followed the administration of insulin, although the blood sugar fell decidedly below the convulsive level.

A progressive increase in heat production usually occurred after the administration of insulin irrespective of the R. Q. obtained. This may indicate that insulin directly increases fat metabolism.

202 (2725)

Disappearance of ketone bodies in presence of unoxydized sugar in completely phlorizinized dogs.

By M. WIERZUCHOWSKI. (Introduced by Graham Luske).

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Sugar (glucose or levulose), given in proper amounts to starving, completely phlorhizinized dogs which have ketosis and are in coma, causes the disappearance of ketone bodies from the urine and blood for a period of 9 to 24 hours with corresponding clinical improvement of the animal, in spite of the fact that the sugar given may not be oxidized as has been shown by calorimeter experiments,[1] and may be quantitatively recovered from the urine. The degree of aketosis (the state when ketosis is absent when it could be expected) is favorably influenced by the amount of sugar administered, and therefore by the curve of extra sugar excretion. The excretion of ketone bodies after administration of sugar goes hand in hand with the fall in the nitrogen elimination noted by Deuel and Chambers.[2] The ketone bodies do not stagnate in the body because they disappear from the blood. There is no increase of the ketosis symptoms, but in some cases an amelioration of these symptoms; and there is no compensatory after excretion of the ketone bodies. There is also no renal impairment in Allen's sense[3] which could cause aketosis. There

[1] Ringer, Michael, *J. Biol. Chem.*, 1923, lviii, 483.

[2] Deuel, H. J., Jr., and Chambers, Wm. H., *J. Biol. Chem.*, 1925, lxiii, 22.

[3] Allen, F. M., *J. Metabol. Res.*, 1923, iv, 579.

is no difference between glucose and levulose in producing aketosis.

Thus the "fire of carbohydrates" is not always necessary to oxidize completely the end products of fat metabolism in the phlorhizinized dog, but a mere increase in the quantity of glucose is sufficient to do so, possibly, by contact action between it and the ketone bodies. From a general standpoint it is interesting to note that a substance, such as sugar, which is not retained nor oxidized but is slowly and completely eliminated from the body, nevertheless, by its mere presence in even small amounts (as little as 20 grams) is able to produce a complete oxidation of fat to its normal end products, associated with a sparing action upon protein, and at the same time to improve, sometimes to a high degree, the clinical state of the dogs in diabetic coma.

203 (2726)

Ramon flocculation test for determining potency of antiscarlatinal serum.

By OLGA R. POVITZKY. (Introduced by Anna Williams).

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The Ramon flocculation test has proven quite successful for determining the potency of antitoxic diphtheria serums. It is used now at the Research Laboratory of the City Health Department for the routine study of the progress of diphtheria horses; these tests need to be verified only here and there by guinea pig inoculations.

The above results with anti-diphtheritic serums led to attempts to apply the flocculation test, if possible, for determining the potency of antiscarlatinal serums, as compared with clinical neutralization tests.

For titration of the anti-scarlatinal serum, or of toxin, we rely on skin reactions. The strength of the toxin is expressed by the number of skin doses per cc. required for a reaction; and the potency of the serum is estimated by the amount of serum required to neutralize the number of skin doses per cc. Thus if