

## Lengthening the Life of Railway Ties

With New Zinc Chloride Treatment, Inferior Woods Will Last as Long as Ordinary Cedar

A growing interest in the subject of preserving timber against decay is being manifested by the users of railway ties. This is largely due to the rising price of woods such as cedar, which resist decay without any special treatment. A British firm has recently established a large plant, 28 acres in extent, at Fort Frances, Ont., for preserving ties by means of zinc chloride with the addition of sulphate of alumina to prevent leaching. The prepared solution is forced at high pressure into thoroughly seasoned lumber, so that it permeates every part of the wood, and being aqueous, readily mixes with any slight moisture that may lurk in the inner pores. Wood treated in this manner has been reduced to sawdust, washed for over an hour, and yet still contained a large proportion of zinc chloride. This compound has the further advantage, as compared with creosote, of cheapness, and of being colourless and odourless. Moreover the preserved wood may be painted or polished.

The causes of destruction of railway ties, in order of importance, are decay, mechanical wear and insect pests. Treatment with zinc chloride or creosote will so overcome decay as to more than double the life of a tie, and will keep away the insect pests entirely. Mechanical wear may be reduced by the use of flat tie-plates of either metal or hardwood to lessen the cutting of the rail-base, and of screw-spikes to minimize the wear due to spike-pulling. Though at present such devices are not common outside of Europe, yet with the growing employment of soft woods such as jack-pine and spruce, some such precautions will shortly need to be adopted in Canada, perhaps with the anomalous result of giving us a safer track.

## Improvements in Street Traffic

Canadian cities have not been behindhand in inaugurating and extending street railway systems, and some of them have now an excellent service. There is still room for improvement, however, and, in this connection, it is interesting to cast a glance at the developments in other countries.

### A Glance at Systems Overseas

England, which learned from America to apply electricity to her tramway problems, has now in some respects bettered the instruction. Municipal ownership is, in the Old Land, not the exception, but the

rule. The fares are, on the whole cheaper. On this side of the Atlantic, we pay 5c to go one block and 5c to go perhaps 20 miles. In England they pay according to distance, but some fairly long rides can be had for a penny. As the ordinary passenger on a street car seldom rides more than one mile, it is generally the case that the Englishman pays two cents where the Canadian would pay five.

In Britain they have doubled the capacity of the cars by adding an upper deck. Nowadays this is covered. Smoking is permitted upstairs, with the result that the majority of the men go aloft, and the lower compartment is left largely for the ladies.

The underground trolley system has been adopted in London, and in some United States cities. It is more expensive to install than the overhead trolley, but the advantage of doing away with the unsightly and dangerous poles and wires cannot be over-estimated.

### Advantages of the Autobus

Gladstone told an American tourist that the way to see the largest city in the world was "from the top of a bus, sir, from the top of a bus." If Gladstone could stand in the Strand to-day, he would see a great transformation. The visitor can still see London from the top of a bus, but it will be from the top of a motorbus. There is a probability of this vehicle being introduced into Canada. It is reported that a company has recently obtained a charter from Montreal to install a service there, and steps are being taken to establish one in Winnipeg.

Experts are not wanting who prophesy that the autobus is destined to become a formidable competitor of the street railway, for the former undoubtedly possesses some important advantages. It is more accommodating than the trolley car. It impedes other traffic for less. It picks passengers up and sets them down at the curbstone. It can change its route at any time. If one bus breaks down, it does not keep a line of others waiting, and the next that comes will pick up the passengers and take them along with a minimum of delay. Wires and poles are not needed and their absence would not be regretted. In short, the autobus is especially suited for work in busy streets and for special temporary services, though the electric car will probably hold its own for suburban traffic.—P.M.B.

## Refuse Disposal

A Pamphlet That May Be Had by Municipal Authorities for Free Distribution

While the civic authorities of every modern community recognize that it is their duty to provide for the efficient and sanitary removal of sewage, most Canadian towns lag sadly behind in the matter of providing for the clear-

ing away of waste paper, bottles, tin cans, garbage, scraps of lumber, rusty iron, old clothes, mattresses, and a thousand and one other articles offensive to the nose or eye, which may be lumped together under the term "refuse".

