New York Meeting.

New York Academy of Medicine, April 16, 1930.

4901

An Accurate and Practical Method for Blood Platelet Counting.

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A new method of blood platelet counting involving no additional technical procedure has been devised which has been found to be as accurate and as rapid as the usual method of red cell enumeration. Its essential features are: (1) the red blood cells and blood platelets are counted on the same field in the same counting chamber preparation; (2) the low power lens is used for both red and platelet counts; (3) the platelets are counted in the 3 middle vertical columns of a Neubauer chamber, comprising 240 small squares and the resultant figure divided by 3; (4) Ringer's solution, to which a small amount of heparin (1 mg. per 5 cc.) has been added, is used as the diluting fluid.*

Parallel counts indicate that as accurate red cell counts may be obtained by this method as with Hayem's solution. In a series of consecutive pipettes upon the same animal, the mean red blood count was 5,042,500 and the mean platelet count 536,000. The coefficient of variation for the red counts was 6.8% and for the platelets 7.4%, demonstrating that the error in making a platelet count was no greater than that in making a red cell count. Counts made after standing 40 minutes on the counting chamber are as accurate as those made after 5 or 10 minutes, while shaking in a shaking machine for one hour, or storage for 24 hours in the icebox does not essentially alter the red cell count or the blood platelet count. The

* On account of its instability, heparin should be added to the Ringer's solution just before use and not to stock solutions. The formula of Ringer's solution used is: NaCl 9.0 gm., KCl 0.42 gm., $CaCl_2$ 0.24 gm., $NaHCO_3$ 0.10 gm., H_2O 1000 cc.

solution is evidently a favorable medium for the preservation of these blood constituents.

Fading and disintegration of the red blood cells and fragmentation and degeneration of the platelets, which are the usual sources of error in current direct methods of blood examinations, are essentially eliminated when Ringer-heparin solution is used as the diluting fluid. Platelets were not found to adhere to clean pipettes, and dirty pipettes influence the red even more than the platelet counts. By the time the red cell count is made, the platelets will be found to have settled sufficiently so that they may be counted immediately with the low power lens.

The use of this procedure for platelet counts which involves no change in the usual routine of red cell counts, has demonstrated its superiority over other methods in that accurate determinations are rapidly obtained within the time limits of a red count.

4902

The Fate of Foreign Sugars in the Blood Stream.

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The recent development (Somogyi[1]) of a rapid method for the estimation of foreign sugars in the blood in the presence of glucose throws new light on the chemical nature of the reducing substances circulating in the blood stream under normal and pathological conditions. Somogyi found that a simple substitution of a 10% (moist weight) yeast suspension for the distilled water used for laking and dilution in the Folin-Wu tungstic acid precipitation of the blood proteins results in the almost instantaneous total destruction of the glucose in the blood, leaving intact other sugars such as xylose, galactose and lactose and the various non-fermentable reducing substances in the blood.

The non-fermentable reducing substance of the blood was found to be remarkably constant in a series of patients not suffering from any metabolic disturbance and amounted to 28 ± 5 mg. per 100 cc. In another series of cases including uremia, diabetes, nephritis, this was found increased to as high as 90 mg. per 100 cc. Two patients in hypoglycemia from overdosage of insulin showed no reduction of

[1] Somogyi, M., *J. Biol. Chem.*, 1927, lxxv, 33.