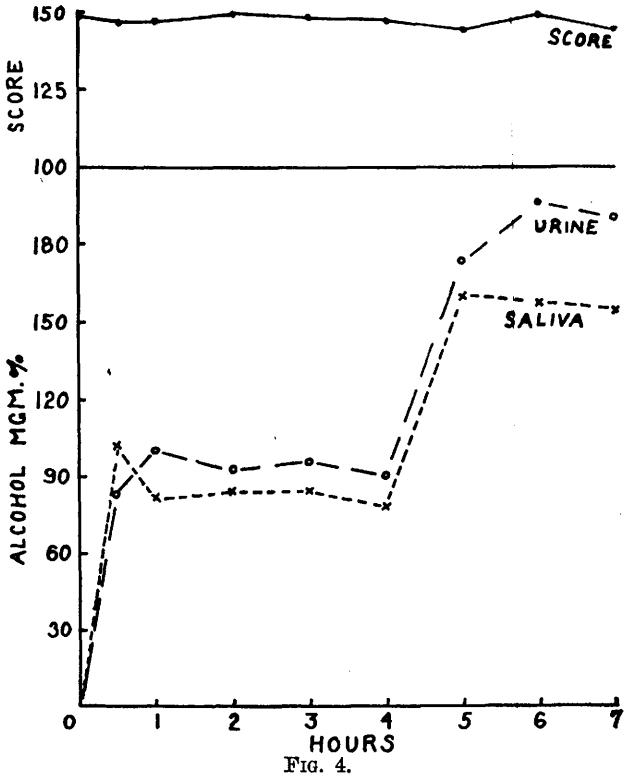

FIG. 4.

Alcohol concentration and test performance after 2 doses of 0.5 g of alcohol per kg separated by 4 hours. The alcohol concentration was maintained constant in the interval and after the second dose by hourly doses of 8.0 g of alcohol in milk.

13374

Possible Rôle of the Kidney in Regulation of Normal Blood Pressure in the Dog.

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The well-known rôle of the Goldblatt kidney in the production and maintenance of one form of experimental hypertension[1] raises the question of a possible specific rôle for the kidney in the regulation of normal blood pressure. Wakerlin and Chobot[2] found no evi-

1 Goldblatt, H., *Am. J. Clin. Path.*, 1940, **10**, 40.

2 Wakerlin, G. E., and Chobot, G. R., PROC. SOC. EXP. BIOL. AND MED., 1939, **40**, 331.

dence that the renal pressor substance, renin, plays a rôle in the maintenance of normal blood pressure, although Page and Helmer[3] suggest that angiotonin which they consider to result from the interaction of renin and renin activator, may be a humoral means for the regulation of blood pressure. The possible rôle of the kidney in the regulation of normal blood pressure was studied by comparing the blood pressure responses of bilaterally nephrectomized and sham nephrectomized dogs to one of two conditions of vascular stress, *viz.*, bilateral splanchnicotomy and thoracic chordotomy.

Dogs were anesthetized with 250 mg per kilo of sodium barbital intraperitoneally and blood pressure was recorded from the cannulated carotid or femoral artery by means of a mercury manometer. Nephrectomies and sham nephrectomies were performed by the retroperitoneal lumbar approach.

The splanchnicotomized group consisted of 24 dogs divided equally between nephrectomized and control animals. Both splanchnic nerves were isolated at the time of nephrectomy or sham nephrectomy. Three hours later bilateral splanchnicotomy was performed and blood pressure readings were continued for another 3 hours. Three hours were allowed to elapse before splanchnicotomy was performed on the theory that any humoral effect on blood pressure from the normal kidney might have been at least partially dissipated. Possibly relevant in this connection is the fact that the sensitivity of dogs to the acute pressor effect of renin administered intravenously frequently increases one to 3 hours[2] and 24 hours[4, 5] after nephrectomy.

In the 2 chordotomized groups the same procedures were followed except that instead of isolating the splanchnics, the spine and part of the laminae of the sixth thoracic vertebra were removed at the time of nephrectomy or sham nephrectomy, and in one of the groups 24 instead of 3 hours were allowed to elapse between nephrectomy or sham nephrectomy and chordotomy. A lifting ligature was placed under the exposed chord at the time of laminectomy and the wound temporarily sutured. Chordotomy was performed 3 hours later in one group of 18 dogs, equally divided between nephrectomized and sham nephrectomized animals. Following chordotomy, blood pressure readings were continued for 3 hours.

In the other group of 10 dogs, nephrectomy or sham nephrectomy,

[3] Page, I. H., and Helmer, O. M., *J. Exp. Med.*, 1940, **71**, 29.

