antiurease which has been obtained is similar to rabbit antiurease. It protects rabbits from a fatal dose of urease, inhibits the action of urease on urea and can be recovered and purified by the method described by Sumner and Kirk.[2]

One of the most important points brought out by this work is that although urease does not cause visible poisoning in the hen, nevertheless antiurease is formed.

6069

Occurrence of a Silico-carbohydrate Derivative in Animal Tissue.

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Although silicic acid has long been known to occur in practically every tissue of the living organism there has been no evidence that it is in combination with organic matter as are, for example, sulphuric and phosphoric acids. Drechsel[1] long ago reported its occurrence as an ester of cholesterol in bird feathers but there has been no confirmation of his observation since.

Kraut[2] has recently reported that the silicic acid content of human blood is constant in any one individual at different times, that it varies considerably in different individuals and that a temporary variation can be brought about in any one individual by the administration of silicates.

By the electro-dialysis of gelatin, ox tendon, horse and ox-blood, and human urine, the writer has recovered, at the cathode, small amounts of a jelly-like substance, containing both silicic acid and organic matter, and giving a test for carbohydrates. This substance is insoluble* in water, in 5% hydrochloric acid and in dilute alkali. It chars when heated on platinum and discolors concentrated sulphuric acid when heated. A suspension in water slowly gives the Molisch test for carbohydrates. It is changed by heating with 10%

[2] Sumner, J. B., and Kirk, J. S., *Zeit. für Physiol. Chem.* in press.

[1] Drechsel, E., *Centrbl. Physiol.*, 1897, **11**, 361.

[2] Kraut, H., *Hoppe Seyler's Z. Physiol. Chem.*, 1931, **194**, 81.

* The substance carried by the electric current is soluble. It appears to become insoluble in the process of its recovery by evaporation following saturation with CO_2.

sodium hydroxide so that the organic matter and a part of the silicic acid go into solution, while the residue now left is soluble in 5% hydrochloric acid and contains calcium, iron and silicic acid. It does not give a test for cholesterol.

The organic fraction of the substance appears to be comparatively small and it cannot be stated to what extent a more complex substance was disintegrated by the electro-dialysis.

Unlike the present substance, colloidal silica is negatively charged and migrates to the anode. The possibility of a gravity drift was guarded against in the present experiments. No distinct particles of the substance recovered in the present experiments could be seen when magnified 1000 diameters, and it can be recovered by electrodialysis through a collodion membrane which does not permit protein to pass. These facts and the general behavior of this substance make it seem most unlikely that it consists of organic matter adsorbed on colloidal silica.

While working with fairly large amounts of raw material, the amounts of substance recovered, especially from blood and urine, have been very small and larger amounts will be required to determine the more exact nature of this substance and its biological significance.

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The Intestinal Flora of Rachitic Rats Before and After Treatment with Ultra-violet Rays.

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Zucker and Matzner[1] showed that when rats develop rickets as the result of being placed on a standard rickets-inducing ration, high in calcium and low in phosphorus, the feces become more alkaline and that on the administration of cod liver oil the reaction veers quickly to the acid side. These observations have been amply substantiated. Grayzel and Miller[2] showed later that the reaction of the intestinal contents of dogs is acid throughout almost the entire

[1] Zucker, T. F., and Matzner, M. J., PROC. SOC. EXP. BIOL. AND MED., 1923, **21**, 186.

[2] Grayzel, D. M., and Miller, E. G., *J. Biol. Chem.*, 1928, **76**, 423.