The minutes of the meeting of 28 August 1799 refer to the Slate Tax that had been recently imposed (1794). This charged a duty of twenty per cent of the price at the point of delivery on all slates carried coastwise: this duty therefore amounted to about 7s. 6d. per 1000. The Act also fixed the size of the slates, which had to be between 16 inches by 9 for the largest and 9 inches by 6 for the smallest. The tax clearly harmed the trade and the quality of slates

obtainable in the towns. The meeting resolved that Slate Proprietors should get together to oppose the Slate Tax and to encourage the slating of farmhouses instead of thatching! In the event, the Slate Tax was not removed until 1831.

There is no doubt that the Company accepted responsibility for the welfare of its employees at the quarries, and made many efforts to provide acceptable conditions for them. Cottages were provided by the Company in large numbers. By the end of the eighteenth century, the Company had 51 cottages at Ellenabeich, 114 at Easdale, 51 at Cullipool, and 45 at Kilchattan.

For a short time at the end of the eighteenth century the Company also ran a woollen mill at Easdale, and this no doubt would have employed some of the women. Macfarlane,¹⁰ writing in the 1790s, said that the workmen 'seem to live very comfortably; many of them can easily save money; and though they should be in debt to the company, they are indulgent enough to allow them whatever is necessary for supporting their families.'

III

For the nineteenth century, the available records are not as useful as those which have survived from the eighteenth century.¹¹ It is clear from these limited records that the Company was having much more difficulty in conducting its business profitably during the nineteenth century than it had had in the eighteenth. The Agents' letter books are dominated by letters to customers demanding payment for slates supplied, often a year or more earlier, and very frequently threatening legal proceedings; usually the threat was sufficient. There are several instances of cargoes of slates being lost by wreck of the ship, and, with regular customers, the Company was quite generous in sharing the loss, although obviously under no legal obligation to do so.

The Company introduced in the 1820s a scheme of allowing a five per cent discount for payment within ten days of the rendering of the account. Many purchasers tried to get this discount even though they were months in arrears. The normal maximum period of credit was three months, after which action of some kind was taken. The five per cent 'bribe' (as Laurence Davidson, son of the principal, put it in one letter) was not particularly effective, and the Agents proposed in December 1826 that it should be reduced to two and a half per cent; but this was strongly opposed by the manager at Easdale, and the discount remained at five per cent.

The state of the slate trade was clearly bad in the 1820s, for it was stated that the price of small slates had fallen from 17s. od. per 1000 in 1825 to 15s. od. in 1827, and that a Glasgow dealer was offering only 12s. 6d., which it was thought was being accepted by the Ballachulish concern. The Agents asked the manager at Easdale in July 1827 what effect the slump would have on the quarriers

and labourers: 'will there be any necessity of supplying their wants during the stagnation, should it continue say till next Spring?' In October 1828, it was decided to delay giving general notice to all the 'tradesmen' employed by the quarriers for a month or so. In December 1832, Alex Campbell, manager at Easdale, had asked for money to pay the wages. Normally the Davidsons dealt with Easdale affairs, but on this occasion Campbell received a reply from J.S., presumably Mr. Symes, the other principal of the Agents' office, thus:

'Let me impress one word *most* deeply on your mind—*Economy*.'

By 1838, the manager at the quarries was James Robertson, and he was warned that the lease on the quarries was due to run out in two years and that he must not open any new quarries nor remove rubbish (i.e. incur any extra expense) if he could avoid it. In April 1841, the Agents told Robertson that the lease would run out at noon on 27 May, that there would be a valuation and presumably a new lease. Although the letter books continue without any apparent change, Bremner¹² states that no new lease was granted, and that Lord Breadalbane (who had been one of the partners in the Company) worked the quarries on his own account until his death in 1862. That Davidson and Syme should continue to keep the books was natural, as they were Agents to the Breadalbane estates anyway.

The Marquess (as he then was) was not particularly successful during this period. Bremner says that the average annual sales of slates over these years were about 7 million at about £2 per 1000; this, however, is altogether at variance with the Agents' records of receipts from sales. These show annual receipts increasing from about £6,200 in 1842 to over £8,100 in 1845, but thereafter declining sharply to only £25 in 1848, and not again rising above about £2,300 up to 1856, when the record ends. Practically no money was lodged in the Bank of Scotland after 1845.

