

SOME ESSEX WIND AND WATERMILLS

Graham Robinson, County Millwright

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Report by Louise Harrison

Graham Robinson is one of a team of four, responsible for the maintenance and repair of Essex's seven remaining mills. The mills are open to the public during the summer months, all free of charge. Private viewings are also welcome. Most mills were used for grinding flour but some hollow post mills were used for driving a saw or a pump. It takes about 1½ horsepower to turn 1 pair of millstones. It's now fashionable to attach turbines to waterwheels for the generation of electricity. Before the C15th, ownership of mills was limited to the Church or the Crown. Later, although individuals could own mills, often they were leased to millers.

Windmills

Windmills do not appear before the early 1200s. Mills mentioned in Domesday could be either wind or water mills. The earliest reference to a post mill with 4 sails comes in 1338. Post mills are designed so that the whole body of the mill can turn on a central oak post to face the wind. The central post is supported on a wooden trestle. Originally, the supporting posts were driven into the ground but were later supported on a brick plinth. Extending out from the mill is the tail pole which is used to turn the mill. After the 1750s, the trestle, which had been open to the weather, was protected with a surrounding brick wall and roof. This is called the roundhouse. Mountnessing Mill has a 16 sided roundhouse, and Bocking Mill has a 2-storey roundhouse.

Sometimes oxen were used to move the tailpole. A lever, called a talthur, is used to lift the mill steps up by 2 inches, to facilitate the turn. A mill could also be turned via a fantail, eg at Aythorpe Roding. A thousand turns of the fantail = one revolution of the mill, and was mounted near ground level replacing the tailpole. Later, as at Rayleigh Tower Mill, only the cap of the mill turned, not the whole body, and the fantail was attached to the cap. The fantail had to be greased by someone climbing out onto the fan. A tower mill has a brick body whereas a smock mill, as at Upminster, has a wooden tower.

Some windmill sails are made of canvas attached to a wooden lattice frame. The canvas sails can be reefed individually. Other sails have spring shutters instead of canvas, which can be opened or closed by pulling on a single bar. Stock Tower Mill has a Patent shutter which means that the shutters can be set without stopping the mill and all the sails can be set at once. This was an expensive mechanism.

Watermills

Watermills date from Roman times and certainly existed here at the time of the Norman Conquest. A good example in Essex is Thorrington Tide Mill. Over time, there have been many disputes between landowners over use of water. At Alderford Mill, a steam engine was used when there was insufficient water. Beeleigh had had a very large mill including two docks for lighters but which burnt down in 1875. However, the adjoining steam

mill was saved and still contains its original beam engine, original boiler, and original grinding machinery.

There were three types of waterwheel: undershot, breastshot, and overshot. In Essex, the undershot was the most common because of the flat landscape. The breastshot was more efficient but the overshot was the most efficient because it used both the momentum and weight of the water. There are few overshot mills in Essex.

The best millstones are quarried in France and are used only for grinding wheat. The millstones are not solid stone but made from small pieces cemented together and bound by an iron ring. The stone surface is furrowed to enable the bran to be split from the grain in large flakes which are then sieved out of the flour. The furrows need regular re-cutting by a stone-dresser using a double-ended steel chisel. The chisel becomes blunt after 30 secs! This work takes 2/3 days every six weeks. The stone-dresser's hands would be grey with tiny pieces of embedded metal which gave rise to the expression "Show us your metal".

Roller mills

By 1900 most mills used rollers, replacing wind and water. They were faster, used less labour, and produced better quality flour. Where rural mills survived it was by grinding animal feed. In 1950, the last viable rural mill closed.

Repairs

Postmills revolve on windshafts, first wooden then later, iron. Surviving wooden shafts are very rare but there is now one at Finchingfield after a new wooden shaft was made for it. A new cap had to be made for Thaxted, lifted into place by a very expensive crane. A new wheelshaft for Alderford Mill, using green French oak, was also made using a lathe powered by bicycle! Elm was used to make new paddles for the waterwheel at Alderford Mill. No grants are available for restoring mills and maintenance grants are difficult to get.

Graham gave an absolutely fascinating introduction to these once-common icons of our industrial past. His talk, packed with information though it was, barely scratched the surface of the lives of these amazing structures. I would love to know more about who built them, who worked there, what happened in the disputes he mentioned, how does one become a millwright? Finally, we were shown an unforgettable image of Graham on the bicycle powering the lathe! Wonderful.