49. Well, looking to that fact, on which you lay stress, surely this process of depositing silt will go on unless you do something to stop it ?—No, that is not so.

50. Why ?—Because the river always maintains its shallow bed in the estuary, and in order to do that it must carry the silt out to sea. There is no other place to deposit it.

51. *The Chairman.*] Supposing you are dredging, if you take away the silt by dredge, that is the same as carrying it out to sea by the river itself, is it not ?—Yes.

52. Then if you take away the silt, except the silt is brought down by a heavy flood, it would keep the channel clear ?—There is always the tendency to wash the silt from the sides into the channel.

53. Is there not a clay deposit in the river—it is not all sand ?—That I could not say.

54. It depends on the weight of the sand : if it is light sand like that at the Manukau Heads ?—That is not so light as the sand down at Foxton. At Manukau there is a certain amount of ironsand.

55. But is there no clay ?—Yes, there is a certain amount of clay in the banks of the river. The banks of the river down to Hartley's bend consist of a certain amount of clay. The bank I am speaking about would be a submerged bank lower down—a bank that would not be apparent.

56. *Mr. Weston.*] You examined the banks of the river at the part you mention ?—Yes. I have not taken any particular care—I just made a casual observation when passing over the place.

57. How often have you been there, say, in the last five years ?—I do not think I have been there in the last five years.

58. I think you were asked to report, as far back as 1911, on Mr. Howarth's scheme for a parliamentary Committee ?—I remember the scheme, but I do not remember whether I prepared a report upon it. I may just have commented upon it.

59. Before writing that comment, did you make a special investigation of the harbour ?—No.

60. You knew you were going to give evidence before this Commission ?—Yes.

61. Have you made any special examination of the harbour ?—No.

62. So that you are speaking from a very casual look when passing up the river ?—No, not a casual look exactly.

63. Supposing you were asked to give a report on which your reputation was to stand as to what ought to be done with that river, would you be prepared to write it with the knowledge you have now ?—Yes.

64. Well, with regard to the clay : it is important whether or not there is a substratum of clay, is it not ?—Not particularly.

65. Does it not mean that if you get a clay substratum the channel dredged through clay would be more likely to remain open ?—No, not necessarily.

66. Would you be prepared to deny that there is a substratum of clay and that you can actually see it in the banks of the river down towards the Heads ?—No ; I have just stated that I believe the banks do consist of a large measure of clay down to Hartley's bend.

67. That is where the difficulty is ?—Below that spot.

68. And below that, you have a clay substratum ?—No. I do not know what is below Hartley's bend Beyond that point the whole of the banks apparently consist of sand and sandhills.

69. The whole of the substratum of that country in the Manawatu has consisted of clay ?—Only up to a certain point, then you arrive at the litoral drift, consisting of sand and alluvial deposits. They extend a good distance seaward.

70. Can you tell us what is the nature of the continuity of depth from the Foxton Wharf to the bar—that is to say, have you deep water with casual sandbanks—is the depth of the water uniform ?—The depth of the water is not uniform. You have a deep channel at Robinson's bend, then you have a shoal, then you have deep water round Hartley's bend, then you have a very variable channel to the bar, which is generally shallow.

71. What we were told by a captain who has traded there for over twenty years, and by the pilot, is that with the exception of about a half or three-quarters of the channel it is deep and gives no trouble ?—It is deeper than the shallow part of the estuary.

72. It is deep enough for a vessel of 350 tons to be navigated easily ?—As far as I am at present aware the navigation of the river is governed entirely by the shallow part in the estuary of the river.

73. What is the length of the channel—what would require to be cut and kept open there ?—I could not say from memory.

74. Would you consider it to be more than half a mile ?—I consider it is a good bit more than that. Of course, it varies very much.

75. Do you know the nature of the bar—have you considered whether there is a depth of water close up to both sides of the bar or not ?—I could not say.

76. The old idea of the engineers was that the main point was to get a scour by the erection of training-walls ?—Yes.

77. That has been somewhat modified of recent years, has it not ?—Not that I am aware of.

78. Have you kept yourself abreast with the good work that has been done with suction dredges, especially in dealing with silt ?—Yes, as far as I have been able to.

79. Do you consider that is an efficacious way of dealing with sand ?—Circumstances govern the case. You can generally obtain a certain depth of water by means of training-walls which may suit the part in question, but then you arrive at a certain point when training-walls are not sufficient. You can obtain a certain depth but you cannot get any deeper. You may require a deeper channel : the only alternative then is to dredge.

80. Is it not a fact that in a large number of harbours the erection of training-walls, instead of being an advantage, has been a disadvantage ?—It may be so.

81. At Liverpool the bar was kept clear entirely by the sand-dredge ?—That is so.