A NEW HAEMOGLOBIN VARIANT IN AN AMERICAN NEGRO*

BY

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In the course of a survey of the incidence of abnormal types of haemoglobin a sample was obtained from J.D., a negro male, who had been admitted to the hospital with a diagnosis of benign prostatic hypertrophy. On

clinical and haematological examination of this patient no symptoms referable to anaemia or haemolysis were found nor could sickling of the erythrocytes be elicited.

His haemoglobin sample analysed by paper electrophoresis, veronal buffer pH 8.6, separated into two approximately equal fractions, one of which was indistinguishable from haemoglobin A; the mobility of the other fraction was like that of haemoglobin L (Ager and Lehmann, 1957) or P (Schneider and Haggard, 1958)—that is, between haemoglobin types G and S (or D) (Fig. 1). Similar results were obtained with starch-block or starch-gel electrophoresis, at pH 8.6 (the former in veronal buffer, the latter in tris-EDTA-borate buffer).

In moving boundary electrophoresis, cacodylate buffer pH 6.5, ionic strength 0.1, J.D.'s haemoglobin sample resolved into two approximately equal peaks, corresponding in mobility to

types S (or D) and A, respectively (Fig. 2). When an aliquot of haemoglobin S was added to J.D.'s sample and the mixture analysed in moving boundary electrophoresis, cacodylate buffer pH 6.5, the leading peak was increased in proportion to the amount of added S. In column chromatography with the ion-exchange resin "amberlite IRC-50," citrate buffer pH 6 (Huisman and Prins, 1955), J.D.'s haemoglobin sample again developed into two components, corresponding to types A and S (or D), respectively (Fig. 3). These results with the methods of free electrophoresis and ion-exchange chromatography, both with acid buffers, serve to differentiate the variant in J.D. from haemoglobins L and P, the two types it resembles in zone electrophoresis in alkaline buffers. In ion-exchange chromatography, citrate buffer pH 6, the mobility of L is distinctly less than that of S or D, while that of P is distinctly greater; in fact, in this method P does not separate well from haemoglobin A. In moving boundary electrophoresis, cacodylate buffer pH 6.5, P appears identical with A. No appreciable amounts of foetal haemoglobin or of haemoglobin A₂ could be detected in J.D.'s sample. No other members of his family were available for examination.

We have communicated our findings to Dr. H. Lehmann, who kindly informed us that a variant with similar or identical properties has recently been found by Dherte, Vandepitte, Ager, and Lehmann (1959), and designated Stanleyville I. A comparison in London of the present haemoglobin and of Stanleyville I found the two to be indistinguishable. Therefore, at present we shall not propose a separate designation for the variant under discussion.

REFERENCES

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The Ross Clinic, a regional treatment unit providing diagnostic and treatment facilities of the most up-to-date kind, has been opened in the grounds of the Royal Mental Hospital, Aberdeen. The Professor and staff of the University Department of Mental Health have their clinical, teaching, and research facilities in this unit. There is a 40-bed in-patient department for the intensive treatment of early and mild psychotic reactions, psychoneurosis, and psychosomatic disorders, day-hospital facilities for some 20-30 patients, and an extensive out-patient department. There are also beds available for the admission of acute cases for short periods of observation.

FIG. 1. — Paper electrophoresis pattern of J.D.'s haemoglobin sample compared with others. Veronal buffer pH 8.6, ionic strength 0.05.

FIG. 2.—Scanning diagram of haemoglobin of J.D. Ascending pattern 1% carboxyhaemoglobin, cacodylate buffer pH 6.5, ionic strength 0.1.

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FIG. 3.—Chromatography of haemoglobin of J.D., "amberlite IRC-50," citrate buffer pH 6.