THE EAST SHROPSHIRE MINING DISTRICT

From The Miners’ Guide by Thomas Smith 1836

The East Shropshire mines of coal and ironstone, are found in a district, of which the boundary line may be drawn from the most northerly point, near Newport, through Prior’s Leigh, Madeley, and Broseley, nearly as far to the south-west as Much-Wenlock;—then returning northward to the neighbourhood of the Wrekin Hill, and through Wellington and Hadley, towards Newport, the point at which we commenced. Its length may be thirteen miles, and its greatest width about five miles; the area being about fifty square miles.

The great Shrewsbury and Holyhead road, after crossing the South Staffordshire coal-field, traverses this district, from Prior’s Leigh to Wellington, and presents to the traveller many scenes of great interest, all illustrative of the mineral productions of the earth, the occupations of the inhabitants, and the means which human ingenuity and enterprise, in obedience to increasing demand, have devised to facilitate the attainment and manipulation of the valuable mineral stores, and to effect their dispersion, when rendered available for use. The face of the country, without possessing features of actual beauty or grandeur, becomes striking, as the road, surmounting the ascent from Prior’s Leigh, commands the extensive scene of active industrial pursuits; the eye ranging over a wide panorama, from the Ketley Works on the left, to Hadley and Lillieshall on the right. The variations of the surface are considerable, and are parcelled out into forms of somewhat dreary wildness, unrelieved by the richness of vegetation. The mining and manufacturing buildings and machinery are seen at several points, and the smoke and blackness of furnaces, forges, and foundries, give a tone to every part of the prospect. The hurrying carriages are seen to flit along the railways and inclined planes,—conveying their burdens from the mines and works to the canals which intersect the country, and which provide a cheap mode of communication with the great seats of commercial enterprise throughout the empire.

The coal and ironstone strata, in this district, as in South Staffordshire, repose on a thick bed of transition or mountain limestone, which, for the most part, is of the kind denominated black limestone. The rise of this stratum is to the west north-west, usually at a gentle angle, and as we have elsewhere observed, it seems at all events possible, and a rational conclusion from analogies of other situations, that the limestone which appears in this country, is in fact a continuation, and re-ascention of the beds which dip down from the hills at Sedgley, and which, with all their super-imposed mineral strata, are lost, for many miles under the prevalent and deep beds of red sand stone. The principal points where the limestone appears, are on the banks of the Severn, near Coalbrook Dale; on Wenlock Edge, a line of considerable elevation, where marine fossil remains are extremely abundant, and again on the side of the Wrekin Hill. At all these places, the similarity of the limestone to that of Sedgley is apparent. At Wellington, again, it approaches the surface, but there bears more affinity in colour and in its fossil accompaniments, to the white lime of Dudley. At Lillieshall, and near Newport, it is obtained at a moderate depth, and is known as the red lime, but its texture and the large size of the shells which are frequently found embedded in it, declare its affinity with the lime stone of Sedgley. The stone of Wellington and Lillieshall is preferred as flux for the smelting furnaces.

Faults and dykes of various magnitudes occur in this basin, as in that of South Staffordshire; a very remarkable instance may be noticed, as extending from southeast to north-west, near Wombridge and Donnington; on the north side of this fault the clod coal, which, in the Wombridge mines, lies 177 yards below the surface, is found at the depth of only 25 yards. The place of the same coal at Prior’s Leigh, is not less than 300 yards deep.

The strata deposited in this basin are, generally speaking, of a nature similar to those of Staffordshire, and the trap, basalt, or green rock, is occasionally interposed between the strata, or accumulated in dykes, as in the other districts, but there appears no similarity or connexion in the order of deposition; nor is there any coal formation which bears any comparison with the (hick or ten yard coal of
Staffordshire. The beds of coal, are, however, numerous, and several of them of excellent quality, but none exceeding five feet in thickness, except the "double coal," which is about two yards thick, and of which the name declares the comparative importance, among the other strata of the district.

Several of the coal measures are remarkably free from the sulphur, which, where it abounds, is so detrimental to the quality of the coal, and so prejudicial in the work of smelting at the iron furnaces. The ironstone, too, is of superior quality, and the pigs, bars, and rods of this country are fully equal to those produced from the Staffordshire iron works. Vast quantities of coal, of iron in its various saleable forms, and of heavy castings, are conveyed by the canals to the river Severn. From Stourport, on this river, they find their way in some degree into Staffordshire and to Birmingham, but the principal portions descend the river, and are dispersed from Worcester, Glocester, and Bristol, to more distant markets.

