

WORKSHOP AT PONTDOLGOCH SAWMILL

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Ty Coch Water Mill in Pontdolgoch, set in the very heart of Wales, is a Victorian carpenters' workshop, and is more useful to me than a grist mill as it combines many of my interests. Primarily, it is a workshop which has been in continuous use since the 1800s. It has never been tidied, nor abandoned, or restored. It is how it has always been, with a 'balcony' office containing many drawers full of all the things a joiner and carpenter might need in his daily work. In the Powys County Records office there are 6 boxes of trading records: orders, staff employed and materials purchased. But the old Edwardian typewriter is still here at the mill, together with a pile of headed paper, each sheet dated 191* (the last place left blank for insertion of a year between 1910 and 1911). It is now over 100 years old. Still in situ. In this piece I aim to describe how my original carpenter's workshop functions. The historical context of the mill has been fulsomely described by Peter Barton, in a previous Melin¹ and I have also written about the joys of operating a water powered sawmill in Melin 23².

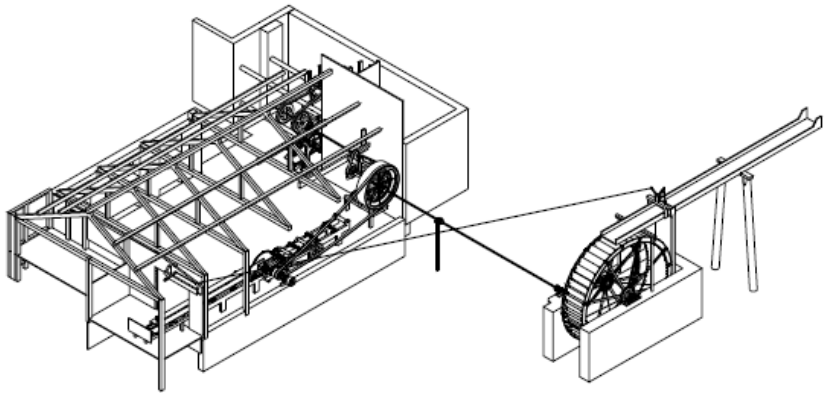


Figure 1 Scale drawing of Pontdolgoch Carpenter's Mill (all scale drawings reproduced by the kind permission of John Brandrick)



PLATE 1 General view of the carpenter's workshop

The tools are still here (and regularly used) as are the patterns for wheel felloes and the longer ones for curved sides of coffins and even the grave patterns, to be dropped into a dug grave to ensure that the coffin, which is smaller, will fit into it. The latter three have remained unused during my ownership but still hang from the walls as they always have done.

In practice the workshop works well. Firstly the water wheel is robust; I would never be able to burn the windings out or over- strain it. The sandstone grind stone, driven from the water wheel, keeps the axes and spades sharp. The work benches are well lit, flat, and can take a long length and heavy weight. The rack bench saw is lethal, and could not be improved on for very heavy duty work.

There are four major pieces of equipment which you can run: a rack bench, a grindstone, a bandsaw and a lathe. The only thing missing, in comparison with a normal workshop, is a mortising machine.



