



The two atoms of hydrogen which are removed in the condensation, reduce a part of the quinone to the corresponding hydroquinone. This reaction is of interest since hydrazones are formed from quinone and acylated phenylhydrazines. The new compound is a bright red crystalline body which melts at $158^{\circ}.5$.

On the Action of Certain Acid Reagents on the Substituted Ureas. By F. B. DAINS. *J. Am. Chem. Soc.*, 22, 181-198.—The action of a number of acids, acid chlorides, and acid anhydrides on substituted ureas was studied, and in no case was the direct introduction of an acyl group observed. In all cases the temperature required to produce reaction was so high that acyl ureas were never isolated, but only their decomposition-products. The experiments presented show that the reaction between thioureas and organic monobasic acids gives fairly constant results, the products being carbon dioxide, hydrogen sulphide, water, aniline, the anilide, mustard oil, and carbanilide. With dibasic acids and acid chlorides the reaction is more complicated and varied. Reference must be made to the original paper for the large number of details given.

The History of the Constitution of the Alkaloids. By A. R. L. DOHME. *Am. J. Pharm.*, 72, 9-25.

Racemism. By ROBERT HART BRADBURY. *J. Franklin Inst.*, 149, 299-314.—A historical lecture.

BIOLOGICAL CHEMISTRY.

A. G. WOODMAN, REVIEWER.

Preliminary Communication on the Chemistry of Mucin. By P. A. LEVENE. *J. Am. Chem. Soc.*, 22, 80-85.—The author has obtained a substance with acid properties from tendonmucin, submaxillary mucin, and a mucoïd carcinoma. Its chemical properties, as well as the analysis of its copper salt, point to its identity with chondroitinsulphuric acid. The results of this preliminary investigation seem to show that the mucins in general are not simple compounds of proteids and carbohydrates, but are proteid derivatives of an ethereal sulphuric acid.

On the Maximum Production of Hippuric Acid in Rabbits. By W. H. PARKER AND GRAHAM LUSK. *Am. J. Physiol.*, 3, 472-484.—The authors conclude that in metabolism the proteid molecule, the same being likewise true of gelatine, may yield

glycocol to the extent of 3 or 4 per cent., the amount of hippuric acid found being taken as a measure of the formation of glycocol. The carbohydrates do not increase the formation of glycocol. Details are given of an improved method for the determination of hippuric acid in urine.

On the Metabolism of Matter in the Living Body. By EDWARD B. ROSA. *Phys. Rev.*, 10, 129-150.—The author has calculated the balance of oxygen and of matter for a four-days' metabolism experiment made with a respiration calorimeter (*this Rev.*, 6, 104). The change in weight of the subject during the 96 hours, which was observed as a check upon the calculations, is shown by graphical representations. Suggestions are also made for an improved method for obtaining the weight of the subject by means of outside observations.

Dietary Studies of Negroes in Eastern Virginia in 1897 and 1898. By H. B. FRISSELL AND ISABEL BEVIER. *U. S. Dept. Agr., Bull.* 71, 1-45.—As a result of these investigations it was found that in the negro families which had come under the influence of educational institutions, such as Hampton and Tuskegee, the diet resembled quite closely that of the ordinary white family under similar conditions. In the other cases studied, the difference was not so much in the amount of nutritive material as in the manner of preparing and serving it. No analyses of food materials are given, the composition being estimated from tables previously published.

Dietary Studies of University Boat Crews. By W. O. ATWATER AND A. P. BRYANT. *U. S. Dept. Agr. Expt. Sta. Bull.*, 75, 1-72.—These studies further emphasize the large amount of energy in the dietaries of athletes and the striking difference in the amounts of protein consumed by them and by ordinary working people. A comparison between the dietaries of the boat crews and the average of fifteen college clubs showed a difference in protein amounting to four and a half times the difference in fuel value. The results tend to confirm the view that men or animals who perform intense muscular work for short periods of time, under more or less nervous strain as well, require a larger supply of protein than under normal conditions of slow, long continued work. It is a question, however, whether under these "normal" conditions a part of the energy is not supplied by fat rather than by protein.

Character and Extent of Food and Drug Adulteration in Massachusetts, and the System of Inspection of the State Board of Health. By ALBERT E. LEACH. *Tech. Quart.*, 13, 22-40.—This article, which does not admit of a brief review, is

a rather popular discussion of the extent of adulteration in Massachusetts and of the kind of substances usually adulterated.

Soil Investigations. By HARRY SNYDER. *Minn. Agr. Expt. Sta. Bull.*, 65, 1-84.—This bulletin contains a discussion of the chemical and mechanical composition of certain Minnesota soils, together with an outline of their characteristic features and the measures which the author considers necessary to preserve their fertility.

