

The Iron Industry in Ayrshire

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Three phases may be distinguished in the development of the modern iron industry in Scotland. The first lasted from 1759 to 1828. The precise dates have some significance: the Carron ironworks were founded in 1759; J. B. Neilson patented his invention of the method of using hot instead of cold air in the blast at the furnace in 1828. This made possible the rapid expansion of the Scottish iron industry in the second period from 1828 to the 1870s. The third period since the 1870s is one of decline.

THE FIRST PHASE—BEFORE 1828

Iron was manufactured in Scotland even before the Carron works were founded in 1759, but Carron Company differed from other concerns in size and in methods of production. It used native iron ores successfully and was first in Scotland to smelt with coke, a process used successfully fifty years earlier at Coalbrookdale in Shropshire, but not widely adopted. Carron Company thus became the first firm to take full advantage of the Scottish coal measures. The pioneering example of Carron Company was not immediately followed. The next ironworks in Scotland, Wilsontown in Lanarkshire, followed only after a gap of twenty years, but between them and the early years of the nineteenth century a number appeared, and among them Ayrshire's first two at Muirkirk and Glenbuck.

The Muirkirk works were set up in 1787 and commenced production in 1789; Glenbuck followed immediately after. Glenbuck¹, owned by an English partnership led by Peter Hodgson of Whitehaven, distributed its products widely, notably to Ireland, but never achieved the same reputation as Muirkirk. Muirkirk had an unusual origin². Three of its founding partners were John Gillies and William Robertson, respectively of the Dalnotter and Smithfield malleable ironworks near Glasgow, and Thomas Edington, originally a traveller or rider from Carron, who had become manager, then a partner, of the Cramond slitting-mill (where iron was prepared for nail manufacture) and in 1786 had helped in the

¹ Scottish Record Office. Unextracted Process. Cur. Mack Seq. G/1/35.

² For the foundation of Muirkirk see: H. Hamilton, *The Industrial Revolution in Scotland* (Oxford, 1932) pp. 166f, and *An Economic History of Scotland in the Eighteenth Century* (Oxford, 1963) pp. 203f.; J. Strawhorn, 'The Background to Burns, Part 2,' *Ayrshire Collections*, Vol. 4 (1958), pp. 93-4.

foundation of the Clyde ironworks at Tollcross near Glasgow. Muirkirk was thus a co-operative venture of people already in the iron industry, a form of organisation which was to be conspicuous later. But, while the later concerns were associations of iron-smelters, anxious to find a sale for their pig iron for further processing in malleable ironworks, Muirkirk was an example of the reverse; that is of the proprietors of Scotland's two leading malleable ironworks, and of a slitting-mill, joining together to try to obtain adequate supplies of iron for the subsequent processes they already controlled.

All the works started in the closing decades of the eighteenth century found themselves in difficulties during the Napoleonic Wars: in Ayrshire Glenbuck became bankrupt, while at Muirkirk an almost desperate effort was made to sell the works to the landlord on moderate terms³. Scottish ironmasters were in this difficult position because of their high costs of production, which priced their iron out of most markets. The exception was Carron Company, which by the same time, the Napoleonic Wars, was earning very high profits and had the reputation of being the largest foundry in Europe. But Carron's experience was different because, after initial disappointments, it produced a number of highly specialised products successfully, above all the carronade. It was not easy for other concerns to do so, as few had the resources necessary to withstand the financial strain of early developments. So it was conspicuously at Muirkirk and Glenbuck. The alternative, the course adopted, was to lower production costs, but doing so became practicable only with the invention of the hot-blast, which made it possible to exploit Scotland's rich deposits of blackband ironstone. Earlier the lack of extensive development in Ayrshire, and the relative lack of success at the two ironworks of Muirkirk and Glenbuck, accorded, therefore, with Scottish experience generally.

