179. *Experimental Albuminuria.*

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Experiments were undertaken first on Japanese toads prepared after TAMURA and his co-worker's method¹⁾ for the separate investigation of the functions of glomeruli and tubuli, in order to ascertain through what part of kidney does protein pass: whether through the glomeruli or through the tubuli or through both. As the results of experiments, the elimination of egg-white injected intravenously is accompanied by plasma-proteins, in which the glomerulus is the only exit, in the kidney under ordinary conditions, as has been already confirmed of haemoglobin by TAMURA and his co-workers.²⁾ After long-continued (20 hours or more) perfusion of saline solution through one of the renal arteries, egg-white injected into the animal is eliminated through both the glomeruli and the tubuli, showing an alteration in the physiological permeability of the tubular epithelium. Similarly, in experimental nephritis produced by chromium, uranium or cantharidin the permeability of the tubuli is so changed that protein passes not only through the glomeruli but also through the tubuli as well plasma protein. However has easier passage through the tubuli than the white of eggs.

The next study was to know whether the elimination of egg-white through the glomeruli of kidney under physiological conditions exerts any influence on the kidney function or not, and the following facts were revealed. In Japanese toads thus poisoned, when egg-white

1) Proc. Imp. Acad., 2 (1926), No. 2.

2) Proc. Imp. Acad., 2 (1926), No. 2.

injected into the lymph-sac or into the circulation is being excreted, plasma-protein also appears in the urine; but its elimination ceases almost together with that of egg-white, and is not carried on afterwards. Long-continued injections of egg-white fails to induce protein to pass through the tubuli besides the glomeruli, and the elimination takes the same course as in the case of a single injection, and the cessation of the elimination of egg-white is attended by disappearance of serum-protein from the urine. Experiments on cats and rabbits had the same results as on toads.

In view of these facts, the elimination of egg-white through the kidney under normal conditions, even when it is long continued, does not appear to impair the kidney-parenchym.