

THE NORTH YORKSHIRE MOORS COALFIELDS (YORKSHIRE'S OTHER FORGOTTEN COALFIELDS)

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My paper "*The Great Dales Coalfield, Eastern Areas*" (Gill, 2008) and Mike Kelly's monograph on the *Geology of the Lune and Upper Ribble Coalfields* (Kelly, 2008) showed just how ubiquitous coal pits are throughout the Yorkshire Dales and immediately adjoining areas. Another Yorkshire region with a legacy of coal mining is the geologically much younger North Yorkshire Moors, much of which is within the North York Moors National Park. Formed by rocks from the Jurassic period, the 'Moors' have a very different topography from the Pennines and are more strongly associated with ironstone, alum, jet and whinstone mining than with coal mining. It is not the purpose of this paper to identify every single coal pit or trial there, but I have sought to give a clear impression of their distribution.

The region is a very clearly demarcated block of high land, bounded on the western edge by a steep escarpment, and on the east by sea cliffs. To the south, the Tabular Hills dip gently to the south and east, but there is a distinct change in slope where the land drops down to the Vale of Pickering. The core of the region is a gently undulating plateau, incised by steeply sided valleys and with an average elevation of around 1000 AOD. Its highest point, Round Hill, reaches 1490 feet AOD. The underlying Middle Jurassic Ravenscar sandstone and mudstone have given rise to acidic, peaty soils. The area is drained by wet flushes, springs and small gills, leading to steep-sided dales, which drain radially.

GEOLOGICAL OUTLINE

Coal seams, with an underlying seat-earth, are not uncommon in the Middle Jurassic strata, but most are very thin. Some are little more than a carbonaceous shale, and some are of only limited extent. Like seams in the Dales, however, they formed on an active palaeo-surface of river channels, sand banks, flood plains and lagoons, in which coal swamps formed on sand or mud substrates, so it is possible for seams to be broadly coeval, but not necessarily conjoined. Where worked, the coals were usually between 6 and 22 inches thick, though thicknesses of 4½ inches were sometimes taken¹.

Although often referred to without discrimination as the 'Moor Coal', there are workable seams, which occur at three broad horizons in the Saltwick Formation, below the Moor Grit. These horizons are at:-

1. Around 3 metres above the base of the Saltwick Formation (Dogger).
2. Around 20 metres above the base of the Saltwick Formation (Dogger).
3. 16 to 32 metres below the base of the Scarborough Formation.

1 North Yorkshire County Record Office (NYCRO) ZEW IV 13/1. Memorandum of the collieries the property of C.S. Duncombe in the year (1786 to 1801) also the Variable and Mean thickness of the Seam of each Place separately – by D. Seaton. This is a series of annual valuations, from 1786 to 1801, which have been tabulated for each individual colliery.

This places the seams on either side of the junction between the Aalenian and Bajocian ages, where they formed between 172 and 169 million years ago.

Most of the coal pits are in an east-west belt, running 20 km. south from the north side of Eskdale and 30 km. west from the A169 road, which runs south from Whitby. The principal collieries, around Rudland Rigg and the head of Rosedale, worked the last of the above seams extensively. Other pits are found in the Hambleton Hills, near Coxwold to the east of Thirsk, at Crathorne, and on the coast near Whitby.

In the north of the region, coal was sometimes encountered while sinking shafts at ironstone mines. For example, the shafts at Kilton cut the following two seams, which were left unworked:-

- 5 inches at 143 feet above the Alum Shale.
- 6 inches at 233 feet above the Alum Shale.

PREVIOUS WORK

As with the Dales, almost all the early references to coal mining in the area come from the work of geologists. As early as 1813 William Smith reported on a coal mine near Whitby, and in 1821 Winch gave details of borings for coal around the head of Baysdale (Hemingway and Owen, 1975; Winch, 1821). Fox-Strangways (1892) also recorded the coal in his monograph on Yorkshire's Jurassic Rocks. In 1938 two members of the Coal Survey Laboratory published a paper comparing an analysis of the Jurassic Coal from near Baysdale Head, with the average of four pillar sections of the Yorkshire coalfield's Warren House seam and a sample of Tan Hill Coal (Wandless and Slater, 1938).

The Baysdale Head sample, from a ten inch seam, was described as a fragile bright coal, freely interstratified with thin shale partings. It was well-banded, with abundant vitrain and some fusain, though of relatively low rank (69.4 per cent carbon in a cleaned sample). Its ash content was 14.9 per cent. Being a lignituous coal, dominantly made from *Equisetites* (horsetails) stems, it had a lower rank than the others, was non-coking and left a powdery residue. In contrast, Hemingway reported that samples from pits at Rosedale Head and Rudland Rigg were of medium volatile rank, with reflectivities of 0.87 and 0.82 per cent respectively, which is higher than that for coal from the nearby south Durham coalfield. He ascribes this to the strata of the Cleveland basin having originally been buried at much greater depths, therefore enhancing the coalification process by subjecting the coal to great temperatures and pressures, before being forced upwards into a dome, in a process known as basin inversion (Hemingway and Riddler, 1982).

The Tan Hill coal was a compact bright coal, containing very little visible impurity. It was a mature coal, of relatively high rank, and was strongly coking, producing a highly swollen coke on carbonisation. The Warren House coal was of intermediate rank and had a higher sulphur, chlorine and carbonate content than the other two. The ash content of the Tan Hill and Warren House

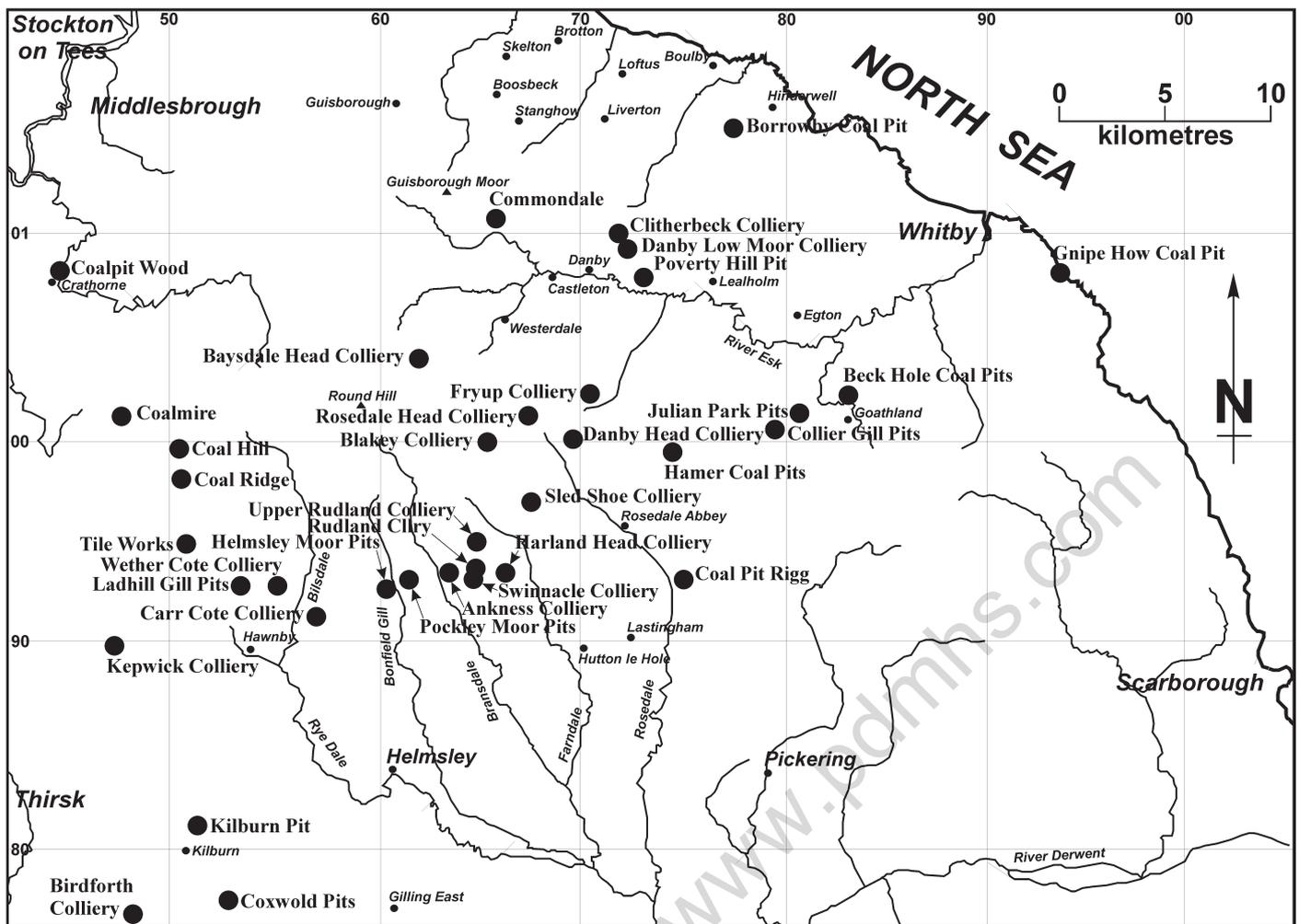


Fig. 1: North Yorkshire Moors Coal Pits.

coals was 2.7 and 4.3 per cent respectively. The most striking difference between the three coals was in the composition of their ashes, however, as shown below.

