

A CHEMICAL REPORT ON SAMPLES OF VEGETABLES TAKEN FROM THE RESIDUAL STORES OF THE "ALERT" AND THE "DISCOVERY," ON THE RETURN OF THOSE SHIPS FROM THE RECENT ARCTIC EXPEDITION.

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By request of the Chairman of the Admiralty Committee appointed to consider the causes of the outbreak of Scurvy in the recent Arctic Expedition, I have analysed samples of vegetables taken from the residual stores of the "Alert" and the "Discovery," on the return of those ships to England.

The articles sent to me for analysis were:—

1. Fresh carrots, preserved in hermetically sealed tin cases.
2. Dried potatoes.
3. Dried compressed cabbage.
4. Dried compressed mixed vegetables.

These samples I have so analysed as to admit of comparison being made between their composition and that of good average specimens of the respective vegetables recently removed from the ground.

The samples were all in good condition. The carrots from the tin were whole, sweet, juicy, and of full flavour; the dried fragments of potatoes were perfectly sound; the dried compressed cabbage was of good colour, crisp, and had the characteristic smell of the vegetable; the dried compressed mixed vegetables had an appetising appearance, and the aroma of well-made vegetable soup.

1. Carrots (cooked).

The samples could not be distinguished in appearance from cold, soft, recently-cooked carrots. Evidently they had been preserved in the tin by some mode of heating or steaming, similar to that employed in preserving meat in tins. Submitted to analysis they yielded:—

	In 100 parts by weight.
Water	89.13
Dry vegetable matter	10.21
Dry mineral matter	0.66
	<u>100.00</u>

The 10.21 parts of dry vegetable matter consisted of:—

Albuminoid matter	0.98
Celluloid matter or fibre	1.14
Fatty matter	0.29
Other non-nitrogenous matter	7.80
	<u>10.21</u>

And the 0.66 of dry mineral matter yielded (together with other less important substances):—

Alkalies (as oxides)	0.31
Phosphoric acid (that is, phosphoric anhydride)	0.08

Carrots, like some other vegetables, absorb large quantities of water when cooked in that liquid. A fair average proportion of water in uncooked carrots is 85 per cent., a proportion which does not naturally vary very widely. That is to say, if 100 pounds of uncooked carrots were thoroughly desiccated, 15 pounds of solid matter would remain, and 85 pounds of water be dissipated—passing away as steam. Now, 100 parts of the cooked carrots just analysed only yielded 10.87 parts of solid matter; or, in other figures, 15 pounds of solid matter would be contained in 138 pounds of these soft, moist,