# CONTENTS

No. 1 JULY, 1940

C. T. BLUNN, C. E. HOWELL AND R. W. CALDWELL. The calcium, inorganic phosphorus and magnesium content of the blood serum of young horses.  

CARL H. KRIEGER, RUDOLF BUNKFELDT AND HARRY STEENBOCK. Cereals and rickets. X. The availability of phytic acid phosphorus.  

CARL H. KRIEGER, RUDOLF BUNKFELDT AND HARRY STEENBOCK. Cereals and rickets. XI. Calcium phytate as a source of calcium.  

MARGARET CAMMACK SMITH AND HARRY SPECTOR. Calcium and phosphorus metabolism in rats and dogs as influenced by the ingestion of mineral oil.  

CURT P. RICHTER AND KATHRYNE H. CAMPBELL. Taste thresholds and taste preferences of rats for five common sugars. Five figures.  

E. B. FORBES, ALEX BLACK, EDWARD J. THACKER AND R. W. SWIFT. The plane of intake of beef muscle protein as affecting the energy and the nitrogen metabolism of the mature albino rat.  

EATON M. MACKAY, JAMES W. CALLAWAY AND RICHARD H. BARNES. Hyperalimentation in normal animals produced by protamine insulin. Three figures.  

EDWARD LEB. GRAY, KENNETH MORGAREIDGE AND JOHN D. CAWLEY. Intestinal absorption of vitamin A in the normal rat.  

KENNETH MORGAREIDGE AND SIDNEY B. FINN. Effect of fluorine on the activity of vitamin D in rachitic rats. Four figures.  

ROBERT A. KEHOE, JACOB CHOLAK AND ROBERT V. STORY. Editorial Review. Manganese, lead, tin, aluminum, copper and silver in normal biological material.
CONTENTS

No. 2 AUGUST, 1940

MARTHA S. RICHMOND, G. H. SATTERFIELD, C. D. GRINNELLS AND W. J. DANN.
Ascorbic acid content of goat's milk and blood: Influence of ascorbic acid injection and diet. Three figures

G. C. SUPPLEE, R. C. BENDER AND O. J. KAHLER. The effect of complementing factors on the quantitative response and specificity of vitamin B₁₂. Three charts and one plate (seven figures)

CARL H. KRIEGER AND HARRY STEENROCK. Cereals and rickets. XII. The effect of calcium and vitamin D on the availability of phosphorus

MIRIAM F. CLARKE, MARIE LECHYCKA AND CHARLES A. COOK. The biological assay of riboflavin. Two figures

GEORGE BACHMANN, JOHN HALDI, WINFREY WYNN AND CHARLES ENSOR.
The effects produced by decreasing the calcium and phosphorus intake on calcium and phosphorus absorption and deposition and on various bodily constituents of the rat

HARRY G. DAY. With the technical assistance of Betty Eckenrode. The relation of phytin to the calcifying action of citrates

OLGA B. SAFFRY, HAZEL S. COX, BERNICE L. KUNERTH AND MARTHA M. KRAMER. A biological assay of riboflavin in the liver of the cow, calf, sheep, lamb, and hog. Two figures

CHARLES H. HUNT AND R. M. BETHKE. The riboflavin content of certain hays and grasses

RICHARD H. FOLLIS, JR., HARRY G. DAY AND E. V. McCoLLUM. Histological studies of the tissues of rats fed a diet extremely low in phosphorus. One plate (six figures)

No. 3 SEPTEMBER, 1940

MARGARET CAMMAC SMITH AND HARRY SPECTOR. Further evidence of the mode of action of vitamin D

ALBERT G. HOGAN, LUTHER R. RICHARDSON, PAUL E. JOHNSON AND RUTH NORTON NISBET. Pigeon anemia as a deficiency disease. Five text figures and one plate (two figures)
CONTENTS

HARRY J. DEUEL, JR., LOIS HALLMAN AND ALVIN LEONARD. The comparative rate of absorption of some natural fats ................................. 215

HARRY J. DEUEL, JR., AND LOIS HALLMAN. The rate of absorption of synthetic triglycerides in the rat ............................................. 227

E. H. HUGHES. The minimum requirement of riboflavin for the growing pig. Two figures ...................................................... 233

E. H. HUGHES. The minimum requirement of thiamin for the growing pig. One figure ......................................................... 239

ERNESTINE ELMENDORF AND HAROLD B. PIERCE. The calcium and phosphorus content of certain vegetables grown under known conditions of fertilization .......................................................... 243

ARTHUR H. SMITH, D. J. BARNES, C. E. MEYER AND M. KAUCHER. The metabolism of citric acid by infants ........................................ 255

J. B. SHIELDS, B. W. FAIRBANKS, G. H. BERRYMAN AND H. H. MITCHELL. The utilization of calcium in carrots, lettuce and string beans in comparison with the calcium in milk ........................................ 263