Analysis of Ash	Jurassic	Tan Hill	Warren House
SiO ₂	46.37	49.97	24.58
TiO ₂	1.87	0.82	0.75
Al ₂ O ₃	36.80	41.53	15.57
Fe ₂ O ₃	6.04	3.87	31.75
CaO	2.95	1.29	10.24
MgO	1.59	1.02	1.03
P ₂ O ₅	Trace	0.55	0.16
SO ₃	1.73	0.48	8.75
Mn ₃ O ₄	Trace	Trace	Trace
Difference	2.65	0.47	7.17

The most variable constituent of coal ash is iron, expressed as Fe₂O₃, which commonly ranges from about 10 per cent to over 70 per cent in some cases. Both the Jurassic and Tan Hill samples had very low iron contents (3.87 per cent and 6.04 per cent respectively), together with high silica contents and very high alumina contents. As a result the composition of their ash approached that of an aluminous fireclay, which contrasted very strikingly with the ash from the Warren House and other seams in Yorkshire.

Hemingway's section on the Jurassic period in *The Geology and Mineral Resources of Yorkshire* gives a good description of the processes which formed the North Yorkshire Moors and has a brief discussion of the Middle Jurassic coals (Rayner and Hemingway, 1974). Just before the latter volume appeared, interest in the subject had begun to grow amongst industrial archaeologists and, in 1969, John Owen published the first of three papers on "The Moor Coal" in the Cleveland & Teesside

Local History Society's Bulletin (Owen, 1969, 1970a and b). Owen's first paper was quickly followed by Barry Harrison's examination of the Business and Social History of the Danby Coalmines, in Eskdale, and Arthur Whitaker's study of the Bransdale and Farndale coal mines (Harrison, 1969 and Whitaker, 1969). There was also a short section on coal mining in the *Historical Atlas of North Yorkshire* (White and Harrison, 2003).

THE COLLIERIES

Unlike my paper on the Great Dales Coalfield, which dealt with coals in their respective geological context, this paper covers the mines in geographical terms, because of the coal's limited horizons.

Ankness Colliery, Bransdale

This is a scatter of 10 or so shafts on the east bank of Hodge Beck, near Ankness Farm, some of which were at work by December 1715 when the trustees of Thomas Duncombe, of Helmsley Castle, allowed Mathew Ford, of Fadmoor, to sink three new shafts and work the coal for the next three years (NYCRO ZEW IV 13/1 – 16/12/1715). In return, Ford paid £100 per year in rent and had to provide Duncombe, free "at the coal mine's head", with forty chaldrons of coal "at such times in the year and in such quantities" as he pleased.

James Gowlan and William Normanton took the farm of Ankness Colliery from Christopher Slingsby Duncombe in November 1780. They were to pay £100 per acre of coal wrought at 30 inches, varying with thickness (NYCRO ZEW IV 13/1 – 13/11/1780). By 1786, however, the colliery was leased to Luke & William Normington who worked it until 1799 after which it was no longer listed. In his 1792 report C.S. Duncomb's agent, D. Seaton, remarked that the roads to these pits were very bad,

Table 1: Wandless and Slater's analyses of Jurassic, Tan Hill and Warren House coals.

Proximate Analysis	1 Original Sample	Jurassic 2 Cleaned Coal	Tan Hill Coal	Average of four pillar sections of Warren House Seam
Air-dried coal:-				
Moisture	5.6	6.9	2.3	6.6
Volatile matter less moisture	29.6	29.9	30.3	35.6
Volatile matter Fixed carbon	49.9	56.4	64.7	53.5
Ash 14.9	6.8	2.7	4.3	
Colour of ash	Pink	Pink	Pale Brown	-
Ultimate Analysis	Jurassic		Tan Hill	Warren House
Air-dried coal:-				
Moisture	6.9		2.3	6.6
Mineral Matter	7.5		3.1	5.2
Coal Substance:-				
Carbon	69.4		81.8	74.2
Hydrogen	4.2		5.0	4.7
Nitrogen	1.4		1.9	1.7
Sulphur	1.0		0.7	0.9
Difference (oxygen & errors)	9.6		5.2	6.7
Dry, mineral-free coal	Coal (cleaned)		Coal	Seam
Carbon	81.1		86.5	84.1
Hydrogen	4.9		5.3	5.3
Nitrogen	1.6		2.0	1.9
Sulphur	1.2		0.7	1.0
Difference (oxygen & errors)	11.2		5.5	7.7
Sulphur (air dried coal)	Jurassic		Tan Hill	Warren House
Total	1.02		0.77	1.8
Organic	1.02		0.73	0.9
Pyritic	Trace		Trace	0.9
Sulphate	Trace		0.04	Trace
In Ash	0.05		0.01	0.2
Calorific Value	Jurassic		Tan Hill	Warren House
Air dried coal B.Th.U. per lb.	12,190		14,530	13,170
Dry, mineral free coal B.Th.U. per lb.	14,240		15,360	14,880
Chlorine and Carbonates				
Chlorine total as Cl ₂	0.02		0.13	0.46
Carbonates, as CO ₂	0.13		0.03	0.40
Agglutinating Power				
Agglutinating value	< 5		21	13
Specific Gravity	1.37		1.30	1.31

but the mine was in other respects well managed (NYCRO ZEW IV 13/1 – Memorandum - 1792). The Normingtons offered to make the remainder of the road themselves, if the estate repaired Ellengate Bank, above Sleightholmedale. By that time rent had been linked to output, with a rate per square yard of coal taken. This rate was based on the thickness of the seam, but was adjusted to allow for ease of working, quality of coal etc.

Seaton was more upbeat in 1793 when he reported that the Normingtons were “working northwards for a new pit” where, he suggested, the seam was nearly two feet thick. Unlike in the Dales coalfields, we are fortunate in that output figures for a group of collieries have survived for the period 1786 to 1801. These give a useful impression of the areas of coal worked annually by thin seam collieries. The following table, taken from Seaton’s annual reports, confirms a slight thickening, but it also allows an estimate to be made of the tonnage of coal raised:-

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	16"			£14.96	
1787	14½"	1920	£48.33	£19.17	800
1788	15"	560	£50	£5.78	240
1789	17½"	1276	£58.33	£15.33	640
1790	19"	1188	£63.33	£15.59	645
1791	20"	1848	£30	£30.54	1060
1792	20"	1472	£75	£22.80	845
1793	21"	1184	£80	£19.58	715
1794	21"	155	£280	£19.50	935
1795	14"	960	£38.33	£11.57	385
1799	14"	456	£46.67	£6.13	185

The absence of production in 1786 and the low rate charged in 1787 suggests that new pits were being sunk and the mine developed at this time. The seam thickness from 1787 to 1789

was taken as 19 inches. The break in production from 1796 to 1798 inclusive, and after 1799, suggests that the mine was then closed.

Blakey Colliery, Farndale East

This is a group of 70 or so shafts on High Blakey Moor, between Farndale and the head of Rosedale. There is a second group of around 200 shafts running north-north-east from the Lion Inn. C.S. Duncombe let the farm of Great Blakey and Little Blakey collieries to John Featherston in November 1780 and he worked it until 1796 (NYCRO ZEW IV 13/1 – 12/11/1780). He then worked in partnership with Mathew Ryley until at least 1801.

