quantity of liquid runs away from the silo, but after the preliminary heating the action stops and the temperature falls, and cattle which are used to it like ensilage just as much as they like hay. I know farmers in some parts of England who, in wet seasons, convert everything into ensilage, and they get the original condition of heating. The interior of the silo is too hot for you to put your hand inside; but the temperature never rises very much above the temperature at which the baccilli which are causing the original heating are killed. Well, I think, having stated this, my views upon the heating of materials in ships—vegetable matter—must go very largely upon that, for as far as I can make out, no practical experiments have been made, and it would appear certainly probable that if flax were shipped wet, we should have the same kind of conditions holding. I do not say that is the cause, because it may be that flax is an exception to the general rule; but until we have evidence to the contrary, I certainly would not, if I was an insurance agent, insure a cargo of flax which I knew to be wet. Then, as regards the wool, it is, of course, a well-known fact that woollen materials are looked upon with considerable suspicion by insurance companies in the Old Country. From conversations I have had with insurance agents in the Leeds district, there is no doubt about that, and particularly because in the spinning of wool it is treated with some kind of grease, or in making of many kinds of woollen materials some kind of oily matter is put into them; and, of course, in the case of waste, whether wool waste or cotton waste, which has been made greasy, we get the same kind of action occurring, though it is to a more marked extent than that we get in the case of vegetable matter which has been wetted. That is not surprising since some of the oils which are used will absorb, if exposed in a thin layer, as much as 10 per cent. of their own weight of oxygen. Under a process of that kind in which the oxygen is absorbed and a rise in temperature occurs, and the wool is packed together so that the heat cannot escape, but sufficiently loose to enable the oxygen to get in, the phenomenon of firing may be expected. I am only speaking generally here, and probably these facts are well known to you as Commissioners; but at the same time it is well worth while referring to them, because no doubt you could find a large amount of printed evidence in that direction. It certainly would seem therefore if we were shipping wool, that wool which was greasy might be expected to be a far greater source of danger than wool which had been properly cleaned and dried. Just as in the case of flax, I should expect that that which was shipped wet would be more likely to cause trouble than that shipped dry.

184. If the wool is of a low class or condition—that is, such as locks, pieces, and dags?—If it contained dung. Dung is a substance which heats rapidly.

185. Would you consider that a more dangerous class of wool to be heated?—From the fact that dung heats more readily than wool, I should look upon the mixture of dung with wool, if only from one point, that it was certain to be infested with bacteria which would be likely to bring about rapid oxidation I should expect that wool of that description was not as safe a substance as wool which had been properly cleaned and dried.

186. Do you think it is safe to take wool of that description Home at all?—Well, I have got no evidence on that point; but if I were insuring—I speak as having had dealings with insurance companies—if I was going to advise an insurance company, I should say put a higher premium on wool of that kind than on clean wool. I do not wish to speak with any certainty on a point of that kind. Of course, from what I have been saying it would rather appear that I looked upon the bacterial origin as the explanation of cargo-fires, but I do not speak with too much certainty on that point, because we know of other cases, such as coal, in which bacterial action is not probable. The substance will heat also, and I have seen a heap of Westport coal in Wellington catch fire; it was a large heap of slack.

187. It was broken up?—Yes. It was a very large heap, and had remained in stock for some months, and gradually the outside of the heap begun to have a peculiar smell, and people wondered what was the matter, and as a matter of fact it was heating inside. There was a channel underneath, and the air was able to get through and to get to the interior. At the same time the heat could not escape through the thick surrounding coating, and, of course, in the ship's bunkers that is a thing which has constantly to be guarded against; that is one point which induced the Admiralty in favour of briquettes, which can be properly piled up and properly ventilated. There may, of course, be bacterial action there in the first place. We should almost think that the bacteria would find coal an unsatisfactory substance for food, and I think in a case of that kind one would be likely to consider it as ordinary oxidation going on without the necessity of bacteria. In the case again of cotton wool which has been soaked with oil, particularly the drying oils which absorb the oxygen very rapidly from the air, probably bacteria have got nothing to do with it. We have got to get at some cause for the preliminary rising of the temperature; it may be a purely chemical action or a bacterio-chemical action, but given that the temperature is rising owing to oxygen being brought in either by means of the bacteria or by direct chemical action, then we shall expect the temperature will rise and rise in geometrical progression.

188. The object of this Commission is to see, if it be, on the one side, the result of chemical action, what measures can be taken to prevent that chemical action, and on the other hand, if it be a bacteriological action, then what we can do with those little beggars before they cause the fire?—There is no doubt that if it is bacteriological an efficient system of sterilisation would get over the difficulty. Coming back to what I was saying, it is perfectly evident that the matter should be attacked experimentally, so that different series of experiments may be recorded, these should be both on a comparatively small laboratory scale, and also upon a large scale, having whole bales of material submitted to actual conditions as regards moisture, varying conditions of temperature, and so on.

189. Similar to that on board a ship?—Yes. What we want to find out are the conditions under which we shall be certain firing will occur. If we know that we can always insure against those conditions. If we find the conditons in which we are quite certain fire will not occur, we can