There is very little record of the problems of and relationships with the workmen during this period. Lord Breadalbane took a very close personal interest in affairs and had obviously become the dominant partner in the Company before he took over sole control in 1841. Many matters were referred to him. During 1830-1 there were debates in Parliament about the proposed Bill to amend the law relating to the payment of workmen's wages in goods instead of in money. The new Act to ensure the payment of wages in money received the Royal Assent in October 1831. During the debate in the Lords on 28 July 1831, Lord Wynford commented that

there would still remain a tacit understanding that the money should be spent in the shop of the manufacturer.

This is exactly what happened at the Company's quarries; it was decided to set up a shop to sell goods to the men. To what extent they had been customarily paid in goods is not known.

A major reform of the system of payment was introduced at the

end of 1838. Davidson wrote to James Robertson, then the manager at Easdale, on 11 December that year thus:

I entirely concur in what you propose as to paying the Labourers off hand monthly. By all means make the trial. Close their accounts at the office pay them their wages weekly or by the fortnight in cash and let them purchase their supplies of Food and clothing wherever they can get them cheapest. If you find this works tolerably well for two or three months you may then begin to retain a shilling or so weekly towards payment of any balances which they may at present owe on their accounts in the office Books. I would not advise any such retention at first or even that you should speak of it to them.

Start them well for the future and after that provide for the past. I have long thought and frequently expressed my opinion to the Old Manager that the Quarriers as well as the Labourers should be paid periodically, according to the work done and not according to the work sold. The sooner the first step is taken towards introducing this system the better.

Unfortunately there is no further record of this interesting and important step.

IV

After the fifth Earl (the second Marquess) of Breadalbane died in 1862, there was a long dispute over the succession.¹³ This is no doubt the reason why the quarries were run-down. The organisation gradually broke up, and eventually the quarries were divided amongst a number of separate companies. They never again came under a single administration.

In February and March 1866 the Easdale quarries were advertised to be let,¹⁴ but there were no takers. Eventually the quarries were taken on by 'a company of the workmen formed on co-operative principles'.¹⁵ It would be interesting to know more of this important experiment in management, but unfortunately the records, the Scottish newspapers, and the *Mining Journal* all fail to mention the matter. Bremner says:

Though they obtained the quarries on highly favourable terms, the company did not succeed; and their affairs were wound up after a year's trial.

The quarries were advertised again in June 1867¹⁶ and were then taken by a company of slate merchants.¹⁷

What happened at the other quarries has not been discovered, but eventually they all came into different hands. Some information on the companies operating the quarries around the turn of the century is given in Table II. It will be seen that the industry in the Slate Islands had become very fragmented.

The end of quarrying at Ellenabeich came suddenly in 1881.

In the early morning of Tuesday 22 November 1881 a great gale arose and the accompanying storm and tidal waves caused enormous damage at Easdale and Ellenabeich, some of it quite irreparable. The huge, deep quarry at Ellenabeich, reputedly 250 ft below the sea, and to this day, in spite of the deposit of spoil and rubbish, over 200 ft below low-tide level, was not only flooded like most of the other quarries, but had the narrow wall of slate which had been left to protect it from the sea, broken by the force of the waves. It could thus never again be drained and worked, and has remained a deep, partially-stagnant, pool of sea-water ever since. There must be a wonderful museum of old machinery down there. It was said¹⁸ that 240 men and boys were thrown out of work as a consequence of this flood alone.

