

equally long journeys by men who abstained from its use and who likewise enjoyed an immunity from this disease (8807). There can be no doubt, however, that the dietetic use of alcohol should be interdicted in men suffering from any symptoms of scurvy; and wherever its deprivation is not opposed to custom or acquired habit it would be advisable to refrain from its use as a regular ration, in the usual conditions of arctic sledge travelling.

The substitution of tea for alcohol in sledge travelling is attended with much benefit, and there is in the evidence a general expression of approval of that carried by the sledge parties of the recent expedition in the form of compressed tea. It is shown by the report of the chemical examination of this tea made by direction of the Committee, that there are sufficient grounds for this approval.* One of the chief advantages of compressed tea is its compact form, which renders it convenient for carriage and for distribution in stated rations. This advantage, with the addition of others, may be derived from the use of a carefully prepared extract of tea, such as Dr. Rae carried in his exploring journey along the west coast of Boothia Felix (8747). It is a much more condensed substance than compressed tea, while with it a cup of tea may be made "with less than half the consumption of fuel, and in less than half the usual time, because we merely have to heat water sufficiently to be pleasant to drink, whereas in making tea in the ordinary way" (*i.e.* with ordinary or with compressed tea) "the great difficulty is to bring the water to the boiling point, especially in very cold weather" (8747). The advantage gained in the time occupied in preparing the ration of tea, apart from the advantage of the lessened weight both of fuel and tea, is of the greatest importance, as the men are exposed to severe cold while waiting for their ration of tea, the preparation of which with boiling water and compressed tea is stated to have occupied so long a time as from an hour and a-quarter to an hour and a half (1296). Tea is always to be preferred to alcohol for the midday meal; but it may be advisable to point out that its well marked action in producing wakefulness is not favourable to its use shortly before the time for sleeping. Alcohol need not, however, on this account be used in its place at the end of the day's labours, for the advantages of tea may to a great extent be derived, without the risks inseparable from alcohol, by the use of beef tea. The invigorating properties of this beverage would render it a valuable addition to sledge dietaries. It may be conveniently carried in the form of extract of beef, or of condensed soup; while the large quantity of salts of organic acids entering into its composition favours the supposition that it may act not only as a refreshing and invigorating, but also as an antiscorbutic article of diet.

Whatever care, however, may be taken to lessen the labour of sledge travelling, to obviate the injurious effects of exposure to an unfavourable climate, and even to supply a sufficient amount of nutriment, scorbutic malnutrition will inevitably occur in a shorter or longer time, if the kind of food requisite for the prevention of this form of malnutrition be not supplied in adequate quantity. In sledge travelling, as usually conducted, the food required for the travellers is either all carried on the sledge, or partly carried and partly stored in depôts at convenient points of the route. The food has to be provided for the travellers without reliance on any extraneous supplies that may be obtained by their exertions.

Fresh food, whether animal or vegetable, cannot, therefore, be usually taken into account in arranging the scale of diet; and it is accordingly of great importance that among the preserved foods of which the dietary must be almost entirely constituted, there should be a sufficient quantity of those which experience has shown to be valuable in preventing scurvy. Of these foods, the one best adapted for sledge travelling is undoubtedly the preserved potato. In deciding as to what constitutes an adequate quantity of this preparation, it is necessary to consider that the circumstances of sledge travelling greatly limit the variety of the diet, that past experience shows that more than one decidedly antiscorbutic food cannot be carried, and that during sledging many conditions will generally exist that are detrimental to health. At the same time, the mere muscular labour involved demands a liberal supply of food, while in order that this food be properly used in the system, the functions of nutrition must be performed with increased activity. In these circumstances, the liability to malnutrition is great, and any deficiency of the vegetable element must be attended with the risk of scurvy. It is important, therefore, that vegetable food of a proper description should be supplied as liberally as can conveniently be done. If preserved potato be the representative of the vegetable element, it is not probable that more than four ounces could be carried with due regard to the necessity for other and more nutritious foods; but in all likelihood even this somewhat large sledge ration would prove an insufficient

* See Mr. Bell's Analysis, p. xliii.