More than 92 per cent of all railroad-highway crossing casualties involved the operation of automobiles. The remaining 8 per cent included persons in animal-drawn vehicles, bicyclists, pedestrians, etc.

To the credit of the automobile driver, and the activities of the railroads, attention is called to the increasing number of automobiles actually in use, at highway crossing, the figure now being one death to 15,769 automobiles. Crossing accidents, resulting in injuries, are also favorably reflected, as during the past year there was but one crossing injury to each 6,443 automobiles operated.

Illustrative of the thoughtlessness of some motor car drivers, it is interesting to note that in 1933, again, motor vehicles colliding with the sides of trains accounted for a large number of all crossing accidents; namely 28 per cent of all accidents, 17 per cent of the fatalities, and 40 per cent of the injuries.

Your committee earnestly recommends that the individual railroads particularly stress the necessity of their train crews and others giving adequate and timely warnings to the public of the approach of trains to a highway crossing. The committee is also unanimous that warning from engine should be continued until the crossing is definitely reached.

That suitable standardized methods of protection be employed, where necessary, at crossings, to facilitate uniformity and the public understanding of the signals.

That crossings be periodically inspected and maintained in sound travable condition.

Your committee also recommends that greater advantage be taken of the opportunity of presenting the crossing safety subject to school children throughout the nation, in similar fashion to the way this work is being conducted by some roads, particularly the Atlantic Coast Line. It is also recommended that officers or suitable representatives of railroads present the crossing accident situation at luncheon clubs and other places where men gather, this work often reaching those who are employers of drivers of motor car vehicles.

Summary of Conditions and Practices Involved In Certain Accidents

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The speaker said in part: It is difficult to discuss the subject of railroad accidents without appearing to take a more or less critical attitude concerning the existing situation. Obviously, there would be no such accidents unless defects existed, rules were violated, or someone failed to think or act in a safe manner.

Last fall the Commission investigated a rear end collision on an eastern railroad in which 14 persons were killed and 32 injured. The accident occurred on a double track line equipped with automatic block signals and an automatic train stop device. The engineman of the following train received a calling-on signal indication at the entrance to the block in which the accident occurred; this signal authorized him to proceed at "restricted speed," which was defined in the book of rules. The engineman operated a forestalling lever of the automatic train-stop device and entered the block at a low rate of speed; at that time he knew the block was occupied by another train, having been following it when it entered the block, but he assumed that it would keep moving and consequently allowed the speed of his own train to increase with the expectation of proceeding as far as the next automatic signal; however, the preceding train, which was out of sight around a curve, stopped short of that automatic signal on account of switching operations ahead. The engineman of the second train was looking across the curve in order to pick up the indication of the automatic signal and failed to see the rear of the standing train or its flagman until too late to avert the accident, although he had a view of the standing train for a distance of about 900 feet. The rule under which his train was proceeding was simple and easily understood. It was evident that the employees did not have a clear and correct understanding of what was meant by the term "restricted speed" and that proper effort was not made either to observe or enforce the requirements of the rule.

Shortly before the accident above referred to, there were two other accidents which were of an unusually serious nature. One occurred in the southwestern section of the country and was caused by a flood resulting from a cloudburst having washed away the fill supporting one of the abutments of a bridge, permitting it to collapse under a train; while the other occurred on an eastern railroad and also involved flood waters, the center pier of a bridge having been undermined. In the first of these two cases not only did it appear that the washing away of the fill could have been guarded against by rip rap or other protective measures, but the need of such protection had existed for two years. In addition, rains earlier in the month had resulted in the bank of the stream and also the toe on the slope of the fill supporting the abutment, being washed sufficiently to direct attention to the need for protection. Local residents using the highway had observed the condition and recognized the possibility of danger to the railroad bridge but no representatives of the railroad had made sufficient inspection to discover the condition. One of the functions which must necessarily accompany the safe operation of a railroad has to do with the taking of protective measures before actual danger develops.

In the second case involving flood waters, the undermining of the center pier of the bridge permitted it to settle under a passenger train, resulting in the derailment of the entire train, the death of two persons and the injury of twenty others. The piers of the bridge had been built on a gravel foundation, no provision being made to guard against scouring, because it was stated that the gravel was too compact to pern it the driving of piles. American Railway Engineering Association rules covering inspection of bridges provide in part that the inspection of foundations should include an examination for indications of scouring or undermining, and that when necessary, soundings should be taken for this purpose. The evidence of this case indicated that the company had made no underwater inspection nor taken any soundings for the purpose of detecting possible scour at any time subsequent to the erection of the bridge 29 years previously.

Speed has been a factor in a number of the accidents which were investigated. One of these involved the derailment of a passenger train due to excessive speed on a sharp curve, the evidence indicating that the engine turned over from centrifugal force, without marking the ties between the rails, while traveling at a speed estimated to have been from 50 to 65 miles per hour, although the speed of passenger trains on the curve where the accident occurred was restricted by slow board to 30 miles per hour. The other accident in which speed was a factor involved failure properly to control speed in an occupied block; this is a frequent cause of accidents. This accident occurred on a single-track line, trains being operated under a manual block-signal system. The first train had 113 cars with a helper behind the caboose, while the second train had 127 cars with two engines on the head end and a helper behind the caboose. After passing the last block office the first train had been stopped and shortly afterward was struck by the following train. More or less fog had prevailed, and it was very foggy in the vicinity of the point of accident. Investigation developed that the second train passed the last block office 41 minutes behind the first train, made no stop en route, and had proceeded at an average speed of about 23 miles per hour, whereas the maximum permissible speed for freight trains with helper engines was only 25 miles per hour and under the rules a following train in an occupied block was required to be operated under such control that it could be stopped short of a train or obstruction.

The brief references I have made to accidents investigated by the Bureau of Safety during the past year do not represent unusual conditions. Accidents of this kind are encountered in our work year after year and are detailed in our accident investigation reports made public from time to time. Many railroads are availing themselves of the information contained in these reports to aid in discovering and correcting dangerous or undesirable conditions and practices on their lines before they result in accidents.

Certain railroad officers devote their entire time to safety work, yet they are seldom found at the scene of a train accident or in the investigation room. A train accident is a serious matter. It may and frequently does result in a considerable number of deaths and injuries, and large property loss. Surely the fundamental idea of safety applies to train operation and the methods and practices followed in