

THE MINING OF COAL IN THE COLEFORD DISTRICT

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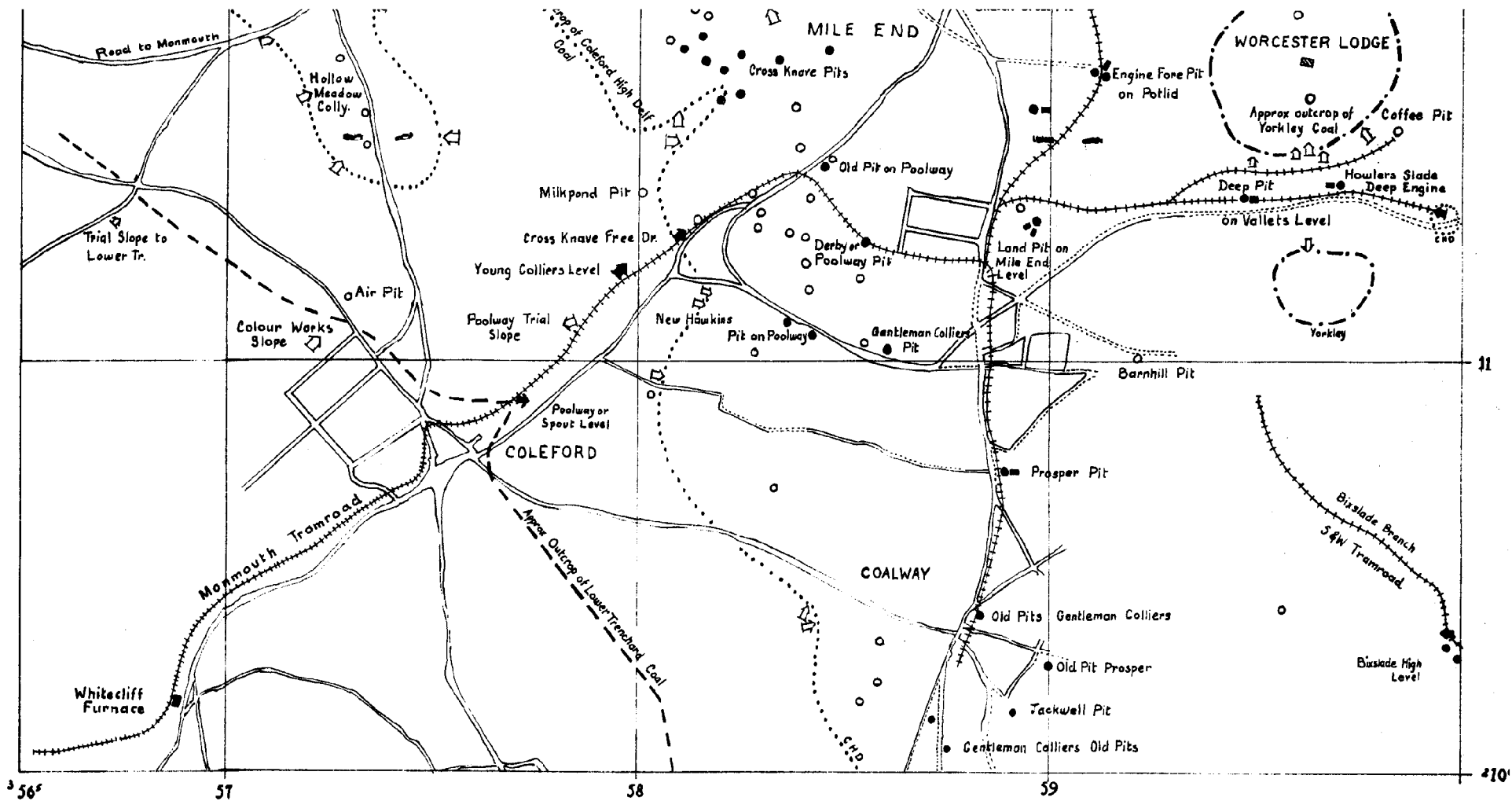
BEFORE 1850

The information presented here was researched at the request of Dr. Cyril Hart for use in his forthcoming book which deals with the history of Coleford. As that book will chronologically divide the information and use only a small area of the map the paper is published in complete form here. The present author would like to pay tribute to the previous researches of the Rev. H.G. Nicholls, H.W. Parr and Dr. Hart himself. Without their meticulously researched and published works our knowledge of the history of the Dean would be scant indeed.

