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The Creosoting Process of Treating Railway Ties.

The preservation of organic substances against decay has been a subject of considerable prominence through all the ages, the ancients having acquired considerable dexterity in the practice of the art, as evidenced in the wonderful preservation of the Egyptian mummies and other early organic remains. Various materials were employed by the ancients in their preserving against decay, but the two principal ones used in the preservation of the mummies were a substance called natrum, supposed to be a mixture of several sodium salts, and different resins and bitumens. The bodies were supposed to have been immersed in vats containing the preservatives at high temperatures, as the compounds have penetrated to the innermost parts. That the fibres of the body were left as in the original state was demonstrated by an experiment of an English

(the Kyanizing process), sulphate of copper, chloride of zinc, and creosoting. Of these four, the first two have practically disappeared within the last half century, leaving the field clear to the last two, each receiving liberal support, and having its own particular group of supporters, although the general consensus of opinion is that each particular process has its own field of usefulness.

The Dominion Tar and Chemical Co., Ltd., in its plants at North Transcona, Man., and Sydney, N.S., is the only company in Canada employing the creosoting process for the treatment of ties, although there is another plant in this country, that while equipped for this process, is employing another process, which will be described in a later issue.

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lines of the company whose ties are being treated), are first of all barked. This is performed at the door of the car as they are being drawn out to the pile, and consists simply in shaving the bark off with an adze, removing that part which is most liable to early decay. The ties thus barked are piled in the manner shown in fig. 3. Standard gauge tracks run the length of the grounds a few feet apart, between which are piled the ties. The cars are brought directly to the piling ground, where the ties are stripped and piled.

In the piles, the ties are not placed close together, but are so arranged as to give good circulation, to season rapidly. The time during which the ties must be allowed to remain for seasoning depends entirely on the kind of wood under treatment, and the condition in which it is received at the treating plant. No definite figures can be

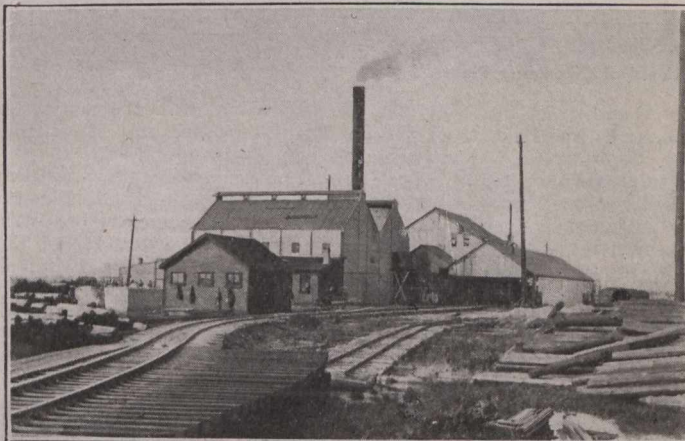


Fig. 2.—The Treating Plant from the South.

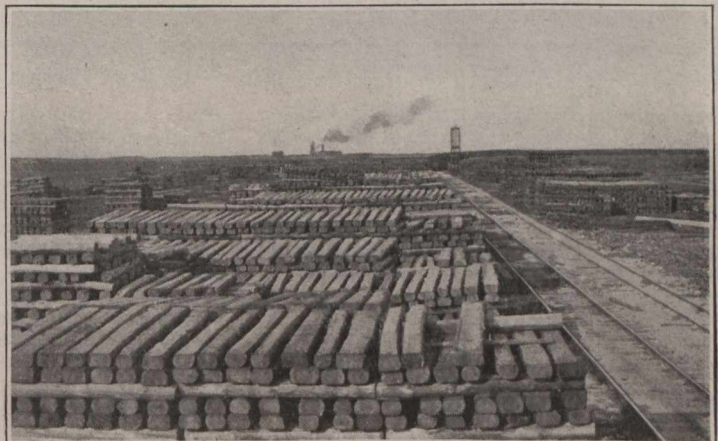


Fig. 3.—Untreated Tie Storage Yard.

scientist, in which the preservatives from the heart of a mummy were completely withdrawn, when, after 3,000 years of perfect preservation, the heart at once began to putrefy. Some light on the lasting qualities of the preservatives is gathered from the discovery that the mummies preserved with solid resin and bitumen products are the best preserved. That the ancients had considerable knowledge of preservatives is beyond question, but the reasons for their beliefs seem to be obscure. They also held the opinion that those woods lasted the longest which were the most odoriferous, implying those that contained the most resin.

From those early days down to the present, there have been repeated endeavors to discover and embody new preservatives, but it is only within the last 200 years that the greatest activity has occurred. As early as 1756, there are reported attempts to impregnate timber with vegetable tars or extracts therefrom, but the first practical process embodying this principle was due to Jno. Bethell in 1838, and it is from this source that the creosoting process is frequently called the Bethell process. Of the many processes tried, the practical ones appear to have, early in the last century, narrowed down to four, embodying respectively corrosive sublimate

contract given by the C.P.R. to the Dominion Tar and Chemical Co. for the treatment of about 1,000,000 ties annually for a number of years. In addition to this, the creosoting company has a large contract to supply creosoted ties for the Canadian Northern Ry., this contract also to run over a number of years. In consequence, a plant of considerable size has developed at North Transcona, the company's main tie treating plant, the plant at Sydney being employed principally on creosoting blocks, and the general treatment of wood products.

The layout of the plant at North Transcona is shown in fig. 1, and the principal buildings, looking from the south, in fig. 2. The plant covers a tract of about 40 acres, but as the company owns a total area of about 110 acres, there is ample room for future expansion. The location is on the open prairie, 6 miles east of Winnipeg, the C.P.R.'s new main line bounding the property on the north, and the C.N.R. Dundee Branch on the south.

To the north and east of the buildings is a large area for the seasoning of the untreated ties, a section of this area being shown in fig. 3, the piles stretching north as far as the box cars shown in the distance. The ties, as they come to the plant, (principally in box cars from points on the

given for these periods, but as a rule jack pine is left for from 2 to 3 months, and spruce and tamarack for from 5 to 6 months. The time of year and drying conditions are other important factors.

Paralleling and close alongside of each of the standard gauge tracks is a narrow gauge service track, on to cars operating on which are piled the ties for treatment. Service cars loaded with ties, and awaiting treatment, are shown in fig. 4. The construction of these is unique, and is best illustrated in fig. 5, showing the cars coming out of the treating cylinder, following impregnation. The car is low set, and attached to the sides are retaining arms, which, with a band over top from side to side of the truck, forms a circle of a diameter slightly smaller than the diameter of the treating cylinder into which the cars are run. The cars are loaded at the seasoning piles, and the retaining bands secured over the top, two bands per car. The individual cars are hitched up into a train, as in fig. 4, the ends of the ties butting up against each other, to all practical purposes forming a single long log the length of the train.

The whole treating process is carried out in the cylinders. At North Transcona there are at present 3 treating cylinders, and a fourth on the way. Of the present