

secured in winter quarters. Then, on consulting the petty officers, and informing them that I wished to raise the ration of meat to the utmost extent in my power, they informed me that they could not consume more than 1½ lb. in the twenty-four hours, and that a further issue would only cause waste. Considerable saving arose from this issue during the winter from the crew not taking up all that ration. In consequence of the recommendation of the Medical Director-General, a large extra supply of meat was carried to Disco by the "Valorous" for the use of the expedition, and as much of this as the ships could possibly stow in smooth water was taken on board.

30. (*Dr. Fraser.*) As a matter of fact you had enough meat to supply 2 lbs. after going into winter quarters?—I could not have supplied 2 lbs. of meat for three years, but my present experience shows me. I had in the expedition more meat than we could possibly have consumed in that time without reckoning on any game whatever.

31. I suppose you had about equal quantities of salt and preserved or fresh meat?—There was about an equal proportion of salt and preserved meats; there were over 500 days of salt meat and 550 days of preserved meats at a ration of a pound a-day, besides the extra quantity supplied at Disco. On the 9th of October, at a ration of 1¼ lb., there were 470 days of salt and 463 days of preserved meat.

32. At the time that you ascertained that 1¼ lb. was probably the maximum that could be consumed, were the crews using both the salt and the preserved meat in about equal quantities?—On first starting the preserved meat ration was ¾ lb. a-day, with either ½ lb. of soup or extra vegetables. On October 16th an increase was made of a ¼ lb., making a total of 1 lb. of preserved meat. At the same time the ration of salt pork, which occurred every fourth day, was also raised a ½ lb.; but the ration of salt beef, which had previously been raised a ¼ lb., was reduced to the former amount in consequence of the men not consuming it all.

33. Then I understand you, that when you increased the ration of salt meat, you found that the men were unable to consume it; but did you attempt at all to increase the ration of fresh or preserved meat, excepting as you have mentioned?—The ration of both salt and preserved meat was increased at the same time, but the crew not consuming all the beef, that was discontinued. In the depth of the winter there was a certain saving on both preserved and salt beef. The men did not consume even that quantity, but it was always at their option to obtain it.

34. Have you any reason to think that, if the quantity of salt meat had been diminished, a larger quantity of fresh or preserved meat could have been consumed?—I think that salt meat should never be supplied for arctic service; but the present preserved beef does not admit of a change of diet sufficient for that to be accepted by itself as the necessary dietary.

35. (*Dr. Donnet.*) Does not preserved meat, from its continuance, become an insipid article of diet? Are not salt and corn beef required to remove this insipidity, and was the objection to the consumption of a greater quantity of preserved beef due to this insipidity?—I can only speak from my own experience. The officers obtaining as nearly as possible the same rations as the ship's company, I found the preserved meat, when continuously used for diet, very insipid, and there was a decided craving for other food. There was no other supply available but salt meat, and certainly salt meat was more pleasing to the palate than the preserved beef. The officers having a supply of sauces to mix with their preserved meat, perhaps felt this less than the ship's company did.

36. Did you make any provision of birds' eggs and of birds themselves, in your way along the coast of Greenland, and your visit to Carey Islands?—Owing to our passing through Melville Bay at the most appropriate time of the season, no delay whatever occurred to enable me to stop at the Loomeries for that purpose.

37. Did the officers take sheep or other live stock to sea with them?—There may have been a small supply of poultry. The "Alert" had no sheep; I am not certain about the "Discovery." Sheep were carried to Disco by the "Valorous," for the general use of the expedition. After leaving Disco, the officers certainly never had a fresh meat meal, unless it was in a general issue to the ship's company, until their return to England.

38. Had you any case of scurvy among the officers?—No case of scurvy was actually in the sick list, or appealed to the doctor on board the "Alert." Lieutenant Beaumont had scurvy in the "Discovery." But I believe some of the officers really had premonitory symptoms of scurvy.

39. Were these symptoms simply debility or soreness and swelling of the feet?—In the case of the officers I allude to, they kept their own counsel in the matter, and I can only state what I believe to have been the fact.

40. Do you suppose that a greater immunity from scurvy was enjoyed by the officers as compared with the men?—Most certainly.

41. Do you think that this immunity was in some measure due to the condiments and sauces, which assisted them to vary the provisions of the ship?—Without entering into the medical question, I do now conclude that the sauces and the private supply of preserved milk, and in a very great measure the private supply of wine, were the cause of the immunity of the officers.

42. Had the men consumed a larger amount of meat, whether salt or preserved, do you consider that this quantity would have assisted in enabling them to ward off the scurvy, which subsequently attacked them?—In no arctic expedition have the crew ever been able to consume even a pound and a quarter of meat. I am now referring back to the first expedition under Sir John Ross.

43. Have you any reason to suppose that preserved meat and pemmican possess equal nourishing qualities with fresh meat?—My opinion is that preserved meat is greatly inferior to fresh meat, and that pemmican is superior to preserved meat; but a continuation on a diet of pemmican can be stood by few people. Some men cannot eat pemmican at all.

44. Is it not a question with some that fresh meat, such as seal, musk ox, reindeer, and sea birds will of themselves preserve from scurvy? Do not the Esquimaux live almost exclusively upon fresh meat, only now and then enjoying the luxury of scurvy-grass, sorrel, cranberries, and reindeer moss, and yet are not known to suffer from scurvy?—In all the cases that have come under my notice, the scurvy gave way before an issue of fresh meat combined with lime juice. I cannot state what would have happened had there been no lime juice; but I know that scurvy is now, and has been for several years, very prevalent among the Esquimaux on the west coast of Greenland.

45. Were those observations limited to any part of the west coast of Greenland?—I cannot speak about the arctic highlanders except from knowledge obtained from publications, to which the Committee have access. The Inspector of North Greenland, residing at Disco, was extremely thankful for the presents of lime juice, which in the name of the Admiralty I made to him, owing to the prevalence of scurvy in his district, both amongst Europeans and Esquimaux.

46. (*Admiral Inglefield.*) Did you obtain scurvy grass, or were any arrangements made for growing mustard and cress and issuing it to the men?—I cannot speak exactly about dates, but I think that scurvy-grass was not fit to pluck in our neighbourhood until a later date than in more southern latitudes. A very considerable quantity was, however, obtained, but only subsequent to the outbreak of scurvy. A large quantity of mustard and cress was grown under the superintendence of Dr. Colan of the "Alert," and Dr. Ninnis of the "Discovery," and issued to the

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