

267. Is it not a fact that, in response to notices from you or Mr. Blow at various times, we even applied to you for labour—we said that if you could supply us with the labour we could make very much better progress?—It did not come before me.

268. At any time there was any application from you, the reply was always the same—shortness of labour?—Yes.

269. Is it not much more difficult and expensive to work the Bealey end than the Otira end on account of the space taken up with the delivery-pumps and the various pipes in the tunnel?—I think that would depend largely on the methods adopted for working. Of course, those pipes are an inconvenience and a nuisance.

270. And the pumps?—They are a nuisance too: they are in the road.

271. You know that we have two pairs of pumps in the tunnel?—Yes.

272. Is it not also a fact that we have had to close-timber the whole of the Bealey Flat end of the tunnel, in widening out, with bars and props, and what not, right from the very start?—I know you have had to timber the enlarged tunnel.

273. We have had to close-timber the enlarged tunnel the whole time?—It depends on what you mean by close-timbering.

274. You know, at any rate, that through excessive wet, or carelessness on the part of the men, or whatever it might be, part of that tunnel came down?—Yes, at the start.

275. And the ground, if left untimbered, would no doubt come down in the same way through the whole of the open part?—Yes.

276. This will make the work more expensive, will it not, than in a tunnel where the ground will stand?—It will cost more to timber, of course.

277. That puts it on to the excavation?—Yes, but it need not necessarily increase the cost of the tunnel, because where you have to timber the excavation does not cost so much.

278. But, as a rule, excavation is cheaper in ordinary ground where the ground will stand by itself than in ground where you have to timber?—That depends on the hardness of the rock.

279. I mean, ordinary rock?—Yes, where it is broken rock it costs more to timber it.

280. *Hon. Mr. R. McKenzie.*] How many men are required on a shift in the heading at the Bealey end and to provide the necessary timber for them? How many do you estimate?—I could not answer that offhand.

281. Mr. McLean suggests that they had to close-timber the ground at the Bealey end. Would they not have to do that in that ground in any case, no matter which end they drove the tunnel from? If that ground requires close-timbering now, would it not require it afterwards?—Yes.

282. *Hon. Mr. Fraser.*] In such an event as the Government undertaking the work, what staff would they require to have there in excess of the officers they have at present?—We should require to have a resident Engineer in charge.

283. Perhaps you would prefer to think it over and make out a statement?—No. I think that if the Government elected to carry out the work themselves, we could carry on with a resident Engineer, the present overseers, and perhaps an advanced cadet.

284. *Mr. Okey.*] Would that be sufficient in connection with the payment of the men?—There would be a clerk wanted.

285. *Hon. Mr. R. McKenzie.*] And there would be the shift-bosses?—We have half a dozen overseers there now, I think.

286. *Hon. Mr. Fraser.*] They would be capable of taking over the work and doing it?—Most of them would.

287. Would you have to increase the number much?—We should want a few subs. very likely.

288. *Hon. Mr. R. McKenzie.*] Did you say that you would require a resident Engineer besides the Engineer you have there at present and the Resident Engineer in Christchurch?—We should want an Engineer located on the job.

289. Besides the one there at present?—He would not be able to attend to any other work than the tunnel.

290. But there is an Engineer there now?—There is an Engineer at the Cass.

291. The one at the Cass does the tunnel too?—Yes.

292. I understood there was one at Otira?—There used to be.

293. *Mr. Okey.*] In what way would you carry the work on if the Government took it over: would it be by contract or by day-labour?—I should recommend the Government to let it by contract as a whole.

294. But assuming that the Government conducted it?—Then I think you would have to carry it on by day-labour.

295. Everything would have to be carried on by day-labour?—Yes. A certain amount of work outside, perhaps, could be let by smaller contract or co-operative contract, such as gathering stone for the concrete-work.

296. And delivering it on the ground?—Yes. But difficulties may arise if there are separate contractors, in their not being up to time with the work.

297. Is there not stone in the tunnel that is suitable for concrete-work?—Yes.

298. That is saved now, I suppose?—Yes, the contractors are using that now. It has to be brought out.

299. And broken?—A good deal of it is already broken.

300. You would propose to carry on the work of the tunnel by day-labour?—I think that is the only practicable way to do it. It is the only way in which you can control the whole thing, so that each part shall work harmoniously with the other parts. If you let a lot of small contracts you are at the mercy of each contractor.

301. *Mr. Veitch.*] Have you any rule for fixing the proportion of cost of management in a contract: can you determine that?—A lot depends on the size of the work. If you are estimating