The high ground to the north and east of the town of Coleford is formed by rocks of Coal Measures age and contain productive coal seams. (1) (2). These rocks form a westward extension of the main basin coalfield of the Dean and occupy the minor Worcester Syncline so named after the Worcester Walk and Lodge. There are three productive coal seams; the Lower Trenchard or Low Delf, the Coleford High Delf, and the Yorkley or Yard Delf. From an economic viewpoint only the Coleford High Delf was important and averaged between 4 and 6 feet in thickness. Both of the other two seams were worked, the Lower Trenchard being favoured for metallurgical coke in the early 19th century, but the percentage output that they contributed to the total was very small in the area under consideration. The seams are in general not deeper than 200 feet below the surface whilst their inclinations are gentle. Calculation suggests that something in excess of 15 million tons of coal thus lay waiting to be exploited in the area covered by the map. Because of those factors and unlike the coals at much greater depth in the main basin, the coals around Coleford attracted early working.

The nature of coal and the rocks in which it is found impose certain difficulties upon the aspiring miner of coal. The Coal measures generally are soft rocks which do not well support themselves and in consequence almost any openings made in them require support. The winning of coal thus demanded large quantities of suitable timber for roads and faces. This demand was not always compatible with the policy of the Crown and its growth of timber for naval purposes.

Beneath each coal seam lies a bed of fireclay or seat-earth which is impervious to water. As a result, water collecting in the mines from the strata above cannot then drain away. This soon prevents useful further working unless drainage can be effected. The earliest workings would therefore take place wherever the topography allowed coal to be worked in an uphill direction so as to be self or free draining. Deeper coal could only be unwatered



Legend

- Coalpit or Shaft.
- Coalpit or Shaft shown by Sopwith 1835.
- Shaft with probable engine house in 1835.
- Coal level or Surface.
- ▣ Coal level or Surface shown by Sopwith 1835.
- Course of tramroads.
- Approximate outcrop of Coleford High Delf.
- " " " Yorkley Seam.
- " " " Lower Trenchard Seam.

Collieries compiled from archival sources by I. Standing. Roads based on O.S. 6" map 1st Edition 1899.

Drawn for publication by G.L. Clissold. October 1980.

by the driving of long distance free drainage levels from valleys. Such free drainage levels can be seen on the map particularly those of Thatch and Potlid gales. It will be noted that the lines of shafts on these gales are almost horseshoe in shape as were the free drainage levels beneath them. Their course was dictated below ground by varying altitude of the seam itself. From about 1750 onwards it was possible, in theory at least, to pump water from mines by use of steam engines, and also to wind coal up shafts by this form of mechanical power.

A further difficulty was the accumulation of carbon dioxide gas due chiefly to the oxidation of exposed coal seams. Such gas was known as blackdamp or more descriptively as chokedamp. As concentrations of carbon dioxide rose so respiration became increasingly difficult whilst candle and other forms of naked flame light would not burn. Concentrations much above 3% became fatal. Efficient ventilation was thus a requisite for winning coal. No explosive gases occur in the Dean coalfield.

The date at which coal mining first began around Coleford is not known and it is difficult to envisage any economic reason for its commencement prior to medieval times. The Record of the Forst of Dene in 1282 states that Cecilia de Michegros claimed the pits of sea-coal (*carbonis marini*) in her Bailiwick of Bickenore - an area in which most of the Coleford district fell. The scale of extraction prior to the 17th century must have been small because wood, of which there were abundant supplies, was preferred as both an industrial and a domestic fuel. Coal was probably used for burning lime and possibly for the smithing (as opposed to the smelting) of iron. Little is known of the exact places of working before 1637 when Edward Terringham was granted "all the mines of coal and quarries of grindstone" in the forest for a term of 31 years at a rent of £30.(3). He and others sank coal pits at Coleford and elsewhere. Three mines were sunk in the Stanck near Newland - an interesting location situated well to the west of any coal seams!

The method and scale of coal workings prior to 1750 would be simple and small. Doubtless many techniques were adapted from the mining of iron ores which had been carried on in the Dean since Iron Age times. Field work has failed to disclose any major groups of bell pits on the Coleford High Delf in this district, although they are common enough elsewhere in the Dean. Probably the hard sandstone roof of the seam was sufficient discouragement for numerous short lived, vertical shafts especially when the seam could be reached by free draining levels or surffes from the outcrop and valley sides. Coal and dirt were probably carried from the pits on the backs of miners in a hod or billy, as used in the iron ore mines. Small hods or sledges may also have found a use in the levels and roadways. Where access was by a shaft a simple hand windlass or capstan sufficed. In the 18th century horse whims may have found more common usage only to be replaced, in bigger pits, by steam engines from around 1800 onwards.

