

solids of the plasma. The smallest difference is 3 mg. per cc. of plasma.

TABLE I. *Changes in Plasma Fat.*

		+	0	-	Remarks
Pituitrin	Unanesthetized	1	0	5	In 2 instances a rise preceded the fall.
"	Amytalized	2	0	3	
Pitocin	Unanesthetized	4	0	3	In 1 instance a rise preceded the fall.
"	Amytalized	2	1	5	
Pitressin	Unanesthetized	3	0	2	
"	Amytalized	2	0	6	
Control	Unanesthetized	0	1	0	
"	Amytalized	0	2	0	

TABLE II.
Total Solids of Plasma.

		+	0	-
Pituitrin	Unanesthetized	0	0	7
"	Amytalized	0	0	1
Pitocin	Unanesthetized	0	0	3
"	Amytalized	2	0	2
Pitressin	Unanesthetized	0	0	4
"	Amytalized	2	0	4

TABLE III.
Changes in Blood Sugar.

		+	0	-
Pituitrin	Unanesthetized	2	0	0
"	Amytalized	2	0	1
Pitocin	Unanesthetized	5	0	0
"	Amytalized	0	0	3
Pitressin	Unanesthetized	3	0	0
"	Amytalized	0	0	3

The effects of the extracts on blood glucose are presented in Table III. Changes of glucose are at least 5 mg. per cent.

The effects of pituitrin in diminishing the concentration of the plasma and its fat content as well as in raising blood sugar are also caused by pitocin and pitressin. These actions on the blood constituents are not so marked, or are actually changed, under amytal anesthesia.

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Effect of Ephedrine on Blood Glucose and Lactic Acid and Plasma Fat.

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The effects of subcutaneous injections of ephedrine on blood lactic acid and sugar plasma fat were studied in 10 dogs varying in weight from 4 to 18 kilos. The animals were in a post-absorptive condition and under the influence of amytal. The dosage of ephedrine sulphate (Eli Lilly and Company) in the different experiments

varied from $\frac{1}{4}$ to 1 cc. of a 3% solution, and was given every 15 minutes for from 2 to 5 hours.

The level of blood sugar was raised in every experiment. Increases in fat occurred in 7 experiments and therefore were not so consistent as those obtained with adrenalin.¹ The concentration of the lactic acid of the blood increased in only 5 experiments. The determination of the total solids of the plasma was unsatisfactory because of hemolysis, an effect of ephedrine. The results of a typical experiment are presented below.

TABLE I.
Effect of Ephedrine on Blood Glucose and Lactic Acid and Plasma Fat.

	Blood sugar	Blood lactic acid	Plasma fat	Hemo-crit	Dosage
Pre-injection	110	44	705	56	
2 hours	183	59	1120	56	$\frac{1}{2}$ cc. ephedrine every $\frac{1}{4}$ hour for 4 hours.
4 "	134	60	807	64	
6 "	125	71	696	63	
8 "	125	48	697	64	

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Growth and Sexual Maturity in *Daphnia magna*.

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Several workers have stated that the number of pre-adult instars in Cladocera is constant within the species. Banta and Brown¹ report that *Moina macrocarpa* has 3 pre-adult instars. Agar² reports that *Simocephalus gibbosus* and *Daphnia carinata* have 3 and 4 respectively but adds that a small percentage of the individuals become mature in one less than the normal. Such is not the case with *Daphnia magna* which has 5 or more pre-adult instars. Calvert³ found similar conditions for the Odonata. Sexual maturity appears to be correlated with size in *D. magna*.

¹ Himwich, H. E., and Petermann, M. L., *Proc. Soc. Exp. Biol. and Med.*, 1930, **27**, 814.

* The data for this paper are the results of work done at the Zoological Laboratory, State University of Iowa.

¹ Banta, A. M., and Brown, L. A., *Proc. Nat. Acad. Sci.*, 1929, **15**, 71.

² Agar, W. E., *J. Exp. Biol.*, 1930, **7**, 349.

³ Calvert, P. P., *Proc. Am. Phil. Soc.*, 1929, **68**, 227