The work of a great many different authors has shown that when anemia is produced by hemolytic poisons the resistance of the blood cells is increased, and it is generally accepted that in the pernicious and hemolytic types of human anemia the resistance of the red cells is increased whereas in secondary anemias it is diminished.

From our experiments we conclude that the red cells of individual sheep show marked variations to laking either by immune serum or by hypotonic salt solution and that resistances by laking by these two agencies are always parallel to each other. These differences are not due to acute hemorrhage. Whether they are due to differences in race or to differences in hygienic conditions (prolonged confinement, immunization with typhoid bacilli) we cannot yet state. During a short period of observation (about a month) in the case of two of the sheep, the cells of each animal were practically constant. There is a slight diminution in the tonicity of the blood serum immediately after an acute hemorrhage: this is possibly due to the fact that the body can more rapidly obtain water than it can salt and other serum constituents. The apparent tonicity of the serum has no relation to the tonicity of the red cells of the individual.

101 (918)

The influence of decerebration on the convulsant action of caffein in frogs.

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It is well-known that destruction of the brain causes increase of reflex action in frogs, especially when they are kept in the cold, and last year I reported that the effect of morphin, which causes in frogs tetanus indistinguishable from that of strychnin, was very markedly increased by decerebration, the effective dose in such frogs being about one tenth of that in normal frogs.

I wish to report now on the result of a study of the effect of decerebration upon the convulsant action of caffein. Caffein salts

which are strongly acid cause a peculiar muscular stiffness which masks the central action. The alkaloid itself causes also a certain muscular stiffness but it is much less marked and is only troublesome with large doses. The alkaloid was therefore used in these experiments. As was the case with other convulsant drugs we found the action of caffein much greater in the cold. If the frogs are kept cold tetanus can be obtained with doses which are too low to markedly affect the muscles.

In contrast to morphin we found that both in the cold (2–5° C.) and in the warm (12–18° C.) there was no difference between normal and decerebrate frogs in their response to the convulsant action of caffein. In both tetanus was obtained in the cold in all frogs with doses of 0.2 mg. p. gm. and in most frogs with 0.1 mg. p. gm. At room temperature tetanus was constantly obtained in normal decerebrate frogs with doses of 0.6 mg. p. gm. but never in either with 0.3 mg. p. gm.

The experiments show that there is a difference of some sort between the actions of caffein and morphin on the central nervous system although the convulsions are identical in appearance.

102 (919)

On the production of hyaline casts by certain ions.

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At the February meeting of this Society one of us (G.) reported that after an intravenous or intramuscular injection of a sublethal dose of a solution of magnesium sulphate in dogs hyaline casts invariably appear in the urine. As a result of this observation a series of experiments was made to answer the question as to which of the ions of the injected salt is the cause of the appearance of the hyaline casts—the kation magnesium, or the anion SO_4, the sulphate radical. We have tested in the first place several magnesium salts as well as several sulphates. This led up to further experimentation with some salts which contain neither magnesium nor the sulphate radical. Briefly stated, our results are in general