

sible for quinine to hæmolyse the red cells during life because it is impossible for the drug to ever become sufficiently concentrated in the blood to have this action. It was also determined that the red blood cells of blackwater fever patients are not more susceptible to hæmolysis by quinine bihydrochloride than are the red cells taken from a healthy individual.

These facts, added to clinical and other observations made by the authors, have convinced them that quinine should be given in blackwater fever if its administration be required by the presence of malarial parasites.

The appearance of hæmoglobin in the urine in paroxysmal hæmoglobinuria is determined by causes other than those which produce hæmoglobinuria in blackwater fever because the authors were successful in showing that no hæmolysin, nor absence of antilysin, occurred in blackwater fever; consequently, it is possible for them to assert that "the hæmoglobinuria of blackwater fever is not dependent upon hæmolysinæmia."

It was not certain whether free hæmoglobin occurred in the plasma of patients suffering from blackwater fever. The authors investigated a number of cases and they found that an increased amount of dissolved hæmoglobin occurred in the blood plasma of most, not all, cases of blackwater fever while hæmoglobin was present in the urine. This fact is particularly interesting because the authors produced experimental hæmoglobinæmia in rabbits and found that it was accompanied by a hæmoglobinuria intimately dependent upon it.

Suppression of urine is one of the most fatal and one of the most usual causes producing death in blackwater fever. It is shown that during blackwater fever large numbers of casts, many of them containing compact masses of coarse, black granules, are passed with the urine. By a series of splendid illustrations, it is demonstrated that the suppression of urine in blackwater fever is of mechanical origin and is produced by a blocking of the uriniferous tubes by plugs composed of "densely compacted, dark, reddish granules, identical with those passed with the casts during suppression." The presence of this granular material appears to be the sole pathological condition arising in the kidneys of patients dying from simple hæmoglobinuria.

The advisability of relieving suppression produced in this way by incision of the kidneys is discussed. While there is not much hope of saving the life of the patient in which the operation has become necessary, it is the opinion of the authors that incision is justifiable in from 24 to 48 hours after the onset of suppression of urine.