THE WOOLHOPE NATURALISTS' FIELD CLUB
(ARCHAEOLOGY RESEARCH SERIES)

RESEARCHING THE LEOMINSTER CANAL

Paper 9 : CANAL & COLLIERY

(The Canal, Coal and Mamble Mining)

Recalling the Survey of 1789
by
Thomas Dadford Junior

(by Gerry Calderbank & David Poyner)

Leominster Canal *and* Mamble Collieries

THE COAL CANAL *. . . recapitulation and background*

From the era of Adam Smith (1723-90) we're dealing with a situation where market forces operated in text-book fashion: the Herefordians demanded more coal than ever before, and several distant sources were available, provided there was adequate transport – but therein lay a problem. How might this extra coal be imported at competitive cost and on a sufficient scale? Nevertheless, the motivation and business prospects must eventually have appeared sufficiently attractive to certain gentry of Leominster and the Welsh Marches so that by the late 1780s they were minded to commission a feasibility study from a well-established canal engineer. Thomas Dadford junior was their chosen engineer and his report would then be followed up by an actual Survey that, in turn, led to a (modified) scheme for the ill-fated Leominster Canal project.

All the strands seem to have been in place since at least the 1770s. There was a booming demand for cheaper and more plentiful coal in Ludlow, Leominster and the N Herefordshire hinterland, combined with previously under-exploited but somewhat distant collieries that were possessed of willing owners. In 1789 things came to a head. Amongst those colliery owners and potential customers there was now sufficient confidence, business acumen and requisite contacts to organise the financing and engineering of a canal. Amongst these wealthy gentlemen, Thomas Harley of Berrington Hall was foremost in wealth, national celebrity and influence, and he was to provide much of the finance and contacts, whilst the experienced engineer has already been mentioned.

Similar projects had earlier made their proprietors very prosperous, so the Canal must have seemed an excellent prospect at that time; and yet it was all to go sadly wrong, as may be learned from the few historical accounts available. From the two standard Leominster sources (Cohen and Hadfield) the fortunes of the canal are reasonably well known, at least in outline, so the following is merely a brief résumé of the interface between the Leominster Canal and its *raison d'être* – the Mamble collieries. These Mamble workings not only provided the motivation for the canal scheme, but their owner, Sir Walter Blount and two of his family were amongst the key shareholders in the venture. Sad to say, in the long term, the Blount family would turn out to be the only beneficiaries from this sorry story. This is because every shareholder lost heavily with their investment/s, whereas the Blounts' outlay provided them, at their fellow proprietors' expense, with a relatively cheap and very much superior form of transport for their intended markets.

- CANAL MANIA -

The Leominster Canal is often cited as a classic example of the Canal Mania which swept the country in the early 1790s. Of the numerous canal projects actually undertaken, it could justifiably be described as probably the most remarkable example of a frenzy which seized the nation at that time. Furthermore, it also seems likely that the county of Herefordshire, together with its immediate neighbours, suffered the most in this respect, certainly on a *per capita* basis considering the sparsity of their late eighteenth century populations.

Herefordshire experienced more than its fair share – with two casualties in terms of incomplete canals, plus a 'near miss', in the sense that the proposed Gosford link to the Montgomeryshire Canal proved abortive; in truth, it seems certain that the latter proposal would have provided the most extravagant financial disaster of all, but that's another story. Whereas the Leominster Canal was never finished, and therefore remained land-locked to the end, the Hereford and Gloucester Canal did at least link Ledbury with Gloucester, followed by a fifteen year hiatus, before its eventual completion – covering a fifty three year period! It is generally thought that this Hereford to Gloucester procrastination so tested the citizens of Hereford that it was instrumental in provoking the establishment of the R.Wye 'Horse Towing-path Company' of 1809.

- NEW THINKING -

Previously, Hereford had always imported its coal from the Forest of Dean via the ancient and partially improved Wye Navigation which, both legally and historically, also included the canalised Lugg between Mordiford and Leominster. Neither river was wholly reliable due to the vagaries of flood and drought but on the other hand the Clee Hill coal, whilst nearer, was relatively expensive due to the high cost of manual portage from the scattered bell-pit workings and then horse-cartage to the markets in Leominster and district. Because of their proximity to the Forest of Dean coalfield, the Ross district, and the lower Wye Valley in general, had always faired best by importing their coal supplies via the Wye Navigation, but much of Herefordshire remained relatively starved of cheap coal, and especially the Leominster and Kington districts.

THE GENTLEMEN OF HEREFORDSHIRE

The local land-owning gentry and wealthy merchant classes had long envied the fortunes of Francis Egerton (Duke of Bridgewater), Josiah Wedgewood and Lord Gower, together with their associates and imitators, as the canals developed and spread via the Brindley network. Likewise, they noted the newfangled prosperity of

'Stour-Port' – and so early proposals for the local canals date from 1777 when three such schemes were mooted, as related by Israel Cohen:

> "***. . . one from Leominster to Stourport, another from Leominster to Hereford and a third from the Severn near Bridgnorth, down Corvedale, to the extremity of Herefordshire near Leintwardine.***"

An eminent surveyor, Robert Whitworth, was next called upon to investigate these potential routes and to estimate their relative costs. Whitworth subsequently made several detailed proposals (20.12.1777), whereafter he was soon commissioned (08.04.1778) to conduct an extensive (semi-ocular) survey of the favoured Teme Valley route. Whitworth duly reported (07.08.1778) when, to quote Cohen again:

> "***. . . he stated that that he had not been able to complete his survey further than Stockton, that a 1,528 yard long tunnel would be necessary, costing from £7,00 to £8,000, that other places between the Severn and Little Hereford would be expensive, but not more than for similar undertakings elsewhere.***"

The Stockton referred to is Stockton-on-Teme and not its namesake near Leominster, although in the context of water supplies, then the latter features prominently as feeding the Leominster summit level. Both of Whitworth's lines of approach to the Severn differ significantly from what was eventually attempted by his successor. From Leominster, Whitworth's Teme Valley route would have missed out Mamble entirely in favour of the Pensax collieries, whilst his Hereford to Gloucester line would have avoided the Newent colliery district altogether since it aimed to access the Severn at what is now the Haw Bridge between Gloucester and Tewkesbury.

- ECONOMIC SETBACK. . . the American War of Independence -

Nothing immediate was to come of Whitworth's proposals as the country next suffered its greatest colonial setback when, between 1775-83, our North American colonies, aided and abetted by French, Spanish and Dutch participation, fell into open revolt. The subsequent war steadily drained our financial resources, dented commercial confidence, and generally turned mens' thoughts from expensive canal investment, but only for a while. Admiral Rodney eventually won a stunning naval victory at the Battle of the Saintes (1782) which bolstered our negotiating position at the Peace of Paris the following year and, with the American issue decided, commercial enterprise was soon on its way to recovery.

