than normal. The capsule stripped easily. On section there was definite bulging of the cut surface and some edema, and both cortex and medulla were distinctly congested.

MICROSCOPIC EXAMINATION

There is very marked congestion of the kidneys and an extreme degree of damage to the convoluted tubules, but there is very little change in the glomeruli. The only indication of interstitial change is seen in a few areas of round-cell infiltration around some of the small veins. The glomeruli are practically normal in appearance, although there is slight congestion of the tufts, and in a few cases some exudate into the intracapsular space. There is no thickening of the capsule, and no desquamation or thickening of the capsular endothelium. The convoluted tubules are practically all enormously degenerated; many of them are dilated with their epithelium flattened and their lumens filled with exudate, and many are practically denuded of their epithelium. Those tubules where the damage is less severe show cloudy degeneration of the cells and almost complete obliteration of their lumens. The ascending limbs of Henle's loops are greatly dilated and contain exudate and desquamated cells, and the smaller collecting tubules also contain considerable débris. A few hyaline casts are seen in the tubules. There is no deposit of calcium salts.

PROTOCOL 2—*Guinea-pig 48.*—A single injection of 5 mg. was given subcutaneously, and the animal died five days later. There was a very heavy excretion of albumin in the urine for the four days preceding death, and there was also some copper-reducing substance which gave a very marked "sugar" reaction, for three days preceding death. The animal dropped in weight from 570 gm. to 295 gm.

Autopsy.—The peritoneum was congested, but there was no fluid in the peritoneal cavity. The kidneys in the gross and microscopically were practically the same as those described in Protocol 1 of this series.

PROTOCOL 3—*Guinea-pig 16.*—A single injection of 5 mg. was given subcutaneously, and the animal died on the eighth day. The weight dropped from 530 gm. to 380 gm. No analysis of the urine was made.

Autopsy.—There was marked congestion of the peritoneum, but no fluid in the peritoneal cavity. The kidneys were swollen, and on section showed some edema and some bulging of the cut surface. The capsule stripped easily. The other organs showed no gross changes.

MICROSCOPIC EXAMINATION

There is very definite congestion of the arterioles and of the glomeruli. There are numerous, rather large cysts scattered throughout the cortex, many of which are tubular in origin though some are glomerular. Many of the glomeruli are unchanged except for the congestion of the tufts, but some have exudate into the glomerular capsule, a few show some proliferation of the capsular endothelium, and an occasional one shows some thickening of the basement membrane of the capsule. The majority of the tubules show very little change except for some cloudy swelling of the epithelium. Some of the tubules are dilated, having flattened epithelium, and containing exudate and débris in their lumens, and some of them show calcium deposit in the cells of the tubules and in the desquamated cells in their lumens. The loops of Henle and the smaller collecting tubules have some exudate in their lumens, and a few contain hyaline casts. There are a few areas of round-cell infiltration and a good deal of calcium deposit in the cortex. There is no new formation of elastic tissue.