The hot-blast is an example of a speculative investment which was successful and therefore had the expected results—high profits and great expansion. With its introduction costs fell rapidly because coal consumption was cut by at least 50 per cent. The fall was intensified when it became general practice to substitute raw coal, first used in 1831, for coke. At Muirkirk coal consumption fell from 7½ to 2½ tons per ton of iron produced. In addition, there was a saving of about 7 cwt. of limestone and 4s. of wages per ton⁴. Apart from raw materials the only other prime cost in iron production was labour and in Scotland at that time there were

³ Scottish Record Office. Seaforth muniments. Vol. 43.

⁴ Neilson v. Househill Iron Co. Session Papers. Vol. 372.96. p. 60. (Signet Library, Edinburgh).

plenty of Irishmen who could be used as blacklegs to break any strikes and so keep the price of labour low. It is little wonder, therefore, that Scottish firms at this time were reputed to be producing iron at 27s. 6d. per ton; at Muirkirk at one point pig iron was produced at 25s. a ton, though there the cost of the minerals was unusually small⁵. Under such conditions there were immense possibilities for the expansion of the industry and in this second phase of the modern iron industry's history, from 1828 to the 1870s, Ayrshire was one of the areas of rapid exploitation.

DEVELOPMENTS—AFTER 1828

It is possible to distinguish sharply between the development in Ayrshire in the 1830s and in the 1840s. In the 1830s, Lanarkshire was the scene of most rapid industrialisation, when the parishes of Old and New Monkland were suddenly studded with a number of large ironworks, but little happened in Ayrshire. For this there were two good reasons. First, a transport network (of canals and railways) was constructed in North Lanarkshire in the 1820s and early 1830s and so made the exploitation of some of the natural resources possible for the first time. Ayrshire had the advantage of a good coastline, with satisfactory harbours at Irvine, Troon and Ayr, and the partially completed harbour at Ardrossan, but the need for better inland communications for the development of the heavy industries was demonstrated by the difficulties their isolation brought to the ironworks at Muirkirk and, later, at Dalmellington. Throughout most of the 1830s such inland communications were absent in Ayrshire. Second, for all Ayrshire's natural advantages, Lanarkshire was comparatively better endowed with supplies of the valuable splint coal and blackband ironstone then used in the furnaces.

By the 1840s the force of these two comparative disadvantages restricting development was being reduced. The Glasgow to Ayr Railway was fully opened in 1840, and the extensive development in Lanarkshire had led to the appropriation of many of the more desirable mineral fields and to an increased rental being charged for the remainder. At the same time the migrating Irish, pouring over the shortest sea route from Donaghadee to Portpatrick after the potato famine in the 1840s, gave Ayrshire a ready supply of cheap labour. In 1841 7% of the population was Irish born; in 1851, 11%. With the diminution in the comparative disadvantages the attractions of ironworking in Ayrshire increased. Consequently, while there were tentative moves towards iron production in the

late 1830s, large-scale development came only in the 1840s. Then the rich coal and ironstone resources of Ayrshire were first fully exploited.

Three ironworks date from the early phase of tentative development of the 1830s. They were, in order of foundation, Blair (at Dalry), Cessnock (at Galston), and Glengarnock (sometimes referred to in its early days as Kilbirnie). The least important was Cessnock, projected by two men, from Paisley and Airdrie, late in 1839⁶. They built 3 furnaces, but the works were ill-conceived, as they were started before adequate supplies of minerals, above all the blackband ironstone, had been located in the neighbourhood, and so were dismantled after five years.

