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A Science Service Feature

? WHY THE WEATHER ?

By Dr. Charles F. Brooks
of Clark University

COLD WEATHER DELAYS TRAINS

The commuter who has waited on an open platform will agree that cold weather delays trains. "It has been found that low temperatures tend to double the rolli. friction of freight and passenger trains. This, together with the increased head resistance which is due to the greater density of the cold air, furnishes the chief reason why train tonnage must be cut down in winter." The further difficulty of getting up steam in cold weather frequently delays heavy trains in starting out of stations. This does not affect electrically driven trains, however.

Extreme cold has a racking effect on the rails, girders, wheels and other iron work of railroads. The expansion and contraction of rails in alternate mild and cold weather makes them particularly subject to breakage during the winter season. Indeed, in the winter of 1911-12, when a cold November was followed by a mild December, northeastern railroads had an epidemic of broken Bessemer steel rails. This experience led to the substitution of open-hearth rails for the Bessemer type. Open-hearth steel rails, which contain less phosphorus, bear heavy traffic with little breakage even though the temperature descends to minus 40 degrees Fahrenheit. Car wheels of this open hearth steel are also best fitted to stand severe meteorological conditions.

Besides causing rail breakage low temperature may make further trouble for the railroad man. The freezing and consequent heaving of a dirt roadbed is likely to spread the tracks. Such a difficulty may be overcome by the use of crushed stone ballast.

(Tomorrow: The Atmospheric Tide)

SCIENCE SERVICE,
B and 21st Sts.,
Washington, D.C.