

tion is the vast timber wealth of British Columbia, to which the world is looking as a final resort for its lumber supply.

No computation can be made of the timber area, or the market value of it, which British Columbia possesses. Comparatively speaking, it is an unexplored region, and everywhere there is timber. The interior is a "sea of mountains," the sides of which and the valleys between are covered with forest almost impenetrable, although the destruction by forest fires has been something enormous in recent years, seriously diminishing its value and driving out and away to the north the fur bearing animals. But for the needs of the present generation, and so far as they are accessible, the forests of cedar, Douglas fir and spruce are sufficient for all practical purposes. Notwithstanding that there are 25 sawmills in operation at the present time with an annual output of about 275,000,000 feet, the evidences of their operations are scarcely perceptible as yet, and but a very limited survey is necessary to impress one with the extraordinary resources in timber which the province possesses. Her forests are very dense and her timber very large. After a limit has been culled by a sawmill company here, it is still so rich in standing trees that an Eastern lumberman would regard himself as wealthy in owning it. The density of the forests, and the great size to which the Oregon pine and cedar grow, even when the soil is comparatively worthless for agricultural purposes, are due to the climate and to the quantity of moisture with which the pools are constantly fed. In the east, it is regarded as a sort of maxim that the land that grows heavy timber must necessarily be good land, but here, that rule may almost be reversed. The roots spread out enormously and absorb everything nutritious to them within reach. A British Columbia forest is almost inaccessible, if not wholly so, on account of the vegetation that luxuriates. The moss sometimes completely envelops the trees, trunk, branches and all, and the appearance of this is striking when observed to its fullest extent, and is one of the things remarked by visitors. It is not a rare thing to see ferns growing out of this bed of moss, extending all over a tree. This feature of the country, the denseness of the foliage, very seriously interferes with the enjoyment of the sportsman.

In future letters I shall endeavor, having given the foregoing as a preliminary, to go more fully into details of the lumber industry in British Columbia, and if it be not interesting to your readers it will certainly not be the fault of the subject.

A DYNAMO WITHOUT DANGER.

THE Troy, N. Y., *Times*, states that Charles F. Wingler, an electrician of Hoosick Falls, exhibited at the factory of Miller, Hall & Hartwell, to the engineers of that city, recently, a dynamo upon which he had been experimenting for the past five years, which avoids all self-induction and work, without danger to those operating it. To accomplish the object it was necessary to do away entirely with self-induction and prevent contrary currents, which in the ordinary electric machines are so dangerous. It was also necessary to dispense with the wire which forms a part of the electromagnet. This was found to be no small task, as a certain amount of wire is needed to produce a strong magnetic field. The inventor overcame the difficulty with a clever contrivance, a set of compound electromagnets having been made which required less than a quarter of the wire used in the ordinary magnet. The danger was reduced in greater proportion. The dynamo exhibited was used to operate ninety-six incandescent lights and one arc lamp. The wires at any point may be touched without the least shock or any of the dangerous effects usually attending contact with an electric current. The inventor placed both hands on the brushes and no shock was given, and there was no place in any part of the apparatus where there was danger. Mr. Wingler as an experiment, made an arc lamp of his arms. He wound the positive and negative wires around the two carbons, and holding one carbon in each hand, brought them together, giving the same dazzling light seen in the lamps which light the streets. He was obliged to drop the carbons, as the intense heat made them too hot to be held. The wires were connected at the Miller, Hall & Hartwell factory with gas and water pipes, and it was impossible to receive a shock from the pipes. Miller, Hall & Hartwell have formed a stock company, recently incorporated, for the manufacture of the dynamos. The power used to operate the dynamo is not expensive, all of the lights at the factory being operated with less than 4-horse power—half the power absorbed by an ordinary dynamo of equal size. A number of patents have just been received for the dynamo, but foreign patents are still pending.

JOTTINGS OF A TRIP OVER THE MARITIME PROVINCES.

By L. A. MORRISON.

IN my former letter, written shortly after my arrival in St. John, I referred to the lumbering interests of New Brunswick. In some respects the provinces are about on a par. In both of them the lumbering up to 1870 cleared out the most of the good timber, so that the present lumbering operations are making a very thorough clean-up of all the timber and material, such as spruce, cedar, hemlock, birch, etc., and by the end of this century, or very early in the next, the lumbering business of both provinces will practically be at an end and the forests exhausted. This will be a serious matter in a number of ways:—

(1). Lumber will have to be brought from Ontario and Quebec for necessary purposes of building and manufacturing.

(2). A very considerable portion of the population now employed in lumbering, saw-milling, and shingle-milling operations, will have to find remunerative employment in other lines of industry, or emigrate.

(3). A considerable amount of invested capital and plant will become unremunerative to a very great extent, and therefore practically almost valueless.

(4). Present and added capital and labor will have to seek employment in other and more permanent lines of industry, national development and usefulness.

