

during anesthesia or inhibition. This view is supported by a consideration of the electrical changes accompanying inhibition and stimulation, respectively ("positive" and "negative variations").

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On the relative concentration of lysins, precipitins, agglutinins, opsonins and related substances in the different body fluids of normal and immune animals.

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The present work was suggested by some of our previous work with Prof. Carlson on the physiology of lymph. It was suggested that it would be of profit to establish the differences between serum and the other body fluids in their content of antibodies of various kinds in normal and immune animals, with the hope that it would have some bearing upon the problem of lymph formation, and also upon the origin of these antibodies. Thus far the hemolysins, hemagglutinins, bacterial agglutinins, bacterial opsonins, hemopsonins, and precipitins have been studied in the serum, neck lymph, thoracic lymph, pericardial fluid, cerebrospinal fluid, and aqueous humor. The bacterio-lysins are also under consideration.

The results with normal dogs have been the following: Hemolysins are found in the serum, thoracic lymph, and neck lymph in the normal animal. Serum and thoracic lymph contain them in almost equal quantities, with a slight balance in favor of the serum. The hemolytic power of the neck lymph is much lower than that of the serum, and is almost entirely wanting in the lymph which is secured without massage. In two of seven cases there was a small amount of hemolysis in the pericardial fluid, in the remaining cases there was no laking when the fluid was free from erythrocytes. There is no hemolysis in the cerebrospinal fluid, except in one case where there was a trace of free hemoglobin. There was no hemolysis in the aqueous humor. The hemagglutinins run parallel with the hemolysins except that they act in higher dilutions than the latter.

Bacterial agglutinins are found in the serum, thoracic lymph, and neck lymph. The two lymphs were of equal strength, and the serum was approximately ten times as strong. Pericardial fluid, cerebro-spinal and aqueous humor were entirely lacking in these anti-bodies. No precipitins for rabbit serum are found in any of the body fluids of the normal dog.

The hemolytic power of the serum and thoracic lymph of dogs immune to typhoid is slightly higher than that of the same fluids of the normal animal. No increase has been noted in the other fluids examined. The hemagglutinating power is increased in the serum, neck lymph, thoracic lymph, and pericardial fluid, particularly in the latter. The bacterial agglutinating power of the serum, neck lymph, and thoracic lymph is much increased. The pericardial fluid and aqueous humor are inactive or at most show only a trace. The cerebro-spinal fluid has not yet been tested.

In dogs rendered immune to rabbit blood we have not yet noted any very marked increase in hemolysins over those of the normal animal. There was a marked increase of the hemagglutinins in the serum, neck lymph and thoracic lymph, and in one case in the pericardial fluid and aqueous humor. Immunization to rabbit blood has no effect on the bacterial agglutinins. The injection of defibrinated rabbit blood did not produce precipitins for rabbit serum in any of the body fluids of the animal. The work on bacterial opsonins and hemopsonins in both normal and immune animals has been entirely unsatisfactory.

The work is being continued and extended to cats and rabbits. Later, lymph will be collected from various organs and extracts from various tissues made with the hope of finding the source of these antibodies. Parallel experiments are being made on the number and kind of leucocytes in the various body fluids.