

ABSTRACTS.

(Papers read before the Institute but not published in the Proceedings).

THE INORGANIC NUTRIENT REQUIREMENTS OF *Bacillus Coli Communis*. Robert Begg, Dept. of Biochemistry, Dalhousie Univ., Halifax, N. S. (Read Nov. 7, 1938). (1) *Bacillus coli communis* can grow and reproduce through serial subcultures on a medium containing less than one and six parts per hundred million for copper and calcium and less than one part per million for iron and magnesium respectively. (2) Magnesium is a powerful growth stimulant for *Bacillus coli*, iron, copper and calcium having little effect. (3) Much investigation must be done before the elucidation of the inorganic nutrient requirements of *Bacillus coli communis* is completed. (4) Methods and apparatus are described which may be used for the purification of glycerol, sodium chloride, ammonium sulphate, and the mono-basic potassium and the di-basic sodium phosphates.

PHOTOMETRIC MEASUREMENT WITH THE ORDINARY COLORIMETER: HEMOGLOBIN DETERMINATIONS. C. B. Weld, Dept. of Physiology, Dalhousie Univ., Halifax, N. S. (Read Nov. 7, 1938). By using a series of (Ilford) "spectral" color filters on the eyepiece of the colorimeter, the light passing through the colorimeter is rendered virtually monochromatic. The light absorbing power of the unknown solution is compared with that of a standard neutral grey screen. Absorption spectra so determined have been made with oxyhemoglobin, acid hematin and the Newcomer glass standard for hemoglobin determinations. The Newcomer standard shows serious quantitative differences from the acid hematin it is supposed to represent, absorbing more blue and less yellow. The discrepant findings between the Newcomer (color method) and the Van Slyke (gasometric method) determinations for hemoglobin, previously reported, have been confirmed. The absorption spectra of the different bloods are all similar and hence it is concluded that the discrepancy is at least not due to some admixing color.

A STUDY OF FISH SPOILAGE. V. K. Collins, Fisheries Experimental Station (Atlantic), Halifax, N. S. (Read Nov. 7, 1938). The use of trimethylamine oxide and of lactic acid by bacteria shows their significance in fish spoilage. The changes in these substances and their end-products are studied quantitatively.

AN UNDESCRIBED COMPOUND OF HISTIDINE. W. W. Johnston, Fisheries Experimental Station (Atlantic), Halifax, N. S. (Read Dec. 5, 1938). In the course of an investigation on the extractives of certain fish muscles a salt was isolated which has been identified as a compound of histidine with barium nitrate.

THE SYNTHESIS OF d:1- β -3:4-DIHYDROXYPHENYL-N-METHYLALANINE. R. D. H. Heard, Dept. of Biochemistry, Dalhousie Univ., Halifax, N. S. (Read Dec. 5, 1938). The above-mentioned dimethylamino acid was synthesized with a view to a study of its biological oxidation with reference to the synthesis of adrenaline in vivo.

THE ULTRACENTRIFUGAL AND ELECTROPHORETIC ANALYSIS OF THE PROTEINS OF EGG WHITE. E. Gordon Young, Dept. of Biochemistry, Dalhousie Univ., Halifax, N. S. (Read Jan. 23, 1939). An attempt has been made to determine the physical condition of the protein in

native egg white by physical means. Ultracentrifugal methods have been shown to be of little help because of experimental limitations. Using the cataphoretic apparatus of Tiselius egg white has been demonstrated to possess six boundaries of varying densities. It is further shown by this technique that ovomucin and ovomucoid as at present prepared consist of several protein fractions.

HYDROLYSIS OF THE CONJUGATED OESTROGENS OF MARES' PREGNANCY URINE. M. Edson and R. D. H. Heard, Dept. of Biochemistry, Dalhousie Univ., Halifax, N. S. (Read Jan. 23, 1939). Conditions have been established which secure optimum conversion of the water soluble biological inactive conjugated oestrogens of mares' pregnancy urine into the ether soluble physiologically potent free hormones. Maximum hydrolysis of the combined forms in early, middle and late pregnancy urine is obtained under the same conditions in spite of the variation in relative amounts of the different hormones which are known to occur.

CANADIAN ATLANTIC COD MIGRATIONS. R. A. McKenzie, Fisheries Experimental Station (Atlantic), Halifax, N. S. (Read Jan. 23, 1939). The movements of the codfish may be divided into three main types. Some fish remain approximately in one region all the time, shifting only on and off shore a few miles with the change of seasons. These may be classed as "natives" or "residents", having a very restricted type of migration. Other fish may move along a definite route season by season, returning to approximately the same region by the same time the following year. These have an extended type of migration. Still other fish move away from a given point and appear never to return to it. These may be called "rovers" or "wanderers".

A NEW TYPE OF CALORIMETER. C. C. Coffin, Dept. of Chemistry, Dalhousie Univ., Halifax, N. S. (Read March 13, 1939). An isothermal naphtholene calorimeter analagous to the Bunsen ice calorimeter has been developed. The outer bath consists of the vapour of benzene boiling under a definite adjustable pressure so that the sign and magnitude of the heat leak can be readily controlled. Various tests of the apparatus are described and some possible uses are discussed.

THE ULTRA VIOLET ABSORPTION SPECTRUM OF SALMON EGG OIL. J. H. L. Johnstone and F. R. Hayes, Depts. of Physics and Biology, Dalhousie Univ., Halifax, N. S. (Read April 10, 1939). Estimations were made with a Hilger Spectro-photometer of the absorption of ultra violet light by oil extracted from developing salmon eggs. No absorption band was detected at 3300, which led to the conclusion that Vitamin A, if present at all, must have been in very small quantities—less than 2 International Units per egg. A band was observed at 2600-2700 with $E_{1\text{cm}}^{1\%}$ of about one, suggesting the presence of Vitamin D or some sterol related to it. There was no clear evidence that any change took place in the intensity of this latter band during development.