above 300 degrees centigrade, but they are not free from the paraffin oils which have a high boiling point though they are nongermicidal.

While it has been less than a year since a strictly coal tar distillate containing as much as 92 per cent. liquid residue (oil) above 300 degrees centigrade (United States Forest Service method) has been manufactured and put on the market, it may be interesting to note a few records and illustrations of the methods of application and results derived from the use of that heretofore produced, or from the oil distilling 85 per cent. above 300 degrees centigrade.

After determining the quality of preservative, the pole user is interested in the method of application. The brush method is the simplest and most universally used. Next is the pouring system, which is done in two ways. One consists of a portable tank, while the other is stationary, the poles being conveyed to the treating tank.

Poles which are already erected and which have begun to show decay can be saved by a very simple method. By digging away the earth to a depth of about two feet around the pole, applying two coats of a good preservative with a brush and then replacing the earth, the pole is saved. Rot is caused by a germ and the preservative being a germicide or antiseptic kills those present when applied to the decaying parts and its presence in the wood prevents future decay as well. The manager of the Memphis (Tenn.) Telephone Company, in 1904, made this experiment on cypress poles and he reports them in perfect condition to-day with every evidence of lasting many years longer. The Austin (Texas) Electric Railway Company has likewise found this a most successful experiment on cedar poles.

Cross arms can be treated by the brush method, however, the complete dipping or immersion is the more favorable. The cost of treating a pole depends upon its size, character, condition, price of the preservative and the amount used—whether it be treated at the ground line only or the entire butt end. There is a variation from four cents to perhaps a dollar per pole and each user of poles knows best what he can afford to pay for the protection of his timber.

Last, but not the least important, it should be noted that under no circumstances should unseasoned or green timber be treated, regardless of the preservative used; it must be at least partly seasoned to allow penetration.— *Municipal Engineering*.

MILEAGE ON THE N.T.R.

The accompanying chart, denoting the mileage between principal points on the Eastern Division, (Moncton to Winnipeg), of the National Transcontinental Railway is self-explanatory. Special attention is called to it, however, in connection with the concise review of the construction of the N.T.R. appearing in *The Canadian En*- gineer for September 17th, 1914. As stated there, the whole line is expected to be ready to cope with its share of the western wheat crop in the course of a few weeks, at which time ballasting, and erection of buildings, etc., will have been completed.

