

and have been very active in their assistance, as, of course, has been also the Board of Trade. The new location of the viaduct to the south presented an opportunity to negotiate for the acquisition of the water front, and one great advantage wrought by the present arrangement is, that through it the Toronto Harbor Commissioners become possessed of practically all the water front on Toronto Harbor. By the agreement now under consideration, the new right of way for the viaduct is to be acquired through the purchase of all the property between the existing rights of way of the railways and the Windmill Line; and, after the actual amount to be used by the railways, and a street 47½ ft. wide is set aside, the remaining portion thereof, north and south of the new viaduct, is to be turned over to the Harbor Commissioners on paying 50% of its actual cost, which means that the railway company acquires its right of way of 230 ft. in width on paying 50% of the total cost of the property referred to, that is, from the street 47½ ft. wide immediately south of the railway's right of way south to the Windmill Line, while the Harbor Commissioners get what may be said to be the preponderating balance on payment of the same amount. An alternative option is reserved to the Harbor Commis-

Tree Windbreaks on the Canadian Pacific Railway.

Trees to replace portable snow fences are being tried on a large scale by the C.P.R. Along the main line and within the district broadly defined as lying between Winnipeg, Man., and Calgary, Alta., more than 1,356,200 trees had been planted for this purpose up to Dec., 1912, by the Forestry Branch of the Natural Resources Department.

The country traversed by the C.P.R. in which this tree planting has been done is largely rolling prairie, and the frequent high winds have an unobstructed range over which to drift the winter's snow. Portable fences of a standard type have been employed to arrest the snow and prevent it from drifting into the cuts and blockading traffic. This method has the usual disadvantage of high first cost and continual repairs and maintenance.

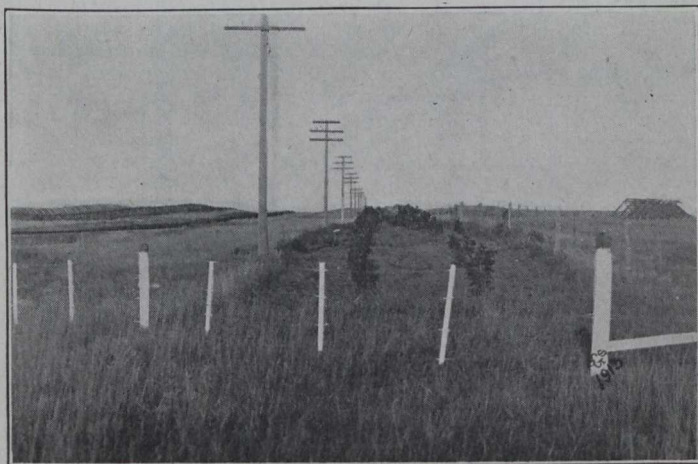
As in the case of portable snow fences, the distance of the tree windbreak from the track depends upon the topography at each point and upon the width of right of way. In general, however, the inside row is from 75 to 85 ft. from the track.

The method of planting the windbreaks may be briefly described as fol-

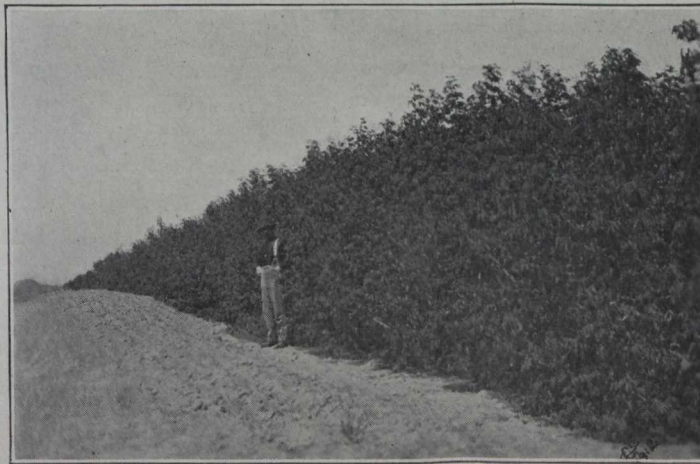
Manitoba maple, Russian poplar, cottonwood, laurel leaf willow, red willow, golden willow, ash and spruce are the species of trees which have been planted. Two species of shrubs were also planted—Caragana and Artemesia. All trees were two to three year old transplants and would vary from 24 to 36 in. in height. The loss or renewal has not exceeded 10%.

