

A GLIMPSE
AT
PAPER
MAKING

EDWARD LLOYD LIMITED
4 TO 7 SALISBURY COURT LONDON E.C.4

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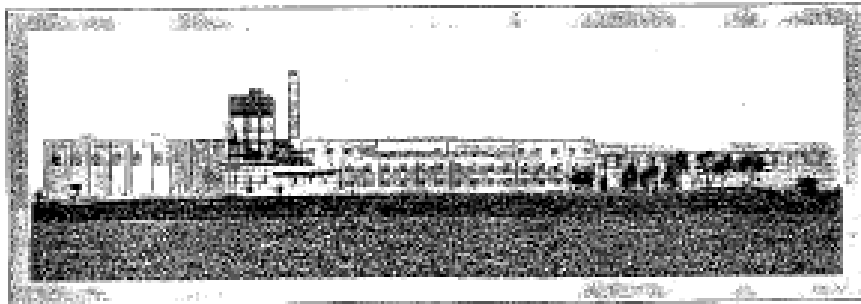
June, 1924.



A Glimpse at Paper-Making.

PROBABLY few people have realized the vast organization which lies behind one of the commonest commodities of every day use—PAPER—yet an army of nearly 60,000 men and women are engaged in this important industry up and down the country.

EDWARD LLOYD, LIMITED, the firm operating this model machine, are manufacturers of Newsprint Paper on their mammoth Paper-Making Machines at Sittingbourne, Kent—the largest Paper Mills in England.

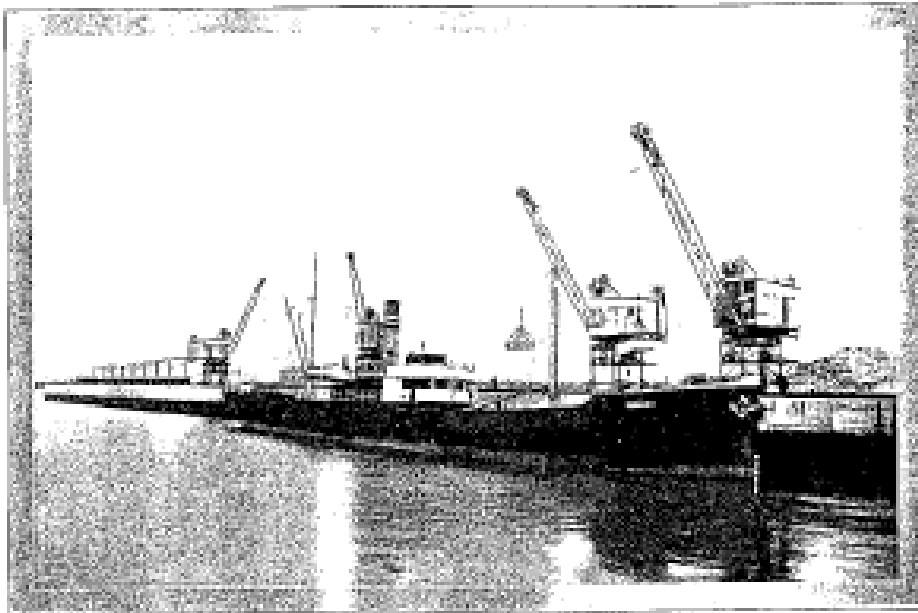


Our New Paper Mill at Kemsley, near Sittingbourne.

To give some idea of the size of these giant machines it is necessary to picture a machine at least seven times wider than the Wembley Exhibition Machine. Sixteen Paper Machines are running day and night at Sittingbourne turning out reels of Paper for the British and Colonial Newspaper offices.

Sittingbourne is situated in North-East Kent, close to the River Swale. Here the Company has its own deep-

water Dock, 750 feet long and 250 feet wide, equipped with the most up-to-date Electric Cranes, where some 300 steamers annually discharge their cargoes of Wood Pulp from Canada, Coal from the Tyne, Humber and Welsh Ports; China Clay from Cornwall, and other materials used in the manufacture of PAPER.



