

which the bell is suspended by a wire passing over a grooved wheel and continuous with a length of steel measuring-tape, which in turn suspends the counterweight.

The appliance consists of a large and a small grooved wheel mounted on a single axle; from the small wheel a silk thread suspends a double magnet fitted with a hinged iron armature, which, on magnetization, firmly grasps the measuring tape of the gasometer. From the large wheel is suspended a counterweight which outbalances the magnet, permitting the weight to sink to the bottom of its guiding channel.

The tube leading to the gasometer carries an expiratory flutter valve; from the subject's side of this valve, a short take-off leads to a large tambour which operates a riding-arm, making and breaking a current during expiration and inspiration respectively.

At the beginning of expiration, this contract is made a fraction of a second before the gasometer bell begins to move; a relay closes the current which operates the magnet, causing it to firmly grasp the steel tape and ride with it during its full excursion. At the beginning of inspiration, the tambour breaks the circuit, the magnet releases the tape, and the counterweight drops to its original position. The counterweight carries a pen which records its movements on a revolving drum.

150 (1897)

Observations on the reaction of the blood of infants with acute intestinal intoxication with the phosphotungstate reagent.

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In a previous paper¹ on chemical examinations of the blood in cases of infants and children with acute toxic gastro-intestinal symptoms (cholera infantum), it was noted that in some an intense blue color was obtained using only the phosphotungstic reagent after the uric acid had been precipitated with silver lactate. This blue color was often six to eight times more intense

¹ Schwarz, H., and Kohn, J. L., *Am. J. Dis. Chil.*, 1921, xxi, 471.

than that obtained with the uric acid alone. The reaction was not noted in normal controls. At that time we stated that we did not know whether phenol was the cause of this reaction.

That the so-called phenol reagent (phosphotungstate-phosphomolybdic reagent) first described by Folin and Denis¹ was not specific was shown by Tisdale,² Gortner and Holmes³ and others. They showed that there were other substances which might be present in the blood that gave the same color reaction, hence interfering with the purpose of the original test. A deep blue color is also given by lactic acid, by indol, indol derivatives, protein derivatives and many other substances.

In order to eliminate at least one group of these substances, we determined the amino-acid nitrogen and the peptid nitrogen in some of these cases, using the method described by Van Slyke and Whipple.⁴ Although the urea was high in some of these cases the amino-nitrogen and the peptid-nitrogen values were normal, or slightly above normal. One must remember, however, that there may be some toxic protein derivative products or amino acids present which are very toxic in small amounts, although not sufficient to perceptibly increase the amino or peptid nitrogen in the blood.

Hospital No.	Mgs. per 100 c.c.			Remarks.
	Amino N.	Peptid N.	Urea N.	
212138.....	12	14	19.6	Recovered
212031.....	12	14	15.	Died
212352.....	14	18	40.	Died
212338.....	14	17	19.6	Died
212410.....	15.4	17.1	14.2	Recovered

151 (1898)

The influence of sodium citrate on peristalsis.

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The Trendelenburg method was used for the study of intestinal movements in anesthetized animals. Doses of 30-60 mgs. sodium

¹ Folin, O. and Denis; W., *J. Biol. Chem.*, 1912, xii, 239.

² Tisdale, F. F., *J. Biol. Chem.*, 1920, xlv, 409.

³ Gortner, R. A., and Holmes, G. E., *J. Am. Chem. Soc.*, 1920, lxii, 1678.

⁴ Whipple, G. H., and Van Slyke, D. D., *J. Exp. Med.*, 1918, xxviii, 213.