

with steroid synthesis. Its lack of biochemical information will make it of little interest to those whose studies are more biological: for them it will not replace 'Steroids' by Fieser and Fieser. All aspects of production are first class.

Essays on Nucleic Acids

ERWIN CHARGAFF. Pp. xii + 211, illustrated. Amsterdam, London and New York: Elsevier Publishing Co. 1963. 45s.

This series of essays consists of the texts of some of the lectures and writings of Professor Chargaff between the years of 1949 and 1962 and covers most of the modern history of nucleoproteins and nucleic acids. The author is, of course, one of the pioneers in the field and was responsible for the first demonstration of base pairing in DNA. When he started his work on nucleic acids little was known about them. The tetranucleotide theory was still fashionable and the qualitative composition of only two nucleic acids was known. However, there was a new wave of interest in these compounds as a result of the work of Brachet and Caspersson on the high nucleic acid content of cells rapidly metabolizing proteins and of Avery's demonstration of transformation of bacterial types by DNA preparations.

Professor Chargaff is an amusing writer and these essays are very readable. It is fascinating to trace the evolution of ideas on nucleic acids during the 13 years between the first and last article. Throughout, the author is concerned with repeated warnings against facile simplification of the subject and over-imaginative speculation. His feelings about this are summed up in the last chapter entitled 'Amphisbæna' ('a fabled serpent with a head at each end, moving either way'), in which he records an imaginary discussion between an old chemist and a young molecular biologist. The author's own opinions are put into the mouth of the old chemist, who, it must be admitted, is given more space in which to express his views than his opponent, who represents the credulous young worker in the field who acclaims each new theory as a great truth. Since most of the ideas in this section have already been expressed in other essays, the chapter could possibly have been shorter.

This book is of great interest to anyone interested in nucleic acids and in the history of the gradual elucidation of their structure.

Molecular Biophysics

RICHARD B. SETLOW and ERNEST C. POLLARD. Pp. xiii + 545, illustrated. Oxford, New York, London and Paris: Pergamon Press. 1962. 84s.

This book mainly deals with those aspects of biophysics which attempt to explain biological phenomena in terms of the properties of molecules. The authors say that the standard is suitable for senior or final year students. A wide scientific knowledge is presupposed, although the authors claim that the text has been so designed that students whose knowledge is deficient in certain aspects can work through the book. It is perhaps over-optimistic to assume that a student who has to consult the diagram illustrating the elementary theory of the microscope will be able to tackle the numerical examples on the phase contrast microscope which appear 34 pages later.

The first part of the book describes the general characteristics of cells and applies thermodynamic concepts and information theory to elucidate the properties of living matter. The next part describes methods which are used to determine molecular structure. Then follows a section on such topics as the action of X-rays on cells

and information which may be deduced therefrom about the cell. The book ends with a description of muscle, nerve and eye function and with some speculations on intra-cellular processes.

The authors are not afraid of working out the numerical consequences of their speculations, and even if these prove in the future to be completely wrong, this does not detract from the profound mental stimulation that the book affords today.

The book gives a very clear idea of the number of scientific disciplines which are being used to elucidate the problems of living matter and is confidently to be recommended.

The EMG. A Guide and Atlas for Practical Electromyography

FORBES H. NORRIS, JR. Pp. viii + 134, 41 illustrations. New York and London: Grune & Stratton. 1963. \$4.75.

In the Preface of the book under review it is stated that 'It would seem to answer the need for a simple explanation of electromyography'. This statement can unhesitatingly be endorsed. Written simply and clearly, it provides a good introduction into the basic principles and the practice of this method. Twenty-two pages are devoted to a description of instrumentation and artifacts, 64 pages to EMG findings (natural and evoked potentials), interpretation and examination. A discussion of 10 illustrative cases and a short chapter on strength-duration curves conclude the book. The newcomer will find much useful information about the technical side, including a detailed description of the recording equipment used by the author. Throughout the book the necessity of correlating the EMG with clinical findings is rightly stressed. The limitations as well as the value of the method are clearly set out. The range of normal and abnormalities in some common neurogenic and muscular diseases are described and illustrated by informative tracings. Special mention may be made of some useful tables: of certain normal values; comparison of some EMG findings in certain neurogenic and muscular disorders; and the relative significance of EMG findings. The author's approach to the subject is didactic, constructive and yet critical. The book can be warmly recommended to those to whom it is directed: medical students, postgraduate students in neurology, neurosurgery, orthopaedics and psychiatry, and senior clinicians trained in the pre-electromyographic era. To those more experienced in the method the appended bibliography will prove a useful guide for further reading.

Preparation of the Physician for General Practice

Proceedings of a Conference arranged by the World Health Organization at Edinburgh in 1961. Pp. 114. London: H.M.S.O. 1963. 6s. 8d.

In 1961 the World Health Organization brought together 36 experts from European countries to discuss the problem of training the physician for his work in the community. This publication includes the contributions of the principal speakers and summaries of the ensuing discussions. The title will naturally give the British reader hope of finding authoritative guidance as to the best preparation for general practice as it exists in this country but it must be remembered that other nations have different patterns of medical care; in consequence the World Health Organization wisely limited the scope of the Conference to the undergraduate years and did not attempt to deal with postgraduate education, the importance of which as a preparation for general practice in Britain is being increasingly

appreciated. Dr. John Ellis, the leading British medical educationalist, in a masterly paper entitled 'The Choice of Remedy', makes very clear the impossibility and the futility of trying to teach the medical student all that is known in all branches of medicine and the vital importance of using the undergraduate years to develop the mind of the doctor so that he may take full advantage of future advances in medical knowledge and so that he can easily assimilate postgraduate vocational training for whatever sphere of medicine he may choose as his life's work. Professor Richard Scott, the new Professor of General Practice in the University of Edinburgh, contributes a splendid paper on the work of the general practitioner in the community which should be read by all who consider this to be their metier.

