

BUILDINGS AT RISK

Unravelling the history of the island's woollen mills

Following the Buildings at Risk feature on Woollen Mills in the Examiner of November 5, several queries arose such as: how did carding mills and the tentering frames work? were they all water-powered? And what did they make and where was it sold? So this edition will look in a little more detail at some of the processes and where they were carried out, not all of them recognisably woollen mill sites!

PREPARING THE YARN

Prior to spinning, the fibres need to be separated and then aligned in bundles, similar to dis-entangling and combing a long head of human hair or a horse's tail.

At first, this was done by just pulling the fleece apart by hand and then using combs like those for our own hair, but combs were soon replaced with carding bats or paddles – like a human hairbrush but with staggered row-upon-row of short nails.

To further separate the individual strands, teasel heads were used, hence the phrase 'teasing things apart'.

Using the fine-hooked teasel heads also raked-out some of the vegetable and other matter which could contaminate the wool.

This was mechanised by use of 'spiked' rollers, imagine something akin to the shredding machine seen in offices, but with spikes rather than blades on the rollers.

The first machines had pinned rollers (like a giant version of the roller in a musical box). The rollers turning



Derby Castle during the First World War

(Manx Museum)

at different speeds, increasing in speed as the wool went through the machine; it was the difference in speed between consecutive rollers that gradually pulled the fibres straight or at least into alignment. There were two stages,

either two machines or two sets of rollers in one big machine.

The 'scribbler' was a coarser machine that broke up the fleece and separated the crimp; the second stage was the 'condenser' that aligned the fibres.

It was challenging to set fine-toothed rollers with shallow pins, all to a uniform depth; so machine carders tended to use rollers clad in 'carding cloth' which was a fabric base carrying the pins, like staple fired through from the back – imagine hook 'velcro' with the tops of the hooks cut off so it was just spikes – to make a round wire brush.

Dedicated carding mills were once comparatively plentiful, usually using the power of the island's rivers.

In later years, as carding became just one of a portfolio of processes offered by the bigger woollen mills, carding shared the mill's power which



A fulling or tuck mill mechanism

was sometimes steam or even electricity.

One blessing for Manx workers was that carding on the island was for wool, not cotton.

Carding cotton was notorious for the dust it produced, but wool – with its lanoline –

processes were often collectively known as fulling but had several stages. Fulling cleaned the fabric and removed any remaining oil – either using chemicals as detergents or certain clays which absorbed the oil. Fullers' Clay, which became known as Fullers' Earth, was found on the island at Cooldarry, where there was a Fullers' Earth mill.

It was fortunate that a local source existed, as in George III's reign it was an offence to export Fullers' Clay from England, with severe punishments including forfeiture, heavy fines and solitary confinement!

At first fulling was done by placing the woven goods and water/chemicals etc. in a tub and trampling them underfoot, much as grapes used to be trod for wine, which may have given rise to the name used in Scotland of 'waulking', although feet were sometimes saved by using dollies (similar

did not produce debilitating dust.

FULLING AND TENTERING

Some woollen yarn was spun for knitting (of which more later), but the majority was used for weaving.

The post-weaving pro-



Wartime woollen mill workers

to that for a washing dolly-tub) to agitate the tub for domestic washing.

After being washed-out, the cloth was beaten (milled). When first woven, the cloth has a loose weave.

To tighten and consolidate the weave, the cloth can be beaten when wet – the moisture causes a certain shrinkage, but also friction causes the fibres in the yarn to lock together, and pressure consolidates the weave.

Again, this was sometimes done by walking in a tub, or using a log held vertically to pound the cloth for milling.

For at least a millennium, this process has been power-assisted in fulling or tuck mills, with heavy hammers operated by cams on the shaft of a waterwheel which lifted the hammer (when used for wool, they are usually known as fulling mills; whereas when used for flax they are known as tuck mills). On the island, there were a good number of privately operated fulling or tuck mills alongside sources of water power, some of which were co-located with corn mills and may have used the same waterwheel.

In some parts of England, the number was limited and it was compulsory to use the Lord's Fulling Mill, whose owner paid for the privilege of that licence.

Whilst the system of having to take corn to the Lord's mills on the island is well known, the situation with fulling mills is less clear.

The Lord certainly wished to maximise his income from those who used river power, and the Manorial Rolls record rent (licence) payments to operate fulling mills; the author is not aware though if there was any compulsion to use the Lord's fulling mills on the Isle of Man.

It should be noted that the percussive noise from fulling mills wasn't always appreciated, and AW Moore records tales of 'the lil folk' being driven from a neighbourhood by the noise and vibration from a fulling mill was established!

