THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

EDITED BY WATSON DAVIS

ISSUED BY
SCIENCE SERVICE
1115 Connecticut Avenue
WASHINGTON, D. C.

EDWIN E. SLOSSON, Director
WATSON DAVIS, Managing Editor

SUBSCRIPTION: $5 A YEAR, POSTPAID

Vol. IV, No. 157 Saturday, April 12, 1924.

PURE VITAMIN ISOLATED FOR FIRST TIME

One of the elusive vitamins has at last been isolated. Drs. WalteryH. Eddy, R. R. Williams and Ralph W. Kerr, working in the laboratories of Teachers College, Columbia University, have obtained from brewers yeast a crystalline substance, containing the elements carbon, hydrogen, nitrogen, and probably oxygen, that has all the properties of vitamin D or "bios", as it is sometimes called.

This vitamin has the property of stimulating the growth of yeast. That yeast contained such a stimulant was announced in 1900 but it has never before been obtained in a chemically pure state.

Although it does not influence animal growth in the way in which vitamins A, B and C do, Dr. Eddy declared:

"A special interest attaches to this isolation from our viewpoint in that the method successful with bios may be extended to study of other vitamins. It will permit physiological studies of how a growth stimulus acts on living matter without the handicap of contaminating factors. We hasten to add with a view to discouragement of the patent medicine field, that there is at present no indication that better growth effects can be obtained with the purified material than with food extracts or foodstuffs holding it in combination."

The properties of the newly isolated substance are given as follows:

"It is crystalline and the crystals melt sharply at 223 degrees Centigrade. The crystals act on polarized light and their index of refraction lies between 1.52 and 1.53. When this crystalline material is added to a yeast culture medium amounts as small as 0.005 milligrams per cubic centimeter of medium produce an increase of yeast growth of about twenty times the control in twenty-four hour incubation. It is too early as yet to construct the formula but we are sure that the carbon per cent is 43, the hydrogen 8, and that the nitrogen content will run about 25 per cent. The yield by our method is about 70 milligrams from six pounds of moist brewers yeast. The process of separation has been repeated several times and with identical results. It is also found that there is a direct correlation between the activity of the yeast extract residue and the amount of crystalline product removed. These results seem to indicate both that the product we have isolated is a chemical

entity and that the activity of yeast growth extracts are due to this entity."

Dr. Eddy is professor of physiological chemistry in Teachers College, Columbia University. Dr. R. R. Williams is in charge of the chemical laboratories of the Western Electric Company and was in the Philippines when vitamin B was first discovered. Dr. Ralph W. Kerr is a recent graduate of Columbia.

Bios was first described by a French scientist, Wildier, in 1900. To similar substances shown to be present in various plant extracts Bottomley later gave the name of auximones. Neither of these authors actually isolated the substance, but they did show that the extracts contained something which stimulated the growth of yeast cells and other organisms.

Interest in the subject was revived in 1916 by Roger Williams who suggested that bios was actually vitamin B. It was finally discovered that while most substances rich in vitamin B do stimulate yeast growth, the stimulationg may be due not to the presence of vitamin B, but to some other factor accidentally associated with it. In 1922 Casimir Funk was able to show that when an extract rich in B was shaken with Fuller's earth the earth would remove all of the power of the extract to cure beri-beri, a property exclusively related to B, but did not remove the yeast growth stimulation factor. Funk interpreted his results to indicate that such extracts contained two vitamins, one the antineuritic factor for which he proposed to retain the name B, and the yeast growth factor which he called vitamin D.

This suggestion of Funk's originated a controversy in which various investigators have taken part. They attempted to show that the yeast growth factor, while highly stimulatory to yeast growth, is not essential to its growth. They would reserve the term vitamin to substances producing growth, but limit it to such as were absolutely essential to growth. Others believe the term vitamin should be restricted to such factors as are essential to mammalian nutrition. Thus the yeast growth factor has been described under the two names, bios and vitamin D.

READING REFERENCE - McCollum, E. V. The Newer Knowledge of Nutrition. New York, Macmillan Company, 1922.

RESEARCH FOR BETTER LIGHTING INAUGURATED

Thomas A. Edison, "the father of the electric lighting industry", has accepted the honorary chairmanship of the National Research Council Committee on Industrial Lighting, which is now being organized to conduct an extensive investigation of the relation of illumination to industrial production and the reduction of industrial fatigue.

This scientific investigation plans to increase production and decrease rejections of manufactured products, to better working conditions through the decrease of industrial fatigue and the increase of safety measures and compensation, and to conduct an educational campaign urging better lighting. In administrative charge is a general directive board with Prof. Dugald C. Jackson of