

## Steel Tracks for Country Roads.

Steel tracks for country roads will not materially affect the Good Roads problem for the present, whatever the future may develop. They will belong to the age of horseless vehicles, if that ever comes, and what new features may arise before that time, is difficult to foretell. The proposal is a new one, no practical use has yet been made of it, and it will still have to pass through the experimental stage before we can form a safe estimate of its value.

Steel tracks will not do away with the necessity for good macadam roads. They will be merely an adjunct to the latter, used more as a measure of economy to lessen the cost of maintaining the macadam. A macadam road under excessive traffic is the most expensive form of pavement that can be used. On highways over which there is much heavy traffic, I have no doubt but that steel tracks might be very useful. Heavily loaded wagons would use them, preventing of ruts, but it would have to be shown that the additional cost of building and maintaining the steel track would still effect a saving. The steel track construction will add from \$1,000 to \$1,500 per mile to the original cost of the macadamizing, and the cost of maintenance is uncertain. There would be a difficulty in keeping the macadam flush with the steel rails, an objection now raised to the placing of electric railway tracks on macadam streets. Wagon wheels turning on and off the steel track have a tendency to create ruts. Single horses would travel between the tracks, but horses hitched double would tread on the line of the rails. This would tend not only to chip up the macadam from the side of the rails, but with the rails of the width suggested, five to ten inches, the foothold for horses would be rendered very insecure.

To estimate, as has been done, that a load five times as heavy can be drawn over a steel track than over a macadam road is misleading, unintentionally so, no doubt. It is not simply the power to move a load over the level, which we consider, but also the power needed to lift the load up a hill. Unless double tracks are provided, and switch lines extended into the barn yard, the size of the load would be limited still further by the poorest piece of road encountered in reaching the steel track, and in turning out to pass other vehicles. The speed could be increased, so that a farmer might jog along at a faster pace, and draw two loads over the steel track in place of one over the macadam. But the size of the load must be limited by the poorest piece of road, and by the steepest grade, not by the most favorable section.

Good roads are not merely for use in drawing farm produce. That is a small part of the benefit. The solution of the question is still, and will be for a good many years, first-class macadamized roads. Some of these, those required to support

an excessive heavy traffic, as I have pointed out, may be protected, as a measure of economy, with steel tracks. Such a road as Yonge street, along which passes a large percentage of the vehicles entering Toronto from the north, might profitably be provided with such a track, if the invention proves to be an economic success.

## Electricity.

The Peterboro', Ont., Power Company will shortly start up its three-phase plant for supplying power to the various manufacturers in that city.

A special meeting of the Chatham, Ont., city council recently approved the proposed city and suburban electric railway, and decided to submit a by-law to permit its construction at an early date.

The Ingersoll Radial Electric Railway Company applies for an Ontario charter to build a line from Ingersoll, Ont., to St. Mary's through Thamesford and Kintore, and to Tilsonburg through Salford and Mt. Elgin, and to Brownsville through Verschoyle and Culloden.

Application will be made by A. H. Edwards, Carleton Place; J. B. Riley, Plattsburg, N. Y.; T. Henry, Montreal, and J. Fowler, Arnprior, for the incorporation of the Lanark County Electric Railway Company, and to Oliver's Ferry and Smith's Falls on the South, and Almonte and Carleton Place on the north.

The annual statement of the Toronto Street Railway shows a net profit of \$282,026.47, as against \$301,301 in 1895. Two dividends at the rate of 14 per cent., each have been declared, amounting to \$210,000 leaving after the deduction of an allowance for pavement charges amounting to \$60,000, the sum of \$12,026.47 to be carried forward. The operating expenses for the year were \$17,845.55 greater than last year, chiefly due to improvements in apparatus. The number of passengers carried was 23,537,911, as against 23,355,228.

It is impossible to condemn in a manner too pointed, the inefficiency of the system usually adopted in providing for the improvement of streets, a fact made apparent by their wretched state.

A large portion of our ratepayers in the rural districts insist upon the retention of the statute labor as a sort of holiday to be spent in gossip and story telling. In this way the work on their farms, at a most important season, is neglected; the condition of our roads, a most important adjunct to agriculture, is sacrificed, a premium is placed on indolence, shiftlessness is encouraged, and a bad example is set to our youth and rising hope. Would it not profit us to declare a national holiday for the social features, making it a punishable offence to interfere in any way with the performance of the labor which the laws of the country command should be devoted to the improvement of our public highways.

## Applying Gravel to the Roadway.

The gravel placed on the country roads has in most cases been merely dumped in the centre without any further treatment. The first effect of this is to drive vehicles to the side of the road. These side tracks are used until late in the fall, when they have been cut up and flattened to such an extent as to destroy the shape of the road, preventing surface drainage. Water is held at the side, soaks into the roadway, and the gravel is forced down into the mud and is largely wasted.

Gravel should be nicely spread on the roadway and thoroughly rolled so that travel will at once use it. The objection is made to the use of clean gravel that it will not consolidate, a difficulty entirely removed by the use of a roller. If a roller is not used, the gravel should be raked into the wheel tracks, and into the hollow worn by single horses, until the whole roadway is hard and smooth under traffic.

It is difficult to find a township with a scattered and scant population, which has worse roads than the average town, notwithstanding the greater ability of the latter to pay for the proper construction of a comparatively short street mileage.

It is contended that we have an immense mileage of roads, little traffic over them and a comparatively sparse population; and that therefore the study of roads is something to be postponed until the country is wealthy, and able to undertake the construction of highways in an expensive manner. All this is rather but a more potent reason why we should, as a country, conserve our energies, and exercise them in the most judicious manner.

The present conditions of this country, the resources which favor distant transportation are well organized. The development of the railway and steamboat transportation has provided for these needs in a measure which has been attained only in some of the richest European countries. It is otherwise with the ways which serve for local intercourse; these have been so far neglected that their ill condition operates as a distinct check on the social relations upon which the character of our local communities intimately depends.

The history of European roads is interesting as being the history of civilization. The Romans built roads reaching out from Rome over which passed their armies conquering and planting the seed of civilization in every province. Their roads were models of perfection and permanency, and after the downfall of the Empire their roads did not dissolve as ours do under one April shower, but stood through the centuries all the abuses of neglect, and to-day even are models of permanent roads.