

KINGSWOOD COALFIELD - THE RUDGEWAY DRAINAGE LEVEL

A fairly common feature of coal mining in the 18th and early 19th centuries was the construction of underground drainage adits or levels, often of considerable length, whereby large blocks of coal bearing strata could be dewatered and worked with the minimum amount of pumping. During the previous century construction of such tunnels, or 'soughs', had been brought to a fine art by the lead miners of Derbyshire (1) and the technique gradually spread to coalfields where the topography favoured it, and it was an economic proposition for deeper mining. Where the conditions were right, very high expenditure on tunneling could be justified; for example at Silverdale in Staffordshire between the years 1799 to 1820 over £20,000 was spent in driving and maintaining drainage adits, known locally as 'gutters'. (2)

One such favoured area was the Kingswood coalfield situated to the east of Bristol where a complex of over 25 miles of underground drainage levels had been driven by 1820. Now largely obscured by the suburbs of Bristol, the former coal mining area extended over an elongated dome of high ground some three miles long by two miles broad, the southern edge being cut into by the deep meanders of the river Avon, and the east and west extremities being formed by the valleys of the Warmley brook and the river Frome respectively. (3)

From the highest point of the dome, now marked by Cossham Hospital, several defiles radiate outwards, notably one formed by the Coombe brook, a small stream flowing due west to join the river Frome near what is now Stapleton Road railway station. This narrow defile, in former years known as 'Gosthill Gully' was the site of one of the first local adits of major dimensions built to drain the coal workings in the Rudgeway (or Ridgeway) manor lordship covering the north western sector of Kingswood Chase. It is not so far known when this adit was first commenced; in 1864 Handel Cossham, the famous local geologist and mineowner, stated that it was supposed to have been made "about 150 years ago" (4) which would put it somewhere in the first quarter of the 18th century. Certainly by 1790 it extended over two miles into the northern extremity of the lordship, as owned by the Beaufort family, passing on the way both their New Lodge Engine and Old Lodge Engine Pits where steam pumps drew water from lower measures to discharge into the adit, there running at about 200 feet below surface level. Additionally a mile long branch adit ran back along the southern side of Coombe brook into the lordship of Barton Regis to link up the coalpits leased by the Beauforts from the Chester-Master family. Eventually a further branch drove south to beyond the Two Mile Hill Engine Pit, and accidentally broke into the drainage system of the coalpits worked by John Whittuck in the adjacent liberty. (5)

Possibly it was to assist the drainage of the Coombe brook adit, or more likely to prospect and develop a somewhat isolated section of coal bearing land without the risk of overcharging the main adit, but in 1799 the Beauforts decided to commence an entirely new adit back from the river Frome. The cash expense book for this venture is now kept in the Gloucestershire Record Office (6) and, except where otherwise noted, forms the basis from which the following account has been extracted: In common with most registers of this nature the entries are somewhat laconic, but the initial page starts in fine style:-

"1799 April 29th Began the new Level from the River Frome, in the Rudgeway Estate, by the order of His Grace Henry Duke of Beaufort & under the direction of Mr Robt Baylis Principal Agent for His Grace at Kingswood Lodge."

During the first four weeks two workmen, Thomas Flook and John Long, carried out initial clearance work armed with 2 shovels, a sledge-hammer, 2 wedges and an iron bar. They were then joined by a third man, Thomas Lovell, with materials to make and barrow, lime mortar for stone walling. Throughout the summer months these three toiled away, occasionally assisted by Charles Lovell, laying out the access way and cutting the tunnel entrance into the hard Pennant sandstone of the steep valley side.

Towards the middle of September serious tunneling began with the first purchase of a dozen candles and the employment of seven men on site. These comprised, as before, Thomas Flook, John Long, the two Lovells, plus John Wiltshire, Isaac Ford and Thomas Day. During the autumn months the work steadily progressed with further purchases of candles and a weekly wage bill (unfortunately no longer itemised) indicating the employment of about five men. In the first week of November the first purchase of a hundredweight barrel of gunpowder was made and the following week the wages bill doubled in respect of 'task work' by Thomas Day and Partners - no doubt the employment of skilled miners to set and fire charges.

After a lull over the Christmas period, the pace of work increased in the new year with more 'task work' carried out in the last week of February, this time led by Thomas Flook. Another hundredweight of gunpowder was purchased a week later and yet another at the end of April. These barrels of powder had cost £9. 6s. 0d. (£9.30) each, but a cheaper source was found in June when the cost of a hundredweight barrel went down to £7. 16s. 0d. (£7.80). At this rate they were using up 1 cwt of powder every six weeks on average. In December an even cheaper source was obtained in that the cost per 'cask' went down to only £3. 5s. 9d. (£3.29) but as the weight is not specified it could well have been smaller as subsequent purchases average out at four to five week intervals. The price of candles on the other hand remained constant at 9s. to 9s. 4d. (£0.45-£0.47) per dozen up to the end of 1802 and lasted on average for three weeks.

