

in charge was given to that particular object. Even at that time there was some difficulty in obtaining men, particularly as we had no place to house them except as we built the houses. The installing of the plant entailed a very heavy piece of work in laying the pipe-track from the Rolleston River to the head of Holt's Creek, through gorges, ravines, and tunnels, and all the men we could get were put on to this work. At the Bealey end the same thing applied. We had a tunnel to drive of 12 chains length before we could tap the water, and so bring the power through our pipe-lines on to our Pelton wheels. There was also a bridge of considerable length to erect at the Bealey end, so that we could get our material to the tunnel and also get our debris away. Those things occupied some considerable time. There was a rock cutting at the Bealey portal of 7,200 yards, which took a good deal of time to excavate; and I want to impress upon the Committee that we took all the men we could obtain as far as possible to the Otira end, and we employed men at the Bealey end as we could get them. At the Otira portal there were 4,500 cubic yards of excavation through moderate country, and it was not till the 1st May, 1908, that we started on the bottom heading at the Otira end. That would be about seven months or eight months after the contract was let. At the Otira end the machines were started on the 3rd July. The Otira bottom heading was started with hammer and drill early in May, and we got the machines going on the 3rd July. The Bealey bottom heading was begun in June, 1909. That would be about a year and nine months after the contract was let. I have here a tabulated statement in respect to the cost of tunnels throughout the world which in any way compare with the Otira Tunnel. The costs are reduced, so that the Committee may see at a glance what the cost of these various tunnels would have been under exactly the same conditions as obtain at Otira. I do not think there is any necessity for me to read it. I will just lay it on the table.

2. *Mr. Davey.*] Is it a duplication of the Engineer's statement?—It is not an exact duplication. Mr. Gavin's statement, as far as I remember, did not reduce the tunnels to the Otira size.

3. *The Chairman.*] Read the statement out, please?—Very well, sir. [Witness read and then handed in statement, Exhibit M in Appendix.]

4. *Hon. Mr. R. McKenzie.*] Can you tell us whether those European tunnels were carried out by contract?—I could not actually state that they were, but I believe they were all carried out by contract.

5. Of course, you cannot tell us what the contractors' profits were?—No. I am not producing this statement with a view to shielding ourselves in any way; I only produce it as information for the Committee. I might say that when I was in Europe looking for machinery I visited both the Loetschberg and the Tauern tunnels, and was in the headings and the workings of both; and I should say that the material in the Loetschberg Tunnel was a good deal easier to work than the material we are working through. The Otira Tunnel at £750,000 would work out at about £77 per lineal yard. At the contract price it would work out at £61 per lineal yard, and if £150,000 were added it would be about £77 a lineal yard.

6. That is on the total length?—Yes. 9,350 yards of tunnelling would work out, at £77 a lineal yard, at £720,000, and the outside work is valued at £30,000, bringing the total up to £750,000.

7. *Mr. Davey.*] You have not worked out, I suppose, what the tunnel has cost up to the present at per lineal yard?—No.

8. *The Chairman.*] According to this statement not one of these European tunnels cost as little as £77 a yard?—No.

9. The lowest is £80 and the highest £275?—Yes. We can hardly compare those early tunnels, because they were made entirely with hand-work, and the conditions that the men worked under were very different. There does not appear to have been ventilation of any kind, and I understand they killed thousands of men in the Mont Cenis and the St. Gothard. The tunnel that you can compare the Otira Tunnel with is probably the Tauern. It is exactly the same length, took six years in construction, the country was granite and gneiss, and it has been just recently completed. Now, Mr. Chairman, in reviewing the evidence I do not propose to take up much time. Mr. Blow's evidence, except as to his statement concerning the carrying-on of the work by the co-operative system, does not seem to me to require any comment.

*Hon. Mr. R. McKenzie:* If Mr. McLean is going to traverse the evidence, Mr. Chairman, I think the witnesses ought to be here.

*Witness:* I am making no special comment. Mr. Vickerman's evidence does not appear to me to call for any comment on my part, except this, that he corroborated the statement I made in reference to Mr. Malloy. Notwithstanding that Mr. Malloy denied having made the statement, it was clear in my mind and in Mr. Vickerman's. Mr. Fagan's evidence was mostly hearsay, and his statements concerning the conditions in the tunnel were from information quite outside of Otira. Mr. Gavin's evidence went, I think, to prove that the conditions under which the men are working are as good as it is possible to make them, consistent with carrying out work of that kind. He stated distinctly that there had been no complaints made to him, either individually or by the union, in respect to some of these matters that were referred to by some of the witnesses. That was borne out by Mr. Kennedy's evidence. He admitted that the conditions were not so bad, and he was satisfied, and was working under the conditions satisfactorily. Mr. Armstrong made some pretty strong comments in respect to the conditions under which we are working, and he and Mr. Kennedy were very insistent that the tunnel should be brought under the Mining Act. Now, the tunnel, in my opinion, and the workers' interests, are better looked after under present arrangements than they could be under the Mining Act. We have Inspectors there the whole time. We have a Quarry Inspector and we have Public Works Inspectors who are closely looking after the works and seeing that there is no dangerous ground, and if there is any sign of loose or heavy ground they immediately report the matter to the contractors and it