

careful search among the wreckage and debris was made, but it disclosed no trace of any obstacle that could have overturned an engine that struck it. We have already indicated that a small object would not be likely to cause overturning of an engine. Then again, a southbound goods-train (No. 573) passed over the curve within half an hour of the time of the derailment of train W 4, and negotiated the curve without any difficulty. It is extremely unlikely that any maliciously disposed person would have chosen that particular half-hour—about 2 a.m.—to place an obstruction on the line. Further, the accident occurred at the spot at which one would have expected it to happen if the cause were excessive speed. Even if an obstruction had been placed on the track and had caused a derailment the results would not have been what they were in the absence of such a contributing factor as high speed. It is worthy of note that when another engine struck an obstruction on the line at this curve a few years ago only the leading bogie of the engine was derailed. The evidence in that case indicated that the engine was proceeding at the authorized speed. We are therefore of the opinion that the accident was not caused by or contributed to by the presence of an obstacle on the track.

(3) OPERATING FACTORS.

Engine-driver Percival had not driven over the section of line between Marton and Wanganui for about eight years. At that time he had made four trips as driver of a night train that ran between Wellington and New Plymouth. He states, however, that he had no hesitation in accepting the assignment for train W 4, and that he was confident that his knowledge of the track was sufficient. He was supplied with a copy of the Working Time-table, which indicated the points between which speed-limits and speed-restrictions operated. A number of experienced drivers agreed that when a driver had driven on a few occasions over a section of track he was able to remember that section for an indefinite number of years afterwards. The practice of the Department is to permit without hesitation a driver to decline an assignment if he considers that he is not sufficiently familiar with the section of line over which the train is to run. It was admitted by Driver Percival and the other drivers who gave evidence that it was not held against a driver in any way if he declined an assignment on the ground that he was not familiar with a section of the line.

The driver had had a time relief of twenty-four hours before he commenced duty on the night of 25th March, 1938.

So far as the time-table for train W 4 is concerned, we are satisfied that it could be maintained without it being necessary at any point to exceed the authorized speeds set out in the Working Time-table.

The white paint on the speed and radius boards at the 6·4 chains radius curve had become somewhat dingy, but at night-time, in the bright light of an electric headlight, this defect was less noticeable than in the daytime. No complaints had ever been made by drivers to the Department as to the condition or positions of the radius board and the speed board. We are satisfied that the operating factors to which we have referred in no way caused or contributed to the accident.

(4) DEFECT IN ENGINE.

Engine AB 829 had run 60,589 miles since it had last been in the workshops for complete overhaul. The running distance between overhauls for this class of engine in the Wellington District is 80,000 miles. This is regarded as being somewhat on the low side, and the mileage of 80,000 between overhauls is now being increased to 90,000 for AB class engines in the Wellington District. All engines are frequently inspected by experienced officers of the Department, and engine-drivers are required to report any defects that come under their notice. Drivers are also required to satisfy themselves that their engines are in good running-order before they take them out. The brakes are examined and tested before the commencement of a journey and whenever any part of the train is detached. We have the evidence of Engine-driver Percival that engine AB 829 was in good running-order on the night of 25th/26th March, 1938, and that the brakes were working perfectly up to the time that the accident occurred.

An examination made by the Board, as well as the evidence of the appropriate departmental officers and records, showed the engine to be in good running-order, apart from damage that had clearly resulted from the accident itself. The clearances were ample, tire-flanges were good, and the spring-compensating gear was intact. The bogie springs, one of which was found damaged on removal, were tested, as found, under the instructions and in the presence of the Board, by graduated loading and unloading in the usual manner. The moderate differences in the results given by the two springs are adequately explained by the one showing damage that was attributable to, and not a cause of, the accident. Under the Board's instructions the steam-dome was opened. The type of regulator-valve in use is designed to be self-closing in the event of any possible failure of the connections; but the opening of the steam-dome showed that there had been no failure. The valve was closed and the connections in good order. None of the evidence submitted suggested any failure of the brakes, but the Westinghouse equipment was examined throughout under the Board's instructions, and to the extent that it was not damaged in the accident it was found to be in order.

The result of the entire investigation was definitely to exclude the possibility of the derailment having been due to any defect in the locomotive.

(5) DEFECT IN ROLLING-STOCK.

Evidence was given of the periodical overhauls of the rolling-stock and of the inspections made before the despatch of a train. The inspection covers all the running-gear and brakes. The rolling-stock of train W 4 was in sound running-condition, and no defects were observable apart from the damage caused by the accident. We are satisfied that the accident was not caused or contributed to in any way by any defect in the rolling-stock.