

did not show this. In other experiments the inguinal glands of untreated animals have suppurated at the site of inoculation and a grey sloughing ulcer resulted. No ulceration has been seen in the treated pigs. Guinea pigs of about 225 gm. in weight are much better for this experiment than the larger pigs, as the smaller animals have practically no spleen and, if given a fairly large dose of *Tuberculosis bacilli*, the controls die early, while, by giving spleen to the other group, one is able to carry on a large percentage for some time.

5701

Changes in Weight of Thyroid Gland of Guinea Pigs Under the Influence of Acid Extract of Anterior Pituitary.*

LEO LOEB AND HILDA FRIEDMAN.

From the Department of Pathology, Washington University School of Medicine.

Loeb, Bassett, and Hilda Friedman^{1, 2, 3} have shown that intraperitoneal injections of acid or alkali extracts of the anterior pituitary of cattle cause in the guinea pig a remarkable hypertrophy and hyperplasia of the thyroid gland associated with liquefaction and absorption of colloid. Martin Silberberg⁴ has studied the combined effect of KI and this extract on the thyroid gland and W. J. Siebert⁵ has determined the effect of various preparations of the anterior pituitary gland on the basal metabolism under various conditions. In our former investigations we used as a criterion of hypertrophy the microscopic changes in the thyroid gland after anterior pituitary injections. The thyroid glands of the injected animals appeared distinctly larger than the normal thyroids.

We sought to determine the changes in weight of the thyroid glands produced by these preparations, in order to obtain quantita-

* These investigations were carried out with the aid of a grant for research in science made to Washington University by the Rockefeller Foundation.

¹ Loeb, Leo, and Bassett, R. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1929, **26**, 860.

² Loeb, Leo, and Bassett, R. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 490.

³ Loeb, Leo, Bassett, R. B., and Friedman, Hilda, *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **28**, 209.

⁴ Silberberg, Martin, *PROC. SOC. EXP. BIOL. AND MED.*, 1929, **27**, 166; *Krankheitsforschung*, 1930, **8**, 171.

⁵ Siebert, W. J., and Smith, R. S., *Am. J. Physiol.*, 1930, **95**, 396.

tive data as to the intensity of the hypertrophy and hyperplasia. We carried out 3 experiments, the results of which are shown in the following table.

TABLE I.

Experiment	No. of Animals		Aver. Initial Weight		Aver. End Wt.		Aver. wt. both thyroids end of experiment	
	Injected	Control	Injected	Control	Injected	Control	Injected	Control
I Daily injection of 1 cc. extract 5 days. Examination on 6th.	8	12	191	191	193	203.5	48	23.6
II Daily injection of 1 cc. extract 6 days. Examination on 7th.	12	12	190	192	190.4	198.75	58.7	29.2
III Daily injection of 2 cc. extract 3 days.	3	3	265	264	280	261	72.9	27.6
Weight of individual guinea pigs and of their thyroids in third experiment.								
			265	265			58.6	29.9
			265	260			89.0	29.3
			265	265			71.1	23.5

In the first 2 experiments, the average initial weight of the injected as well as of the control guinea pigs was approximately 191 gm. During the period of treatment (5 days for the first experiment and 6 days for the second), the average weights of the injected animals remained almost unchanged, while the controls gained on the average of 10 and 8 gm. respectively. As a result of the injections the thyroid approximately doubled its weight. In the third experiment in which we had to deal with somewhat heavier guinea pigs, weighing on the average 265 and 264 gm. respectively, the average weight of the thyroid of the injected animal is seen to be approximately 2½ times greater than the weight of the gland of the control guinea pig.

It is of interest to observe that in all 3 experiments, the values for the average weights of the thyroids of the normal guinea pigs are very close, irrespective of the differences in the average weights of the animals. We further notice in the third series, in which double the amount of extract was administered over a shorter period of time, that the average gain in weight of the thyroid glands

of the injected animals was greater than was found in the corresponding guinea pigs of the first and second series which were subjected to half the dose extending over a longer period of time.

5702

A Rapid Method of Conferring Protection to the Peritoneum
Against Experimental Peritonitis.*

BERNHARD STEINBERG.

*From the Laboratories and the Department of Medical Research of Toledo
Hospital, Toledo, Ohio.*

Goldblatt and I^{1, 2, 3} demonstrated that by immunization with living or heat killed colon bacilli an immunity could be conferred upon dogs against experimental colon bacillus and fecal peritonitis. We found the immunity to be efficient 17 to 18 days after the first immunizing injection and that living organisms produced a greater protection than heat killed bacteria. Confirmatory evidence of an establishment of an immunity was supplied by Herrmann.⁴

The purpose of the work was to determine the shortest time in which an immunity could be conferred upon an animal so that it could survive an experimentally produced peritonitis. To determine the efficacy of different antigens, heat killed colon bacilli (culture 300) and a mixture of heat killed colon bacillus, streptococcus, *B. pyocyanus*, *enterococcus*, *Bacillus mucosus capsulatus* and *B. welchii* was used. The bacteria composing the mixture were isolated from appendices with appendicitis and were of a determined marked virulence to animals. The second variable factor to be determined was the number of injections given to the animal. All the injections were administered intraperitoneally. The experimental peritonitis was produced either by injecting intraperitoneally into dogs the washings of 3 slants of live *B. coli* (300) suspended in 40 cc. of 2½% gum tragacanth or the washings of 3 slants of the bacterial mixture suspended in 40 cc. of a 2½% gum tragacanth.

* This work is a part of a general investigation on "Recovery in Peritonitis" aided in part by a grant by the Committee on Scientific Research of the American Medical Association.

¹ Steinberg, B., and Goldblatt, H., *Am. J. Path.*, 1927, **3**, 541.

² Goldblatt, H., and Steinberg, B., *Arch. Int. Med.*, 1928, **41**, 42.

³ Steinberg, B., and Goldblatt, H., *Arch. Int. Med.*, 1928, **42**, 415.

⁴ Herrmann, S. F., *Arch. Surg.*, 1929, **18**, 2202.