

ONE OF THE "UNPREVENTABLE" ACCIDENTS—A BRIDGE BROKEN BY A CLOUD-BURST AND A TRAIN HURLED THROUGH THE GAP

WHAT CAUSES RAILWAY ACCIDENTS

A STUDY OF THE SUBJECT FROM THE POINT OF
VIEW OF THE EXECUTIVE OFFICE

By C. H. ALLISON

NEW YORK CITY

WARS, battle and railroads! Engines of stern strife and of peaceful industry linked together in common cause against humanity! More deaths and injuries each year on our railroads than on the bloody fields of Waterloo or Gettysburg, or in the entire Spanish-American war. Stop the slaughter!

This has been the keynote of innumerable magazine and newspaper articles during the past year. Railway officials have been accused of reckless operating practices, of wanton disregard for the sanctity of human life, of penurious methods of management that refused to permit the necessary expenditure of money for the most ordinary precautions essential to public safety. They are declared to have staked dividends against death and destruction.

To quote a well-worn phrase, "There

is no greater problem confronting the American people today"—so important is it as to demand recognition in President Roosevelt's last message to congress—than that of railroad accidents, their causes and means of prevention. The normal hazards of railway travel have been accentuated of late by an appalling series of disastrous wrecks spread out over the past two years. Public attention has been concentrated on this painful subject as never before. Like Banquo's ghost, it will not down.

A FUNDAMENTAL ERROR

Unfortunately the idea prevails that there has been an extraordinary increase in the number of railroad casualties. Without going into detail and presenting a mass of figures, it may be sufficient to say that in the last decade while the total

track mileage operated has increased about twenty-eight per cent., passenger mileage forty-seven per cent. and freight ton miles eighty-five per cent., the fatalities to passengers increased only nineteen per cent. and to employes thirty-two per cent. In comparison with mileage operated and traffic handled, there are actually fewer deaths on our railroads than ten years ago. In 1903 there was but one passenger killed for every 1,957,441 carried, and one injured for every 84,284 carried.

This does not indicate any alarming increase in the dangers of railway travel. When a man about to buy a ticket reflects that he takes only one chance in about two million of being killed, and one chance in eighty-four thousand of being hurt, it will probably strike him that he is safer in a railway train than on our public streets and highways. Indeed there are annually killed by lightning in the United States approximately twice as many persons as suffer death while traveling on railroads.

What are the "dangers" of railway travel? Clearly the casualties to employes, to trespassers, and, indeed, to all but passengers, must be eliminated from the account. Considering therefore solely casualties to passengers, we find from the last bulletin of the Interstate Commerce Commission that on all the railways in the United States there were, during the year ended June 30, 1904, killed by all causes, including their own carelessness and wilfulness, 420 passengers. This is less than one-half of the 1,020 deaths which were caused in New York harbor by the burning of the steamer General Slocum on June 15, 1904, and about half of the 700 more or less who were killed in the burning of the Iroquois theater in Chicago, December 30, 1903.

LESS THAN ORDINARY RISKS OF LIFE

But going further and including all who met their death on the premises of

the railroads from any cause, and are therefore reported by the railroad companies as killed, let us consider the area of those railroad premises, and their constant population; i. e., the number of people who are daily and hourly thereon and then compare the yearly mortality per thousand among this "constant railroad population" with the mortality in some of our states. For the purposes of such comparison we take Connecticut, because its area most nearly approximates to that of the railroad premises, and New York, because that state happens to contain the writer's environment. Assuming that the 207,977 miles of railroad operated in the United States embraces an area only 100 feet in width (as a matter of fact, when allowance is made for yards, terminals, etc., much more is embraced) we find that the railroad premises comprise an area of 3,839 square miles. The area of Connecticut is 4,990 square miles; that of New York State, 49,170 square miles. The population of Connecticut by the last census was 908,420; that of New York State 7,268,894. The "constant railroad population" consists of