A note written by Seaton in 1791 indicates that Ford’s grant of 1715 was more extensive than at Ankness and that he had also worked at Blakey. The pits which were working in 1791 were approaching exhaustion, except for some lime coals, and Seaton encouraged Featherston to try for coal to the west. This was done, but owing to “the Red Rock laying right upon the coal” the men had been troubled by water continually dripping on them. There was a significant drop in output at this time and by 1793 Seaton admitted “this is but a soft bad coal, having been left or not thought worth working in Food’s [Ford’s] Time”. Nevertheless, because Featherston used the coal in his own limekilns and it was got at a low price, Seaton increased the rate from £52.08 to £62.09 per acre!

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	13"			£43.43	
1787	13"	3462	£43.33	£31.00	1290
1788	12½"	5351	£41.67	£46.56	1915
1789	13½"	3208	£45	£29.83	1240
1790	14"	2688	£46.67	£25.62	1080
1791	14"	1791	£50	£15.33	720
1792	16"	65	£15	£25.03	30
1793	15½"	2216	£62.09	£28.41	955
1794	13"	2116	£51.99	£22.73	790
1795	13"	2128	£51.99	£22.86	790
1796	13"	2072	£59.99	£22.25	770
1797	12"	2720	£50.08	£28.10	935
1798	13½"	2268	£56.25	£26.31	880
1799	13"	3776	£54.17	£42.26	1405
1800	13"	3228	£54.17	£36.13	1200
1801	15"	3936	£62.50	£50.83	1690

The *List of Mines* records that James Green had Blakey between 1888 and 1893, but it was standing from 1891 to 1893.

Carr Cote Colliery, Rievaulx

This includes two groups of shafts on Todhill Beck to the south of Carr Cote Farm. The low group has some nine shafts, and the high group twenty-one. Isaac Holmes leased the colliery from Christopher Slingsby Duncombe in 1781, but he appears to have been struggling by the time Seaton’s measurements began in 1786 (NYCRO ZEW IV 13/1 – 05/01/1781). Holmes was to pay £40 per acre of coal wrought when the seam was 12 inches thick, this amount varying with thickness. Judging from the low output between 1786 and 1788, however, Carr Cote must have been almost exhausted. Holmes was dead by 1789 when his widow, Elizabeth, took over. She gave up the mine in 1791.

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	5½"	-	-	£2.53	
1788	-	-	-	£0.79	
1789		240	£18.33	£0.91	37.8
1790	5½"	296	£18.33	£1.12	46.6

Harland Head Colliery, Farndale West

This colliery, formed by a cluster of around 60 pits, is at the headwaters of Harland Beck. When granted to Anthony Stonehouse and Thomas Ward in April 1782, it had clearly

already been worked extensively because they were required “To keep the drain in sufficient repair” (NYCRO ZEW IV 13/1 – 22/04/1782). Moreover, when Ward gave up in 1786, he paid rent with no recorded output. He was followed by Thomas Hill and Michael Lund in 1800 and 1801, and they too had little success. Seaton reported in 1800 that “something wrought here, but scarce worth measuring though they ought to pay some small account rent therefore say Thomas Hill and Michael Lund”. The thinness of the seam, at five-and-a-half inches, is also worthy of remark.

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	6"	-	-	£2.69	
1800	-	-	-	£3.00	
1801	5½"	4480	£24	£22.48	705

Although records end in 1801, that mining at Harland continued into the nineteenth century is demonstrated by the minutes of Kirkby Moorside Court Leet. James Lund of Harland was fined “for two pits left open without any covering” in 1821. Thomas Abbey was fined for the same offence in 1823 and again in 1829 along with George and William Moon, Joseph Jackson and Henry Baldwin. In 1854 another Henry Baldwin was indicted for “leaving his coal pits unfilled up” and fined one shilling. For “leaving his coal pits in a dangerous state” Baldwin was also fined ten shillings in 1856.

Swinakel Colliery, Bransdale

A group of 19 pits to the south-west of Rudland Farm form Swinakel colliery. In November 1780 it was granted to Henry Baldwin and James Craven who agreed to pay £100 per acre of coal wrought at 30 inches, varying with thickness (NYCRO ZEW IV 13/1 – 14/11/1780). James Craven seems to have left the partnership in 1787, but he is listed as a coal miner in the Lastingham parish registers between 1782 and 1811. Henry Baldwin appears to have given Swinakel up at the end of 1788, but he was also working at Rudland.

	Thick ness	Yds ²	Rate per acre	Rent
1786				£9.69
1787	-	4302	£15	£13.33
1788	-	3028	£16.67	£13.43

Rudland Colliery, Bransdale

This extensive spread of nearly 270 pits, in near parallel rows, runs north-eastwards from around Rudland Farm up to and beyond Westside Road on Rudland Rigg. Another group of around 140 pits around the summit of Rudland Rigg formed Upper Rudland Colliery. At times the larger group of pits was also split into Rudland and Rudland Farm Collieries, the latter presumably being around Rudland Farm and the former being higher up the moor. They were combined in August 1780 when William Sturdy took the farm of Rudland Colliery, at the lower end of the moor, from Thomas Duncombe (NYCRO ZEW IV 13/1 – 01/08/1780). He was to pay £100 per acre wherever the seam of coal was 30 inches thick, or in proportion more or less according to the thickness of the seam, and Duncombe was to have unlimited coal at the rate of 2s 4d a chaldron. Sturdy was still working the coal at the end of 1801.

The regularly-spaced spreads of shafts, so well illustrated at Rudland, have often been interpreted as bell pits, but one of the provisions of Sturdy’s grant was that he had to “leave pillars of coal between the bords at least a yard thick”. This unambiguous statement proves that by 1780, and probably long before then, they were using some form of bord and pillar working. No mention is made of pillar removal, which suggests that the yard-wide pillars were intended to prevent the surface being broken up by subsidence.

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	5½"			£16.68	
1787	7"	6980	£23.33	£33.15	1360
1788	8"	9196	£26.67	£50.67	2045
1789	8"	10742	£26.67	£59.18	2460
1790	8"	11798	£27.33	£66.54	2705
1790	7½"	11798	£27.33	£15.45	2535
1791	8½"	13036	£30	£80.80	3175
<i>(n.b. 1791 - Lower Rudland)</i>					
1792	8"	9368	£30	£58.06	2145
1793	8"	13080	£31	£84.05	2995
1794	8½"	16464	£33.05	£84.05	4010
1795	8¾"	17304	£37.78	£134.96	4335
1796	8¾"	13024	£37.78	£101.65	3265
1797	8¾"	10820	£37.78	£84.45	2710
1798	8½"	10072	£37.78	£78.61	2450
1799	8½"	14284	£37.78	£111.48	3475
1800	8½"	17568	£37.78	£137.11	4275
1801	9½"	13624	£42.21	£136.30	3705

In 1791 Seaton altered the rate used to pay Duncombe for the coal raised. This had been based on £40 per acre when the seam was 12 inches thick, but was then adjusted more or less in proportion to the actual seam thickness. He had concluded, however, that, when consideration was given to the nature of the coal and particularly the prices paid for working and getting it, the above rule does not seem to be a fair proportion (NYCRO ZEW IV 13/1 – Memorandum). For instance:-

