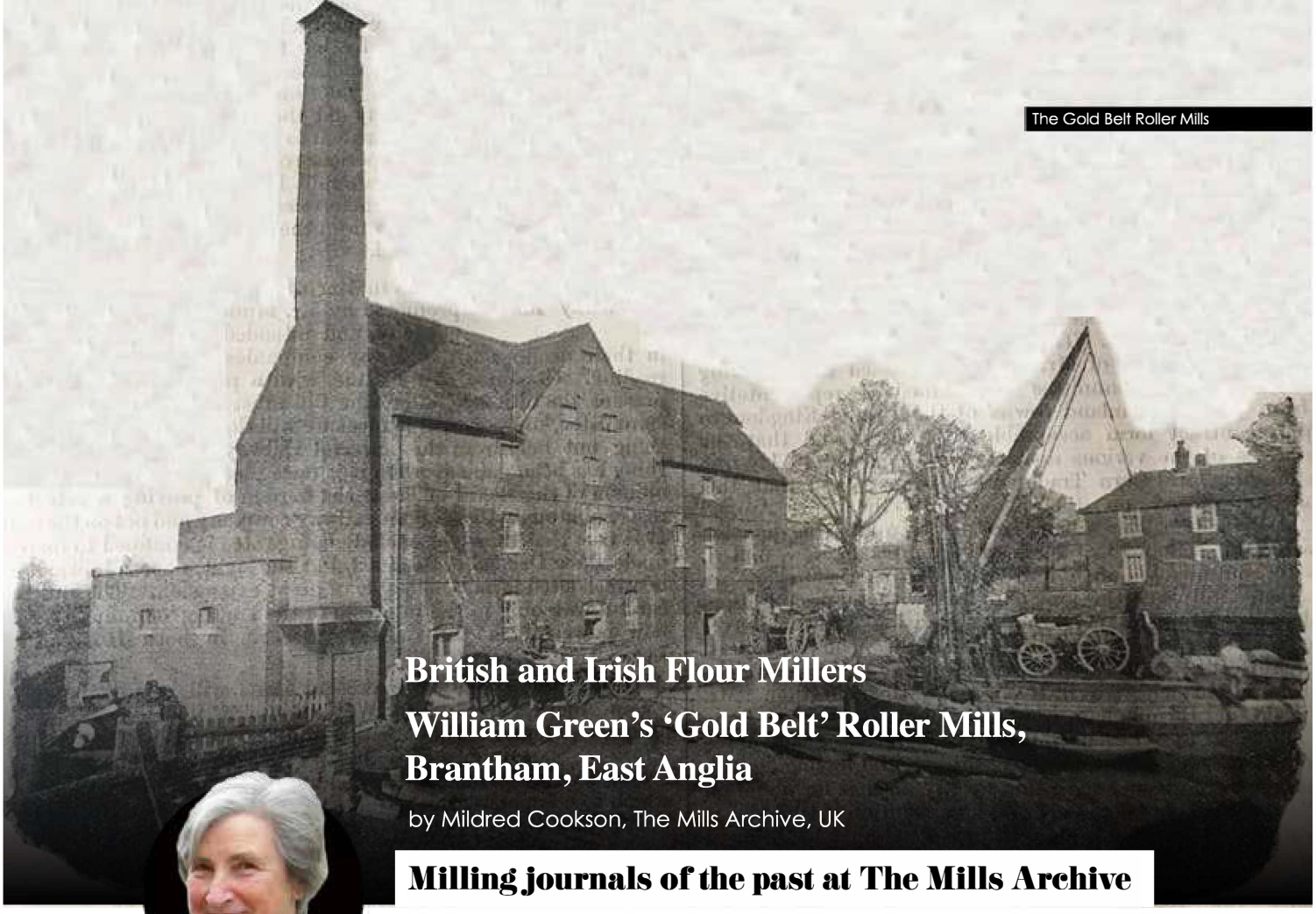


The Gold Belt Roller Mills

British and Irish Flour Millers
William Green's 'Gold Belt' Roller Mills, Brantham, East Anglia

by Mildred Cookson, The Mills Archive, UK

Milling journals of the past at The Mills Archive

An 1895 mill profile in The Miller started with this claim: "Among East Anglian millers, one is very notable, that of William Green of 'Gold Belt' Brantham and Raydon Mill."