The government cheated Rodney and his men out of their full prize money but rewarded him with a peerage. On the other hand his staunch friend and relative by marriage, Thomas Harley, had made a vast fortune from the recent war and so he retired from the City to his new mansion at Berrington in Herefordshire. Harley was to become an instigator of the Canal, its major individual shareholder and first President, but for once, his customary business acumen would desert him. Archival research by Patricia Cross suggests that Harley (a partner in the banking house of Drummond) may well have mortgaged his Berrington property in financing the Canal; certainly, as a banker himself, he was well versed in these newfangled and more sophisticated banking practices which were then in the ascendancy.

Prominent amongst Herefordshire's other landed gentry in this context were Lord Bateman, William Greenly and Richard Dansey of Easton Court, although the latter was not an original shareholder and appears to have been something of a late-comer to the Leominster Canal management. Lord Bateman was a major land-owner, and his Shobdon estate included vast reserves of Aymestry Limestone, an important economic commodity that was ideally suited to water transport. Greenly's estate was on the intended line of the Canal near Kington, whilst Thomas Clutton was the proprietor of collieries in the Pensax district. Otherwise, amongst the majority of Proprietors named in the first Parliamentary Act, there is less information, except perhaps to remark that certain other well known 'county' names can be recognised from the listing

COAL *. . . its nature and properties*

> *" A solid, opaque, inflammable substance, mainly consisting of carbon, found in the earth, largely employed as fuel, and formed from vast masses of vegetable matter deposited through the luxuriant growth of plants in former epochs of the earth's history."* (The British Encyclopedia - Vol. 3

This British Encyclopedia definition dates from the time (1933) when coal was still just about our most important industrial and domestic fuel - in between the two World Wars, and only twenty-two years after peak production in Britain. Perhaps we are mostly familiar with the Coal Measures of Carboniferous age since these formerly provided our main economic fuel resource. It is, however, frequently overlooked that Sutherland possesses Jurassic coals whilst, overseas - in Canada, China and elsewhere - there are also viable reserves of even Cretaceous age. There is a common but mistaken tendency of referring to coal as a 'mineral' resource, whereas it is really a sedimentary rock - of considerable variability and impurity. Since the chemical and physical variability is sizable, it has been deemed essential to classify coal according to the stage reached in the process of 'coalification' by which it is formed.

Below this scale, and so geologically recent as to be still in the process of active growth in some places, there is peat, which is a potential raw material of coal but where the requisite sedimentation, inhumation (in anaerobic conditions), heat and pressure has not yet occurred. Acid peat bogs comprise mainly sphagnum and other mosses which, if associated with algal remains and then coalified, would eventually give rise to 'cannel' coals. Whereas peat is combustible, the carbon content (< 30%) is too low for inclusion on a scale that, according to the 'traditional' definition, should range between 60 - 90+ % carbon - although all of these figures (and the tabulated data) are somewhat arbitrary. Allied to this increase in carbon content is a simultaneous decrease in the volatility. Coals are broadly classified as follows:

Fuel	Description	Properties
Peat	Sub-bituminous	c. 75 therms per tonne < 30% carbon – acidic bog origins, or fen, or carr.
Lignite	Sub-bituminous	200 therms per tonne < 50% carbon. Sometimes referred to as 'Brown Coal'.
Bituminous Coals	Bituminous	> 275 therms per tonne – Extremely variable, in both origin and composition. They actually contain no bitumen and are extremely variable, both in origin and composition, and also include the cannel coals.
Anthracite	Anthracitic	> 350 therms per tonne. < 85% carbon. (non-bituminous)

Fixed steam engines were usually capable of burning a wide variety of coals and so the choice of fuel was not unduly critical - although anthracite produced the greatest heat and was normally preferred for most furnaces, whether domestic or industrial, large or small. With railway locomotives, because of the spatial constraints, it was a rather different matter, and so the railway companies went to great lengths in testing and choosing only the most suitable coals. Whereas the very earliest steam locomotives had indeed used coal, its combustion was so inefficient as to quickly induce a switch to coke: this was an expensive practice, but continued pending the adoption of improved fireboxes incorporating a brick arch deflector. Such drastic firebox improvements then permitted the return to coal instead of coke and, despite some experimentation with oil firing and with various 'mixed fuel' alternatives, coal provided the basic fuel until the end of steam powered traction. The following Table was used by a leading locomotive engineer of his day:

CONSTITUENTS, ETC.	ANTHRACITE COAL.	ABERDARE COAL.	WELSH COAL.	NEWCASTLE COAL.	LANCASHIRE COAL.	DERBYSHIRE COAL.	YORKSHIRE COAL.	SCOTCH COAL.
Carbon, per cent. ...	92·00	88·28	86·26	83·60	80·70	80·00	79·90	79·50
Hydrogen ,, ...	3·80	4·24	4·66	5·28	5·50	4·85	4·83	5·58
Oxygen ,, ...	1·00	1·65	2·60	4·65	8·48	9·90	10·10	8·33
Nitrogen ,, ...	1·00	1·66	1·45	1·22	1·12	1·35	1·40	1·14
Sulphur ,, ...	·70	·91	1·77	1·25	1·50	1·10	1·00	1·45
Ash ,, ...	1·50	3·26	3·26	4·00	2·70	2·30	2.77	4·00
Specific gravity ...	1·37	1·32	1·31	1·25	1·27	1·30	1·29	1·26
Weight of a cubic foot in lbs. in solid state	85·60	82·50	81·90	78·10	79·40	81·20	80·60	78·70
Weight of a cubic yard in tons in solid state	1·031	·994	·987	·941	·957	·978	·972	·948
Average bulk of 1 ton heaped in cubic feet	41	42	43	46	45	44	44·5	45·5
How it burns ...	With difficulty	Slowly	Slowly	Quickly	Quickly	Quickly	Quickly, and cakes	Quickly
Draught required ...	Quick	Quick	Quick	Ordinary	Ordinary	Ordinary	Brisk	Ordinary
Quantity of smoke ...	None	Scarcely any	Very little	Large	Large	Large	Large	Very large

Principal Steam Coals ***. . . C. J. Bowen-Cooke, C.M.E. - L.&N.W.R. (1893)***

OCHRE *. . . and its potential consequences*

Ochre *(previously noted at Footrid - Paper 8)* derives from the iron content within coal-bearing strata; it is commonplace in coal-mining districts and, when sufficiently concentrated, can give rise to 'acid mine drainage' with potentially serious environmental consequences. Local water authorities in Britain formerly monitored this pollution until such time that it became the (national) concern of the Environment Agency.

