crease in the vascularity of this organ was observed. This decrease apparently followed a tonic contraction of the blood vessels and not a true constriction as is produced, for example, by stimulation of the corresponding splanchnicus major. It seemed to be merely a tonic reaction of the kidney against the high systemic blood pressure which follows stimulation of the sciatic.

Similarly, the application of cold compresses across the back in the region of the kidneys, reduced the blood-flow through this organ, while hot compresses increased the flow. As the temperature of the organ itself, or of the tissues in its immediate vicinity, was not changed by the compress, these variations in the vascularity of the kidney must have been produced reflexly.

Stimulation of the distal ends of the vagi, below the point where the cardiac branches are given off, did not change the blood flow. The vagus, therefore, appears to carry no efferent vasomotor impulses to the kidney.

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The influence of temperature on hemolysis in hypotonic solutions.

By **PAUL A. LEWIS.**

[*From the Antitoxin Laboratory of the Massachusetts State Board of Health.*]

Hemolysis in hypotonic solutions is progressively increased as the temperature is decreased from thirty seven degrees centigrade to five degrees centigrade. In order to bring out this fact, that modification of Hamburger's method for testing the resistance of erythrocytes, which was introduced by Theobald Smith, was used. The solutions were brought to the required temperature and then the corpuscles were added. The differences are present both at the points of beginning and complete hemolysis, but are only well marked at the intermediate points. This accounts for results obtained by Hamburger (1887 and 1903) who held that temperature within these limits was without influence.

The effect of temperature is the same whether sodium chloride or cane-sugar is used to give tonicity to the fluid. The corpuscles

of the horse, rabbit, guinea-pig, calf, and sheep are equally affected. The differences become well marked after a few minutes' exposure to the different temperatures, and thereafter bringing them to one temperature fails to equalize the hemolysis even after many hours. The effect, then, is on the corpuscle rather than on the surrounding fluid and is exerted chiefly in the first moments of exposure.

Temperatures above 37° C. act variously according to the particular species whose blood is used. Horse corpuscles give distinctly more hemolysis at 42° C. than at 37° C. The corpuscles of the guinea-pig and the calf give still less hemolysis at 43° C. than at 37° C.

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A carcinoma of the rat (Flexner-Jobling) considered from the standpoint of immunity.

By **F. P. GAY.**

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Experiments have been in progress for the last year and a half with the Flexner-Jobling rat tumor for the purpose of gaining some insight as to the normal and artifically produced conditions of resistance to this tumor.

The tumor as originally described by Flexner and Jobling was a sarcoma and later became carcinomatous in structure. It has shown no marked variations in histological structure during the eight generations which we have cultivated it. White rats from different dealers varied considerably in their susceptibility to inoculation with this tumor. Animals from the most susceptible source gave 100 per cent. of "takes" whereas the next most susceptible strain gave only 50 per cent. Following inoculation into the region of the axilla metastases occur regularly in the lungs but rarely in the adjacent lymph-nodes. The time of occurrence of metastases would seem to be relatively constant in the most susceptible rats. Metastases occur later and at more irregular intervals in less susceptible animals.

The tumor may be transplanted from the metastases and such "metastatic" tumors would seem after several generations to have