Mr Green was born in 1853, making him 42 years old when the article was written. Starting out in agriculture he soon moved on to become a flour salesman. He then decided he wanted not only to sell flour, but to produce it. Pursing his ambition, in 1880 he rented Raydon Mill in Suffolk and met with immediate success. Although not having any milling experience, he persevered, and apparently there was no more enthusiastic miller in East Anglia.

In 1888 when he purchased Brantham Mills, the mill ran with five pairs of millstones driven by a breast shot waterwheel. The illustration of the exterior of the mill gives a good view of the entrance. In the deep red of the brickwork on the face of the mill was set a small white stone, bearing the simple inscription "I. P., 1778".

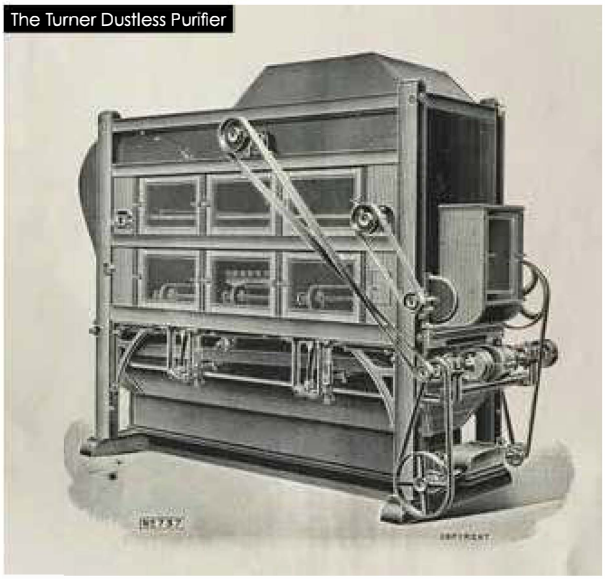
Mr Green enlarged the mill, adding a screening house and an engine and boiler house, the 80ft high chimney was a prominent feature. The millstones were supplemented by smooth rolls for the conversion of middlings, and for a few years the mill was worked on a combination system. Convinced that to keep and extend his trade, a roller plant was absolutely necessary, he ordered a four sack plant from E R Turner of Ipswich & Mark Lane.

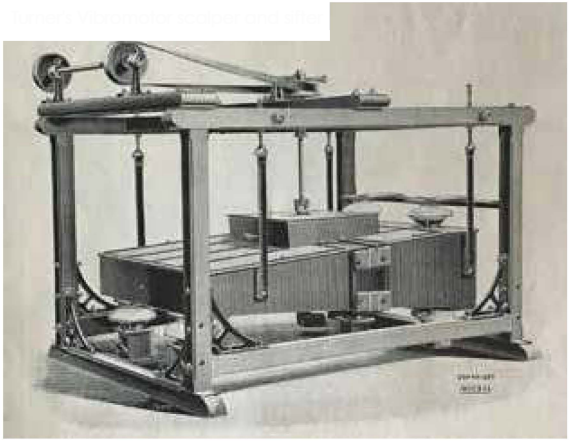
The roller plant was accompanied by the installation of a Jonval Turbine, supplied and fitted also by Turner's. The turbine was said to run very with smoothly. The large crown wheel on the nine feet diameter shaft, was made at St Peter's Works in Ipswich and ran "as easily as if it had been the fly wheel of a toy engine, and not a mass of metal weighing about a ton and a half".

The installation of the turbine reduced the workload on the 12 horsepower compound beam type engine. This efficient motor had been built earlier by Wentworth of Wandsworth and was supplied with steam generated in a Cornish boiler.

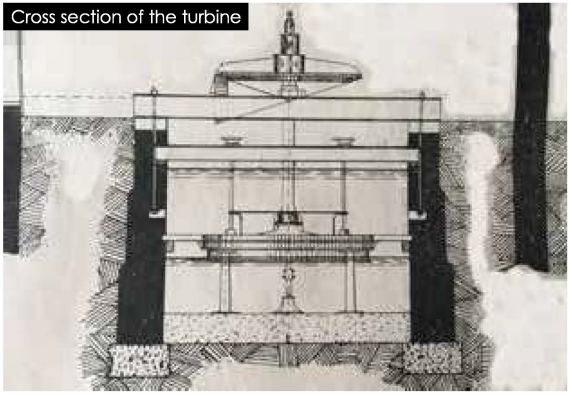
The roller plant was tested and with the engine alone there was

The Turner Dustless Purifier





Cross section of the turbine



The Turner cockle cylinder

sufficient power for producing 120 sacks in 24 hours. This was a severe test for both the milling plant and the engine, considering the capacity before was only four sacks an hour, the 124 sacks in 24 hours was equivalent to five sacks an hour. Moreover, the 120 sacks milled in the November were from a grist of all English wheat.

