

BRITISH MINING No.19

# MEMOIRS 1980 - 1982



M. Atkinson, P. Waite and R. Burt. 1980-82  
"The Iron Ore Mining Industry in Devon"  
British Mining No.19, NMRS, pp.27-33

Published by the

THE NORTHERN MINE RESEARCH SOCIETY  
SHEFFIELD U.K.

© N.M.R.S. & The Author(s) 1982.

**NB**

**This publication was originally issued in the A4 format then used by the society. It has now been digitised and reformatted at A5. This has changed the original pagination of articles, which is given in square brackets.**

## THE IRON ORE MINING INDUSTRY IN DEVON

M. Atkinson, P. Waite and R. Burt.

In 1882, Richard Meade wrote that Devon ‘commends itself to the attention of the ironmaster, occasioning demand when the iron trade is active,’<sup>1</sup> a statement which sums up the role of Devon iron ore deposits in the UK iron and steel industry. The ironmaster to which he referred was not to be found within the boundaries of the county, nor, with the exception of the Ashton Vale Iron Co. near Bristol, within the confines of the south west peninsula. The mining of iron ore in Devon depended almost entirely on demand for the ore from iron smelting concerns of the south west, primarily in South Wales, with the result that the industry always laboured under heavy transport costs. The lack of a smelting sector in the south west was due partly to the lack of coal and partly to the absence of ore deposits massive enough to attract the smelters, such as occurred in Furness and West Cumberland.

Essentially, Devon was an area of small, if not tiny, workings of a variety of high-grade ores. Brown and red haematite, specular and micaceous haematite, magnetite and spathose ores were all found in the county, with the haematite ores being most widespread. Such ores were valuable not only for their high metal content but also because their chemical composition rendered them at times almost indispensable to the iron, and more particularly the steel, trades. The haematites were of sufficiently low phosphorus content to allow their use in the Bessemer acid steel process which could utilise only pig iron made from low phosphorus ores, whilst the spathose ores were also in demand from Bessemer steel makers for the production of speigeleisen, a compound of iron, carbon and manganese which was discovered by Robert Forester Mushet to be essential in the process to aid the emission of excess oxygen.

Although it was the advent of acid steel which really boosted ore output in Devon, the development of the industry predated the invention of the Bessemer process. It is known that micaceous haematite from Devon was sold in London as a ‘blotting powder’ in the eighteenth century,<sup>2</sup> and that the most probable source, Kelly mine near Bovey Tracey was also being worked at the turn of the nineteenth century.<sup>3</sup> The earliest reference to ore shipments from Devon to South Wales also dates back to this period, for between 1796 and 1802 a total of 9,293 tons of ore were shipped from Combe Martin to Llanelly.<sup>4</sup> In the 1820s the magnetite mine at Haytor was in operation,<sup>5</sup> and by 1839 mines at Shaugh and Brixham were producing ore.<sup>6</sup> It was most probably the Shaugh mine which was referred to by David Mushet in 1840 when he noted that ore from southern Dartmoor was being shipped at Plymouth for South Wales.<sup>7</sup> In 1847, R.W. Wolston was supplying ore from Brixham to the Cyfarthfa ironworks at Merthyr Tydfil.<sup>8</sup>

From 1855 it is possible to be more definite about mining activity, with the beginning of the publication of detailed iron ore production returns in the annual Mineral Statistics of the United Kingdom. Between 1855 and 1913, a total of 350,662 tons of iron ore were mined in Devon, an amount which, although appearing substantial,

was less than the yearly output of the Hodbarrow haematite mine in Cumbria alone. The annual output of ore in Devon is given in the table following:

[27]

