

The Ellenroad site, 1987. Note roofed base of chimney and weir supplying engine house.

ELLENROAD: THE REVIVAL OF A SLEEPING GIANT

Stanley Graham

The Ellenroad Mill Engine and associated plant at Newhey, near Rochdale, is the last complete large spinning mill power plant in Britain. Built in 1890, the mill closed down in 1982 and by 1984 was rapidly sinking into dereliction; another casualty of the wave of textile closures which has decimated the industry which gave birth to the world's first integrated factory system. Today, the site is the scene of intense activity as the Ellenroad Trust works to bring the power plant back to steaming condition and prepare the site for exhibition and interpretation to the public.

How was this unique artefact saved? What is the significance of the site? What are the plans for the future and how is such a massive operation to be funded and staffed?

In 1984, Coates Brothers Inks Limited, an Orpington based ink manufacturer, bought Ellenroad intending to demolish the mill and build a new manufacturing and distribution complex. They realised the importance of the power plant and made the decision to investigate the possibility of retaining the engines and as much of the structure of the mill as possible. A consultant was called in and a full investigation commissioned. At this stage, there was no prospect of funding but a decision was taken to

finance the investigation as otherwise, the whole of the site would be lost.

By March 1985 two things had become clear: the restoration of the plant was possible but expensive; the retention of the main structure of the mill was not feasible. Mr. D.J. Youngman, the Chairman of Coates plc, made the decision to save the engine complex which housed the plant and demolish the rest of the mill. Operating within an extremely tight schedule N & R Contractors of Todmorden worked miracles, saved the engine complex and cleared the site ready for the building of the new factory. There still being no prospect of funding, Mr. Youngman declared it "Chairman's Folly" and carried on.

By April 1986, the new Coates factory was in production, the Ellenroad Trust had been set up, the purchase by the Trust of a long lease on the complex was agreed, funding for the first phase of the rescue had been assured and a Manpower Services Commission team had started on the restoration of the complex under the overall supervision of the same consultant Coates had retained in 1984. It had been an interesting eighteen months, but we were getting somewhere. The Trust had accepted the responsibility for funding and Coates, with a sigh of relief, stopped funding. (For a while!)

The Trust is a partnership between the Rochdale Metropolitan Borough Council, Coates Brothers Inks Limited and the public. The work of the Trust is financed by Rochdale Metropolitan Borough Council, English Heritage, the Science Museum and other local and national funding bodies. The intention is to provide a visitor facility and information centre on the side of the M62 with the added attraction of the engine running in steam.

The chief claim to fame of the engine is that it is the last complete large spinning mill power plant left intact. Many engines were bigger. However, most of these never ran at full power because they were intended for double mills. These were mills where one half of the mill was built together with the engine house and run until it became economically feasible to build the second half. As most of these mills were built in the 1920s when the cotton trade was cracking after the post-war re-stocking boom, very few were ever finished. The over-sized engines ran at part-load all their lives and, truth to tell, many were wastrels for this reason.

The Ellenroad engine was never over-powered. The mill was built by a group of local entrepreneurs in 1890 as a 120,000 spindle mule spinning plant and it produced low-count yarns. The original engine was built by J. & W. McNaught of St. George's foundry in Drake Street, Rochdale as a triple expansion running at 55 rpm and producing 1700 IHP (Indicated Horse Power) from steam at 160 psi. McNaughts were very successful engine-makers and modified many other manufacturers engines by converting them to triple-expansion in the search for more power and greater economy. This was to be ironical in the light of later developments. In this form it ran the mill until 19 January 1916 when there was a disastrous fire which destroyed the whole of the mill with the exception

of the power plant and the chimney. Textile closure had struck early!

In 1919 the mill was rebuilt as an 80,000 spindle ring spinning mill. This demanded more power and McNaught's quotation for re-building must have been too high because the engine was modified by Clayton Goodfellow of Oldham. They converted the engine from triple expansion to double tandem and replaced the old boilers with a bank of five new Lancashires made by Tinker Shenton's of Stalybridge steaming at 180 psi. A new 85 ton flywheel was cast and fitted and the speed raised to 59 rpm. In this form the plant was nominally rated at 2650 IHP but we have engineers' records which show that even in the late 1960s it was producing almost 2800 IHP.

The flywheel is grooved for 44 one and threequarter inch ropes which drove the mill through a magnificent rope race 100 feet deep and 120 feet high internally. There were five countershafts inside the back wall of the rope race, one for each floor of the mill. Each countershaft drove a longitudinal shaft which ran the full length of the building and drove all the machinery. The distance between the centre of the top countershaft and the centre of the flywheel was 194 feet. It was a cathedral of power and a marvellous perspective could be gained from the top platform down to the wheel.

The reader will have noticed that when I speak of the rope race I use the past tense. Unfortunately, when we stripped the mill away from the rope race it proved to be unstable and had to be demolished.