MODE OF WORKING THE COAL AND IRONSTONE MEASURES

We now proceed to describe the operations of getting the various beds of ironstone and coal, which prevail in the stratification of this basin. It will be observed on reference to the section of the Wombridge mine, that the strata are all of moderate thickness, so as to be got out by the processes technically termed "holeing, brushing, and cogging:"—that is, by bringing down in lines of considerable length, the entire body of the coal, clearing it away, and supporting the roof by cogs or pillars of the gob or refuse slack and earth. This mode of getting has been already described in reference to the Staffordshire mines, under the name of Long Work; and to that description we refer the reader. (See page 29). We have been favoured by a practical surveyor employed on the Wombridge mine, with the data relative to its produce, to the extent of work performed per day, and to the wages paid; on this information our calculations of prices have been formed.

The first measure worked, is the Penny Ironstone. The total thickness of the stratum is two yards; but of this, 3 feet 6 inches, or little more than half is thought worth working; and this portion is by no means rich. The ironstone is found in the form of balls or nodules of moderate size; and each yard square of the stratum surface measure produces about 3 cwt. of ironstone. A line of 30 yards long and 1 yard wide, produces generally 4 ton 8 cwt. It requires, to clear this line in one day:—

Three holers @ 2s 9d per day = £0. 8. 3d
Two brushers and cogggers @ 3s 3d per day = £0. 6. 6d
Drawing out = £0. 12. 4d
Total = £1. 7. 1d

Which gives 6s 3d per ton as the cost of the ironstone raised. The "drawing out" being the expense of conveying the mineral, from the place of the work, to its bank, within 100 yards of the pit's mouth.

The Fungus Coal, which is the next stratum worked, is 1 yard in thickness. It is usually holed under 1 foot 5 inches, measured horizontally, or at the base; and making about 1 foot 8 inches as the length of the inclined line drawn from the extremity of the holeing to the firm edge of the coal, or as it is provincially termed, "the curf." The cuttings, or perpendicular channellings, to facilitate the bringing down of the coals, are made at 4 or 5 yards distance from each other; and the quantity of marketable coal procured from each cubic yard, is computed to be:—

10 cwt of large coal or rather more.
2 cwt of lumps.
3 cwt of slack.
Total = 15 cwt to be raised or thereabouts.
To bring down and clear away the usual line of 30 yards, in one day, requires:—

Three holers, @ 2s 9d per day = £0. 8. 3d
Three brushers and cogs @3s 3d per day = £0. 9. 9d
Drawing out = £1. 5. 0d
Total = £2. 3. 0d

The produce will be:-
Coal – 17 tons 0 cwt @ 2s. 0½d
Lumps = 3 tons 8cwt @ 1s. 2d
Slack – 5 tons 2 cwt @ 1s. 0d
Total = £2. 3. 8d

The **Black Ironstone** measure is 4 feet thick, and produces 8 cwt of ironstone measured at the surface. Each man holes, per day, 12 yards long and 2 feet 6 inches under. Two men will brush and cog 30 yards in length, per day, which length produces about 10 tons of ironstone. The labour required to clear and raise the 30 yards long and 2 feet 6 inches wide, is, therefore :-

2½ men, @ 2s 9d per day = £0. 6. 10½d
Two men to brush and cog @ 3s 3d = £0. 6. 6d
Loading and drawing out = £0. 12. 4d
Total = £1. 5. 8½d
Or 2s 6¾d per ton of ironstone

The **Stone Coal** is 4 feet thick; it is holed under as described in reference to the *fungus coal*, 1 yard 5 inches on the level of the stratum; the line from the *curf*, or solid edge of the coal, to the extremity of the *holeing*, being 1 foot 9 inches. One man will hole 10 yards per day; and four men will brush and cog 30 yards in a day. It therefore requires, to work out and carry away 30 yards in length, per day :-

Three holers @ 2s. 9d. per day = £0. 8. 3d
Four brushers and cogs @ at 3s 3d = £0. 13. 0d
Loading and drawing out = £1. 14. 0d
Total = £2. 15. 3d

