$$[Ca^{++}] = \frac{1}{K_a'} \frac{E_a - E_1}{E_2 - E_a},$$

where K_a' is the 'association constant' (the reciprocal of the dissociation constant) of the calcium purpurate complex ; E_1 is the extinction of solution 1 ; E_2 of solution 2 ; E_a of solution a, with a correction for the extinction of the ultrafiltrate without purpurate. K_a' can be determined by the same method, when a calcium solution of a known concentration is taken instead of the ultrafiltrate. The value of K_a' is about 250 at an ionic strength $\mu = 0 \cdot 08$. The concentration of calcium ions of forty samples of normal cow milk was determined. The values obtained ranged from 2·0 to 3·6 m.mol./l., with an average of $2 \cdot 75 \pm 0 \cdot 39$ m.mol./l. (= $11 \pm 1 \cdot 6$ mgm. per cent).

Full details of the method and its theoretical background will be published elsewhere[4]. The study of the application of the method to blood ultrafiltrate has been undertaken.

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Molybdenum Deficiency in Lettuce

Molybdenum deficiency in lettuce has been reported by Brenchley and Warington[1] for water-culture experiments. In Australia, Wilson[2] has shown that a response in growth was obtained in the field by applying a solution of sodium molybdate to the foliage of chlorotic lettuces.

The lettuce experiment reported here was carried out at a field centre known to give molybdenum-deficiency in cauliflower[3]. Plot layout was in the form of a randomized block with threefold replication of treatments. The soil is derived from the Lower Greensand and has an acid reaction. Lettuce (var. Borough Wonder) was sown on January 3, 1951, under Dutch lights, adjacent to the experimental plot. Planting out commenced on March 29, 1951, and the plants were cut for market from June 20 to the end of the month. Treatments, yields and the molybdenum contents of the foliage are shown in the accompanying table.

Yields and Molybdenum Contents of Lettuce

Treatment	Soil pH	Yield (cwt. per acre)	Molybdenum (p.p.m.) in dry matter of leaves
Control	5·2	32	0·06
Gypsum, 3 tons per acre	4·9	24	0·06
Ground limestone, 3 tons per acre	6·3	59	0·09
Ground limestone, 6 tons per acre	6·4	56	0·14
Sodium molybdate, 2 lb. per acre	5·4	45	0·08
Sodium molybdate, 4 lb. per acre	5·2	64	0·08
Gypsum, 3 tons per acre plus sodium molybdate, 2 lb. per acre	5·0	62	0·10
			S.E. 0·03

(*a*) Lettuce showing severe molybdenum deficiency ; (*b*) lettuce growing on plots given sodium molybdate 4 lb. per acre

The symptoms of molybdenum deficiency observed —chlorosis, necrosis and general stunting of growth— were similar to those already reported[1,2]. The remarkable response of the lettuce to sodium molybdate at 4 lb. to the acre is shown in the accompanying illustration.

The yield increases due to treatments involving either ground limestone or sodium molybdate were roughly doubled (see table) compared with the mean of the control and gypsum treatment. While the molybdenum content of the lettuce leaves was increased by ground limestone or sodium molybdate treatments, the increments are scarcely significant. On the other hand, the gross uptake of molybdenum by the larger crops from these treatments is considerably greater than that of the control.

This experiment confirms the general experience that the correction of molybdenum deficiency can be successfully carried out by raising the soil pH to a level when molybdenum becomes available. The investigation will be reported more fully at a later date.

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Effect of Auxins on the Mycelial Growth of *Fusarium oxysporum* var. *cubense*

Hawker[1] recently pointed out that although 3-indolylacetic acid is present in most fungi, its effect on growth-rate has not been convincingly demonstrated. An investigation of this reported inactivity has been made in the course of a study on the nature of the biochemical factors in the soil which influence the growth of the fungal inhabitants.

The two auxins tested were 3-indolylacetic acid and 3-indolylacetonitrile. The nitrile was recently isolated from cabbage leaves[2] and was kindly supplied by Prof. E. R. H. Jones. The test fungus used