MORPHINE TEST.

Blood Sugar.

Time.	Per Cent.			
	Example I.		Example II.	
	Control Day.	Test Day.	Control Day.	Test Day.
12.00	0.180	0.180	0.156	0.150
12.30	0.182	0.202	0.132	0.135
1.00	0.182	0.216	0.135	0.140
2.00	0.176	0.180	0.135	0.128
3.00	0.180	0.179	0.138	0.123

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A method for determining minute quantities of nitrogen in nitrogenous substances.

By THEODORE KUTTNER (by invitation).

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When an alkaline mixture containing phenol and NH_3 or NH_2 groups is oxidized by a hypochlorite, a blue-colored solution results. This color is produced in the cold in mixtures of proper concentration, while mixtures of more dilute solutions give no color or only a very faint blue. Upon heating the mixtures, those containing the minutest trace of the above-mentioned groups develop a color, while the color of the more concentrated ones deepens considerably in intensity. The latter varies in direct proportion to the amount of the NH_3 and amino acid group present.

This reaction is made the basis of colorimetric methods for the estimation of incoagulable nitrogen, urea and ammonia nitrogen in blood, urine and other biological fluids, and for the estimation of certain substances containing amino groups such as albumen, arsphenamin (salvarsan), etc. The estimation is carried out by comparison with a suitable set of standards or in a colorimeter against a known standard.

In estimating incoagulable nitrogen of the blood, the method briefly is as follows: the proteids are precipitated either by the addition of 2.5 per cent. trichloracetic acid to 10 times the volume

of blood taken or by a method described elsewhere,[1] *i. e.*, by boiling the desired quantity of blood after the addition to each c.c. of blood taken, of 5 c.c. of water, 1 drop of 10 per cent. acetic acid and 2 drops of saturated solution of sodium acetate, cooling and adding a few drops of 5 per cent. colloidal iron and water up to 10 c.c. In either case after filtering, 1 c.c. of water-clear filtrate equivalent to 0.1 c.c. of blood is treated in a micro-Kjeldahl. After the reaction is completed, it is neutralized and water is added up to 5 c.c. The color reaction can then be produced directly in the tube after the addition of the reagents as follows:

1. Add 1 c.c. of phenolate soda solution. (40 gm. phenol, 50 c.c. of 40 per cent. NaOH solution, water up to 100 c.c. mixed in the cold.)

2. Add 1 c.c. of 2 per cent. hypochlorite soda solution. Mix well after addition of each reagent and add simultaneously to a known standard or to each of a set of standards containing 5 c.c. of water with 0.01 mgm., 0.02 mgm., 0.03 mgm., etc., of ammonia nitrogen and place simultaneously with the unknown in boiling water for five minutes. They are then allowed to cool, poured into a graduate, made up to 10 c.c. with water and the unknown compared with the known standard or standards.

In case of ammonia the test is sensitive enough to detect and estimate 1 part of ammonia nitrogen in a dilution of about 10,000,000.

Details of the various methods will be published in the *Journal of Biological Chemistry.*

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Asynchronism of the respiratory movements in lobar pneumonia.

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Asynchronism of the respiratory movements occurs in many severe cases of lobar pneumonia. The phenomenon was first observed by the author some twenty years ago. A careful search

[1] Proc. of A. A. A. S., Dec., 1916, Theodore Kuttner, "A Modification of Folin's Method for the Estimation of Creatinin in Blood."