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LETTERS TO THE EDITOR

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NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 166.

CORRESPONDENTS ARE INVITED TO ATTACH SIMILAR SUMMARIES TO THEIR COMMUNICATIONS.

Ultracentrifugal Examination of Serum from the Lower Classes of Vertebrates

SOME time ago, a systematic investigation of the sedimentation constants of the respiratory proteins throughout the animal kingdom was carried out in this laboratory¹ with the view of finding possible relations between biological kinship and the properties of respiratory proteins.

For the vertebrates, the following results were arrived at. Hæmoglobin of practically the same sedimentation constant 4.4 (all sedimentation constants are given in units of 10^{-13}) corresponding to a molecular weight of 68,000 was found in the five higher classes, namely, Mammalia, Aves, Reptilia, Amphibia, Pisces. A respiratory protein of the erythrocrucorin type, known to occur in invertebrates, and possessing a sedimentation constant of 2.0, corresponding to a molecular weight of 17,000, a quarter that of hæmoglobin, was met with in the lowest vertebrate class, Cyclostomata.

A comparative study of serum from the various classes of the vertebrates was planned in order to discover whether the regularities found for the respiratory proteins would be reflected in the properties of the serum proteins. For various reasons, this investigation was postponed until recently.

The sera of various mammals (man, horse, cow, pig and rabbit) have been subjected to detailed investigation by means of the ultracentrifugal method². In diluted sera, two principal components with sedimentation constants, $s = 4.5$ and 7.1 , were found, corresponding to an albumin of molecular weight $M = 69,000$ and to a globulin of $M = 160,000$, respectively. A higher globulin component of $s = 18$ and M of about six times that of normal globulin often occurred.

The serum of Aves (hen) give the same general sedimentation diagram as that found for the mammals³. We have recently made some preliminary runs on sera from the classes Reptilia, Amphibia, Pisces and Cyclostomata with the following results. The sedimentation diagram shows in the case of Reptilia (snake), Amphibia (frog), and Pisces

(*Abramis brama*) the existence of a component corresponding to the albumin of the higher vertebrates and two components which probably correspond to the globulins. The serum from Cyclostomata (*Lampetra fluviatilis*), however, is definitely different. A component of $s = 3.5$ and another of $s = 12$ predominate. The former probably has a molecular weight about half that of the serum albumin of the higher vertebrates.

The measurements carried out so far seem to indicate, therefore, that, on the whole, the protein components in the sera from Mammalia, Aves, Reptilia, Amphibia and Pisces are similar with regard to molecular state, while those from Cyclostomata differ considerably in this respect.

A more detailed account of the investigation will be given elsewhere.

THE SVEDBERG.

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June 14.

¹ Svedberg, T., and Hedenius, A., *Biol. Bull.*, **66**, 191 (1934); Svedberg, T., *NATURE*, **139**, 1060 (1937).

² Mutzenbecker, P. von., *Biochem. Z.*, **266**, 226, 250, 259 (1933); McFarlane, A. S., *Biochem. J.*, **29**, 660 (1935); Heidelberger, M., and Pedersen, K. O., *J. Exp. Med.*, **65**, 393 (1937); Pedersen, K. O., unpublished data.

³ Pentimalli, F., and Pedersen, K. O., unpublished data.

A New Natural Colouring Matter of the Naphthalene Group

S. SIDDIQUI has recently described¹ the isolation of three new colouring matters, occurring together as a reddish dust on the leaves of *Didymocarpus pedicellata*. In view of this publication, we now place on record the preliminary results of work in progress on the constitution of a colouring matter different from, but perhaps related to, Siddiqui's, and occurring as a deposit on the leaves and inflorescences of *Streptocarpus Dunnii* Mast., a member of a genus closely related to *Didymocarpus*².