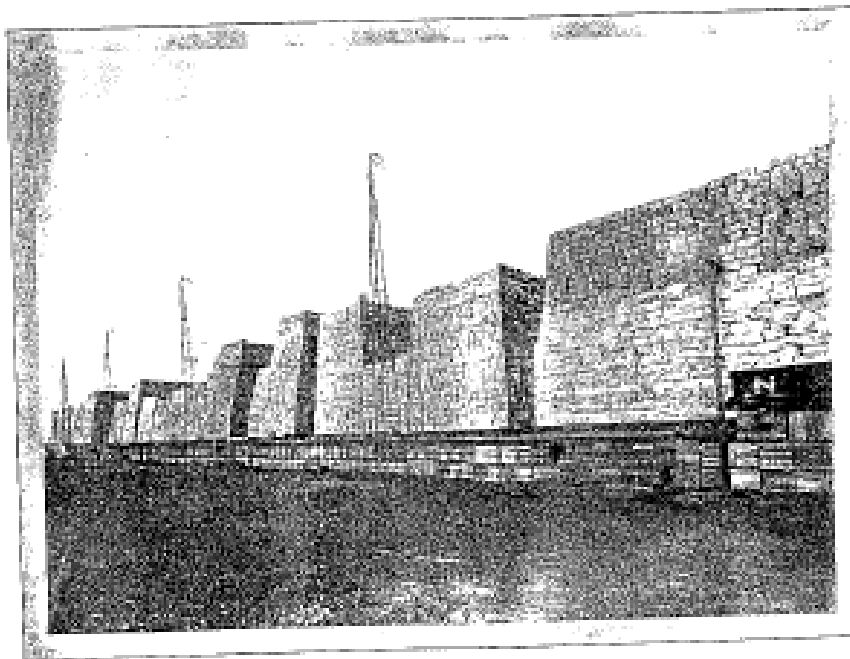
Ridham Dock, Sittingbourne.

Wood Pulp is the principal raw material used, and of this these huge machines consume about 3,000 tons per week: the weekly Coal bill amounts to about 2,000 tons. These materials are conveyed from the ship's side direct into the Mills, some three miles distant, over the firm's private railway system.

On arrival at the Mills the bales of wood pulp have the wires removed and are fed in sheets into Potchers, fitted with heavy revolving rolls which circulate the "stuff"

and separate the fibres so that the water can penetrate them. China Clay previously "liquefied" and strained is then added to fill up the pores and give the required surface to the paper, also rosin size to waterproof the sheet so that the printing ink will not "run," blue dye to bring up the colour (like blueing clothes in the wash) and alum to fix the dye and firm up the paper.

The mixture is then dropped into "rough" chests and pumped to the refiners. These consist of a bladed cone working inside a bladed shell, and the effect is to clear

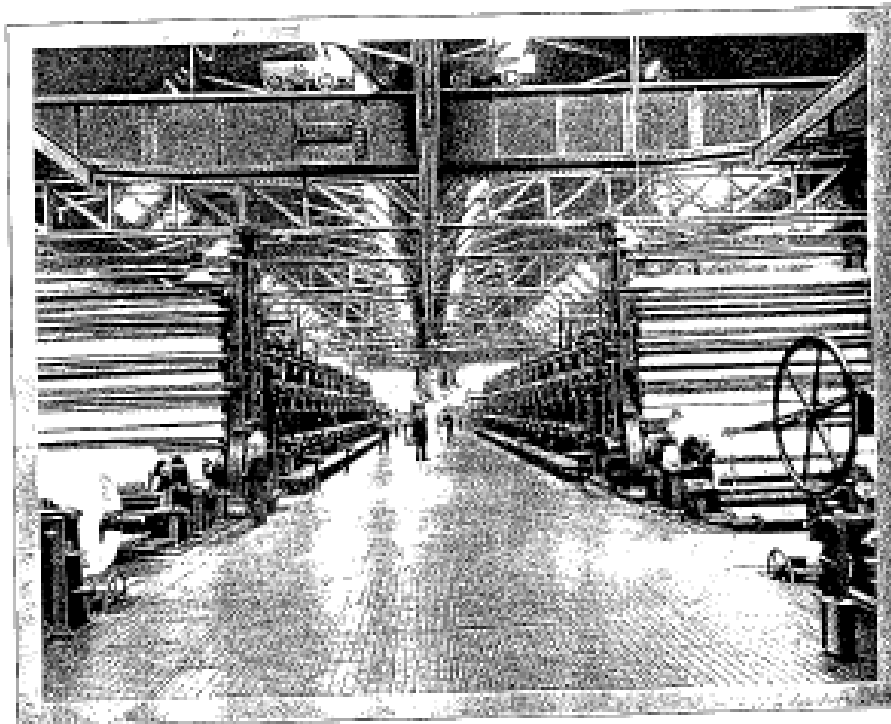


Wood Pulp Scales at Ritham Dock.

the mixture of any lumps of wood pulp which have not been reduced to separate fibres by the previous action of the Potchers. The stuff then passes to the finished

chest, and is kept in agitation until drawn off by the stuff pumps and passed to the paper-making machine.