In the USA on the other hand (mainly in the Appalachian Mountains area), such pollution was unbridled, with as much as 16,000 kilometers of rivers being seriously affected - as recorded in their 1972 survey. In the Appalachians coalfield (but unlike those regions W of the Rockies where strict regulation pertains), a legal tangle meant that there was no localised responsible authority for abandoned mines, even as late as 1985; furthermore, no regulatory pressure was brought to bear upon the contemporary operators, who could thus continue to pollute with impunity.

When coal containing iron pyrites, an iron sulphide mineral (or various other sulphide-rich minerals), is oxidized by exposure to air and water, a series of chemical reactions occur with sulphuric acid as the end product. If sufficiently concentrated, then the pollutant consequences for plant and animal life - both the biochemical and mechanical effects - can be devastating. Given mining disturbance, and following exposure to air and water, the process can start by purely chemical means, whereupon, with the conditions thus invariably acidic, two species of 'iron bacteria' *Thiobacillus thiooxidans* and *T. ferooxidans* are usually present and are then instrumental in converting the sulphate to sulphuric acid. This 'acid mine-water', in turn, potentially attacks metals and metallic compounds of iron, copper and zinc, thus adding greatly to the pollution problems associated with such metals and/or their metalliferous ores.

The biochemical effect arises directly from toxicity at high levels of concentration, as determined by pH measurements, whilst the 'mechanical' effect merely refers to the (physical) suffocation of plants and invertebrates following deposition of the orange/brown precipitate seen in the affected watercourses. Precipitation is actually a secondary phenomenon, occurring only when highly acidic drainage meets pure (or less acidic) waters whereby the pH level rises above 3.0. Its pollutant effects are said to be 'mechanical' to distinguish them from toxicity because the iron-rich solid precipitate simply clogs the respiratory surfaces of most invertebrates and also prevents photosynthesis by plants. Consequently, in the most severely polluted watercourses little animal life can exist, other than the alga *Euglena mutabilis* with, perhaps, a few related algal species; plus various microscopic protozoa and rotifers and, possibly, the occasional visiting beetle!

As to the effects of pollution, much depends upon the degree of acidity. Ironically, certain species of vegetation can actually flourish in conditions of very low pH (highly acid) value. In such circumstances, growth can be prolific through lack of normal competition. This situation occurs because the chemical constituents are still in solution and, superficially, with no mechanical choking, the pollution may not even be apparent. It is only with dilution that the choking effects of ferrous precipitation occur. In the Mamble region acid mine drainage doesn't appear to be much of an issue, probably because the effusion of ochre is limited in extent and very small-scale when present. Furthermore, the flow-rates on the Marl Brook and its tributaries are normally entirely sufficient to ensure dispersal.

THE IRON BACTERIA

These all belong to the 'higher bacteria' grouping. In addition to the two species previously mentioned, the commonest are *Leptothrix ochracea, Gallionella feruginea, Spirophyllum ferugineum, Crenothrix polyspora, Cladothrix dichotoma* and *Chlonothrix fusca*. All share the same capacity for abstracting iron from the water in which they live and collecting it in the form of ferric oxide; furthermore, apart from pollution in the coalfields, at certain seasons the abundance of some species can rapidly grow to huge nuisance proportions in reservoirs and water conduits. One of the worst instances on record occurred in 1896 with the reservoirs supplying Cheltenham when: "the waters took on the appearance of a dirty horse pond in less than a week".

As already hinted, their rapid multiplication is almost always triggered when the dilution they encounter is alkaline in reaction, whereupon a very slight organic content in this water provides them with all the nutrients they require. The iron content in such organic nutrients is brought out of solution and incorporated into the bacterium, both internally and/or on the external cell wall of the organism, whereby its volume is increased two or threefold. After death, the bacteria accumulate on the bed of the watercourse, pond, lake or bog and remain there as rusty red particles of almost pure ferric hydroxide. In stagnant conditions, this accumulation of carbonates and oxides of iron is initially a form of mud that eventually solidifies, initially, as a loose, porous earthy ore termed 'bog iron ore', but which may eventually solidify into ferric mudstone.

Eventually, over geological time, these layers could well become strata, as with the layers found in the Coal Measures. Like the coal itself, they are simply a legacy of the vast, humid tropical forest of Carboniferous age, and were subject to the same vagaries of shifting river channels with resultant 'washouts', and of interrupted sedimentation through oscillations in sea-level. Limonite is the blanket name for these hydrated oxides of iron and, whereas the exact chemical composition is variable, a typical sample ($FeO(OH) \cdot nH_2O$) might yield about 56% of metallic iron. The solidified ores are economically viable when sufficiently concentrated - and have been worked in places throughout the Wyre Forest Coalfield.

THE B.G.S. SCHEDULE . . . of recent colliery sites - as enumerated by the British Geological Survey - for the West Worcestershire Coalfield, and now revised (2001) with additional information from Poyner & Evans:

MAMBLE - BAYTON - CLOWS TOP GROUP

1. **Westwood - Trial Shaft** *. . . 1933*
2. **Bayton Colliery** *. . . closed in 1923*
3. **Empire Colliery** *. . . trial shaft and workings 1924-25 - then abandoned in 1925*
4. **New Mamble Colliery** *. . . sunk by the Bayton Colliery Company - Bayton No. 5 Shaft - closed in 1944*
5. **Hunthouse Colliery'Complex'** *. . . Bayton, and then Mole Colliery Companies - but finally closed in 1972*
6. **Carton Farm - Borehole** *. . . possibly Edward Blount - c. 1865 (?)*
7. **Yew Tree Colliery - Clows Top** *. . . sunk to a depth of 439′ c.1899 - plus additional bore - to 601.75′ **
8. **Mole's Borehole - High Clows** *. . . no details*
9. **Clows Top - No. 2 - Borehole** *. . . no details*
10. **Newlands Colliery** *. . . c. 1810 and then, 1925-27, attempts at 2 new shafts, but abandoned due to flooding*
11. **Stildon Manor - No. 1 Shaft** *. . . sunk in 1930 (Bayton No. 4 Shaft) but seemingly not developed*
12. **Gybhouse Colliery - No. 1 Shaft** *. . . closed in 1893*
13. **Blakemore Colliery** *. . . c. 1830 - closed in 1899*
14. **Oldhall Colliery** *. . . c. 1840 - abandoned in 1931*
15. **Rock - No. 1 - Borehole** *. . . no details*
16. **Porchbrook Colliery** *. . . abandoned in 1927*

