samples taken before breakfast, identical results, within the limits of the colorimetric method, were obtained with the two organisms. Lactose added to blood to give concentrations of 0.1 to 0.005% was completely removed by *B. coli communis* and was not affected by *B. paratyphosus A.* Glucose, levulose, maltose, and galactose added to blood to give concentrations of 0.1% additional sugar were completely destroyed by both organisms. In spite of these experiments it cannot be positively stated that a difference between the reducing power of filtrate inoculated with the two organisms is due to lactose, but it seems very probable that this will be true in a great majority of instances. Because of this uncertainty it seems best to express results in terms of the glucose equivalent of the reducing power. The accuracy of the determinations of the smaller amounts studied was low, as it was not possible to read each final result with a greater accuracy than a glucose equivalent of 0.001%.

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A Biological Method for the Assay of Cortin.

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No satisfactory method for the assay of cortin has been available. The survival and behavior of adrenalectomized cats is unsatisfactory as it requires too much time and too much cortin.

The white rat is more satisfactory because less cortin is required and a large number of animals may be used. The animals which do not need cortin can be ruled out by employing a sufficiently large number. Young rats (50-150 gm. weight) fail to gain weight, or even lose, after removal of both adrenals. The injection of sufficient cortin enables these animals to grow and develop normally. If the cortin is inadequate a majority fail to gain or may even lose within 1 to 3 days. This forms a basis for the test.

From observations on a considerable series of adrenalectomized rats we have developed the method which follows. Male or female white rats, of standard stock, weighing between 75 and 150 gm. are used. Both adrenals are removed through the lumbar path at one operation. They are fed a uniform standard diet and are weighed in the morning at the same time each day. When not being used for assay their growth is maintained by the injection of ade-

quate cortin. Animals allowed to go more than a day or two without adequate cortin must be brought back to normal with cortin before they can be used for assay because more cortin is required to bring them up if they have lapsed. Injections should be made twice daily, preferably 10 to 12 hours apart because some individuals will not grow normally with one injection.

To assay, one uses 3 or more groups containing sufficient numbers to rule out individual variation. A range of doses is employed, one for each group. This makes it possible to determine the minimum dosage which will maintain normal growth. Anything less than this will result in a loss in appetite, a retardation of growth, or even a loss in weight. This becomes apparent within 24 to 72 hours because growing animals are so sensitive. The test can be carried over a period of 3 or more days if necessary. After an assay, the animals used may be quickly brought back to normal weight and growth by giving an adequate amount of cortin. Therefore, the same animals may be used for assay many times.

If rats weighing 75 to 150 gm. are used, it is not necessary to vary the amount of cortin in regard to the weight.

We suggest as a tentative unit for cortin the amount necessary to be injected twice daily for the maintenance of normal growth in an adrenalectomized rat.

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Pathological Lesions Produced in Rabbits Following Intravenous Injection of Concentrated Scarlet Fever Toxin.

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Duval and Hibbard[1] reported in numerous publications the production in rabbits of acute glomerulo-nephritis following the intravenous administration of the bacteria-free toxic principle of *Streptococcus scarlatinae,* which they characterized as endotoxic in nature. Their histopathological material was considered analogous to that observed in human scarlatinal glomerulo-nephritis. Reith, Warfield

[1] Duval, C. W., and Hibbard, R. J., *J. Exp. Med.*, 1926, **44**, 567; *J. Am. Med. Assn.*, 1926, **87**, 898; *South. M. J.*, 1926, **19**, 858; *New Orleans M. and S. J.*, 1927, **79**, 669; PROC. SOC. EXP. BIOL. AND MED., 1927, **24**, 876; *ibid.*, 1928, **25**, 529; *J. Exp. Med.*, 1927, **46**, 379.