

88. Now, it has been stated in evidence before the Committee that the contractor's method was in accordance with "Sims's Practical Tunnelling." This is "Sims's Practical Tunnelling" [producing a copy of the work in question]. Does that [showing a plan in connection with the book] represent anything like your method of work?—That is very much like it.

*Mr. Morrison*: This witness does not profess to be an expert on tunnelling; he was simply a ganger. I hold Mr. McLean was the particular witness who should have been examined on that particular point of evidence.

*Mr. McKenzie*: I have a decided objection to Mr. Hales's examination of the witness.

*The Chairman* (to Mr. Hales): You have a right to refer to Sims's book on tunnelling, which has been quoted in the petition, but I think it is hardly fair to examine a workman on a work he has perhaps never seen in his life before.

*Mr. Hales*: But he was in charge of the building of the tunnel.

*Mr. McLean* (petitioner): Mr. Wells was ganger. I was there at the time this breakdown took place, and I can answer any of those questions Mr. Hales asked.

*Mr. Morrison*: I maintain that the questions that have now been asked from Mr. Wells should be asked from Mr. McLean, seeing he was directing the work.

*Mr. Hales*: I wish to explain that I merely want to refer to this plan and to ask the witness whether this method shown here was the method adopted.

*Witness* (after a further study of the plan): That is exactly the same, only on a smaller scale.

*The Chairman*: Is that a section of a double-line tunnel, Mr. Hales?

*Mr. Hales*: This is a section of a tunnel on an English railway, either double-line or single. In those days there was a 7 ft. gauge; of course, ours is only 3 ft. 6 in. gauge—half that width. This tunnel is, I think, 15 ft., and ours was 12 ft.

89. *The Chairman*.] Have you any section of a single-line tunnel in that book?—Yes; but not showing the work of it.

90. *Mr. Crowther*.] And the only difference we are able to note so far is that that book indicates that there is no bottom sill put in. Is that so?—Yes.

91. *Mr. Hales* (to witness).] You say there was no direct order to take out this particular sill?—I had no order to take that sill out, and I did not take it out.

92. *Mr. McKenzie*.] Will you point out to the Committee on that sketch which do you call the minor sill?—[The witness indicated a spot in the centre of the section, showing some timbering crossing the tunnel not far below the tops of the side walls.]

93. *Mr. McKenzie* (referring again to the plan which he had previously put in).] And, of course, those are the posts coming out from the ground?—Yes.

94. There was a general order to take these minor sills out. These posts are supported with bars, and before taking this sill away you naturally have to cut them out?—Yes; in any case.

95. And when you take them away there is no weight left?—No.

96. Mr. Hales's contention that all the weight was on those sills means nothing?—Yes.

97. And there was a general order to have them removed?—Yes.

98. Being a shipwright by trade, you understand all about timber?—Yes.

99. Was this sole-plate [indicating it on the plan] below the invert?—Not below the bottom of the invert, but in all cases below the top.

100. You have a centre left in after the sole-plate comes out?—Yes.

101. (Having got the witness to point out two or three more spots on the plan to illustrate the method of timbering, Mr. McKenzie asked). When you have the ground excavated, and so ready for bricking, you simply take the centres for legging?—Yes.

102. You say there was a general order for these minor sills to be taken out?—Yes.

103. Of course you had a bar resting on the end of the sill; and if that sill was taken away there was nothing to carry the ends of the bars?—No; nothing to carry the ends of the bars whatever.

104. Were you in the tunnel before the breakdown occurred?—I was.

105. Of course this sill had to be removed before the breakdown?—Yes.

106. And the weight on those bars rested entirely on this particular centre?—Yes.

107. So that when those came away this centre had to bear the whole of the weight?—Yes.

108. *Mr. McLean* (petitioner).] I think Mr. Hales tried to elicit the fact that the whole time the excavation was going on this [referring to the plan] was taken out immediately these bars were put in. That was not so?—No; not in any case.

109. This sill lay in until the excavation was down to the invert?—Yes.

110. And it was recognised as a fact that the sills had to come out; and they were taken out then because there was a better opportunity to do it then than at any other time?—Yes; that was so.

111. So that this length that broke down was carried on in the usual way—that is, this sill supported it for the greater part of the excavation?—Yes.

112. Of course this ground varied considerably—sometimes it was very heavy and sometimes not quite so heavy—and, consequently, in your opinion the leaving in or taking out of sills should have been left to your judgment?—Undoubtedly; you could then take them out with safety and with no risk whatever.

113. Great stress has been laid by Mr. Hales on the fact of these sole-plates being necessary. He alludes to the tunnel in Sims's as a case where a work is carried out without the necessity of a sole-piece—

*Mr. Hales*: Pardon me, I did not say so. There was a sill above the invert, but no sole-piece.

*Mr. McLean*: That is what I understand.

*Mr. Hales*: This arch was supported on props at the bottom of the excavation put down deep enough to clear the invert.