This question of the disposal of refuse is dealt with in a vigorous and popular way in an illustrated pamphlet, now in course of publication by the Commission of Conservation. The Commission is asking the cooperation of the medical health officers in the various towns and cities throughout the country in distributing this pamphlet, and it is hoped the demand for it will be as large as the importance of the subject merits. Pamphlets may be secured gratis by all bodies or persons interested, by applying to the Secretary, Commission of Conservation, Ottawa, Ont.

## Traction Ditchers Are Now Duty Free

Credit for it is due to Agricultural College Professor—Means \$100,000,000 a year to Ontario

The credit of having traction ditchers placed on the free list, and the consequent estimated saving of \$100,000,000 to the farmers of Ontario alone in increased crops, is primarily due to Prof. Wm. H. Day, of the Ontario Agricultural College, Guelph. Prior to the last session of Parliament, when the duty was removed, farmers importing ditchers had to pay from \$425 to \$750 as duty on each machine, and this notwithstanding the fact that such machines were not made in Canada.

As early as December 14, 1910, Prof. Day wrote to the Commission of Conservation asking its assistance in the matter. The Commission at once made representations to the Government and received favourable assurances. When the present Government came into power these representations were renewed by both Prof. Day and the Commission, with the result that the duty was removed.

Wet lands when underdrained produce increased crops annually to the value of \$20 to \$40 per acre, and ordinary farm lands when underdrained give an annual increase of \$10 to \$20 per acre in crops. In "Old" Ontario some 4,000,000 acres of ordinary lands are in urgent need of under-drainage, and it contains, also, no less than 5,000,000 acres of slash swamp, marsh and waste land, now comparatively useless, but most of which may be reclaimed by under-drainage. A very conservative estimate allows that 3,000,000 acres of these lands may be so reclaimed, adding \$60,000,000 to the earnings of the farmers. This, added to the value of the increased crops due to the drainage of lands now under tillage, would mean a total increase exceeding \$100,000,000 per year.—M.J.P.

## Flood Damage

Only too frequently people fail to recognize that they themselves are largely responsible for the disaster brought upon them. When floods occur, the sentiment in the territory affected is usually that the Provincial Government or the Federal Government is largely responsible because reservoirs had not been provided. Such judgments are usually unreliable and in cooler moments sane observers recognize that relief must be sought by the communities.

In cities and towns, buildings and other constructions are erected on the flood plains of the streams. During freshets, the water, thus prevented from spreading out over the lowlands adjacent to its banks, will inevitably rise, as in the recent disastrous floods in the United States, often reaching heights never before recorded.

Representatives of Ohio cities recently presented to the investigating board of engineers the following resolutions:

"That laws or rules be adopted to regulate encroachments, contractions or obstructions to the natural or established channels of rivers and flood plains by property holders, riparian owners, state, county and municipal authorities.

"That all rivers which have had their natural channels and flood plains diverted, contracted or obstructed to the extent of being dangerous in times of flood, be corrected or restored to a condition making them as safe as possible for quickly carrying off their flood waters.

"That federal, state, county and municipal co-operation be urged in constructing, where feasible, such works as are necessary to protect lowlands against flood waters."

It is refreshing to note that the Ohio municipalities acknowledge their "contributory negligence" and their responsibility for the cost of restraining works. The investigation by the board of engineers also showed that the losses were, to a large extent, due to neglect of engineering advice given to them respecting flood prevention. One city had been advised by an engineer to raise its levees, but nothing was done. Another had surveys made and contemplated prohibiting encroachments on the stream banks but "nothing was done." In another city, an engineer reported that raising a dam would probably result in damage should there be a flood higher than hitherto recorded. The flood came, the city was sued for heavy damages, and the plaintiffs won their case.

These instances are not exceptional, and demonstrate that, in closely built municipalities, disastrous floods will inevitably follow encroachments on the old flood plain, unless levees adequate to cope with the highest freshets are provided.