

RENEWABLE ENERGY – THE POWER OF WATER

HISTORIC BEAULIEU

Our understanding of the current freshwater environment is greatly enhanced from an appreciation of its past. The Catchment Partnership commissioned Richard Reeves, as part of its work in the Beaulieu catchment on the Living Waters Our Past Our Future project. Here Richard reveals more fascinating history of how its watercourses were used.

As an estate Beaulieu has always had a generous supply of water and this was not allowed to go to waste. Instead, the potential power in that water was put to good use, powering a grain mill as well as being harnessed for industrial scale activities.

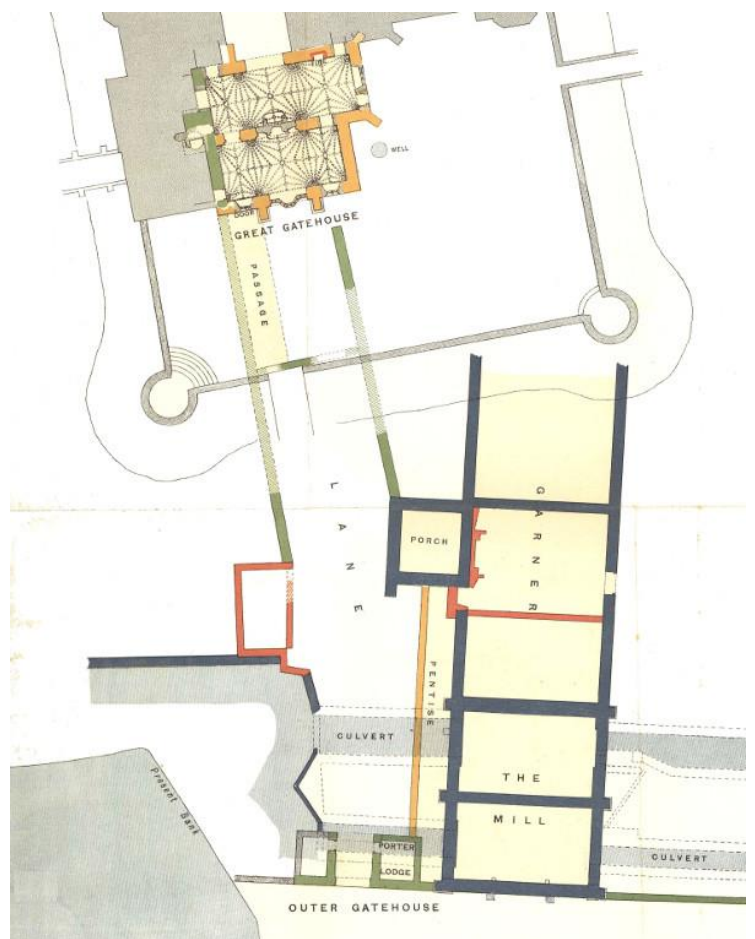
The Corn Mills

The medieval corn mill at Beaulieu sat within the precinct of the Abbey and was 42ft east to west and 53ft north to south, with the southern wall forming part of the precinct walls. The mill pond has been identified as being medieval in origin, and its original location indicates that the mill was powered by a combination of water from the river and the tide. The water drove two undershot wheels, one of which may have driven a saw mill.

An essential part of any rural economy, the mill ground the grain grown on the estate. During the medieval period Beaulieu mill produced four grades of flour, which was supplied to the bakery where it was baked into four grades of bread. These being the conventual bread for the monks, guest-house bread, clermatin and family bread. The latter being for the paid staff; a flour made from a mix of rye, barley, beans, peas and vetches.

The mill would likely have also provided another foodstuff in the shape of eels, many such mills incorporated eel traps to exploit the annual migration of eels heading downstream to their spawning area in the Sargasso Sea.

The mill had probably been moved to the dam of the mill pond by 1538 and was certainly there before the end of the 16th century. This mill, like its predecessor, possessed a pair of undershot wheels. As the mill was largely reliant on the tidal water for its power, it would usually run from 4½ to 5 hours using one tide a day, but when needed would operate on both tides.



Plan showing the location of the medieval corn mill at Beaulieu, identified by excavations carried on by Hope & Breakpear in the early 1900s.



Postcard showing the later corn mill by the bridge in Beaulieu, early 1900s.

During the 19th century, a turbine was installed in place of one wheel, and the grinding gear was driven by electricity during the final years the mill operated as such. The remaining mill wheel is over 12ft in diameter with a width of 4½ft. The mill was last used in 1942 for grinding animal feeds by Norris & Sons, who still operate in the village.

The Fulling Mill

The medieval fulling mill at Beaulieu derived its power from the combined catchments of the Hartford Stream and Shireburn. The need for such a mill arose from one of the core tenets of the Cistercian Order, that of self sufficiency. This included the provision of garments, and with their expertise in sheep farming access to wool was not a problem. Most of the wool produced was sold as a raw material, though some was retained and processed on site so that they could produce their own clothing. On certain days of the year, the monks and lay brothers would be issued with prescribed items of clothing and their old clothing distributed amongst the poor. The Keeper of the Vestiary (clothing store) also controlled the fulling and weaving of cloth.

The fulling process itself followed on from weaving. On arrival at the mill, the cloth had an open weave and was greasy from the lubrication added to the yarn to ease weaving. Fulling involves two distinct processes, performed by pairs of mallets working in specially shaped troughs containing the fulling medium, such as fuller's earth, urine or soapy plant extracts. The mallets, operated by a water-powered camshaft, are alternately raised and dropped on the cloth as it lays in the trough.

The first process removed the grease so that the cloth would later take dye. It took place in the driving or hanging stocks. These were designed with a rounded trough base and mallets with widely spaced notches so that the cloth would move about freely when struck. The second process felted the cloth; tangling the fibres together to form a material that was dense and no longer showed the pattern of the weave. The felting took place in the falling stocks. Here the mallets had closely spaced notches operating in a more confined trough, so that the cloth was thoroughly pounded.

After fulling, the cloth was stretched out on tenterhooks, napped and sheared, then allowed to dry. The resultant cloth might be dyed before being compressed between hot iron plates and packed. It was perhaps to support the post fulling process that the large east-west range was originally constructed.

A fulling mill is recorded at Beaulieu in the surviving accounts of 1269/70 when it employed two men. Also included was the cost of a horse, raising the possibility that this early mill was always or occasionally horse-powered rather than water-powered. However, a water-powered fulling mill was in operation from the third quarter of the 14th century. To obtain the water power necessary to operate the mill, an overshot wheel was fed by a leat which derived its supply from ponds created in valleys to the north-east. Here at least three, probably more, triangular ponds were formed by damming the valleys, a large one on the Hartford Stream (Boarmans Pond) and two smaller ones on the Shireburn (both since destroyed). Two of these ponds bore the appellation of Great and Little Fulmans Pond in 1718, clearly linking them with the fulling process.

The early phase of this mill was a relatively compact timber construction served by an overshot wheel. It sat at the end of the earthen bank which carried water from the leat to the mill, where the stone built remains of the later mill still stand. Much of the stonework appears to date from the mid-15th century. The large stone building attached to the mill that may have acted as a drying and weaving house, and a store to the fulling mill itself. Further internal changes were made in the late-15th or early-16th centuries and possibly represent a change in function. Documentary evidence indicates that fulling was still being undertaken at Beaulieu into the late-15th century, however, by the time of the Dissolution, fulling operations appear to have ceased, while later proposals to set up a new fulling mill seem to have come to nothing.



This building formerly called "The Winepress" was actually a range of buildings attached to the medieval fulling mill.

Richard Reeves, Historian

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