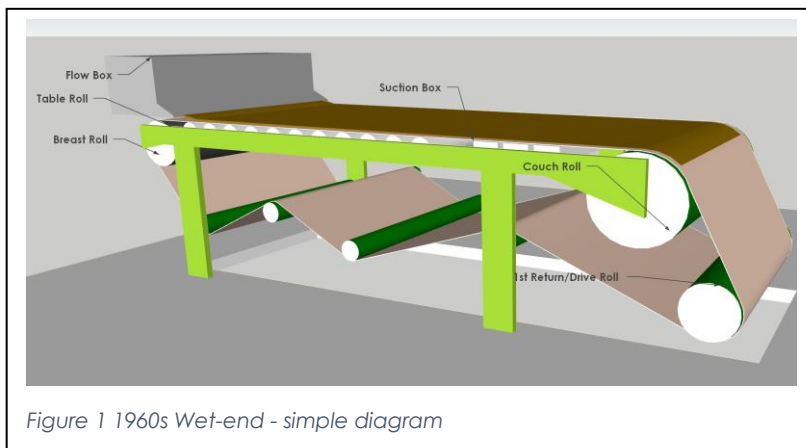


The Wire Gang at Aylesford Paper Mill

Background

The Wire Gang were also called the Yard Gang, because they were in the Yard Department, or the Heavy Gang, both because of the heavy lifting their work involved and because of the physique of most of the team.

Paper is made by slurring fibres in a large amount of water and then draining, pressing and drying that water away. The draining takes place by distributing the slurry, called stock, onto a fast moving mesh. This was called the wire. The paper machine wire is a continuous loop; slightly wider than the sheet and 15 – 20 metres long. The integrity of the wire is critical, any holes, creases or blocked openings cause sheet imperfections.



Until the early 1970s, that mesh was made of

phosphor-bronze wires, woven into a network with defined apertures. Being metal it was very heavy; very fragile and wore out quickly due to flexing and being dragged over the surfaces under it. A typical life would be 7 to 14 days. Even this short period would occasionally be shortened by a foreign object being dropped onto it.

Wire Changing

The paper machines would lose very significant money while shut so consequently efficient wire changes were very important in the overall cost-efficiency of the paper mill. In Aylesford Paper Mills in the 1960 and 70s there were up to nine paper machines continuously working, so there was a wire change every couple of days.

Ideally, the wire change would be scheduled to be done on a planned maintenance shut, but wear rates were not always predicted correctly, so emergency changes were often needed.

Changing the wire was a skilled, heavy manual job performed by a specific group of men.

If it had not broken and fallen off, the old wire would be cut away and the wire tensioning rolls slackened off. The frame and all the components of the wet-end would be cleaned by the machine crews while the Wire-Gang was brought in.

Then the new wire would be laid out on the floor next to the wet end of the machine. This was the stage at which the wire was most vulnerable. The wire was then raised on a frame at right-angles to the machine.

From this point, the machines were configured to change the wires in two different ways; one where the wet-end frame and rolls were left in place and one where the whole frame and rolls were rolled out over the adjacent floor.

Frame in-situ procedure.

The frame uprights would have blocks that were removed to allow the whole fabric to be moved into position.

Frame rolled out.

These machines had frames that could be rolled out horizontally into the loop of the new wire, which would then be tightened onto the frame by adjusting some of its rollers. With the wire on the frame, the whole lot would be moved back into the running position.

With the wire installed, it would be checked for faults particularly creases that might have occurred during installation. The wire was tightened and turned slowly while being inspected again.

If all was well the machine would be restarted. The overall time would be at least two hours.

Large Changes to the Wire Material – End of the Wire Gang.

Metal wire mesh was used in papermaking for hundreds of years and phosphor-bronze from early twentieth century. In the late 1960s and 1970s the mesh material gradually changed to plastic materials and the wire name gradually changed to the more descriptive forming fabric.

Plastic wires offered very many advantages. Most quickly realised was a large increase to the running period, both due to the much higher resistance to wear and to mechanical damage. Wire life periods of many weeks were quickly obtained. Maintenance shuts were programmed at longer periods and mostly the wire would run until that time and a lot more maintenance was planned into this down-time.

For the Wire Gang this meant far less work, fewer call-outs and the new forming fabrics, being considerably lighter and robust, were easier to install. Eventually, the wire gang became redundant and in most mills the change was made by the machine crews themselves.

For the papermaker the change to fabrics was quickly followed by the replacement of table rolls by plastic



foils. These are slightly angled blades situated under the wire generating a large number of gentle vacuum pulses pulling water from the sheet. As the earlier table rolls gave a few sharp high vacuum pulses pulling fine material from the slurry through the wire; with foils, the fine material was more likely to remain in the sheet, helping to greatly improve the fines distribution through the sheet thickness as well as their retention.

One down-side of longer runs was the removal of the frequent cleaning allowing more bacterial activity in the vulnerable wet-end area. This made the treatment using biocides and dispersants critical to efficient operation.

Other duties of the Wire Gang.

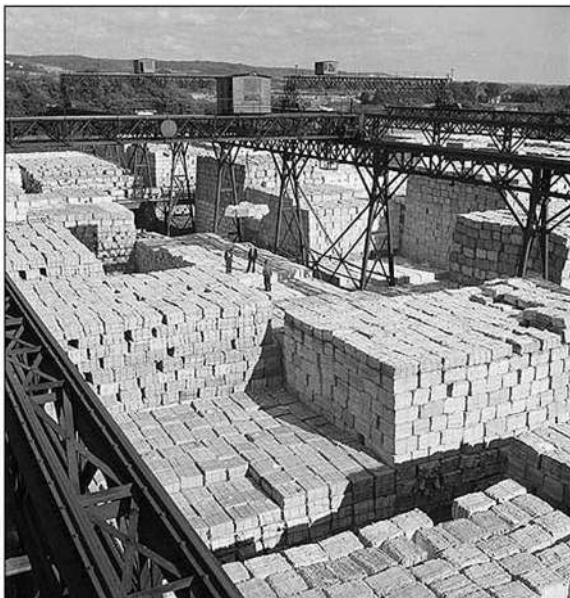
Members of the wire gang, when not wire changing worked in the Yard Department. At the time, there was still much manual work involved in shifting pulp and waste paper from lighters on the River Medway, rail and road transport to the stock preparation equipment of the paper-machines.

Some of the procedures were primitive. For example, the pulp for the West Mill MG machines was lifted by traversing cranes onto the pulper floor. Men stood on the stacks, as can be seen in Figure 5, and hammered hooks with chains attached under the wires binding the pulp together. Once on the front of the pulper floor the pulp bales, weighing a quarter of a tonne, were moved onto the pulper conveyor by more men using sack barrows.



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Figure 4 Unloading Barges 1950s



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Figure 5 East Mill Pulp Yard 1950s