The depressant effect is much less than that of alcohol. About 1100 mg. % of propylene glycol in the blood was required to attain the same degree of narcosis produced by a blood-alcohol concentration of 350 mg. %. The results on rabbits were essentially similar to those on dogs.

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A Graphic Representation of Thyroid Response to Stimulation by Thyrotropic Hormone.

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This is a report of a method of studying the hypertrophy of the thyroid gland in response to stimulation by the hypophyseal thyrotropic hormone. Other methods in use are: a study of the histological picture as used by Junkman and Schoeller[1] and by Aron[2]; Collip's method of determining the metabolic rate of the test animal[3]; McCullagh's method of determining the iodine content of the thyroid gland[4]; and Loeb's method of estimating the mitotic index of the thyroid.[5] During the past year Dr. Earl Blanck[6] has at the suggestion of Dr. Paul Starr, been making micrometric studies of the acinar cell heights of surgically removed thyroids, and correlating the micrometric histology with the clinical picture. Our method is based on the same principle and is analogous to the Price-Jones[7] blood curve.

As test animals we use female guinea pigs which have been kept on a standard laboratory diet and weigh from 180 to 225 gm. The procedure consists of administering 3 daily subcutaneous injections of Antuitrin T. The preparation was prepared and furnished us by Parke, Davis and Co. In this study we have used daily dosages corresponding to 0.0025 cc., 0.005 cc., 0.01 cc. and 0.02 cc. On the

1 Junkman and Schoeller, *Klin. Wchsft.*, 1932, **11**, 1177.

2 Aron, *Rev. franc. Endocrin.*, 1930, **8**, 472.

3 Collip and Anderson, *J. A. M. A.*, 1935, **104**, 965.

4 McCullagh, *J. Pharm. and Exp. Therap.*, 1935, **57**, 49.

5 Loeb and Kippen, *J. Pharm. and Exp. Therap.*, 1935, **54**, 246.

6 Blanck, personal communication.

7 Price-Jones, *Red Blood Cell Diameters*, Oxford Medical Publications, London, 1933.

fourth day the animals are autopsied and the thyroids removed and fixed in formalin. Paraffin sections stained with hematoxylin and eosin are placed on microscopic slides with the long axis in either the horizontal or vertical position.

The actual study of the sections is carried out under oil immersion by means of an ocular micrometer. The gland is covered systematically from end to end and in parallel pathways by means of the mechanical stage until 200 acini have been studied. Each acinus in the path of crossing whose lumen is large enough to present a definite cell wall is included in the study. Interacinar cells are not studied. From each acinus the cell which is most representative of the average height of the cells of that particular acinus and is clear enough to be measured is chosen and its height measured. The cell heights are tabulated and a frequency curve graphed. From these findings the mode, mean, standard deviation and probable error of the mean are determined.

Measurements from control animals formed curves with modes at 3.75 micra. The mean cell heights from 16 controls ranged from 3.59 to 3.98 micra. After treatment with 0.0025 cc. the curves had modes at 4.50 micra. The mean cell heights of 12 such animals ranged from 4.5 to 4.8 micra. After treatment with 0.0025 cc. the modes were at 4.5 and 4.9 to 5.6 micra. After 0.01 cc. the modes were also at 4.5 and 6.0 micra but the mean cell heights of 5 animals ranged from 5.5 to 6.0 micra. After 0.02 cc. the modes were at 5.25 and 6.75 micra and the mean cell heights of 5 animals ranged from 6.1 to 6.4.

Serial sections of one control gland and of one gland stimulated with 0.02 cc. were prepared and studied. Curves of the first 5 sections of each series demonstrate the constancy of this method.

In our study the most significant observation was the increasing mean cell height of each increasing dosage. Accordingly 1600 cell heights from 8 control animals as well as from each of the groups treated with 0.0025 cc. and 0.005 cc. of the hypophyseal extract, and 1000 cell heights of 5 animals from each of the groups treated

TABLE I.
Comparison of Mean Cell Heights of Increasing Dosage Series.

	No. of Cells	No. of Animals	Mean Height	P.E.
1. Controls	1600	8	3.77	.015
2. .0025 cc. Ant. T.	.1600	8	4.65	.018
3. .005 " "	1600	8	5.25	.02
4. .01 " "	1000	5	5.71	.029
5. .02 " "	1000	5	6.14	.028

with 0.01 cc. and 0.02 cc. were tabulated. From these tabulations the mean cell height of each group and its probable error were determined. (Table I.) It is readily seen that the results of each successive group are of statistical significance.

Conclusion. We have described a micrometric method of representing the thyrotropic effect on the thyroid gland of test animals. Since each increased dosage of the hormone caused a characteristic curve, this procedure affords a quantitative method of determining the effects of the thyrotropic hormone on the thyroid of the guinea pig.

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Can Injected Sulfur be Utilized by the Animal Organism?

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Several workers have recently reported increases in the cystine content of fingernails following injection of colloidal sulfur. Lewis and Lewis[1] using rats and Geiling[2] with adult mice observed no utilization of dietary elemental sulfur for growth. The following experiments were carried out in an attempt to ascertain whether the animal organism could utilize injected colloidal sulfur for growth or for production of cystine. Eleven groups of 3 young rats each were used. The 3 members of each group were of the same age and approximately the same weight, and all 33 rats had identical dietary histories. During these experiments the first rat of each group received a cystine-deficient diet (dextrin 46, casein 9, sucrose 15, lard 19, cod liver oil 5, Osborne-Mendel salt mixture 4, and agar 2%) *ad libitum.* Rat 2 of each group was limited to the amount of stock diet eaten by rat 1 the previous day, and was given an intraperitoneal injection of 12 mg. of colloidal sulfur (Sulfur-diasporal)* every other day. Rat 3 of each group was likewise limited to stock diet equivalent to that eaten by rat 1, but received a daily supplement of 20 mg. of l-cystine. Each of the 33 rats was given a vitamin pill daily which contained 80 mg. of Harris-Vitamin

[1] Lewis, G. T., and Lewis, H. B., *J. Biol. Chem.*, 1927, **74**, 515.

[2] Geiling, E. M. K., *J. Biol. Chem.*, 1917, **31**, 190.

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