

pilocarpine alone caused a flow of saliva from the fistula amounting on different occasions to 54.9, 48.9, 39.7, and 46.9 cc. per hour (average, 47.6 cc.), whereas in experiments with pilocarpine after histamine, the corresponding amounts of saliva were 31.9, 26.6, 37.6, and 33.8 cc. (average, 32.5 cc.). The largest volume of saliva collected in 5 minutes was 12.8 cc. under pilocarpine alone, and 8.6 cc. with histamine preceding pilocarpine.

5197

Effect of Pituitary Extract (Posterior Lobe) on the Concentrations and Distributions of Chlorides and Bromides in the Blood and Urine.

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The mechanism by which pituitary extract causes antidiuresis in unanesthetized mammals has been considered by some workers as chiefly extra-renal, by others as chiefly renal. The experiments reported here were undertaken in the belief that studies of electrolyte distribution (chlorides and bromides) between erythrocytes and serum might support or oppose the hypothesis that an extra-renal mechanism is involved.

All experiments were performed on unanesthetized dogs with permanent fistulae of only the ureteral portion of the urinary bladder for the accurate collection of urine. Blood was withdrawn from the jugular vein under oil, defibrinated and then centrifuged to separate the serum from the erythrocytes. The serum and the erythrocytes were transferred to separate tonometers without exposure to air. Determinations of the hydrogen-ion concentration of serum and of the water-content and concentrations of chlorides or of chlorides and bromides in urine, erythrocytes and serum, were made 3 or 4 times (including a control-period) in each experiment. Posterior-lobe pituitary extract was given subcutaneously (except in control experiments) in an amount sufficient to cause a typical anti-diuretic effect.

The results obtained under the experimental conditions described above appear to justify the following conclusions: 1. Pituitary extract does not significantly change the concentrations of chloride in erythrocytes or in serum of intact (13 experiments on 5 dogs) or of nephrectomized dogs (2 dogs). 2. When part of the blood-chlo-

ride has been replaced by bromide, pituitary extract causes no change in the concentrations of chloride and of bromide or in the distributions of chloride or of bromide between erythrocytes and serum of intact (14 experiments on 6 dogs) or of nephrectomized dogs (5 dogs). The *relative* concentrations of bromides and chlorides are about the same in serum and urine (14 experiments on 6 dogs). 3. Pituitary extract causes no change in the water-content of erythrocytes or of serum (34 experiments).

5198

Causation of *B. Welchii* Infection in Dogs with Sterile Liver Extract and Bile Salts.

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In a recent paper Rewbridge¹ reported that the intraperitoneal injection of sterile bile or pure bile salts brought about prompt invasion of the peritoneum by *B. welchii*. Andrews² also showed that autolysis of sterile liver in the peritoneum also provoked a severe *B. welchii* infection. In view of the above and of the work of Dragstedt³ on the rich flora of the normal liver as well as that of Arnold⁴ on the absorption of bacteria into the lymph stream under physiological conditions, our studies were continued and may be summed up as follows. Thirty-nine dogs were used in the series of experiments, 3 dogs in each of the groups.

Experiments were done in which the bile of dogs was led in tubes into the depths of the pelvis and also into the chest cavity. The results were similar. Severe *B. welchii* infections took place within 24 hours in most cases. These experiments showed that the proximity of the intestinal tract or the liver (known foci with rich flora) was not necessary to provoke these infections.

Next, concentrated solutions of liver extract prepared as mentioned in a previous paper² and 10% solutions of bile salts were injected into normal dogs into the pelvic peritoneum and also into

¹ Rewbridge, Allan G., and Hrdina, L. S., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 528.

² Andrews, E., and Hrdina, L. S., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 987.

³ Ellis, J. C., and Dragstedt, L. R., *Arch. Surg.*, 1930, **20**, 8.

⁴ Arnold, Lloyd, *J. Hyg.*, 1929, **29**, 82.