The Renal Regulation of Acid Base Balance with Special Reference to the Mechanism for Acidifying the Urine: Dr. Robert F. Pitts

Obituary:
George Lees Taylor: Dr. A. S. Wiener. Recent Deaths

Scientific Events:
The Office of War Information; The American Congress on Surveying and Mapping; The American Standards Association; The British Guiana Natural History Museum; News of European Investigators; Anniversary of the Academy of Sciences of the Soviet Union

Scientific Notes and News

Special Articles:

Scientific Apparatus and Laboratory Methods:
Compounds for Control of Orange Decays: Dr. J. F. L. Childs and Dr. E. A. Sigler. The Electronic Blanching of Vegetables: Dr. James C. Moyer and Professor Elmer Stote

Discussion:
Fagarine, a Possible Substitute for Quinidine: Professor Venancio Deulofeu, Rafael Labriola, Oscar Oria, E. Moisset De Espanós and Alberto Taquin. The Effects of DDT and of Sodium Monofluoracetate upon Physarum Oblonga Morgan: Dr. Cyril E. Abbott. Relationship between Pathogenicity and pH Tolerance of Microorganisms: Dr. Horace A. Eisman. Sleeve Stoppers in Closed Systems: Dr. F. H. McCutcheon

Societies and Meetings:
Annual Meeting of the Royal Society of Canada: Professor G. H. Ettinger

Scientific Books:
Climate and Human Health: Professor H. C. BAZETT. Amino Acids and Proteins: Dr. Hans T. Clara. Books Received

Science News

SCIENCE: A Weekly Journal, since 1900 the official organ of the American Association for the Advancement of Science. Published by the American Association for the Advancement of Science every Friday at Lancaster, Pennsylvania.

Editors: JOSEPHINE OWEY Cattell and Jaques Cattell.
Policy Committee: Malcolm H. Soule, Roger Adams and Walter R. Miles.


Communications relative to articles offered for publication should be addressed to Editors of Science, 1215 Fifth Avenue, New York 29, N. Y.

Communications relative to advertising should be addressed to Theo. Christensen, Advertising Manager, Smithsonian Institution Building, Washington 25, D. C.

Communications relative to membership in the Association and to all matters of business of the Association should be addressed to the Permanent Secretary, A.A.A.S., Smithsonian Institution Building, Washington 25, D. C.

Annual subscription, $6.00 Single copies, 15 cents

THE RENAL REGULATION OF ACID BASE BALANCE WITH SPECIAL REFERENCE TO THE MECHANISM FOR ACIDIFYING THE URINE

By Dr. Robert F. Pitts
Associate Professor of Physiology, Cornell University College of Medicine

Large quantities of acid are continuously produced in the body by the metabolism of the various food-stuffs, yet in health the hydrogen ion concentration of the body fluids is maintained remarkably constant. This regulation of balance between the acidic and basic constituents of the body fluids is dependent upon both respiratory and renal homeostatic mechanisms. In a quantitative sense the rate of production of carbonic acid, amounting to about 20 mols per day, far exceeds the rate of production of other metabolic acids. But because of the volatility of its anhydride, carbon dioxide, carbonic acid is readily and rapidly eliminated by the lungs. Less than one one-hundredth of this quantity of phosphoric and sulfuric acid is produced each day, yet the excretion of these acids, which is effected largely by the kidneys, is in some ways a greater problem than is the excretion of the much larger quantities of carbonic acid. Rarely does any disease process lead to a disturbance of acid base balance because it interferes with the elimination of carbonic acid in the lungs.