

results which are not so satisfactory; as certain of their saline constituents were found to be deficient. No deleterious effects, however, can be traced to this deficiency, but it is impossible to decide whether this be due to the unimportance of the deficiency, or to the fact that it was supplemented by the saline ingredients contained in the other vegetables and foods used on board the ships.

The Committee also received much interesting information respecting the productive value, in supplying force and, indirectly, in affording nourishment, of this dietary (4998, 5323-5326). The dietary has generally been pronounced to be an adequate and well arranged one (3263, 4902, 5249, 5324), and to quote Dr. De Chaumont's words, "a very good diet, indeed, and quite sufficient for the purpose" (4998). The men remained in good health, and even gained in weight, while subsisting upon it (2027, 9139); nor did scurvy occur among any of the men who had been restricted to this scale of diet, with the exception of the one case on board each of the two ships, to which allusion has already been made (pp. ix and x).

At the termination of this winter's confinement, the sledging season commenced, during which 59 cases out of the 60 in this outbreak made their appearance, one of the 59 being the case of the "Alert's" steward, already referred to (p. ix). It is therefore important to consider what conditions existed during this season prejudicial to health, and to what extent they were conducive to the scorbutic disease that appeared.

Among the requirements of sledge travelling, and especially of extended journeys, is the reduction to as small limits as possible of the weights carried. The weight of many articles of food may now be greatly reduced without any obvious impairment of nutritive value, by the abstraction of a portion of the water they naturally contain, this water being returned during the process of cooking. Condensed foods are for this reason used as largely as possible by sledge parties; and several are represented in the sledge dietary of the recent expedition, such as preserved potato and pemmican. It must be recollected that the water is only temporarily removed from these condensed foods, otherwise a wrong impression may be produced on comparing the scheme of diet used on board the ships with that of the sledge parties of the recent expedition. The total weight of food for one man per diem represented by the former is 321 ounces, and by the latter 275 ounces (Appendix Nos. 3 and 10), no allowance being made for the water temporarily abstracted from foods in both schemes. When, however, the foods are reduced to the state of water-free solids, and the board-ship dietary compared with that of the sledge parties, it is found that the former dietary is in reality a less liberal one than the latter, as it contains only 27.44 ounces of water-free solids while the sledging dietary contains 35.65 ounces. Further, it has been estimated that 340 foot-tons of productive work could be done without loss of weight on the former diet, and so much as 585 foot-tons on the latter (4999, 5000).

It has already been stated that the board-ship dietary was apparently a sufficient one for men in the conditions of the crews during the winter, and that it was well fitted, especially with the accompanying rations of lime juice, to protect men against scorbutic disease. These statements are confirmed by the medical reports for the winter season.

It is now necessary to consider what opinion may be formed on these points respecting the dietary of the sledge parties.

The expeditions during the sledging season varied greatly in their duration and in the hardships and physical exertions that accompanied them. The most prolonged were the three extended sledge expeditions, that to the North under Commander Markham, to the East under Lieutenant Beaumont, and to the West under Lieutenant Aldrich; and it would appear that the physical exertions undergone by the men, as well as the exposure to vicissitudes of climate, were greater in these than in any of the other sledge expeditions.

The following extracts (to some extent abridged), from the Journals of the Commanding Officers may serve to give some idea of the exertions undergone by the men, and of the trials to which they were subjected:—

Commander Markham's Journal of the Northern Exploring Division between April 3rd and June 14th, 1876:—

"April 3rd.—Left the ship at 11 A.M. Therm. — 33°. Snow deep, and the sledges dragging very heavily. 5.30 P.M., men showing signs of fatigue. Halted for the day after 5½ hours on the march.

"April 4th.—Passed a cold, wretched, and sleepless night. Temp. inside tent, — 15°. Few men able to partake of their pemmican either last night or this