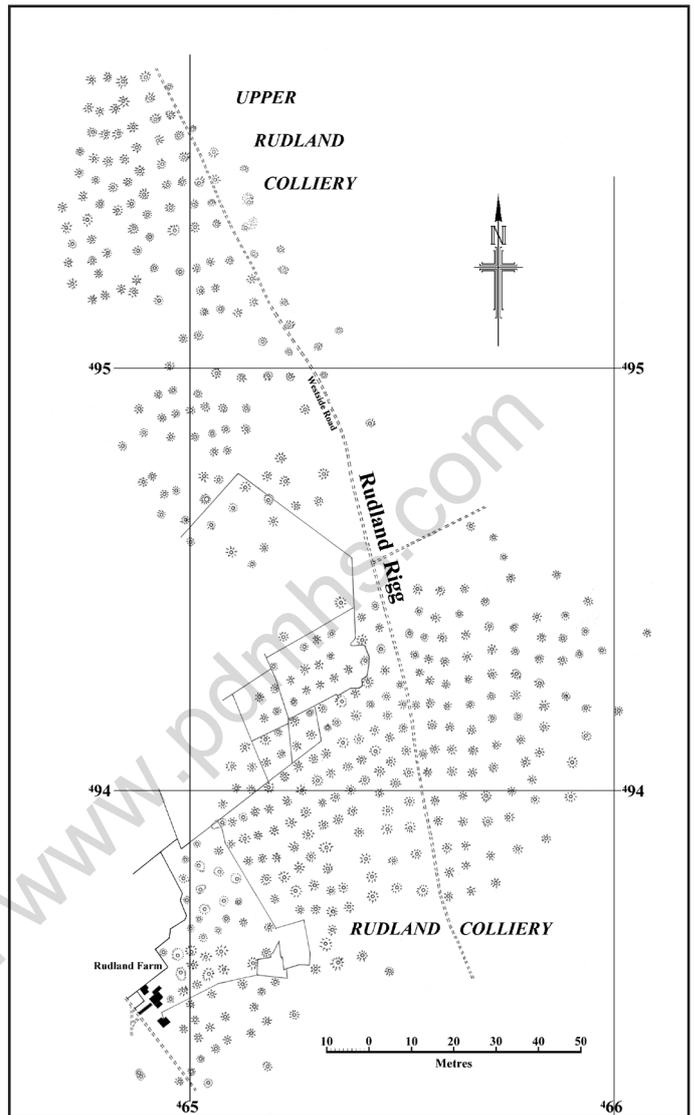
	Per score of corves	Colliery
Rush pays	5s 6d	Weather/Whether Cote
Baldwin	5s 6d	Rudland
Normingtons	3s 0d to 2s 4d	Ankness

In consequence of this, Sturdy's seam at Rudland, which was 8½ inches thick and according to the above rule would have been £28 6s 8d per acre, was rated at £30. Blakey would have been £46 13s 4d, but was rated at £50. At Ankness, however, it should have been £66 13s 4d, but was rated at £80 per acre. Considering the hardness of the coal and the bad roads leading to Ankness, Seaton considered this too high. Nevertheless, because it had been rated too low in the previous year, he felt they ought to pay that sum for that year. Sturdy's seam at Rudland, on the other hand, was very even and regular, and, Seaton believed, very productive. The colliery was also in a much better location for selling its coal than any of the others, and local settlements took coal for lime burning and domestic use (Owen, 1970).

Lime burning was a seasonal trade, however, which either ended or was very much diminished in winter. This brought wages down and caused men to leave the pits in search of better prospects. The owners, who by 1793 had steadily increased prices from seven shillings to nine shillings and four pence per chaldron, claimed this was done under pressure for better wages from the men. Seaton, who opined that the colliery owners were also adding a higher proportion for their profits, said that the men were working between seven and eight hours per day and that a good hand could earn between 18 and 25 shillings per week.

Members of the Green family sank two pits at Rudland in the early twentieth century and worked them in conjunction with their small holding (Whitaker, 1969). Their shaft, which was seven yards deep, was six feet long by three feet six inches wide, presumably between timbers. They drove bords, which were from four to six feet wide and around three feet high, for 15 to 18 yards into the twelve inch seam. The roof was poor, especially near old workings, and prone to falls. Like the earlier miners had been, they were also troubled by build ups of carbon dioxide in the workings.

Fig. 2: Rudland Rigg Colliery, Bransdale.



Coal, for lime burning, was taken by horse and cart to their principal market at Mell Bank Quarry. Any surplus was sold in local villages such as Gillamoor and Fadmoor. Mining ended around 1914 when old workings were met.

Rudland Farm Colliery, Bransdale

In 1793 John Bulmer began working the coal around Rudland Farm and between 1794 and 1801, at least, he was in partnership with Henry Baldwin and Thomas Hill.

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1793		880	£26	£4.78	
1794	8"	3344	£26.67	£18.42	765
1795	8½"	2980	£33.05	£20.24	725
1796	8"	6880	£33.33	£47.38	1576
1797	8"	5380	£35.55	£39.52	1230
1798	7½"	4972	£31.25	£32.10	1070
1799	6"	4520	£25	£23.35	780
1800	6"	3216	£25	£16.61	555
1801	6"	4204	£25	£21.42	720

Upper Rudland Colliery, Bransdale

As well as being involved in Swinakel and Rudland Farm collieries, Henry Baldwin was also working at these pits, around the summit of Rudland Rigg, between 1790 and 1801. Seaton reported at the end of 1792 that the coal here had been very

uncertain which made working it very expensive for Baldwin, the present occupier (NYCRO ZEW IV 13/1 – Memorandum 1792).

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1790	6½"	4352	£21.67	£19.45	810
1791	7"	3888	£23.33	£18.81	780
1792	7½"	3504	£25	£18.10	755
1793	8"	2720	£30.47	£17.13	625
1794	8½"	3000	£31.97	£19.81	730
1795	8½"	2480	£33.05	£15.91	605
1796	8½"	1764	£33.05	£19.00	430
1797	8½"	2568	£33.05	£17.53	625
1798	7½"	2854	£31.25	£18.43	615
1799	7½"	2820	£31.25	£18.20	605
1800	7½"	3304	£31.25	£21.33	710
1801	6½"	3321	£27.08	£18.55	630

Sled Shoe Colliery, Farndale East

This colliery, comprising of some 40 or so pits, lies on either side of the Castleton to Hutton-le-Hole road, where it runs on Blakey Ridge, about three-quarters of a mile south of the Lion Inn. There is another group of pits at Sled Shoe Bridge, a little to the south, and others around Kettle Howe, a little to the north.

The area had been worked for Lime coals and was almost exhausted before Mathew Ryley tried working it in 1792. Nevertheless, according to Seaton, Ryley “*expected was some [Lime Coals] left, has got a few this summer and being of soft mucky quality farmers don’t wish to buy them unless such a time as last summer when no others are to be had*”. In his 1796 measurement, Seaton recorded that “*Mathew Ryley having wrought here some little time after this colliery was measured last year [1795] (and before the coals were quite out) and which cannot now be calculated the work being shut up. I therefore charge him the sum of £2.63*” (NYCRO ZEW IV 13/1 – Memorandum - 1796).

Ryley, who gave Sled Shoe up in 1796, was in partnership with John Featherston at Blakey from 1797 to 1801. He also appears in the Lastingham parish registers between 1782 and 1794 as a collier.

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1792	7½"	1108	£25	£5.71	240
1793	7"	2492	£25.24	£13.13	500
1794	7½"	1600	£29.17	£9.73	345
1795	7½"	1900	£29.17	£11.45	410
1796				£2.63	

Weather Cote Colliery, Nawton

This small colliery has eighteen shafts, in two rows, on the hillside above Wethercote Farm in Bilsdale. It was leased from C.S. Duncombe by Benjamin Barraclough and John Rush, a coal miner from Bransdale, from late December 1781 (NYCRO ZEW IV 13/1 – 28/12/1781). **The lessors were to pay £40 per acre** where the seam of coal was 12 inches thick, but varying in proportion to the thickness of the seam. They were also “*to have Birch and Ellerwood [Alder] for props, and other wood for working the said colliery according to the agreement of the other collieries belonging to C.S. Duncombe Esq.*”. The workings were to be measured at least once a year and the rent was to be paid when Mr Duncombe pleased, and they were to leave at least half a yard of coal between every bord they worked.

At sometime before the end of March 1787, however, Weather Cote had been taken over by William Peacock and William Dunning. On the latter date John Rush took the lease for 1½ years at £40 per 12 inches (NYCRO ZEW IV 13/1 – 30/03/1787). A valuation of the colliery and its equipment, made at this time, includes the term “*late worked by Benjamin Barraclough and*

now let to John Rush”, suggesting that Peacock and Dunning had not been involved for long (NYCRO ZEW IV 13/1 – 05/04/1787). **This time, the lessor was to leave two yards** for the pillars unwrought at the opening of every bord to support the roof of the ending or barrow gate, and also leave one yard in every five yards between the bords to support the roof.

The small amount of other equipment shown below suggests a very small workforce, possibly as low as two or three.