Following the various stages of fulling, you have a length



Loading a tenter frame at Southward's Woollen Mill, Sulby

(Manx Museum, 1949)

of wet and 'floppy' woven cloth. This could be just dried by the equivalent of hanging it on a washing line, but then you could end up with a shapeless and uneven result.

Instead, the fullled cloth was attached a tentering frame.

Whilst this was a way to dry the cloth, and dry it evenly, it had another very important purpose – it dried the cloth to a fixed dimension.

This not only fixed the size, it ensured an even tension and hence thickness/quality of the cloth.

The tenter frame was as long as the bolt of cloth, and elevated to maximise exposure to drying air. The top, bottom and end rails had tenterhooks - angled or hooked nails, onto which the selvedge of the cloth was hooked.

To accommodate different

widths of cloth, the bottom rail on more sophisticated tentering frames, such as some of those at Tynwald Mills, could be raised and lowered and secured by pegs

Once the cloth was dried and stretched to size, there was possibly enough stretch in the cloth to get it off the tenterhooks, but on adjustable frames the bottom bar could be raised to safely un-hook the cloth after drying.

WHAT DID THEY MAKE?

Wool was spun into yarn for both weaving and knitting. Knitting was, for many years, a hand-craft, carried out in the home, often using home-spun

yarn, whereas woollen mills produced woven cloth. Whilst some cloth was used locally, the bigger mills exported – to agents, to manufacturers, and to individual bespoke tailors.

The marvellous archives of Moore's Tynwald Mills, now held in the Manx Museum Library, reveal the sheer number and diversity of destinations for a multiplicity of different patterns.

Moore's ledgers reveal sometimes dozens of despatches in a day of lengths of a few yards to different tailors, mostly across Britain, but also lengths and larger quantities to tailors, agents and manufacturers across Europe and



Adjustable bottom rail of a tenter frame at Tynwald Mills



Restored carding mill

(martinde, CC-SA3)



Canadian advertisement for coats made from Moore's Manx Tweed

(Manx Museum Library)

North America. Whilst some operations at the Tynwald Mills were water-powered, increasingly they were driven either by line-shafting from a steam engine, or by electric motors from the Tynwald Mills own steam-powered electric generating plant.

Less well-remembered nowadays are the knitwear mills. These tended to focus on knitting and finishing the garments, and bought their woollen yarn in from local and off-island woollen mills.

One major knitwear manufacturer was Karrans, in the former National School building in Athol Street. In 1936, Karran's had a workforce of over 100, and knitted fabric from not only wool but also linen, angora, and alpaca.

They also used early plastics such as celanese and acetate, and apparently also woodpulp!

Karran's garments were sold as far afield as the United States, Australia, South Africa, Vienna and Paris.

Another major Douglas knitwear manufacturer was Strand Knitting / Emmets, whose premises behind St An-

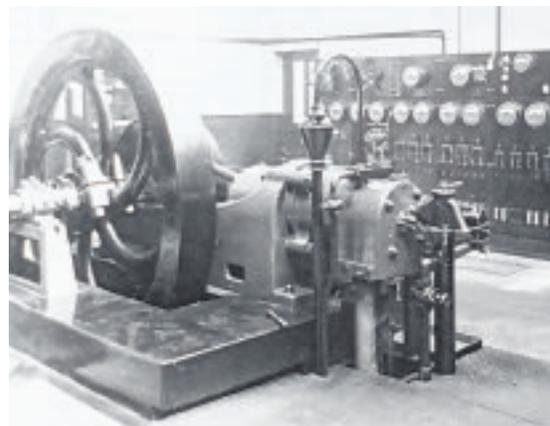
drew's Church are now home to the South Douglas Old Friends Association.

There were also a number of smaller knitwear factories in Douglas, such as Hardy's in Linden Grove, (which closed in 1930).

There were knitting works outside Douglas as well, such as Mr HK Corlett's knitting factory in Michael Street, Peel (in the former Corrin's fishing-net works) which opened in 1929 and by 1936 employed some 75 machine knitters, cutters and finishers; and Huntersfold which was established in Port St Mary in 1944.

Less well known nowadays, but probably one of the biggest operations, was the need and drive in the Great War to manufacture stockings for the troops in the trenches; and amongst other emergency factories, the Derby castle was transformed into a hive of industry.

Some of the buildings used to prepare, weave and knit wool have disappeared; others have found new lives., like a woollen jumper un-ravelled and used to knit a new garment.



Steam-powered electricity generating plant at Moore's Tynwald Mills (Manx Museum)