

## A Successful Wooden Railroad

**R**AILROADS with wooden rails have come into use for logging and other purposes, as a substitute for steel railroads, but have not proved very practicable. The rails wear out rapidly, which is detrimental to the economy of the railroad, and besides these roads have not proved safe in working, owing to a strong tendency to derailment.

A wooden railroad not hampered with the above drawbacks can obviously compete in many cases with a steel railroad.

With the *Widgren Wood Railroad* now in use in Sweden, these

rails are slightly sawn or hewed on the top, and one of them also at the sides.

Apart from having the advantage of slight wear of rails and of great safety in working, the design of wheel in question involves some distinct advantages regarding the construction of the track. The gauge need not be adjusted exactly, but can vary considerably, thus making it possible to use crooked logs as rails. Bends in the track need not be curved, but the logs are laid at angles to each other so that the "curve," since it is formed by a suite of logs, will represent an open polygon. The construction of



A Swedish wooden railroad made possible by the invention of a peculiar car wheel, not flanged, which obviates wear and operates with remarkable safety. The wheels are rubber-tired. (See accompanying article.)

drawbacks are eliminated to the greatest possible extent. The wear of the rails is, for wood of ordinary hardness, practically none, and the danger of derailment may be considered as entirely excluded.

This distinct improvement in the wooden type of railroads has been attained by the introduction of an altogether new design of wheel. The wheels have no flanges, but are perfectly cylindrical and equipped with solid rubber tyres. To guide the wheels on the rails there has been introduced a special guiding-device. This device guides automatically in each direction without any tendency to fastening in the curves. The wheels can travel over the sharpest curves and can pass even angles in the track, practically without any increase in rolling resistance and without the slightest tendency to derailing. Both

the track does not require any great accuracy or much skilled labor.

Further it may be stated with regard to the construction of the track, that we have built our roads without making a road-bed, the rails being laid on trestles standing on cross-ties. Owing to the rigidity of the wooden rails the trestles can be placed at rather great intervals, the ground being somewhat cleared only where the cross-ties are to be laid.

In regard to the rolling stock it may be mentioned that the locomotive has a 35 H. P. motor and weighs, including dead weight, 5 tons. A locomotive at 8 to 10 tons and 100 H. P. is now under construction. The motors of the locomotives have hitherto been gasoline-driven, but motors can, of course, be used, running on other kinds of fuel-oil. For the tropics especially, it may be of interest to



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know that locomotives can have motors driven with nonpurified palm-oil.

The locomotives, the wheels and guiding-device excepted, are designed somewhat similarly to ordinary heavy automobile trucks. To facilitate the transportation of the locomotives to the railroad over rough ground lacking transporting facilities, the locomotives are designed so that they can be taken apart in suitable units.

The cars weigh about 2 tons and load about 6 tons each. They are not provided with trucks but have 4 wheels only. Owing to the design of wheel and guiding-device they can be of any length and still pass curves without difficulty.

The cars, as far as logging is concerned at least, are made of timber available at the place where they are to be operated, only the wheels and axles being transported there.

Finally it may be mentioned that the operating speed of the railroad has reached 25 to 30 kilometres (about 15 to 18 miles) per hour, that steep grades can be operated and that turnouts and road crossings can easily be arranged.