An idea of the havoc wrought by this storm can be obtained from this extract from the account in the *Oban Times* of 3 December 1881:

TABLE II
Lessees of the Slate Quarries in Argyllshire

Quarry	Years	Lessee
Easdale	1884-86	Mr. White (Angus Whyte?)
	1906-12	Easdale Slate Quarries Co. Ltd. (in liquidation 1912)
		N.B. Angus Whyte appears as Managing Partner at Easdale in 1868
Belnahua	1882-94	J. & H. Shaw & Co.
	1906-08	J. & A. McLean
	1912	J. Shaw, Jr.
		N.B. Messrs. McLean became bankrupt in 1910
Cullipool	1882-94	Cullipool Slate Co.
	1906-08	J. & A. McLean
	1912	H. & J. S. McCowen
Clachan	1882	Donald Dickson & Co.
	1884	Marquess of Breadalbane
Glenalbin	1885-94	J. & A. D. McDougall
	1906-12	Edward MacKechnie
Balvicar	1906-08	J. & A. McLean
	1912	Edward MacKechnie
		J. & A. McLean
Breadalbane (Toberonochy)	1906-08	Toberonochy Slate Quarry Co.
	1912	McKenzie & McDougall
Carnan	1906	Arch. McColl
	1906	Arch. McColl (bankrupt 1910)
Port Mary	1906	Arch. McColl
	1890-1910	Arch. McColl (bankrupt 1910)
Ballachulish	1882-94	Dr. D. Campbell
	1906-12	Ballachulish Slate Quarries Co. Ltd.

Sources: Robert Hunt, *Mineral Statistics*, annual volumes, 1853-81; *List of Quarries under the Quarries Act 1894*, 1906, 1908, 1912; Minute books of the Parochial Board, parishes of Kilbrandon and Kilchattan, 1850-72, 1880-1901, 1904-30, in Argyll County Offices, Lochgilhead. (The Board became the Council as from 10 May 1895.)

The storm of Tuesday last was felt very severely on the island of Easdale . . . The sea swept over the island about 4 o'clock on Tuesday morning and caused great alarm to the inhabitants (some 400 all told). The cry was raised to make for the hills, but this was found to be impossible . . . Several attempts were made by two-by-two and hand-in-hand to discover a passage to the hills, but were unsuccessful, the adventurers . . . were in great danger of being swept away by the flood . . . The tide, however, turned at 6 a.m., and by daybreak the islanders were the sorrowful witnesses of the great destruction caused by the storm. The slate quarries . . . were brimful of water . . . The landing pier was swept away . . . The loss to the lessees of the slate quarries and to the inhabitants must be very great . . . The small boats used by the islanders (some 40 in number) have either been broken to pieces or driven out to sea. Fortunately no lives were lost . . .

The final closure of the quarries at Easdale Island in 1911 came about in a quite different way, due to purely commercial influences.

During the first decade of the twentieth century the whole British slate industry suffered a decline because of two main factors: competition from foreign slates which were sold at much lower prices, and a growing preference on the part of the public for manufactured tiles of various kinds instead of slate. These factors applied in North Wales as much as in Scotland, and are discussed in some detail by Lindsay.¹⁹ There was some evidence that the quality of the Scottish slates had deteriorated considerably since the mid-nineteenth century, and correspondence in the *Oban Times* for 8 April 1911 emphasised this:

. . . the operatives themselves are principally to blame in the matter . . . If old fashioned methods are abandoned, if obsolete tools are thrown aside and proper plant installed, which will turn out a slate equal in regularity of size to the foreigner but far outstripping any foreign slate in quality then the Argyllshire quarries . . . will acquire a new lease of life.

The basis of the complaint of poor quality seems to have been irregularity of size rather than any inherent fault:

Now although for strength and durability no slate can compare with the West Highland yet they have been produced in such irregular sizes and thicknesses, seldom any half dozen slates being of the same shape and form that builders have fought shy of them . . . owing to great waste and loss sustained in re-dressing them to something like standard size.

The Easdale Slate Quarries Company sent men to North Wales to observe the methods in use there, and as a result introduced improved methods in their own quarries. The general manager and engineer of the Park and Croesor Company of Portmadoc visited Easdale and advised that with these and other intended

improvements, thirty per cent more slates could be made from the same quantity of rock, and the cost of production reduced by fully forty per cent. Unfortunately the Company was in a bad financial position, but it was announced that a new company was being formed with much larger capital; it did not, however, materialise.