	£	s	d
Low Pit sinking 9 yards (one third wrought)	1	4	0
High Pit (but not workable)	2	4	0
One pair of bellows	1	1	0
Two ropes		10	0
5 corves @ 5s 6d	1	7	6
3 corves worn		7	6
One Bushel		6	0
2 pair of clothes		4	0
2 pair of turngear and 4 landing boards		8	0
Water level	3	0	0
5 shovels at 2s 6d		12	6
10 picks at 1s 6d		15	0
4 hammers at 1s 4d		5	4
One anvil and 4 chains 1s 8d		3	8
	12	8	6

NB The price settled for the water level I think too little and therefore settle with Barraclough two pounds more
Balance due to Barraclough for building the house
Due to Barraclough by J. Rush

	2	0	0
	5	5	11¼
	19	14	5¼

D. Seaton

	Thick ness	Yds ²	Rate per acre	Rent	Tons (est)
1786	5"			£6.23	
1787	6"	1552	£20	£10.07	265
1788	6"	1270	£20	£5.25	220
1789	5½"	1564	£18.33	£5.93	245
1790		2920	£17.67	£10.66	480
1791	6"	2604	£20	£10.76	445
1792	6"	96	£20	£14.40	15
1793		2292	£25.53	£12.08	425
1794	7"	2718	£25.53	£13.17	545
1795	7"	1616	£27.22	£9.08	325

There are no known plans of the workings, but, because Weather Cote was a small and fairly regularly shaped colliery, it is possible to estimate its longevity by comparing the area encompassed by the shafts (485 by 68 yards) = 32,980 yds², with the area paid for above = 16,622 yds² and adding 5848 yds² (four times the average of the first three years) for the four years worked before the above list, gives 22,470 yds². Using an extraction rate of around 60 to 65 per cent of the coal, this means that, unlike other collieries, Weather Cote was a single-phase working between 1782 and 1795.

Pockley Moor, Pockley

A few small hillocks, following the course of the seam’s outcrop, may have been associated with early iron smelting sites at the nearby Cinder Hill (Hayes, 1982).

Helmsley Moor, Helmsley

A group of around ninety shafts, down the east side of the valley, near the head of Bogmire Gill. The close proximity of Old Kiln Farm to these working suggests that there might have been clay workings associated with the coal.

Both these and the Pockley pits appear to be within the Duncombe (Feversham) estates, but no reference to them has been found in the archives.

Ladhill Gill Pits, Hawnby

The manor and estate here, including any coal, belonged to the Tennant family until it sold them in 1878. No historical information has been found about the 34 pits on the west side of the gill and the 17 on the east side. There is another group of 16 pits nearer to Sike House.

Snilesworth, Hawnby

The principal landowners in this moorland township were the Manners family. In August 1842, the Mining Journal (20/08/1842) carried the following notice which had already appeared in the Durham Advertiser:

“VALUABLE DISCOVERY OF COAL IN YORKSHIRE. – A seam of very fine coal has recently been discovered in Smilesworth [sic] Vale, about five miles east of Osmotherley, in Yorkshire, much superior to any coal obtained for previous workings in that part of the country, but the place being almost inaccessible by roads, the inhabitants of that sequestered vale will be the only people at present who will be benefited by the discovery”.

It was probably around this time that a clay and tile works was built near Snilesworth Lodge, but it had gone before the end of the century. The site is now hidden by forestry.

Coal Ridge, Hawnby

An adit and several pits worked a coal along Stoneymoor Sike near Coal Ridge (Fox-Strangways, 1892).

Coal Hill, Whorlton

Whorlton was a crown manor until the time of Charles I, when it was granted to the Bruce family, of Kinloss. Thomas Bruce was created Baron Bruce of Whorlton in 1641, and one of his descendants became the Earl of Ailesbury in 1776. In 1821 the title was uprated to Marquis. In the later 19th century, the Marquis sold Whorlton estate, including the lordship of the manor, to James Emerson of Easby Hall.

The seam in Stoneymoor Sike appears to have been tried about three-quarters of a mile to the north at Coal Hill on Whorlton Moor.

Coal Mire, Whorlton

This site, in Clain Wood, may represent an outcrop of coal, though no workings are known. There was, however, jet mining in the area.

Rosedale Head Colliery, Rosedale East Side

In the area between the head of Rosedale and the Young and Old Ralph Crosses there are at least forty pits straddling the boundary between the Duncombes' Westerdale estate and the manor of Spaunton, which included Rosedale and which belonged to the Darleys of Aldby Park.

In 1776 George Sidebottom and Robert Watson are described as having previously mined at Rosedale Head, but it is not clear on which side. On the Westerdale side, however, an attempt by James Maw to reopen the mines is recorded in the *List of Mines* for 1875. Two years later they are credited to Colonel O. Duncombe.

Reeking Gill Pits, Rosedale East Side

No historical name has been found for the 45 pits around the head waters of Reeking Gill.

West Gill Head Colliery, Rosedale East Side

No historical name has been found for the 18 pits around West Gill Head.

Lampton Pits, Rosedale East Side

The 19 pits on the east side of North Gill are called Lampton Pits on the first edition 1:10560 Ordnance Survey sheet. No historical detail has been found.

Hartoft End Pits, Lastingham

A small number of pits have been sunk near the seam's outcrop where it runs around Coal Pit Rigg. Again, no historical detail has been found.

Hamer Coal Pits, Levisham

This is a group of around 34 shafts near Hamer House, in the north-western corner of Hartoft parish. The number of pits does not increase after the mid 1850s, when the Ordnance Survey mapped the area, suggesting that mining had ended.

Baysdale Head Colliery, Westerdale

This small colliery at the head of Baysdale, in the parish of Westerdale, is comprised of a small group of pits where the beck is crossed by the Flagged Road at Armouth Wath. According to Winch, another pit, further onto the moor and alongside Black Hagg Beck, was 106½ feet deep, with a 47 foot deep borehole from the bottom (Winch, 1821). Fox-Strangways reproduced Winch's section and suggested that the pit did not find coal, which Hayes and Hemingway questioned, adding that *“A certain reticence by the promoters of the project in the divulgence of information expensively obtained is however possible”* (Fox-Strangways et al, 1885; Fox-Strangways, 1892; Hayes, R.H. & Hemingway, 1986). Nevertheless, the inclusion of the phrase *“Here coal was expected”* on the section, at a depth of 85 feet 6 inches, convinces the present writer that Fox-Strangways was correct.

No.2 – Sinking

	Ft	ins
Walling from surface	10	6
Freestone, post (sandstone) & metals (shales) – here summarized	75	0
Here coal was expected		
White freestone.	21	0
Boring from the bottom of the pit		
White freestone, mixed with blue whin (Dogger ironstone)	12	0
Rag stone (Yeovilian?)	20	0
Alum Shale	15	0
	153	6

Winch's unlocated No.1 Sinking was 106 feet 6 inches deep, and his No.3 - Boring was *“left off in a coarse white post [sandstone] with a large feeder of water”* at 64 feet 6 inches. This suggests that the seam has been washed out to the south-east of Armouth Wath.

Hayes and Hemingway identified the ruins of a row of four stone-built single-storey cottages, said to have been for the colliers. They also pointed out that another building which was reputed to have been a smithy lacked any trace of slag or cinders when examined. Moreover, the quality of the stonework was felt to be too good for a smithy and they concluded that the building may, originally at least, have been a cell for Baysdale Abbey.

The only date for the workings is given in a sales notice which appeared in the York Courant as follows:-

“BASEDALE ABBEY. To be sold by auction by order of the Trustees of James Bradshaw Peirson Esq, 28 March 1803 at Garraways Coffee House, Change Alley, London ... MANOR and DEMESNE of BASEDALE ABBEY ... comprising a farm of 195 acres with an excellent house and buildings, together with Stokesley and Basedale Moors containing upwards of 3000 acres ... and a COALMINE supposed very considerable, at a small distance from the navigable River Tees, near its influx to the Ocean.”

Hayes and Hemingway concluded that mining continued at Baysdale for some years because it was a *“substantial, well-organised venture”*. In support of this, they point to the depths of the two recorded sinkings, each over 100 feet deep, and expenditure on boring from the base of one of them. They also cite the establishment of the Ingleby Coal Road and the Flagged

Road, which are both pannier-men's tracks, and suggest that they "could have had no other purpose but coal transport from Baysdale Head".