** Because of its depth, Yew Tree Colliery provided, possibly, the most complete section in the entire coalfield.*

PENSAX - ABBERLEY GROUP

17. **Hollins Colliery** *. . . closed (by Bayton Co.) 1935*
18. **Poolhouse Colliery** *. . . c. 1815 to 1894*
19. **Beehive Colliery - No. 3 Shaft** *'Beehive Complex'*
20. **Beehive Colliery - No. 4 Shaft** *worked on split*
21. **Beehive Colliery - No. 5 Shaft** *sites, c. 1820 -1911*
22. **Manor Colliery** *. . . abandoned in 1926*

SOME UNSCHEDULED B.G.S. SITES

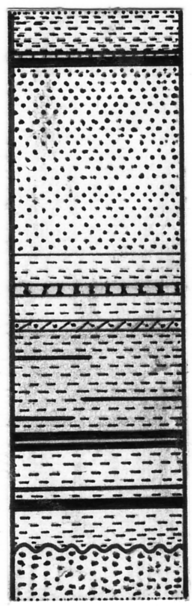
/. **Hunthouse Farm Dingle** *. . . adits*
/. **Fieldbrook Colliery -** *. . . abandoned in 1925*
/. **Windhill Farm -** *. . . trial shaft - 1933*
/. **Shakenhurst Colliery - Bayton** *. . . closed in 1900*
/. **Penn Hall pits - Pensax** *. . . c. 1840*
/. **Pensax Common Colliery** *. . . c. 1610 to 1895 (?)*
/. **Barratts Farm Colliery** *. . . abandoned in 1925*
/. **Snead Colliery** *. . . abandoned in 1910*

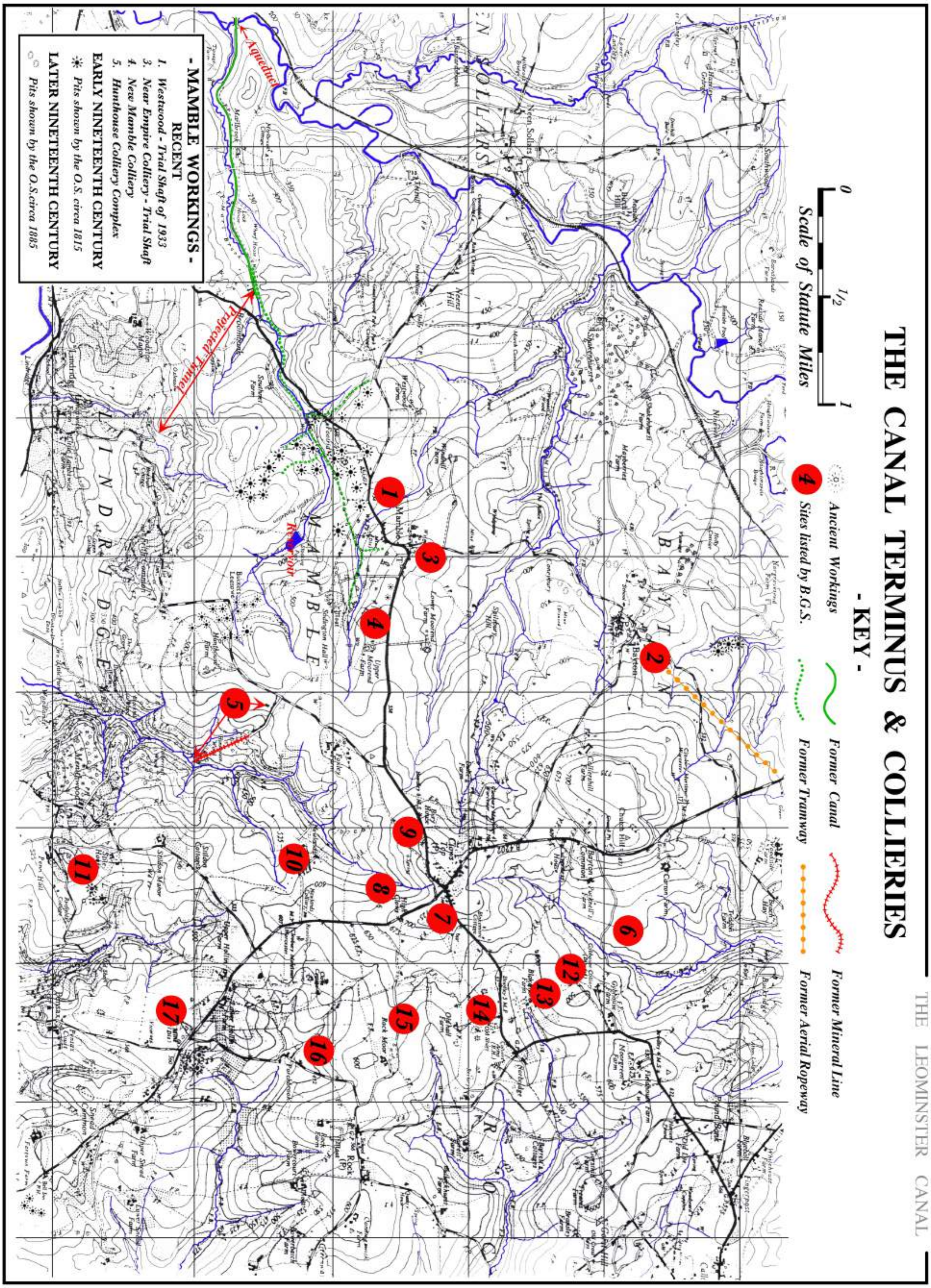
- *GENERALISED STRATIGRAPHY* -

Although individual locations will vary in detail, the generalised succession - based upon the sections provided in the *B.G.S. Memoir* - is as follows:

BEDS	THICKNESS *(feet)*
. . . Measures with Bats Ironstone at the base . . .	
Bats Coal.	c. 3.0′
The Thick Sandstone.	c. 90′
Measures with *Spirorbis* Limestone.	c. 30′
Horseflesh Clay; purple & red mottled.	c. 5.0′
Measures with Rider Coal and grey aquiferous rock.	c. 60′
Main Coal (alias 'Five Foot Seam' and in two halves with a variable parting of clod).	c. 5.5′(total)
Measures with Penny Coal - near base.	c. 30′
Hard or Hard Mine Coal.	c. 3. 75′
Measures.	c. 10′
---- *Unconformity* ----	
. . . Old Red Sandstone (O.R.S.) . . .	