The great collapse of the trade had had a very serious effect on the population at Easdale and the other quarry villages. Unemployment was rife. At a meeting of the Parish Council (the quarries were all, with the one exception of Belnahua, in the parish of Kilbrandon and Kilchattan) held on 11 February 1911, it was resolved to form a committee of the whole council with the addition of the ministers of the parish to investigate the condition of the local population, which was said to be deplorable, with a state of destitution bordering on famine and with the prospect of continued unemployment. The Committee met on 18 February, heard evidence, and resolved to send a report to the Congested Districts Board, the Local Government Board, Lord Breadalbane, and Mr. Ainsworth, the Member of Parliament for the County. It was thought that relief works might be started, or new occupations found for the people in the shape of fishing or the working of small-holdings.

Lord Breadalbane's reply to the report was sent to the Scottish Secretary, and was published in the *Oban Times*, 11 March 1911. He admitted that his Company did not start with as much capital as he had desired, but stated that nevertheless its capital was fairly substantial. The difficulty was that many of the shareholders paid only the first call. He admitted that it had been a mistake to allow one company, Messrs. J. & A. McLean, to become the lessees of three quarries at the same time (these were Balvicar, Cullipool, and the Breadalbane Quarry on Luing), because, when they went bankrupt, so large a part of the district was affected. The failure of Mr. McColl at Port Mary and the closing of that quarry had been a major calamity. He doubted if it would be possible to find another tenant. By 18 November it was reported that the villages in the Easdale district were well-nigh deserted, some of the men having found work at Kinlochleven (presumably at the aluminium works) and others in the brickfields at Falkirk.

The Easdale quarries never re-opened, and as they were nearly all below sea level, they have been flooded ever since the closure. The other quarries in the Slate Islands continued working intermittently, one or two continuing until the early 1960s, but at a fairly low level of activity.

V

We now consider the production of the industry in the Slate Islands in relation to the British slate trade as a whole. Within Scotland, there was competition from several other quarry areas. Outside Scotland, the main competition came from the much larger slate

industry of North Wales. Within Scotland some minor slate quarries were operated at a number of places²⁰ for purely local purposes, but only two of these are worth mentioning. The quarries at Birnam, near Dunkeld in Perthshire, employed in the first decades of the nineteenth century a force of 15 to 20 men, producing mainly blue slates; these were sold at the quarry at 30s. od. per 1,000, but at 40s. od. at Perth after fourteen miles of land carriage. There were also two quarries at Luss, by Loch Lomond, which at the end of the eighteenth century were selling about 300,000 slates a year; these were not good quality slates and were said to decompose after about twenty years.²¹

The only real competition in Scotland came from the Ballachulish concern. According to Bremner,²² the West Quarry had been opened a year or two before the end of the seventeenth century by Mr. Stewart of Ballachulish, but the larger East Quarry was not opened until 1780. The quarries remained the property of the Stewart family until 1862, when they were sold to Robert Tennant of Leeds. During the Stewart ownership, the slates were sometimes worked under the direct control of the owner, sometimes by a tenant.

In 1825, according to Smith²³, the Ballachulish quarries were not so extensive as those at Easdale, selling only about one-half as many slates. By about 1845, according to McGregor,²⁴ slate production was between five and seven million per year; slightly more than that of the Easdale Company.²⁵ From the 1860s onwards, the Ballachulish production greatly exceeded that from Easdale as far as the limited records go.

It has proved impossible to obtain reliable, continuous, or adequate information about the quarries and their operation during the last century. Hunt's otherwise valuable *Mineral Statistics*²⁶ mentions the slate quarries of Argyllshire only for the years 1855-8, and then gives figures which are inconsistent with the records. The volumes of *Mineral Statistics* published anonymously from 1882 to 1896²⁷ give figures only for the years 1882-88. These figures seem reasonably reliable and are reproduced in Table III. From 1897, mineral statistics were published in a different form,²⁸ and figures for the production of slate and slate slabs are given for Scotland as a whole every year, and for Argyllshire separately in the years 1897-1913 only. Probably the inclusion of slate slabs does not affect Argyllshire, but it almost certainly grossly inflates the figures for the rest of Scotland. Table IV shows these figures. For Argyllshire, peak production was reached in 1904. During the First World War the industry virtually closed down, but it partially recovered afterwards for some years. It was only a shadow of its former self, the quarries closing down one by one, and the whole of the industry, both in the Easdale area and at Ballachulish, had died by the early 1960s.

