

*Autopsy.*—The peritoneum was slightly congested, and there was a small amount of fluid in the peritoneal cavity. The kidneys were somewhat swollen and mottled, and the capsule stripped easily. The cortex appeared normal. There was no urine in the bladder.

#### MICROSCOPIC EXAMINATION

The appearance is very much the same as that described in Protocol 7, although there is not quite so much glomerular change. There are many normal glomeruli, but there are also many glomerular cysts, and many glomeruli with thickened capsules, hyaline basement membranes, and new formed clastic tissue. Some of the convoluted tubules are dilated and have exudate and debris in their lumens. Many of the loops of Henle are blocked by dense, fragmented casts, and many of the collecting tubules contain exudate and desquamated cells. There are some small areas of fibrosis which are rich in nuclei, and which in some places correspond to dimples on the surface of the kidneys, but there is no diffuse proliferation of the intertubular connective tissue. There is some deposit of calcium salts in the medulla.

#### DISCUSSION

Before discussing the significance of the foregoing experiments it may be well to refer briefly to an objection which will undoubtedly be raised. It is well known that small animals are subject to spontaneous kidney lesions, and that conditions are occasionally found which more or less closely resemble that of chronic interstitial nephritis in man. In view of this fact one must be careful that a condition which may be coincident with, be not interpreted as resultant from the administration of some renal irritant.

In our series of experiments sixteen animals which died as a result of acute poisoning with uranium nitrate and four which were killed as normal controls were carefully examined for evidences of chronic lesions. Of these twenty animals not one showed any condition which at all resembled those described above (excepting, of course, the two acute cases described in Protocols 1 and 2 of Series III). In one animal which succumbed to acute poisoning a single glomerulus was found which showed slight thickening of the endothelium, but in no case was there any thickening of the capsule or hyaline degeneration of the basement membrane, and in none of the kidneys of the normal controls was there any appearance of round-cell infiltration.

On the other hand, in Series I, in which eight animals were subjected to experiment, one was killed after a few injections but before anything was found, one died from acute poisoning with sodium chlorid and so could not be included in the series, and the other six are reported. And in Guinea-pig 31 which died from sodium chlorid poisoning, the kidneys showed glomerular and tubular lesions which were undoubtedly not due to the terminal insult.