Without itemised details of the numbers employed it is difficult to compare wage rates but at the commencement of the work it would appear that labourers were being paid about 10s (£0.50) per week and skilled miners up to 16s. (£0.80) per week - very good wages for the period. Throughout 1800 the basic weekly

wage bill remained about the £1. 13s. Od. (£1.65) level with dramatic peaks every five weeks or so, the maximum being in the second week of December when the total wage bill amounted to £13. 3s. 6d. (£13.17) evidently recurrences of 'task work' though no longer specified as such in the accounts. After the customary Christmas lull the early months of 1801 indicate work progressing much as before, but no work done in the first week of April and thereafter there is a noticeable reduction in the wage bills, culminating in a full stoppage for seven weeks from the second week in August. There is no obvious reason for this stoppage. Local contemporary newspapers merely report fine warm weather and a bumper harvest making up for earlier shortages. (7)

Work on the adit recommenced in October and progressed steadily for the next two years. One innovation was the purchase of a 'Scrages Carriage' for £8. 12s. 6d. (£8.62) and the regular purchases of 'Scrages' for between 12s. 8d. and 4s. (£0.63-£0.20) every month or so for the next four years. What these might be I do not know but it may be significant that the purchase of Scrages cease just before the hire of horses first occur in the accounts.

By October 1803 the adit had been driven 638 yards (not 674 yards stated in the accounts for that year - corrected in the following year) which gives, (if September 1799 is taken as the start of mining in earnest) a rate of just over 3 yards tunnelled per working week. The first signs of inflation now occur with the cost of candles going up to 10s (£0.50) per dozen, and a cask of powder which had cost as little as £2. 6s. Od. (£2.30) at the beginning of the year going back up to £3. 2s. 6d. (£3.12). The distance driven in the tunnel would seem to have placed it very close to being underneath the gaol in Stapleton especially set up to house French prisoners from the Napoleonic Wars and it is interesting to speculate whether the prisoners could feel anything of the blasting going on some 80 feet below. It had even been suggested in a letter to The Times in 1797 that the prisoners could be confined in the Duke of Beaufort's local coal mines in order to reduce the number of necessary guards! (8)

The beginning of 1805 saw another stoppage of work, this time for four weeks, and on recommencement a horse was hired at the rate of 2s. 1d. (£0.10) per day, and used on average two days per week. Some sort of roof-fall seems to have occurred in August as there is a hiatus in the purchase of powder, several weeks of little or no wage payments, and some substantial purchases of stones, lime, and ashes (for mortar). At the end of November there is another gap in wage payments and inflation becomes more apparent with a cask of powder going up to £3. 17s. 6d. (£3.87). With such interruptions it is perhaps not surprising that only 97 yards of adit were driven that year.

Worse problems were to be experienced in 1806. At the beginning of May that year the accounts show a sudden increase in wages coupled with the enormous purchase of 84 cart loads of stones - at 939 yards in, they had hit the loose ground and water of 'Old men's workings'. Nothing daunted the miners came back 119 yards to a point they had intersected a small seam of coal and started tunnelling a branch on the eastern side of the adit. By

October they had driven 53 yards on the branch. In the following 12 months the branch was driven a further 137 yards, and the main adit slowly cut and shored through 22 yards of bad ground. Costs of materials eased a little with candles going down to 8s. 6d. (£0.42) a dozen, and powder £3. 13s. 6d. (£3.67); however hire of the horse went up to 2s. 6d. (£0.12) per day.

The year 1807 started well with work concentrated entirely on the main adit with the problem of loose ground apparently successfully overcome. However by April work had slowed and ceased altogether for a 12 week period up to the end of July. Still, by October the main adit had reached a total length of 1,061 yards. More price rises occurred with candles going to 12s. 6d. (£0.62) per dozen, and powder £4. 3s. 6d. (£4.17) per cask.

For the next two years work progressed steadily, helped by stable prices. Physical conditions in driving the main adit must however have remained difficult as the cutting rate fell from 3 yards per week to only 1.4 yards per week. By October 1810 the tunnel was 1205 yards long, which must represent nearly its final total as all work ceased four weeks later for a period of two years, and the subsequent works shown in the accounts for a 27 week period in 1813 are clearly only maintenance, without any more purchases of powder.

The grand total cost for some 1400 yards of adit had amounted to £2,529.

There remains the question as to precisely where this tunnel might be and what still lies in situ. The only map I have so far been able to trace that gives any indication of its existence merely endorses it as 'New Level' (4) on an older plan of 1790 which unfortunately does not show the line of the river Frome with any degree of precision. However, going on this, and the general lie of the country, the most likely spot for the adits mouth would appear to be immediately upstream of Blackberry Hill Road Bridge, opposite Snuff Mills Park entrance (O.S. Grid Ref ST 624765). Close inspection of this locality has not revealed anything, but all trace could have been removed some years ago when a main sewer was laid along that bank of the river.

It is hoped that further research will reveal the subsequent history and more exact location of this 'lost' tunnel.

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References

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