

AN ENGLISH OPINION OF CANADIAN SAW-MILLS.

R. CHARLES WOOD, who was for many years manager of Mr. Chappell's saw-mill at Timbuctoo, and who until lately carried on the business of saw-miller on his own account at Camden Town, has recently returned to England from Canada and the United States, where he has been travelling for the purpose of making himself acquainted with the Canadian and American methods of running saw-mills, and to see the sights of the countries. The *Timber Trades* reports the following interview with this gentleman, which, being of interest to our readers, we reproduce:—

"I left Liverpool for Quebec on the 27th of August. The passage was very pleasant until we neared the Straights of Belle Isle, which is the summer route to the Gulf, the winter route lying between Cape Ray and Cape North. Here owing to the unusual number of icebergs floating south, it was intensely cold. One of them had assumed the form of a cathedral, in outline not unlike Notre Dame, and, with its sparkling roofs and glittering walls, was really a splendid spectacle. An experience of icebergs, regions such as I had would enable one very easily to comprehend the wretched plight in which the inhabitants along the neighbouring coast and at the summer cod fishing grounds of Labrador were recently placed by the presence of those mountainous ice.

Well, we reached Rimouski on the following Sunday week, and Quebec at eleven o'clock next day (Monday). From Quebec I went to Toronto, and there called on Mr. Hargreaves, the well-known shipper, by whom I was very kindly received, and taken across to the Waubesaene Lumber Mills, owned by the Georgian Bay Lumber Company. These rank among the best and largest mills in Canada. They are situated at the head of the bay, in the county of Simcoe. The distance from Toronto is 112 miles.

I saw much to surprise me, the methods and appliances they employ being of the latest and most approved description. In glancing round the place, the thing that most impressed me was the important part that machinery played in every operation. The lumber is not handled by the workmen as it is in this country, being in nearly every instance manipulated by ingenious mechanical appliances. The output of the mill 150 standards per day of ten hours. The working hours are from six to six an hour between twelve and one being allowed for dinner. On Saturdays the men leave off at a quarter to six. They are paid, the mill sawyers, 12 dols. a week, and the labourers, 6 dols. a week, besides which they are supplied with three meals a day, breakfast, dinner and supper. The men live in the village of Waubesaene, for whom it has been erected by the Georgian Bay Company. It contains two churches, a library, a doctor, and a school master. (It does not possess, however, a public house or drink-shop of any kind, being under the Scott law, which prohibits the sale of intoxicants, and generally the Company seem to have given considerable attention to the spiritual, intellectual and physical needs of their employees.

The mills are at the water's edge, and the logs are drawn up out of the Bay on to the first floor of the mill by means of what the Americans call a log haul-up. This consists of a large launder, if it may be so called, hewn from the mill to the water, and supported by a shaped truss, made of two logs with a cross-piece on top. Inside the launder runs an endless chain, on the links of which spikes are fastened at the top of the launder. At the other end a man stands on a log raft, and as the logs are floated to the haul-up he guides them with an ordinary hitcher to the spiked links of the endless chain, and they are conveyed lengthways to the first floor of the mill, where all the cutting is done.

The logs are broken down with a gang, or what we should call a frame saw. First, the logs are squared with a circular saw to about 11 in., and are then cut down to inch boards. In this latter process there is great waste, each cut taking out five-sixteenths of an inch of sawdust. This is doubtless owing to the peculiar formation of the saw-tooth used in American saw-mills, and which is rendered necessary by the amazing rate of speed at which the saws are run. It is really astounding to watch the rapidity with which the log car in front of the saw is worked backwards and forwards. I saw a log 15 ft. long, 22 in. diameter, cut into twelve in. boards in a second or two under a minute. As I have already said, very little handling of the stuff takes place, and the boards fall from the saw on to endless chains running along frames, and are automatically conveyed outside the mills to the trams. They are then taken all over the yard for stacking.

The slabs taken off the round logs with the circular saw, when squaring, also fall on endless chains, which convey them to the gang slab blaster, or a series of circular saws, placed at intervals of 4 ft. apart. The chains run in guides, and are provided with spurs or spikes, which helps to hold the slabs firmly, while a lug carries them to the saws. They are then cut into 4 ft. lengths, which are sent down a shoot to another set of saws, arranged three-eighths of an inch apart, where they are sawn into laths. All laths in America are sawn; at least, I did not see a single blunder using randed laths. The slabs are also sawn into boxwood for the New York market,

and the output of this stuff alone amounts to two trucks per day.