The experiences of the ironworks of Blair and Glengarnock were very different. In many ways the history of Blair is the most interesting of any in Ayrshire⁷. It had the distinction of being the first of the modern works. In 1838 the construction of the railway along the valley of the Garnock led to suggestions for the flotation of the Garnock Iron Company to exploit the minerals of the Blair estate. Nothing came of the suggestion, but late in 1838 leases of the minerals were taken by a Glasgow civil engineer, Andrew Craig. At the beginning of 1839 he transferred his interests to a Glasgow lawyer, John Macdonald, who anticipated an annual profit of £24,000 from the ironworks he projected. Great prosperity for the town and parish of Dalry was prophesied. When Macdonald arrived in the town he was welcomed by the tenantry on the Blair and Glasgow estates, on both of which he had leased the minerals, and each of the tenants drove a load of stones to help build the new ironworks, a service which their predecessors had refused to do for the construction of the parish church in 1771⁸. On an August day in 1839 in the midst of great rejoicing the foundation stone of the works was laid by the Masonic Lodges of the neighbourhood⁹. Smelting began at Blair on the 27th of January, 1841, but its fortunes soon declined. Stocks of iron in Scotland increased so much in 1841 that the ironmasters agreed to reduce output by 25 per cent for 6 months beginning on 1st January, 1842. Blair, therefore, did not enjoy the period of high prices in the mid-1830s, which enabled some of the works established earlier in Lanarkshire to survive the years of depression of the early 1840s. Macdonald could not continue. In 1841 the leases fell into the hands of his creditors, and in the spring of 1842, along with the works at Cessnock, the three furnaces of Blair were out of blast. However,

⁵ J. Mayer, 'Rise and Progress of Iron Manufacture in Scotland,' *Journal of the Iron and Steel Institute*, 1872. pp. 33 and 43; Scottish Record Office. Seaforth muniments. Box 22. No. 25.

⁶ *Ayr Advertiser*, 20th April 1840; *Mining Journal*, 2nd and 9th September, 1843.

⁷ Much of the information on the Blair ironworks is based on the Blair of Blair muniments recently deposited in the Scottish Record Office.

⁸ *New Statistical Account*, Vol. 5, p.235.

⁹ *Glasgow Chronicle*, 14th August, 1839.

about a year later, on 10th May, 1843, the Blair ironworks were put up for sale and bought by Alexander Alison, a merchant in Leith, who also acquired the estate of Pitcon in Dalry at the same time. He floated the Blair Iron Company, in which he and another of his family had jointly a majority interest, to take over the works. So began a development which was to end in disaster.

In the meantime, the third, and, as it transpired, the most permanent Ayrshire ironworks was started at Glengarnock. Here, Andrew Craig, who had first realised the prospects at Blair, was involved again, when in 1840 he joined a partnership with four others¹⁰ to build three furnaces there. But in 1842, before the furnaces were in blast, the partnership was dissolved, and the works were taken over by Alison, Merry and Cunninghame from Lanarkshire. Alison, a kinsman of the Alison of Blair, soon left the partnership.

RAPID EXPANSION—AFTER 1842

The appearance of Merry and Cunninghame marks the beginning of the second, and rapid, phase of establishment of the Ayrshire iron industry. In 1844 the conditions were favourable for expansion. The beginnings of a high level of demand which had its origins in the railway mania of the mid-1840s ensured that by the end of April, 1844, there were no stocks of iron in Scotland worth mentioning. Such conditions led to a consolidation of the efforts made in Ayrshire in the last years of the 1830s, so that by May, 1845, the *Glasgow Herald* reported that in the northern parishes 'new mines for iron and coal are every month set agoing.'¹¹ The consolidation owed a great deal to the activities of the ironmasters who had established themselves in Lanarkshire in the 1830s and who, as they wanted to expand still further, were having to move elsewhere. Most came to Ayrshire, though there was also a slight movement eastwards to the Lothians and Fife.

Four of the leading iron concerns in Lanarkshire extended their activities to Ayrshire. First, John Wilson, of Dundyvan and Summerlee, became a partner at Muirkirk with Robert Napier, the great engineer, and others in 1843; and in 1846, with the Dunlops of the Clyde ironworks, he erected the Lugar works,¹² of which he became sole partner in 1850. Second were the Houldsworths, a branch of the family well established as cotton spinners in Anderston, and one of whom had been a partner in the Shotts Iron Company before setting up the Coltness ironworks in 1837. They

¹⁰ J. Pearson, R. Barr, G. Robb and J. Mann. *Edinburgh Gazette*, 5th April, 1842.

