XXXV. SYNTHESIS OF VITAMIN A BY A FRESH-WATER ALGA, *CHLORELLA* (sp.?).

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JAMESON, DRUMMOND and COWARD [1922] showed that a marine diatom, *Nitzschia closterium* W. Sm., synthesises vitamin A when grown in Miquel's solution or sterilised sea-water in diffused sunlight. This work was, however, open to the criticism that the culture, one supplied by Dr Allen, Plymouth, was not pure, having been found to contain bacteria. Hence it was decided to repeat the work on a culture of *Chlorella* (species undetermined) which was known to be free from bacteria.

Two experiments were performed. In each the culture medium consisted of:

Ca(NO ₃) ₂ , 4H ₂ O	1.7 g.	} dissolved in water,
MgSO ₄ , 7H ₂ O	0.41 g.	
CaCl ₂ (anhydrous)	0.123 g.	
FeCl ₃	50 cc. 0.005 % solution	
K ₂ HPO ₄	0.20 g.	dissolved separately.

The whole of the above was made up to 1000 cc.

For one experiment the above solution was used alone; for the other, 1.5 % agar was added to it. Four flasks of 250 cc. capacity and containing 30 cc. of the culture medium were inoculated daily in each experiment with an emulsion of the alga, for thirty days. Bacteriological precautions were used throughout. The flasks were plugged with cotton-wool, covered with caps of paper and kept near a window with a south aspect for two months in the late summer. In no case were any signs of bacterial growth observed.

For the feeding test the culture was filtered through a wad of starch in a Gooch crucible, as in the previous experiment on *Nitzschia*. In the case of the cultures on agar, the alga was scraped off, and mixed intimately with a small piece of diet. The daily dose per rat (the culture of one flask) was approximately 0.003 g. dry weight. The basal diet, free from vitamin A, was the one used in the diatom experiment and in general use in these laboratories.

Marked resumption of growth in the test animals indicated that *Chlorella* (sp.?) grown in pure culture had synthesised vitamin A.

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REFERENCE.

Jameson, Drummond and Coward (1922). *Biochem. J.* **16**, 482.