Table Devon iron ore output 1855-1913

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1855	1,500	1870	10,194	1885	1,928	1900	354
1856	4,100	1871	14,125	1886	1,010	1901	225
1857	2,000	1872	29,361	1887	2,621	1902	312
1858	4,754	1873	9,514	1888	2,085	1903	193
1859	3,598	1874	21,313	1889	3,230	1904	322
1860	3,836	1875	10,594	1890	4,155	1905	415
1861	5,399	1876	9,936	1891	4,360	1906	461
1862	3,500	1877	6,434	1892	2,556	1907	432
1863	7,014	1878	4,493	1893	110	1908	1,727
1864	11,068	1879	593	1894	230	1909	1,133
1865	37,814	1880	12,653	1895	1,030	1910	3,433
1866	40,671	1881	11,198	1896	356	1911	532
1867	10,212	1882	11,481	1897	194	1912	581
1868	11,178	1883	5,240	1898	3,174	1913	540
1869	7,104	1884	1,303	1899	780		

Source: Mineral Statistics of the United Kingdom

The peak of production occurred in the mid-1860s, with a second peak in the early 1870s. This bears out the comment by Meade quoted at the beginning of the article, for it was in these periods that the iron trade was indeed very active, suffering from a shortage of ore, especially those suitable for the Bessemer process. Although the indispensability of low phosphorus ores initially created a high level of demand for Devon mines and gave them a brief period of prosperity, the inability of the British mining industry generally to satisfy this demand<sup>9</sup> eventually led to the undermining of Devon enterprise. British steel makers turned to foreign supplies, notably from northern Spain, to relieve the ore shortage and reduce prices and the rapid increase in foreign ore imports from the 1870s killed the Devon industry along with that of other south western counties. Thereafter, Devon iron production was limited to the re-working of Haytor and Brixham mines in the years leading up to the first world war and the small scale working of micaceous haematite (to be used to produce rust-resisting paints) at several mines in the Bovey Tracey area.

Iron ore mining was geographically widespread in the county but the bulk of production between 1855 and 1913 came from the mines around Brixham, North Molton and Ilsington, which together accounted for 87.5 per cent of total production. The output of the mines in these areas is given in the table below:

## THE IRON ORE MINING INDUSTRY IN DEVON

Table 2 Output of the constituent mines in Brixham, North Molton and Ilsington 1858 - 1913

Brixham		North Molton		Ilsington	
Mine	Tons	Mine	Tons	Mine	Tons
Brixham	114,873	Bampfyld	7,117	Atlas	1,300
Chinter	1,524	Brimley	10,322	Hatherby	550
Drews	15,175	Florence	38,386	Haytor	34,787
Five Acres	3,988	Marcia	40	Ilsington	2,000
Furzeham	1,300	Molland	17,738	Smallacombe	8,618
Parkers	1,650	Stowford	2,382		
Sharkham	18,913				
Torbay Iron	17,300				
Upton	5,792				
Wheal Prosper	<u>2,686</u>				
<b>TOTAL</b>	<b><u>183,381</u></b>		<b><u>75,086</u></b>		<b><u>47,255</u></b>

[28]

Source: Mineral Statistics of the OK.

Note: It is very possible that several names above are simply different entries for the same mine, after a change of ownership. This is particularly applicable in the case of the Brixham mines, but without local knowledge and research, it is difficult to disentangle mine names and the tables used state the Mineral Statistics returns exactly.

In an area long mined for non-ferrous metals, it is not surprising to find some primarily non-ferrous metal mines yielding quantities of iron ore. This was the case at Atlas, Bampfyld, Birch Tor and Vitifer, Frankmills and Molland mines which were a mixture of copper lead and tin producers. Some mines, such as the Devon Great Consols copper mine, referred to iron ore as one of the minerals found at the mine but never returned any output and can be discounted as producers.

