

the track from the 14 chains curve south of Ratana to the scene of the accident were such that, in the words of the guard, no sensation of excessive speed would have been apparent even at 50 miles per hour, and possibly at a very much higher speed. The line is almost entirely straight and is in first-class condition, but certain passengers more observant than others, particularly in the front carriage, referred to the "drag" of the 6·4 chains curve, which was really the horizontal acceleration due to the train being forced out of the straight line along which it had until then been travelling. They also referred to the vehicle "sliding" under them when the final phase arrived. The driver himself speaks of the engine sliding. Such an expression as "sliding" is not consistent with the sensation created by a train bumping over an obstruction, but it is quite consistent with that created by overturning under the influence of centrifugal force, as is also the evidence concerning cups and other objects sliding across the floor of the leading car.

There is a good deal of conflict of evidence among the passengers as to the running of the train all the way from Wellington, but, in our judgment, nothing was disclosed which indicated that the train at any point between Wellington and Ratana was driven otherwise than as an express train would normally be driven. In this connection it is noteworthy that many of the passengers who spoke of swaying and discomfort were occupying seats over the wheels, or were sitting on the arms of seats, whereas other passengers who were seated near the centre of a car experienced no sensation of swaying or discomfort.

(c) In so far as the evidence of the driver himself is concerned, it is unnecessary to traverse his statements regarding the journey from Wellington to Turakina. We find him passing through Turakina in a perfectly normal way, picking up the tablet and climbing the hill at normal speed. There is no reason why his speed should not have been normal. First and foremost, he was bound by a speed-restriction, and there is no reason to suppose that he forgot it. Even if he did forget it, the number and sharpness of the curves would have soon brought it to his notice. The hill is very steep, and, even with a relatively light train, would not permit of any excessive speed. On the other hand, train W 4 was not so heavy as to have prevented the driver, with reasonable ease, from mounting the hill at the recognized speed; and, according to his evidence, he did so. It is quite impossible for any man to recollect every action that he performs in connection with his daily work. The driver states that he carried on without shutting off steam until he reached Ratana: but whether he carried on with a full throttle or reduced on topping the hill, and if so to what extent, cannot be ascertained. At all events, his own view is that he gradually increased speed to 40 miles per hour, which, in the locality, is perfectly safe, even if somewhat in excess of the maximum speed-limit prescribed.

In view of the fact that there was a certain amount of haze of a low-lying nature, so that distant and elevated objects were visible and the track under the locomotive and small nearby objects were less clearly visible, the difficulty of judging speed, at no time an easy process, was accentuated. There were also banks of low-lying fog at intervals along the Ratana Flat.

Numerous witnesses, including the drivers who gave evidence, expressed their ability to judge speed within a margin of plus or minus 2 miles: but, when making these statements, they were considering occasions on which they were concentrating on the special question of judging speed. In ordinary running undoubtedly a driver performs many of his actions subconsciously, and "feels" that his speed is safe. In the present case the driver was doubtless carrying on at a speed which he felt to be perfectly safe, and did not consciously and by any mental process estimate his speed at any definite number of miles per hour. At a period when, owing either to darkness, fog, or other causes, objects close to the line—for instance, fences—are not visible, and when the engine is running freely, as it would be down the gentle grade of Ratana Flat, it is very easy to be deceived.

The sound of clicking over the rail-joints is often quoted as a means of judging speed. In the present instance this was not available, for the rails in the locality are not of even length for a considerable distance. Taken consecutively back from the point of derailment to Ratana, we find the lengths of the rails to be as follows: 5 of 42 ft., 1 of 24 ft., 160 of 36 ft., 1 of 21 ft., 1 of 24 ft., 1 of 36 ft., 1 of 18 ft., 1 of 25½ ft., 15 of 36 ft., 1 of 16 ft., 1 of 36 ft., and 1 of 24 ft.

The beat of the engine is one of the aids used by a driver in judging speed. This aid was not available in the present case, if, as we believe, the engine of train W 4 was drifting, with closed throttle, after it had passed Ratana.

Members of the Board themselves experienced on the Ratana Flat the conditions of a train running at practically the same schedule as W 4, with a driver who had just been reminded of the different restrictions along the section north of Turakina. This train crossed the Ratana Flat at over 50 miles per hour, and the pace caused no sensation of excessive speed or anxiety, and it presented to the driver no difficulty whatever in reducing to the proper speed at the end of the straight.

When the driver of W 4 spoke of shutting off at Ratana it is improbable that he intended to indicate, or in fact could possibly remember, that he shut off directly in front of the station building. Even if he carried on for another quarter of a mile he would still, with perfect propriety, consider himself as at or about Ratana. Indeed, in one portion of his evidence he spoke of shutting off after passing Ratana. He then states that he drifted at gradually decreasing speed; but, in point of fact, the grades of the line in this locality are such that, provided the speed at Ratana was 40 miles per hour, it would, on some portions of the line, actually increase instead of decreasing, though the general average would probably result in the speed remaining very much the same as it was when the driver shut off. When he considered he was about three-quarters of a mile beyond Ratana, which would be 30 chains from the curve, he made a slight application of the brakes. As to the length and strength of this application we think it is far more reasonable to accept his spontaneous first estimate rather than the possible value that he placed upon it during cross-examination. His first estimate was that he made a 4 lb. or 5 lb. application over a period of two or three seconds, which is in accordance with the evidence of other witnesses, and which would be a perfectly normal operation for a man