

modifications of Ringer's solution, in 0.7 per cent. NaCl solution, in isotonic saccharose, glucose, glycerine and alanin solutions. In all the cases investigated it has been found that increase in weight goes hand in hand with increase in length and that decrease in weight is accompanied by decrease in length. The changes in weight and the changes in length are roughly proportional to each other in rate and amount.

A suggestion of the nature of the chemical change which brings about contraction is found in the following facts. Smooth muscle usually gains in weight and lengthens in Ringer's solution which has the following formula: NaCl, 0.65 gram; KCl, 0.02 gram; CaCl₂, 0.025 gram; NaHCO₃, 0.02 gram; H₂O, 100 c.c. If for the NaHCO₃, 0.01 gram of lactic acid be substituted, the gain in weight and lengthening do not occur; there may even be a small loss in weight and shortening. Larger amounts of lactic acid may cause gain in weight and lengthening. If the muscle be stimulated with a strong interrupted Faradic current after it has been for some time in the weakly acid Ringer, it responds to the stimulation by lengthening slightly instead of by shortening. These facts may be explained by supposing that smooth muscle responds to stimulation like striated muscle by the production of a small amount of lactic acid. Under ordinary circumstances this production of lactic acid causes the fibers to lose fluid and shorten; but if the fibers have been artificially acidified before the stimulation takes place, the production of more acid on stimulation causes the fibers to take up fluid and lengthen.

55 (580)

**Preliminary note on the action of some internal secretions upon
erectile tissue.**

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To study the action upon erectile tissue we employed the penile organ of the dog. The length of it was measured by a pair of compasses, from the bulb to the tip. The width of the bulb of the organ was measured in the same way. Then the filtered infusion made with distilled water was injected into a vein and the

dimension of the organ measured as before. It was found that the prostate increased the length 25 mm., and the width of the bulb 25 mm. The orchitic extracts gave an increase in length of 15 mm., and an increase in width of bulb of 23 mm. The ovarian extract gave an increase in length of 21 and an increase in width of bulb of 23 mm. The parathyroid extract gave an increase in length of 15 and an increase in width of bulb of 15 mm. The thymus extract gave an increase in length of 15 mm. and an increase in width of bulb of 12 mm. Pituitary extract as a whole, gave an increase in length of 11 mm. and an increase in width of bulb of 6 mm. Infundibulin gave an increase in length of 5 mm. and an increase in width of bulb of 6 mm. Pineal gland gave no increase in length but increase in width of bulb of 7 mm. The corpus luteum increased the length 15 mm. and the width of the bulb 28 mm.

56 (581)

The depressor action of dog's pancreas and pancreatic juice.

By **A. B. EISENBREY** and **R. M. PEARCE.**

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The marked lowering of blood pressure produced by the pancreatic juice of the dog when injected into the circulation of the dog, suggested that the sudden onset of prostration and collapse, symptoms indicative of vasomotor insufficiency seen clinically in acute pancreatic disease, might be due to the direct peritoneal absorption of the pancreatic juice set free in the destruction of the gland.

We have accordingly collected the pancreatic juice from anesthetized dogs by placing a canula in the duct, and the secretion so obtained was diluted with equal volumes of 0.85 per cent. salt solution and injected into the femoral or external jugular veins of the same or other dogs. Varying with the anesthetic used and directly with the blood pressure level at the time of injection, we have obtained falls of from 20 to 60 mm. Hg by injecting the equivalent of 1 c.c. of pancreatic juice. The action does not appear to depend on any primary cardiac effect. The fall is prompt and recovery to the original level occurs within 2 minutes. Pan-