1. Employes, of whom there are 1,312,537. Allowing that each of these works ten hours per day, and as a matter of fact, their hours of labor are rather longer, and they are on the premises for a much greater time, we will take ten twenty-fourths of 1,312,537 546,890
2. Passengers continuously on trains in actual movement. The figure here given is reached by dividing the total of passengers carried one mile by thirty miles per hour, by twenty-four hours, and by 365 days — 79,993

Thus far our figures are neither obscure nor over-estimated. It is more difficult however to estimate the other persons who are on railroad premises. This must comprise, say, ten twenty-fourths of those employed by other than the railroad company in and about its premises, such as telegraph, express and sleeping-car employes, and those employed by lessees of railroad property, as, for instance, elevators, lumber and coal yards, etc. A large allowance must be made for teamsters and others who

work in and about freight yards, for casual visitors, such as persons seeing their friends off on trains, and shippers. A liberal allowance must also be made for persons crossing at highways, or walking along the tracks, tramps, trespassers, etc. While no exact figure can be given with respect to these other persons on railroad premises, it will be well within bounds to estimate them at one man per mile of railroad operated,

	103,988
This gives us a total "constant railroad population" of,	730,871

It is certain that this estimate is under rather than over the fact, but taking it for the sake of argument, we now find that the density of population per square mile is

In Connecticut	187.5
In New York	152.6
On railroad premises	185.5

We further find that the death rate per thousand from all causes was

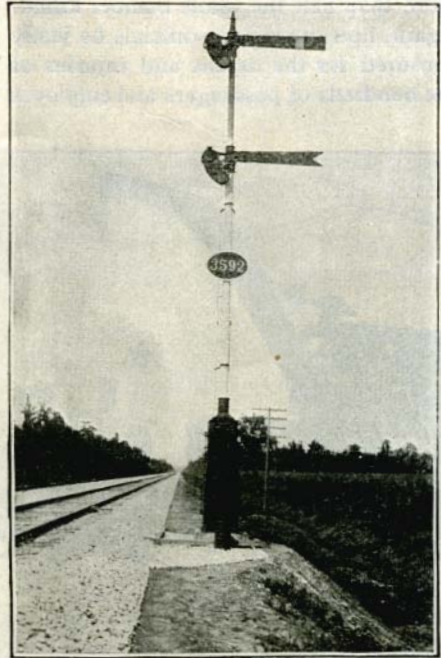
In Connecticut	16.9
In New York	17.9
On railroad premises	13.5

While it may be suggested that deaths from railroad casualties are included in the death rate of each and every state, and that those occupied in and about railroad premises are, in a sense, "selected lives," it is very obvious from the foregoing that even under our bad regulations as to trespassing on railroad premises, grade crossings and the like, there is for those permanently employed on railroad premises less risk of life than to those generally inhabiting the state of Connecticut or the state of New York.

So far as they go, all statistics show that the percentage of accidents in the railway business is less than in any other branch of industry. It is estimated that over 100,000 operators are annually killed or hurt in our factories, yet the railroads are selected for invidious attack. An inflamed popular sentiment has been aroused which is being continually fed on information of the most misleading character.