PLATE 2 Rackbench in operation

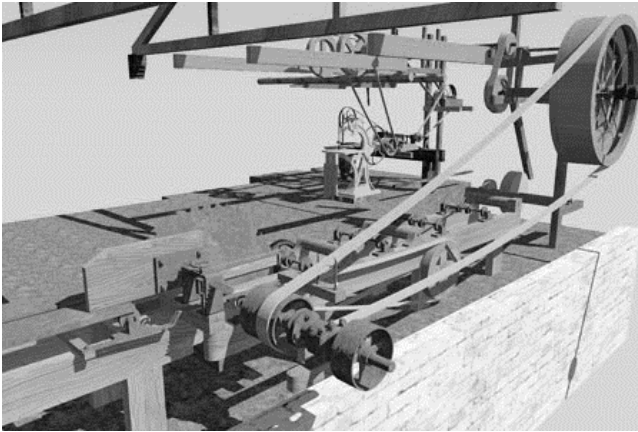


Figure 2 Scale drawing of Rackbench

The main fearsome weapon is the rack bench which is used for conversion of lumber to sawn timber. I have seldom cause to require that, but it has been used to reduce the long side of doors, and more prosaically simply cutting fire wood. The depth gauge on cutting is surprisingly crude and it is difficult to set to an accuracy of 4mm. I assume that sizing was undertaken by the planner thicknesser, housed in a separate building as it is powered by a Ruston and Hornsby single cylinder stationary engine. The Owens (the previous owners) explained that not only did they not want any fumes in the mill, but they didn't want the noise either.

This bench will drag the timber though and past the circular saw, the lumber being attached by dogs to the bench.

The most used item in the workshop is the three wheeled band saw, with its double curved Victorian spoked wheels. It is an object of function and beauty, meeting both aspects of the William Morris test. The band saw has a tensioning spring to take up slack and give it some freedom. At high speeds this chatters worse than a damsel in a grist mill. Using Ebay (so different to the way that spares would originally have been sourced and purchased) it is possible to buy lengths of band saw blade; necessarily uncut, for the band saw takes a blade of over 4 metres in length, much longer than average. These are made up to length locally.

It is wonderful to use. I've needed its power and accuracy, cutting 3" oak blocks for a floor which looks like granite road setts but it's polished oak. You can guide the cut to a millimetre, whilst coping with the density of wood.

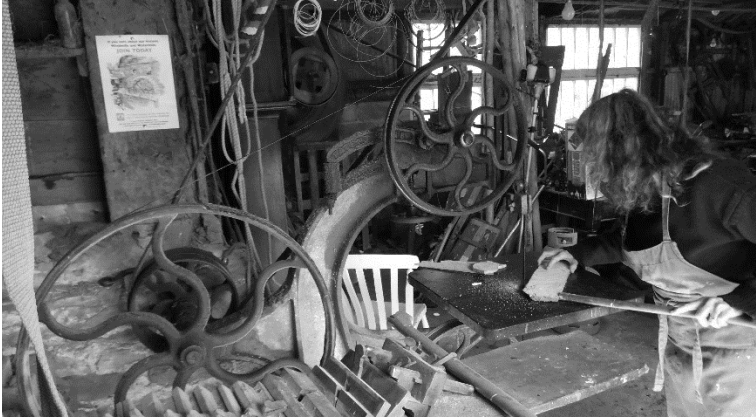


PLATE 3 Bandsaw in operation

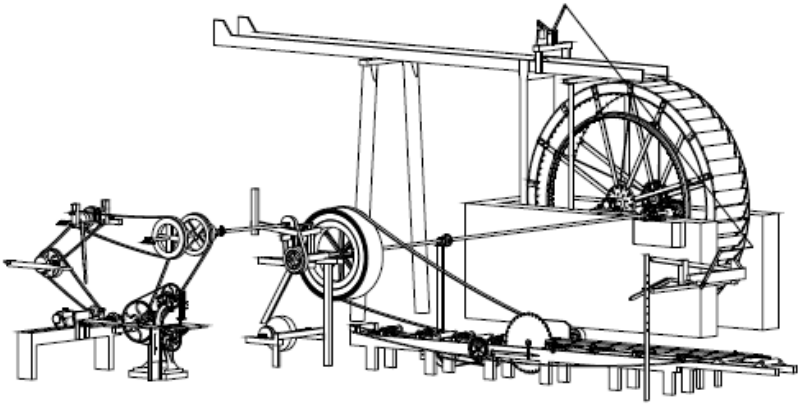


Figure 3 Scale drawing of drive for Bandsaw and Rackbench



PLATE 4 Grindstone



PLATE 5 Lathe

The prime control is the sluice. Operation is the same each time, I am aware of the responsibility of the sluice control wire across the road. Since the building of the new road, the Turnpike (the A470) in the early 19th century, the mill pond is on the other side of that road to the Mill. As it is a pond, water conservation is an issue, for once its dry it is a wait until it fills again. I check the overhead wire running over the road daily, out of instinct. That's the only part which troubles me.

