a lower level of pressure occurs after any given occlusion. This also, is indicated in the accompanying chart.

During these experiments, after spinal pressure had been for some time maintained, curare was given intravenously. By this means, whatever rôle the skeletal musculature plays in the maintenance of spinal blood pressure, was eliminated. Pike[1] and Langley[2] have shown that the intravenous injection of curare is followed by a fall of the spinal blood pressure, indicating some participation of the skeletal muscles in the maintenance of this pressure. Pike has further shown that the fall of pressure induced by curare is about equivalent to that seen after anatomical division of the dorsal roots of the spinal nerves in the cat. In these experiments, the injection of curare was followed by a fall of blood pressure, which in each individual case was about 40 to 45 per cent of the mean spinal pressure. This would indicate that the progressively lower pressures with increasing numbers of occlusions in the same animal are due to a progressive failure of function of the somatic neuro-musculature as well as of the vascular neuro-muscular mechanism.

## 3100

### The effects of repeated intravenous injections of distilled water on the blood picture in rabbits.

PASTOR R. SAPINOSO, BENJAMIN N. BERG and JAMES W. JOBLING.

[*From the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York City.*]

The effect of repeated induced intravascular hemolysis upon the blood of rabbits was studied in the following manner: Ten to 12 cc. of sterile distilled water were injected slowly into the marginal ear veins of 6 rabbits at 48 hour intervals. The number of injections varied, the maximum being 34. Recently, as a control experiment, Patterson and Kast[1] described an anemia in

[1] Pike, Suart, *J. Exp. Physiol.*, 1913, vii, 1.

[2] Langley, *J. Physiol.*, 1919, liii, 120.

[1] Patterson, M. D., and Kast, L., PROC. SOC. EXP. BIOL. AND MED., 1925, xxiii, 172.

rabbits produced by the intravenous injection of sterile distilled water, but as their experiments were only continued for 19 days, they apparently did not observe that the animals subsequently developed an increased resistance to such injections.

The following constituents of the blood were studied; erythrocytes, hemoglobin, leucocytes and reticulocytes. The resistance of the erythrocytes against hypotonic salt solution was also determined. The examinations were made immediately preceding each injection. Control observations were made upon normal rabbits and rabbits which had received physiological salt solution in doses corresponding to the distilled water.

After various intervals following the repeated injections of water, there was a diminution of 40 per cent to 50 per cent in the number of erythrocytes. However, despite continued repeated injections the erythrocyte count returned approximately to the original figures. There was a slight to moderate polychromatophilia and anisocytosis with an occasional normoblast and hemacytoblast. The number of reticulocytes showed a slight increase; the highest figure was 7 per cent. The variations in the percentage of hemoglobin were less marked than in the number of erythrocytes. The total number and differential count of the leucocytes remained within normal limits. The resistance of the erythrocytes against hypotonic salt solution did not change beyond the limits of normal variations in rabbits.

After having recovered from the anemia despite continued injections of distilled water in 10 to 12 cc. doses, an attempt was made to determine the tolerance of these rabbits for increased amounts of water. They varied markedly in their reactions. One rabbit died after 30 injections of 12 cc. each, without any increase in the dose. This animal died 24 hours after the last injection and showed a progressive paralysis of the extremities. Another rabbit which had received 33 injections of 12 cc. of distilled water died in a generalized convulsion immediately after a second injection of 50 cc. On the other hand, in a third rabbit which had received 32 injections of 12 cc. each, the dose was increased until 250 cc. were injected at one time without any demonstrable reaction. This animal received a total of 1900 cc. of distilled water during a period of 35 days before it succumbed after an attempt to inject 300 cc. Death was due to pulmonary edema.

Untreated normal rabbits varied in their response to injections of distilled water. One rabbit died immediately following a single injection of 20 cc. while another withstood the injection of 250 cc. on two consecutive days without a reaction but died on the third day immediately after an attempt to introduce 300 cc. into the circulation. Hemoglobinuria occurred in all the rabbits which received large amounts of distilled water.

There were no striking changes found in the organs except those incidental to increased blood destruction. Large numbers of pigment laden phagocytes were found in the sinuses of the spleen and lymph nodes. When very large doses of distilled water were injected, the sinuses of the spleen and liver were distended with the shadows of erythrocytes; there was also evidence of pulmonary edema. The bone marrow showed no significant changes.

## 3101

### Some limitations of the action of the so-called follicular hormone in birds.

OSCAR RIDDLE and MASAHARU TANGE.

[*From the Station for Experimental Evolution, Carnegie Institution of Washington, Cold Spring Harbor, N. Y.*]

During the past twenty-five years the work of many investigators has shown that the ovaries exercise control over the rapid temporary growth and hyperemia of the uterus which is characteristic of "heat" in mammals. Various extracts made from ovaries, and from other distinct tissues, have also long been known to bring about these particular uterine changes when injected into mammals (Marshall and Jolly, 1905; Lane-Claypon and Starling, 1906; Sonnenberg, 1907; Adler, 1911). The separation from the ovary of a lipoid fraction capable of inducing these uterine changes is also well established (Iscovesco, 1912; Hermann, 1913; Fellner, 1913, 1921; Seitz, Wintz and Fingerhut, 1914; Frank and Rosenbloom, 1915); and recently both the separation and the testing of this hormone have been