If, however, we accept that the shafts and borings proved the absence of coal, together with the fairly small number of pits, it suggests, to the contrary, that this was a short-lived venture, probably lasting no more than ten years, which worked in the late eighteenth century.

Danby Head and Fryup Collieries, Danby

These collieries are on either side of Danby High Moor between the heads of Danby and Great Fryup Dales.

In 1776 George Sidebottom and Robert Watson, who had previously mined at Rosedale Head, sought Lord Downe's permission to sink a pit at Danby Head. Sidebottom is listed as a coal miner in the Danby Parish register for 1786, but Danby Head Colliery was advertised for letting in 1788.

Birk Wath Coal Pits, Glaisdale

A small area of coal has been worked from three or four pits at the northern end of Glaisdale Moor.

Commondale, Commondale

The Providence firebrick and pipe works at Commondale got most of its clay from quarries around Skelderskew Farm, but its appearance in the *List of Mines* suggests that some mining for fireclay and ganister was also done.

1887-1893 Commondale Brick, Pipe & Pottery Co. Ltd
1896-1904 Commondale Brick & Pipe Co. Ltd
1935-1936 Crossley's Commondale Pipe Co. Ltd

1889 Standing
1897-1904 Standing
1935 Standing
1935-1936 Reopened
1936 Abandoned

Clitherbeck and Danby Low Moor (Castleton) Collieries, Danby

John Dawnay bought the manor of Danby in 1656, but it is not until 1749 that we have evidence of coal mining at Clitherbeck, near the confluence of Black and Clither Becks. In the latter year Henry Dawnay (Lord Downe) let his Low Moor Colliery at Clitherbeck, in Danby, to Michael Smith (NYCRO ZDS Rental). Smith was a local man who had risen from being a labourer to being a colliery owner.

A report to Lord Downe gives an insight to the estate's pits in 1768 (NYCRO ZDS IV 6/3 - frame 6738). They were about 150 feet deep, and six feet wide by eight feet long. The coal was drawn using a horse gin, not by men with a jack roll, in a corf, or basket, holding six pecks and weighing 10½ stones. The lessees worked one pit at a time, with four or five men employed underground, depending on demand. Depending on the distance from the pit bottom, the colliers were paid from 1s 10½d to 2s 1d per dozen or score, including hurrying, which was reckoned to be a bushel of ten gallons. The workings were drained by soughs and were troubled by black damp (carbon dioxide), but not firedamp (methane). In order to ventilate the pits, parallel gates were driven about five yards apart, and cross-gates driven every 30 yards or so. The roof was supported by wooden props (usually alder), and fifteen wagon loads of wood were used yearly. A load of coal wood was worth 5s 6d where it grew, and cost a further 5s 6d a load for carriage to the pit. Day labourers were paid from 1s 6d to 2s 0d per day.

Smith renewed his lease for a further seven years, at an annual rent of £70, in May 1769 and, at around the same time, he also bought a freehold intake at Clitherbeck (NYCRO ZDS IV 6/3 - frame 6140). In 1775, he began driving an adit to drain the coal under his land. The adit was driven under the common, where Lord Downe owned the minerals, but Smith had no permission

to do so. This resulted in a dispute, which lasted eight years, and involved two trials at York. Eventually, Lord Downe bought Smith out in 1784, paying him £1000 for the enclosure (Harrison, 1969).

The seam at Clitherbeck was also worked on both sides of the Clitherbeck valley, but most extensively along its east side at Danby Low Moor (Castleton) Colliery (Goldring, 2008). Coal mining around Clitherbeck continued until the mid 1860s, which coincides with the opening of the railway through Eskdale. No doubt encouraged by the 'Coal Famine' of the early 1870s, however, the Poverty Hill Pit, near Houlsyke, was worked by Brunton & Walker between 1875 and 1880, and again by Jos. Coverdale from 1885 to 1888 (List of Mines 1875 to 1893). This pit is still marked by the large shale heap.

May Beck and Allen Tofts Pits, Sneaton and Eskdale cum Ugglebarnby

Around 1810, a six inch seam was being worked near May Beck (NZ 892030), in Sneaton parish, four miles ENE of Goathland (Young and Bird, 1822). The land owner, James Wilson, was boring in search of deeper seams, and the hole, which was then 222 feet deep, had passed through a four inch seam at 74 feet and a five inch seam at 127 feet. The same source also notes that in the late eighteenth century a two foot thick coal was worked at Allen Tofts (NZ 830029), but this was found to be a localised thickening. Both seams were said to be not far below the grey (or blue) limestone.

A level (NZ 835051) alongside the road at Fair Head, near Grosmont, was said to have worked ganister.

Goathland Pits, Goathland

Joseph Bewick recorded that "There was a coal mine working below the Goathland Mill [now the railway station], and is thicker there than anywhere else being 18-20 inches thick, much of which is inferior. Originally it was worked to supply domestic purposes and also for lime burning, but the railways brought in better and cheaper coal" (Wainwright, 2005). When explored in 1928, the adit was around three foot six inches high (Dodsworth, 1974). It was supposedly sealed off by the local hunt to keep out foxes around the time of World War II.

Collier Gill, Egton

The seam's outcrop around Collier Gill, in the parish of Egton, is traced by a line of pits. It has also been worked in Julian Park, where the pits are near a 'Cinder Hill', suggesting a possible association with early iron working.

Gnipe How Pit, Hawkser cum Stainacre

Here a ten inch thick seam of coal outcropped in a bed of shale near the foot of the sea cliffs and dipped inland at about 1 in 30 (Hemingway and Owen, 1975). A local farmer had begun mining it a few years before William Smith's visit in December 1813 and was driving a level from near the high water mark. The level was driven under the seam and was about 60 yards long and, from the information given, would have cut the seam after 150 yards. Because of its proximity to the sea, and the difficulty of the path down the cliffs, the mine could only be worked in the summer. Winter storms caused part of the track to flood and drove the sea into the level mouth. Smith noted that headways were driven in the coal, at right angles to the level, for between 50 and 60 yards and that the seam became thinner in either direction. He does not say, but these headways were presumably driven from the top of short rises from the level into the coal.

Smith also noted that, in a nearby field, he had discovered "some beds of stone which will burn to a brown lime".

Borrowby, Borrowby

William Smith also recorded the occurrence of coal near Borrowby, but its disposition meant that, for it to be worked effectively, two neighbouring landowners (Mr Peters and Lord Mulgrave) would have to cooperate in driving an adit from the former's land into the latter's and then back again.

Smith estimated that “if the coal proves as thick as at Danby [in Eskdale]” each acre would produce about 2000 tons of coal, which sold at the pit for eight shillings per ton. This suggests that Smith was working on a seam thickness of from 14 to 15 inches. Despite his optimism, however, very little work appears to have been done.

Trout Hall Pits, Skelton and Brotton

This outlying site, near Skelton, had at least two shafts and is believed to have worked in the eighteenth century (Simon Chapman *pers comm.*).

Birdforth Colliery, Carlton Husthwaite

There is no clear pattern of variation in seam thickness, but the thickest seams appear to lie to the north of the belt of maximum deposition of the Ravenscar Group, roughly from Ravenscar to Kepwick. Nevertheless, the thickest known coal was at Birdforth, well to the south of the belt of maximum deposition. It appears, therefore, that the thicker seams formed on the flanks of the subsiding basin, rather than in the middle (Hemingway and Riddler, 1982).

At Birdforth a graben, formed by two converging faults here about 2/3rds of a mile apart, contains amongst others the Long Nab Member. The latter is stratigraphically immediately above the Moor Grit, which is apparently missing here, and had two seams. The upper was 11 to 16 inches thick and the lower, near its base, reportedly reached a maximum thickness of from three to four feet thick (Fox-Strangways, 1892).

There is a comprehensive collection of accounts for Birdforth Colliery between 1796 and 1798 in the North Yorkshire Record Office, which details expenditure and sales income, as well as giving employment and production records. John Owen used them to write his paper *The Moor Coal of North Yorkshire: The Thirsk Area*, which gives a detailed account of events over a four or five year period of working (Owen, 1970a). These accounts would, however, repay re-examination in greater detail.