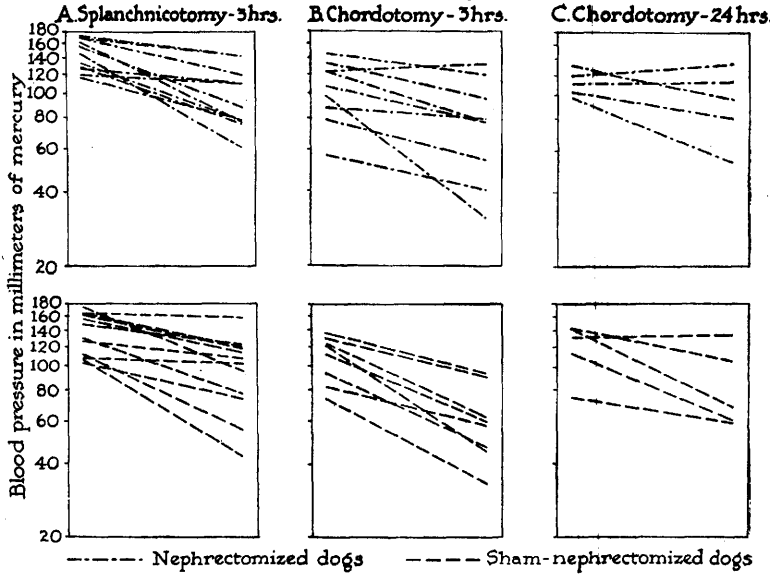
[4] Merrill, A., Williams, J. R., Jr., and Harrison, T. R., *Am. J. Med. Sci.*, 1938, **196**, 18.

[5] Tigerstedt, R., and Bergman, P. G., *Skand. Arch. Physiol.*, 1898, **8**, 223.

and exposure of the sixth thoracic segment of the spinal chord were carried out under morphine-pentobarbital anesthesia and under sterile conditions. These dogs were also equally divided between nephrectomized and control animals. Twenty-four hours later with the animals under sodium barbital anesthesia chordotomy was performed and the blood pressure recording continued for 3 hours.

The results showed no significant difference, confirmed by statistical analysis, using the "t" test, between the decreases in blood pressure in the nephrectomized and sham nephrectomized groups following splanchnicotomy or chordotomy. Thus the percentages of fall in blood pressure 3 hours after splanchnic section varied from 8 to 57, with an average of 33 for the nephrectomized group, and from 4 to 60 with an average of 28 for the control group. (Fig. 1, Col. A.) The percentages of fall in blood pressure 3 hours after chordotomy varied from 9 to 64 with an average of 26 for the nephrectomized group, and from 31 to 63 with an average of 45 for the sham nephrectomized group. (Fig. 1, Col. B.) The percentages of fall in blood pressure for the 24-hour chordotomy experiments ranged between 0 and 64 with an average of 21 for the nephrectomized animals, and between 0 and 52 with an average of 29 for the sham nephrectomized animals, demonstrating that the longer period for

Figure 1.
Effect of Splanchnicotomy and Chordotomy on Blood Pressures of Nephrectomized and Sham-nephrectomized Dogs



dissipation of a possible humoral effect from the kidney did not significantly alter the results. (Fig. 1, Col. C.)

Though these findings by no means rule out a specific rôle for the kidney in the regulation of normal blood pressure, they give no support to this possibility and add to the probability that renin, like epinephrine and vasopressin, does not exert a pressor effect under normal conditions.

Conclusions. (1) There was no significant difference between the decreases in blood pressure shown by nephrectomized and sham nephrectomized dogs following splanchnicotomy or chordotomy. (2) These results lend no support to the possibility that the kidney plays a specific rôle in the regulation of normal blood pressure in the dog.

13375

Physiology of Bacteria-Free Culture of *Trichomonas vaginalis*: VI. Effect of Female Sex Hormones on Population.*

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Exacerbations are frequently observed in cases of *Trichomonas vaginalis* vaginitis following menstruation or during pregnancy. In search of a possible explanation of this phenomenon Stein and Cope[1] examined the effect of progynon (Schering) upon contaminated cultures of *Trichomonas vaginalis* and concluded that "the addition of female sex hormone to culture medium stimulated the multiplication of *Trichomonas vaginalis in vitro.*" They also state[1] that "the sex hormone content of menstrual blood may be a more important factor in causing the postmenstrual flare of *Trichomonas vaginalis* vaginitis than the presence of blood serum and possibly also of tissue fragments."

The purpose of the present study was to reinvestigate the rôle of female sex hormones using a bacteria-free culture.

* The authors are indebted to Dr. Ray E. Trussell, Dr. E. D. Plass and Dr. T. L. Jahn for much helpful criticism in the course of this study.

1 Stein, I. F., and Cope, E. J., *Am. J. Obst. and Gynec.*, 1933, **25**, 819.