58. The boats in the Atlantic service are built very strong?—Exceedingly strong.

59. Much more so than we should require between here and Lyttelton?—Of course their boats are very much larger than you would require, and the larger they are the stronger they must be built. The proportions between size and strength are worked out by scale. A naval architect will design you a boat if you give him the service and the speed you require.

60. Have you ever had any difficulty in making this port or Lyttelton in thick weather?—Once.

61. Have you any suggestions to make to the Committee as to any fog-signals that would be required to assist in the navigation?—Sirens would be of very great use, such as they have all around the Home coast.

62. Are there any rocks off Terawhiti that give you any anxiety in coming up from Lyttelton?—I do not get so close to the land as to make acquaintance with the rocks.

63. But these steamers would have to go pretty close to the land?—Well, a man who was constantly making the passage and had a local knowledge would be able to judge better than a man who only makes the passage occasionally. He would be guided a good deal by the revolutions of his engines. The boats running between Dover and Calais often go by the beats of the paddles. Of course, they make a passage every day, and they can strike an average. It is an old adage on the Pacific Coast, "In thick weather navigate by the stroke of the paddle," and of course in a screw steamer you would be able to check your distance by the revolutions of the screw.

64. Are there sirens between Dover and Calais?—There are sirens at every lighthouse round the coast of Great Britain.

65. Would they be useful here?—Yes; very useful.

66. How far can they be heard?—It is a very deceptive thing. I have heard a siren at a tremendous distance.

67. What distance?—Four or five miles in a fog, and again I have been close to and have heard nothing. Nothing is a worse conveyer of sound than fog.

68. You would hear them farther in a strong wind?—In a strong wind there would be no fog.

69. *Mr. J. Hutcheson.*] Was it not necessary as a condition to your belonging to the Naval Reserve that you should have a naval training in gunnery and that sort of thing?—I do not claim to be in that position.

70. Is not that a necessary condition to being enrolled in the Naval Reserve?—Not at the time I joined. We were taken direct from the mercantile service.

71. But is there not a certain amount of training on Her Majesty's ships required?—It is purely voluntary.

72. In order that a merchant stemer may be entitled to fly the blue ensign, is she not compelled to comply with the condition that a certain proportion of her crew shall belong to the Naval Reserve?—Yes.

73. What is the proportion?—Ten or twelve, I believe.

74. Not in proportion to the number of her crew?—No; it is a fixed number.

75. Must not these men have made themselves competent in drill on board one of Her Majesty's ships in order to qualify as seamen in the Naval Reserve?—Yes; they drill them either at a battery or on board a ship.

76. What I am anxious to ascertain is this: In view of the possibility of part of the recommendation of this Committee being that these mail-steamers should be subject to Admiralty regulations, so that in time of war they could be utilised as auxiliaries to the Australian squadron, a certain proportion of the crew being trained men, could these conditions be complied with without impairing the mail-service?—Yes, easily.

77. *Mr. Buchanan.*] Could you give us an estimate of the indicated horse-power required for an eighteen-knot boat, builder's guarantee?—I should not like to give a definite answer to that question. I could only give you a rough estimate. The two special boats built by the P. and O. Company for the Brindisi–Port Said service are of 6,000-horse power.

78. What is their tonnage?—Between 1,800 and 2,000 tons.

79. And they run eighteen knots?—They run twenty knots. They are 300 ft. long, and they are 38 ft. beam.

80. And the indicated horse-power is 6,000?—That is the advertised horse-power.

Mr. William Henry Pitcher sworn and examined.

81. *Mr. Buchanan.*] You are chief engineer of the "Ruahine"?—Yes.

82. You are aware of the object with which this Committee has been set up—namely, to consider the question of a fast steam-service connecting the train-services in the North and South Islands at Lyttelton and Wellington respectively. Supposing a steamer to carry, say, 250 passengers and 500 tons of cargo, or thereabouts, and to run the distance between Wellington and Lyttelton, say, in ten, eleven, or twelve hours, could you give the Committee your opinion as to the tonnage of the steamer which would be best adapted for such a service as that—say, ten hours to begin with?—You would want an eighteen-knot boat at that rate.

83. The distance being 176 knots?—That would be at the rate of about 17½ knots, and you would want a little margin. You could do it in ordinary weather, but you must have a little margin of reserve for bad weather.

84. What builder's guarantee of speed would you assume to secure a running speed of 17½ knots?—You would really have to go in for a nineteen-knot boat to keep it up regularly. A boat that will do, say, twelve knots on the measured mile, will not keep it up in the ordinary way. Unless you have a margin, you must use more coal so as to be able to drive her fourteen knots to keep up that rate.