"As you are aware, Mr. Wood," we observed, "the question is frequently asked in our 'Practical Notes' column, 'What is the best means of disposing of saw mill waste?' What is the plan adopted in the Waubesaene Mill, where, of course, there must be an enormous waste?"

"Well, the larger items of waste, such as the ends of the 4 ft. slab lengths, are burnt in the boiler fire-boxes as fuel, but the very refuse, such as saw-dust, &c., was formerly thrown into the Bay. In consequence, however, of the passing of laws prohibiting the deposit of mill refuse in rivers, the company erected a bottle-shaped iron furnace, 40 ft. in diameter. The refuse is introduced into the furnace through an opening at the shoulder, the means of conveying it there being an endless chain arrangement. Verily, endless chains are endless in America. The cost of erecting this furnace was \$25,000.

The yellow pine converted by the Georgian Bay Company is drawn from the district lying to the south of Lake Superior. Six other mills besides the Waubesaene are owned by this company, and I was told that they have sufficient timber in their limits to keep their mills going twenty years. The pine of this district is of first-class quality. Mr. Dobell, who draws some of his supplies from the same source, told me that pine is being there cut into 42 in. planks without showing a knot.

"In travelling from Toronto to Waubesaene," said Mr. Wood, "I noticed many miles of cleared woodland. A peculiar feature of it is the number of stumps which it contains. These are from three to four feet from the ground. I thought this an evidence of considerable waste in felling, and I asked Mr. Hargreaves what was the reason of it. 'The snow,' he said, 'is here about three to four feet deep in the winter, when the felling takes place. Of course it would be too expensive to remove the snow, and the trees are cut down at the surface of it.' I also noticed at Toronto that the streets are paved with cedar wood. When they want to make a new street they plough up the ground. A large scoop or shovel, drawn by a horse, comes along and takes out of this displaced earth a depth of about 12 inches. A layer of sand 4 inches deep is then laid and levelled, and, upon this foundation of sand only, blocks, of round cedar, 8 inches long and cut out of the branches of the tree, are placed. Except in the better streets, the pavements are also composed of wood. Toronto seems to be a thriving city, and things are cheap, except clothing and house rent. Houses, say, which in Camden Town could be rented for £40 a year, would realise an annual rental of £100 in Toronto.

"From Toronto I proceeded to Chicago, and stopped to see the Niagara Falls en route. I have heard much talk about utilising the immense water power of these falls for driving mills, &c., but, as far as I could learn or see, nothing of any great extent has yet been done."

"What do you think of the States after Canada, Mr. Wood?" we asked.

"Well, Chicago is a very different place to Toronto and other Canadian cities. I was informed before I left Toronto that I should find the devil at Chicago; and at times, and in some places, you almost do. There seems to be little, if any, regard for the Sunday, as labour of all kinds is carried on as on ordinary days; and at the Board of Trade building, in which are located the corn, cotton and hog rings, it is a perfect pandemonium when business is being transacted. Chicago is a magnificent city, laid out in squares, each square containing four blocks of buildings, which are among the highest and largest to be seen in any city in the world. Certainly I have never seen in any city so large a number of big buildings. Here it is not 'Great is the Diana of the Ephesians,' but 'Great is the Mammon of Chicago.' 'The least erected spirit that fell is the great object of worship, and everything seems sub-ordinated to it. To give you an instance—the motto of the States is, 'In God we trust; in an enterprise, but irreverent, Chicago never keeps its eyes on the following prostitution of it. 'In God we trust; all there must pay cash.' In Canada, and in the States particularly, I noticed that children were being worked at a very tender age, and on mentioning the fact to a Chicago citizen, I received the truly American answer, 'I guess it's a free country, and people can do as they like.' This again is an outcome of their insatiable thirst after 'the almighty dollar.' A Factory Act in my opinion would be a priceless boon to the children.

