

3. Fourteen animals were given a single subcutaneous injection of 5 mg. of uranium nitrate, which was sufficient to produce a severe nephritis with extreme loss of weight and almost complete anuria. In two cases death followed within five days, in two cases on the seventh day, and in one case on the eighth day. Of the remaining nine animals two were killed on the twenty-fifth day, two on the one hundred and seventeenth day, one died on the two hundred and twenty-fourth day, two were killed on the two hundred and fortieth day, and two animals were lost. This group (of which eight are reported) will show the condition of the kidneys at different periods after a single attack of acute nephritis.

PROTOCOLS.—SERIES I

Protocol 1—*Guinea-pig 22*.—Eighty-two subcutaneous injections of 0.25 mg. of uranium nitrate were given during one hundred and ten days, after which the animal was killed. The weight decreased from 609 gm. to 455 gm. Albumin was present in the urine for four days following the fortieth dose, but was not observed again.

Autopsy.—The animal was fairly fat and showed no congestion of the peritoneum and no ascites. The kidneys appeared normal in size and color, and on section showed no macroscopic changes. The capsule stripped easily.

MICROSCOPIC EXAMINATION

The majority of the glomeruli show practically no change except that the tufts are dilated and completely fill the capsules. Many of the capsules, however, show definite thickening of the endothelium and of the basement membrane, while others are dilated, forming scattered microscopic cysts in the cortex. A few capsules contain a granular exudate but no desquamated cells. The tufts in nearly all cases show no changes except the dilatation described above, although a few have some thickening of the intervascular connective tissue, and some others show slight fragmentation of the nuclei. The thickened basement membranes of the capsules show definite hyaline degeneration, but there is no hyaline change in the tufts.

The greater number of the convoluted tubules present a fairly normal appearance, although the epithelial cells are somewhat swollen. There are areas, however, where the tubules are distinctly dilated. In these areas the epithelium is flattened and degenerated, in some cases showing merely a narrow band of protoplasm with poorly staining nuclei inside the basement membrane. These tubules are found in the neighborhood of the glomeruli which show changes, and they contain a granular exudate and in many cases some desquamated epithelial cells. In other places the tubules are shrunken and atrophied and show a deposit of pigment. In the medullary rays the ascending limbs of Henle's loops are dilated and contain granular exudate and desquamated cells which show varying degrees of degeneration. The collecting tubules in the pyramids also contain exudate and debris, but otherwise show no change. A few of the tubules contain dense hyaline casts.

There are definite areas of round-cell infiltration in the interstitial tissue, in many cases widely separating the atrophied tubules which in these places show hyaline degeneration of their basement membranes. In a few cases these