LUMBER, LATHS, SHINGLES AND SQUARE TIMBER

Position of Provinces in Production—Mill Prices—United Kingdom Purchases

The most noteworthy fact brought to light by the new bulletin on the lumber production of Canada was the 10.7 per cent. decrease in cut in 1912 as compared with that of 1911. All provinces except Saskatchewan showed a substantial falling off in production and, although only 2,558 firms operating say mills reported in 1912 as against 2,871 in 1911, yet, as the bulletin points out, it was mostly small mills which failed to report, and the fact that most of the larger mills reported a decrease in their output, indicates that the decrease in production actually took place and was not a result of incomplete returns.

The total value of the lumber, laths, shingles and square timber produced in Canada in 1911 was $76,540,897, the amount of each being as follows:—

Lumber, 4,389,723 feet board measure..	$69,475,784
Shingles, 1,578,343,000 pieces	3,175,319
Laths, 899,016,000 pieces	2,064,622
Square timber, 65,906 tons	1,825,154

Ontario Leads Provinces.

Ontario still leads the provinces in lumber production, cutting 31.6 per cent. of the total. British Columbia makes a close second, cutting 29.9 per cent. of the total, and as the percentage of production in this latter province is increasing while that of Ontario is falling off, it is likely that the position of these two provinces will be seen to be reversed when the 1913 figures are available.

For the last five years the four principal species in order of importance have been spruce, white pine, Douglas fir, and hemlock, but the production of white pine has remained about stationary during this period, and is now on the decrease, whereas the production of the other three species has enormously increased, especially spruce, which now makes up a third of the total cut of lumber, in spite of the fact that it also is the principal wood used in the manufacture of pulp, making up 78.2 per cent. of the total amount of pulpwood. The huge amount of spruce now being cut for pulpwood may account for the 11.9 per cent. decrease in the amount of spruce lumber cut in 1912.

Coniferous woods made up 92.9 per cent. of the lumber sawn in Canada in 1912, the hardwoods forming 7.1 per cent. of the cut, a somewhat greater percentage of the total than the amount cut in 1911. While it is true that the supplies of more valuable hardwoods of southern Ontario and Quebec are nearing exhaustion, yet the increase in cut of the more widely-spread birch, beech, maple and basswood should be noted because these species are common to the farmer's woodlot. Birch is Canada's most important hardwood.

The average mill prices of lumber in Canada in 1913 rose 41 cents above that of the previous year, becoming $15.83 per thousand feet board measure. The local variations in these prices show in some cases a much greater increase as in Ontario where there was an average increase of $1.52 over the price of 1911 directly due to the decrease of 19.3 per cent. in the production of lumber for 1912.

Prairie Province Production.

In the prairie provinces the greatest extremes of increased and decreased production are to be observed. Saskatchewan was the only province in Canada to report an increase in cut, this being 16.7 per cent. greater than the cut of 1911. The average capacity of the Saskatchewan mills is second only to those of British Columbia, being nearly seven million feet of lumber a year, 99.2 per cent. of lumber cut in these mills being spruce. Manitoba showed a decrease in production of 26.4 per cent., but this decline can only be temporary, for the exhibit of Manitoba woods at the recent Canadian Forestry Association Convention in Winnipeg showed great latent possibilities in this province as a lumber producer.

The production of shingles in Canada in 1912 was 14.1 per cent. less than that of 1911. Spruce, white pine, hemlock and jack pine are being increasingly used for the manufacture of shingles. The production of lath also showed a decrease of 1.9 per cent. from 1911, spruce making up over one-third this product.

One of the most remarkable facts brought out by the bulletin is the extraordinary increase of 89.9 per cent. in the production of square timber in 1912 over that of 1911, this being the first increase since 1877. This increase was largely due to the largely increased amounts of white pine and birch exported in this form, white pine making up 5.3 per cent., and birch 28.5 per cent. of the amount exported. 97.5 per cent. of the square timber cut was exported to the United Kingdom.

SASKATCHEWAN GOVERNMENT ERECTS COAL-TESTING PLANT

Products of Lignite—Heating Values—Value of Power Plant

A plant is about to be erected by the Saskatchewan government at Estevan for the purpose of developing and testing the lignite coal of that district. The plant will be in charge of Mr. S. M. Darling. The following short account of what he has accomplished with North Dakota lignite is especially interesting to us in view of the fact that the lignites of Southern Saskatchewan and of North Dakota are of the same cretaceous character.

The chemical composition of these lignites precludes their being successfully briquetted in their natural condition. To market the lignite commercially in a large way it must be destructively distilled, carbonized or partially carbonized, and the resulting gas, oil or tar, ammoniacal liquor and carbon residue utilized separately.

Analysis of a large number of samples of North Dakota lignite averaged on a dry basis; volatile matter 40.67, fixed carbon 53.33, ash (practically no sulphur) 6.00.

On carbonization, the products in round numbers are:—

1. Gas, per ton of lignite ..... 10,000 cubic feet.
2. Oil or tar per ton ..... 20 gallons.
3. Ammoniacal liquor ..... 35 gallons.
4. Carbon residue ..... 1,200 pounds.

Gas and Ammoniacal Liquor.

The yields of gas and oil depends largely upon the temperature and rate of carbonization. With a high temperature and quick carbonization the yields of gas will be high and of oil low; while with a lower temperature, and longer time in which to carbonize, there will be less gas and more oil.

The gas has a heating value of 450 British thermal units per cubic foot. It contains a good percentage of illuminants, but has about fifteen per cent. of carbon dioxide, which almost entirely destroys the illuminating power. This carbon dioxide can be removed by passing the gas through lime, but the process is too expensive for commercial application. The gas can be used as an illuminant by burning it in a mantle, but it is serviceable principally for fuel and power.

There is more gas in one ton of lignite than is required to carbonize the next ton. In practice only sufficient gas is removed to supply the requisite fuel to carry on the process. The remaining portion of the volatile is left to add heating value to the carbon residue.

There is therefore no charge for fuel in the process.

On distillation the oil yields:—

Light oils, benzine, toluene, etc.	11.5 per cent.
Carbolic, oils, some naphthaline	11.5 per cent.
Creosote oils	36.1 per cent.
Anthracene, some paraffine	18.4 per cent.
Pitch, hard	22.4 per cent.

This oil or its distillates can be put to many uses—fuel oil, creosoting oil, leather preservative, waterproofing, pitch, etc. Upon exhaustive distillation it yields aniline dyes, carbolic acid, and in varying proportions all the other coal tar products.

The ammoniacal liquor yields some acetate of lime, or if desired, acetic acid, and about 15 pounds of sulphate of ammonia per ton of lignite. There is a growing market for all of these materials, particularly the sulphate, as fertilizer.

Lignite Briquettes From Fines.

The lignite crumbles on carbonization, which renders possible a continuous carbonizing process, obviating the laborious charging and drawing of retorts, as practised in coal gas plants.

The cretaceous lignites retain largely their original woody structure, and hence do not break up so finely during carbonization. After removing by means of screens the small percentage of fines after carbonization, there remains practically lump charcoal of one-half to two inches in size. This can be used in gas producers, under boilers, and for domestic purposes. This lump charcoal is of about the same analysis as anthracite and has about the same heating value, but is not so dense in structure and therefore has somewhat more bulk per ton than the anthracite.

The fines have to be briquetted, or still further pulverized and burned as powdered fuel, a practice which is rapidly gaining favor.

Actual briquetting and burning tests of this fuel in carload lots demonstrate that satisfactory briquettes can be made with not to exceed 2 per cent. of starch and 6 per cent. of coal tar or lignite pitch as binder.