The Proteids of Wheat Flour. By HARRY SNYDER. *Minn. Agr. Expt. Sta. Bull.*, 63, 519-533.—The author has made a study of the proteids of a number of samples of flour and mill products, following the methods proposed by Osborne and Voorhees (*Am. Chem. J.*, 15, 392), for the separation of the proteids. Among other observations it was found that while the lower grades of flour contain more protein than the high grades, the gliadin and glutenin in the lower grades are not present in the right proportion to form a well-balanced gluten; that is, one which will produce bread of the best physical properties. The gliadin-glutenin ratio in different grades of flour made from the same wheat was found to vary from 25 to 75 in the red dog or lowest grade, to 65 to 35 in the highest. A well-balanced gluten is considered to have this ratio approximately as 65 to 35.

Winter vs. Spring Bran. By WILLIAM FREAR AND W. A. HUTCHINSON. *Pa. State Coll. Agr. Expt. Sta. Bull.*, 48, 1-8.—The analysis of twenty samples shows that the average spring wheat bran is drier than winter wheat bran and contains less starchy matter and appreciably more protein and fat, as well as ash and fiber.

The Feeding Value of Sorghum as Shown by Chemical Analysis. By R. W. THATCHER. *Nebr. Agr. Expt. Sta. Bull.*, 62, 65-72.—Experimental tests have shown that sorghum possesses different feeding values at different stages of growth. A series of analyses made to find the reason for this show that when the plant is young it is deficient in flesh-forming material, being about the same as timothy. An interesting point is the apparent absence of sugar when the seed is sown broadcast instead of in rows.

A Chemical Study of the Apple and Its Products. By C. A. BROWNE, JR. *Pa. Dept. Agr. Bull.*, 58, 1-46.—In this bulletin the author discusses the chemical composition of the apple, the chemistry of its growth and ripening, and the effect of storage. A further discussion is also given of the principal apple products, including evaporated apples, cider, jelly, apple butter, apple

pomace, and vinegar. A short bibliography of the most important books relating to the subject is appended.

Experiments with Potatoes. By CHAS. D. WOODS AND J. M. BARTLETT. *Me. Agr. Expt. Sta. Bull.*, 57, 145-158.—Experiments have been made with regard to the effect upon the starch content of potatoes of spraying them with Bordeaux mixture. The average amount of starch found in the sprayed samples was 19.06 per cent., and in the unsprayed samples 17.43 per cent.

Cider Vinegar: Its Solids and Ash. By R. E. DOOLITTLE AND W. H. HESS. *J. Am. Chem. Soc.*, 22, 218-220.—The solids of pure cider vinegar consist of glycerol, albuminous substances, gums, malic and other organic acids, and mineral matter; they give no rotation with the polariscope and little or no reduction of Fehling solution after clarification with lead acetate. The ash, which should not be less than 0.75 per cent., consists mainly of potash with small amounts of sulphuric and phosphoric acids. A spurious vinegar was found to be composed of dilute acetic acid, glucose, and soda ash; another, of acetic acid, boiled cider, and lime.

The Oregon Prune. By G. W. SHAW. *Ore. Agr. Expt. Sta. Bull.*, 61, 1-18.—This bulletin contains the results of analysis of fresh and cured prunes, showing their proximate composition, food value, and soil draught.

Commercial Fertilizers. *Me. Agr. Expt. Sta. Bull.*, 60, 24-29; *R. I. Agr. Expt. Sta. Bull.*, 60, 39-48; *La. Agr. Expt. Sta. Bull.*, 58, 190-264; *Ky. Agr. Expt. Sta. Bull.*, 85, 79-129; *Wis. Agr. Expt. Sta. Bull.*, 81, 1-8; *N. Y. Agr. Expt. Sta. Bull.*, 173, 531-552; *Vt. Agr. Expt. Sta. Bull.*, 77, 141-147.

ANALYTICAL CHEMISTRY.

PROXIMATE ANALYSIS.

A. G. WOODMAN, REVIEWER.

Foreign Coloring Matter in Milk. By ALBERT E. LEACH. *J. Am. Chem. Soc.*, 22, 207-210.—The principal substances used at present to color milk are annatto, caramel, and yellow aniline dyes. To detect their presence about 150 cc. of milk are curdled by heat and acetic acid and the curd separated as much as possible from the whey. The curd is macerated for an hour or more with ether which extracts only the annatto. If the curd, after pouring off the ether, is not left perfectly white the presence of one of the other colors may be suspected. A portion of the fat-free curd is placed in a test-tube and shaken with con-