The produce of this length will be :-
*T. C. Q.*
Coals 22tons 13cwt 1qtr @ 1s 11d = £2. 3. 1d
Lumps 4tons 10cwt 0qtr @ 1s 2d = £0. 5. 3d
Slack 6tons 15cwt 0qtr @ 1s 0d = £0. 6, 9d
Total = £2. 15.1d

The **Brick Ironstone** measure is 5 yards 1 foot thick, of which only 2 foot 6 inches are got out, a square yard of which produces 6 cwt of ironstone. One man holes, per day, 10 yards in length and 2 feet 6 inches under. Two men will brush and cog the 30 yards in one day. The cost of labour, to get out this quantity, will therefore be :-

Three holers @ 2s 9d per day = £0. 8. 3d
Two brushers and cogs @ 3s 3d per day = £0. 6. 6d
Loading and drawing out = £0. 12. 4d
Total = £1. 7. 1d

The quantity of ironstone produced is about 7 ton 10 cwt and the cost per ton is 3s 7d.

The **Ball Ironstone** measure is 3 yards thick, of which only 1 yard is worked. The mode of getting, and the average amount of the labour, are the same as in the last measure. The cost of clearing 30 yards in length, is therefore, as in the brick ironstone, £ 1 7s. The ironstone produced is a little more than 5 cwt
to the square yard, or 6 ton 5 cwt from the 30 yards. The cost per ton is therefore 4s 4d. To these beds of ironstone, succeed several coal measures, which are all worked. These are :-

The **Top Coal**, which is 5 feet thick, and is of fair quality, both for the use of the furnace, and for domestic purposes. It produces from the cubic yard, about 12 cwt. of coal, and 3 cwt. of slack. It is holed under in the customary manner, namely, 1 foot 9 inches from the *curf* to the extreme point of the excavation. One man will hole under 15 yards in length; and two more will brush and cog the same quantity. The cost, in labour, to get the length of 30 yards, is therefore :-

Two holers @ 2s 9d per day = £0. 5. 6d
Four brushers and coggars @ 3s 3d per day = £0.13. 0d
Loading and drawing out = £2. 2. 0d
Total = £3. 0. 6d

The produce is :-
Coals 34 tons 0 cwt @ 1s 7d = £2. 13. 10d
Slack 8 tons 11 cwt @ 1s. 0d = £0. 8. 6d
Total = £3. 2. 4d

The **Double Coal** is the next measure. This is 2 yards in thickness, and is of good quality. It is brought down in the usual manner, by holeings, 1 foot 5 inches horizontal measure, with cuttings at every 4 or 5 yards. One man will hole under 10 yards per day; and to brush and cog 30 yards in one day, will require five men. The labour required to clear the 30 yards, will be:-

Three holers @ at 2s 9d per day = £0. 8. 3d
One cutter = £0. 2. 9d
Five brushers and coggars @ 3s 3d = £0. 16. 3d
Loading and drawing out = "£2. 11. 0d
Total = £3. 18. 3d

The produce will be :-
Coals - 34 ton 0 cwt @ at 1s 9d = £2. 19. 6d
Lumps - 6 ton 15 cwt @ at 1s 2d = £0. 7. 10½d
Slack - 10 ton 0 cwt @ at 1s 0d = £0. 10. 0d

The **Yard Coal** is one yard thick; and with this coal measure is got the **Yellow Ironstone**, which adjoins it, and which produces about 5 cwt. to the square yard. Of these joint measures, one man will hole, per day, 10 yards in length, and the minerals usually come down without cutting. One man will brush and cog 15 yards per day. The labour required to clear 30 yards in length, in one day, will consequently be :-

Three holers @ 2s 9d per day = £0. 8. 3d
Two brushers and coggars @ 3s 3d per day - £0. 6. 6d
Loading and drawing the coal = £1. 3. 0d
Ditto ditto the ironstone = £0. 15. 0d
Total = £2. 12. 9d

