

been the laying of a firm cytological foundation, and in our opinion it is important that this should be fully presented at the outset in any text-book. Physiological genetics has not yet reached the point at which simple general principles have emerged; but even so, Waddington's treatment of it appears to be the best available in any general text-book.

In the interests of genetics and of biology as a whole, we hope that Waddington's book will be widely used both as a general account for teachers and research workers and as a text-book for advanced students.

J. B. S. HALDANE.

J. S. HUXLEY.

H. J. MULLER.

DR. WADDINGTON'S book was reviewed as an "Introduction to Modern Genetics". The writers of the above letter would seem to agree with me in not recommending it as an introductory book, but rather as a book for teachers, research workers and advanced students.

If we consider the book not as an introduction but as a presentation of modern genetics, I still consider that the book stresses the cytological approach to the problem at the expense of formal genetics. While fully aware of the importance of establishing the relationship between chromosomes and genes, I think this might have been made clear in less space than that allotted (one half to one third of the book). The space so saved could have been used with advantage in providing more experimental and biological data (little of which are given) and some idea of the methods used and difficulties encountered in obtaining them. If phenomena such as gametic and zygotic viability and genetical and biological evidence had been more fully referred to, I feel sure that the book would be more sympathetically received by the general biologist.

The cytological approach is, as stated in my review, well presented and probably the book will be most used by advanced geneticists who require information on modern cytological theories.

F. W. SANSOME.

June 28.

### Points from Foregoing Letters

A. C. Chibnall, M. W. Rees, G. R. Tristram, E. F. Williams and E. Boyland are unable to substantiate the recent claim of Kögl and Erxleben that the glutamic acid given on acid hydrolysis by the protein of malignant tissues is partially racemized. The products isolated by the former workers from Crocker sarcoma and from two human carcinomas had the normal specific rotation of  $+31.6^\circ$  in 9 per cent hydrochloric acid.

L. Hahn and G. Hevesy state that a minor part of the phosphatide molecules present in the corpuscles exchanges readily with those present in the plasma; a large part of the phosphatide molecules present in the corpuscles is not replaced during the lifetime of the corpuscles.

According to experiments by M. Hoffer and T. Reichstein, a purified ether extract from liver, the only active constituent of which was probably pantothenic acid, produced a small increase of growth in rats fed on a diet free from filtrate factor. Nearly the same effect could be produced by  $\beta$ -alanine.

Experiments with rats carried out by a group of investigators from the Lister Institute and from the University of Manchester indicate that the rat requires at least six different factors contained in the vitamin B complex: aneurin, riboflavin, vitamin B<sub>6</sub> and three further substances at present unidentified.

I. Banga, S. Ochoa and R. A. Peters report on further results of their analysis of the pyruvate oxidation system in brain. Cocarboxylase, fumarate, inorganic phosphate, adenylic acid and cozymase are components of the system. A cycle of phosphorylation appears to be involved in the oxidation of pyruvate beyond the stage of oxidative decarboxylation.

Excessive bile production occurs in mice grafted intraperitoneally with a sarcoma, which bile, when utilized in filtration experiments, has been found by Mrs. L. Dorothy Parsons to promote tumour

production. Of the sarcomas obtained, two were produced by cell-free materials.

T. Astrup finds that the blood-clotting enzyme thrombin is not formed by an autocatalytic reaction in the usual sense, since thrombokinase has to be added in order to form new amounts of thrombin.

The isolation of oestrone from the adrenal gland by D. Beall adds another compound to the long list of steroids isolated from this organ. This is the third tissue from which oestrone has been obtained, it having been isolated previously from sow ovaries and human placenta by Doisy and his co-workers in the United States.

Peter Ladewig describes how small amounts of protein fractions can be precipitated directly by dry powdered neutral salts.

Dorothy Wrinch points out that the molecule of the tuberculin protein TBU-bovine, which is homogeneous in sedimentation, diffusion and electrophoresis, has a molecular weight of 10,000, of the right magnitude to correspond to a single C<sub>1</sub> cage structure.

H. M. Powell and G. Huse state that in the molecular compound of picryl chloride and hexamethylbenzene the component molecules are arranged in parallel layers. The hexamethylbenzene layer is almost identical with a single layer in the structure of the hydrocarbon itself, but there is partial disorder in the picryl chloride layer.

It is suggested by D. Iwanenko that a classical theory of the mesonic field may be useful for purposes such as the construction of various potentials or the discussion of the nature of heavy mass.

E. Tenenbaum states that he has been able to grow the flagellate *Trichomonas eberthi* in hanging-drop cultures of chicken fibroblasts, using chicken plasma and chicken embryonic extract in 10 per cent dilution as culture medium.