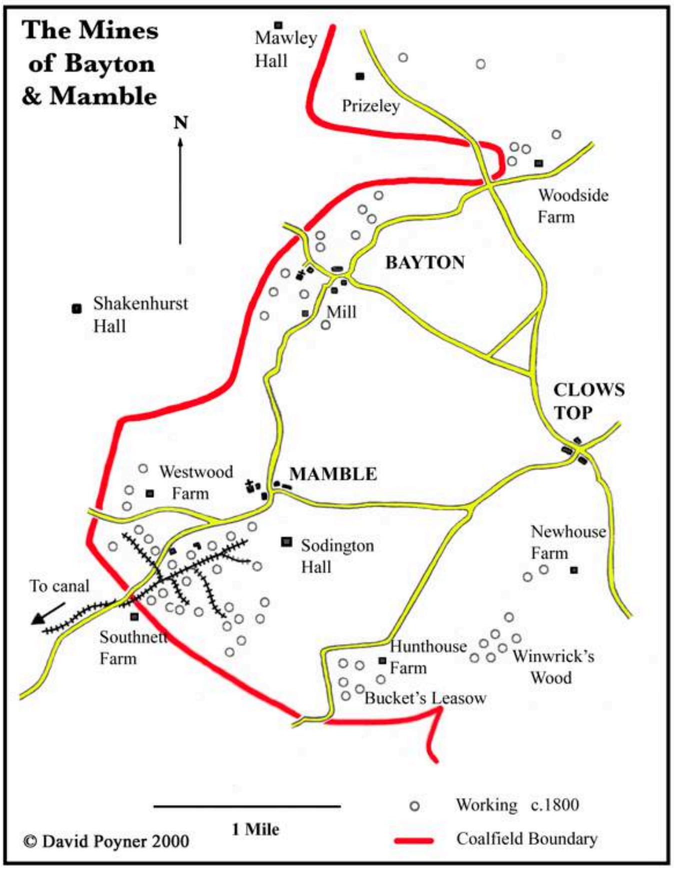
SECTION *(not to scale)*





Red markers depict most of the workings enumerated in the BGS schedule above

("Canal, Coal and Transport" – J.G.Calderbank – First Edition, 2000)



SITE MAP

This shows the main sites that are normally worth visiting.

For the most part they can be viewed from a network of public footpaths.

Some of the sites are not accessible to the public because of shooting or, in many cases, the land use.

The route of the plateway is usually obvious, especially the embankments.

Nothing remains of the track-work, although a few plates have been found.

Local mining history . . . *abstracted from Poyner & Evans (2000)*

In Mamble, as early as 1644 the name 'coalpit field' occurs at Westwood farm on the Shakenhurst estate of the Mersey family. However, the largest mines were to be found on the adjacent Mawley estate of the Blount family. Mining seems to have started here sometime between 1700 and 1720 and it was to continue almost without interruption until, in 1771, the mines under the Blount estates at Mamble (and at Woodside in Bayton) were leased to a Francis Bint who spent in excess of £1,000 in laying out adits. Unfortunately for Bint, he had to surrender his lease in 1778.

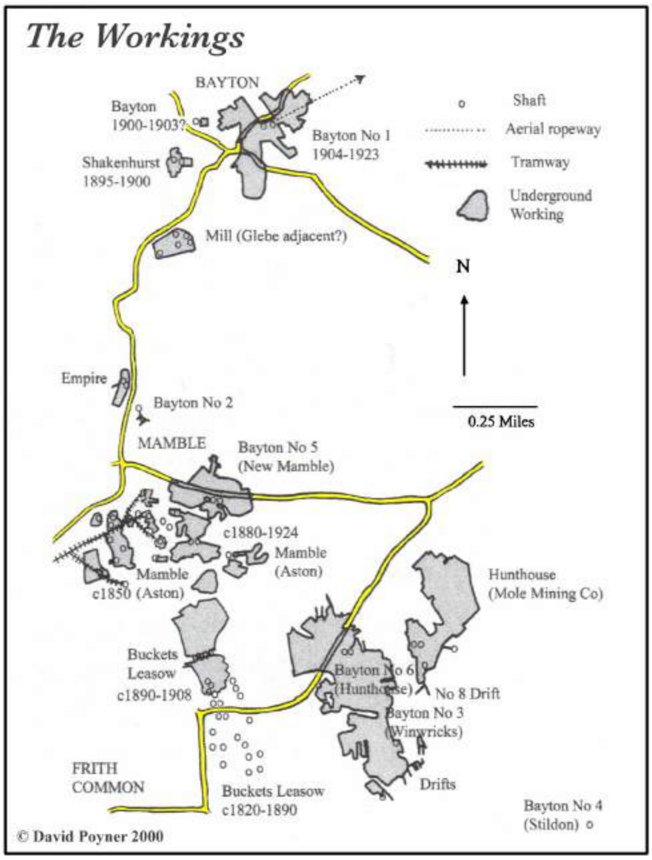
Coal was being worked on the adjoining Mersey family estates – also in Bayton and Mamble – at about this time, although details are obscure. An adit had been driven by the early Nineteenth Century to drain the mines under the small Newlands estate in Mamble; locally, this drain would be termed a 'footrid', presumably because it tapped the 'foot' of the workings to rid them of water?

Blount's mines received a boost with the opening of the Leominster Canal from Southnett Wharf near Mamble, first to Tenbury and then to Leominster. The mining moved relentlessly eastwards from the outcrop, following the coal. New shafts were sunk every few acres and these relied entirely on winding by hand. Some change must have come about by the start of the 1860's, when the Leominster canal was finally drained, depriving the mines of their outlet to the Teme Valley and beyond.

It seems likely that the plateway system leading to the canal was initially retained for internal transport to a land-sale wharf on the Tenbury turnpike (A456). However, this had been dismantled by 1881 and from this date, the coal must simply have been purchased at the pit-head and loaded straight into carts.

- BUCKETS LEASOW & HUNTHOUSE -

From probably at least the 1820s, a second site on the Blount estates was worked for coal at Buckets Leasow. These mines showed the same lack of technical refinement as their counterparts just over the hill at Mamble itself; indeed, they were probably only ever land-sale mines with no plateway system. At some point (probably before 1870), Blount bored for coal at Carton Hall on his land, but no mining resulted from this. A major administrative change seems to have come about in 1869, when Blount abandoned direct control of all his collieries and leased them to Thomas Aston, although it seems likely that the Aston family were previously the principal contractors when Blount controlled the mines directly. With increasing competition from both larger neighbouring collieries, and with rail-borne coal from outside the district, it seems surprising that Thomas and later his son Edward, managed to survive.