The earliest reference to mining was that “*The colliery began to sink a pit for coals in the summer of 1791*” (NYCRO ZDS IV 1/1/3 - frame 1325). This was probably the shaft later referred to as “*An old pit found by Mr [John] Horner 12 yards deep the Coal seam in it 14 inches*”. There was also “*A pitt called Barugh far pitt [which] was sunk by Mr Horner 29 yards deep*”. Soon afterwards, the farmer, G. Barker, was “*Abated 4/- per acre*”, presumably for surface damage done by the colliery.

The dip of the seam and the quantity of water met, soon made a steam pumping-engine necessary. The cost of running such an engine probably made the mine uneconomic, however, and Horner had apparently given it up by 05/02/1796, when Lord Downe, the lord of the manor, took it over. Owen noted an item for “*Coals bought of Horner when repairing the Engine*” and suggested that he “*was, in fact, still working a mine in that area*”. It seems unlikely that this pit was at Birdforth, but it may have been at Kilburn, where Horner lived. He also had lead mining interests at Greenhow Hill, in Nidderdale, and at Leadhills², in Lanarkshire, and was involved with a colliery near Durham (Gill, 1998; Harvey, ND).

Luke Plummer, Lord Downe’s overseer, set the men to raise coal, sank new pits and searched for coal down-dip of the working. Between February and July 1797 two men were prospecting the area by boring. Their first hole reached shale after being bored through 32 feet of clay. The rods were impeded by stones, however, and it was necessary to sink a pit 33 feet to the rockhead, with the intention of boring from there. They found that the beds were rising “*west by north*”, convincing them that the coal would have been deeper than could be drained from the engine pit, so they gave up.

2 In 1808 a company headed by John Horner, which traded as the Leadhills Mining Company, took over the lease on Brow vein.

Their next hole, which was nearer the workings, reached a depth of 157 feet when the shell came off the rods and could not be recovered, forcing them to abandon the hole. They had penetrated 21 feet into a bed of freestone, which they called the Middle Rock, and estimated that the hole was 45 feet short of the seam, giving a total expected depth of 202 feet.

In December 1797 ten men were getting coal at Smithson’s Little Pit where, in the week December 29th to January 6th 1798 “*The pit fell in on Monday morning and the men only got one day to work on Saturday and then were set on to open it again so there was only 15 dozen and 8 corves of coals to put on this bill and the remainder of the week they were opening the pit*”. The pit was working again on the following Tuesday.

Faced with rising losses, the engine was stopped on October 22nd 1797, having burnt some 1560 chaldrons of coal since Lord Downe took over. It then only worked for a few days in 1798 when the pit was drained in order to remove the pumps etc. All work stopped on April 9th 1798.

Gilling East Pits, Gilling East

One of the earliest references to coal mining is for a lease, dated May 1648, of coal on the moors between Yearsley and Gilling East. It extended the scope of an agreement between Viscount Fairfax, of Gilling Castle, and Henry Hodgson, dated 09/11/1647, letting “*his Lordship’s colemines upon Gillinge or Yearsley moore*” to Hodgson for a year (NYCRO ZQG(F)). Hodgson’s rent was fifty pounds, split into four quarterly payments, and he would also give Fairfax “*five waine loads of coles*”. In return, Fairfax had set out timber, valued at eight pounds, for use in the pits. It is not clear how much work was done, all traces of mining having been removed from the landscape by ploughing.

Newburgh Park Colliery, Coxwold

This short-lived, late eighteenth century, mine is thought to have been nearly a mile south of Newburgh Priory, Lord Fauconberg’s seat. The seam, which dipped to the east at about 1 in 14, was said to vary between ten and sixteen inches in thickness.

Section of the Engine Pit (Fox-Strangways, 1892).

	Ft	Ins
Soil	6	0
Blue metal	4	6
Soft blue metal	30	0
Strong grey metal with catheads	1	0
Coarse strong grey post	7	0
COAL	1	4
	49	10

The colliery was tried again in October 1804, when T.E. Wynn Belasyse, who had married the late Lord Fauconberg’s eldest daughter, leased it to Glynn Wynn, of Lincolns Inn Fields, for a year (NYCRO ZQG(F)).

Kepwick Colliery, Cowesby

William Mothersill was already quarrying and burning limestone on the escarpment at Kepwick when, in 1762, he found a seam of lime coal between 16 and 17 inches thick in a 117 feet deep shaft. Lord Fauconberg’s agent, Richard Chapman, advised him that Mothersill, who proposed going into partnership with another man, wanted to lease the coal for five or seven years at a rent of £6 per annum, “*with leave to bore or sink in any part of your Lordship there*”. Fauconberg was to give them four or five ash or oak trees for making a gin to draw up the coals etc. (NYCRO ZDV - frame 1811).

Mothersill and his partner believed that there was a better, deeper coal to be found, and proposed boring for it, but as negotiations for the lease progressed Chapman discovered that he was poor and in debt and the other man had “*perhaps around £100 to spend*”.

The matter was still not settled by April 1763, when the men working in the first pit told Chapman they were afraid of the seam running out. They had agreed to get 400 chaldrons a year and were being paid about six shillings a chaldron. It cost a further three shillings a chaldron to carry the coal up the hill to the kilns, where it sold for ten shillings a chaldron. This gave them a surplus of around £20 per year, from which they paid £6 to Lord Fauconberg, "*the tenant satisfaction for damage, besides expenses of corves, framing wood, props etc*" (NYCRO ZDV - frame 1815).

It appears likely that the men's fears of the pit becoming exhausted were justified, because no further record of it has been found.

DURATION OF COAL MINING

With the exception of Hodgson's lease at Gilling East in 1647, and Ford's at Ankness in 1715, practically all of the information on the chronology of mining is compressed into the twenty-one years from the grants of Duncombe's various collieries made in 1780 to the end of the run of rental surveys produced by Seaton between 1786 and 1801. Using Rudland as an example, the latter allow an estimate to be made of the average annual rate of coal extraction, which was 2.57 acres. Given that the pits cover an area of around 285 acres, this would represent a life of around 110 years. This crude estimate, of course, assumes that only one part of Rudland was being worked at once, with similar numbers of men, but it appears likely that, like Ankness, work began at Rudland in the early decades of the eighteenth century.

There is also some information on people's occupations in the Lastingham and Danby parish registers. In the former this begins in 1782 and in the latter in 1773. There are also the decadal censuses from 1841 onwards. These sources can be used to identify coal miners, but it is impossible to be certain which of the collieries an individual was working at. The Parish Register data is also weighted towards younger, more fecund, members of the community, who got married and then baptised children. Single, or older married men tend only to appear when they die!

In order to gain an impression of the general dynamics of the area's coal industry, it was decided to examine a southern area, in which the valleys drain southwards and which broadly corresponds with Lastingham parish, and a northern area, where the valleys drain into Eskdale and which broadly corresponds with Danby parish. The results are as follows:-

Danby parish registers record some 73 coal miners between 1773 and 1848. To these must be added 22 men simply described as miners, between 1799 and 1849. Of coal miners, the addresses of 43 were given. Twelve were living around Danby, Houlsyke and Clitherbeck, centred on the pits in Clitherbeck valley, between 1794 and 1846. The other 31 were in Danby and Great Fryup Dales, between 1807 and 1848. Of the unspecified miners, nine lived in Danby and Great Fryup Dales, between 1823 and 1847. Two lived down at Grosmont, and the rest had no address.

Together with the archival sources, this confirms that the pits around the Clitherbeck valley were active from the mid-eighteenth century and continued well into the nineteenth, probably closing in the 1860s, but reopening in a small way in the 1870s. The mines in Danby and Great Fryup Dales began later in the eighteenth century, but became dominant in the early nineteenth century.

Lastingham parish registers record some 49 coal miners between 1782 and 1847. Of those some 39 were living in Farndale, with five at Blakey and Sled Shoe, between 1782 and 1847. In Rosedale, there were three between 1815 and 1826, and one in 1845. There was one near Hartoft in 1786. Of the eight unspecified miners, eight were in Farndale between 1831 and 1843, and three were in Rosedale between 1834 and 1844. There seems to have been two attempts to revive coal mining in Rosedale. The first around 1877 and the other around 1890.

