

The Navigable Levels

The first coal mines were shallow workings on Walkden Moor, but as the technology improved, so deeper workings became possible and necessary as the demand for coal increased.

As the map shows, the coal seams, lettered A to Q, run at right angles to Walkden Road and dip towards the southeast so that the road from Worsley Delph to Walkden crosses them in sequence. Happily for coal extraction, some seams recur because of faulting of the rocks.



Water in coal mines is a problem and tunnels are used to drain the water away from the workings - at Worsley these drains were called 'soughs'. John Gilbert saw them and was inspired to construct an underground canal system. The result was the navigable levels. The sketch below shows the entrance at the Delph in about 1900, with the narrow barges called starvationers - so called because their ribs showed - which could negotiate the tunnels.



The underground canal system was an original and uniquely English contribution to the industrial revolution and to the science of engineering. Although initially expensive, it saved so much winding of coal to the surface, and so much costly draining of mine water, that it proved in the long term an immensely profitable investment. It was imitated in many places - by Gilbert himself at Harecastle tunnel and his Alston Moor silver mines; at Lilleshall in Shropshire for Earl Gower, by engineers in central Europe, and in limestone mines at Dudley to the west of Birmingham, as well as in several of Gilbert's mining projects in Derbyshire.

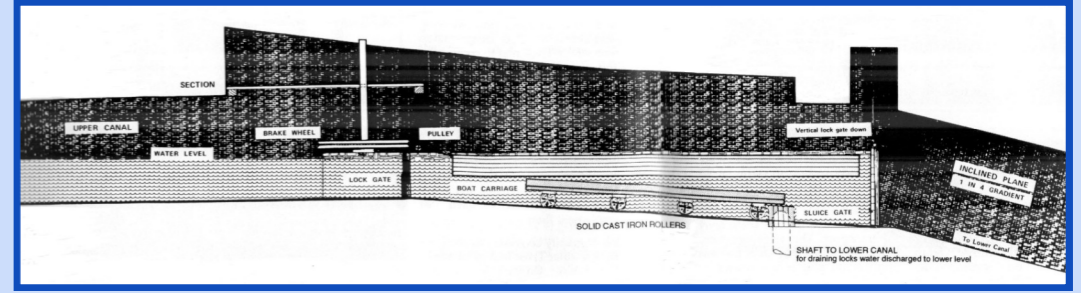
George Bernard Shaw accused the British of neglecting their geniuses, and Gilbert and the Duke can be taken as cases in point. The Worsley sough system alone has been justly described as 'fantastic; certainly it is unique and it must rank as an outstanding achievement in coal mining history'.

The Underground Canal or 'Navigable Level' as it was known, starts at the Delph in Worsley and runs north westward under Walkden and Little Hulton to Dixon Green. The four levels and numerous side branches give a total length of almost 52 miles.

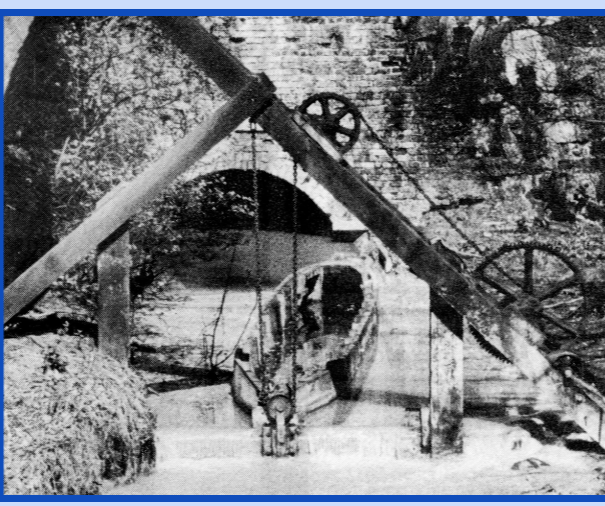
Work started in 1759, small teams of miners cutting the rock by hand, with pick, hammer, shovel and drill. By 1770 they had reached Walkden and Buckley Lane by 1801. For many years over 100,000 tons of coal a year were brought out through the underground canal, and it continued to be used in this way until 1887. It then served as a drainage mechanism, water being pumped into it from the mine workings until the closure of the last pit in the area, Mosley Common, in 1968, made it redundant.

The Alton Towers of the 18th Century?

Canals which crossed the Pennines and canals that went underground proved fascinating to all levels of society, especially those reading stories in the increasing number of regional newspapers. Small wonder then that from 1766 onwards, when the first passenger boats began to run from Manchester to Worsley, hundreds of people made the journey to visit the Duke's 'sough'. Tickets were purchased at the Estate office in the Brick Hall and while men of science came from afar to see the novel solutions to underground transport, drainage and ventilation, most people came for the sheer thrill of a journey into the unknown!



The diagram above shows the ingenious and novel Inclined Plane, which linked higher and lower sections of the underground canals and enabled loaded barges to be lowered to reach the main level and continue their way to the Delph, while empty ones reached the higher levels. This was another Gilbert invention which is still in place somewhere north of Tesco at Walkden! The following photographs show various parts of the canal system during safety inspections made last century. It is now considered too dangerous to allow anyone access to this subterranean world.



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A barge being lifted at the Delph and another being repaired at Worsley dry dock

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