However, both Buckets Leasow and Mamble continued into the Twentieth Century. The Aston's also worked Upper Moorend Farm, and this, together with the collieries, gave them a good living. In spite of their apparent crudeness, the pits at both Mamble and Buckets Leasow out-performed many of their better-equipped competitors. The latter finally closed in 1908, whereas Mamble survived the Great War until 1925. Shortly before its closure a local newspaper described it as: *"one of the most profitable small mines in the country"*. Indeed, its closure was not due to economics but to the rise of the Bayton Colliery Company.

- HUNTHOUSE MINING -

We are grateful for Prof David Poyner's permission to use the above extracts from his co-written history of the coalfield. On several occasions over the years David had guided us around the sites so here are a few of my photos showing him in action as he explains various aspects of the mining machinery and methodology used at both the Winwrick's Wood and Hunthouse workings

It was drift mining with adits driven along the coal strata bedding, from exposures in the steeply sloping valley side of Dumbleton Brook. In just a few places there remain rusting scraps of edge rail to be seen in the undergrowth. There was also a boiler that had rolled into the stream after the mining had finished.

Above: No. 12 Shaft Gantry *. . . Mole Mining Co.*

A comprehensive publication about the West Worcestershire and Wyre Forest regional coal mining is listed below (Poyner and Evans), including tabulated details of about seventy mines - where such history is known.

Above: David Poyner explains the drift mining

- Hunthouse tabulation-

1956 –1972 (NGR) SO 704700

Mole Mining Co

Managers 1956 - 1960 W.L.Moody
1961 - 1966 I.Dean-Netscher
1967 W.I.Moody
1968 - 1969 G.Hesketh
1970 - 1972 J.K.Talbot

Workforce

1957	9 underground	3 surface
1959	33 underground	10 surface
1964	27 underground	7 surface
1967	24 underground	7 surface
1970	27 underground	7 surface

Average Output 12,000 tons per annum

Hunthouse/Winwrick's Wood tabulation -

Bayton Colliery Co. (No.3)
V.Bramall agent
1924-1937 (NGR) SO 704701

Manager 1924 - 1937 W.L.Moody

Workforce

1924	3 underground	7 surface
1925	18 underground	12 surface
1926	35 underground	25 surface
1927	35 underground	41 surface
1930	35 underground	41 surface
1932	88 underground	49 surface
1937	mine closed, September, 1937	

Average Output 20,000 tons per annum

- Left -

Two abandoned edge rails. following cessation of the Winwrick's Wood mining.

Such light-weight rail was for underground usage from the coal-face; their lightness ensured that the rails could easily be moved forward and adjusted in stages as the cutting progressed further.

To facilitate this, the rails were only lightly fixed since the (10cwt capacity) 'tubs' ran with adequate stability on their grooved wheels - and, of course, they were only intended to be trundled at low speed.

HUNTHOUSE MINE*. . . the shaft bottom 1970*Owned by the ***Mole Mining Company***.

Here an empty coal tub emerges from the cage at pit bottom; however, in contrast to much of the other areas, the track needed here to be securely fastened down for alignment. Note the breadth of the grooved wheels, relative to the narrow edge rails; this allowed for the optimal flexibility of maneuver with stability and free running. By this date they were using steel tubs.

Our WARS mapping showed an incline used to haul coal tubs from the drift workings to the coal sorting screens, but unbeknown to us, there was also a later (1946) tramway on site that served some adjacent workings (from Bayton No.8 Drift).

David Poyner devotes many pages to this post-war Hunthouse mining - as abridged and paraphrased below.

On one occasion the W.A.R.S. had agreed to meet up in the early afternoon near The Hatch, prior to viewing the Southnett tunnel portal and various other nearby sites, but Peter and Patricia Cross turned up slightly late, accompanied by a stranger. They introduced one of the long retired Hunthouse miners encountered in the course of a local pub lunch. In return for a beer or two, Patricia had persuaded him to readily leave the bar, accompany them, and explain to us more of the mining - so I questioned him about something that had puzzled us over the years, *viz.*, the relative sparsity of surface spoil at many of the district sites. It transpired that, as the coal face advanced, much of the spoil was packed into the resultant voids - apart from, possibly, any usable quantity of clay they encountered – so clearly, this implied 'longwall' mining.

POST-WAR MINING AT HUNTHOUSE . . . *adapted from Poyner & Evans*

The later Hunthouse mining was largely dominated by the Bayton Mining Company, and by the nationalization that threatened such private enterprise. Prof Poyner then explains how the Bayton company thwarted the threat by ingeniously declaring Hunthouse a 'Small Mine' (such status hinged upon the number of employees). This ploy licensed their initial exemption until increasing NCB interference required them to transfer a number miners from their shaft to the adjacent drift workings. It seems a sorry story of frustration, and mutual antagonism, especially when the NCB took back direct control and replaced the long-serving manager Walter Moody. Despite the NCB's investment in new plant and technology, there was serious impairment by flooding, pay and labour disputes and several other setbacks. In fact their tenure is described as *"short and inglorious"* (Poyner) with effect that the men would ultimately be deployed elsewhere when the Coal Board finally closed their Hunthouse operations in February 1950.

Notwithstanding the NCB withdrawal, it wasn't quite the end because in 1954 the local Mole family – with long-standing mining aspirations – decided to fill the vacancy. The new Mole Mining Company took up some earlier exploratory findings of mining geologist, Geoffrey Bramall and decided to extract the unworked reserves of No.8 drift that he'd identified; but this time the coal was reached by sinking new shafts in adjacent land, from which they opened up a fresh coal face. Having first reached and cleaned out the unworked No.8 drift coal, they next exploited virgin reserves to the north and east of their new shafts.

All this Mole mining was relatively small-scale, since it was again limited by NCB licence to just thirty operatives; nevertheless, by using electric winding, compressed air picks and other modern techniques, the output reached 30-50 tons each day. In 1963 an additional shaft was sunk and fitted with a pump to improve drainage, with effect that the operations successfully operated for nearly twenty years.

