

sure rose slowly during the injection to the initial level, while in a few animals it rose above the initial level. No disturbances of respiration, such as occurred in the other two groups of dogs, were noted.

*Conclusions.* Bovine serum, bovine plasma, and bovine serum globulin are very toxic when given by the intravenous route to dogs. The toxicity of the whole serum or plasma appears to be due to the serum globulin or related protein fractions. The intravenous administration of bovine serum albumin is not only harmless, but is effective in raising and maintaining the blood pressure of dogs subjected to severe hemorrhage. Since bovine blood is readily available, bovine serum albumin may prove useful as a substitute for blood. A study of the effects of the intravenous administration of bovine serum albumin in human beings will be reported later.

### 13450

#### Effect of Renal and Systemic Bloods from Normotensive and Renal Hypertensive Dogs on Arterial Rings.

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There are several reports claiming to have demonstrated the presence of a pressor substance in the systemic blood of renal hypertensive (Goldblatt) dogs<sup>1, 2, 3</sup> but other investigators have been unsuccessful in similar attempts.<sup>4-9</sup> Obviously this hypothetical pressor substance should be more easily detected in the venous return from the kidney of the renal hypertensive dog. Nevertheless, the reports

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<sup>1</sup> Govaerts, P., and Dieker, E., *Compt. rend. Soc. de biol.*, 1936, **122**, 809.

<sup>2</sup> Solandt, D. Y., Nassim, R., and Cowan, C. R., *Lancet*, 1940, **1**, 873.

<sup>3</sup> Page, I. H., *J. Exp. Med.*, 1940, **72**, 301.

<sup>4</sup> Page, I. H., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **35**, 112.

<sup>5</sup> Collins, D. A., and Hoffbauer, F. W., *PROC. SOC. EXP. BIOL. AND MED.*, 1937, **35**, 539.

<sup>6</sup> Friedman, B., and Prinzmetal, M., *Ann. Int. Med.*, 1939, **12**, 1617.

<sup>7</sup> Heymans, C., and Bouckaert, J. J., *PROC. SOC. EXP. BIOL. AND MED.*, 1938, **39**, 94.

<sup>8</sup> Katz, L. N., Friedman, M., Rodbard, S., and Weinstein, W., *Am. Ht. J.*, 1939, **17**, 334.

<sup>9</sup> Wakerlin, G. E., and Yanowitz, M., *PROC. SOC. EXP. BIOL. AND MED.*, 1939, **41**, 51.

for renal vein blood are about equally divided between positive<sup>3, 10-12</sup> and negative<sup>5, 6, 13</sup> findings.

In a communication already mentioned,<sup>9</sup> one of us reported no significant differences in the vasoconstricting properties for surviving beef arterial rings of systemic plasmas from normotensive and renal hypertensive dogs. Since then we have similarly compared the vasoconstricting effects of renal and systemic bloods from normotensive and renal hypertensive dogs.

The methods employed were essentially those outlined in our earlier report<sup>9</sup> and consisted in recording the contractions of rings obtained from the tertiary division of the superior mesenteric artery of beeves, when heparinized renal vein or femoral artery plasmas or whole bloods were substituted for oxygenated Locke's solution in the smooth muscle chamber. In some experiments, femoral vein blood was also used and in others serum, instead of heparinized plasma or blood, was employed. The renal vein bloods were obtained through previously placed London cannulae, brought out through the anterior abdominal wall. Three dogs were used. After a control period of 10 weekly comparisons between renal vein and femoral artery bloods, the dogs were subjected to bilateral constriction of the renal arteries. The comparisons were then continued during the resulting period of hypertension at weekly intervals for 8, 17, and 34 weeks, respectively. Mean blood pressure readings were obtained by femoral artery puncture 2 or 3 times a week.

As shown by Fig. 1, there were no significant differences between the vasoconstricting effects of the renal vein and femoral artery bloods of the 3 dogs either before or after the production of experimental renal hypertension. There were likewise no significant differences in those experiments in which femoral vein bloods were compared with femoral artery and renal vein bloods, as well as those in which serums were used. The average femoral blood pressures of the 3 dogs during the control period were 139, 129, and 134 mm of Hg, respectively. During the subsequent hypertensive period the average pressures were 183, 176, and 181 mm.

This work, therefore, constitutes another unsuccessful attempt to demonstrate the hypothetical pressor substance of experimental renal hypertension in renal vein blood. However, the limitations of our

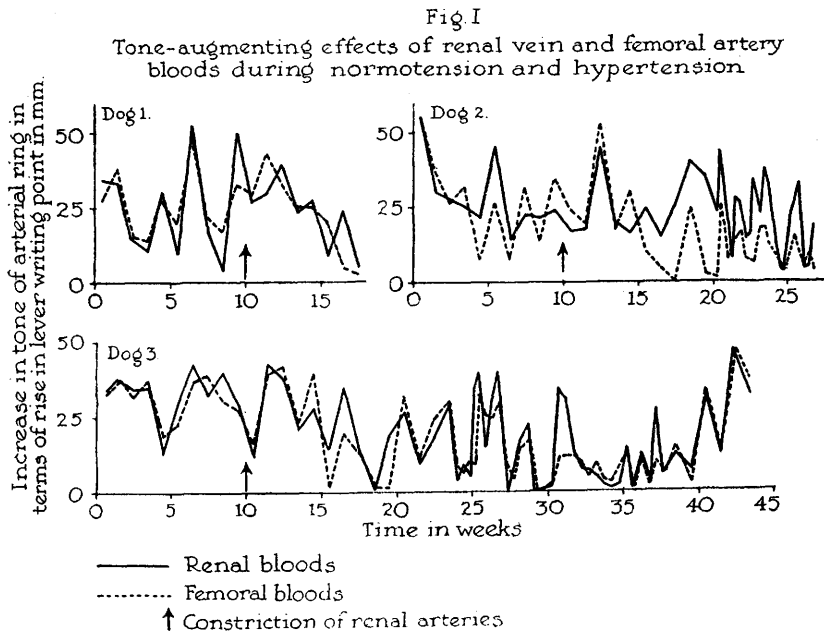
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<sup>10</sup> Braun-Menendez, E., Fasciolo, J. C., Leloir, L. F., and Munoz, J. M., *J. Physiol.*, 1940, **98**, 283.

<sup>11</sup> Friedman, M., Selzer, A., Sampson, J. J., *Am. J. Physiol.*, 1941, **131**, 799.

<sup>12</sup> Goldblatt, H., Kahn, J. R., and Lewis, H. A., *Arch. Surg.*, 1941, **43**, 327.

<sup>13</sup> Mason, M. F., and Rozzell, J. D., *Proc. Soc. Exp. Biol. and Med.*, 1939, **42**, 142.



method, as previously outlined<sup>10</sup> are such that positive results only would be conclusive.

*Conclusions.* 1. The vasoconstricting effects of heparinized renal vein and femoral artery bloods from three dogs before and after the production of renal (Goldblatt) hypertension were studied on arterial segments from the mesenteric arteries of beeves. 2. No significant differences were found either during normotension or hypertension. 3. These results do not support the presence of a pressor substance in the renal vein and systemic bloods of Goldblatt dogs but by no means rule out the probability.

### 13451 P

#### Changes in Antitryptic Power of the Blood Associated with Anaphylaxis in Guinea Pigs.

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That the natural antitrypsin of body fluids plays a determining