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The pathway of nucleated erythrocytes introduced into the splenic artery.

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Erythrocytes of the domestic fowl, washed free from plasma, were suspended in salt solution, one part in twenty. This suspension was then injected through a fine glass cannula into one of the short gastric branches of the splenic artery of a rabbit, under ether anesthesia. One minute after beginning the injection a portion of spleen at one end was clamped off, excised and placed in Helly's fixing solution for histological study. After two minutes a second sample was taken. After fifteen minutes the remainder of the spleen was perfused through the original cannula, first with a little salt solution and then with Helly's fixing solution, until the spleen became firm and yellowish in color.

Histological study of the one-minute sample showed abundant avian erythrocytes in the spleen pulp of the marginal zone of the Malpighian corpuscles with relatively less cells of this type in the spleen sinuses. At two minutes the relationship was similar but the number of nucleated erythrocytes in the sinuses and in the pulp at a distance from the Malpighian corpuscles had increased. In the last specimen, perfused with fixing solution at the end of fifteen minutes, the distension and perfect fixation permit a clear view of the intimate structural relationships. Here one sees the foreign blood cells in the pulp of the marginal zone and of the pulp cords but also in the interior of the sinuses. Some of them have already been ingested by phagocytic cells.

These observations are directly opposed to the view of Helly.[1] that all transfused foreign erythrocytes reach the spleen pulp after traversing the venous sinuses, and are quite in accord with the observations of Gray,[2] Mall,[3] and Weidenreich,[4] who have ascribed the conspicuous injection of the marginal zone of the

[1] Helly, Konrad, *Arch. f. mikr. Anat.*, 1902, lxi, 245.

[2] Gray, Henry, Structure and use of the spleen. London, 1854.

[3] Mall, Franklin P., *Z. f. Morph. u. Anthrop.*, 1900, ii, 1.

[4] Weidenreich, Franz, *Arch. f. mikr. Anat.*, 1901, lviii, 247.

Malpighian corpuscles to the termination of abundant arterial capillaries in the intercullular spaces of the splenic pulp in this region. These spaces evidently constitute a connecting link between the arterial and venous channels, significant for spleen function.

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The effect of "complete circulatory block" on the concentration of venous blood.

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It is now well established that the production of venous stasis in a limb causes certain consistent alterations in the venous blood of the part, the most conspicuous of which is a loss of water, with a resulting hemo-concentration. Such a condition may also be produced by nearly completely cutting off the circulation in a limb for a period of 25 to 75 minutes. The latter fact was demonstrated by Dautrebande, Davies and Meakins[1] in 1923. However, since most of the reports on venous stasis were the results of short periods of compression, it was desirable to learn what change in the blood, if any, could be produced by nearly completely cutting off the circulation of a part for a short period. In other words, does nearly complete occlusion of the circulation of a limb for two or more minutes cause the blood of that part to concentrate? The results of our experiments answer that question and the data are given below.

Procedure and Methods. No breakfast was given to any subject. In all experiments the systolic pressure was first determined by means of a sphygmomanometer and the pneumatic cuff was inflated to keep the pressure 15 to 20 mm. above the systolic level. The duration of such stasis varied from 2 to 5 minutes. In two subjects the compression was relieved at the end of two minutes; in one at the end of three; and in two others at the end of

[1] Dautrebande, W., Davies, H. W., and Meakins, J., *Heart*, 1923, x, 133.