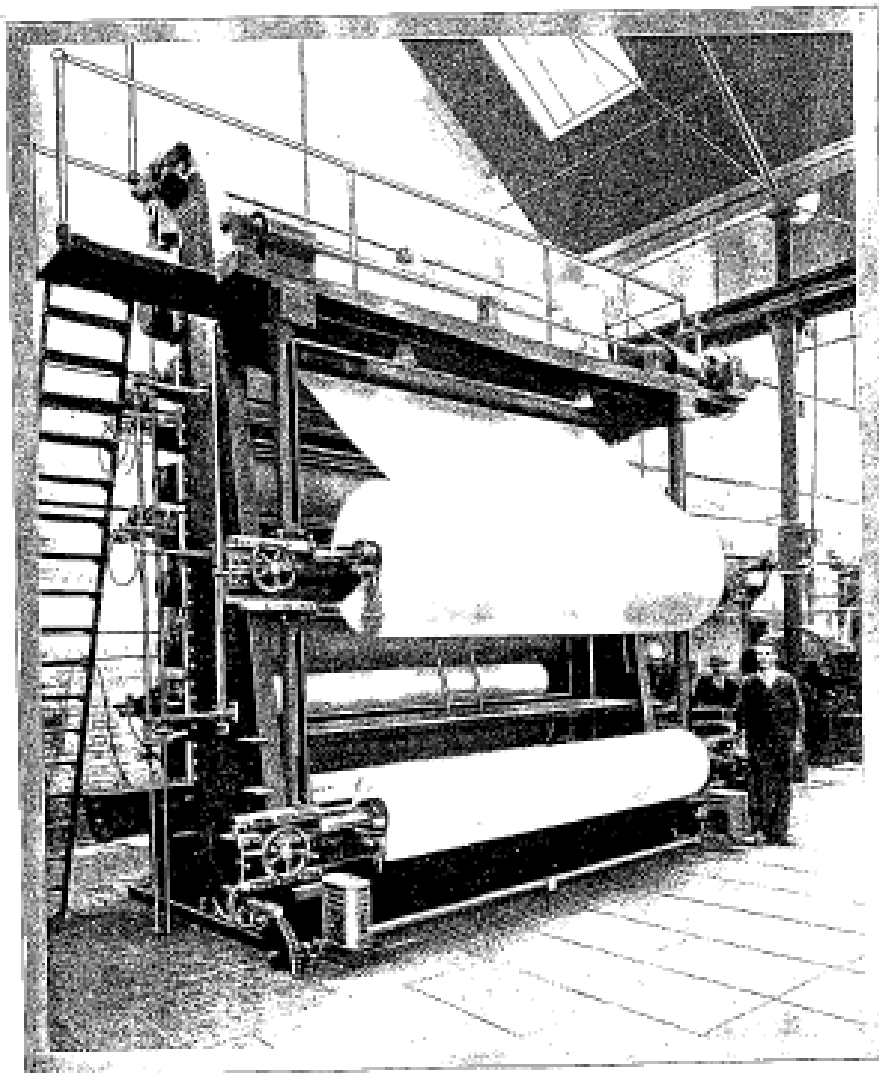
The mixture which is drawn off from the Storage Chests is enormously diluted with water and then is carefully strained through revolving sieves, which reject any coarse fibres or stray lumps that may have gathered in the storage chests, mixing box, or pipe line. It is then



