gas pressure may be measured at regular intervals and when plotted against time shows a beautiful monomolecular curve. The values for (p_1) in one oxidation, for example being 390, 458, 484, 498, 501, 500 in successive 3 minute intervals.

The agreement of determinations of lactic acid in a total quantity of less than one milligram was very good as shown by Table I. When oxidizing mixtures of the optimum proportions were used the values found agree within 1.0% of each other and 4% of the theoretical value. This compares favorably with any other method of determining lactic acid.

The application of this method to the determination of pure lactates is recommended but it should be pointed out that we obtained high values with silver lactate, probably due to the oxidation of acetaldehyde by silver compounds. A danger also lies in the presence of any other oxidizable compound yielding CO_2 on treatment with the reagents described above. The authors are now studying the use of the method with biological material.

[1] Van Slyke, D. D., and Neill, J. M., *J. Biol Chem.*, 1924, lxi, 523.

[2] Van Slyke and Sendroy, J., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiv, 167.

[3] Friedemann, T. E., Cotonio, M., and Shaffer, P. A., *J. Biol. Chem.*, 1927, lxxiii, 335.

3707

The Blood of the Normal Guinea Pig.

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It is suggested that inconsistencies in the work of previous investigators on the blood of the normal guinea pig have been due, for the most part, to the use of the usual fixed staining technic. The supravital method of blood study, first used by Pappenheim,[1] and reintroduced by Simpson,[2] overcomes the common difficulties of cell distribution, and identification, as met with in the smear method.

The peripheral blood of the normal guinea pig has been studied by the Neutral Red-Janus Green supravital method. Sixty-four guinea pigs from four different sources, of both sexes, and weighing from 500 to 1000 grams, comprise the series. From 200 to 400 white cells per preparation were counted on each. To compensate

for normal fluctuations, counts were made at all hours of the day and night.

The normal guinea pig has been found to have a leucocytic formula peculiarly its own, especially in that an atypical mononuclear is normally present in the circulation. In our counts this will be termed the Kurlow cell, because of its inclusion, the so-called Kurlow body. Considerable evidence has been obtained upholding the belief that the Kurlow inclusion is the result of a symbiotic protozoan.

An average total leucocyte count of 9,600, and a total erythrocyte count of 5,565,000, were established. The differential count showed the following: Neutrophile, 34.9%; Lymphocyte, 49%; Monocyte, 7%; Eosinophile, 3.1%; Basophile, 0.8%; Kurlow cell, 5.0%; Unclassified cells, 0.2%.

It is believed that the above data establishes a fairly accurate means of ascertaining the normalcy of a fully matured guinea pig.

[1] Pappenheim, *Virch. Arch.*, 1899, Bd., 1575.54, Anm.

[2] Simpson, M. E., Publications in Anatomy of the University of California, i, 1-9.

3708

"Tutocain" as a Shock Preventative in Tuberculous Guinea Pigs Injected with Tuberculin.

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The symptoms following the rapid absorption of tuberculin in the tuberculous guinea pig, in which the subcutaneous inoculation of small amounts of tuberculin invariably prove fatal, are well known.

Fischel[1] has suggested that the severe tuberculin reaction can be mitigated by introducing tuberculin into the skin with a view to retarding absorption and slowly removing the toxic factors elaborated upon the contact of tuberculin with tuberculous tissues. It had occurred to us that if conditions could be set up subcutaneously which would retard absorption of this toxic factor, and at the same time permit the use of larger amounts of tuberculin, some therapeutic results might be developed, without the danger of fatal issue.

To produce these conditions, a local anesthetic, hydrochloride of p-amino-benzoyl-di-methyl-amino-methyl-butanol or by its trade name, the "Tutocain" brand of Butamin, which induces an edema