

marked diminution of power by alkali treatment but never anywhere near so complete removal of the power as was obtained with adsorbent agents. With yeast autolysate the reduction was marked. With alfalfa extract it was not nearly so marked and in some concentrations the results justify Fulmer, Nelson and Sherwood's view that alkali does not affect the stimulus. Their conclusions would undoubtedly have been different had they tested enough concentrations to see the trend of the curve.

6. Experiments are given to further confirm the effect of known vitamin B precipitants and adsorbents upon the stimulatory power of extracts and a new reagent for use in this connection, viz., a carbon specially activated by Professor McKee, of the Department of chemical engineering of Columbia University, which was developed to adsorb basic substances. This substance has the power to remove the stimulatory power from an extract with the same efficiency as the Lloyd reagent, and when first washed free of all adherent matter with water can by boiling with glacial acetic acid be made to yield again its stimulatory material.

From these experiments it seems to follow that the test is not specific for Vitamin B as conducted by any of the methods now cited in the literature. On the other hand it seems also to follow that the vitamin B is not yet ruled out as one of the factors in the stimulation and to justify further investigation to secure an optimum medium for yeast comparable to those used in rat-feeding experiments.

66 (1648)

The antiscorbutic property of raw, dried and cooked apples and bananas.

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Apples and bananas are the two most generally used of all the fruits consumed by man in this country. The use of these foods is advocated not only for healthy adults and infants¹ but

¹ Pease, M. C., and Rose, A. R., *Am. J. Dis. Child.*, 1917, xiv, 379.

indeed for the sick.¹ These two fruits have been classed for a long time as antiscorbutic agents. It is therefore important to determine as near quantitatively as possible their antiscorbutic potency in the raw state and after subjection to heat treatment such as is ordinarily employed in the preservation and cooking of these materials.

Experiments have been conducted on guinea pigs on a basal diet adequate in all respects except the antiscorbutic vitamine. To determine the presence or absence of this latter factor in raw, dried and cooked apples and bananas a daily allotment of these foods has been fed to the animals. We have found that a per diem dose of 10 grams of raw apples or of bananas will protect a guinea pig against scurvy for three months. On the contrary an equivalent amount of these foods cooked at 100° C. for fifteen minutes or dried at 55–60° C. (with the exception of apples which showed some antiscorbutic potency) or dried at 55–60° C. and cooked for fifteen minutes at 100 °C. will not protect the animals against scurvy.

67 (1649)

The determination of lung volume without forced breathing.

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The dilution method for determining lung volume, invented by Davy and modified by Bohr and his coworkers, and recently by Lundsgaard and Van Slyke, rests on the principle of mixing the air in the lungs with a known volume of foreign gas (H_2 or O_2), and calculating the air content of the lungs from the extent to which either the foreign gas or the nitrogen of the lung air (Lundsgaard and Van Slyke) is diluted. This method yields satisfactory results when the subject can breathe deeply, so that 4 or 5 respirations cause complete mixture of the lung air with the diluting gas. When the subject, however, because of weakness or respiratory disturbance, cannot greatly increase the depth of his respirations, so much time is required for complete mixture that volume changes due chiefly to absorption of oxygen make accurate results unobtainable.

¹ Myers, V. C., and Rose, A. R., *J. A. M. A.*, 1917, lxviii, 1022.