Prof Poyner concludes his Hunthouse story as follows:-

> *"The end came when a newly opened longwall face struck water, leading to rapid flooding. It was judged not worth trying to recover the mine. The Mole Mining company was briefly succeeded by a short-lived workers co-operative which failed in 1972. The Arab-Israeli war later that year saw the quadrupling of oil prices, and was followed by several attempts to sell the mine as a going concern. Unfortunately, none of these had any practical results, although the site was not cleared until 1979 to make way for a timber yard and saw-mill."*

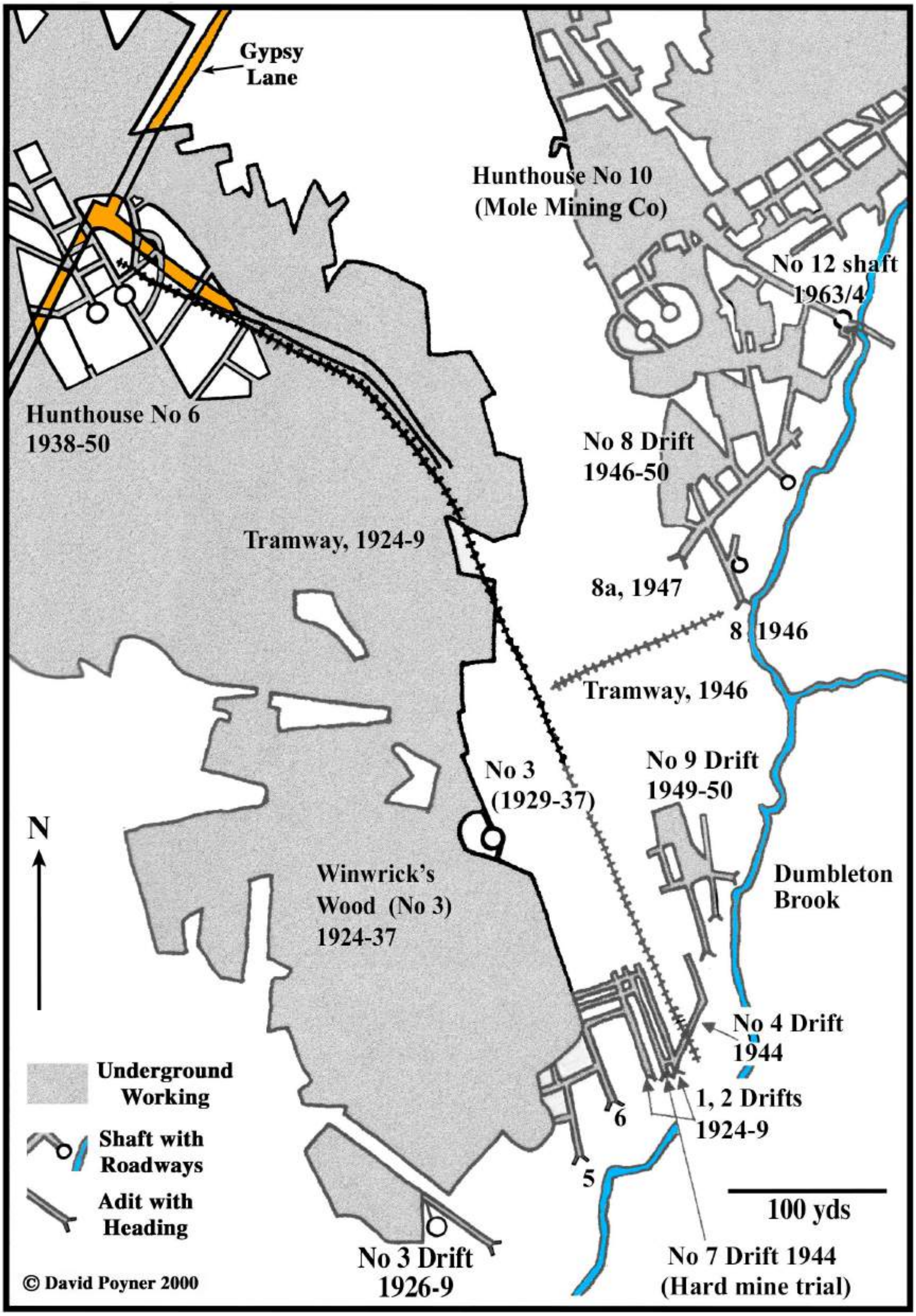
This co-operative setup is recalled from having once lived in the Teme valley. My neighbour switched to them, presumably because it was cheaper than the "Highley Best" he'd previously purchased? Lorries delivered Hunthouse coal throughout the district, so most likely it was hauled up the 1946 tramway and then loaded somewhere on the track leading off Gypsy Lane near No 6 - where the screens were once situated.

Newcomers to the mining history might well have been puzzled by all the references to 'Bayton' mining in this somewhat distant Hunthouse locality! But Prof Poyner explains that in 1921 the Bayton Colliery had signed a leasing agreement with Sir Walter Blount – the Blounts had long since ceased mining themselves – in order to work an area on his Mawley estate lands. This was because their Bayton Hard Mine coal reserves were dwindling to near exhaustion and new workings were needed; consequently, their first venture was to sink Bayton No.2, situated on the northern outskirts of Mamble *(above 'Workings' map)*. Whereas this Sulphur Coal was deemed to be high quality, the geology proved uncontrollably difficult (adversely dipping seams) so flooding ensued on one side of the shaft bottom, whilst drier coal on the opposite side of the shaft was at the very edge of their leased land and/or it encountered and was barred by former workings:

> *"Although the coal was excellent, the poor underground conditions made closure inevitable in 1923, with the loss of £2,000 of investment. At the same time the old Bayton Colliery, Bayton No1 finally exhausted the last of its reserves and finally closed. The Bayton Colliery Company was left without that most basic of assets, a working colliery*
>
> *Salvation for the company came with the opening of a drift mine in the Main Sulphur Coal as it outcropped in Winwrick's Wood, by the banks of the Dumbleton Brook. Although there had been outcrop working here, it had not amounted to much and there appeared to be easy pickings left. Given the perilous state of the company's finances, this was what was needed. In the event the mine exceeded expectations; it became evident that there were extensive reserves of good quality household fuel. The following year a tramway was laid from the mines to the*

main road and this proved to be a timely investment. In 1926 the pit worked all the way through the general strike and for a period must have been the only source of coal within a fifty mile radius." (Poyner)

Their 1924 tramway depicted below was relatively short lived because, as the Bayton Colliery Company expanded – with an extra drift opened adjacently – their business by 1927 was such that they'd acquired a fleet of twelve one-ton Ford trucks plus a seven ton steam lorry for their own haulage and retail delivery purposes, so the tramway, like their Bayton ropeway, was no longer needed. Mining at Bayton was finished with, whilst a new lorry track from Gypsy Lane now accessed the Hunthouse coal.