THE LEAVEN OF JUSTICE

Possibly no one thing has given rise



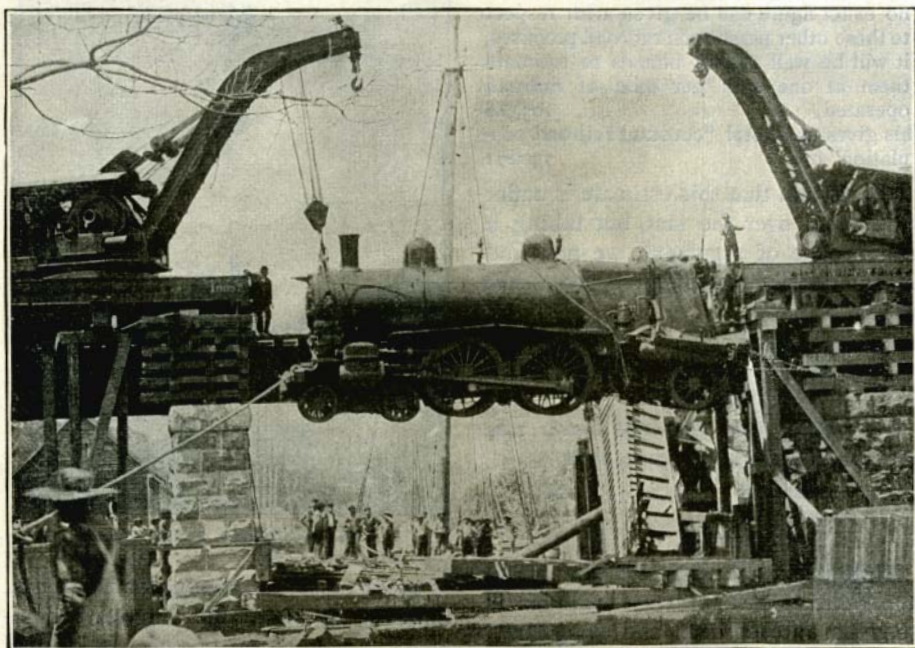
THE AUTOMATIC BLOCK-SIGNAL

to more misunderstanding on this point than the reports of the Interstate Commerce Commission. The last annual volume of statistics issued a month or so ago by that body, covering the twelve months ending June 30, 1903, shows that there were 9,840 persons killed and 76,553 injured on or about railway property during the year. At first blush an awful record, truly—shocking alike to the public and to railroad officials. But no analytical searchlight is needed to dispel the gloom of misconception enveloping this dark array of figures.

Without attempting to minimize the mortality and suffering involved in the bald statement of casualties, or to excuse the railroad companies for any of their shortcomings, why, it may be asked, should they be held liable for the death of the 5,000 trespassers who are included in the total of 9,840 fatalities—persons who have no right whatever to intrude upon railroad premises and who do so at their own peril? This class of accidents alone accounts for

more than half the whole number killed. Again, how can railway officials be justly censured for the deaths and injuries of the hundreds of passengers and employes

credit is cast indiscriminately upon the railroads when the most casual differentiation of figures would reveal things in a new light, and place the responsibility



HOISTING AN EIGHTY-TON LOCOMOTIVE FROM THE CREEK-BED INTO WHICH IT LEAPED THROUGH A BROKEN BRIDGE

whose own carelessness or wilful taking of risks resulted in such a large addition to the deplorable list. And is it fair to charge "managerial greed" with responsibility for the numerous casualties resulting from broken rails, broken wheels, cloud-bursts, tornadoes, malicious tampering with switches and other unpreventable causes.

These preponderating factors must be borne in mind in considering so grave a subject. It seems scarcely more reasonable to charge railroads with the deaths of all persons who lose their lives on railroad premises than to charge steamship lines with all the drownings in waters traversed by them. Yet in the published reports concerning railroad accidents no distinction is made between the several classes of casualties; dis-

where it obviously should be placed.

A BAD QUARTER ANALYZED

(Since the above was written the bulletin of the Interstate Commerce Commission covering the three months of July, August and September, 1904, has been issued, showing:

	Passengers		Employees	
	Killed	Injured	Killed	Injured
In train accidents	228	2,154	183	1,593
Other accidents— coupling, falling from cars, etc.,	48	1,019	573	8,441
	276	3,173	756	10,034

As the commissioners say, this quarter may be properly termed "the most disastrous on record." Doubtless the extraordinary travel to the World's Fair at St. Louis accounts for the abnormal mortality rate among passengers as com-

pared with previous periods. There is no occasion, however, for alarmist reports that railroad accidents are rapidly growing in number and fatalities. The figures fluctuate so much from month to month that we must wait until the yearly returns are in before a fair conclusion can be drawn. While no official statement has yet been made for the months subsequent to September, 1904, it is certain that they will show a decided reduction and probably keep the annual average well within bounds.

