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THE TRENTON STEAM SAW MILLS.

During the past season Messrs Gilmour & Co. have made large additions to their mills, very much increasing their size and although the producing capacity has been increased one-third the improved and labor saving machinery introduced under the management of Mr. I. Paquet enables the firm to handle the increased amount of lumber with about the same number of men formerly used.

The first change is noticed by the visitor when he enters the mill premises in the long rows of dwellings erected during the past winter and spring for the use of the employees at the mills. They are very neat and compact buildings and no expense has been spared by the firm to make them comfortable for the inmates.

Upon entering the mill yard, the building we first approach is the planing mill and the general repair and workshop. Here there are two planing and matching machines, which are run day and night to supply the large demand for dressed lumber. A large timber planer and an iron planer besides drilling machines, wood, and iron, turning lathes, &c. are also in this building. The power is furnished by four Tubular Boilers and a 90 h. p. engine. Leaving this building and passing the blacksmith shops on our left and the general mill offices on our right hand side, we approach what is called the "Little Mill." This mill is in two sections one devoted to cutting lumber, bill timber, &c. and the other to cutting shingles, ties, &c. The lumber department contains a large circular saw also a stock gate and slabber gate and turns out about 80,000 feet of lumber per day. The shingle department contains besides the various circular saws used in cutting the logs into bolts, two double and one single shingles machines capable of cutting 150,000 shingles per day. The power here is furnished by eight Tubular boilers and two engines of 60 and 90 h. p. respectively. There are about 150 men and boys employed at this mill.

Leaving the little mill we approach the "Big Mill" the first thing that strikes our attention is the improved appearance of this vast building having been lately neatly encased in several coats of paint. To get any idea of the immense amount of work done in this mill we must follow the logs as they leave the waters of the bay through the various manipulations they undergo in the mill before they become lumber ready for sale. As the work is all done on the second floor of the mill the logs are drawn up into the mill by endless chains arranged upon log-ways reaching from the water to the upper floor, they are then sent (if very large) to the large circulars the saws of which are arranged one above the other so as to enable them to cut the largest logs that the pine forest produce or if medium sized or small they are sent to two sets of span or twin circulars to be sided down to regular sizes called stocks either 10, 12, 16, 20 as the case

may be, they are then put up in piles of four, six or nine stocks according to their size and run through the gang saws these are large frames containing 30 or 40 saws in an upright position and run at a speed of 200 strokes per minute. As the logs pass through these gates they are cut into boards and are at once sorted the good square edged boards going at once to the trimmer to have the ends squared and the waney edged boards go through the edgers and then also to the trimmer.

The lumber at this stage is culled or graded for the foreign market, each piece having its grade marked upon it. The lumber then passes on to the sorting room when each kind of grade is piled separately upon the rollers and run out upon cars when it is ready to be taken to the piling ground. In the mill there is no carrying of the lumber or slabs from place to place by hand as all transfers are made by means of live rollers and moving chains, in fact the machinery is made to do away almost entirely with manual labor. To get any correct impression of the completeness of the machinery and facilities for handling the immense quantity of lumber with so little labor, one must see the mill when working personally. On this floor are also situated the lath, heading, picket and shingle saws by which the lumber and edgings not fit for the market are cut up and utilized. The refuse slab wood and sawdust are conveyed by carriers to some distance from the mill to a sheet iron grate or "Gohenna" one hundred and twenty-five feet in height and then burned.

A peep at the works on the first floor presents nothing to the experienced eye but a perfect wilderness of wheels, pulleys and belts in rapid motion. The power used in driving the mass of machinery used in this building is furnished by 16 Tubular boilers of 100 h. p. each and a monster double or twin engine of over 1,500 h. p.

This mill cuts up daily over 3,000 saw logs and produces about 350,000 feet of lumber, 100,000 lath, 100,000 pickets heading and shingles, and employs in the mill and yards 500 men and boys making a total of over 600 men employed on the premises.

Leaving the mill we go to visit the piling grounds and shipping docks. Some idea of the size of these grounds can be formed from the facts that there is at present over thirty millions of feet of lumber piled on them and that the company have over ten miles of railway laid in them to facilitate shipping and handling it in this service. There are two locomotives and 100 cars used besides several horses.

Great improvements have been made by the firm in their appliances for extinguishing fires they having purchased one of the finest steam fire engines now in Canada. It was manufactured by the Amoskeag Co. of Manchester, N. H., and said by them to be the most powerful engine ever manufactured by them. It throws over 6000 galls. of water per minute and well

deserves the name of "The Monarch." In addition to this powerful engine they have placed in their new brick fire hall a stationary pumping engine capable of throwing 1,500 galls. per minute. These appliances in the hands of a well drilled fire brigade form one of the best systems for protection against fire we have ever seen.—*Trenton Courier.*

A GIANT RAFT.

