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7733 P

Amount of Thyroid-stimulating Hormone in Anterior Pituitary of the Thyroidectomized Rabbit.

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Although gonadectomy in the rat is followed by an increase in the amount of gonad-stimulating principle in the anterior pituitary (Engle, Evans and Simpson) it is said that thyroidectomy does not cause any change in the amount of thyroid-stimulating hormone in the anterior pituitary of the rat, guinea pig and dog.[1, 2] In our experiments we have compared the concentration and, in a preliminary way, the total amount of thyroid-stimulating hormone in the anterior lobes of thyroidectomized and control rabbits.

Thirty-one male rabbits (14 completely thyroidectomized and 17 control animals) and 28 female rabbits (10 completely thyroidectomized and 18 control animals) were used. There were available litter-mate controls for 7 of the thyroidectomized males and for 6 of the thyroidectomized females; other controls were from the same stock and of approximately the same age as the operated rabbits. The average time elapsing between thyroidectomy and death was about 4 months. The amount of thyroid-stimulating hormone in the anterior pituitary of a thyroidectomized rabbit was compared with that in the anterior pituitary of a control by injecting the same dose (usually 6 to 8 mg.) over a period of 4 days into litter-mate immature guinea pigs which were killed 24 hours after the last injection (on the 5th day) for histological examination of the thyroids. In some experiments, the doses injected were proportional to the weights of the donors' anterior lobes. In control experiments

[1] Houssay, Novelli and Sammartino, *C. R. Soc. Biol.*, 1932, **3**, 830.

[2] Hohlweg and Junkmann, *Pflüger's Arch.*, 1933, **232**, 148.

total doses of 4 mg. of fresh rabbit anterior lobe could be shown to stimulate the thyroid of the immature guinea pig.

In only 36.8 ± 9.11% of the pairs of guinea pigs receiving male anterior lobe, a greater thyroid-stimulation was caused by the anterior lobes of thyroidectomized rabbits. On the other hand, in 71.5 ± 9.85% of the paired guinea pigs receiving female anterior lobe, the thyroid-stimulation was greater in the guinea pigs receiving anterior lobe from thyroidectomized rabbits. The difference appears to be significant (34.7 ± 13.42%). However, thyroidectomy in the rabbit commonly causes a hypertrophy greater in the anterior lobe of the male than in that of the female (in our series: male, 166% of control; female, 133% of control); therefore, the *relative* dose, in terms of the control rabbit's pituitary, was greater in the case of the female group when the same absolute doses of anterior pituitary from control and thyroidectomized rabbits were used. In 5 groups of litter-mate male rabbits and 3 groups of litter-mate females, the doses of anterior pituitary were based on anterior pituitary weights. In 45 ± 15.0% of the paired guinea pigs, the male thyroidectomized rabbits' anterior lobes caused the greater stimulation, whereas in 72 ± 17.0%, the female thyroidectomized rabbits' anterior lobes caused the greater stimulation. The difference between these groups (27 ± 22.7%) is not significant. Whether or not thyroidectomy brings about an increase in the total amount of thyroid-stimulating principle greater in the anterior lobe of the female than in that of the male can only be decided by additional experiments which are under way.

7734 C

Further Studies on the Effect of Supersonic Waves on Bacteria.

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We have shown[1] that exposure to supersonic waves brings about killing and dissolution of certain bacteria. The question as to whether these effects are due to the mechanical waves motions in the medium or cavitation of the dissolved gases remained unan-

[1] Yen, A. C. H., and Liu, S. C., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 1250.