A Paper-Making Machine, Drying Cylinders and Machine Calenders

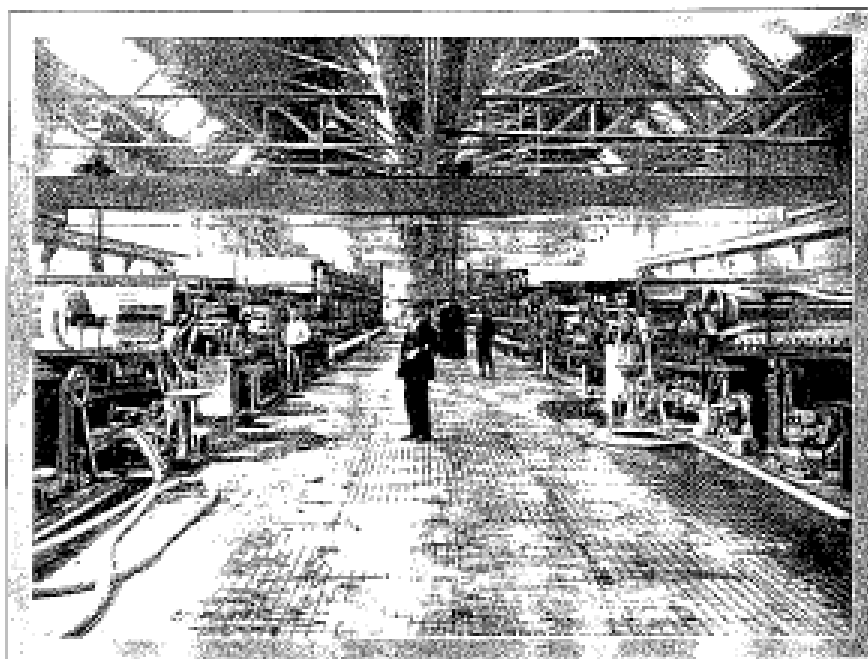
allowed to pass into the breast box in which, by means of baffle boards, it is stilled down so that, although it flows over the wire frame at the rate of several hundred feet a minute, there is a total absence of ebullition and it has the appearance of molten glass.

The actual "making" of the sheet of paper takes place at this point, on what is called the wire frame. This consists of a series of rolls beginning at the breast roll, continuing along the wire rolls and ending at the couch



A "Super-Calender" Machine for producing the high-surface newsprint used for picture papers.

roll. These rolls support an endless band of wire cloth of very fine mesh stretching across the full width of the machine. The mixture flowing on to this rapidly revolving wire cloth, and kept from overflowing at the sides by two heavy bands of rubber called "deckle straps," immediately begins to lose its water, which falls by its own weight



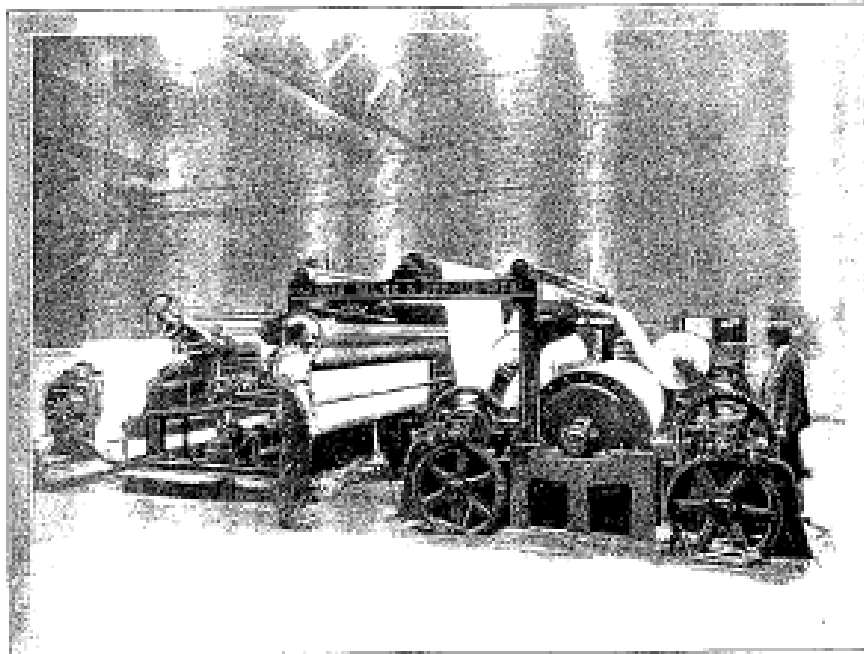
Paper Machine from wet end

through the wire, and is in turn pumped back to the mixing box to dilute fresh streams of the wood pulp mixture to the consistency required for the paper machine.

To hasten further the discharge of its water content the mixture is at the farther end of the wire subjected to the pulling action of several vacuum boxes which suck more water out of the sheet, and this action is still further

extended by the sheet of wet paper, as the wire carries it forward, being submitted to the pressure of a pair of couch rolls, the top roll being covered with a thick jacket of wool. The sheet is made in effect by the mixture losing much of its water in these three stages and leaving the wood pulp fibres interlaced together on the top of the wire cloth as it moves forward to the couch rolls.

