

mal was un. accessfully treated by means of stimulants, of posture and of saline infusion, then finally by direct transfusion, was planned as a means of comparing the value of direct transfusion with other methods. In every instance after the complete failure of current methods, including maximum saline infusion, so long as there was an auricular beat the animals were still resuscitated by direct transfusion. In every degree of hæmorrhage so long as there remained feeble contractions of the heart, although the respirations and arterial flow had ceased, the animals might still be resuscitated. We were, however, unable to resuscitate any animal after the cessation of the auricular beat. It is axiomatic to state that if after hæmorrhage an equal amount of blood of equal physiological value be replaced, the animal has lost no blood.

On investigating the effect of excessive bleeding followed by transfusion in the treatment of strychnine poisoning, it was found that the strychnine probably formed a loose chemical combination with the fixed tissues of the body and did not, therefore, yield.

In order to test the value of bleeding in certain toxæmiæ, a number of observations were made with diphtheria toxins. It was found that the animals bled then transfused at the onset of the symptoms about twenty hours after the injection of the diphtheria toxins were no more likely to recover than the controls. Then gradually reducing the time to 16, 12, 8, 4 and 2 hours, it was found that the animals even in these periods before any symptoms of toxæmia appeared were not favorably affected, although an animal bled and transfused within one-half hour after a fatal dose showed some benefit. It was evident that here, too, a loose chemical combination with the fixed tissues of the body occurred and that this fixation when once made was not affected by bleeding and transfusion.

Another series of experiments was made, consisting of producing uræmia by double nephrectomy, then testing the value of repeated bleeding and transfusion. It was found in a series of twenty such experiments that the control animals did quite as well as the animals so treated.

Accepting the current theory that an illuminating gas poisoning death is produced because CO has a greater chemical affinity for hæmoglobin than oxygen, therefore when a sufficient amount of CO gas comes in contact with the inspired air, the hæmoglobin is saturated with the carbonic oxide and oxygen cannot be carried by the red corpuscles. The tissues are then reduced to depend upon the supply of oxygen in solution in the blood plasma. This under partial pressure of oxygen in atmospheric air is insufficient to sustain life. We were able to verify the opinion of previous observers as to the probable virtue of transfusion after bleeding animals suffocated by illuminating gas, thereby getting rid of the red corpuscles having the vicious saturation with CO and transfusing