

73. Are you aware that in this case the department was doubtful whether an increase of the lining was necessary?—It is very likely the department was doubtful about the matter.

74. Will you read the portion of the specification I have marked, and give your opinion on it?

Mr. Stewart (reading): "Should it be found that the rock is sufficiently solid to enable the tunnel-lining to be dispensed with, the Resident Engineer may withdraw the whole or any portion of it from the contract, and the contractor shall only be paid for the work actually done. The excavation shall, however, be taken out the full size of the outside of the lining, and so that half of the section can be got clear on each side of the centre-line; beyond this nothing is to be excavated except what is absolutely necessary for the security of the work." There is no doubt there that the department seemed to be quite in a fog as to what the tunnel would go through.

75. Exactly; the department had no knowledge whatever. As regards the slips, did you see them?—I saw the slips, but I cannot say that I examined them sufficiently to answer any questions on them. My work was simply the tunnel at that time, and it was only in passing that the question of the slips came up. I can only answer in general terms, therefore, about the slips.

76. Then, the evidence you have given the Committee must be taken as theoretical?—Yes, and general—that if a piece of ground will not stand at $\frac{1}{2}$ to 1, or at 1 to 1, the engineer should order a flatter slope, and pay for it.

77. *Mr. Blow* (reading).] "And should any slips occur, either in cuttings or embankments, from want of proper drainage, or from neglect to keep the drains clear during heavy rains, the contractor shall remedy them and restore the slopes to the specified, or a flatter, rate of inclination, such inclination being that at which the material will naturally and permanently stand." If these conditions exist the contractors would be compelled to remove the slips without extra pay?—Well, I could hardly say whether I could bring myself to ask a contractor to do those things. I would rather take my orders from the department in the matter.

78. No; but, of course, two men can make any bargain they please. The contractor bargained with the Government in those express terms. As they are there, do they not mean that the contractor was compelled to act under such circumstances without extra payment?—There is no doubt the clause means that.

79. When did you leave the Government service?—On the 31st March, 1881—seventeen years ago next March.

80. So you have had nothing to do with the Auckland railways in an official capacity for seventeen years?—Not with the department; but, of course, I had to do with the Rotorua Railway. I was specially engaged by the Government in 1885 to put through the Rotorua Railway—that is, after they acquired the District Railway.

81. That came about through the Government taking over the railway from a company for which you were an engineer, and so they retained your services?—Yes; otherwise without that explanation the Committee would probably think it very strange that the Government should go outside their own department.

82. A question was asked by *Mr. Lawry* as to contractor's risk. You state that it is your custom to put down borings, but you do not guarantee anything?—Yes.

83. Therefore, if the ground turns out different from what the borings show, that would be a contractor's risk?—Yes; but in my own case I give them all the information I can.

84. But even if the information turned out incorrect it would still be a contractor's risk?—Yes; you cannot eliminate a certain amount of risk in all kinds of works.

85. *Mr. R. McKenzie*.] The Engineer-in-Chief is responsible for the accuracy of all plans and specifications issuing from his department?—Yes.

86. To the Minister, and to everybody?—Yes, I should say so.

87. And he is also the only sort of remedy there is for appeal?—I believe that used to be the case.

88. Will you look at clause 13 of the General Specification? In answer to *Mr. Blow* you say there was power given to either dispense with the lining or increase it?—Yes.

89. Will you point out in that clause where there is power given?—That would not be stated in this clause, but in the General Conditions. The General Conditions give power to alter or vary the work in any way.

90. But if as engineer you found it necessary to increase that lining, would you consider the design faulty?—Hardly.

91. But you are at present dealing with the specification. The inference in this clause is that, as the tunnel was going through sandstone, it might be possible to do without lining, and also that there was power to increase the lining?—Yes.

92. I would like to know where power is given?—It is given in the General Conditions.

93. Would you consider the engineer was justified in compelling the contractor to do that work at the ordinary price, you knowing the nature of the ground?—The brickwork, I should say, should be the schedule price, but for the excavation-work—to put a ring in the invert, I mean—I would not ask him to do it at the same price.

94. Do you think the engineer was right in asking the contractor to do that work at the schedule price?—I myself would ask for additional authority to do that work; and if the lining was weak at 14 in., and it wanted double that, then for the amount of excavation needed to put in that work I should have recommended and paid for a large increase. It would have been necessary because the ground was bad and wanted extra heavy timbers.

95. *Mr. R. McKenzie*.] Will you look at paragraph 7 in clause 13: "The tunnel shall be constructed to the line and levels shown, and the contractor shall be bound to set them out himself, and to find all appliances for that purpose. Should the Resident Engineer choose to set out the work, it will only be at the request and on the responsibility of the contractor." There is nothing in that paragraph to indicate that there should be an increase of 14 in. for brickwork. Then, in paragraph 6—which reads, "Should it be found that the rock is sufficiently solid to enable the