At this point the mixture, which looked like porridge in the potcher and milk as it entered the strainers, has become paper, and although very wet, soft and spongy,

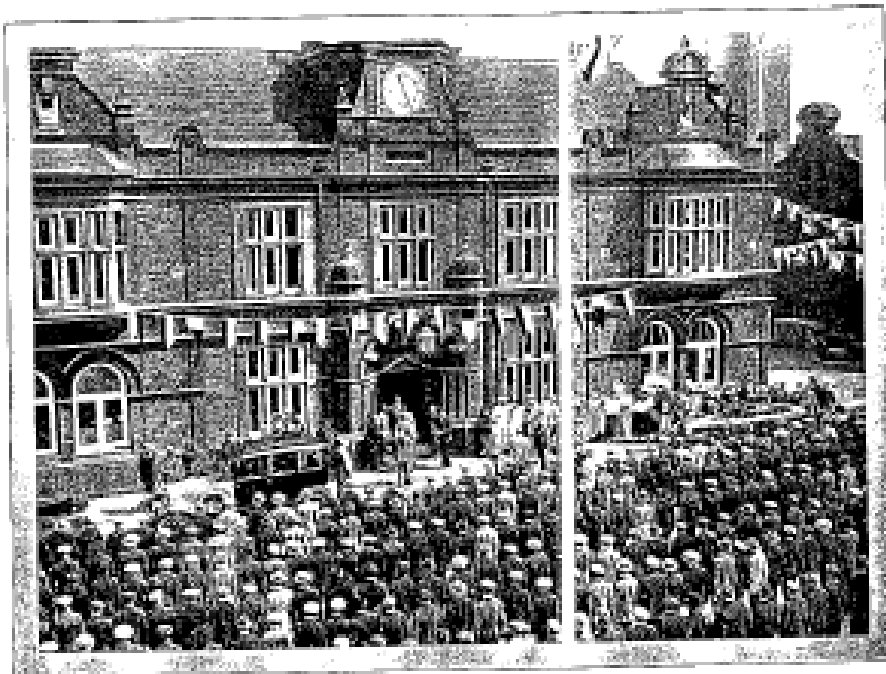


Re-Reeling and Finishing Machine.

is just strong enough to carry its own weight as it is picked off the wire at the bottom couch roll and passed to the soft woollen felt cloths which now carry it forward through two or three pairs of press rolls, each pair removing still

more water by the pressure of the rolls against each other, the bottom roll of each set being covered with soft rubber to give the requisite cushioning effect and lay down the fibres in the paper.

Next, the sheet of paper, which at this point contains about 70% of water, is led round a series of steam-heated drying cylinders which reduce the moisture content to 9 or 10%. It then passes through a stack of heavy



H.R.H. The Duke of York, as President of the Industrial Welfare Council, visited the Sittingbourne Paper Mills on July 14th, 1921.

The Reception of His Royal Highness and Guard of Honour.

smoothing or calender rolls which, by the joint operation of heat and pressure, give it the required surface for the printing press, and finally is wound up into large reels, each of which contains about four miles of paper.

The reels are then cut to the required widths, rewound so that no faulty paper can escape detection, and packed up for the Home or Export market.

Within a few hours of the Wood Pulp passing from the steamer along the Company's Railway to the Mills it can be returned by the same route in the form of reels of finished paper, to be loaded into the firm's large steel lighters for conveyance to their riverside warehouses in London or for shipment to Australia, New Zealand and other distant parts of the Empire.

The production of these Mills is approximately 700,000 reels of paper measuring one yard in width, each reel containing four miles of paper, totalling nearly three million miles of paper per annum.



Private Sports Ground at Tunstall, near Sittingbourne.

This huge concern finds employment for over 2,000 hands in its various Departments, namely: Paper Making, Engineering, Electrical, Transport, Research and Clerical.

An entirely new Paper Mill has been erected at Kemsley, midway between the present large Mills at Sittingbourne and the Company's deep-water Dock at Ridham. The new Mill is equipped with the finest Paper-Making plant in the world, including two paper machines capable of

producing finished paper 215 inches wide at the speed of 800 feet per minute.

The employees of the new Mill at Kemsley will be housed in a Model Village which is to be erected on the slopes of a beautiful landscape, commanding extensive views of the fruit orchards and hop fields which are such a charming feature of the "Garden of England."

The Mills are operated continuously on the eight-hour system, and when off duty the employees are to be seen at Football, Cricket, Tennis or Bowls on their private Sports Ground at Tunstall, a little way out from the town.