The map shows considerable collections of shafts at Bridewell, Joyford and Cross Knave which might be mistaken for the earlier bell pit method of working. They are far more likely to be the sort of collieries that Rudder (4) described in 1799 which

"were not deep - because when the miners find themselves much incommoded with water, they sink a new one, rather than erect a Fire engine, which might well answer the expense very well". Taylor's map of 1777 shows three engines in the Forest but these were probably water wheel pumping devices. According to Nicholls, (5) the first fire or steam engine was erected at the Oiling-Gin, near Broadmoor, in 1776. The first steam engine erected in the area now under consideration, was by James Teague at his pit on Potlid around 1800, (6) of which more will be said later. Wheeled vehicles for use in transporting coal below ground probably made their appearance from about 1750 onwards.

The demand for coal increased steadily over the 17th and 18th centuries and collieries to open near Coleford included (7) Dark Pit in Coverham, 1706; Sally Pit, Coleford, 1720; The Ninewells, 1722; The Old Colliery near Coleford, 1724; The Gentlemen Colliers, 1735; Bushes Pit, Berry Hill, 1739.

In 1753 a lawsuit was heard at the Mine Law Court when the verns of a colliery named the Gentlemen Colliers complained of other verns forbidding them out of the colliery "that we should not get any coal on the deep side of our former work, which coal our level drains and ours being the most ancient level; we have attended the place and burned our light according to our laws and customs". (8)

In 1787 the following pits were listed in the Worcester Walk: Found Out Pits, Broomy Knoll (Cross Knave), Bushes Pit, Prosper Work, Nine Wells, Society Pit and Wimberry Pit.(9) There would in addition to these be many more pits situated outside Crown lands.

By 1800 demand was increased still further by several factors. Dean's coal was ideal for steam raising and was doubtless already being exported beyond the area. In addition the Napoleonic Wars had increased demand for iron and coke-fuelled blast furnaces had been erected in the Dean at Cinderford, 1795, and Parkend and Whitecliff 1798. Certain coal owners were becoming rich and outside capitalists were eager to join them as partners and also to acquire mineral interests of their own. One such local man was James Teague of Coleford who by 1801 and probably earlier had erected a steam engine and sunk a pit on his Potlid Gale about a mile north of Broadwell. Together with his partners Bishton and Phillips, iron masters from Shropshire, he built an unauthorised tramroad northwards to Lydbrook via White Oak and Hangerbury to facilitate his shipping coal to Hereford by the River Wye.(6) The coal trade desperately needed improved transport to reach river and coastal ports. General authorised tramroads were built in the period 1810 to 1812 and were to a large degree financed by the coal owners. The many millions of tons of coal around Coleford made a sound economic reason for building the Monmouth Tramroad which ran via Redbrook, Whitecliff, Coleford to the larger collieries above. Its course is shown on the map.

James Teague was also a partner in the Whitecliff Furnace. By 1808 and probably some years earlier Thomas Halford, a wealthy stockbroker from London had also bought a partnership at Whitecliff in the hope of becoming still wealthier. His letters to David

Mushet over the period 1808 to 1813 (10) & (11), throw much light on the coal trade of the times. David Mushet then living at Alferton, Derbs., had by 1809 acquired the Bixslade Gale probably through James Teague and had started mining. Halford was eager to procure any and every gale available, partly to ensure coal supplies for coking at Whitecliff and partly for investment. In 1808 he wrote to Mushet "James told me we might have what gales we please and although there is more coal than we can exhaust in our lives I would not lose an ounce. If we do not use it, in a few years I have no doubt it will sell well". In addition to Bixslade interests were acquired with Teague's help in Hopewell, Poolway Leval (probably for Lower Trenchard) Gentlemen Colliers and Prosper Gales.

On Halford's advice, Mushet introduced some Derbyshire miners at Bixslade. This evidently did not please the local miners and some sort of affray or attack was made. Halford wrote to Mushet "What have you done for the Derby men? I would most certainly punish the aggressors as severely as possible. All combinations against foreigners must be resisted with spirit and promptitude. A few of the foresters sent to jail for a few months should set the matter at rest".

With the coming of the Monmouth Tramroad in 1812 and the branches of the Severn and Wye Tramroad approaching the area from the east by the valleys of Wimberry Slade, Howlers Slade, Bixslade and Fetterhill, large scale expansion of the coal works took place. One further factor which was to aid this expansion was the Award of the Dean Forest Mining Commissioners in 1841. Prior to their deliberations the position on mineral rights and ownerships had become confused. The traditional customs and privileges of the free miners as recorded in the Book of Dennis could hardly cope with the demands of the increasingly capital intensive development and doubts over ownerships caused various difficulties.

