Bacillus coli is an acid-producer and when present so abundantly apparently affords a habitat for *Giardia* which is more favorable than that of the normal rat. It is interesting to note that in the rat which lived 5 days the number of *Giardia* was markedly increased, while in those rats which lived 12-18 hours there was not sufficient time for any marked increase in *Giardia.*

6922

Evidence of Secretion of Posterior Pituitary into Cerebro-Spinal Fluid under Influence of Heat.

H. G. BARBOUR AND W. E. HAMBOURGER.

From the Department of Pharmacology and Toxicology, Yale University.

At the present time there is lack of agreement as to the existence of demonstrable amounts of posterior pituitary substance in the normal cerebro-spinal fluid and some are even inclined to doubt that the amount of this substance can be increased by physiological stimuli. The state of our knowledge was well summarized by Cushing.[1] Pituitary substance is said to be augmented by the administration of certain organic extracts and drugs, by emotional stimuli and direct electrical stimulation of the hypothalamus (Karplus and Peczenik[2]).

We have examined by the guinea pig uterus test the cerebro-spinal fluid of cats exposed to hot and cold baths respectively. The amount of Ringer's solution used was 3 cc. to which was added from 0.2 to 0.4 cc. of either cisternal or ventricular fluid. The bath temperatures were either 20°C. or between 40 and 41°C. The duration in each case was 30 minutes. In the case of the hot bath the sample of the cerebro-spinal fluid was taken before removal from the water.

From 5 cats samples of cisternal fluid were taken none of which showed any oxytocic activity in the normal unanesthetized cat. After exposure to cold baths there was only one doubtful instance of oxytocic action from the 5 animals. After the hot bath, however, the cisternal fluid from 3 of the 5 cats showed definite oxytocic action.

[1] Cushing, H., *Proceed. Nat. Acad. Sci.*, 1931, **17**, 163.

[2] Karplus, I. P., and Peczenik, O., *Arch. ges. Physiol.*, 1930, **225**, 654.

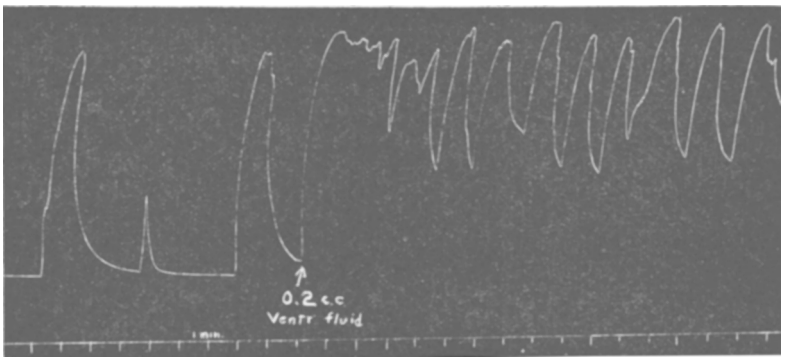

FIG. 1.
Effect upon isolated guinea pig uterus of 0.2 cc. ventricular fluid from cat after 30 minutes in bath at 40°C.

Two further cats were given 25 mg. per kilo of chloralose by stomach tube and the ventricular fluid tested. The fluid was removed through a small trephine hole just lateral to the sagittal and posterior to the coronal sutures. Again the fluid taken before the bath was found quite inactive but that removed after the 40° bath from both cats was decidedly more active than cisternal fluid.

Inasmuch as Solari[3] and others have shown that the hypophysectomized dog may preserve for many months a normal body temperature, it does not seem certain that posterior pituitary plays an essential rôle in heat regulation. Since, however, it has been shown in this laboratory[4] that pituitary, whether intraventricularly, intravenously or subcutaneously given, greatly dilutes the blood plasma, it may well be supposed that the substance affords an auxiliary physiological mechanism for promoting the dissipation of heat.

The amount of posterior pituitary substance secreted in the hot bath experiments was probably more than 10^{-3} International units.

[3] Solari, L. A., *Comp. Rend. d. Soc. d. Biol.*, 1931, **108**, 125.

[4] Gilman, A., and Barbour, H. G., *J. Pharm. Exp. Therap.*, 1933, in press.