¹¹ *Glasgow Herald*, 30th May, 1845.

¹² *Glasgow Saturday Post*, 12th May, 1845.

leased minerals at Dalmellington and elsewhere and in 1845 started the ironworks at Dalmellington, or, more accurately, at Waterside.¹³ Third and fourth were the giants, Merry and Cunninghame and the Bairds. The former, who were well established at the Carnbroe works at Coatbridge, eventually had Ardeer as well as Glengarnock in Ayrshire. The Bairds, from their massive establishment at Gartsherrie, with sixteen furnaces, built under their Ayrshire name of the Eglinton Iron Company, the Eglinton Ironworks at Kilwinning and came to own those founded by others at Lugar, Muirkirk, Portland and Blair.¹⁴

Much of this development was concentrated in the 1840s. Merry and Cunninghame's move to Glengarnock in 1842 was followed rapidly by the Bairds, who were to become far and away the dominant influence in the heavy industries of Ayrshire. In 1844, they began prospecting in Dalry parish, where they acquired mineral leases at Swinlees, a site for an ironworks at Kersland, and joined the two together by a branch railway through Pitcon. The evidence of these activities is still visible, because little came of their early efforts, as the Bairds accepted an offer from the Earl of Eglinton to build their furnaces at the Blacklands near Kilwinning (the site now covered by the housing scheme and the industrial estate) and to call them the Eglinton ironworks. They went into blast on Christmas Eve, 1846.

Apart from the activities of the four giants from Lanarkshire there were other ventures in Ayrshire in 1845 and 1846. In 1845 the Nithsdale Iron Company, the progenitor after many transformations of New Cumnock Collieries, Ltd., leased minerals at New Cumnock. Two years later it was building the three furnaces of the Afton ironworks, which were thoroughly unsuccessful even though skilled labour was brought up from England.¹⁵ In the *Glasgow Herald* in May, 1845, the proprietors of Glenbuck were hopefully advertising for sale a furnace 'which can be relit at little expense'¹⁶ though it had been out of blast for forty years. (The offer was not accepted). In 1846, while the Houldsworths were still erecting the Dalmellington ironworks, their one time partner at Coltness, David Chapman, started the Portland ironworks at Hurlford with George Burns (of the shipping company) and three others.¹⁷ Even the search for minerals and possible sites for new ironworks went on unabated in Ayrshire—an English

¹³ *Glasgow Saturday Post*, 6th and 13th December, 1845.

¹⁴ Information on the activities of the Bairds is in A. M. MacGeorge, *the Bairds of Gartsherrie*. (Glasgow, 1875).

¹⁵ *Glasgow Saturday Post*, 15th November, 1845; and J. L. Carvel, *The New Cumnock Coal-field* (Edinburgh, 1940). p.15.

¹⁶ *Glasgow Herald*, 23rd May, 1845.

¹⁷ *Ayr Advertiser*, 6th August 1846; and J. L. Carvel, *The Coltness Iron Company* (Edinburgh, 1948). pp. 23-25.

Company searched the Bute estates¹⁸ and Dixon of the Govan ironworks leased minerals in North Ayrshire.¹⁹ But by the end of 1847 there were signs that the phase of activity was coming to an end. By then some of the new ironworks in Ayrshire were coming into operation but were proving unprofitable. At Dal-mellington the furnaces were not completed until 1849, and they were admittedly handicapped by lack of adequate transport facilities until 1856, yet until 1853 the firm made a loss, so that by 1852 the partners had subscribed nearly £47,000 to the undertaking.²⁰ Even the Bairds were unsuccessful at first at Eglinton and closed the works for several months in 1848. Lugar, Portland and Muirkirk were all unprofitable for a time. Significantly, an English company which leased minerals at Kerse late in 1847, intending to start operations in the New Year, never did so.²¹ The year 1848 was to be a year of disaster for the Ayrshire iron industry.²²

