

0.6 per cent of the total. Imported hard pine, however, is used to a slight extent, and this material is in reality, much harder than many of the native so-called hardwoods.

Decreases in the number of ties purchased by electric railways are noticeable in the case of cedar, Douglas fir, oak and white pine, and these woods together form the bulk of the material used. Increases are seen in the use of hemlock, tamarack, jack pine and Eastern spruce.

Ties of Western cedar, Western spruce, hard pine and elm were reported for the first time in 1912. The use of red pine and chestnut was not reported by electric roads in 1911. These companies used all the Western spruce ties reported in 1912.

PRESERVATIVE TREATMENT.

Many Canadian railway companies are now beginning to realize the value of preserving at least a part of their tie material from decay and insect injury. The practice of chemical treatment of railway ties has been carried on by railways in the United States for some years with apparently satisfactory results.

The practice in Canada is just beginning, but is increasing rapidly with the increasing cost of tie material and the constantly decreasing supply. In 1910 practically no treated ties were used by Canadian railways. In 1911 some 206,209 ties received chemical treatment before being placed in the roadbed. This number, while forming only 1.4 per cent of the total number of ties used, was, nevertheless, an indication of the increase in this particular form of conservation. In 1912 a total of 1,818,189 ties were chemically treated. This number forms 8.5 per cent of the total number of ties purchased. Steam railways used 1,798,189 of these treated ties and electric roads used 20,000.

The treated ties were mostly hardwoods, as it has been found more economical to treat the heavier, stronger woods than those which are liable to fail from mechanical wear before they have time to decay. The greatest actual saving by preservative treatment is found in the use of the so-called 'inferior woods,' provided that these are properly protected from mechanical wear. Until the price of the durable woods becomes excessive the railway companies will not resort to expensive treatment of inferior woods on account of this cost of protecting them from mechanical wear.