

The last method proved more sensitive in the group of known syphilitics than the other procedures tested. Furthermore, a positive result thus obtained proved to be more trustworthy evidence of syphilis than did positive results obtained with the cholesterinized antigen and first incubation at 37° C.

6 (1184)

**The influence of alkali upon the glycosuria, hyperglycemia and carbon dioxide combining power in human diabetes.**

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Murlin and Kramer<sup>1</sup> have shown that alkali administered to depancreatized dogs reduces the glycosuria, often lowers the blood sugar, and, especially in partially depancreatized animals, assists in the combustion of glucose. It has been held generally that alkali administered to diabetic patients does not influence the glycosuria<sup>2</sup> or hyperglycemia. A critical study of several cases kept under perfect dietary control in the metabolism ward of the Sage Institute of Pathology in Bellevue Hospital during the past summer seems to show, however, that alkali (1 per cent. Na<sub>2</sub>CO<sub>3</sub>) administered by duodenal tube often reduces the glycosuria very materially and may likewise affect the hyperglycemia.

A preliminary study of the blood sugar and carbon dioxide combining power of the whole blood in six patients with diabetes and several normal persons exhibits a striking inverse relationship which is almost proportional.

Two patients among the eight studied exhibited features of special interest. One (Frank B.) had a normal blood sugar throughout but excreted from 25 to 39 gm. of sugar, regardless of the amount eaten. He is probably a case of renal glycosuria. The

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<sup>1</sup> Murlin and Kramer, *Journal of Biological Chemistry*, 1916, *Proceedings of American Society of Biological Chemists*, XXIV, March No., p. i; Full report, *Ibid.*, 1916, XXVII, Nov. No.

<sup>2</sup> Von Noorden, *Handbuch der Pathologie des Stoffwechsels*, II, Berlin, 1907, p. 576.

other (Harry H.) was sugar-free for two weeks on 15, 30 and 50 gm. carbohydrate but had no pancreatic digestion. When given pancreatic digestion with lactopeptine<sup>1</sup> (New York Pharmacal Ass'n) or Merck's pancreatin he excreted about 60 out of 100 gm. carbohydrate fed. Proof that such digestive powders do survive the stomach was established by recovery of them from the intestine by means of the duodenal tube. The utilization of carbohydrate under these circumstances was apparently increased by giving 0.3 per cent. sodium carbonate by duodenal tube.

## 7 (1185)

**The influence of radium emanation on the activity of vitamine.**

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The present investigation was undertaken with the view of finding out a method of differentiation between the vitamine which cures beriberi and the vitamine which stimulates growth of young rats. It was also of interest to ascertain whether an unstable substance of the vitamine class would undergo inactivation under the action of emanation. This latter point is of practical importance in view of the extensive use of radium in the treatment of cancer. In the light of modern knowledge of the subject the therapeutic use of radium for the above purpose can be explained by a stimulation of leucocytes or by a destructive action of a physiologically active chemical substance, the second view not being supported by actual experiments; so for instance the alleged action of radium on lecithin with the liberation of choline was not confirmed by modern investigators.

The experiments were performed in the following way. Autolyzed yeast was subjected to the action of radium emanation (the activity of which and the time of action has been determined by Dr. Bosworth from Memorial Hospital, the details of the work to be presented later) samples of the radiated and the non-radiated control autolyzed yeast being injected intramuscularly into pigeons

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<sup>1</sup> 10 gm. Lactopeptine produced the same digestion, as measured by the output of sugar, as 5 gm. Merck's pancreatin.