

by Clark was followed as closely as possible. To begin with, the amount given by him was administered, viz, the equivalent of about 20 mg. of fresh pituitary substance (anterior lobe), to each hen individually, in a gelatine capsule, and when no result was obtained the dose was doubled and later trebled. In no case was any distinct effect produced, the egg-laying curves running practically parallel with those of the control pens. Single Comb White Leghorns were employed.

52 (1512)

Some conditions affecting thyroid activity.

By **W. B. CANNON** and **P. E. SMITH.**

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1. Gentle massage of the thyroid gland in the cat for two or three minutes will cause an increased rate of the denervated heart amounting in some instances to 33 per cent. over the basal rate. The development of the maximal increase of rate is usually slow, requiring from thirty to sixty minutes and passing off in a similarly slow manner.

2. Massage of another gland, *e.g.*, the submaxillary, does not cause this effect.

3. The augmentation of heart rate caused by thyroid massage occurs in the absence of the adrenal glands.

4. Stimulation of the cervical sympathetic trunk as it leaves the stellate ganglion induces a similar augmentation of the rate of the denervated heart: this does not occur if the thyroid gland has previously been removed.

5. If the cardiac fibers from the stellate ganglia are severed, as well as the vagus nerves, and an afferent nerve such as the sciatic or brachial is stimulated under a degree of anesthesia which will permit reflex retraction of the nictitating membrane and dilation of the pupil, there is a primary increase of rate due to adrenal secretion, followed by the slowly developing increase characteristic of the thyroid effect.

6. If the vagi and the cardiac fibers of the stellate are cut,

and the animal is asphyxiated under conditions which permit the eye changes described above, there is a similar primary rise due to adrenal secretion, followed by the secondary thyroid effect.

7. If the thyroid glands have been previously removed, sensory stimulation and asphyxia induce only the increase of rate due to adrenal discharge.

53 (1513)

Studies in the absorption of fats.

By T. F. ZUCKER. (By invitation).

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The general impression of workers in the field of fat metabolism, with regard to the path of absorption, seems to be that while most of the fat enters the circulation by way of the thoracic duct, a smaller portion can be absorbed directly into the blood stream. The most recent discussion of the subject is by Bloor.¹ The results of previous workers are, briefly, as follows: Walther² recovered in anesthetized animals only a small fraction of the absorbed fat from the lymph of the thoracic duct. Munk and Rosenstein³ recovered from the discharged lymph 60 per cent. of the fat fed to a patient with lymph fistula. Frank⁴ tied off the thoracic duct after feeding fat and still found the fat of the blood to increase during absorption. Hamburger⁵ tied off three equal-sized loops of intestine and in the central loop ligated all lymph vessels. Then after injecting an oil and soap emulsion, he noted that this was absorbed from the central loop despite the tying off of the lymph vessels, although it was distinctly less in amount than in the control loops. Munk and Friedenthal,⁶ in a preliminary communication, describe experiments similar to those of Frank, but use more precautions, such as tying off the

¹ Bloor. *Jour. Biol. Chem.*, 1916, XXIV, 457.

² Walther, *Archiv. f. Physiologie*, 1890, p. 328.

³ Munk and Rosenstein, *Virchow's Archiv*, 1891, CXXIII, 230.

⁴ Frank, *Archiv. f. Physiologie*, 1892, p. 497; 1894, p. 297.

⁵ Hamburger, *Archiv. f. Physiologie*, 1900, p. 554.

⁶ Munk and Friedenthal, *Zentralb. Physiologie*, 1901, XV, 297.