The mine output figures clearly indicate that the average Devon mine was a small scale venture. Out of a total of 81 mines listed in the Mineral Statistics, 25 produced no recorded output and 42 produced less than 5,000 tons in total. It must be noted that some of the 25 apparently non-productive mines may have yielded ore but the output could have been disguised in grouped returns. This situation applies most clearly to the Brixham area, but because of 'multi-involvement' of individuals and firms in several mining operations it could have occurred elsewhere. The control of several mines by one owner or agent is demonstrated in Table 3 below which lists the largest owners according to the output of the mines they worked during the period of their ownership:

Table 3 Devon iron ore mines by owner 1858 - 1913

Owner	Mines involved in	Total output
William Browne	Atlas, Barton, Brixham, Chinter, Drews, Five Acres, Furzeham, Goodrington, Hatherby, Haytor, Oldertown, Parkins, Rock Hill, Sharkham, Shotts, Smallacombe and Yealmpton	169,902
Florence Mining Co. Ltd.	New Florence	20,693
Molland Mining Co.	Molland	17,738
New Florence Mining Co. Ltd.	New Florence	17,693
Odling, Edwards & Trimmell	Torbay	13,000
Haytor Magnetic Iron Co. Ltd.	Haytor	11,409
'Welsh Iron Works' (a)	Brixham, Pawton and Ladock	10,366
E.H. Bayldon	Brixham	5,910
John Brogden and Sons	Shaugh	4,670
Bulkamore Magnetic Iron Co. Ltd.	Bulkamore	4,400

Source: Mineral Statistics of the UK

Note: (a) The name 'Welsh Iron Works' probably meant either Levick or the Brogdens. The entry of Pawton and Ladock under the list of Devon mines is a mistake on the part of the original Mining Record Office clerks, since they were in Cornwall. Levick owned Pawton in Cornwall in 1861-5, but it is known that their South Wales iron ore mine at Mwyndy was taken over by the Brogdens by 1868. The problem has no effect on the tonnage since neither Pawton nor Ladock, in the Devon listings, produced ore.

The most important figure in Devon iron ore mining was clearly William Browne. The mines under his ownership produced almost half (48.5 per cent) of the total Devon output between 1858 and 1913, whilst if only the period during which Browne was active is considered, i.e. up to 1875, his mines accounted for 65.7 per cent of total output. Browne also worked four iron ore mines in Cornwall (Constantine, Gover, Trethosa and Trerank) and had [29] interests in several non-ferrous mines. Another example of 'multi-involvement' in mining enterprises is that of W.H. Hosking, who managed twelve iron ore mines and seven non-ferrous mines in Devon, as well as two non-ferrous mines in Cornwall and the mines of the Whitehaven Iron Mines Co in Eskdale, Cumbria. Hosking appears to have jumped on the bandwagon of high ore prices in the early 1870s, working the Van Iron ore Co's mines in Devon and those of Faithful Cookson, and later the Whitehaven Co in Cumbria. Faithful Cookson in fact held 909 of the 2,500 shares in the Van Iron Co.<sup>10</sup> and 5,020 of the 5,050 shares of the Whitehaven Iron Mines Co.<sup>11</sup> Hosking also became heavily involved in the Bovey Tracey micaceous haematite mines, establishing a virtual monopoly of the ore.

## THE IRON ORE MINING INDUSTRY IN DEVON

Throughout the nineteenth century, the main market for Devon ore was the South Wales iron and steel industry. Even before the advent of the Bessemer process, Devon ore was being used in South Wales both to supplement their local supplies and to fulfil certain roles in the manufacture of finished, notably rail, iron. By the 1850s the cost of mining the low grade ironstones in South Wales was becoming prohibitive and ironmasters sought cheaper supplies,<sup>12</sup> penetrating the south west to find them. However, the south western ores had an extra quality in that by mixing with the local ironstones of South Wales they reduced cold-shortness in the finished rail<sup>13</sup> and allowed Welsh ironmasters more flexibility and control in the production of the various types of rail.<sup>14</sup> The influx of foreign ore into the South Wales market in the 1870s totally destroyed the main market for Devon ore, and the iron ore mining industry rapidly died. The only branch to survive was the mining of micaceous haematite for paint manufacture which survived at the Great Rock mine until 1969.