The slate industry of Britain was dominated by the North Wales quarry firms, and although there was a slate industry in England (the principal English slate areas being the Lake District, Cornwall,

TABLE III
Slate Production in Scotland 1882-88
Output in Tons

Year	The Slate Islands						Ballac- hulish	Birnarn (Perths.)	Luss (Dumbs.)
	Easdale	Balnahua	Cullipool	Clachan (Mainland)	Glenalbin (Mainland)				
1882	n.a.	1,040	2,050	100	n.a.	14,800	75	n.a.	
1883	n.a.	1,672	2,300	150	n.a.	14,217	300	800	
1884	n.a.	1,670	2,820	150	n.a.	15,242	300	800	
1885	n.a.	666	1,552	n.a.	120	15,600	700	600	
1886	n.a.	1,031	1,210	n.a.	114	15,000	700	500	
1887	n.a.	809	709	n.a.	114	15,500	200	540	
1888	n.a.	1,206	750	n.a.	n.a.	15,000	200	650	

1 ton represents approximately 1,000 slates.
n.a.—not available.

TABLE IV
Slate Production in Scotland, 1897-1938
(in tons)

Year	Scotland	Argyll
1897	43,956	33,072
1898	42,674	30,860
1899	41,051	30,580
1900	36,277	25,713
1901	36,506	26,675
1902	36,896	27,770
1903	33,883	24,679
1904	41,174	32,640
1905	25,324	18,206
1906	30,812	24,323
1907	20,557	14,191
1908	21,243	16,164
1909	18,935	13,379
1910	18,386	13,883
1911	10,926	6,101
1912	11,003	7,173
1913	10,333	6,201
1914	7,443	—
1915	5,551	—
1916	209	—
1917	120	—
1918	450	—
1919	1,613	—
1924-38	about 18,000	about 8,000 each year

Devon and Somerset) comparable in size with the Scottish industry, its output was only a small proportion of that from Wales. A few figures, taken from Lindsay,²⁹ will indicate the magnitude of the North Wales production.

In the first part of the eighteenth century, slate was being exported from the North Wales ports of Beaumaris, Caernarvon, Conway, and Holyhead to the extent of about $1\frac{1}{2}$ million slates annually. This output was of the same order as that from Easdale. However, the Welsh industry expanded rapidly, reaching about 20 million by 1786, and over 100 million by 1831. There were slumps in 1793-99, 1815, 1820-22, and after 1825, the prices obtained then falling by 30 per cent. We have seen that the Easdale Company suffered at least the last of these slumps.

There is no clear reason why the Scottish industry should have expanded, after the middle of the eighteenth century, so much more slowly than the Welsh industry. The direct intervention in management of the great landlords in the eighteenth century was a feature common to both, and the Scottish quarries, unlike the Welsh, were nearly all beside the sea so that minimal expense was incurred in land transport. Remoteness from the markets was, of course, a feature of the Scottish industry, but as there are many records from the

nineteenth century of Welsh slate being sent to Aberdeen, this factor must not be over-emphasised. Complaints of poor quality and irregular size of the Scottish slates have already been mentioned; moreover, the evidence points to there having been no range of sizes in the Scottish industry before the mid-nineteenth century, whereas Welsh slates were supplied from at least the early eighteenth century in a large range of sizes described by names such as Duchess, Lady, etc. We are thus forced to conclude that the Scottish industry was inferior in managerial enterprise and in technical standards; perhaps the curious semi-autonomy of the quarriers had something to do with this.

From the end of the nineteenth century the North Wales slate industry was troubled by labour problems—strikes, lockouts, unionism—of a much more serious kind than those affecting the Scottish industry. Nevertheless, it maintained a general level of production of nearly ten times that of Scotland, with a peak well over 250,000 tons per annum. The First World War virtually closed down the industry throughout Britain, and recovery between the wars was only partial. After the Second World War, the North Wales industry made strenuous efforts to recover by means of modernisation, by seeking of new markets and by supplying new types of slate products. Although these efforts were largely unsuccessful, their effect has been that, whereas in Scotland the industry has died completely, in North Wales there is still a vestige of the slate industry. The vestigial production (in tons per year) still exceeds the largest production ever achieved in the Slate Islands and still exceeds the production in North Wales in the early eighteenth century.

