

point of operation, and some provision in the proposed law requiring this to be done at all large works would remove at once a greater part of the danger due to the transportation of this material on our railroads.

AUTOMATIC BLOCK SIGNALS AND "SURPRISE CHECKING."

Without being able to refer to any statistics, nevertheless an impression exists as to the value of "surprise checking" in the operations under automatic block signals, which leaves little doubt that only through this method may automatic signals be raised to their highest efficiency. The testimony comes from all sides that the plan has shown its value wherever tried, and in the discussion of Mr. R. G. Kenly's paper before the Railway Signal Association in New York last week not a voice was raised in condemnation of the practice.

If automatic block signals have a weak feature (and this question is raised only for purposes of argument) it is to be found in the rule which requires an engineman to stop for a few minutes before passing a danger signal. This objection can only have an academic value in the assumed expectation that enginemen who are halted and then, entering the block under a danger signal, find no train there, may become so accustomed to the practice that they will violate the rule of stopping, or even if they stop may proceed through the block at a high speed, instead of looking for trouble, as the rule requires. In either case it is evident that this may lead to a wreck. But in the discussion inspired by Mr. Kenly's paper a new attitude was made evident on the part of enginemen, to the effect that a large proportion of them now are as anxious to secure the strict obedience of signal and rule on the part of their fellows as previously the greater number of enginemen have been regarded as indifferent to consequences and only anxious to make time, whether it involved a disobedience of regulations or not. In the remarks of two members of the Railway Signal Association from widely separated localities, they reported that enginemen themselves urge the practice of "surprise checking," in the hope that it will expose such reckless running as is a menace not only to the traveling public but to the co-employee as well.

Since there are two ways in which the rule concerning the observance of a danger signal may be broken, it is necessary that "surprise checking" take two forms: It must determine the promptness with which trains stop and wait at a danger signal and it must determine the speed at which trains afterward proceed through the block. In the latter case, on double track railways two persons evidently are necessary for performing this work—one at the signal itself and one at some distance in advance, for the purpose of gauging the speed at which a train has proceeded. On single track the problem is somewhat different, since any entrance to a block where a danger signal is displayed must be unqualifiedly dangerous, unless the train has been preceded by a red flag. On the Queen & Crescent route a train is provided with a velocipede car, which is for the purpose of carrying a flag through the block, and this practice amounts substantially to an absolute adherence to block signaling rules.

Since "surprise checking" amounts to a system of private detection, it is necessary that the individuals employed in the work shall be changed frequently in a given locality, and perhaps be not employed long at any time on the same line, at least during the earlier periods of the method. Human nature is inclined to take the most attractive course, and an understanding easily might be arranged between the secret inspectors and the enginemen. Any chance of this is to be deprecated, and to be forewarned, therefore, is to be forearmed.

Whenever a wreck occurs which is embraced within the territory covered by automatic block signals, there is a presumption aroused in some minds that with some other sort of signal the wreck might not have occurred. This has led many people, otherwise favorably inclined toward automatic

signaling, to believe that the presence of a signalman in a cabin adds a measure of safety to the operations of a positive block semaphore. Or else, that in order to secure the best results from automatic block signaling, it is necessary to add an automatic train stop. But wherever a collision has occurred under automatic block signals it has been shown to have resulted from a disobedience of the simplest rule. Hence it seems far more rational to exhaust every means for insisting upon the obedience of rules, for detecting and dismissing from the service those who exhibit a tendency toward disobedience, rather than to add another mechanism, to be looked after and maintained. The first course also recommends itself because it is logical, because it has not been very widely tried and because the raising of the standard of discipline in any class naturally tends to raise the standard in all classes.

MAINTENANCE OF WAY BY PRIVATE CONTRACT.

Whether or not it be true that the Canadian Pacific seriously contemplates farming out its maintenance of way to private contractors, an interesting question is raised by the suggestion. According to the Interstate Commerce Commission report for the year 1903 there was spent the sum of \$194,000,000 in maintaining only the track and roadway on 222,000 miles of main track and 62,000 miles of sidings. Assuming a generous allowance for the latter—\$12,000,000—we have left the respectable sum of \$182,000,000, equaling an average of \$820 per mile per year. Hence the subject is a large one, particularly as it affects about 340,000 men.

There could be only one motive for a change from the present practice, economy, and the troubles which might follow would more than counterbalance any saving in dollars and cents. In the matter of strikes alone the whole efficiency of the line might be suspended by the mistaken policy of an employer whose principal object of profit would best be subserved by resistance to demands at an awkward moment. The solidarity of a railway's official family is its chief protection from labor troubles, and to surrender this advantage appears the height of folly.

But there is another and even more serious aspect to the idea: In all questions of railway operation, whether of maintenance or conducting transportation, safety to life and property always has and always must take the first place. From the tightening of a loose bolt to the removal of several miles of rail, a multitude of opportunities for disaster occur through carelessness alone, and when to this is added the malicious instincts of many thousands of ignorant men, one is somewhat appalled at the suggestion that a railway shall surrender the least shadow of control in matters so vital. "Defects of roadway" already occupies too prominent a place in the list of causes for accidents, and no better means of increasing its importance can be imagined than to place the control of the track in private hands.

Probably it would be said by the advocates of such a measure that no real control would be surrendered, but this would amount to begging the question. There is a vast difference between discipline exercised on the spot—straight from the shoulder—and that which must be filtered through one or more minds before it takes effect. A trackman who leaves a crowbar lying across a rail on the main track is a subject for immediate dismissal, but the railway inspector who might witness such an act could scarcely be authorized to do more than insist upon the dismissal of the man by the contractor. And in the employment of men quite as bad a phase presents itself, since as things stand to-day experienced supervisors know of many men in their localities whom for no consideration would they see employed upon their track. Under a contract system these men could, and undoubtedly would, find places at distant parts of the line.

So cautious are railway engineers in the matter of work performed by contractors for a railway, that in most agreements covering the method of conducting the operations