as the entire residue. In chloroform, tested with antimony trichloride, it yields the deep blue colour and sharp absorption band at 664 mμ characteristic of retinene[7]. Though in the retina retinene is involved in further changes[7], it is the final product of bleaching in solution.

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A New Blood Pigment: Pseudo-Methæmoglobin

IN addition to oxyhæmoglobin, methæmoglobin has been recorded in the plasma of blackwater fever patients by Arkwright and Lepper[1], Yorke, Murgatroyd and Owen[2], Ross[3] and Fairley and Bromfield[4]. In 1934 the latter observers[5] described an unnamed pigment closely allied to methæmoglobin in a case of blackwater fever. Spectroscopically it resembled methæmoglobin, but did not reduce with Stokes's reagent or ammonium sulphide. It produced a chocolate-coloured blood, a brown-coloured plasma, was absent from washed corpuscles and failed to appear in the urine. Specimens of plasma were sent to Prof. D. Keilin, who suggested that the pigment originated as some modification of methæmoglobin in which the globin portion of the molecule had undergone an irreversible change. The following year the same pigment was again encountered in this disease, and recently R. J. Bromfield and I went to investigate this question at the Malaria Laboratory of the League of Nations, Salonika.

Blood Pigments in Macedonian Cases of Blackwater Fever

As a routine procedure, the plasma and urine were examined on a Hartridge spectroscope set against artificially produced methæmoglobin, and the effects of treatment with Stokes's reagent, ammonium sulphide (10 per cent) and hydrogen peroxide (10 vols.) were noted. All these reagents disperse the α band of true methæmoglobin, but not that of the new pigment. Fourteen cases were investigated. The plasma contained oxyhæmoglobin alone in two mild cases, new pigment alone in two severe cases seen on the third and sixth days respectively, and new pigment and oxyhæmoglobin in the remaining ten. In not a single instance was methæmoglobin demonstrated.

The urine, on the other hand, never contained new pigment in demonstrable quantity. Oxyhæmoglobin was found alone in two instances and in association with methæmoglobin in ten others; in the two remaining cases the urine contained no blood pigments, though new pigment was demonstrated in the plasma. All the available data indicated that the new pigment did not traverse the glomerulus, and that urinary methæmoglobin was derived from oxyhæmoglobin during or after its passage through the tubules. Microscopic examination of the kidneys showed that the formation of new pigment protects them from the pathological effects induced by the renal excretion of hæmoglobin.

Finally, in a series of spectrograms taken for us by H. Foy, the centre of the α band of the pigment in the plasma always approximated to 6240 A., whereas that of the urine was constantly about 6300 A. Evidence regarding the duality of these pigments was thus complete.

Production of Pseudo-methæmoglobin in Vitro

The formation of methæmoglobin in sterile blood or hæmoglobin solution stored under ordinary conditions or after incubation at 37°–55° C. has long been recognized. To ascertain whether the new pigment could be produced *in vitro*, plasma from blackwater fever patients was incubated at 37°–40° C. for 48 hours with a concentrated solution of hæmoglobin prepared from laked corpuscles. The new pigment invariably resulted. But in controls, using normal plasma, we were surprised to find that the new pigment, and not methæmoglobin, appeared. The new pigment was also formed from a solution of methæmoglobin prepared by treating laked corpuscles with potassium ferricyanide when it was incubated with plasma at 37°–40° C. for 48 hours. The incubation of unlysed corpuscles and plasma produced neither methæmoglobin nor new pigment, while on incubating a solution of hæmoglobin alone, methæmoglobin formed.

These experiments prove that plasma has the power of converting extra-corpuscular hæmoglobin or methæmoglobin into the new pigment when incubated under appropriate conditions, and suggest that in any severe intravascular hæmolysis it is this new pigment, and not methæmoglobin, which is formed. Since 1864, when Hoppe-Seyler[6] first described methæmoglobin, this allied pigment has escaped recognition, and for this reason the name pseudo-methæmoglobin appears to be a not inappropriate one.

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Effect of Testosterone Propionate on Mating

MUCH has been written recently about the effectiveness of testosterone in restoring the atrophic accessory glands of castrated rats, but little, if any, attention has been paid to its effect on mating behaviour.

Five rats were castrated at 30–50 gm. body weight, that is, well before sexual behaviour begins, and were kept isolated for nine weeks, when they were put with normal females. They showed no sexual behaviour. The following day they were again isolated and a course of eighteen daily injections of 0·5 mgm. testosterone propionate ("Perandren" Ciba) was begun. Development and hyperæmia of the penis

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