VI

We cannot conclude this account of the slate industry in Scotland without some discussion of the mechanisation which was gradually introduced. White,³⁰ whose account was later repeated by Bremner,³¹ gave a description of the earliest introduction of machines into the Easdale quarries. Since these quarries nearly all consisted of excavations downwards from land very little above sea level, the main mechanical problem was that of pumping. In an attempt to cope with this, a Newcomen steam engine was installed towards the end of the eighteenth century; but great difficulty was experienced in keeping it going,³² and it was replaced by a horse-gin. A windmill was also tried. The depths attained at this time (c. 1810) were only about 40 feet—very little compared with the depths reached towards the end of the century, when 150 feet was normal, and the quarry at Ellenabeich reached 250 feet. An atmospheric steam engine worked more successfully from 1826 to 1846,³³ and then more modern steam engines were introduced. Powerful cranes were used, and a tramway system was started in 1836, including inclined

planes for getting the slates out of the quarries. These advances spread to the other quarries in the Slate Islands, and also to Ballachulish, and by the end of the nineteenth century there was a tramway network in the Slate Islands amounting to at least 3·2 miles, and at Ballachulish to 2·2 miles.³⁴ Stationary engines were used on the inclines, but locomotives came into use on the tramways between the quarries and the quays.³⁵

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NOTES

- 1 Many people have given assistance in this study. First of all, I must acknowledge my debt to my wife, Mary, who has done most of the tedious searching through newspaper files and all the work on the parochial records. Then I am grateful to the following for information and assistance with references: Dr. John Butt, Mr. Ian Donnachie, Mr. T. R. H. Jones (who has a cottage on Easdale Island), Mr. Harold Bowtell of Gatley, and Dr. Sheina Marshall of Millport. Conversations with the old quarrier, Mr. Donald McKay of Ellenabeich, were most valuable as well as fascinating. And finally I must thank the staff of the following bodies for willing co-operation: *The Oban Times*, the Argyll County Offices at Lochgilphead, the Scottish Record Office, the Map Library and the Newspaper Library of the British Library, the Birmingham Public Reference Library, and the Library of the University of Birmingham. Professor J. R. Harris was kind enough to read and criticise my first draft, and for this friendly guidance I am very grateful.
- 2 David Bremner, *Industries of Scotland* (Edinburgh, 1869), 424–32.
- 3 B. N. Peach, H. Kyneston and H. B. Muff, *The Geology of the Seaboard of Mid-Argyll* (1909).
- 4 The Breadalbane Muniments in the Scottish Record Office include a vast uncatalogued collection relating to mines and quarries under the general reference GD112/18. There are numerous items pertaining to the quarries at Easdale and the neighbouring places. These will henceforth be cited as SRO/X, where X will be the item number under GD112/18. My attention was drawn to these papers by the useful brief summary in John Butt, *Industrial Archaeology of Scotland* (Newton Abbot, 1967), 95–8, and by the reference in J. Imrie, 'National Archive Sources for Business History', in P. L. Payne ed., *Studies in Scottish Business History* (1967), 13.
- 5 Peach et al., *op. cit.*; James Nicol, 'On the slate-rocks and trap-veins of Easdale and Oban', *Q. J. Geological Soc. Ldn.*, XV (1859), 110–116.
- 6 The information in this section is based, except where otherwise indicated, on the Journals of the company, 1745–70, SRO/54. The Company was named the Marble and Slate Company of Netherlorn from its beginning, and it was its intention to work marble as well as slate. It had taken a long lease of a marble quarry at Ardmaddy, near one of the Breadalbane seats, and set up an organisation to operate there almost immediately. In 1747 there were 29 men employed there, all paid on a weekly basis, at rates from 4s. 6d. to 7s. od. per week, most of the men being at the highest rate. Buildings were planned, tools and equipment were purchased, and a little marble was sold. However, there was evidently little demand for the marble, and this side of the Company's activities closed down within a few years.
- 7 The Agreement is included with the Journals in SRO/54.
- 8 Bound with the Journals, SRO/54.
- 9 The day-labourer's wage was from 10d. to 1s. od. per day according to Robert Jameson, *Mineralogy of the Scottish Isles* (Edinburgh, 1800), I, 191–6.

