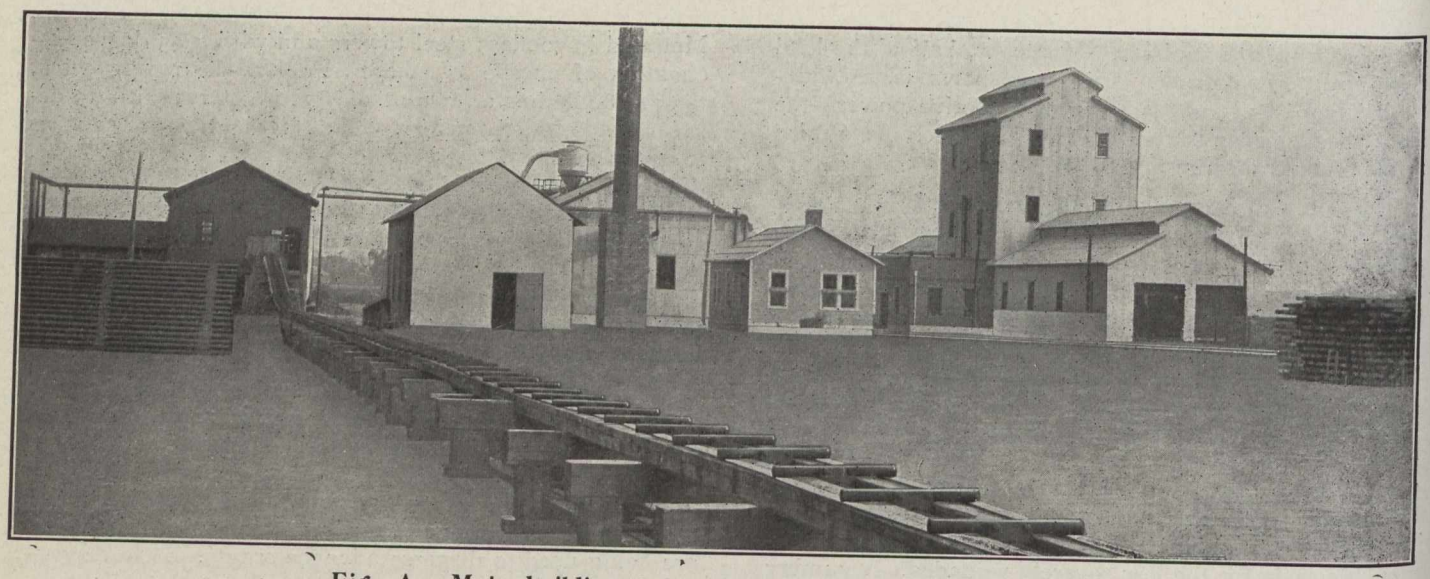

Fig. A.—Main buildings of a typical modern creosoting plant.

THE BATTLE AGAINST ROT

WHY CANADIAN RAILROADS AND MUNICIPALITIES ARE PREFERRING TREATED TO UNTREATED TIMBER — DESCRIPTION OF METHODS USED AND RESULTS OBTAINED — SOME NOTES ON THE WOOD PRESERVING INDUSTRY IN CANADA.

CANADA'S rapid railway growth—thirty thousand miles now, compared with half that amount twenty years ago—and the increasing cost and decreasing supply of good ties, has attracted the attention of the wood preserving industry to the Dominion. Forestry experts claim it takes sixty years to grow a tie, and that we place it in the track to rot out in from five to seven years, whereas it would give from eighteen to twenty-five years' service if preserved, or treated, before being used.

On this continent in 1885 only 120,000 ties were treated out of a total of 50,000,000 used, while in 1912 about 30,000,000 were treated out of about 150,000,000 used. In other words, only about 1/400th part of the ties were preserved in 1885, while in 1912 1/5th of all the ties used were treated. In Canada alone in 1910 practically no treated ties were used. In 1911, 200,000 ties were preserved before being placed in the roadbed. This was 1.4 per cent. of the total number used. Last year about 2,500,000 ties were treated, or 10 per cent. of the total number used. This shows that the Canadian railways have commenced the battle against rot.

Rot is the chief cause of failure of timbers such as ties, paving blocks, piles, etc. It is the breaking down of wood fibre that is caused by the growth of small plants organisms known as fungi. The spores or seeds of the fungi, which are usually carried by the wind, alight on timber and grow, sending microscopic threads or rootlets into the timber. These organisms live on the timber as food, causing the eating away or breaking down of the wood fibre.

Certain amounts of each of four things are absolutely essential to the existence of these fungi; namely, air, moisture, heat and food. Take away entirely any one of these four, and the fungi cannot live. The timber cannot be protected from air except in occasional instances, such as piles that are entirely submerged, in which case the timber needs no other protection from fungi, but may be exposed to teredo attacks.

It is also difficult, as a general rule, to protect the timber from moisture, but where it can be so protected the growth of the fungi is stopped. This is shown, for instance, by the excellent condition in which one often finds very old timber in interior construction.

If one could keep timber at or below the freezing point—say, in a cold storage plant—fungi could not live; but from the practical standpoint it is impossible to protect timber from heat.

Therefore, the only thing that can be affected to destroy the growth of the fungi—the only one of the four essential conditions that can be removed—is food. The fungi have only the wood fibre for food, and if that food can be rendered poisonous, the wood will be preserved against their attacks. This is done by treating the wood with a highly antiseptic fluid.

To properly treat a tie in order to preserve it against decay requires a modern treating plant of considerable cost and complexity. In 1885 there were only three of these plants in operation on the continent, while there are now over one hundred such plants in existence, with an aggregate capacity of over 100,000,000 ties a year. In Canada we have but five of these plants, all built within the last four years, with an aggregate capacity of approximately 4,500,000 ties per annum. These plants are located at Sydney, N.S.; Fort Francis, Ont.; Trenton, Ont.; Transcona, Man., and Vancouver, B.C.

Such plants consist of retorts, pressure pumps, vacuum pumps, proper gauges, storage tanks, measuring tanks, etc. Fig. B is an interior view of the retort house at the Trenton plant. The retort (1) is shown at the right of the photograph. It is 134 feet long, 7 feet in diameter, and has a net capacity of about 2,500 cubic feet of wood.