

ties are nearly out of the question in Canada, as the supply of native timber is too small, and the cost of importing too high. With the treated tie we can increase the lifetime to about 12 years, and bring into use varieties of wood which to-day cannot be used in the untreated state. The argument has been set forth that the treated tie showed such a small margin in saving over the untreated article that a drop of a cent or two in the price of a tie would wipe the saving out. This argument carries a good deal of weight with the powers that hand over the money, but my prediction is that the prospective future supply of ties will alter this viewpoint.

The second problem which is staring us in the face is the obtaining of labor; and the retention of it after it has been obtained is becoming a still more serious matter. It is the opinion in some quarters that wages may remain high after the war, and that there will be a scarcity of good labor. This is a reasonable view and the prophets may be right. Be that as it may, we are sure to face a labor shortage for the next three or four years. The solution of the problem would, at the first glance, appear to be to go into the market and bid up to the price the other employers of labor are offering, and take our chance of getting men. However, there are some sceptical people who will tell you that you cannot make bricks without straw, that men are scarce, and that the few who are available are offered more attractive living conditions by other branches of industry. It is true that the manufacturer and the contractor have offered higher wages and more attractive living quarters to the men than the railways have, but we can overcome this in a degree by providing better living accommodation.

I read the other day of the experience of a prominent American railway in doing some track elevation work in a large city. It hired 2,874 laborers in six months to keep a working force of 400 men filled up. In other words, they hired the men over seven times, and the average working time of each laborer amounted to a trifle over 21 days. In the same article the experience of a firm of contractors doing public work adjacent to another large city, by force account, is given. The work consisted of ordinary hand work in a lock, which is about as hard and unattractive as you could make it, yet very few changes in the working force took place, in spite of the fact that the rate of wages paid was on the whole considerably below the scale obtaining in the vicinity, and that labor agents from munitions plants endeavored to entice the workmen away by the promise of higher wages. The reasons for the successful holding of the men on the job were quite simple. The contractor saw to it at the start that comfortable buildings were provided in which to house the men, and that a supply of good food, cooked and served in the way the different nationalities desired it, was on hand. These two influences were the main things which kept the men satisfied and on the job for a year, in spite of the efforts to get them away. Keeping the men on the job has the big advantage of a larger output of work per man, and a more efficient working gang. It is obvious to anyone familiar with the various features of maintenance work that the longer a gang works together and the fewer the changes made, the more the work goes with a better swing, and a higher class of work and more of it will be turned out in the working day.

So much has been said about the vast amount of money to be saved by the care, rehabilitation and the re-use of old material, that one is prone to approach the subject with fear and trembling. We can, however, by a freer use of the rail saw, treat our released rails to ad-

vantage and prolong their life in branch line service. My idea would be to do the sawing work in the winter when the work is slack, maintaining a small gang for this purpose, or the work might be carried on throughout the entire year, if there were enough of it to justify it.

A process for rerolling worn rails into rails of slightly lighter section, with heads of an altered shape, both symmetrical and unsymmetrical, for use on branch lines, has been patented in the United States, and several of the prominent railways over there have had some of their rails treated in this manner. In the majority of cases the alteration to the rail is so slight that the old fastenings can be used. Briefly, the process consists of a reshaping of the worn head. This process is worth looking into.

We can make better use of our locomotive cinders than we have in the past, by spreading them on the sides of new cuts and banks, where vegetation is slow to start, and the material slides. Cinders will prevent sliding to a considerable extent, and are useful in keeping down the dust. They make good ballast in rock cuts, and in other places where rails batter because of a hard, unyielding subgrade.

There is an extensive field for the introduction of motor-driven section cars to convey section crews to and from their work. The time saved in pumping a hand car will, under the right kind of foreman, be used to the railway's advantage in increasing the day's output of work. Having employed the man, it is essential that he be kept working profitably and effectively during the hours of work.

I think it can be safely estimated that the use of motor-driven section cars will save one hour a day per man employed on the tract section. This saving under present schedule hours will amount to about 10 per cent. of the day's work, and this time, if properly and efficiently employed, would add just so much more work to the upkeep of the track. In other words, the gain of one extra day in every ten would be made, or say three days each month. Apart from the gain in time, I believe the motor section car would help to attract men to, and hold them on the job.

In concluding, I wish to make an appeal to the maintenance engineers of Canada for closer co-operation in the detailing of track material. The conditions on each of the various railways do not differ so widely that we cannot get together and adopt a standard to which we can all work. With one type of material in each class or weight, better deliveries and slightly lower prices from the manufacturers will be obtained, as they will be under a lighter investment expense and providing fewer machines than they are to date. With one type of bolt, spike, or angle bar, they would carry larger stocks, as they would feel more certain of a ready sale for their product, than if they waited to see which railway was going to come into the market and buy. About the only thing in railway track material which is interchangeable today is the track spike; our angle bars, bolts, and rail-drilling are pretty much all different, not in any important feature, but in the little unimportant details. Yet these small differences prevent the material from interchanging.

In Perth, Western Australia, a large and influential committee has been appointed to formulate a scheme for holding a post-war exhibition to celebrate the opening of the East-West transcontinental railway. Only 36 miles of the railway remain to be completed, and it is expected that it will be opened by the end of October.