Bad as are the statistics for the three months mentioned, here again we find further proof of the inefficacy of block-signals as an offset to human fallibility. The commission selects for special comment twenty-four of the most serious collisions, in which 142 persons were killed and 601 injured. Five of these collisions occurred on track equipped with signals, causing twenty deaths and sixty-eight cases of injury, about twelve per cent. of the total. All the other collisions (excepting solely that due to a misplaced switch) were the result of mistakes or neglect of one kind or another on the part of employes. The worst wreck during the quarter—a passenger train going through a bridge which was carried out by a flood, involving eighty-eight deaths—is classed as a derailment. This clearly comes under the head of unpreventable accidents. Of the remaining eleven derailments explained in this bulletin, one was due to nonobservance of signal, two to unknown causes, three to unpreventable causes and five to negligence of employes.

INCURABLE INFIRMITIES OF THE HUMAN MIND

In spite of the wonderful improvement in roadway, equipment and the installation of safety appliances made in recent years, into which millions of money have been poured, it is evident that there is still something lacking to a perfect train service. Wrecks continue to occur with

unpleasant frequency, and nine times out of ten the investigation which inevitably follows discloses negligence on the part of one or more employes. The cumulative consequences of forgetfulness, mistakes, sleeping on duty and deliberate violation of instructions are well illustrated in the quarterly bulletins issued by the Interstate Commerce Commission. Bulletin No. 12, covering April, May and June, 1904 (the last one to hand when this article was begun) may be taken as a fair sample of the average run of reports. In this bulletin some twenty-seven prominent train accidents—eighteen collisions and nine derailments—are selected for special comment and explanation of cause.

The eighteen collisions resulted in the death of fifteen and the injury of 206 persons, and their causes may be classified as follows: Trainmen overlooking meeting point, four; dispatcher's mistake, two; block-signal operator permitting train to enter block occupied by another train, two; engineman running by three automatic stop block-signals and a flagman, one; flagman throwing wrong switch, one; trainmen overlooking change of time on new card, one; conductor failing to note from train register that the train he was to meet had not arrived, one; operator failing to deliver meeting order, one; freight cars left on main track in switching, one; trainmen's mistake in calculating time on an order to run late, one, operator's error in not reporting a train having passed his station, one; engineman (who was killed) starting from station without orders and leaving conductor behind, one; trainmen, after all being asleep, assuming that the three trains they were to meet had all passed, starting out after only two had gone by, one.

The nine derailments resulted in eight deaths and injuries to thirty-four persons. One of these, the most disastrous wreck during the quarter, including seven deaths and twenty-three cases of

injury, resulting from an engineman (who was killed) overlooking an order to reduce speed on entering a side track at a small station where the main track was obstructed; the train, a fast passenger, was ditched. Another derailment, in which one person was killed and six injured, was due to a washout following an unusually severe local storm. The remaining seven derailments, causing no deaths and but five cases of injury, were the result of broken or defective equipment, contributory negligence on the part of a trainman being shown in one instance.

Here we have indisputable proof that every one of the collisions and the most fatal derailments, comprising more than ninety per cent. of the casualties, were directly traceable to the neglect or disobedience of employes. Three of the collisions occurred on track equipped with block-signals. In every case precautions had been taken to avoid disaster. There was no fault in the transportation methods. The men had but to follow instructions. Why didn't they do it?