It must be remembered, however, that the absence of miners from parish registers does not necessarily mean that the mines had closed. It might, for example, indicate a settled, mature workforce which is not producing children. Such a situation would probably not have been sustained for more than ten years or so. The attraction of working men to non-conformist religion is another likely factor in their disappearance from Church of England records.

No attempt was made to follow the migration of miners, but one family from Farndale was detected during research into miners in the Morley area, near Leeds (Hazel Martell *pers comm.*). John Teasdale and his wife, Jane, are recorded in the Lastingham parish registers between 1793 and 1811. In August 1838 Joshua Teasdale, their grandson, was born in Farndale, where his father, also called Joshua, was a coal miner. By 1871, the elder Joshua was a grocer in Morley and the younger one was working at Morley Main Colliery, where he was killed at the age of 34 in the explosion on October 7th 1872.

CONCLUSION

Coal mining on the North Yorks Moors was only of local importance, unlike the alum, ironstone and, arguably, the jet industries there. Nevertheless, as in the Dales, coal pits were an important part of the local economy, especially in allowing the improvement of large tracts of acidic soil, by liming, which without local coal would have been prohibitively expensive. There are also plenty of references to coal being sold for use in domestic hearths. Unlike in the Dales, however, there is a conspicuous absence of references to, or archaeological evidence for, coke making, confirming the analyst's description of it as a non-coking coal.

Although no plans of the workings, which are often described as bell pits, are known to have survived, it is clear that most collieries used a more complex system of long bords, supported by long, narrow pillars. Probably because of fears relating to surface damage, pillar removal does not seem to have been usual. Other reasons for leaving pillars in are the need to maintain competence of the roof or the proximity of an aquifer above the workings.

There is a pressing need for detailed archaeological assessments of colliery sites. Among other mining features, this might recognize attempts at coke making. It might also give more clues about the horse gins which we know were sometimes used to raise coal, but which are not obvious on aerial photography. It is perhaps more likely that, as shown in the list of plant at Weathercote, most pits relied on turngear (a windlass) for raising the coal. It may also be possible to identify the network of routes used to transport the coal to limekilns and neighbouring villages.

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Sheet	Area covered	Scale
34	Guisborough	1:50,000
34 & 35	Whitby & Scalby	1:50,000
42	Northallerton	1:50,000
43	Egton (Eskdale & Farndale)	1:50,000
52	Thirsk	1:50,000
53	Pickering	1:50,000

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NYCRO ZEW IV 13/1 – 16/12/1715 Grant of coal between Mathew Ford of Padmore, Yeoman, and Thomas Duncombe's trustees.

NYCRO ZEW IV 13/1 – 01/08/1780 - Memorandum that William Sturdy hath taken to farm of Thomas Duncombe Esq. a coal work at the lower end of the moor called Rudland Colliery.

NYCRO ZEW IV 13/1 – 12/11/1780 - Memorandum that John Featherston hath taken the farm of Christopher Slingsby Duncombe two collieries called Great Blakey and Little Blakey. To pay £42 per acre of coal wrought.

NYCRO ZEW IV 13/1 – 13/11/1780 Memorandum that James Gowlan and William Norminton hath taken the farm of C.S. Duncombe of Ankness Colliery.

NYCRO ZEW IV 13/1 – 14/11/1780 - Memorandum that Henry Baldwin and James Craven hath taken the farm of Swinahall nearly adjoining Rudland Colliery, now in the possession of William Sturdy.

NYCRO ZEW IV 13/1 – 05/01/1781 - Memorandum that Isaac Holmes hath taken of Christopher Slingsby Duncombe the colliery near Carr Coat at the lower end of Bilsdale.

NYCRO ZEW IV 13/1 – 28/12/1781 - Memorandum that Benjamin Barraclough and John Rush hath taken a colliery called Widderith (Weather Cote).

NYCRO ZEW IV 13/1 – 22/04/1782 - Memorandum that Anthony Stonehouse and Thomas Ward hath taken a colliery called Harland Colliery. At the rate of £40 per acre.

NYCRO ZEW IV 13/1 – 30/03/1787 - Memorandum that John Rush, of Bransdale, coal miner, take of C.S. Duncombe for 1½ years at £40 per 12 inches

NYCRO ZEW IV 13/1 – 05/04/1787 - Memorandum of working materials, tools etc. and extra work done at Weather Cote Colliery late worked by Benjamin Barraclough and now let to John Rush.

NYCRO ZQG(F)

APPENDIX 1 – LIST OF COAL MINES IN THE NORTH YORKSHIRE MOORS AREA

Name of coal pits	Civil Parish	National Grid Ref.	
Allen Tofts	Eskdaleside cum Ugglebarnby	NZ 483000	502900
Ankness Colliery	Bransdale	SE 463520	493270
Baysdale Head Colliery	Westerdale	NZ 462105	503710
Beck Hole Coal Pits	Goathland	NZ 483030	502335
Bilsdale Colliery	Rievaulx	SE 455875	492950
Birdforth Colliery	Carlton Husthwaite	SE 448685	477005
Birk Wath Coal Pits	Glaisdale	NZ 472770	502330
Blakey Colliery	Farndale East	SE 466590	400180
Blakey Pits	Rosedale East Side	NZ 468000	500200
Borrowby Coal Pit	Borrowby	NZ 477345	415385
Carr Cote Colliery	Rievaulx	SE 457590	491410
Castleton Pits	Danby	NZ 471197	509536
Clitherbeck Colliery	Danby	NZ 471490	509950
Coal Pit Hill	Rosedale East Side	SE 472100	499100
Coal Pit Rigg	Lastingham	SE 475000	492800
Coal Hill	Whorlton	SE 450540	499090
Coal Ridge	Hawnby	NZ 450265	597775
Coalmire	Whorlton	NZ 447600	500600
Coalpit Wood	Crathorne	NZ 444685	508750
Collier Gill Pits	Egton	NZ 479685	500027
Commondale	Commondale	NZ 466200	510600
Danby Head Colliery	Danby	NZ 469465	501675
Danby Low Moor Colliery	Danby	NZ 471990	509610
Fryup Colliery	Danby	SE 470700	502130
Ganister Level	Eskdaleside cum Ugglebarnby	NZ 483575	505105
Gibson House Coal Pits	Egton	SE 474495	499750
Gnipe How Coal Pit	Hawsker cum Stainacre	NZ 493720	508665
Goathland Pit	Goathland	NZ 483695	501365
Hamer Coal Pits	Levisham	SE 474190	499220
Harland Head Colliery	Farndale West	SE 466235	493240
Hartoft End Pits	Lastingham	SE 475050	492830
Helmsley Moor Coal Pits	Helmsley	SE 460285	492665
Hodgson's Coal Pits	Gilling East	SE 459505	475755
Julian Park Coal Pits	Egton	NZ 480739	501064
Julian Park Coal Pits	Egton	NZ 480790	501270
Kepwick Colliery	Cowesby	SE 448045	490460
Kilburn Coal Pit	Kilburn High & Low	SE 451880	480835
Ladhill Gill Pits (East)	Hawnby	SE 455015	492865
Ladhill Gill Pits (West)	Hawnby	SE 454560	492865
Lampton Pits	Rosedale East Side	SE 473300	499500
Larpool Wood Coal Trial	Whitby	NZ 489850	509535
May Beck	Sneaton	NZ 489200	503000
Newburgh Park Colliery	Coxwold	SE 454500	475100
Pockley Moor Coal Pits	Pockley	SE 461270	493060
Poverty Hill Pit	Danby	NZ 472660	508650
Providence Works	Commondale	NZ 466200	510600
Reeking Gill Head Colliery	Rosedale East Side	NZ 469225	501060
Rosedale Head Colliery	Rosedale East Side	NZ 468020	501750
Rudland Colliery	Bransdale	SE 464955	498350
Sled Shoe Colliery	Farndale East	SE 468785	497560
Snilesworth Lodge Works	Hawnby	SE 451095	495705
Swinacle Colliery	Bransdale	SE 464490	493110
Tom Pits	Danby	NZ 469600	502000
Trout Hall Pits	Skelton & Brotton	NZ 466285	518370
Upper Rudland Colliery	Bransdale	SE 465040	494855
Wether Cote Colliery	Nawton	SE 464790	489450
West Gill Head Colliery	Rosedale East Side	NZ 470560	500550