### Notes

1. Richard Meade, The coal and iron industries of the United Kingdom (London, Crosby Lockwood, 1882 p.688.
2. Daniel and Samuel Lysons, Magna Britannia, being a concise topographical account of the several counties of Great Britain, Vol.VI (London, 1822), p.ccxc.
3. Michael Atkinson and Christopher J. Schmitz, 'Kelly iron mine, near Bovey Tracey' Devon Historian II (Oct.1975) p.27.
4. Meade, Coal and iron industries, p.698.
5. Clement le Neve Foster, 'Notes on Haytor iron mine' Quarterly Journal of the Geological Society xxxi (1875) p.628.
6. Henry de la Beche, 'Report on the geology of Cornwall, Devon and west Somerset' (Memoirs of the Geological Survey, 1839) pp.617-8.
7. David Mushet, Papers on iron and steel (London, Weale, 1840) p.150.
8. Cyfarthfa MSS, National Library of Wales, Box XII.8.
9. M.W. Flinn, 'British steel and Spanish ore: 1871-1914 EcHR 8 (1955) p.85.
10. PRO BT 31 1521/4780
11. PRO BT 31 5253
12. See the evidence of Thomas Powell to the Select Committee on the Rating of Mines, Parliamentary Papers 1857 (241-Sess.2) xi, q.1729.
13. William Needham, On the manufacture of iron (1830) p. 26.
14. I am indebted to John Owen, historian of the Dowlais ironworks, for pointing this out.

## BRITISH MINING No.19

Appendix: Details of Devon mines producing, or listed as producing, iron ore.

Mine	Years working	Years selling ore	Total. prod	Ore
ATLAS, Ilsington	1863-6*	1864	1,300	BH
BAMPFYLDE, North Molton	1860-87*	1873-5 1879-85	7,117.5	BH, SP
BARTON, Torquay	1873			
BIRCH TOR & VITIFER, North Bovey	1859-1913*	1906 25		
BOVEY TRACEY, Bovey Tracey	1892-3	1892-3	98	BH
BOWDEN DOWN, Brentor	1877			
BRADBURY, North Molton	1873-4			
BRADSANDS	1872	1872	3,906	BH
BRATTON FLEMING, Bratton Fleming	1873-8	1873-4	See Shirwell	BH
BRENT, Brent	1863-5			
BRIMLEY, Molland	1878-83 1887-9 1891-3	1881-3 1887-9	10,321.9	BH
BRINSLEY	1878	1878	500	BH
BRIXHAM, Brixham	1858-76 1880 1898-1913	1858-76 1880 1898-1902 1909-13	114,872.6	BH
BRIXHAM, WEST, East Portlemouth	1870-2	1872	400	
BULKAMORE, Rattery	1874-6	1874-5	4,400	BH
CALLEY'S IRON PAINT	1864-5			
CHALLACOMBE, Combe Martin	1873-4	1873	50	BH
CHINTER, Brixham	1863-6 1872-4	1865-6 1872	1,524	BH
CHURSTON, Churston Ferrers	1864-5			
COUNTESBURY, Lynmouth	1874			
DEVON, SOUTH, Buckfastleigh	1870-6	1872-4	1,111.5	
DOCTORS ISLAND, Kingsbridge	1858-61 1863-5	1858	54.5	BH
DREWS, Brixham	1866	1866	15,175	BH
FIVE ACRES, Brixham	1865-74	1868	3,988.3	BH
FLORENCE, North Molton	1873-93	1873-93 1885	38,386	BH, SP & RH
FOWSHAM, Brixham	1866			
FRANKMILLS, Christow*	1859-81*	1872 1874-5 1877 1879-80	422	BH & SP