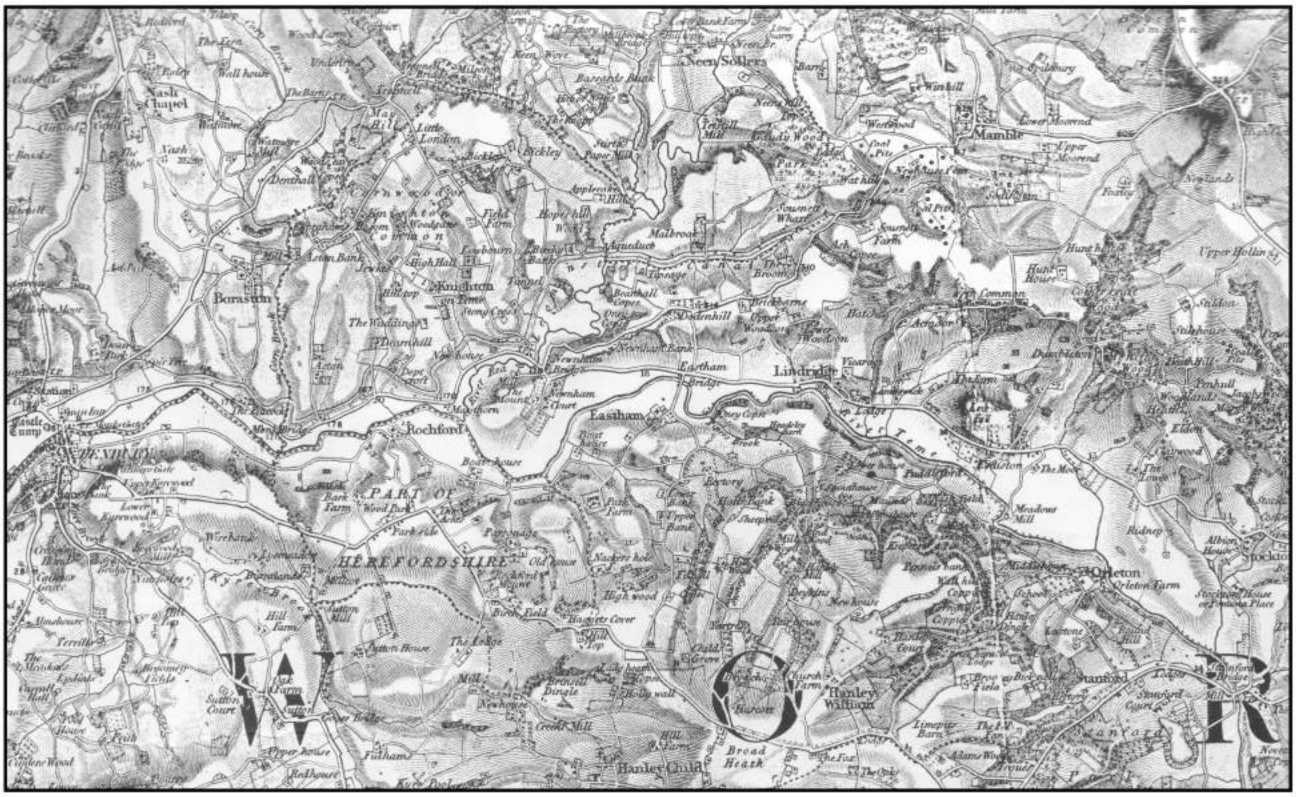


- HUNTHOUSE & WINWRICK'S WOOD -

(Digitized & tinted - J.G.Calderbank 2019)

Throughout the whole West Worcs./Wyre Forest colliery district an underlying ambition had been to reach the "Sweet Coal" of the Productive Coal Measures – so called because it was free of sulphur – whereas in reality such coal was denied to the Mamble district. In Bayton they had also accessed better quality Hard Mine Coal, but it was both brittle and difficult to extract; however, this meant that it resisted breakage in shipment, thus incurring little damage when bucketed down their aerial ropeway to a railway siding on the *Cleobury Mortimer and Ditton Priors Light Railway.* The above map indicates a belated (1944) attempt to reach this same coal in the Hunthouse drifts.

The small streams radiating from Clows Top and Church Hill are steeply graded and entrenched in their upper reaches, so erosion has revealed the commonly encountered Bats Coal, albeit of little economic value. Frequently, the Bats resembled black 'coaliferous' shale, sometimes scarcely more than coal smuts, and offering little other than scraps of free low-grade house coal for some of the locals.



EXTRACT . . . from the 1866 'OS' Map - "One Inch" - LEOMINSTER, SHEET 50

This map shows most of the coal pits between Mamble and Pensax but pre-dates the two Teme valley railway developments. It also depicts most of the formerly detached parish of Rochford - in the 'Wolphy Hundred' - which later became part of Worcestershire, whereas the other detached Wolphy portion (Farlow) went to Shropshire

- ACKNOWLEDGEMENTS -

Virtually all our historical knowledge of the Leominster Canal stems from the 1950s research by Israel Cohen, although this was later bolstered with archaeological evidence gathered nearly twenty years later by our W.A.R.S. Leominster Canal Survey team. Detailed knowledge of the Canal's engineering geology owes much to geomorphological research conducted by the late Dr. Peter Cross, formerly the Woolhope Club's Geology Recorder. Further archival research was contributed by the late Mrs. Patricia Cross, and a photographic survey was subsequently undertaken by Martin Hudson, also of the Woolhope Club.

Prof David Poyner's account of the coalfield's geology derives mainly from the B.G.S. – and of course we gratefully acknowledge the kind permission to reproduce his text and illustrations here. Above all, as he reminds us, great understanding resulted from the professional expertise of the late Geoffrey Bramall and likewise from the late Robert Evans, each of whom was intimately engaged in the local coal-mining. Our coalfield history was transcribed from David and Roberts' book, the only detailed historical account of this mining.

- PRINCIPAL SOURCES *. . . used in the WARS L.C. Papers 8 & 9*-

B.G.S. (Memoir) "Droitwich, Abberley & Kidderminster" – London (1976)
Calderbank, J.G. "Canal Coal & Tramway" – L.C.P., Hereford (2000)
Calderbank, J.G. "The Leominster Canal – Part 2" – L.C.P., Hereford (2001)
Calderbank, J.G. & Poyner, D.R. "Mamble & Hunthouse Collieries - A Guided Walk" - AMHG / WGS (2010)
Cohen, I.E. "The Leominster-Stourport Canal" – Hereford W.N.F.C. Trans. (1957
Cross, P. "New Evidence for the Glacial Diversion of the R.Teme" – Hereford W.N.F.C. Trans. (1994)
Cross, P. & Hodgson, J.M. "Glacial Diversion of the R.Teme, Salop" – London G.A. Proc. 86/3 (1975)
Poyner, D.R. & Evans, R. "The Wyre Forest Coalfield" – Stroud (2000)
Rayner, D.H. "The Stratigraphy of the British Isles" – Cambridge (1981)
Parrish, J.M. *et al*. "The British Encyclopedia" – London (1933)