The disaster was associated with the ill-fated Blair ironworks at Dalry. In 1843 it had, of course, been bought by Alexander Alison, who had promoted the Blair Iron Company to run it. Alison had many interests, but his management did not bring immediate success to Blair, where, in December, 1843, still no furnaces were in blast. In the railway boom, however, the Company shared in the general revival. The existing three furnaces were put in blast once again, and in the summer and winter of 1846 it was proposed to erect five more, two of which were finished by the spring of 1847 and actually went into blast, but this was the total; it never rose above five.

There was a special reason for this expansion at Blair apart from the general growth of the industry in Ayrshire. It arose from the peculiar failure of the Scottish iron industry to develop malleable iron production along with the rapid rise in the output of pig iron. The iron industry of Scotland was not, therefore, concerned with further processing of the iron at all extensively. Partly the failure arose from the technical unsuitability of Scottish pig iron in the manufacture of malleable iron, but primarily because in the industry's early days demand for pig iron was sufficiently strong that there was little incentive to be concerned with additional processing. In the mid-1840s these conditions no longer applied. Scottish ironmasters took steps, therefore, to increase their own production of malleable iron by forming themselves into three malleable iron companies, which would use the pig iron of the three

major iron-producing regions of Scotland: the West of Scotland, the East of Scotland and Ayrshire. More precisely it was hoped the Ayrshire Malleable Iron Company would process pig iron from Glengarnock, Blair, Eglinton, Muirkirk, Lugar and Portland. But the Ayrshire Malleable Iron Company quickly followed a distinct line of development because, though like the other companies it aimed originally at using pig iron from all the Ayrshire furnaces, it became tied to the furnaces at Blair alone, as the Blair Iron Company and the Ayrshire Malleable Iron Company fused to form the Ayrshire Iron Company: a wise move at first sight, as the amalgamation aimed at producing an integrated ironworks of the type Scotland lacked, but one which had unfortunate consequences, when the newly formed concern collapsed in December, 1847.²³

In retrospect there are grounds for suspecting that all was not well with the promotion of the new company. Had the prospects been as rosy as were portrayed, it is surprising that the chief promoter, Alison, used the occasion to sell $6\frac{1}{2}$ shares, or 13/64 of the total stock, to a Glasgow merchant for £19,000. But Alison was in financial difficulties. He had speculated unsuccessfully in the railway boom of 1845, and his sale of the stock, probably indeed his entire flotation of the Ayrshire Iron Company, were means of mitigating his own financial embarrassments. They were not avoided entirely, and his bankruptcy precipitated the collapse of the company. The furnaces were smothered for four days in December, 1847, but were put into blast again, though only temporarily. The workers were paid off and the furnaces extinguished in January, 1848.

The failure of the Ayrshire Iron Company was the most conspicuous in Scotland in the commercial crisis of 1847-48. It caused a slight panic in Glasgow at first and led to some selling of shares in other companies, but the shareholders were known to be wealthy, so that, even before a full investigation of its affairs, Glasgow iron merchants expressed the belief in their circulars that the Company's liabilities would be met in full. This proved to be true. Confidence was, therefore, soon restored and in the spring of 1848 it was rumoured that the works were to be started once more. The shareholders thought otherwise.²⁴ The works were offered for sale in May, 1848 at an upset price of £65,000, reduced to £50,000 and a year later to £45,000, but there were no

¹⁸ *Glasgow Saturday Post*, 7th March 1846.

¹⁹ *Glasgow Saturday Post*, 11th April 1846.

²⁰ Carvel, *Coltness*, p.29.

²¹ *Glasgow Saturday Post*, 4th December 1847.

