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FOR SAFETY ON RAILWAYS.

Recently the C.P.R. Company was fined \$200 and costs for working an operator more than six days without allowing twenty-four hours' continuous rest. The enforcing of this law would do much to lessen the loss of life and property caused annually by railroad accidents, overworked operators, operators who have to act as station agents, even on busy points. It is so easy for a superintendent to add duty after duty to an operator without giving a thought to where this dissipation of attention may lead. It is not by any means an unheard-of thing for an operator to have a dozen train orders on his desk and at the same time to have four or five people calling for express parcels. Is it any wonder that orders are sometimes wrongly distributed?

When in addition to acting in a dozen different capacities an operator is required to remain on duty fourteen to sixteen hours a day, and sometimes even more, the risk the railway company and the travelling public take is, indeed, great.

The undermanning in the operating department of our railways is not confined to the operators alone, but extends to the train crews. The regular trains are, as a rule, well manned, but by far the greater number of accidents occur with specials and "light engines."

When a special or an extra comes to grief, frequently the operator is at fault. Other duties, overwork, or sometimes carelessness is the excuse, but when a light engine collects her toll of two the operator is usually able to clear himself. Is it a case of "blame the departed," or has the engineer taken too many chances in his desire to make the run quickly? We sometimes wonder that the railway men do not take up the question and demand that light engines carry a conductor. This is not an unnecessary expense, but a very necessary check on every engine crew. The men in the cab have plenty to occupy their attention without studying time-cards and orders.

The proper despatching of trains is one great problem that money and men cannot make safe. Someone will blunder, but a great deal can be done to eliminate many of the present defects. Each time a company overworks an official or undermans a train let the law take action, and let it be the business of some Government official to investigate conditions, not only when accidents happen, but at any time, and thus prevent many accidents.

FORCES WHICH DESTROY ROADS.

In studying any subject it is just as well to understand the forces and conditions that will cause failure—forewarned is forearmed. The agencies that tend to destroy roads may be classified as physical, chemical, and dynamical. In Canada frost is the great enemy of good roads. 'Tis true frost alone will not harm much, but frost and water in any roadbed will soon disrupt the road. Frost will make the road metal more brittle, and thus lead to more rapid wear. Frost and water displace the particles making up the highway, thus destroying the smooth surface and its firmness. Water alone will wash out the bonding material from among the metal; but more than that, it will sort out the ma-