

the pancreas of the dog. We have, however, from our experiments no evidence to show that the prostration and collapse of acute pancreatic disease are caused by the absorption and effect on the blood pressure of the unaltered pancreatic juice or the products of the earlier stages of autolysis. The part played by autolysis in the production of further depressor and toxic substances and especially the part played by the activation of the pancreatic secretion by the enterokinase, which body presumably finds entrance into the organ in the development of the human lesion, are phases of the subject which we now are investigating.

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**The significance of the structure of the medullary loop of the renal tubule of mammalia.**

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A method of maceration has been devised recently<sup>1</sup> by means of which it is possible to isolate the entire renal tubule of adult mammals. Certain of the renal tubules thus isolated have been stained and permanently mounted in glycerine. This enables a study of their form in a manner hitherto not possible and admits of an accurate determination of their epithelial lining. Each mammalian renal tubule possesses four types of epithelium: (1) The pavement epithelium surrounding the glomerulus and lining the glomerular capsule; (2) the specific renal epithelium of the proximal convoluted portion and its medullary segment; (3) the pavement epithelium of the medullary loop; (4) the cubic or short columnar epithelium of the ascending or distal arm of the medullary loop and the distal convoluted portion. The following table shows the distribution of the last three types of epithelium in renal tubules of the rabbit, the tubules selected representing A, a tubule with renal corpuscle situated at the periphery of the cortex; B, a tubule with renal corpuscle situated in the deeper portion of the outer half of the cortex; C, a tubule the renal corpuscle of which is situated in the deepest part of the cortex.

<sup>1</sup> G. Carl Huber, "A method for isolating the renal tubules of mammalia," *Anat. Record.*, v., April, 1911.

	A, mm.	B, mm.	C, mm.
Proximal convoluted portion with medullary segment..... (Specific renal epithelium of cortex.)	11.3	9.4	10.2
Thin segment of medullary loop..... (Pavement epithelium.)	1.4	6.7	15.0
Thick segment of medullary loop and distal convoluted portion..... (Cubic or short columnar epithelium.)	7.8	6.9	3.6
Total length of tubules, exclusive of collecting duct.	20.5	23.0	28.8

The tubules selected represent type tubules and were selected with a view of drawing attention to the fact that the character of the tubule, and perhaps also its functions, changes with the position of the renal corpuscle in the cortex. Tubules with renal corpuscles situated near the periphery of the cortex possess short medullary loops with short segments lined by pavement epithelium. The deeper in the cortex the renal corpuscle is situated the longer becomes the medullary loop and the longer the segment of the loop lined by pavement epithelium. These statements pertain not only to the renal tubules of rabbits but also to those of other mammals including man. It may be observed from a study of the table that that portion of the renal tubule lined by the specific renal epithelium of the cortex, namely the proximal convoluted portion and its medullary segment, does not vary materially in length in tubules of different types. If one may assume a specific excretion for the special renal epithelium of the proximal convoluted portions and their medullary segments, it is evident that this specific excretion would be essentially of the same extent for all the renal tubules, irrespective of type. If, on the other hand, one may assume an absorption of water and perhaps certain salts in the thin segments lined by the clear, pavement epithelium the extent of this absorption must differ widely in tubular segments having this structure, and that, therefore, urine of different degrees of concentration must as a consequence enter the collecting ducts.