Motormen called at Christchurch were equally emphatic as to the reliability of and the confidence they had in this description of brake.

The expert evidence called on behalf of the company was all to the effect that the pneumatic wheel-brake was efficient and reliable, and would form, in conjunction with a mechanical track-brake, a most reliable system of brakes for the Auckland cars.

The engineer and the manager of the Christchurch tramways gave evidence to the effect that no failures had occurred with the pneumatic brakes since their installation some five years ago.

General Evidence.

The following matters which were mentioned in evidence are deserving of notice :—

(1.) That in some cases one or more trailers provided only with hand wheel-brakes are drawn by electric cars.

(2.) That, with some cars, sanding can only be effected on one of the rails.

Tests conducted by the Commissioners.

The Commissioners advance no claim to scientific accuracy for these tests ; such could only have been attained by the use of elaborate automatically recording apparatus, which was not available, and by an exhaustive series of experiments.

Every care has, however, been taken to insure the tests being sufficiently accurate for the practical purposes of this report, and for the information of those engaged in tramway operation and control.

Weighing of cars.

As a preliminary, all cars experimented on were carefully weighed, with somewhat surprising results.

At Auckland, car No. 75 was found to weigh, when empty, 36,736 lb., as against 24,080 lb., its reputed weight, an excess of 52 per cent.

At Christchurch, car No. 9 weighed, when empty, 33,992 lb., as against a reputed weight of 26,096 lb., an excess of 30 per cent.

At Dunedin, car No. 20 scaled 23,072 lb., instead of 21,504 lb., the excess in this case being $7\frac{1}{4}$ per cent. of the nominal weight.

"Coasting" trials.

To enable the different brakes to be directly compared, the car-resistance was in each case obtained by a series of "coasting" trials; but these resistances have turned out to be so nearly the same that the relative results are practically unaffected thereby. The corrected values are, however, included in the tables.

Measurement of grades.

The inclinations of the grades operated upon were taken from authentic sections of the track, or were directly measured.

Observations.

The speeds were obtained by at least two observers from readings of carefully calibrated speed-indicators. All observations were reduced to true mean-value before being inserted in the results tables.

The times were in all cases taken by three observers with stop-watches beating $\frac{1}{5}$ sec., and were subject to careful scrutiny before being used.

The distances from the stations (previously marked) at which the stop signals were given to the ends of the runs were carefully measured.

In all cases a preparatory signal was given.

Retardations.

The retardation by time works out in every case to a greater value than that calculated on the length of stop. This is due to the time lost between the giving of the signal and the actual coming into action of the brakes.