Excellent sections on the importance of the basic sciences, psychology, psychiatry and social medicine in the preparation of the doctor for his work in the community are included and the final paper by Dr. Hobson from the World Health Organisation is outstanding. Dr. Hobson reviews the world-wide effect on medical education of the Flexner and Good-enough reports, the work in this field that has been done at Western Reserve University, and the contribution of the Association for the Study of Medical Education and of the World Health Organization itself.

Textbook of Abnormal Psychology

N. H. PRONKO, PH.D. Pp. xxii + 446, illustrated. Baltimore: Williams & Wilkins. London: Baillière, Tindall & Cox. 1963. 68s.

Professor Pronko, who is Head of the Department of Psychology in the University of Wichita, prefaces his book by indicating that its 'chief aim . . . is to introduce the student to the facts and existing theories ordinarily subsumed under the category of abnormal psychology or psychopathology'.

The undergraduate will find that this volume is not a substitute for the several established introductory texts to psychiatry. Clinical descriptions of the various syndromes are brief and entirely inadequate for his needs, and on occasions are misleading. For instance, status epilepticus is briefly dismissed as follows: 'In advanced cases of arteriosclerosis in the senile, the degenerative changes in the blood vessels of the brain can erupt continually, bringing about status epilepticus in which one major attack follows another with little or no intermission. Eventually, the patient is killed off in one of the attacks of the chronic condition'. More space is given to some case histories than these would seem to warrant in terms of the contribution they make to the author's arguments. With regard to style, some readers will find that the rather chatty form of presentation soon becomes tedious. The term 'et cetera' is frequently employed—this term should have no place in any medical text book.

Professor Pronko does not confine himself to the more traditional and established doctrines of psychopathology but, incorporating less widely accepted theories, considers and evaluates conflicting viewpoints side-by-side. Whilst there is no attempt at systematically covering a field, this book's chief merit lies in the stimulus it will provide for discussion, particularly for postgraduate students.

The Normal and Abnormal Unipolar Electrocardiogram in Infants and Children

RICHARD H. WASSERBURGER, M.D. Pp. ix + 1544, illustrated. Baltimore: Williams & Wilkins. London: Baillière, Tindall & Cox. 1963. 76s.

This book is sub-titled 'An analysis of the normal

QRS complex morphology and ventricular activation times' which indicates at once the limitations of the volume inasmuch as there is no discussion of the ST segment or T wave, or of arrhythmias. But even with these restrictions this study is a most valuable one starting as it does with a detailed analysis of the electrocardiograms of 1,150 normal infants and children. The data from this analysis are presented in graphic form and indicate the QRS configurations found in each lead at different ages together with the numerical values for the various deflections. This is a very good method of presentation and superior to the usual tedious tables of figures.

The second part of the book is concerned with the abnormal electrocardiogram and contains a thorough inquiry into the features of ventricular hypertrophy which is followed by discussions on some of the main congenital lesions of the heart and great vessels. In this section the ST segment and T waves are referred to.

Although it is not comprehensive this book will be indispensable to all those who are interested in paediatric cardiology.

Lectures on Experimental Gerontology

F. VERZAR, M.D. Pp. xvi + 128, illustrated. Springfield: Illinois. Charles C Thomas. 1963. \$5.75.

Professor Verzar is known not only as a distinguished physiologist, but also as the founder of one of the first university departments in the world for the experimental study of ageing. In this book are printed a series of lectures which he gave in Basel, to the faculty of medicine, in 1961.

Most of what is known of the effects of age on biological processes has hitherto been distributed among many different sciences, physiology, biochemistry, psychology, neurology, and others. In these lectures this scattered information is drawn together, organized and interpreted, much of it in the light of experiments conducted in the author's own laboratory.

The first few lectures are concerned with the methods of gerontological research, and show how complex is the process of ageing, and how it differs in various organisms. Methods of estimating the life span are discussed as well as the problems which arise from intercurrent illness and accidents. For example in nature the life span of some wild singing birds is about a year, but in captivity where accidents can be eliminated, it is about twenty years. Ageing may be considered as a process in which the organism gradually loses the power to adapt to its environment, and requires an increasing degree of protection for its survival. By exposing animals of different ages to cold, heat, and hypoxia, Professor Verzar shows how this process can be studied in the laboratory.

The greater part of the book, however, is devoted to detailed studies of measurable age changes in collagen, muscle, nervous tissue, and sense organs. The final chapter looks to the future and suggests that at cellular level the ageing process may depend on changes in the DNA of the nucleus skin to those which can already be observed in collagen, since both have an apparently similar helical structure.

This book is translated from the German, but so well (the translator is the author's wife) that no-one would suspect it. It gives a most readable account of the physiology of ageing, and provides a most useful springboard for further advances in the future.

The increase in human life expectancy has already led to enormous social changes all over the world, and