²² *Reports of the Inspector of Mines*, 1847-48, XXVI, 233; 1849, XXII, 395. p.20.

²³ For details of the bankruptcy see Scottish Record Office: Unextracted Processes, Ayrshire Iron Compar v. Allison, 1848 (1 Skene, A27/8); Signet Library: Session Papers, Vol. 532.21. Watson v. Ayrshire Iron Company; J. Paterson. *House of Lords Scotch Appeals* (Edinburgh, 1879), Vol. 1, pp. 609f; *Alphabetical Compendium of Scotch Mercantile Sequestrations*, 1852 (London), p.2.

²⁴ Little wonder, in view of the fate of the Glasgow merchant who bought $6\frac{1}{2}$ shares for £19,000 in 1846, as recorded in a note in the Blair of Blair papers, dated 1849: 'He lost every Penny he had and died a pauper and mad in America'.

offers. The prospects for iron production were no longer attractive. Only in March, 1852, were the works sold to the Bairds at £33,000.

The sale of Blair to the Bairds was an indicator of changes in the growth of the industry in Ayrshire after the railway boom of the mid-1840s. It continued, but was less dramatic, and was now being concentrated more in the hands of the giants, especially the Bairds. Between 1848 and 1852 there was little development. At the beginning of 1849 all the works, except Glengarnock, were out of blast.²⁵ Later there was a gradual re-opening. For a time in the autumn Eglinton shipped 800 to 900 tons weekly from Ardrossan, while the first furnace at Dalmellington was blown in September.²⁶ No further expansion was initiated. Only those investment plans which were already under way continued, but by 1849 all were completed, raising the total number of furnaces in Scotland by ten in 1848 and three in 1849, the latter being the completion of the belated ventures at Dalmellington and Portland. The number remained fixed until 1851, when the Bairds built a fifth furnace at Eglinton, the twenty-first of their empire. Thereafter Ayrshire showed more signs of renewed activity in the iron industry than any other district. The Portland furnaces, though they had been out of blast for some time, were sold to an English company, which in November, 1852 began carrying out extensive repairs in order to have the furnaces relit as soon as possible.²⁷ Also in November, 1852 preparations were made for Muirkirk and Lugar to go into blast once more.²⁸ At the very end of the year, Merry and Cunninghame leased ground near Stevenston on which to erect the Ardeer ironworks.²⁹

But it was soon clear that only the Houldsworths (always rather remote at Dalmellington from the main stream of development) and Merry and Cunninghame could survive in addition to the Bairds in Ayrshire. The purchase of the Blair ironworks by the Bairds was only a prelude to other take-over bids by them³⁰. The Muirkirk and Lugar works had come under the control of Wilson of Dundyvan, but in 1856 they were taken over by the Bairds (or more accurately by the Eglinton Iron Company). Ultimately both proved successful, though a new works, which went into operation in December, 1866, had to be built at Lugar. The Portland ironworks, which passed from its original partnership of David Chapman, George Burns and others through two other partnerships in 1852 and 1857, was purchased by the Bairds in 1864. So by

25 *Report of the Inspector of Mines*, 1849, XXII, 395. p.27.

26 *Glasgow Saturday Post*, 22nd September, 1848.

27 *Glasgow Herald*, 8th October 1852 and 8th November 1852.

28 *Glasgow Herald*, 8th November 1852.

29 *Glasgow Herald*, 20th December 1852.

30 With much relevance the *Ayr Advertiser* 'expected that there will now be exhibited in these works (Blair), hitherto unfortunate, that energy and enterprise characteristic of the Messrs. Baird.'

about 1870 the industry was well established and concentrated in a few hands with the Bairds supreme in their control of the industry except for the isolated empire of the Houldsworths in the valley of the Doon and the rival empire of Merry and Cunninghame in the north of the county.