ELIZABETH KEMPSTER, HERTA BREITER, ROSALIND MILLS, BEULA McKEY, MARIE BERNS AND JULIA OUTHOUSE. The utilization of the calcium of di-calcium phosphate by children. One figure .................. 279

Z. I. KERTESZ. Pectic enzymes. V. The fate of pectins in the animal body. One figure ......................................................... 289

ROBERT C. LEE. Relationship between insensible loss of weight and heat production of the rabbit. One figure ...................... 297

No. 4 OCTOBER, 1940

ALFRED T. SHOHL AND KENNETH D. BLACKFAN. The intravenous administration of crystalline amino acids to infants ........................................ 305

ARTHUR KNUDSON AND ROBERT J. FLOODY. Fat as a factor in the healing of rickets with vitamin D. One figure .......................... 317

WARREN W. WOESSNER, C. A. ELVEJEM AND HENRY SCHUETZE. The determination of ascorbic acid in evaporated milk, powdered milk and powdered milk products .................................................. 327
E. W. McChesney and E. Homburger. A modification of the line test applicable to chicken vitamin D assay. Four text figures and two plates (six figures) .......................... 339

Marjorie Pickens, William E. Anderson and Arthur H. Smith. The composition of gains made by rats on diets promoting different rates of gain. One figure ................................. 351

James H. Jones. The influence of fat on calcium and phosphorus metabolism 367

A. Z. Hodgson. The influence of dietary riboflavin on the content of this vitamin in chicken tissue .......................... 377

Margaret Lawrenz, H. H. Mitchell and W. A. Ruth. The comparative assimilation of fluorine by growing rats during continuous and intermittent dosage .......................... 388

Dorothy E. Williams, Florence L. MacLeod and Elise Morell. Availability to white rats of phosphorus in soybean and red clover hays ...... 391

C. G. Mackenzie, Milton D. Levine and E. V. McCollum. The prevention and cure of nutritional muscular dystrophy in the rabbit by alpha-tocopherol in the absence of a water-soluble factor .......................... 399

No. 5 NOVEMBER, 1940

Mildred K. Dimick and Albert Lepp. Relation of pantothenic acid to the filtrate fraction of the vitamin B complex .......................... 413

Ada R. Clark and Claus W. Jungeblut. Vitamin C metabolism in eastern cotton rats .................................................. 427

H. D. Anderson, C. A. Elvehjem and J. E. Gonce, Jr. A comparison of the nutritive values of raw, pasteurized and evaporated milks for the dog. Three text figures and one plate (six figures) .......................... 433

Thomas H. Jukes. Effect of choline and other supplements on perosis. Two figures .......................... 445

S. B. Randle, H. A. Soper and G. O. Kohler. The distribution of the ‘‘grass juice factor’’ in plant and animal materials. One figure .......................... 459

Rosalind Mills, Hesta Breiter, Elizabeth Kempster, Beula McKey, Marjorie Pickens and Julia Outhouse. The influence of lactose on calcium retention in children .......................... 467
W. J. Dann, H. I. Kohn and P. Handler. The effect of pyrazine acids and quinolinic acid on the V-factor content of human blood and upon canine blacktongue. Four figures ............................................ 477

J. K. Riggs. The length of time required for depletion of vitamin A reserves in range cattle .......................................................... 491

K. E. Mason and W. L. Bryan. Placental and mammary transfer of vitamin E in the rat ................................................................. 501

No. 6 DECEMBER, 1940

Harry A. Waismann and C. A. Elvehjem. Multiple deficiencies in the modified Goldberger diet as demonstrated with chicks. Two figures .............. 519

L. W. McElroy and Harold Goss. A quantitative study of vitamins in the rumen contents of sheep and cows fed vitamin-low diets. I. Riboflavin and vitamin K. Four figures .............................................. 527

L. W. McElroy and Harold Goss. A quantitative study of vitamins in the rumen contents of sheep and cows fed vitamin-low diets. II. Vitamin B₁ (pyridoxine). Two figures .................................................... 541

P. B. Pearson, A. H. Winegar and H. Schmidt. Studies on the metabolism of nicotinic acid in the sheep. Two figures ............................. 551

Klaus Unna. Pantothenic acid requirement of the rat. Three figures ...... 565

Irvin J. Belasco and John R. Murlin. The effect of vitamins A and C on experimental hyperthyroidism. Two figures ................................. 577


D. Mark Hegsted, J. J. Olson, R. C. Mills, C. A. Elvehjem and E. B. Hart. Studies on a dermatitis in chicks distinct from pantothenic acid deficiency. One figure ........................................ 599

Cecil Van Ettten, N. R. Ellis and L. L. Madsen. Studies on the thiamin requirement of young swine. One text figure and one plate (four figures) 607

Agnes Fay Morgan and Helen D. Simms. Anti-grey hair vitamin deficiency in the silver fox. Three figures ........................................... 627