THE CANKER AT THE HEART

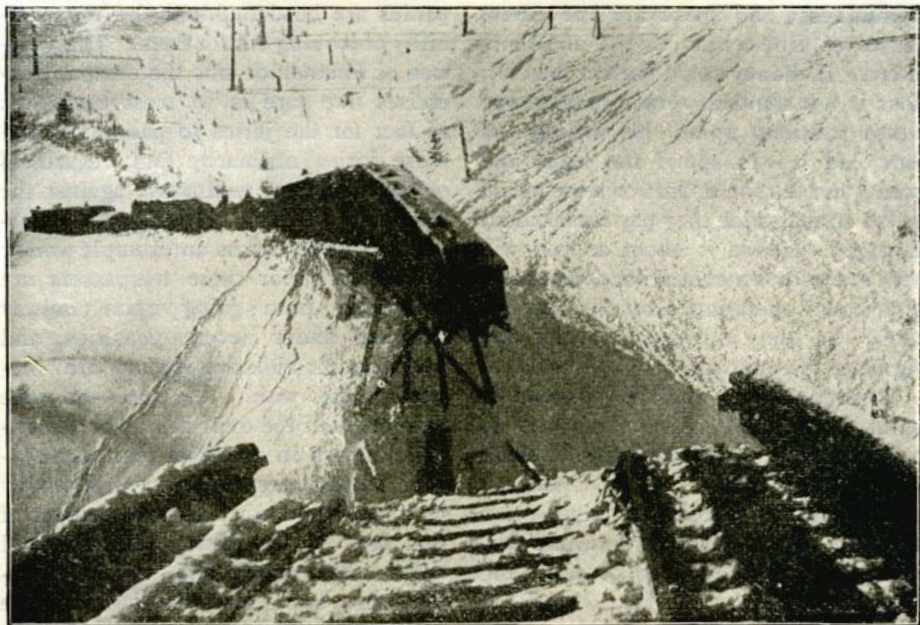
Discipline on American railroads is weighed down by the incubus of labor unionism. Railway employes are as well paid as any class of men performing a similar quality of work. The average daily compensation of engine-men in 1903 was \$4.01; conductors, \$3.38; firemen, \$2.28; other trainmen, \$2.17; telegraph operators and dispatchers, \$2.08. Their hours and conditions of labor have been steadily improved, and cannot by any stretch of imagination be considered harsh. Their average intelligence is of the highest order. All the circumstances lead to a natural assumption that in railway service, if anywhere, one could expect a discipline as perfect as fallible man is capable of. The most complete and comprehensive rules have been compiled for the guid-

ance of employes in all departments. In the transportation department, those engaged in train service particularly are required to undergo a rigorous examination as to color-blindness, physical fitness and general intelligence. It is the aim of officials to maintain the highest possible standard of personnel among the working force. But in order to do this and keep the men keyed up to a proper sense of their responsibilities, it is essential that they be left untrammelled in the exercise of discipline—punishing every discoverable infraction of rules, promoting where merit warrants and making the men feel that their future success depends upon their individual loyalty and ability. Labor unionism, perfected on railway systems as nowhere else, effectually kills this rational and wholesome method of handling men. A system of promotion by seniority instead of by merit has been forced upon the railroads by the labor organizations. An employe's first allegiance is not to the company but to his brotherhood. He knows his promotion is a matter of time, not of meritorious service. His chief interest, consequently, lies in securing the biggest day's pay for the smallest day's work. There is neither the esprit du corps nor the individual effort among the men that there should be; there never will be until the labor organizations relax their grasp and permit railroad officials to conduct the business on business lines. Human life depends on the weeding out of unfaithful employes; on a prompt, decisive administration of the discipline so essential to safe and efficient operation.

It is in interference with discipline that the blight of unionism is chiefly manifest. Not only do the brotherhoods and orders seek to restrict employment to members of their own organizations, but by means of "grievance committees" they protest against almost every corrective measure advanced by the officials. A superintendent who attempts to en-

force rigid discipline today is sure to be visited by a grievance committee tomorrow, no matter how gross the offence. Regardless of the merits of the case,

and put an end to the chief follies of labor domination they will have gone far in protecting themselves against train accidents.