One of the three Commissioners was Thomas Sopwith a noted mining surveyor who spent some years surveying the Dean both above and below ground. In 1835 he published his large scale series of plans whilst the Award of Coal and Iron Mines was published in 1841. On the map which accompanies this paper all the collieries mapped by Sopwith are represented by solid symbols. About 100 collieries are shown in 1835 of which 11 appear to be equipped with engine houses. The years 1800 to 1840 saw the emergence of the rich coal owner in the area and the award of 1841 confirmed most but not all of their holdings. James and Peter Teague of Coleford had interests in many of the gales around Coleford including Hopewell, Potlid, New Found Out, Prosper and Gentlemen Colliers. The following list of collieries and some of their details was made in 1841. (12):

Name	Depth	How Raised	Tons raised p.a.
Mile End Pit. Trotter Thomas & Co.	67 yds.	16 inch cylinder High pressure engine	6,000
Near the Last. Teague, Parry & Lewis	60-70	One horse whim.	2,700
Middle Pit. Peter Teague	80	One horse whim.	4,800
Upper Engine Trotter Thomas & Co.	67	Engine winches	4,500
Prospect Pit Peter Teague	40-50	One horse whim	3,300
Darby Pit Trotter Thomas & Co.	40-50	One horse whim	3,300
Bixhead Slade and pit Morrels	25	Small high pressure steam engine.	8,400
Lower Bixhead Slade David Mushet		A level	9,600
Upper Bixhead Level David Mushet		A level	21,000
Whimberry Slade Hopewell, Peter Teague		A level	7,500
Speedwell Pit Whitehouse	30	one horse whim	4,800
Five Acres, Cross Knave Elly & Nelmes	30	one horse whim	2,400
Thatched Pit John Lewis	66	one horse whim	2,400
Newfoundland Pit John Lewis	66	one horse whim	3,600
Found Out Pit John Lewis	standing but intended to be worked again.		
Hopewell Morrels	46	steam engine	14,100
Success Level Trotter Thomas & Co.		A level	7,200
Fetteral Pit Level. Blanch & James		A level	13,125

Winnel Level & Pit
Trotter Thomas & Co

A level

6,300

Howlers Slade
Trotter Thomas & Co

A level

15,000

The Coleford district was thus raising about 145,000 tons per year almost one third of the whole of the output for the Dean. The largest operator was undoubtedly Trotter Thomas & Co. but there were other major producers including David Mushet. The deep slades on the east margin of the district allowed the working of coal by long levels which would be free draining and horse drawn. Perhaps ventilation would be the only major difficulty and it is noticeable how these levels were winning the highest tonnages.

It is interesting to note that Peter Teague was raising from Middle Pit with one horse whim more than Trotter Thomas were raising from Upper Engine - powered by steam. Judging by the output figures in the tables, winding coal by shaft clearly imposed limits on how much coal could be produced. Tonnages are, however, also related to other factors such as the amount of coal opened up, numbers of colliers employed, water difficulties and so on.

The coal industry around Coleford probably peaked around 1840-1850 and thereafter declined. By this time coal owners were concentrating on reaching the valuable, but thinner, house coal seams which lay at depth in the main basin and several large collieries came into production beyond the Coleford district. These included Lightmoor, New Fancy, Trafalgar, Foxes Bridge and Crump Meadow, all of which had a life of between 50 and 100 years. They in turn were closed and superseded by a series of large pits which exploited the Coleford High Delf from even greater depths in the main basin. These pits included Arthur & Edward Cannop, Northern United, Eastern United and Princess Royal, all of which began in the early 20th century and worked for about 50 years.

The customs and privileges of the Dean miner or the "Free mining rights" as they are commonly called, have always allowed the small operator to win coal on his own account. In consequence a number of small private collieries still work coal in the Dean. Those at work near Coleford are described in Dr. Cyril Hart's forthcoming history of the area entitled "This our Coleford" which is now in preparation.

The Map

The map covers an area of about four square miles. The town of Coleford lies towards the south-west corner at the junction of three small valleys which coalesce to form the main valley which drains south-west through Whitecliff and towards Newland. This was the valley which was used by the Monmouth Tramroad to reach the major pits lying between Edge End and Coalway. It is surprising that no branch was ever built towards the Berry Hill area which, as the map shows, was rich in collieries.

Over two hundred shafts and levels have been plotted by research and fieldwork and the principal sources used are detailed

below. There is a marked paucity of collieries along the course of the Horse Fault, which runs from Berry Hill southeast towards Worcester Lodge. Although called a fault by miners it is really the fossil channel of a sizeable river which flowed in Carboniferous times and eroded the Coleford High Delf coal. It was described quite early in the geological literature by John Buddle, an eminent 19th century authority on mining and one of the three Dean Forest Mining Commissioners. (13).

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