MANUFACTURE OF RAILWAY TIES

No Change in Methods—Two Plants Being Established for Use of Chemical Treatment

Approximately 70% of ties purchased in Canada in 1910 were hewn. It is apparent that methods of manufacture of ties are not undergoing any great general and permanent changes. Sawn ties were 30 per cent. of the total, which is the same proportion as in 1909. The only important species which has a majority of sawn ties is oak, 95 per cent. of which were sawn ties. Cedar ties were 81 per cent. hewn, and 61 per cent. of the jack pine ties were hewn. Hemlock and Douglas fir were about evenly divided in the method of manufacture. In the case of tamarack, 98 per cent. were hewn ties, while the minor varieties were principally sawn ties. The hewn ties are nearly all pole ties, the sawn ties are made chiefly from larger timber.

Sawn ties cost on the average 36 cents per tie. Hewn ties cost 3 cents more, or 30 cents per tie. Oak was the most expensive of sawn ties, costing 74 cents per tie. White pine was the cheapest of the sawn ties, costing only 23 cents per tie. In hewn ties, oak was also the most expensive, costing 68 cents, and spruce ties were the cheapest, costing 25 cents per tie.

The steam railways use 96 per cent. of all the ties. The decrease in use of ties in 1910 is due chiefly to decreased purchase by the steam railways, which used 5,159,697 ties less in 1910 than in 1909. All the white pine and chestnut ties

purchased in 1910 were purchased by steam roads. Hewn cypress ties were imported, but not used by steam roads.

Sawn and Hewn Ties.

With electric roads 61.4 per cent. of the ties purchased were hewn, as contrasted with the steam roads, where 70 per cent. were hewn. Douglas fir constituted 50 per cent. of the sawn ties and cedar constituted 34 per cent. Cedar made up 57 per cent. of the hewn ties and Douglas fir 20.7 per cent. The species which are chiefly used sawn are cedar, Douglas fir and oak. The species which are chiefly used hewn are hemlock, tamarack, cypress, spruce and jack pine. All the cypress and jack pine ties used were hewn. The average price of hewn ties was 37 cents, or 2 cents per tie less than was paid by steam roads. It is interesting to note that whereas with steam roads hewn ties cost 3 cents per tie more than sawn ties, with electric roads sawn ties cost 9 cents per tie more than hewn ties.

Imports from the United States of cross-ties in 1910 amounted to $\$_{1,096,\$32}$. Exports in 1910 were 1,995,582 ties at a value of \$463,508. Of this total $\$_{376,913}$ was to the United States. The balance of imports over exports was \$633,324, which represents about \$91,000 ties at the average price paid for ties in Canada in 1910.

Chemical Treatment Increases Durability.

Two plants are now being established for the chemical treatment of railway ties. One is being erected at Fort Frances, Ontario, and the other is being started at Winnipeg. It is stated that a plant will also be erected at Vancouver. The plant at Fort Frances will be capable of treating 2,000 ties per day. The zinc-chloride-aluminium patent immersing process will be used, which both prolongs the life of the timber and rends it fireproof. It is questionable if this process will give as good results in Canada as would creosote.

This is a matter which for some years has been necessary for the preservation of the forests of Canada. At the same time it would have reduced the annual cost of railway maintenance. The average life of untreated ties as reported by the steam roads is: cedar, 9 years; tamarack, 8 years; hemlock, 7 years; Douglas fir, 7 years; jack pine, 6 years; spruce, 6 years. As may be noted from the tables, cedar is the species principally used, because of its durability, but the supply of cedar is rapidly becoming exhausted. Unless preservative treatment of ties is introduced, the species of short life will have to be used untreated, which, on account of the necessary frequent renewal, will increase the cost of mileage maintenance. If treated ties were used, which would cost about 30 cents extra per tie for creosoting and equipping with tie plates, the inferior species, which are very plentiful and cheap in Canada, could be used with economy. With such a treatment these woods would last at least 15 years, and if protected from wear would probably last much longer.

Western Lodgepole Pine.

The lodgepole pine of the West would be greatly increased in usefulness by this treatment. This species is used chiefly for mining timbers and props and occurs, firekilled, in vast areas on the mountain slopes of Alberta and British Columbia. It cannot be used for lumber, on account of checking, and, if untreated, it lasts only about 5 years

when used for railway ties. At present this wood stands dead and perfectly seasoned and would take chemical treatment readily, after which it would make lasting and economical ties. By the use of such inferior qualities of timber, railway companies would assist conservation and at the same time decrease the cost of railway maintenance.

FURNESS-WITHY REPORT.

The latest report of Furness, Withy and Company is of special Canadian interest on account of the company's activities in the navigation of the Great Lakes of Canada through the British Maritime Trust. A note of a recent issue in London made by the Trust appeared in last week's Monetary Times. Furness, Withy and Company have a leading position in the Argentine frozen meat trade secured by the purchase of shares of Houlder Brothers and by the formation of the British and Argentine Steam Navigation Company, whose share capital is entirely owned by Furness, Withy and Company. The following is a comparison of the leading accounts of the company during the past two years.

Gross profits Dividends, &c. Subsidy, &c.	1910-11. £303,134 139,604 9,197	1911-12. £446,705 209,722 9,281
Total Income-tax and fees	£451,935 11,203	£665,708 12,501
Depreciation Pref. div. and interest Ordinary dividend To reserve	440,732 179,603 70,620 150,000 (7½%) 50,000	653,207 240,000 70,620 200,000 (10%) 125,000
Balance Brought forward	9,491 112,405	17,587 102,914
Carried forward	102,914	120,501

The profits of the company last year were the largest in its history.

FROM VIEWPOINT OF POLICYHOLDERS.

The first instance of life insurance was in 1583, stated Mr. W. Trant in a paper read before the Regina Underwriters' Association, when a man named Gibson insured his life for twelve months. He died within the year and the insurers refused to pay on the ground that he had lived over twelve lunar months, though he had died within twelve calendar months. There was a lawsuit and the money had to be paid, rather an ominous beginning of the business of life insurance.

An interesting early experiment was the insurance of 2,000 healthy lives under 55 years of age for £500 each, on the following terms: There was an entrance fee of 15., and a first premium of 5s.; then whenever one of the 2,000 died the survivors paid 5s. each. If anyone cared to work out the probabilities of profit to the insurers, it would be found they could only make a legitimate profit on the use of the small amount of money in hand.

It was soon recognized that if life insurance were to become a legitimate business the element of chance must be eliminated. Insurance was too much like betting, and in order to be a permanent success the meaning of the word "making oneself safe against something" would have to have the predominant influence. In other words, insurance must be upon a scientific basis.

The first question for the applicant for insurance to be certain about was the accuracy of the actuarial tables, and the great thing, therefore, for a would-be insured was to have confidence in the assurers. This applied to the business of life insurance more than to any other. The applicant had to accept the tables, he had to feel that the premiums were not too small or bankruptcy of the company would result, and he had to feel that the premiums he paid would be prudently invested and not form a fund for wildcat speculation. He must have confidence respecting these things. How was that to be assured? The answer was found in the report of the proceedings of the Underwriters' Association at its convention in Toronto. A unique feature of the speeches then delivered by the underwriters was that they realized the importance and responsibility of the very things mentioned above. He (Mr. Trant) knew of no other body of men who realized their own obligations and duties. Other people were preached to by outsiders, who spoke of duties, obligations and responsibilities. The underwriters recognized these things themselves, set them out to themselves, preached to themselves. Herein was the great ground for confidence on the part of those who wished to be insured.