PORTION OF A BRIDGE CARRIED AWAY BY A SNOWSLIDE WHILE A TRAIN WAS CROSSING

public sentiment is sure to side with the committee, this in spite of the fact that some of those who help to make that same public sentiment may go down to death the day after tomorrow because of the conduct which the superintendent was endeavoring to rectify. The catastrophe comes and the company, not the labor union, is blamed. Trainmen discharged for the capital offense of causing a collision are almost invariably reinstated or reemployed on pressure of the committees, who keep everlastingly at it until their "brother" is returned to the service. The company is not desirous of forcing an issue with the labor organizations, involving a possible strike; for in this, too, the public would be with the men. And in this respect the public must also share the blame. When the people arise in their wrath

PUNISH THE GUILTY ONES

They do these things much better in European countries, where railway employes whose gross negligence causes death or injury are held criminally liable to the courts and are punished like any other class of criminals. Until some statutory responsibility is placed upon railway employes in the United States, and they understand that their liberty, maybe their lives, depends upon a faithful performance of duty, or until railroad officials are able to administer discipline without interference, we can hope for no material reduction in our casualty lists.

THE MILLENIUM NOT YET

To paraphrase one writer who recently contributed a series of articles on this subject to a magazine, "Human falli-

bility is the quicksand at the bottom of a goodly river of disaster." Corporate parsimony can surely not be blamed for the laches of employes. Money will not mend faulty memories, indifference and slothfulness; and these are the direct causes of nine-tenths of the accidents today. If money could correct the evil, does it not stand to reason that railway administrations would be willing—if they had it—to spend ten times the twenty-five million dollars or more which is the annual price they pay for accident damages. Hedge it about as you will with every known contrivance, the safety of railroad operation after all depends solely on the individual loyalty and vigilance of employes.

Theoretically it may be possible to build, equip and operate railways so perfectly as, humanly speaking, to avoid all train accidents. But a "perfect" railroad would call for an expenditure of more money than any railroad corporation is ever likely to possess, and for restraints that would be intolerable to the American people. Nothing short of a train service "as fast as wheels can turn" will satisfy. There is a popular fever for annihilation of time and space that will brook no restrictive remedies, let consequences be what they may.

A criticism most frequently made of us as a people is that we hold human life too cheap. It is exemplified in the holes in our city streets, in our lack of proper policing, in the reckless speeding of automobiles on crowded thoroughfares, in the violation of building ordinances, and a thousand other things. Everything must move and be done in a hurry. We have no time to stop and count the cost. This is the spirit of the age, and our railroads have not escaped the infection. They are neither better nor worse than the people they serve.

THE TRESPASS NUISANCE

Another contributory cause to the mortality on our railroads is the fact

that they have absolutely no protection against trespassers, who invade railroad premises with impunity, use its right of way as a public highway, its cars for the purpose of stealing rides; and the companies are burdened with the responsibility of looking out for them. The question of whether or not the company exercises due care is in most cases one of fact for the juries to pass upon, and these juries ordinarily find, regardless of the weight of testimony, against the company. In this respect, also, European countries set us an example worthy of imitation, for there trespassers are restrained from going upon railway premises under severe penalties, and when caught violating the law are summarily dealt with. As 5,000—or more than one-half the total deaths on American railways in the fiscal year 1902-03—were among trespassers, it will readily be appreciated what an enforcement of this law in the United States would mean. Yet public and judicial sentiment are such that the railroads are practically powerless to prevent trespassing.

A FANCIED SECURITY IN SIGNALS

Block-signals have been strenuously advocated as a panacea for collisions. The statistics of the Interstate Commerce Commission effectually banish the illusion that signals afford immunity from accident. During the fiscal year under consideration no less than nineteen of the ninety-six disastrous collisions reported, occurred at points where block-signals were installed. Out of 238 persons killed in the ninety-six collisions, ninety-seven, or more than forty per cent., were killed in the nineteen which happened in spite of the signals. As less than fifteen per cent. of the total railroad mileage of the United States is equipped with block-signals, we thus have official evidence of the failure of this form of mechanical device to give adequate protection—not through any

fault of the signal system, be it understood, but in spite of it.