SOCIAL CHANGE

The rapid expansion of the 1840s initiated a social transformation in Ayrshire, and one which produced many problems not yet solved. It is difficult to recapture the drama of these events. The *Glasgow Herald* accorded with the sentiments of most contemporaries, when in 1845 it exclaimed lyrically, that 'those enchanting strains which have immortalised the Scottish Bard, and secured renown for the place of his birth, will lose none of their charms from the clanking of the engine and the blast of the furnace to be planted on the banks of the Garnock and the Lugar'³¹. Later generations were more impressed by the harshness and inadequate social provision which accompanied the change. In Dalry, the centre of the early developments, the transformation was conspicuous. In 1847, a year when the Irish were pouring into the parish, the Inspector of Mines commented that 'it will require all the attention and foresight of the proprietors to prevent the growth and increase, in the parish of Dalry, of those evils which have arisen so manifestly in the Coatbridge and Airdrie district of Lanarkshire, from the permitted operation of causes which inevitably undermine the morals of a people'³². A decade later the editor of the Maitland Club's edition of Timothy Pont's *Cunninghame* still spoke of the 'rapid expansion and improvement' of the parish without comparison in Ayrshire³³. This was a period of rapid concentration in many Ayrshire towns. The weavers' cottages, which had been added to the old agricultural community in the late eighteenth and early nineteenth century, had Victorian tenements added to them, while the place of the more isolated rural communities of the past was taken by the miners' rows, the most interesting and characteristic addition of the period, few of which were built in the existing towns, and so failed to gain the advantages of such limited social provision as was to be found in them.

The miners' row was squalid and remained so. Even during the First World War the Royal Commission on Housing could still refer to the 'ramshackle brick survivals of the mining outbursts of seventy years ago, monotonous miners' rows flung down without

31 *Glasgow Herald*, 12th February, 1845.

32 *Report of the Inspector of Mines*, 1847, XVI, 401. p.19.

33 T. Pont, *Cunninghame* (Maitland Club Edition, Glasgow, 1858) p.70.

a vestige of town-plan or any effort to secure modern conditions of sanitation³⁴. The survival of such conditions was long lasting in Ayrshire, where the inactivity of the local authorities was specially castigated in 1918 by the Royal Commission on Housing, which reserved special sarcasm for a resolution of the county's Housing Committee, a 'heroic' resolution to quote the Commission, of as late as 19th June, 1914, that 'privies should have doors and seats'.³⁵ 'Flung down' was the most appropriate description of the planning of the rows. Their exact location was determined by the need to have it convenient to the mine. As is obvious from a cursory glance at those which remain, rarely was any attention paid to the nature of the soil or the subsoil, amenities or exposure. Moreover, the possible short life of a mine, and the tendency to regard the houses as an unproductive form of capital investment, absorbing resources which might well have gone into the mine itself, militated against good construction. For long the proportion of small houses—of one or two rooms—was higher in the mining areas than elsewhere, and in Scotland the proportion was much higher than in England.

The squalid conditions of the rows that grew up with the iron and coal industry in Ayrshire are confirmed by the early reports of the first inspector of mines, Tremenheere, whose peregrinations of the entire country, in this and other aspects of official investigation, have left a record of the social consequences of industrial development. In Ayrshire in the 1840s the only housing commended by him was at the Portland works, but his criteria were low, for he wrote: 'They have the addition, so desirable in a workman's house of an upper floor; also a small place for coals (instead of the frequent practice in Scotch colliery villages of keeping them under a bed!); a room for scullery purposes, etc.; and every house is so arranged as to enable the mothers to keep their children from so ready and indiscriminate an admixture with those of their neighbours as must take place in the usual colliery square'.³⁶ But colliery squares remained common in Ayrshire. In spite of Tremenheere's disapproval the Bairds continued to build in that pattern.

