

biosynthesis is central to biology; not only are structural proteins the building blocks for growth and enzymes the key to function, but also the specificity of structure of each protein and of the nucleic acids concerned in its synthesis is the basis of reproduction.

This is a most important book on this central theme. Dr. Medveder has not tried to cover the same ground as the numerous monographs and reviews on molecular biology, but has taken a fresh look at the problem and kept to the subject of this title. Throughout the author has avoided stressing historical or over-familiar aspects but has given critical accounts of the experimental work on which our present knowledge is based and of the theoretical implications of the results.

Some idea of the scope of this book is given by chapter headings: mechanism of activation of amino acids (III), selective transfer of activated amino acids (IV), the role of organelles (V), formation of antibodies (XI), morphogenetic changes—the genetic programme of development (XVIII), the problem of ageing at the molecular level (XIX). Particularly valuable is a supplementary chapter (XX) for the English edition dealing with important advances during 1963 and 1964 (the Russian edition appeared in 1962). Each chapter has a concluding section summing up the contents, and there is a very useful 'General Conclusion' at the end of each of the four parts into which the book is divided. A full bibliography appears at the end of each chapter.

The chapters are subdivided into sections, each with its own subheading, but the subject matter of each section and chapter leads so logically into the next that this arrangement helps the reader to go smoothly through from start to finish. This organization of the book is one of its most valuable features, contributing greatly to its readability and lucidity. Both author and translator are to be congratulated on this and on the clarity of the text; minor criticisms are the somewhat excessive use of inverted commas and the choice of 'matrix' instead of the more familiar 'template'. The absence of a subject index is unimportant in a book of this type; the logical arrangement of the text and the very complete list of contents make an index unnecessary.

This book should be required reading for every candidate for honours in biochemistry, genetics, or microbiology. Any student of biology or medicine who wished to understand modern biochemical genetics would be well advised to read it.

L. I. WOOLF

Norrie's Disease. A Congenital Progressive Oculo-acoustico-cerebral Degeneration. By Mette Warburg. *Acta Ophthalmologica: Supplementum* 89. (Pp. 147; illustrated. Dan. kr. 65.) Copenhagen: Ejnar Munksgaard. 1967.

This excellent monograph is based on an exhaustive study of 6 families showing congenital sex-linked pseudoglioma: 3 from Denmark and 3 from Sweden. They

covered 35 cases, the youngest being 7 days old and the oldest 60 years. A detailed clinical analysis brings out that frequently there are associated mental retardation and impaired hearing, while the histological studies established malformations of the neuroepithelium of the retina, the optic tracts, and cerebral cortex. Inheritance was in a recessive sex-linked manner.

The recognition of this disorder has proceeded in a peculiarly halting manner for some 50 years. It is likely that the first case record goes back to Ernest Clarke in 1898. The pedigree of hereditary microphthalmia published by Ash and his associates in 1922, and subsequently elaborated by J. A. Fraser Roberts in 1937, by Iles in 1939, and by Whitnall and Norman in 1940, clearly established sex-linked congenital blindness associated with mental deficiency; these authors stressed the microphthalmia rather than the underlying 'pseudoglioma'. R. Wilson of London in recording another family in 1936 stressed the pseudoglioma aspect. Abroad, Heine, in 1925, invoked intrauterine inflammation to explain pseudoglioma in two brothers whose maternal uncle was blind, deaf, and mentally abnormal, while Norrie stressed, in 1927 and 1933, the occurrence of a congenital hereditary form of blindness in males in three families. It is possible that a brief account by Fernandez in 1905 on two brothers in Cuba is yet another early report of this affection. The disorder finally came to be fully recognized as a clinical entity—sex-linked pseudoglioma—by W. M. G. Wilson in 1949 who published a particularly convincing Canadian pedigree of an unaffected woman who had two affected brothers and affected sons by three different men.

This monograph reviews fully the available literature which includes a number of recent reports. There is also a full discussion of allied conditions. Pseudoglioma and microphthalmos, the two aspects stressed in the earlier reports, are now regarded as secondary to non-attachment of the opposing layers of the invaginated optic cup. The designation of Norrie's disease was first applied by Andersen and Warburg in 1961, and more recent German literature speaks of Heine-Norrie disease, but it seems that any eponymous designation is questionable, particularly when the name sex-linked pseudoglioma is both more informative and less debatable.

ARNOLD SORSBY

Introduction to Animal Physiology and Physiological Genetics. By E. M. Pantelouris. International Series of Monographs in Pure and Applied Biology/Zoology Division/Volume 32. (Pp. viii + 497; 172 figures + 50 tables. 75s.) Oxford: Pergamon Press. 1967.