A distinct structure

The warehouse was quite distinct from the mill itself, being separated from it by a stout wall. Another building for storage of grain and flour was at the time being planned to be added at right angles to the building on the right hand side of the mill as seen in the illustration.

This would go down to the water's edge and have an elevator to discharge grain from the barges on the River Stour on which the mill stood. The grain once discharged would be carried into the mill by a band conveyor.

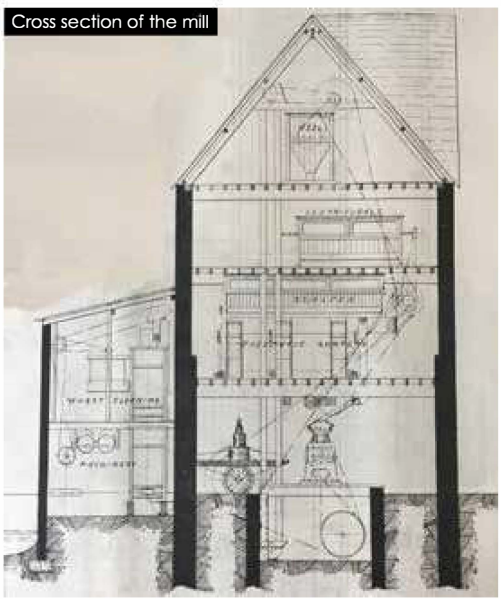
The river is in direct communication with Harwich and the North Sea, while on the other side the waterway is navigable as far as Sudbury. Mr Green reckoned that by using the Stour he could bring in foreign grain to his mill at one shilling a quarter less than would be charged by the Great Eastern Railway.

The screen house of the mill was more like a warehouse and was a distinct structure. After being automatically mixed, the wheat fell on a shaking sieve that separated any impurities larger than the berries. From this sieve the wheat passed to a 'Vibrometer' grader, this was followed by a cockle and barley cylinder and finally berries were put through a 'Eureka' vertical scourer and vibromotor.

Ensuring a proper shearing action

Access to the mill proper was through the door in the centre of the building. This led directly onto the ground floor or roller floor. The system of four breaks and eight reductions, the breaks being affected by two double roller mills fitted with rolls of 30x9 inches (one inch = 2.54cms).

Whilst the eight reduction rolls were assigned to four double roller mills. In one mill the rolls are fifteen-by-eight inches; two sets had 20 inch rolls and the remaining set were twenty five-by-nine inches.


Cross section of the mill

Each roller mill was exhausted into a trunk passing a little above its hopper. Each roller spindle ran in a film of oil in a long phosphor bronze bearing. In the Turner system the lower roll of each pair acted as a sort of feed roll to the roll above, itself receiving the products by a curved plate.

To ensure a proper shearing action the lower roll was run at a higher speed than its fellow with a differential of 2.5:1 in the break."The roller mills standing in one line on this floor made a brave show, the rich tones of their polished mahogany casings being brought into sharp relief by the bright hue of the pine spouting and trunks just above," states the contemporary report.

Four steel lay shafts provided the drive in the basement, on the ground, first and second floors. The first floor held four "Turner" dustless purifiers, two being double machines. In one frame were three break scalpers of the type known as 'inter elevator reel scalpers' that worked on the products of the first three breaks.

Underneath these reels were three pneumatic sorters, to sort out the overtails of the break scalpers and send them to the breaks for which they were best suited. From this floor the flour and offal were taken off in a pair of Turner's packers where the different products were conveyed by worms.

The second floor supported five centrifugals, one pair was responsible for treating the products of the fourth break: one was placed above the other, the lower machine received the tailings from the upper, acting as a sort of second dresser.

Mr Green was very proud of his mill and the reporter concluded: "The roller mills standing in one line on this floor made a brave show, the rich tones of their polished mahogany casings being brought into sharp relief by the bright hue of the pine spouting and trunks just above".