The row was all pervasive in Ayrshire in the middle of the nineteenth century. Now few remain occupied, but even an examination of the ruins yields useful insight into the social fabric of nineteenth century Scotland. The degradation and squalor of so many rows reflects the position the miners then occupied in the Scottish social structure. One row in Ayrshire had all its doors and windows reversed after construction to prevent

34 *Report of the Royal Commission on the Housing of the Industrial Population of Scotland, Rural and Urban*, 1918. (Cd. 8731) para. 882.

35 *Ibid.* para. 931.

36 *Report of the Inspector of Mines*, 1847. XVI, 401. p.20.

idle glances at the laird going from the station to his house. The ethos of the mining community can be understood only if we first understand the extent of their physical segregation and desolation, which led them to regard themselves as a race apart. The old settlements, their bleakness and primitiveness, make it easy to understand these sentiments even though the ground for some of them might be ended. In South Ayrshire, in the valley of the Doon, a new community is being gathered, but this concentration is a development of recent years. A hundred years ago a writer complimented the projectors of the ironworks at Dalmellington (the Houldsworths of Coltness) on having prevented the more baneful effects of the Irish influx by having the migrants 'balloted out among the hills in distinct communities by themselves'.³⁷ And so today, high up on the hillside above the new communities in the valley of the Doon are the desolate ruins of Benwhat, and Lethanhill; further over the continuing community at Rankinston, and in the adjacent valley south of the Craigs of Kyle, the rows of Littlemill and Cairntable.

DECLINE—SINCE 1871.

The third phase of development of the iron industry in Ayrshire may be dated from around 1870. It was a period of decline, which, if precision is sought, may be dated from 1871, when the furnaces at Blair went out of blast for the last time. The other works, which were by then concentrated in the hands of the Bairds, Merry and Cunninghame or the Houldsworths, remained in production until the 1920s, apart from Portland which closed in 1890, and the blast furnaces at Glengarnock, which survived until 1930. The explanation of the decline is simple. With the inevitable loss of natural advantages, as the better seams of ironstone and coal were exhausted, the Scottish iron industry's costs of production were no longer the lowest in the world. Competition at home and overseas displaced Scotch iron from many markets. But there are reasons to believe that the Scottish ironmasters were partly to blame for the loss of this competitive position. First, they failed to ensure that they led in technical developments and, second, with one conspicuous exception, an Ayrshire one, the Scottish ironsmelters did not become steelmasters, when the new processes of steelmaking appeared in the 1860s and 1880s. The Scottish steel industry was built up through the work of people quite new to the field, as in the Steel Company of Scotland, or through an extension of the interests of such malleable makers as David Colville and William Beardmore.

37 W. Wylie, *Ayrshire Streams* (London, 1851). p.92.

But the contribution of the iron industry to the present industrial life of Ayrshire was not eliminated even when the blast-furnaces began to close on such a large scale in the 1920s. Coal mining, virtually brought into being to satisfy the needs of the ironworks, of course remained. In 1931 the coal interests of William Baird & Company were amalgamated with those of the Dalmellington Iron Company to form Bairds and Dalmellington, Ltd., which assumed virtual domination of the Ayrshire Coalfield until nationalisation. On that occasion, the next most important concern, New Cumnock Collieries, Ltd., was also descended from the iron industry, though through several transformations, from the old Nithsdale Iron Company. But it is more important to note that the county retained industrial developments of a more direct succession because Ayrshire did possess the one example in Scotland of ironmasters becoming steelmasters, when in 1884 and 1885 Merry and Cunninghame erected Bessemer convertors at Glengarnock. Later they added some Siemens open hearth furnaces, but Glengarnock soon became, and long remained, the only Scottish works producing Bessemer steel. In 1892 the Ayrshire interests of Merry and Cunninghame were formed into the Glengarnock Iron and Steel Company, which passed into the hands of David Colville and Sons in 1916 and, on its amalgamation with James Dunlop and Company, into Colvilles, Ltd. It alone survives of all Ayrshire's ironworks. It made a change to modern ways; the others did not.
