box. The control animals developed symptoms of poliomyelitis on the ninth day while the test animals remained entirely well for over 3 months during which time they were under daily observation. The serums employed from the healthy individuals therefore contained neutralizing substance for the virus of poliomyelitis. Are such neutralizing antibodies in the serums of such individuals specific? Are they due to acquired immunity through coming in contact with the virus of poliomyelitis? Or are such antibodies (if they are true antibodies) due to physiological factors as yet unknown? Should such phenomena be classified under the head of "physiological immunity"? It is true the experiment reported is based upon a small number of cases but they were chosen at random and they represent a 100% result. They are reported at this time simply to raise the question of specificity. The appearance of neutralizing substance for poliomyelitis virus in adult Porto Ricans may be of specific nature but we feel that certain physiological factors should also be studied in connection with this problem.

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Effect of Acid Extract of Anterior Pituitary on Iodine Content of Blood and Thyroid in Guinea Pigs.*

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Loeb, Bassett and Friedman, Siebert and Smith, and Martin Silberberg[1, 2, 3, 4, 5] have shown that injections of acid extract of cattle anterior pituitary produce changes in the guinea pig which bear

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[1] Loeb, Leo, and Bassett, R. B., PROC. SOC. EXP. BIOL. AND MED., 1929, **26**, 860; 1930, **27**, 490; Loeb, Leo, Bassett, R. B., and Friedman, Hilda, *Ibid.*, 1930, **28**, 209.

[2] Siebert, W. J., and Smith, R. S., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 622.

[3] Siebert, W. J., and Smith, R. S., *Am. J. Physiol.*, 1930, **95**, 396.

[4] Silberberg, M., PROC. SOC. EXP. BIOL. AND MED., 1929, **27**, 166.

[5] Silberberg, Martin, *Krankheitsforsch.*, 1930, **8**, 171.

close resemblance to the changes found in man in cases of Graves disease, as far as the structure of the thyroid gland, the behavior of the colloid, the changes in weight, as well as in the basal metabolism and the effect of KI in this condition are concerned. Lunde, Closs and Wülfert[6] have shown that the acetone insoluble or globulin-iodine fraction of the thyroid gland of toxic goiters is both absolutely and relatively decreased, while the total blood iodine concentration has been found by Lunde, Closs, Pedersen,[7, 8] and others[9, 10] to be increased. There is reason for assuming that an increased elimination of the thyroid hormone from the gland into the circulation takes place in Graves disease. We wished to determine whether similar changes in the iodine distribution occur in the guinea pig under the influence of acid extracts of cattle anterior pituitary.

We carried out 2 experiments. In the first, 8 guinea pigs, ranging in weight between 170 and 210 gm., were injected 5 times over a period of 6 days with 1 cc. of the acid extract. The pooled thyroid glands and 8 blood specimens of these animals were analyzed for their content in alcohol soluble and insoluble iodine. The thyroids and blood from 12 control guinea pigs of a similar weight were analyzed in the same way. In a second experiment, corresponding analyses of the blood and the thyroid glands from 12 injected and 12 control guinea pigs were carried out. In this case 6 samples of blood were analyzed separately from controls and 6 samples from the injected animals. In this second experiment the animals received one injection daily for 6 days. The iodine was determined according to v. Fellenberg's method[11] as modified by Lunde and Closs[12] and according to further modification by Closs.[13, 14]

In the first experiment the alcohol insoluble fraction of iodine of the thyroid glands decreased 62% per unit of weight of the glands and, in the second experiment, it decreased 85% per unit of weight. Since as a result of injections of the extract the weight of the thyroid gland increases considerably in the guinea pigs, the decrease

[6] Lunde, G., Closs, K., and Wülfert, K., *Biochem. Z.*, 1929, **206**, 248.

[7] Lunde, G., Closs, K., and Pedersen, O., *Chr. Biochem. Z.*, 1929, **206**, 261.

[8] Holst, J., Lunde, G., Closs, K., and Pedersen, O., *Chr. Klin. Wochenschr.*, 1928, **1**, 2287.

[9] Veil, W. H., and Sturn, A., *Dtsch. Arch. Klin. Med.*, 1925, **147**, 166.

[10] Kraft, R., *Mitteil. Grenzgeb. inn. Med. Chirurg.*, 1927, **40**, 433.

[11] v. Fellenberg, *Th. Ergebnisse der Physiologie*, 1926, **25**, 176.

[12] Lunde, G., and Closs, K., *Norsk. Mag. Laegevid.*, 1928, **6**, 500.

[13] Closs, K., *Arch. f. Math. O. Naturvid.*, 1931, **40**, 5.

[14] Closs, K., *J. Pharm. and Exp. Therap.*, in press.

in the alcohol insoluble iodine per total gland was somewhat less, namely 23% and 69% respectively; nevertheless there was here a distinct loss as a result of the anterior pituitary administration. In the blood on the contrary, the alcohol insoluble iodine showed a rise of 82% in the first experiment and of 179% in the second experiment. In this case a few individual determinations which for technical reasons were unreliable were omitted. If they are included the increase in the first experiment was 34%. The determinations of the alcohol soluble iodine did not indicate a noticeable change either in the thyroid gland or in the blood.

These findings of a decrease in the alcohol insoluble fraction of iodine in the thyroid glands harmonize well with the histological changes which result from the injections of acid extracts. As Loeb and Bassett[1] have shown, the hypertrophy of the thyroid gland produced under these conditions is associated with a marked decrease in the amount of colloid in the acini and, what is left of it stains very poorly with eosin, a condition pointing to a marked liquefaction and absorption of the colloid. Inasmuch as the iodine in the thyroid is mainly contained in the colloid, the fact that by far the greater part of the colloid in the individual acini has been liquefied and absorbed justifies the assumption that a diminution in the amount of iodine has taken place in the thyroid, notwithstanding the marked proliferation of the acinar epithelium and the resulting increase in the amount of gland tissue which has taken place as a result of the administration of anterior pituitary extract.

These experiments which we are extending at the present time, strongly suggest the conclusion that extracts of cattle anterior pituitary produce in the organism of the guinea pig changes in the iodine distribution which correspond to those noted in man in cases of Graves disease.

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Long Continued Injections of Acid Extract of Anterior Pituitary on Thyroid Gland and Sex Organs.*

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In former experiments on the effects of the injection of acid extract of cattle anterior pituitary on the thyroid gland of guinea

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