

THE CANADIAN PINE LUMBER TRADE.

By Wm. LITTLE.

YOU have no doubt observed in the discussion that recently took place at Ottawa on the subject of the re imposition of export duties on sawlogs that Mr. John Charlton, M.P., referred to the present prosperous condition of the Canadian pine lumber trade as a reason for not re-imposing the export duties, and many Canadian lumbermen, misled by his remarks, fancy that in some unaccountable manner, it has contributed towards bringing about this condition, whereas a knowledge of the circumstances will show that the free export of sawlogs would have completely prostrated the Canadian pine lumber trade but for the scarcity of pine timber in Michigan.

That it has caused a veritable boom of prosperity to the log exporting trade is no doubt correct, and to this extent it has of course been injurious to the Canadian pine lumber trade, as every board manufactured from these sawlogs comes directly into competition in the United States markets with our home manufactured lumber.

Even the reduction in the rate of duty on white pine lumber made by the Americans wholly in their own interest from \$2 to \$1 per thousand feet has hardly anything whatever to do with it.

The present prosperous condition of the Canadian pine lumber trade is simply due to the fact that the supply of white pine lumber both in the United States and Canada in the season of 1891 fell greatly short of the prospective demand—that in the United States alone in the three great white pine producing states—Michigan, Wisconsin and Minnesota, according to the published returns, being about 721,000,000 feet short that season, as compared with the supply of the previous year; this shortage, as you will observe, being about fifty per cent. more than our whole export of white pine lumber to the United States.

It is this fact that has brought the Canadian pine lumber trade into a prosperous condition, not the reduction in the rate of the American lumber duty on white pine, and as I have said above, in spite of the injurious effects of the export of sawlogs.

Last winter the American lumbermen with their usual heedlessness made every effort to again overstock the market, but they were unable to do so from the scarcity of white pine timber in Michigan, the result being that they succeeded in securing only an ordinary season's supply, even with the more than 200,000,000 feet of sawlogs gratuitously thrown in from Canada, which left the shortage of the previous year still existing; and but for these Canadian sawlogs sawn last year in Michigan the United States stock last fall, instead of being about the same amount short as in the previous year, would have then been near 1,000,000,000 feet short of an ordinary supply, which would have at once placed the Canadian lumber trade, where it ought now to be, in the highest degree of prosperity, no matter what the American duty might be on our pine lumber, for since they want the lumber they would simply have to pay the duty.

And here I may say that if the sawlogs which have already been, as it were, bonused away to Michigan, and the 400,000,000 to 500,000,000 feet that are to be rafted over there this year, remained as they should for the profits and industry of our own people, the Canadian pine lumber trade, which is simply fairly prosperous, would now be in the most prosperous condition ever known in its history.

But, unfortunately for the prosperity of Canada, so imprudently has our Government acted in this matter in granting these exceptional advantages to foreigners that, now when large profits should be made by Canada and Canadians out of our pine timber resources, it will be found nearly the whole timber, tributary to waters entering the Georgian Bay and Lake Huron, our last really valuable pine timber reserve, is held by Americans, who have acquired it at prices less than one-third what they would have to pay for similar timber in their own country, and not one-tenth what it would be worth five years from to-day. And great as is this loss to Canada it is not even the whole loss we must sustain, for most of it has been purchased with the intention of transferring its manufacture, shipping and other advantages from Canada to the United States, so that our people are not

to derive from it a tithe of the benefits that a proper governmental policy on this subject would give us. And even now, when these conditions must be well known to every member of the government, possessed of any intelligence, as if it was determined to prevent our people from realizing the advantages to be derived from a scarcity of timber in Michigan, our chief competitor in the white pine lumber trade, it is hesitating about re-imposing even the \$2 rate of export duty on pine sawlogs, a rate in no way even protective, as it only offsets the United States duties on the spruce, red pine and other lumbers of Quebec, New Brunswick and Nova Scotia, and the spruce, fir and cedar lumber of British Columbia and the west. And we are again this year expected to throw away about a million dollars in revenue on the 400,000,000 to 500,000,000 feet of sawlogs to be exported to Michigan free of export duty this summer, an amount about equivalent to our whole exports of sawn pine lumber to the United States, there to be manufactured into lumber to compete with our home manufactured lumber on which the Americans still exact duties; thereby not only filling the American market with lumber that would otherwise be supplied by our home product, but doing so with advantages under existing conditions equal to near \$3 per thousand feet in their favor, while at the same time depriving our own people of employment in the manufacture, shipping and other industries connected therewith—an imprudent act on the part of the government for which no satisfactory excuse has ever been or can be offered.

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HIGH STEAM PRESSURE.