Once the wheel is turning I then engage the slipping short belt which brings the line shaft into play, the band saw then runs. Sometimes it will slip the belt and you start again, too much water and the whole Mill vibrates. This can vary for if the Mill has not been used for a week, silt can settle on the bottom (The sluice is like a big bath plug) and whilst the water will come it is murky and initially it doesn't run over the wheel cleanly.

All the controls for the Mill are operated under cover from inside of the Mill. This is in part to conserve water, for you close the sluice when the operation is finished. The sluice control is a lever (wooden, as is everything possible in and around the Mill) a little over four foot long, which is pulled down from the ceiling where it pivots and held open by notching it on a chain. I mark the link with a leather lace, at the right setting for the band

saw. The speed control settings are knowing which link of the chain to put over the peg on the side of the lever. Oddly, for the links are just over an inch, the difference between a near stationary wheel and one which is vibrating the line shaft and rocking china in the kitchen behind is only 4 links. There are just 4 links between the optimum setting and no water coming through at all – most strange, I didn't expect such a subtle measure.



PLATE 6 Sluice lever

Prior to that the only other action is to close the divert – by closing a cover to a hole in the Pentrough which release the water before it reaches the wheel. This is necessary, for a gentle weep of water will slowly fill the top buckets and set the whole thing off. Or in higher drama if the sluice is manually opened by others.

The Owens taught the conservation of water. Don't splash, encourage the wheel round by hand when water starts to come though (this you can do from inside the Mill using a large flywheel).



PLATE 7 Water wheel

Any working mill has ongoing maintenance issues, which in true tradition require innovative answers. When the band saw tyre cracked and flew off at speed, internet searches gave horrendous prices to shrink fit a bespoke tyre. It's a hardish compound and the working fix turned out to be multiple layers of bitumen foil coated flashing. It's not pretty, but it works and is in perfect Heath Robinson tradition. It is also in keeping with the door hinges used as line shaft belt joiners.

And the Mill pond, the battery storing power, supports life. A recent discovery was otters. For some time I had occasionally seen white jelly with a black something deposited at the side of the ponds. This was taken as being the corpse of a female frog, (not a satisfactory answer as the

season was wrong, being winter) and with the help of a friend this was revealed as being anal jelly from an otter, the most recent addition to the inhabitants of my ponds. The main pond based wildlife are frogs who assemble in vast numbers, two or three hundred, on a certain series of nights. They don't come in dribs and drabs but all at once, as if there is some signal. Then they sing. This lasts for under a week – they disperse, leaving rafts of frogspawn behind. Newts are also present and the numbers of both seem to rise and fall without reason. A bit similar to my pear harvest.

This is all part of the timeless appeal of the place, as is the idea of using the power of using stored, pent up, water as a motive force, operating through simple mechanical mechanisms. And what is more: it all works.

Intelligent people designed our industrial heritage and you can get back into their mind set. It is not easy to identify all the many pleasures that come from understanding and using - coming alongside our heritage, in this case - a water powered carpenters shop. There is the pleasure of working in wood, in a manner and with the tools and environment created by our forefathers. Wood is a living organic material which, in all cases, has beauty just under the surface. Having this equipment means that you can look inside a piece of wood, over-sized is fine, and open up timber to reveal a deep beauty inside; there is an art to this.

Then there is the synchronicity of working with the ancient machinery of restoring antiques in a period setting and with period tools. This lifts the Mill into a living place and I am more than happy that it is an original working mill.

REFERENCES

1. Pontdolgoch Sawmill, Caersws, Powys. P.G. Barton. Melin 18
2. Just Add Water. T. Chilton. Melin 23