Elsewhere in this article it is shown that three of the fifteen prominent collisions which occurred during April, May and June, 1904, involving deaths and injuries in about the same relative proportions, were not prevented by the signal apparatus placed there for the purpose.

Undoubtedly block-signals do add to the facility and safety of train movements where the traffic is heavy, when backed up by a strict performance of duty on the part of employees. None is quicker to recognize the merits and possibilities of signal appliances than railway officials themselves, and each year sees a larger percentage of the total mileage equipped with this form of mechanical protection. The Interstate Commerce Commission, however, not satisfied with the present rate of progress, is campaigning for an immediate

general order of this kind would seem to be entirely unjustifiable.

The commission says:

"The same reasons that existed for the introduction of the automatic coupler and air brake by the provisions of the safety appliance act in 1893 apply to the prevention of collisions by compulsory use of the block system."

What has been accomplished by the supersession of the old and now obsolete link-and-pin by the automatic couplers? During the ten years from 1894 to 1903 inclusive, the average number of employes killed annually in coupling and uncoupling accidents was 245, while the deaths from this cause in 1903 were 281—considerably higher than the average for the decade and greater, with two exceptions, than in any single year since 1893. In other words, with only twenty-five per cent. of all railroad equipment



A TYPICAL FREIGHT "SMASH-UP" ON ALMOST ANY AMERICAN RAILROAD

adoption of the block-signal, regardless of conditions. In the light of past experience and a comprehensive knowledge of the whole railroad situation, a

fitted with automatic couplers in 1894, there were not in that year as many fatalities of this class as in 1903, when the application of automatic couplers

was practically complete. Judged by results, this is a far from convincing argument for the compulsory adoption of block-signals.

A bill now before congress provides for spreading over a term of years the expenditure of the two or three hundred million dollars required to meet such a demand. But were all the roads able to stand the strain, even on this "easy payment" plan, there would still be the objection that at least a large part of this stupendous outlay is quite unnecessary. The bill makes compulsory, at the discretion of the Interstate Commerce Commission, the application of some system of block-signal to practically every foot of railway in the United States. There are thousand of miles where signals would be as superfluous as two rudders on a ship. Who shall judge of when the limit of safety without signals has been reached? The railroad companies are installing signals wherever they will be of real service as fast as funds can be found to do the work. Legislation like that proposed would burden them with useless expenditures that might be applied to other purposes. The standard rules in use on every road are, if lived up to, quite as effective as any statutory remedies to prevent accidents.

DON'T BANKRUPT THE RAILROADS

It is an economic axiom that no indus-

try can be charged with greater expense than its earnings warrant. This principle was clearly recognized by the committee of state railway commissioners appointed by the national body to investigate and report upon safety appliances and block-signals. In their report, read at the annual convention of railway commissioners at Birmingham in November, they say: "On many roads the traffic is so light that these large expenditures would be prohibitive." Yet there are some who pretend to say that the question of cost deserves no consideration when human life hangs in the balance.

A governmental order of so sweeping a nature as that contemplated by the Interstate Commerce Commission would soon vitiate the integrity of railroad interests, and have a far-reaching effect on business conditions generally — almost as great, it may well be feared, as would an enlargement of the powers of the commission to the extent it is now seeking in the making of rates.

Our railroads are being ground between the upper and nether millstones of an insistent public demand on the one hand for higher speeds and unlimited facilities, on the other for lower rates and greater safety of operation. It is time the American people realized the difficulties that stand in the way of reconciling these two extremes.

A MAN

By MARGARET ASHMUN

MENOMONIE, WISCONSIN

SOMETIMES the world seems black with shame and dole —
 The grimy haunt of sin-smirched, evil men;
 Then shines the unstained whiteness of your soul,
 And all the earth is clean and fair again.