The New York Times of August contains the following account of an immense raft which was brought from St. John, N. B., being the first attempt at raft towing in that direction:

The largest string of logs ever made into a raft was towed into the Erie Basin, South Brooklyn, at day-break yesterday morning by the tugs Cyclops and Haviland. The raft is 1,200 feet long, 24 feet wide, and twelve feet deep. It is composed of 11 sections, each of which contains about 500 logs, ranging in size from the diameter of a wagon wheel down to that of a telegraph pole. The logs are piled in huge bundles and strapped together with chains strong enough to tow the Great Eastern. These sections were placed in a string and fastened with a strong hawser to the Cyclops, and Capt. Gally of the Haviland, while the entire expedition was piloted and managed by Capt. Rufus Patterson, of St. John, New Brunswick, the veteran of the Province. The logs were bought by Mr. James Murry, of No. 26 Burling slip, in New Brunswick early this summer. The distance which they were towed is 650 miles, as the ships sail, and the freight would have been very heavy. Mr. Murray accordingly consulted with Capt. C. C. Ellis, of No. 60 South-street, a brother of the master of the Cyclops, who undertook to tow the raft to New York, at a saving of 50 per cent. in freight rates. The raft was constructed, and on Aug. 7 was started from the harbor of St. John. The trip was made without serious accident. The first three days were as calm as could be desired, but on the fourth day Capt. Patterson was obliged to seek shelter in Booth's Bay, where the raft was detained for three days. Pleasant weather was experienced after the storm until Newport was reached, on last Thursday night, when a strong gale separated the crib attached to the Cyclops, from the remainder of the string, which was sent adrift. This was a serious predicament, and the raft was in great danger of going to pieces on the breach at a loss of many thousands of dollars. The Haviland was immediately detached and sent to the rescue of the lost raft, and in the morning the two vessels came together with their charges resumed their original positions, which were maintained during the remainder of the voyage. The passage through Hell Gate was easily accomplished, Stand's Point was passed without any difficulty, and at 6 o'clock yesterday morning the great raft was securely anchored in the Erie Basin, where it will remain until it can be disposed of.

The voyage of the raft has occasioned great interest among shippers, as such a trip has never been made before, and it is the general impression that this mode of transporting timber will supersede the shipping on schooners to a very large extent. The Cyclops is the largest tug in the harbor, being 128 feet long. She is owned by Capt. C. C. Ellis.

FOREST FIRES.

In a late paper by Prof. C. S. Sargent, that gentleman gives a striking account of the loss, actual and prospective, suffered from forest fires, and of the necessity for stringent legislation for their prevention. He lays special stress upon the importance of the subject for the New England states, where so large a share of the soil is only adapted to forest growth, and where a goodly portion of our supplies of white pine must come from in future years. These states already have valuable forests of second-growth pine, now reaching a size when they can properly be thinned out, leaving the smaller trees for future need. But he states that in Massachusetts alone ten thousand acres of forests are, on the average, burned annually—about one-third of the fires originated from locomotive sparks, and nearly all the rest from carelessness, or other preventable causes.

This burning not only destroys the standing trees, but it makes the investment of capital in growing forests hazardous; it checks the growth of a very desirable industry; and it destroys, as he points out, the capacity of the ground to continue in pine growth. When properly cut, a pine forest may be propagated indefinitely. When burned, there is a long succession of weeds and briars, mountain cherry, gray birch, willows or poplars, maples and ash trees, until a hard wood growth is established. This maintains itself a long time if left alone; but if the ground be then cleared by cutting, cultivated for many years, and then left free from plow and scythe, and guarded from pasturing and fire, the white pine will spring up spontaneously after its long banishment. Fifty or one hundred years will pass before this desirable crop will return. In view of so long a life, Prof. Sargent holds, and of the considerable value that pine will soon command, it is well that special care should be given to protecting and preserving the second growth forest now approaching maturity.

The schooner Nelson Bartlett, a three-master, recently brought 3,000,000 lath, an unusually large cargo, from St. John, N. B., to Baltimore.

H. POOR & SON received at their tannery, at Winn, Me., 492 cords of hemlock bark from Wypoutlock station, which amounts to 1,311,600 pounds. About 10 pounds of bark are required for tanning one pound of leather.