THE IRON ORE MINING INDUSTRY IN DEVON

Mine	Years working	Years selling ore	Total. prod	Ore
FURGAM HILL	1866	1866	636.4	BH
FURZEHAM, Brixham	1873-5	1874	1,300	
GIRT DOWN, Combe Martin	1873-6	1873-4	400	BH
GOODRINGTON, Paignton	1873-6			
GREAT ROCK, Hennock	1896-1913	1902-13	1,894	MH
GYMTON, Paignton	1864-72			
HARBOUR FORD, Ivybridge	1874			
HATHERBY, Ilsington	1866-70	1866-7	550	MO
HAWKMOOR, Bovey Tracey	1892-1903	1892-1901	1,203	MH
HAXON DOWN	1874	1874	20	RH
HAYTOR, Ilsington	1858-61	1858-61	34,787.4	MO &
	1864-83	1865-6		BH
	1907-13	1868-83		
	1908			
	1910			
HENNOCK, Hennock	1863-5	1872	181	MH
	1870-3			
HOLSTON DOWN, Combe Martin	1873-6			
HOOK HILL	1870	1870	896	BH
ILSINGTON, Ilsington	1872	1872	2,000	MO
KELLY, Lustleigh	1877	1879-91	2,013	MH
	1879-92	1901-13		
	1900-13			
LADOCK, Brixham	1871			
MARCIA, North Nolton	1873-6	1875-6	400	BH
MOLLAND, North Nolton*	1859-67	1877-81	17,738.2	BH
	1877-61	1884-6		
	1883-91	1890-2		
NOEMIA, Shaugh	1875-7	1875-6	647	BH
	1881	1881		
OLDERTOWN, Ilsington	1873-5			
PARKINS MINE, Brixham	1869-73	1870-1	1,650	YH
PAWTON, Brixham	1871			
PLAISTOW, Plaistow	1874	1874	240	BH
PLUMLEY, Bovey Tracey	1896-1913	1896-1911	695	MH
PORTLEMOUTH CONSOLS, East Portlemouth	1859-65	1859	1,921.8	
BH PRAWLE, Prawle Point	1858-68	1858	300	BH
PROSPER, WHEAL, Brixham	1864-74	1872-3	2,686	BH
ROCK HILL, Ilsington	1873			
SALCOMBE, Salcombe	1870-2	1872	100	
SHAPTOR, Bovey Travey	1892-1913	1891-1911	913	MH
SHARKHAM, Brixham	1864-74	1865-6	18,913	BH



## BRITISH MINING No.19

Mine	Years working	Years selling ore	Total. prod	Ore
SHIRWELL, Plaistow	1873-8	1873-4	290	BH
SHIRWELL FORD	1874	1874	5	BH
SHOTTS, Ilsington	1873			
SHUTTAMOOD, Bovey Tracey	1897-1913	1897-1911		MH
SMALLACOMBE, Ilsington	1864-81 1871-4	1866-9	8,618.3	BH & MO
SPREYCOMBE, Barnstaple	1874-7 1887-91	1874-6 1889	779.6	BH
STOCKLAND, Bramston	1875-7			
STOKE GABRIEL, Stoke Gabriel	1865-6	1865-6	4,790	BH
STOWFORD, North Molton	1883-7 1886-7	1883-4	2,383	RH
TORBAY IRON, Brixham	1863-75 1874-5	1870-2	17,300	BH
UGBOROUGH, Ivybridge	1874-6	1874-6	2,233	BH
UPTON, Brixham	1874-6	1874-5	5,972	
WEST DOWN, Ilfracombe	1876			
WOLBOROUGH, Newton Abbot	1870 1874-6	1870 1874	1,240.2	BH
R. W. WOLSTON'S PAINT, Brixham	1860-5	1860-1	154	BH
YANNADON, Walkhampton	1875-7			
YEALMTON, Yealmton	1867 1872	1867	250	BH

Source: Mineral Statistics of the United Kingdom.

Notes: (1) It is possible that the same site is listed more than once under different names. This list reproduces in summary the information given in the Mineral Statistics.

(2) \* denotes primarily non-ferrous mines producing iron ore.

(3) The mines at Ladock and Pawton properly belong in Cornwall but were listed in Devon.

(4) BH = Brown Haematite  
 RH = Red "  
 MH = Micaceous Haematite  
 SP = Spathose  
 MO = Magnetic Oxide  
 YH = Yellow Haematite

M. Atkinson, P. Waite & R. Burt,  
 Dept. of Economic History,  
 University of Exeter,  
 DEVON.