The produce is :-
Coals 15tons 0cwt @ 2s 0d = £1. 10. 0d
Lumps 3 tons 0cwt @ 1s 2d = £0. 3. 6d
Slack 4tons 10cwt @ 1s 0d = £0. 4. 6d
Ironstone 7tons 10cwt @ 2s 0d = £0. 15. 0d
Total = £2. 13. 0d
The **Blue Flat** ironstone measure is 2 yards thick, 4 feet of which only are worked. The produce is about 6 cwt to the square yard. The labour required to clear 30 yards in length, in one day, holed under 2 feet 4 inches, or 23½ square yards, is:

3½ holers @ 2s 9d per day = £0. 9. 7d  
Two brushers and coggers @ 3s 3d = £0. 6. 6d  
Loading and drawing out = £0. 12. 4d  
Total = £1. 8. 5d

The quantity of ironstone raised, being 6 ton 15 cwt at 4s 2d per ton.

The **White Flat** ironstone is 2 yards thick; 2 feet 9 inches only of which are worked. One man will hole under in one day, nearly 8 yards in length, and 2 feet 3 inches under. The produce being about 4 cwt to the square yard. To clear 30 yards per day, or 22½ yards square, requires:

Four holers @ 2s 9d per day = £0. 11. 0d  
Two brushers and coggers @ 3s 3d per day = £0. 6. 6d  
Loading and drawing out = £0. 12. 4d  
Total = £1. 9. 10½d

The ironstone raised, being 4 ton 10 cwt at 6s 7d per ton.

The **Flint Coal** is 5 feet thick, and is holed in the usual manner; the work of one holer being 12 yards per day. It is brought down by *cuttings*, at distances of about 5 yards. The labour required in getting 30 yards in length, in one day, is:

2½ holers @ at 2s 9d per day = £0. 6. 10½d  
Four brushers and coggers @ 3s 3d per day = £0. 13. 0d  
Two cutters @ 2s 9d per day = £0. 5. 6d  
Loading and drawing out = £2. 2. 6d  
Total = £3. 7. 10½d

The produce is:

- Coals  28tons 7cwt @ 1s 10½d = £2. 13. 1d  
- Lumps  5tons 14cwt @ 1s 2d = £9. 6. 8d  
- Slack  8tons 10cwt @ 1s 0d = £0. 8. 6d  
Total = £3. 8. 3d

The next stratum is another **Penny Ironstone** measure. It consists of a thin continuous stratum of ironstone, only 3 inches thick, which is found immediately under the flint coal, and which covers an extensive deposit of argillaceous earth, or *clunch*. Beneath the upper part of this stratum, and dispersed irregularly in the thick measure, are included round and flat balls or cakes of ironstone. The entire measure is 8 yards thick; it is worked in sections or grades of 4 feet each high, commencing with the upper one;—till the valuable contents of the whole are extracted. The produce of one square yard of surface, taken through one of the working portions of 4 feet, is considered to be between 4 and 4½ cwt of ironstone, or 24 cwt to the surface yard, through the whole six working sections. One man will hole, per day, nearly 8 yards in length, and 2 feet 3 inches under, so that the expense of getting out 30 yards long of one of the stages or sections of 4 feet high, per day, is as follows:

Four holers @ 2s 9d per day = £0. 11. 0d  
Three brushers and coggers @ 3s 3d = £0. 9. 9d  
Loading and drawing out = £0. 12. 4d  
Total = £1. 13. 1d
The produce of the 30 yards of each section or stage being about 6 ton 10 cwt the cost of the stone is 5s per ton.

The **Randle and Clod Coals** occur with a parting of clay or "clod," lying between them.

The **Randle Coal** is, in thickness 1yd 0ft 0ins

The **Clod Coal**, is in thickness 1yd 1ft 0ins

Total = 2yds 1ft 0ins.

These measures are worked together, the miner holeing the usual width of 1 yard 9 inches "to the curf," under the lower seam, or clod coal. No cuttings are required, as the weight of the parting disposes the coal to break down, and provides material for the cogs or pillars. One man will hole 10 yards per day, but the brushers and cogggers only complete between 7 and 8 yards, in the same time. The expense of working the usual length of 30 yards per day, of the two measures, is:

Three holers @ at 2s 9d per day = £0. 8. 3d

Four brushers and cogggers @ 3s 3d per day = £0. 13. 0d

Loading and drawing out - £3. 0. 0d

Total = £4. 1. 3d

The produce of this length of the two kinds is:

