

A corner of the erecting shop at the Clifton Bridge Works

## Messrs. Woodhouse & Mitchell Ltd. Engineers and Millwrights of Brighouse

by Mildred Cookson, The Mills Archive, UK



### Milling journals of the past at The Mills Archive

by Mildred Cookson, Mills Archive Trust, UK

**M**any of the articles on roller mills I have written over the past years have included layouts of the mill, sometimes with a brief mention of their motive power. An article in *The Miller*

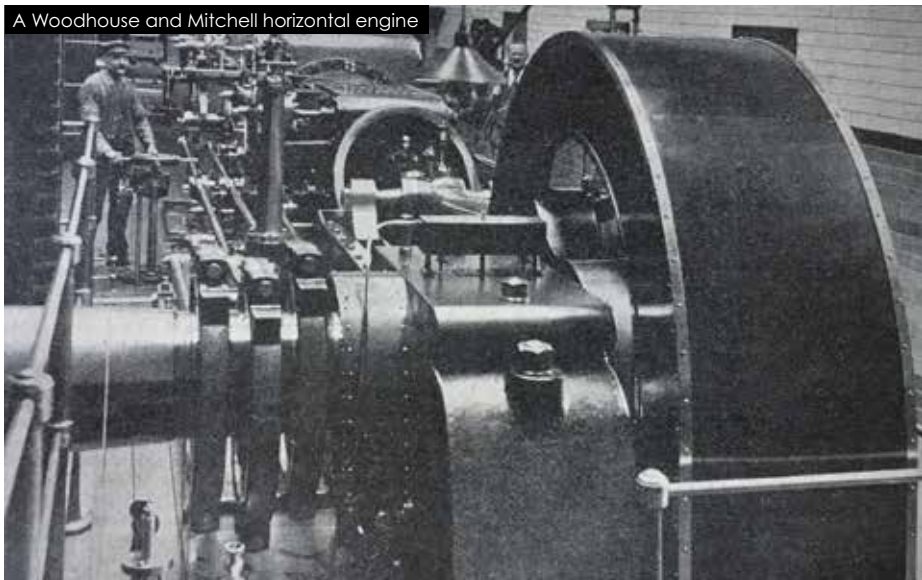
of 6 December 1909 provided some interesting background to one of the companies that built some of the engines that drove mills of that time. Representatives of that journal enjoyed a trip across the Pennines to Brighouse near Halifax in Yorkshire. They visited the works of Woodhouse and Mitchell and published their impressions.

The firm started out in 1867 when four clever and enterprising employees of an engine building company decided to set up on their own account. Their names were: Joseph Wood, John Baldwin, Samuel Mitchell, and Richard Woodhouse. They secured a small workshop at Brighouse, hiring

power from their next-door neighbours, and started out on what was going to prove to be a successful career as engine builders.

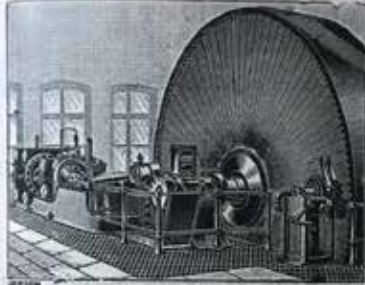
Richard Woodhouse was the owner of the firm at the time of the article in 1909. He was a member of the Institute of Mechanical Engineers, and of the society of Arts as well as a Justice of the Peace for Brighouse and Churchwarden of St. James' Church. He

A Woodhouse and Mitchell horizontal engine



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A 1909 advertisement for the firm

had served 5 years in the office of Wm. McNaught, a well-known Manchester consulting engineer, where he learned much by working in several departments of this large and busy engine building & millwrighting works.

In contrast Joseph Wood was an old-fashioned millwright and took charge of this aspect of their work until his death in 1881. John Baldwin (nicknamed 'The Doctor') superintended the erection and starting of engines. He retired in 1883 leaving Messrs. Woodhouse and Mitchell to continue the business. On the death of Samuel Mitchell in 1902 the firm became a limited company with Richard Woodhouse as governing director.

On the ground floor of the works, immediately behind the general offices, the erecting shops featured a 15-ton travelling electric crane to lift parts into place. The machine shop, running parallel to the erecting shops, was where the parts of the engines were turned, bored, fitted to gauge, and polished ready to assemble into the complete engine.

At the time of the visit, one engine under construction was a high and low-pressure tandem engine with surface condenser being prepared for a Scottish flour mill. Mr. Woodhouse believed in some cases it was possible, by compounding existing engines and fitting them with proper valves, to reduce coal consumption by more than half.

One of the products of the firm was their special air pump, noted both for good vacuum and for noiseless working. The firm also made gearing and pulleys of all sizes, including grooved fly wheels and pulleys for rope drives. They also built wheels of all sizes; those over 18ft diameter or 20 tons in weight were built up in sections for convenience of carriage and erection. Friction clutches were also another specialty.



Next to the machine shop was the pattern makers department, which was fitted out with small band and circular saws, wood planning and other machines. The patterns themselves were stored in some of the upper rooms and were grouped and numbered systematically, so that any required pattern could be found at a moment's notice.

Next to the pattern shop were the smithies, fitted out with forges of various sizes and a massive steam hammer of the firm's own make. It was supplied with steam from a new boiler, the power in some cases carried by cables from a dynamo to various electrical motors in different parts of the works.

Across the street was the foundry, housed in what was once a cotton mill with the floors taken out to make a roomy foundry. Iron castings up to 12 tons each could be made and handled there. It was also equipped with two blast furnaces for iron, besides four smaller furnaces in the brass foundry, together with various drying ovens for dry sand moulds and cores. The firm also had their own stables accommodating horses over 17 hands.

To view the machines in action, the group also visited a large cotton mill nearby which had just installed a high- and low-pressure tandem cylinder with condenser and Corliss valves. Next-door was another factory with a pair of engines of the same pattern which the owners said had reduced the coal bill by £1,000 a year. A third factory was quite different; this had a pair

Mr Richard Woodhouse JP



of 'inverted' vertical engines of the marine pattern. Various cotton mills were visited, as well as a silk mill.

The company was well known to flour millers all over the country and abroad, having built many engines, which were shipped, to Chile, the Cape, Durban, South America and India as well as other parts of the world. The journalists finished with a plea for mill owners of that day to let them know if they had a Woodhouse & Mitchell engine in their mill.