IT is well settled that engines can be worked with less consumption of steam if run at high boiler pressure, on either the compound or other multiple-expansion system, than at low pressure, and the present tendency in steam-engineering circles is toward an increase of pressure rather than a decrease. What the exact ratio of gain is as the pressure is increased has not been absolutely determined by any experiments of which we have knowledge, says the Engineering Record, but there are sufficient data which may be obtained here and there to make the fact of the increased saving certain. For example, there have been experiments showing that a compound engine of the Corliss type, working under 80 pounds pressure, will use from 16 to 17 pounds of steam per horse-power per hour. There are other cases where a similar engine at 110 pounds pressure uses from 13 to 15 pounds of steam per horse-power. Other data are available which show that at 150 pounds pressure the consumption of steam is reduced by triple-expansion engines to 13 pounds, or, perhaps as low as 12.5 pounds. Making allowances for differences in the type and condition of different engines from which data have been obtained, there is ground for the belief that with an increase of pressure from, say, 100 pounds to 150 pounds in the compound engine, with suitable change of proportion to realize the full advantage due to expansion of the steam, there is at least 10 per cent., and, perhaps, 15 per cent., saving in the engine carrying the highest pressure. Without going into refinements there is further reason to believe that between a compound engine running at 100 pounds, and a triple-expansion engine running at 150 pounds, both suitably proportioned and loaded, there is a similar gain of at least 10 per cent., and perhaps, 15 per cent., due to the engine working under the higher pressure and greater expansion. These figures are given to show the general feeling among those who are well informed, rather than to define exactly the relative economies; and it may further be added that they are intended to indicate the relation which exists in engines which are in good order and well maintained, and the relative economy only in the consumption of steam.

To secure the benefits of high pressure it is necessary to provide extra strength in the boilers, in the steam piping and in the engine itself, or at least in the high-pressure cylinder to withstand the increased strains. It is necessary to employ more stable joints, besides a better class of packing, and the whole equipment must be adapted, in its various details, to resist the stronger forces which are brought to bear upon it. When the plant has been well designed for these special duties, it

must, when set to work, be watched with increased care, and by a more skillful class of attendants, to keep it properly maintained, than one designed for low pressure. The breaking out of packings, and the increased wear of steam valves and pistons in the engine, introduce waste where high pressures are carried, which may be entirely absent where the pressures are limited to those which have been common in the past. Extra wear and tear and depreciation, and the losses of steam and fuel which they cause, are the accompaniments of excessive pressure even when the construction is of the best class, and these, so far as they act, offset the intrinsic advantage which might otherwise be obtained. The interest and depreciation charges on the more complicated and expensive plant, the waste of steam referred to, the extra cost of attendance, and the increased cost of repairs and supplies, use up at best a large part of the saving of fuel, which can be made by the more economical engine, and these may become, with careless management, even larger in quantity than the entire amount of saving, so that the use of high pressure produces a net loss rather than a gain.

Unless those who are intending to profit by employing excessive steam pressures and a properly proportioned engine, either of the compound or triple-expansion class, are prepared to combat the difficulties in handling the increased forces here briefly alluded to, and make proper allowance for the waste of fuel and current expenditures incident thereto, it is almost folly to expect in the end satisfactory results.

LOSS FROM THE USE OF WORN-OUT MACHINERY.

IT is poor economy, says the Scientific Machinist, to continue a tool or machine in use after it has served its time and is ready for the scrap pile. Yet we see it done every day. Machines that will turn out less than half the work that new ones would are being run in many shops and many manufacturing establishments. The slow operation is not the only loss. Inferior work, stock spoiled and time spent in rigging and fixing up are to be added—and important additions they make. Often labor less skilled can do with a good machine what can be done only with much more costly help on an old tool.

Nor is the machine shop the only place where great loss is entailed by the use of worn-out machines. Some plants are even more in need of attention. The possibilities of waste at the source of power are very great. Badly designed furnaces, boilers venerable with age and in execrable condition, defective chimneys, bad steam conditions and appliances, worn-out, shaky engines and incompetent engineers and firemen, are costing manufacturers enough every year to cut down very materially the aggregate net earnings of all concerns using power. Manufacturers who will go out of their way to save a piece of material worth ten cents and scold their workmen for not looking carefully to economy in this direction will listen complacently to the complaints of their foremen condemning used-up tools, and the recommendations of their engineers that repairs, or new purchases of engines, boilers, pumps, injectors, packing, lubricators, etc., be made, and pass them by with the mental comment that "guess if they have served so long, they can a little longer," or something of that kind, seemingly blind to the fact that the worn out machinery is eating up earnings enough to buy new in a short time.

If they looked more to the performance of machinery there would be less complaint of small margins.

DRY STEAM.

IT is probably only a question of another 10 or 15 years before engineers generally will again be using slightly superheated or dry steam, not only in land engines, but at sea and with locomotives. Modern ideas favor the change, and the economy which will be obtained by preventing the large amount of condensation now going on in steam cylinders. The presence of water is acknowledged to be uneconomical and injurious. A steam jacket is only a simple means of raising the temperature of the cylinder metal touched by the steam. For the maximum economy it is important to increase the temperature of our cylinders, and this is precisely the effect of superheated steam, the result being that there is much less condensation.