**Coals** 40 tons @ 1s. 9d = £3. 10. 0d

**Lumps** 8 tons @ 1s 2d = £0. 9. 4d

**Slack** 12 tons @ 1s 0d = £0. 12. 0d

Total = £4. 11. 4d

The lowest known valuable stratum in this district, as in that of Staffordshire, is the **Limestone**, of which mention has been made in our preliminary descriptive sketch. This extensive deposit, in this situation, has not been worked through. The total thickness therefore is unknown. It is probably not less than 10 yards, and when worked, is got out of large openings, leaving pillars at proper distances, to support the roof and the superincumbent strata. The workmen's price for delivering the limestone on the bank, is 1s to 1s 6d per ton, according to the distances both in the mine and at the surface. The other expenses, as sinking, ropes, salary to clerks, wear and tear of machinery, etc may be taken at 1s per ton, so that the total cost of the limestone is about 2s 6d per ton, exclusive of the royalty, which is 6d per ton.

We now proceed to recapitulate and arrange in a tabular form, the data afforded by our preceding statements:

**TABLE I**
The thickness and cost of production, per ton, of the coal in each stratum :-
The thickness and cost per ton, of the ironstone in each stratum:

<table>
<thead>
<tr>
<th>Names of Coal Measures</th>
<th>Thickness: Yds Ft In</th>
<th>Cost per Ton: Coals 1 Lumps Slack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungus coal</td>
<td>1 0 0</td>
<td>2 0 1/2 1 2 1 0</td>
</tr>
<tr>
<td>Stone</td>
<td>1 1 0</td>
<td>1 11 1 2 1 0</td>
</tr>
<tr>
<td>Top</td>
<td>1 2 0</td>
<td>1 7 1 2 1 0</td>
</tr>
<tr>
<td>Double</td>
<td>2 0 0</td>
<td>1 9 1 2 1 0</td>
</tr>
<tr>
<td>Yard</td>
<td>1 0 0</td>
<td>2 0 1 2 1 0</td>
</tr>
<tr>
<td>Flint</td>
<td>1 2 0</td>
<td>1 10 1/2 1 2 1 0</td>
</tr>
<tr>
<td>Randle and clod</td>
<td>2 1 0</td>
<td>1 9 1 2 1 0</td>
</tr>
<tr>
<td>Total thickness</td>
<td>11 0 0</td>
<td>12 11 8 2 7 0</td>
</tr>
</tbody>
</table>

Average cost............ 1 10 1 2 1 0
Dead-work or sundries... 2 0 2 0 2 0
Royalty.................. 0 8 0 4 0 2

|                        | 4 6 3 6 3 2          |

**TABLE II**
The thickness and cost per ton, of the ironstone in each stratum:

<table>
<thead>
<tr>
<th>Names of Measures</th>
<th>Thickness: Yds Ft In</th>
<th>Quantity per square Yard of Surface</th>
<th>Cost of getting per Ton.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penny Ironstone</td>
<td>2 0 0</td>
<td>T. C. Q.</td>
<td>£ s. d.</td>
</tr>
<tr>
<td>Black ditto</td>
<td>1 0 0</td>
<td>4 0 0</td>
<td>6 3</td>
</tr>
<tr>
<td>Brick Measure</td>
<td>1 0 0</td>
<td>8 0 0</td>
<td>2 7</td>
</tr>
<tr>
<td></td>
<td>6 0 0</td>
<td>0 6 0</td>
<td>3 7</td>
</tr>
</tbody>
</table>
TABLE III
The produce per acre, and amount of royalty, of coals and ironstone:

<table>
<thead>
<tr>
<th>Produce per acre</th>
<th>Rate of Royalty per Ton</th>
<th>Amount of Royalty per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coals</td>
<td>0 s. 8 d.</td>
<td>887 s. 6 d.</td>
</tr>
<tr>
<td>Lumps</td>
<td>0 s. 4 d.</td>
<td>88 s. 14 d.</td>
</tr>
<tr>
<td>Slack</td>
<td>0 s. 2 d.</td>
<td>66 s. 11 d.</td>
</tr>
<tr>
<td>Ironstone</td>
<td>0 s. 1 d.</td>
<td>689 s. 14 d.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>52,724</td>
</tr>
<tr>
<td>Total Royalty</td>
<td></td>
<td>1732 s. 6 d.</td>
</tr>
</tbody>
</table>

