

When samples of corpuscles in acacia solutions are examined microscopically, it is noted that rouleaux formation is slow and the clumps small in the 1% solution; rapid with large clumps in the 10% solution.

*Summary.* The factors responsible for alterations in the suspension stability of erythrocytes is independent of the corpuscles. Solutions of gum acacia reduce the suspension stability of the blood. A solution of 3 or 4% of acacia is the minimal amount that will produce the maximal instability of erythrocyte sedimentation. The rapidity of formation and the size of agglutinated erythrocyte masses progresses parallel to the increase in concentration of acacia in solution. The curve of sedimentation for rapidly sedimenting bloods is not a rectilinear function.

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### No Anti-Hormones Against Estrin.\*

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In 1934, Collip indicated that there may exist anti-hormones, or substances produced as a result of continued hormone injection which tend to counteract the effect of the hormone. In the preparations which he used, however, the possibility of protein being present could not, with absolute certainty, be excluded. The so-called anti-hormone might then possibly have been an antibody, although evidence opposing this belief was presented.

It seemed to us desirable to investigate the possibility of anti-hormone production against estrin since we would here be dealing with a substance certainly not a protein, and also because we found in earlier work<sup>1</sup> that continued estrin administration did not cause a continued increase in size of the uterus, but rather the reverse, which might conceivably be explained on the basis of anti-hormone production.

Two series of experiments were performed. In the first, 3 groups of 10 rats each were used, one group normal, mature females, the

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<sup>1</sup> Spencer, Jack, D'Amour, Fred E., Gustavson, R. G., *Am. J. Anat.*, 1932, **50**, 129.



sents the amount of estrin necessary to bring 50 out of 100 rats into estrus.)

Table I shows the results obtained.

*Conclusions.* We conclude that the results obtained according to the method used do not indicate the formation of any anti-hormone against estrin.

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### Effect of Various Dietary Principles on Lactation in Rats.

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It has been known for some time that milk production can be materially increased by dietary treatment. This increase was first accomplished by increasing the protein content of the diet, then later by using good quality animal proteins such as liver. The vitamins, especially the B complex, are of considerable importance as well.

In the present study the growth of approximately 350 litters of suckling rats was used as a criterion of milk production. Only the growth period from the fourth to the seventeenth day of life was considered. The logarithmic functions of the daily weight of litters of 6 were plotted against time. The slopes of the resultant curves were compared, and expressed as lactation indices.

The basal diet of the lactating rats consisted of casein, 15 parts; salt mixture, 5; agar agar, 2; starch, 76; lard, 14; wheat germ oil, 5 drops per day; cod liver oil, 6 drops per day; and irradiated yeast, 3 gm. per day. To this basal ration were added daily supplements of various fractions of liver or egg. When dried substances such as amino acids were used they were incorporated in the basal ration replacing part of the casein.

The lactation promoting factor was found to be present in considerable amounts in the following: liver, egg, water extract of autolysed liver or egg; 25% level of casein, Witte's peptone, blood fibrin, cystine. The best results were obtained when one part of cystine replaced one part of casein in the basal ration. This is a rather low protein diet for a rat, especially a lactating rat, and the results suggest that cystine plays a specific rôle in stimulating milk production either as such or as a constituent of glutathione which in turn may influence the production of milk.