

As records of heroic endeavor, the accounts of Hearne, MacKenzie, Franklin, Richardson, Roe, Bock, Tyrrell, and many others, equal anything that has been written in the chronicles of struggle and success in any age.

The Ontario Government has shown itself alive to the signs of the times and capable of seizing the opportunities of progress in many ways, and it is to be hoped that it will not neglect the chance of taking a long step forward in the educational equipment of its people by providing good Canadian readers for the children.

RURAL HIGHWAYS.

Although the management, design and construction of urban streets have reached a high standard, and is at times thought well nigh perfect, yet the improvement of country roads does not make the progress one would expect.

In the early days toll-roads were the leading thoroughfares. In many cases they were models of construction, but seldom did the municipalities make any attempt to build similar or better roads. Then came the campaign for the abolition of toll-roads. One after the other became county roads, and for a time it looked as if a county system of roads would be established, and system, skill and money would be combined in preventing waste of energy and dollars on road repair.

Just about this time the new County Council Act came into force, and the Good Roads movement did not make much progress. The township plans and county plans were hard to harmonize. At times a jealousy, not at all commendable, blocked many good programmes for road improvement.

During this time a campaign for the abolishing of statute labor was being inaugurated. Many municipalities clung to the old system, but few returned to it having once discarded it.

Recent legislation has brought the township and county councillors into more intimate connection, and county roads, and better methods, less waste of energy is sure to follow.

Poor roads are such a loss to a community that one cannot understand why people have so long allowed primitive methods to be followed in their construction and repair. Poor roads mean small loads, an increase cost for cartage, greater wear on carriages and horses and less social enjoyment in isolated districts.

Good country roads will increase so much the comforts and better methods, less waste of energy is sure to follow. the dilatory manner in which some localities deal with the matter.

RAILWAY IMPROVEMENT IN JAPAN.

Japan evidently intends employing all possible expedition in developing and perfecting the system of state railways. The intention is to devote thirty millions annually to this work, and an examination of the following figures make the situation clear:—

Expenditures on Extensions and Improvements of Railways.

1904-5	\$8,900,000
1905-6	1,820,000
1906-7	10,260,000
1907-8	29,593,000
1908-9	33,090,000
1909-10	30,180,000

The lines being in fairly good condition and extensions not urgent, it is probable that a large share of these appropriations will go for rolling stock and other plant of which there is a notable deficiency, nearly all of which have to be imported.

GOOD ROADS CONVENTION.

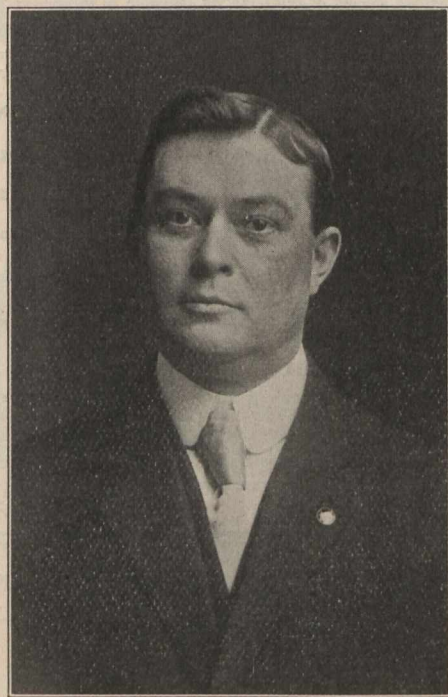
The Western Ontario Good Roads' Association will hold its annual meeting in the York County Council Chambers, Adelaide Street, Toronto, at 2 o'clock, on Tuesday, March 24th, and the following day.

SOME SUGGESTIONS FOR THE IMPROVEMENT OF STEEL RAILS.

A. L. Reading.*

The writer has been requested to give a paper on "Some Causes of Recent Rail Failures," but this subject has been so exhaustively dealt with by numerous writers in the "Technical Press, during the past few years that, with the editor's permission, the writer will merely outline a few points which, after an experience of seventeen years in the manufacture of steel and steel rails appear to him to be of grave importance to the railways of the travelling public.

While by far the greater part of the blame of rail failures during recent years should be laid to the manufacturer on account of the mills endeavoring to increase the quantity, rather than maintaining or improving the quality of their output, some criticism should be made of the manner in which some of the railroads have not improved their road-beds. Some roads have given very little consideration to the quantity and quality of ballast used and quite often the foundation of the road-bed is composed simply of plain sand. After a rainfall



Mr. A. L. Reading.

the water naturally remains in the bed if the road-bed is not sufficiently elevated to afford proper drainage, and in the event of cold weather setting in the water freezes and heaves the track sufficiently to cause the rail to be rigid in some places and not rigid in others. Is it any wonder, therefore, that the heavy trains and ponderous locomotives now in use overtax the rails, especially if the rolling stock happens to have a flat wheel? The impact from the drivers of a flat wheel is something enormous. Only lately the writer was retained to report on several cases of rail failures on a piece of track in this Province, and found that no other cause could be assigned to some of the failures than flat wheels, the fractures being clean, and without defects of any kind showing. The Chemical Analysis and Drop Test proved that the rail would stand the most severe tests.

Again cross-ties also come in for a certain amount of criticism. It is not an uncommon thing to find two or three ties within a short distance of one another which are too rotten to hold the spikes, to say nothing of aiding the foundation. The strain on the rails under these conditions is tremendous and there is no doubt that a small percentage of rail failures, (to say nothing of accidents caused by spread rails), may be attributed to the support which the tie, is supposed to, but does not give.

As stated above, the steel companies in their eagerness for a greater output have sacrificed quality for quantity.

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