- 10 John Macfarlane, 'Parishes of Killbrandon and Killchattan', in Sir John Sinclair ed., *The Statistical Account of Scotland* (Edinburgh, 1795), XIV, 161-3.
- 11 Whether full accounts were kept at Easdale is not known, but the only accounts which have survived are those kept by Davidson and Syme, solicitors ('Writers of the Signet', or W.S.) of Edinburgh, as Agents to the Earl of Breadalbane. They account only for money and not for numbers of slates made and sold. They do not start until June 1841 and continue for only fifteen years. Apart from these there are only letter books of Davidson and Syme covering most of the period from 1818 to 1847, and books of the letters written from Easdale from 1860 to 1870. SRO/56, 59, 60, 62-67.
- 12 Bremner, *op. cit.*
- 13 An example of the protracted litigation may be found in a long report in the *Oban Times* of 20 July 1867.
- 14 E.g. *Mining Journal*, 10 February 1866, 94.
- 15 Bremner, *op. cit.*, 428.
- 16 *Oban Times*, 1 June 1867.
- 17 Bremner, *op. cit.*
- 18 Patrick Gillies, *Netherlorn and its Neighbourhood* (1909), Chap. 2, 10-17.
- 19 Jean Lindsay, *A History of the North Wales Slate Industry* (Newton Abbot, 1974).
- 20 E.g. Robert Heron, *Journey Through the Western Counties of Scotland* (Perth, 1793), 168; Ian Donnachie, *Industrial Archaeology of Galloway* (Newton Abbot, 1971), 110; these mention slate quarries in Kirkcudbrightshire and Wigtownshire.
- 21 G. Smith, 'Account of the Principal Slate Quarries in Scotland', *Trans. Highland and Agricultural Soc.*, X (series 2, IV c. 1825), 94-7.
- 22 Bremner, *op. cit.*
- 23 Smith, *loc. cit.*
- 24 Gregor McGregor, 'United Parish of Lismore and Appin', in *The New Statistical Account of Scotland* (Edinburgh, c. 1845) VII, Part 2, 247-251.
- 25 Finlay McPherson, 'Parishes of Kilbrandon and Kilchattan', *ibid.*, 71-81.
- 26 Robert Hunt, *Mineral Statistics*, annual publications, 1853-81.
- 27 After Hunt's retirement in 1882, *Mineral Statistics* continued as anonymous annual reports (full title varying from year to year) from 1882 to 1896.
- 28 *Mines and Quarries, General report and Statistics, and Divisional Reports*, annually from 1897 (full title and contents varying somewhat from year to year).
- 29 Lindsay, *op. cit.*
- 30 John White, 'The Island of Easdale', supplements to *Mining Journal*, XXXIV (1864).
- 31 Bremner, *op. cit.*
- 32 Minutes of meeting at Easdale, 28 August 1799, SRO/54.
- 33 The steam engine may well have been re-introduced as a consequence of the increasing cost of the horse-gin. The Agents at Edinburgh wrote to the manager at Easdale on 14 June 1823 (SRO/62) thus:
- Can you assign any reason for the horses gradually becoming more expensive since 1815—In that year it was £27 a horse—since then it has been always increasing, till last year it was no less than £40 exclusive of litter. This is more than we pay in Edinburgh for a riding horse kept at livery . . .
- There is unfortunately no record of the reply.
- However, the steam engine was also troublesome, needing various replacements, including a new boiler (SRO/63), and another engine was purchased in 1844 (SRO/56).
- 34 Determined from the 6-inch and 25-inch Ordnance Survey maps, 1880 and 1900.
- 35 Documentary proof of the use of locomotives has not so far been found except for Ballachulish (*Oban Times*, 1 January 1876), but Mr. Harold Bowtell of Gatley has obtained first-hand testimony from old inhabitants of the Slate Islands who remembered the locomotives in service.