

The First GAS WORKS?



In 1805, just 5 years after William Murdoch had installed a gas making apparatus to light his employers' factory in Handsworth, Birmingham, his pupil Samuel Clegg built a similar apparatus at Sowerby Bridge, near Halifax in Yorkshire to light a cotton 'manufactory'.

This was the time when many textile factories and mills in the north were being opened, all competing for the lucrative market for woollen and cotton goods. Both Murdoch and Clegg were in competition to design and build gas-making apparatus for lighting mills and factories and Clegg worked his men day and night to light the Sowerby Bridge mill before the Salford factory.

Cleggs' plant was the first to commercially produce gas in the British Isles and was installed at the cotton mill of Henry Lodge, at Lower Willow Hall mill. Clegg had first visited the mill on behalf of Messrs Boulton & Watt to install a steam engine (B & W's letter book 1st February 1803) a couple of years before but had then left B and W's employment and set up his own business. Gas was used to power 28 lamps and excess gas was sold on to the local district.

The mill, now demolished, became the site in the 1830's for the town's gas works, which opened in 1835 located between the River Calder and the Rochdale Canal. The gas works closed down in 1954.

Clegg's son (also named Samuel) subsequently claimed ('Treatise on the Science & Practice of the Manufacture & Transmission of Coal Gas', pub. 1841) that his father's objective of building the first gas making plant at Lodge's mill was achieved two weeks before Murdoch lit Phillips & Lee's factory at Salford, other sources claim this occurred on the 1st January 1806. The mill gas supply was subsequently extended into Mr. Lodge's house at Willow Hall (see W. Matthew 'Historical Sketch of the Origin & Progress of Gas Lighting' pub. 1823). The Sowerby Bridge site of Mill and later gas works and even later holder station, is shown in the photograph.

(our thanks to Ken Golisti for his research).

A Jack of all Trades?

The following advert appeared in the gas trade press in 1856.

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"To working gas fitters, Mechanics and Smiths...

The Malvern Improvement Commissioners require a FOREMAN, to reside on their Gas-works rent-free. He must be a Mechanic, competent to Manage the Works, to Repair the Gas and Water Sluice cocks and Hydrants; a fair Smith, able to repair the Working Tools and to lay and make all repairs to the Gas and Water Services and Mains. He must be able to read and write, as he will have to keep the Time Sheets. All applications to be made by letter, by the 29th November, stating wages expected, and giving References as to ability and honesty, addressed to JOHN SKEY, Esq., Clerk to the Town Commissioners, Great Malvern, Worcestershire.'

(The pay rate at the time was typically 3^d per hour!) ED.

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A PICTURE PUZZLE

This aerial view, probably dating from the late 1930's, shows a small gasworks at the side of a tidal river. A barge is moored opposite the works. There are two gasholders inflated and one flattened, and probably two horizontal retort houses. At the top of the picture is a 'T' junction in the road with a roundabout and an ancient city gate. The road then goes off to the left and crosses the river via a bridge, ...but where is it?

Any one recognise the location? Ed.



THE CHELMSFORD GASHOLDER Foundation Failure

PETER WYNN

The Chelmsford municipal undertaking awarded a contract for the construction of a 1 million cubic feet capacity gasholder at the beginning of 1945. Foundation failure occurred on completion and it is interesting to compare the low key reporting of this to councillors, with the soil mechanics research that was initiated as a result.

Construction of the foundations started about April 1945 but labour shortages resulted in slow progress and Council minutes reported that they were practically complete in October. Construction of the superstructure was completed about two years later. However minutes of 13th October 1947 reported, that "some settlement of the foundations has taken place, which while not dangerous is causing concern". In November the report of the insurance inspecting engineer stated, that "attention was needed to certain adjustments before use in particular with respect to the slight settlement". Minutes in December reported, that "on completion of testing, the Contractors have emptied the tank (of water) and are driving a number of piles on the south side nearest the river prior to compensating for the uneven settlement". In February 1948 a further report was given that 20 piles had been driven and that the contractors were concreting horizontal beams to with-stand any possibility of further settlement. In May 1948 the remedial work was reported as completed with a total of 23 reinforced concrete piles having been used. The base blocks had been levelled and all leaky rivets made good. It was suggested that "the adjacent river at one time flowed near the edge of the foundations and deposited a layer of silt beneath the gravel and that this has been responsible for the slight settlement". The contractor for the works seems to have considered the matter to be more serious and commissioned the Building Research Station to investigate. The results of the investigation were reported by G.G. Meyerhof to the South Wales Institute of Engineers in 1951. In contrast to the 'slight nature' of the problem reported to members of Chelmsford Council, Meyerhof's paper says that large differential settlements developed which seriously interfered with the working of the plant. It describes a ground investigation including the sinking of 25 boreholes around the failed structure, which showed that the statement made to the Councillors was inaccurate: in fact there was a variable thickness of clay above a gravel layer. The failure led to important research on plastic flow beneath foundations and on the ultimate bearing capacity of clay layers. The results of this research resulted in classic design methods for foundations on thin clay layers, still in use in soil mechanics today. It is tempting to speculate on why the extent of the problem was played down in its presentation to the Chelmsford Councillors. Was the wartime approach of censoring bad news still in operation? It may be significant that Meyerhof's paper did not specifically name Chelmsford, instead talking of "the outskirts of a large town in Essex".

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