

require a very close study. I have not yet studied the case of the Austrian expedition, but I think it will be found that the scurvy mentioned as breaking out early in the voyage was only in the case of a few of the ship's company, and certainly very few were able to go sledging at all in the second year; and I shall not be surprised to find that more men were debilitated and unfit for travelling the second year than would have been the case if they had had an opportunity of performing the same work the first year; but their sledging, for hard work, and the number of days' absence from the ship, cannot be compared in any way with the same work undergone by English expeditions, the Austrians being only absent from their ships about 80 days.

144. To what do you attribute the severity with which your men were attacked in comparison with that of the men of previous expeditions, in which long sledge journeys were performed under very similar circumstances, with the exception of the length of the night, and the greater difficulty in drawing the sledge over the ice?—I am bound to consider that the greater difficulties mentioned must have had some part to play in the outbreak that occurred; greater weights had been dragged on previous occasions, but not over such rough and heavy roads.

145. Then you have no other cause to which you can attribute the outbreak of scurvy to the extent recorded?—It is to me even yet inexplicable.

146. (*Dr. Fraser.*) You have told the Committee that the skylights of the "Alert" were opened and light admitted into the ship on the 12th of May, and that a few days previously some cases of scurvy occurred. You do not think that the prolonged absence of light can account for these cases?—Most of the few men that had been attacked previously to the 12th of May had been employed sledging, and in the light constantly day and night; and all, unless they were in the sick list, must have been on deck a considerable portion of the day. The number of days of darkness on the lower deck of the "Alert" would not be greater or less than that experienced by expeditions wintering farther south. The snow would be removed off the skylights at about the same date anywhere in the arctic region.

147. What was the number of cases previously to the 12th of May?—On the 3rd, five men were reported to have scorbutic symptoms, and one other, John Simmons, was recommended to have a double allowance of lime juice. On the 8th, eight men had a double allowance of lime juice. Four of the men attacked with scurvy on the 3rd had been travelling, and one had not.

148. The four who had been travelling were, therefore, not attacked on board ship?—James Berrie returned from travelling after about a week, very much broken down. James Hunt, the ward-room cook, was attacked immediately he came on board. Niels Petersen was also attacked on board, whilst suffering from a severe case of frost-bite; Berrie had been ill during the winter, and Hunt, who was engaged as ward-room cook, would be a very liable man to experience an attack of scurvy if it broke out amongst the crew. Also V. Dominique, the ship's cook, who was only away three or four days, and was then attacked with scurvy, would be a very liable case.

149. How was the one man who had not been travelling employed at the time or immediately anterior to his being affected with scurvy?—The only man who had not been travelling and was attacked with scurvy was G. Burroughs, the ship's steward, who had been severely ill for about a month previously. I may also add, that Petersen was over our standard of age, and had passed several years previously in the arctic regions on the coast of Greenland.

150. Do you consider that the four men who had been travelling had undergone very severe fatigue and hardship?—Being all weakly men, they probably felt the hardships more than their sledge mates.

151. Could you give us an idea of the kind and amount of work done by these four men during this travelling, and anterior to the appearance of scurvy?—Dominique and Hunt were attached to a sledge pulling less than 200 pounds a man, being known not to be so strong as the regular crew. Berrie was captain of one of the sledges, dragging about 240 pounds, the recognised arctic weight. Petersen was attached to the dog-sledge, and only had to exert his strength in the bad parts of the road. But the dog-sledge work is always felt by the men employed in it to be really more severe, or as severe, as the work with the man sledges.

152. How many days was each of these men so employed?—From five to seven days, but I cannot speak to a day. Petersen was only one day absent from the ship at work.

153. Judging from the amount of work which these men performed in the periods you have mentioned, do you think that within those periods they were subjected to exertion greatly beyond their capability?—I consider that the disease must have been in them previous to starting on the sledge expedition, but it was brought out immediately by the hard work, which, although the men had been exercised as much as possible, was, and always must be, a sudden change in the mode of life, and a tax upon their strength after the quiet of the winter.

154. Restricting your attention, however, merely to the amount of work which these men performed during the periods which have been mentioned, do you think that that amount of work was in itself sufficient to have produced scurvy?—Certainly not, unless the men were predisposed.

155. You say that, in your opinion, the disease must have been in these men previous to their starting on the travelling expeditions, what are your grounds for that opinion?—I should not have formed that opinion if only a few men had been attacked, but when every man employed on the severe work was ultimately attacked, I now consider that there must have been some predisposing cause. In previous arctic sledge journeys, although the road was smoother, the distance travelled daily must really have taxed the strength of those men equally as much as it did ours; and with regard to this question, I can only find this difference between our parties and former ones. In consequence of our very calm weather no one sledge was ever delayed by bad weather for a single hour; but in all previous sledge journeys, within a week of leaving the ship during the cold season, halts had been necessary in consequence of bad weather, sometimes to the extent of from three to four days at a time, and, however distressing these halts were to the crews at the time, I believe now that they contributed greatly to the health of the men, more particularly in giving them a few days' rest, although painful and cramped up, after three or four days, when they were being broken into the work. The sledge parties in previous expeditions, which can be compared best with ours, with regard to the absence of fresh food, are those that were under the command of the present Admiral Ommanney. In his sledge expedition he was forced to encamp for no less than 15 days, during which time the men were resting. Out of our crews those men who obtained rest by returning to the ship occasionally were not attacked so severely as the ones long absent. But that leads me to state that, in our case, had a rest been forced on any one of the distant sledges, after the outbreak had grasped them, it would have been fatal; for in our case had any man once rested he could never have used his limbs again.

156. I wish, however, still to ask you to consider the case of the first outbreak in these four men. The opinion which you have expressed, that the disease was in them previously to their starting on the travelling expeditions was, as I understand you, an opinion which you afterwards arrived at from what you have learned of the history of the outbreak of scurvy

Capt. Sir G.
S. Nares,
R.N., K.C.B.,
F.R.S.

11 Jan., 1877.