TABLE IV
The quantity of coal of each measure, got by each man, per day, according to the statements previously given:
TABLE V
The quantity of ironstone got by each man, per day, and per week, five days being considered as a week's work:

<table>
<thead>
<tr>
<th>Names of Measures</th>
<th>Coals.</th>
<th>Lumps.</th>
<th>Slack.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T. C. Q.</td>
<td>T. C. Q.</td>
<td>T. C. Q.</td>
</tr>
<tr>
<td>Fungus coal</td>
<td>2 16 2</td>
<td>0 11 1</td>
<td>0 17 0</td>
</tr>
<tr>
<td>Stone coal</td>
<td>3 4 2</td>
<td>0 12 3</td>
<td>0 19 1</td>
</tr>
<tr>
<td>Top coal</td>
<td>5 13 1</td>
<td>0 0 0</td>
<td>1 8 2</td>
</tr>
<tr>
<td>Double coal</td>
<td>3 15 2</td>
<td>0 15 0</td>
<td>1 2 2</td>
</tr>
<tr>
<td>Yard coal</td>
<td>3 0 0</td>
<td>0 12 0</td>
<td>0 18 0</td>
</tr>
<tr>
<td>Flint coal</td>
<td>3 6 2</td>
<td>0 13 1</td>
<td>1 0 0</td>
</tr>
<tr>
<td>Randle &amp; clod coal</td>
<td>5 14 1</td>
<td>1 2 3</td>
<td>1 14 1</td>
</tr>
</tbody>
</table>

Strata...7) 27 10 2 4 7 0 7 19 2
Average day's getting, nearly 3 18 2 0 12 2 1 2 3

TABLE VI
Dimensions and cost of the gate roads or waggon roads, driven in the various measures of coal and ironstone, per yard in length. In any cases where these roads are " taken in the gob," or in the piles of refuse and waste, left after clearing the valuable minerals, no charge is paid by the proprietor.

<table>
<thead>
<tr>
<th>Per Day.</th>
<th>Per Week of five Days.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T. C. Q.</td>
</tr>
<tr>
<td>Penny Stone</td>
<td>0 16 0</td>
</tr>
<tr>
<td>Black Ironstone</td>
<td>2 4 0</td>
</tr>
<tr>
<td>Brick ditto</td>
<td>1 10 0</td>
</tr>
<tr>
<td>Ball Stone</td>
<td>1 5 0</td>
</tr>
<tr>
<td>Blue Flats</td>
<td>1 4 0</td>
</tr>
<tr>
<td>White Flats</td>
<td>0 15 0</td>
</tr>
<tr>
<td>Penny Stone</td>
<td>0 18 3</td>
</tr>
</tbody>
</table>

Strata...7) 8 12 3 43 4 4
Average getting of each man, daily...1 4 3 weekly 6 3 2
The gate roads in the ironstone measures are universally taken in the gob, and are consequently not chargeable. Their dimensions are as follow:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungus coal</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Stone coal</td>
<td>4</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Top coal</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Double coal</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Yard coal</td>
<td>6</td>
<td>0.6 to 7 ft</td>
<td>6</td>
</tr>
<tr>
<td>Flint coal</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Randle and clod coal</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

The air heads are usually 3 feet 3 inches square, and their cost 3s 4d to 4s per yard in length.

The value, per acre, of the entire strata of coal and ironstone, if two acres per annum are got out, may be taken at £890 present payment. Cost, per ton, of manufactured iron, at the rate of wages and royalty specified:

- Forge and pig £3. 9. 5d
- Bar £6. 9. 5d

all made from COLD BLAST.

Note - The use of the hot air blast, with raw or uncoked coal, in the smelting of iron, is not without its advocates, but makes slow advances in these central mineral districts. In Scotland it is extensively and successfully practised, as the coal of that country contains less of sulphur in its composition. It is not improbable that experience, with the aid of chemical science, may render the hot air blast more extensively applicable. The result will be a considerable economy both of labour and of fuel, which of course will cause the production of manufactured iron at a proportionably lower rate than at present.

*** The aforesaid results are taken from calculations made by a ground bailiff of this district, as to the number of yards holed, brushed, and cogged, per day, by the miner in each strata.