

141. We have got the power of inspection, but if the system is reported to be faulty our only remedy is to stop it. I could not tell them that they must put proper brakes on their system in six or nine months under the existing law?—Yes.

142. *Mr. Luke.*] You said there were 25-horse-power motors on the Brooklyn cars previous to installing the 40-horse-power motors?—Yes.

143. Were there two 25-horse-power motors on each car?—Yes.

144. And as a matter of fact there are now two 40-horse-power motors in place of the two 25's?—Yes.

145. You said there were  $7\frac{1}{2}$  tons of pig iron put in the car for the test?—Yes.

146. Were you present?—Yes.

147. What did the car weigh?—Eleven tons. The total weight of the car and the iron would be about  $18\frac{1}{2}$  tons.

148. And it was a double-decker you had for the test?—Yes.

149. You had between 19 and 20 tons weight when you applied the brake?—About  $18\frac{1}{2}$  tons.

150. And you pulled up that  $18\frac{1}{2}$  tons, at the velocity it was travelling, in 50 ft.?—It was somewhere about 34 ft.

151. Was there any sign of the car leaving the rails?—No. I wish to correct something which I said previously in regard to the weight of the pig iron. I believe I said it was 12 tons weight, but it should have been  $7\frac{1}{2}$ , the total weight being between 18 and 19 tons.

152. *The Chairman.*] Are the brakes the same on each car right through the service in Wellington?—Yes.

153. So that a motorman being transferred from one car to another does not notice any inconvenience in finding his brakes—they are all exactly in the same position?—All exactly in the same position.

154. *Mr. Myers.*] The question of brakes and the efficiency of brakes, Mr. Richardson, is a very vexed question amongst leading tramwaymen of the world, is it not?—Yes.

155. Is it not a fact that leading tramwaymen differ as to what is the best and most efficient brake?—Yes, I think that may be fairly said.

156. And is it not a fact that what is best for one service and under one set of conditions is not the best for a different service under a different set of conditions?—That is so.

157. Now, your own opinion as to what is the best brake is formed, is it not, as the result of four years' service in this one place, Wellington, and from general reading?—Yes.

158. You have not had practical experience of any other brakes?—No.

159. Now, taking, for instance, the condition of things eight years ago, when the Auckland service was installed, is it not a fact that at that time the brakes which were installed on the Auckland cars were believed generally to be the best and most efficient brakes?—I believe that, at the time you state, those brakes were thought to be about as good as they could get.

160. Now, since then other kinds of brakes have come into vogue, and is it not a fact that now new brakes are being tested—for instance, the Freund brake?—Yes.

161. Do you personally know anything of the Freund brake?—No, I have never seen it.

162. Having regard to that, do you not think that a tramway proprietary, whether company or municipality, which has had brakes in existence for only eight years, which when installed were considered to be the best kind of brakes, ought not to change hurriedly, but ought to consider now what is really the best form of brake before installing it?—Well, I think they ought to have considered that some time ago. The brakes that they have in Auckland would perhaps be suitable for a slower-running service, but I think that at the speed they run in Auckland they are not too safe. The tendency, of course, of late years has been to increase the speed of cars.

163. Now, take the track brake that they have in Auckland—is not that intended to be used from the moment that the car goes down a hill?—Yes.

164. So that the motorman, if he does his duty, had that brake on from the time of starting his tram down the hill?—Yes.

165. And he has also his hand-brake?—Which should be used in conjunction with the track brake.

166. And he has also the electric brake, which is just as you have here?—No, the brake they have up there is a rheostatic brake, but it is an electrical brake.

167. Now, if the motorman does his duty, and uses his hand-brake and his track brake from the time that he starts coming down hill, there ought not to be any difficulty, ought there, assuming that the brakes are kept in order?—But if his car gets away from him he has very little chance of pulling it up with the track brake.

168. Then cannot he use his electric brake?—To do that he would have to release his hand-brake.

169. Are there not also brakes that the conductors can use on the other end of the car?—No. The conductor can put the hand-brake on at the other end of the car, but if the motorman has the brake on already he cannot.

170. Now, with regard to the magnetic brake, your opinion is that it is the best brake; but there are a great many very experienced tramway engineers, are there not, who do not share that opinion with you?—There are some, undoubtedly; but the magnetic brake is the brake, I think you will find, that is generally used in the Old Country.

171. For instance, a good many men prefer the air brake to any other, do they not?—Some prefer the air brake.

172. Now, are you aware that in Auckland the City Council has absolutely the power to see that the cars, and the construction and fittings of the cars, are kept in proper order and subject to the approval of the Council, under the deed of delegation?—No, I do not know what the exact powers are. I know they have powers in a vague way, but I do not know what they are.