

35. *Hon. Mr. R. McKenzie.*] That is in rock?—In disintegrated rock, with bands. The size is 15 ft. 6 in. by 12 ft. 6 in. No. 4 tunnel, same size, 418 yards long, cost £34 9s. a lineal yard; No. 7, same size, 401 yards, cost £38 11s. a lineal yard; No. 8, same size, 583 yards, £39 18s. a lineal yard; No. 9, same size, 665 yards, cost £40 18s. All those are lined.

36. How far did you have to cart the cement for those tunnels?

*Mr. Blow:* The shingle was hauled up from the river below. I think we got the cement from Paterson's Creek.

*Witness:* The distance would vary, then, up to about ten miles.

37. *Hon. Mr. R. McKenzie.*] You had to raise the shingle 700 ft. or 800 ft. out of the bed of the Waimakariri by rope, did you not?

*Mr. Blow:* Yes.

38. *The Chairman.*] These tunnels were all done by co-operative labour, Mr. Vickerman?—Yes.

39. *Hon. Mr. R. McKenzie.*] Can you give us the figures for the tunnels between Broken River and Sloven's Creek?—I have two down here. They are 17 ft. by 15 ft. No. 11 tunnel, done in 1907, was 176 yards long, and cost £35 12s. a lineal yard; and No. 16 tunnel, 66 yards long, cost £25 19s. 6d. a yard.

40. Give us some of the tunnels that were done by contract on the Westport-Inangahua line?—No. 2 contract, D. McLellan—these are 17 ft. by 15 ft. tunnels—88 yards long, £40 per yard; No. 10 contract, Maxwell and Mann, 256 yards, £40 a yard; No. 14 contract, D. McLellan, 176 yards, £45 9s. a yard. These tunnels are in hard sandstone and granite, and are lined with concrete.

41. Is it as hard as the material at Otira or Bealey?—Harder, I should say.

42. *Mr. Davey.*] Can you tell us the average rate of wages earned by co-operative labourers in those tunnels?—They run about the same as the usual miner's wages. We used to fix the prices to give them the ruling rate of wages in the district. We always priced the work so that the return would come to the usual rate of wages in the district.

43. *Hon. Mr. Fraser.*] What would that be?—In tunnelling it would run about 10s. a day for a miner at that time, and 12s. for a bricklayer.

44. *Hon. Mr. R. McKenzie.*] What time are you referring to?—Say, ten years ago.

45. *Hon. Mr. Fraser.*] What is the rate now?—I could not tell you. I have not done pricing lately.

46. *Mr. Davey.*] You said that it was scarcely fair to compare the Arthur's Pass Tunnel with any of the tunnels you mentioned?—Yes.

47. Can you give the Committee any idea why you say that?—If you have ever been underground and you get in about a mile you have a different feeling to when you can feel the fresh air coming in from the mouth, and that affects work very considerably. All those very long tunnels that have been excavated have been difficult in respect of labour.

48. You mentioned one tunnel on the West Coast that was £45 a yard and another one £40: was that difference owing to the length?—I do not think you can deduce very much from these small tunnel-contracts. There is a difference here which is rather remarkable. In McLellan's one the driving is £19 and the lining £21, while in Maxwell and Mann's the driving is £16 10s. and the lining £23 10s.

49. *Hon. Mr. R. McKenzie.*] Is the lining the same thickness as at Arthur's Pass?—Yes, practically the same—12 in. That is about the price of the Arthur's Pass lining—£23 10s.—so they got as much for lining this tunnel as McLeans are getting for the big one.

50. Did they use rock-drills in those tunnels, do you know?—I do not think they did. They were going to get them, but did not.

51. *Mr. Okey.*] At those tunnels that you have quoted they had no special machinery, I suppose?—Machinery was used in some of the Midland Railway tunnels.

52. And you include the machinery in the cost?—We supplied the machinery; we always do with co-operative labour.

53. That would have to be added to the cost, then?—Yes, I suppose it would.

54. You could not give us any idea what the cost of the machinery would be?—No, I have not gone into it at all.

55. It would be a considerable item that would have to be added to the cost?—I do not think the machinery makes very much difference. It is a matter of speed, that is all.

56. You think you make up for the cost of the machinery in increased speed of working?—The only thing that the machinery does, as far as I can gather, is to increase the speed, but it does not reduce the cost.

57. *Hon. Mr. R. McKenzie.*] That has been the experience throughout the world, has it not?—Yes, I think so.

58. There is no economy in using rock-drills, except that you get through the work quicker?—That is so.

59. *Mr. Okey.*] The long run in this Otira Tunnel would make a difference, would it not?—That is what I say. You cannot compare it with any of our tunnels on account of its being five miles and a quarter long, whereas very few of ours are a mile.

60. Did you give the estimate or the contractors' price per yard?—The office estimate was £500,000 for the contract.

61. But how do they compare?—The quantities run about the same. There is very little difference between the contractors' quantities and the quantities taken out in the office. The prices were different, because we did not think the work was going to cost so much as it has.