The trees have been planted 4 ft. apart in the rows and 7 to 8 ft. between rows, leaving a cultivated strip 8 ft. wide around the plantation. This reduces the cost of cultivation, as the trees quickly spread foliage and by shading the ground soon kill the weeds. With the rows 7 or 8 ft. apart there is plenty of room for a disc harrow to be worked between them, thus saving much time which would be wasted if small one-horse cultivators were used.

Two furrows have been ploughed on each side and across the ends of these plantations, thus making a fire guard of about 20 in. and a cultivated piece of more than 8 ft., or in all a strip of nearly 10 ft. in width around the plantation. Experience has shown that ground fires in that locality will not jump such a fire



Trees Just Set Out. Note Panel Fence Off Right of Way.



Tree Snow Fence, With Wide Fire Guard, near Medicine Hat, Alta.

sioners to take over all the property to the south of the new viaduct on paying one third of the total cost of acquiring the entire block from the said proposed street south to the Windmill Line, less what may be realized from the sale of that part of such block between the said street and the new viaduct.

"In connection with this plan for securing control of the water front under the viaduct order, we are advised by the Harbor Commissioners that agreements have been practically reached between the railways and the Harbor Commission by which all the property west of Yonge St. bordering on the water front is likewise to be turned over to the Commission.

"In regard to the new union station, the Chairman of the Board advises us that at the present moment experts are engaged in revising the existing plans with a view to constructing a station which will fully meet all requirements of appearance and utility, and he assures us further that actual work will be commenced at the earliest possible moment."

Railway Route Map Approved.—The Minister of Railways approved, July 30, the Lake Erie and Northern Ry. route map for revision of line between Waterford and Brantford, Ont., 10 miles.

lows: The land is broken and backset the first year, subsoiled the next, and planted the third. The planting crew consists of a foreman, 12 laborers, a cook, and two teamsters to each camp. The laborers are divided into three-man groups. In this way one man digs the holes, another places the trees in position and packs the earth firmly around their roots, and the third fills in the earth to a little above the old nursery mark, places it around the trees and levels the ground at each side of the row. This method was found to be the fastest and most satisfactory, as the foreman could then check over each group's work.

The young trees, which were grown in the C.P.R.'s nursery at Wolseley, Sask., were all baled in gunny sacks and sent by baggage or freight to the station nearest the camp. The man placed in charge of each car was supplied with two or three barrels of water, with which he kept the roots moist while in transit. As soon as the trees were received they were heeled in and after sundown distributed by wagon to each plantation, where they were again heeled in for the next day's work. When the trees were taken out next day for planting they were carried in a pail or tub containing a puddle of earth and water.

guard, or even injure plants within it.

As yet the saving in cost between portable fences and tree windbreaks is very indefinite. The trees first set out in 1908 were only high and strong enough to remove the portable fences during the fall of 1912, and owing to the light snowfall during the past winter little information as to relative value of trees and fences as snow barriers has been available to those interested.—Engineering Record.

The American Boiler Manufacturers' Association will hold its 25th annual convention at the Hollenden Hotel, Cleveland, Ohio, Sept. 1 to 4, when amongst other matters to be dealt with will be the adoption of standard and uniform boiler specifications. The entertainment committee are making special efforts for the success of the convention in view of the fact that the association, this year, celebrates its silver anniversary.

The G.T.R., it is announced, will build a larger, and more up to date elevator at Point Edward, Ont., in place of the one recently destroyed by fire. The new building will, it is said, be of steel and concrete, and be absolutely fireproof. It is probable that the old site will be utilized.