physical methods, but the conductivity of blood slowly falls as the hemoglobin is liberated from the corpuscles. The inhibiting effect of blood serum upon autolysis seems to be less readily destroyed by heat than is usually estimated.

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The influence of adrenalin in phlorhizin diabetes.

By **A. I. RINGER.** (By invitation.)

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These experiments were performed with the object of ascertaining whether or not the contention of Blum as well as of Eppinger, Falta and Rudinger, that adrenalin stimulates the conversion of fat into dextrose, is well founded. On careful analysis of their data, one may find every reason to believe that the animals used for their adrenalin experiments were not glycogen free, and that the extra sugar eliminated after the administration of adrenalin did not come from the ingested fat, but from glycogen or from the sugar of the blood.

If a phlorhizinized animal be exposed to cold and rendered glycogen free, any intraperitoneal injection of adrenalin ought to be followed by an extra elimination of sugar and a rise in the D : N ratio, provided the theory of the conversion of fat into carbohydrate is true. That this is not the case will be seen from the accompanying protocols.

DOG NO. 5.

March 6, 1909.	Dog fasting.
March 7, 1909.	Dog fasting.
March 8, 1909.	2 gm. of phlorhizin injected at 8 A. M., 3:30 P. M. and 10 P. M.
March 9, 1909.	2 gm. of phlorhizin injected at 8 A. M., 3:30 P. M. and 10 P. M. At 5:15 P. M. the dog was given a bath at a temperature of 8° C. for 30 minutes and while wet was placed in a cold room for 5½ hours.
March 10, 1909, 9:30 A. M.	2 gm. phlorhizin injected subcutaneously.
March 10, 1909, 10:30 A. M.	Catheterized and bladder washed. Weight of dog 9.12 kg.

TABLE I.

Time.	No. of Hrs.	Total N.	N per Hour.	Total D.	D per Hour.	D : N.
10:15 A. M.–						
1:15 P. M.	3	1.57	0.523	5.168	1.723	3:29
1:15 P. M.		0.009 gm. of adrenalin injected intraperitoneally.				
1:15 P. M.–						
8:45 A. M.[1]	19½	8.073	0.414	25.928	1.33	3:21

This animal was kept in a cold room for five and a half hours following a period of four days' starvation, inclusive of two days of phlorhizin diabetes. This apparently rendered the animal glycogen free. Administration of adrenalin produced no increase in the elimination of sugar and no change in the D : N ratio.

DOG NO. 7.

April 10, 1909. Dog fed last.
April 11, 1909. Dog starving.
April 12, 1909. Dog starving.
April 13, 1909. Dog starving. 2 gm. of phlorhizin injected subcutaneously at 8:50 A. M., at 4 P. M. and 11 P. M.
April 14, 1909. Dog starving. 2 gm. of phlorhizin injected subcutaneously at 8:50 A. M., at 4 P. M. and 11 P. M. At 5 P. M. dog given a cold bath at a temperature of 5° C. for 30 minutes, and while wet placed in cold room for the night.
April 15, 1909. 8:50 A. M. 2 gm. of phlorhizin injected subcutaneously.
April 15, 1909. 10:25 A. M. catheterized and bladder washed. Dog's weight, 8.76 kg.

TABLE II.

Time.	No. of Hrs.	Period.	Condition.	Total N.	N. per Hour.	Total D.	D. per Hour.	D : N.	Remarks.
April 15, 1909.									
10:25 A.M.–3:25 P.M.	5:00	I.	Phlorhizin.	2.264	0.453	7.248	1.449	3.2	
3:25 P. M.–8:25 A. M.	17:00	II.	Adrenalin and phlorhizin.	6.297	0.37	30.176	1.775	4.79	At 3:25 P. M. 0.005 gm. of adrenalin injected intraperitoneally.
April 16, 1909.									
8:25 A. M.–3:40 P. M.	7:15	III.	Phlorhizin.	2.973	0.41	9.376	1.29	3.12	
3:40 P. M.–8:40 P. M.	17:00	IV.	Adrenalin and phlorhizin.	7.129	0.419	23.92	1.407	3.35	At 3:40 P. M. 0.005 gm. of adrenalin injected intraperitoneally.

Throughout the course of the experiment the phlorhizin was injected regularly at 8:00 A. M., 3:45 P. M. and 11:55 P. M.

[1] At 4:10 P. M. and 10:45 P. M. 2 gm. of phlorhizin were injected subcutaneously.

TABLE II. — *Continued.*

Time.	No. of Hrs.	Period.	Condition.	Total N.	N. per Hour.	Total D.	D. per Hour.	D : N.	Remarks.
April 17, 1909.									
8:40 A. M.–3:40 P. M.	7:00	V.	Phlorhizin.	2.973	0.426	9.264	1.323	3.116	
3:40 P. M.–8:40 A. M.	17:00	VI.	Adrenalin and phlorhizin.	6.687	0.393	21.824	1.28	3.26	At 3:40 P. M. injected 0.005 gm. of adrenalin.
April 19, 1909.			Death of dog.						

This animal was treated in a similar manner to Dog No. 5, but, because the April night was not as cold as the night of March, the dog was not sufficiently chilled to exhaust it of all its glycogen. The first administration of adrenalin was therefore followed by a rise in the D : N ratio, showing that a sweeping out of the carbohydrates of the tissues took place. The second and third administration of adrenalin, however, failed to produce any extra sugar elimination.

These experiments show very clearly that adrenalin has not the power of converting fat into dextrose.

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A method for the determination of small quantities of iodine in organic material.

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The estimation of iodine in thyroid gland and similar material is usually carried out by the method of Baumann or one or other of its various modifications. All varieties of the method have for their basal operation the quantitative conversion of the organically combined iodine into hydriodic acid. For the investigation reported by Simpson and myself I have worked out a method which rests upon a different principle altogether.

By a procedure which involves, first, the oxidation of the material with a mixture of saltpeter and potassium sodium carbonate, and, second, the action of an excess of chlorine upon the