

was placed about the inferior vena cava above the entrance of the renal vein, or about the renal vein itself, showed that venous congestion *always* caused a decrease in the urinary output. Even the mildest grades of congestion were never associated with a normal or increased amount of urine. Similar conclusions had been drawn by Munk<sup>9</sup> (1864).

Schwarz<sup>17</sup> (1900) states that partial obstruction of the renal vein of one side resulted in a relative polyuria on that side. This he claimed could be obtained with more certainty when the blood was first defibrinated.

De Souza<sup>18</sup> (1900) repeated this work with exactly opposite results even when the blood was defibrinated. He sharply criticized the work of Schwarz, pointing out that the flow of urine from either side, in Schwarz's experiments, was exceedingly small. He concluded that any interference with the return flow of blood from the kidney resulted in lessened urinary output.

Ignatowski<sup>19</sup> (1905) determined the effect on the renal function of ligating one renal vein, the other kidney being left untouched. He showed that the urine for the next twenty-four hours was scanty in amount, poor in chlorid and in urea, contained albumin and blood. He later tied the remaining renal vein, death occurring within a few days.

The work of these various investigators has dealt essentially with the immediate effect (hours to four days) of partial or complete obstruction of the venous return from the kidney on the amount of urine, the presence of albumin, blood and casts in it, and on the histological picture.

The problems with which we deal are: the effects of varying grades of permanent chronic passive congestion (partial obstruction to venous return) on the urinary picture, on the functional capacity of the kidney as revealed by functional studies, on the kidney histologically, and on the general condition of the organism elsewhere.

#### METHODS

The method utilized for the production of chronic passive congestion of the kidney consisted briefly of the application of constricting bands about the renal veins or about the vena cava above the entrance of the renal veins. The bands were obtained by cutting sections approximately 1 cm. in length from ordinary Coudé catheters which were sterilized by boiling for a period of two or three minutes.

The dog's abdomen was opened aseptically. The vessel about which the band was to be placed was isolated and thoroughly freed from the surrounding tissue. The section of catheter was slit longitudinally, opened, flattened out, and grasped between the blades of an artery forceps in such a manner as to prevent it from curling back into its original shape.

17. Schwarz: Arch. f. Physiol. u. Pathol., 1900, xliii, 15.

18. De Souza: Jour. Physiol., 1900, xxvi, 139.

19. Ignatowski: Compt. rend. Soc. de biol., 1905, lviii, 130.