toward the exit tube. (6) The correct performance of a thoroughly ingrained habitual act, of the kind studied in this investigation is not dependent upon the "brain" (portions of the nervous system carried by the five anterior segments), since the worm reacts appropriately within a few hours after its removal. (7) As the "brain" regenerates, the worm exhibits increased initiative, its behavior becomes less automatic, more variable. (8) Within four weeks after the operation the regenerated segments appear superficially complete and the worm naturally burrows in a mixture of earth and manure. (9) Two months after the removal of the "brain," during the last four weeks of which period no training was given, the habit had completely disappeared from worm No. 2, the subject to whose responses this paper is devoted, and in its place there appeared a tendency to turn in the opposite direction to that demanded in the training. (10) Systematic training for two weeks resulted in the partial re-acquisition of the original direction-habit.

The general results which have just been stated are subject to modification in the light of additional data. To the experimenter, it seems that the particular individual which has been longest under observation is in many respects exceptional. It is perfectly clear, however, from results obtained with six individuals that important modifications in behavior appear as the result of training. It is equally certain that direction-habits are not readily acquired.

It is the purpose of the experimenter in the continuation of the investigation to pay especial attention to the relation of the nervous system to modifications of behavior.

12 (708)

Preliminary note on the action of glucose upon the amount of epinephrin in the blood.

By ISAAC OTT and JOHN C. SCOTT.

[*From the Laboratory of Physiology, Medico Chirurgical College, Philadelphia.*]

The modern theory of experimental diabetes is that a glycosecretory center is located in the medulla, from which impulses

pass down the cord, emerge in the splanchnics, and go to the liver to increase the transformation of glycogen into glucose. It is held by some that as the splanchnics contain the secretory fibers of the adrenals, that these impulses from the glyco-secretory center increase the amount of epinephrin, which mobilizes the glycogen of the liver and thus produces a diabetes. It is well known that epinephrin is a stimulant of the sympathetic nerves, hence it is a stimulant of the splanchnics. We have found the injection of glucose per jugular in the cat increases the amount of epinephrin in the blood, as shown by the intestinal strip of the rabbit. Hence we have here a circle: epinephrin stimulates the secretory nerves of the adrenals to produce epinephrin, which via the glycogen of the liver produces more glucose, which in its turn generates more epinephrin. We have also found the other sugars to increase the amount of epinephrin in the blood. Pilocarpin, skatol and indol also augment the amount of epinephrin in the blood.

13 (709)

Preliminary note on the inhibitory and synergistic hormones of the secretion of milk.

By ISAAC OTT and JOHN C. SCOTT.

[*From the Laboratory of Physiology, Medico Chirurgical College, Philadelphia.*]

We have studied on the goat the hormones which inhibit the milk secretion. We have found that the ovary inhibits the action of infundibulin, pineal gland, corpus luteum and thymus upon the secretion of the mammary gland. Pancreas, spleen, iodothyrin-parathyroid and adrenalin also inhibit the action of indundibulin. Orchitic extract increases the activity of infundibulin, thus being a synergistic agent. Egg albumen does not inhibit the action of infundibulin.