"From Chicago I proceeded to Quebec, and on arriving there accompanied one of Mr. Dubell's clerks to the Montmorency Falls, which lie about seven miles below the city. The mills situated here are owned by Messrs. Hall Bros. & Co., and are worked by water-power derived from the falls. The distance between the mills and the falls is about 200 yards. The latter have a width of 50 ft., and a descent of about 250 ft. A dissettable pipe composed of conical shaped joints, each joint being 4 ft. in diameter at the base and 1 ft. 7 in. at the apex, is placed in the water at the right bank of the stream, near the edge of the falls. The water is let in and shut off by means of a valve. The water flows into the pipe at the base or big end of the first joint. The joints are placed in this inverted order, the small in the big end, so that the water may acquire additional impetuosity. The water rushes from this

pipe into a shoot 200 ft. long and 5 ft. wide, passes into a trough or a reservoir 14 ft. square, and its course is then directed at a right angle into a launder, underneath which are six vertical cylinders conveying it to a corresponding number of turbine wheels, which constitute the motive power of the mills. Six gang saws are employed for the purpose of squaring the logs on two sides. The partially squared logs are then cut into planks and deals of various thicknesses. A series of saws subsequently cross-cut the deals into the different lengths they make. They are then conveyed into the yard by means of a shoot, at the bottom of which stands the culler, who marks the various qualities before the deals are removed for piling. When possible, the slabs I have already mentioned are cut into boards of various sizes, when, however, this cannot be accomplished, they are converted into shingles, squares for broom and mop handles, &c. Every week 12,000 logs, ranging from 12 to 16 ft. long, and 11 to 13 in. diameter, are passed through the mills, which run throughout the night as well as the day. The workmen are divided into two gangs. The first starts working on Monday at 1 a.m., and continues up to 8 o'clock, at which time the second appears on the scene. These men work up to 4 o'clock in the afternoon. The first gang then reappears and works until midnight. This process is repeated throughout the week, and it amounts to this—that the gangs work alternately one day sixteen and the next eight hours; the men are paid by the piece. Messrs. Hall Bros. & Co., in addition to utilising the water power for driving their mills, also keep going by it a quantity of dynamos which supply electric light to the mills, and also to the city of Quebec. I understand that Messrs. Dobell, Beckett, & Co. have purchased the past season's output of these mills. The logs cut up consist entirely of spruce. Here, as at Waubesaene, the waste is very great, each saw, without exception, taking out three-eighths of an inch of sawdust.

SUCCESSFUL MANAGEMENT

A superintendent who has charge of a factory employing a large number of hands, writes as follows to the *American Machinist*.—Frequently of late I have been requested by a number of managers, to tell the secret of my success in shop management. It is a hard question to answer, but I will in a simple way through your paper try and explain how I manage the factory of which I am superintendent. When I first took charge I found everything out of joint, and such a thing as a system utterly unknown.

The first few days I let things go on in the old way until I became acquainted with the men and the men with me. I then set about to bring order out of chaos. My first step was to discharge every man who I found unwilling to submit to the new order of things. The first man discharged was the engineer. He had done as he pleased so long that he had an utter contempt for law and order. On finding himself locked out of the factory for disobedience he kicked the door down. A few more discharges followed, which proved sufficient to convince the men I meant business.

I then divided the factory into five departments, picking out in each the brightest fellow to act as foreman. In each department I put a responsibility upon each man, that he might feel himself of some importance. I interested myself fully in all things transpiring in each department. When I arrive in the morning I am very careful to visit each man at his post and say good morning. I ask after those absent and visit the sick. At night I place myself so all have to pass me and so good night to each.

I have at all times treated every one like a gentleman. What's the result? Every man is doing his duty. The factory is turning out more goods with fewer hands. We have a place for everything and everything in its place. The factory is clean, and I feel that I have the respect of every man about the place. I think then the secret of my success in shop management is

"Do unto others as you would have others do unto you."

WOODWORKING PATENTS.

The following list of patents relating to the wood-working interests, granted by the U.S. Patent Office, up to Nov. 25th, is specially reported by Franklin H. Hough, Solicitor of American and Foreign Patents, 925 F. Street N.W., Washington, D.C., who will furnish copies of patents for 25 cents each.

- 352,976—Planing machine.—J. P. Hoyt, Aurora, Ill.
- 353,108—Saw drive.—C. W. Wright, Democracy, Ohio.
- 352,242—Saw gang.—O. E. Williams and J. R. Browster, Windsor, Vt.
- 352,937—Saw handle.—G. E. Siebler, Dayton, Ohio.
- 353,260—Saws. Wheel for band.—G. M. Hinkley, Milwaukee, Wis.
- 352,958—Wood-polishing machine.—A. Bridgman and J. Chailoner, Umro, Wis.
- 353,302—Lathe. Turning.—S. W. Goodwin, Toledo, Ohio.
- 353,330—Saws. Guide-roll for band.—E. S. Black, Indianapolis, Ind.
- 353,385—Wood-working machine.—J. Gassey, New York, N. Y.
- 353,539—Saw-tooth. Insertible.—E. S. Snyder, Snyder's Mills, W. Va.