In view of these facts and conditions I may be permitted, from a practical standpoint, with the utmost good-will, to offer suggestions, not only in the line of this industry, but as bearing on the provincial and national good. It is this were the only important industry of these provinces which was likely to assume such a condition as I have indicated, it would seem almost as if the disturbance in financial, mechanical or industrial aspects would soon rectify itself, but what I have indicated as likely to result in lumbering business has already taken place, to some extent, in ship-building, shipping and fishing business. The first of these industries (ship-building) has been an important factor in financial and mechanical matters in both these provinces for sixty years past, and where twenty years ago it was nothing unusual to find fifty to one hundred vessels on the stocks each winter in the harbors of St. John and Portland, many of them of large proportions, during this present winter scarce a dozen were built, and these altogether fishing craft of no particular value or importance. The settlers along the East River, at New Glasgow, N. S., also tell of the river for miles being lined with vessels under construction each winter in years gone by, but this winter scarce a vessel is on the stocks over the whole range of the river, and these are only examples of every other ship-building place in the whole range of the ports and rivers of the provinces. This is a result of the unprofitableness of investment in wooden shipping, and the general dullness and scarcity of freights for this class of shipping, growing out of the partial decline of the lumbering and fishing interests, and the desire for rapid freight transit, which, while it gives profitable employment to faster (iron) steamships, leaves much less to do for the old style coasting craft.

Then the partial decline of West India and other trade has rendered shipping and shipping business of less value, so that it is important for those who have had, as well as for those who now have, investments in these and other decreasingly remunerative lines to see carefully where investments can be obtained which have a reasonable promise of permanency and profitableness. Many of the wealthier men of the city of Halifax, who have made their money to a large extent in shipping and commission business, have been putting it of late years into bank, loan and insurance stocks, and as a result, this little city has five chartered banks with a paid-up capital of four millions, besides three private bankers with a reported capital of a quarter of a million, and with loan company and insurance and other stocks, making a sum total of about eight to ten millions invested in this way. This thing can be overdone. Banks serve a useful purpose, but are only a means to an end. In the development of the agricultural, mineral and mechanical industries, requirements and resources of a country, banking establishments have their legitimate place and sphere of usefulness. Their multiplication beyond the necessities of commerce retards rather than advances progress. To make them an end, practically defeats their purpose. It may serve the desire of investors in bank stocks and grant them a life of comparative indolence, but the industrial resources of a country are not developed, nor the wealth permanently increased, by investments in this way. It is also a misfortune when the capitalists of a country in seeking investments, do not with some show of patriotism at least, endeavor to develop the natural resources of the coun-

try, and so permanently increase the wealth thereof. It is to be regretted, too, that all over this fair Canadian heritage of ours there are men in and out of business whose patriotism is based on the personal gain to themselves which will result from their actions or opinions, and who would barter our national birthright for some visionary "pottage" fad of present commercial emolument. (This is a digression from my subject, but as these "jottings" are written in spare moments on the train, I may be permitted an occasional break in the argument to relieve the monotonousness of the position, even though there may not appear at first sight to be any relation between the "position" and the "argument").

These provinces have within their borders, in practically unlimited abundance, all the natural materials required for the profitable permanent investment of all the brains, capital and labor they can command. There ought not to be a single pound of merchant iron or steel, pig, bar, or plate, imported into this Dominion. It is the fault of the people of Nova Scotia that there is, because I do not believe that any one of a dozen sites in Pictou county in that province, can be excelled on the face of the earth for the location of a profitable puddling furnace for smelting iron, on account of the quality and apparently unlimited quantity of iron ore, limestone and coal, in immediate and convenient proximity to each other. Very much credit is due to the Londonderry Co. for the energy and perseverance they have displayed in developing their works under some mechanical disadvantages as to the location of their raw material, and also to the Nova Scotia Steel Co. at New Glasgow, for the pertinacity with which they have stuck to and developed their rolling mill business until they now have proved their competence to supply bar and plate steel of most excellent quality at reasonable prices and with a profit to themselves. It is to be hoped that these pioneer establishments will soon be followed by others, and then from these will spring up a large variety of establishments using iron for raw material and manufacturing such machines, implements and articles of merchandise as not only these, but the other provinces, to some extent require. The development of the local fields will make considerable demands on the iron industry and the development of gold and gypsum mining on both iron and coal.

In my next letter I will take up the machine shops, planing mills and other manufacturing establishments, and may express some caustic opinions.

SHARING PROFITS.

DUNDAS, ONT., April 9, 1889.

Editor MECHANICAL AND MILLING NEWS.

DEAR SIR,—We have before us your paper for April, in which an article appears on sharing profits with employees, which must have been written under a misapprehension as to the name of the firm. The system, we understand, was introduced by Messrs. Peter Bertram & Co., of the axe factory here, to insure the regular attendance of the workmen, increase the output without addition to plant or machinery (as their work is by the piece) thus bringing mutual benefit to both employers and employees as the result has shown.

Yours truly,

JOHN BERTRAM & SONS.

INSURANCE RESTRICTIONS ON OIL FUEL.

THE Hartford Insurance Company has laid down the following strict rules in regard to the use of crude petroleum as a fuel:

1. No storage of crude petroleum for fuel shall be allowed in any position where, in case of accident, it can flow toward the insured premises, or within less than 50 feet if wholly under ground, or 100 feet if wholly or in part above ground. This excludes all storage in boiler rooms, or adjacent to premises, or feeding from oil cars.

2. Delivering of oil to furnaces must be by suction or other process, whether by pump, vacuum, or any other appliances that will accomplish the end sought, the supply to be lower than the furnace, so that, when not being used, the flow shall be away from, and not toward the premises. This prohibits the feeding of oil by gravity pressure or by other means from a storage supply higher than the premises.

Where the foregoing conditions are fully complied with, and storage tank, if wholly under ground, is 100 feet or more from risk, or if wholly or in part above ground is 200 feet and upward distant, permission to use oil for fuel will be granted without extra charge. If storage tanks are located less than 100 feet and not less than 50 feet of risk, wholly under ground, or from 100 feet to 200 feet if wholly or in part above ground, the extra charge will not be less than twenty-five cents.