

By Mr. Myers: At the time of the last Commission there was a good deal of friction. The men certainly thought they had grievances, and they naturally made the most of them. At any rate, some of them would have an inclination that way.

By the Chairman: The car I am driving now I can hold steady down Wellesley Street or down College Hill without the assistance of another brake. Under ordinary conditions I have stopped at Princes Street, near the Police Barracks, without using another brake, providing the brake was in good order. I have no cause to complain of the brakes on my car. When I gave evidence before the last Commission I used a variety of cars, five or six a day. My experience is more limited now. I was on the College Hill line, and we got any car from there.

By the Chairman: I had wider experience before the last Commission than since, as I have been chiefly driving one car lately, and the brakes are in fairly satisfactory order.

Mr. Rosser.—That is practically the type of the witnesses that I have here for the secondary evidence—that is, those who have given previous evidence on the last Commission.

The Chairman.—If the tramway authorities can arrange it conveniently, the Commissioners will pay a visit to the system, making themselves acquainted with the track, the cars, and the brakes in use. Then, the following day they will take the evidence of the company.

Mr. Myers.—May not the course the Commissioners adopt depend much on the weather? There is one witness whom I think it would be very important to take to-morrow. It is Mr. Birks, the Government Engineer at Rotorua, and he has telegraphed from Rotorua that he can only be in town to-morrow.

The Chairman.—Then we will take his evidence first, and then go round the system. Commission adjourned.

AUCKLAND, TUESDAY, 19TH APRIL, 1910.

LAWRENCE BIRKS duly sworn.

Examined by Mr. Myers: My name is Lawrence Birks. I am an electrical engineer employed by the New Zealand Government at Rotorua. I have had fifteen years' experience as electrical engineer and in connection with electrical works, and my experience has included the construction and working of tramways. I have been connected with tramways in Sydney, the operation and equipment, and at Christchurch, in construction and equipment. I was not working in any special district in Sydney; I was at the head office at the power-house. I was in touch with a great deal of work done, particularly the tests in the North Sydney District, and I have a knowledge of the working of that portion of the tramways. It was in 1902, and I have no knowledge of later developments. At that time the brake equipment was all air brakes, the majority with axle compressors. The cars were not equipped with any track brake, but, of course, they had the electrical brake. The type of air brake in use was the Christensen. They gave satisfaction on that line and on the other lines in Sydney. The grades on portions of the North Sydney line are extraordinary; particularly at Mossman's Bay the grades are considerable, as 1 in 12, and on one section 1 in 8. They may have been modified since I left. The North Sydney grades are very much more severe than any grade I know of in Auckland. I have only been up and down the Parnell Rise twice. The Sydney grades are particularly severe—sharp corners, view obstructed, running close to the bank with no view more than a few chains to be seen. I consider that an air brake fitted to the Auckland cars would be suitable to this service. I have this morning paid a somewhat lengthy visit to the depot at Ponsonby, to ascertain whether the under-gear of the cars would be suitable to carry the brake if fitted in Auckland here. It was also part of my object to have a look at the track brake. The cars are quite suitable for carrying the air brake. I have heard that it is proposed to fit the National air brake on the cars. I say that the cars are suitable for the installation of that brake. I wish to preface any remarks I make with reference to the Newell magnetic brake by saying that I have never equipped a car with it. If that brake were introduced in Auckland I can say it would practically involve a reconstruction of the carriage, on account of the very small space which is available for the mechanism. On course, there would be new controllers too. I consider the air brake is equally efficient, possibly more so than the Newell magnetic brake, for all circumstances in Auckland, and if I were responsible for the system I would not go to the expense of new controllers, new under-gear, and new trucks for the purpose of installing the Newell magnetic brake, when, in my opinion, the air brake would be suitable. The expense is not only unnecessary, but would bring no corresponding advantage whatever. The track brake is apparently an Auckland device for checking the cars, either when coasting or for emergency purposes. I think the Auckland cars fitted with the air brake and track brake would be better equipped than the cars that were running in my time in North Sydney, as they had no track brake. I have had no personal experience of working the magnetic brake, though I have seen systems where it has been in operation, and taken an interest in those systems to a certain extent. Supposing a new system were about to be installed, I think I would specify the air brake with the track brake for steep hills, because I consider and believe the air brake would be the cheapest. Safety is the first consideration. I certainly say, in my opinion, the air brake with the track brake is as effective or more effective than the magnetic brake. On the North Sydney lines there was very little skidding, because those cars had to be handled very carefully. Of course, the human element is the main factor on such grades as that. It is an element that comes in, no matter what kind of brake you have.

By Mr. Rosser: I have had no experience of the magnetic brake, and I do not profess to have made any closer inspection. As to the physical effect of the men, that is an opinion one could give only after a long experience. I never had any complaints of men wishing to leave the service because of the physical effects on them when working the air brakes in Sydney.