The single remaining boiler at Ellenroad is the last survivor of those installed by Tinker Shenton in 1919. The coal burning plant was stoked by Bennis air draught shovel stokers and the plant burnt an average of 100 tons of coal a week, 150 tons in mid-winter. The feed water for



Ellenroad Fire, January 1916.

the boilers was treated by Nalfloc Ltd., an associate company of ICI. This firm has offered us free water treatment for the next five years as the boiler is the oldest in the country which has been under their care since the 1930s.

The boiler flues all emptied into a main flue which led to the 220-foot-high chimney. The Ellenroad chimney is in fine condition. It was very good before the Trust took over but since then we have rebuilt the chimney head and added four feet of brickwork to bring it back to the 1920 height. It is now in perfect condition and will last at least another 100 years with proper maintenance. The chimney is notable for the circular roofed structure at its base. This was thought by many to be a flue but is in fact a protection for the offsets from the chimney foundation which is on the top of the ground. The chimney stands on a river flat next to the River Beal and if it were built normally, its footings would be below the water table. The chimney builders sank the main foundation block in the ground but left the offsets, which are generally buried, above ground. This, kept the base out of the water and ensured the stability of the structure. The roofed structure ties up the base nicely and has been a conversation piece for years. The main flue from the boiler to the chimney was full to within a foot of the roof with flue dust. When we cleared it out we found that the brickwork was badly corroded and in a state of collapse. The whole flue has been relined to the highest standards at a cost of over £20,000.

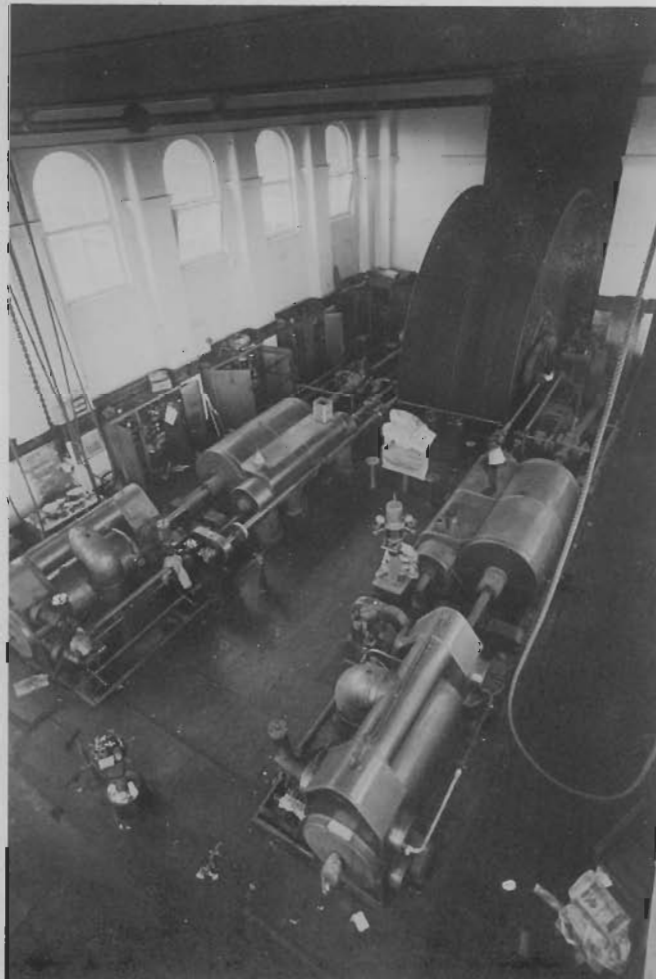
The most important physical resource on the site is the water provided by the River Beal. This factor was just as crucial in the siting of a nineteenth-century steam-

powered mill as it was in the era of water-power. This is the main reason why most of the early steam mills were conversions of existing water-powered mills or re-used water-power sites. It is sometimes forgotten that a steam mill lives or dies by its water supply which is needed to cool the engine condensers to give efficiency and economy of running.

This source of water is the reason why the mill was built on a green field site in 1890. The fact that Ellenroad was built in a rural setting is a sure sign that the urban water sites were either occupied by other mills or under the ownership of other mill owners. The canal was an alternative water supply but the licence fees charged by the canal companies would have been a major expense.

The Beal is dammed by a weir above the mill and a tunnel leads from above the weir to three, twenty-foot deep, nine-foot diameter jack wells at the back of the engine house. These wells house the inlets for the condenser pumps, fire pumps and boiler feed pumps. The condensers alone can pull 6,500 gallons per minute from the river when the engine starts. The water is discharged back to the river after passing through the condensers.

When the 270,000 square feet mill was built in 1890 there was no public electricity supply. The lighting of the mill was electric and was produced by a drive from the main engine to the dynamo room which contained two large dynamos. This was very efficient when the engine was running during working hours but there was no light when the engine was stopped. Lighting was essential in the dark months of the year before working hours to allow the workers to get to their places and get all their preparations for work completed before the engine started. The



Ellenroad Engines, 1984.