Medical practitioners and human geneticists will enjoy the author's broadly zoological approach to physiology. The book is arranged in four sections: response mechanisms, nutrition and energy-yielding processes, regulation

of the internal environment, reproduction and physiological genetics. It is the last section that will be of most interest to readers of this journal. This includes sections on sex determination, metabolic blocks, haemoglobin variants, serum protein polymorphism, enzymes, and polygenic inheritance. Once again, the author's wide perspective is valuable. The complexities of the genetic determination of sex become apparent when one learns that even in some vertebrates, for example strains of frog, most subjects first pass through a female stage, but later a proportion change into males. In some species male sex appears to be polygenically determined. In the section on haemoglobin variants it is interesting to learn that, in hybrids between fish species with different haemoglobins, not only may both parental varieties of the pigment appear, but sometimes *in vivo* recombinations between the peptide chains. In one such instance in shellfish the recombinant has a better oxygen-carrying capacity than either parental variety—an instance of 'hybrid vigour' at the molecular level.

The author is admirably succinct and he has packed a surprising amount of well-chosen information and illustrations into each short chapter.

C. O. CARTER

Modern Genetics. By Haig P. Papazian. (Pp. xx + 350; illustrated. 42s.) London: Weidenfeld and Nicolson. 1967.

Genética Médica. Vol. 1. Teoria do aconselhamento genético. By N. Freire-Maia and A. Freire-Maia. (Pp. 162, vol. 2. **Prática do aconselhamento genético.** By N. Freire-Maia. (Pp. 155). São Paulo, Brazil: Coleção Burity. 1966.

Modern Genetics by H. P. Papazian is an exceptionally competent popular exposition of present-day genetics, with its achievements and problems. Of the three approximately equal parts into which the book is divided, the first and third deal with classical genetics and population genetics respectively. They draw widely on biology as a whole and are refreshingly free from hackneyed examples. But the outstanding merit of the book lies in its second part. This is devoted to mutation, the template mechanism, the genetic code, and the enzyme systems. A lucid account of their complexities is aptly concluded with a discussion on morphogenesis, the contrasting approach of the embryologist and the micro-biologist being wittily brought in as a dialogue. The illustrations are well chosen and the legends are strikingly full and informative, but the text occasionally suffers from striving after effect and mere cleverness—a particularly lurid example is the footnote on J. B. S. Haldane, described as an 'Indian geneticist and aphorist, who died in 1964'.

The two volumes on *Genética Médica* by Drs. N. and A. Freire-Maia are part of a paper-back series of small books on academic and cultural subjects. The title is rather misleading, for the two volumes are devoted not to medical genetics, but to genetic counselling, the first covering in outline the basic and pathological knowledge

required and the second giving examples of actual consultations. Concise and remarkably comprehensive—empirical data on risks are discussed as adequately as theoretical genetic deductions—these volumes are fully documented and are a welcome contribution to a literature which is as yet still slight.

ARNOLD SORSBY

The Thread of Life. An Introduction to Molecular Biology. By John C. Kendrew. (Pp. 112; 18 figures + 52 plates. 21s.) London: G. Bell and Sons. 1966.

DNA—Ladder of Life. By Edward Frankel. (Pp. 110. illustrated. 16s) Tadworth, Surrey; The World's Work. 1967.

The first of these books, subtitled 'an introduction to molecular biology', is based on a series of B.B.C. television lectures. It is most stimulating, communicating some of the burning excitement of scientific discovery.

Professor Kendrew says in his preface: 'anyone should be able to understand [molecular biology] easily without being trained as a scientist'; his lectures make this possible. This book is a model for all interested in putting complex ideas simply and clearly to a mass audience while avoiding ellipses, inaccuracies, or 'talking down'. The science of molecular biology owes as much to Professor Kendrew as to any man; perhaps it takes one of the founders to see it with this clarity and to convey its complexities so successfully.

The second study is meant for the layman. It gives a simple, clear, and on the whole accurate account of molecular biology, though it contains the occasional simplification. This is inevitable when presenting such a subject in a form elementary enough for a reader with no scientific education. Interest is maintained by a wealth of clear and lively illustrations. The author gives a guide to pronunciation and an index, but no reading list.

L. I. WOOLF

An Introduction to Medical Genetics, 4th ed. By J. A. Fraser Roberts. (Pp. xiv + 290; 121 figures. 38s. cloth; 25s. paper covers.) London: Oxford University Press. 1967.

The third edition of this standard textbook was reviewed in the first number of this Journal. It is a good illustration of the increasing importance of genetics in medicine that, whereas there were nearly 20 years between the first and second edition, the subsequent editions have followed each other at four-yearly intervals. The new edition is the first to appear as a paperback, as well as in hard cover, and at 25 shillings the paperback is extraordinarily good value. The text has been considerably revised, not only in including new material, but also in substituting better examples of old principles. The lucidity and logical presentation of the original edition is, however, in no way affected.

C. O. CARTER