

The index to the four volumes runs to 126 pages (a double column of references on each page). On test, I found a minimum of trouble in turning up any particular reference. This is a valuable feature, for at the price of 345s. the book may be in use as a reference in libraries as often as it is taken down from private book-shelves for reading and for study. It is a text-book as well as a reference book, written in good style and easy to read.

It is not possible to cater for the specialist farmer or grower, even in a work of this size. For example, only one chapter is set aside for fruit and vegetable growing, but readers will find a number of references to other publications in which fuller information may be obtained and useful notes as to how to use the book.

There are 1,350 illustrations in all. The plates in particular are excellent in quality. The many diagrams are clear and helpful, but a number of the smaller reproduced photographs are less well chosen, are indistinct and might have been omitted.

J. A. McMILLAN

DAIRY BACTERIOLOGY

Bacteriology for Dairy Students

By Dr. Alan Seaman. Pp. vii + 202. (London: Cleaver-Hume Press, Ltd., 1963.) 25s.

COMPARED with their counterparts in North America, students of agriculture and dairying in Britain are poorly served with suitable text-books in the important subject of microbiology. The publication of Dr. Seaman's small text-book is, therefore, a welcome addition. Dr. Seaman is a younger recruit to the ranks of lecturers in microbiology, and it would be easy, and discouraging, to be over-critical of this first edition. The subject which he has attempted to cover in 194 pages is large and obviously many aspects could receive only brief mention. There is, however, a lack of balance in the treatment given in different chapters.

In the opening chapters the author discusses the morphology, isolation and nutrition of micro-organisms. It is unfortunate that the writer has chosen to illustrate various aspects of microbial morphology by somewhat crude drawings. There are available to-day numerous excellent electron photomicrographs (for which, presumably, permission to reproduce could have been obtained), illustrating such features as the bacterial cell-wall, cytoplasmic membrane, spores, flagella, etc. Use of such photomicrographs would have considerably enhanced this section.

In the chapter on bacterial nutrition the author has made a commendable attempt to simplify a complex subject, but he has been unable to avoid using a terminology which may be beyond the grasp of the reader for whom the book is designed.

Before proceeding to a discussion of the microbiology of milk and milk products, Dr. Seaman has included four chapters on bacterial destruction, immunology, identification and variation, systematics and a chapter on historical development. The chapters on bacterial destruction and systematic bacteriology are good, but immunology should have received rather fuller treatment than six paragraphs, in view of its importance in disease control in the dairy herd and in bacterial classification. While the chapter on historical development reflects Dr. Seaman's wide reading on his subject, it is doubtful if, in a short elementary text-book of this type, so much space should have been devoted to this aspect.

It is regrettable that the development of the advisory services in England and Wales since the Second World War has divorced the teaching departments of colleges and universities from intimate contact with problems of the agricultural and dairy industries. As a result the chapters on the microbiology of milk and milk products give an

unfortunate impression of a theoretical or academic approach to the subject and little attempt has been made to emphasize the more important aspects. The work concludes with a short chapter on the microbiology of water and sewage.

The book is written in a simple direct style, but occasionally the language is somewhat ambiguous. Each chapter concludes with references for further reading, but in a number of instances more useful references might have been chosen. Possibly a fuller bibliographical appendix would have served the purpose better. There are a number of errors which will no doubt be eliminated in later editions. The book is described on the cover as a useful student revision text for examination purposes. I myself hope that in future more detailed treatment can be given to the section on milk and milk products whereby the book could become a standard text-book for students of dairying.

Despite these criticisms, the book has the great merit of providing in compact form a serviceable text in bacteriology for students of dairying and for workers in other food industries and can be recommended to such students. It is hoped that the demand will be such as to encourage Dr. Seaman to plan a more comprehensive second edition.

D. A. MCKENZIE

MEDICINAL CHEMISTRY

Pharmaceutical Chemistry

Plenary Lectures presented at the International Symposium on Pharmaceutical Chemistry held in Florence, 17-19 September 1962. (International Union of Pure and Applied Chemistry in conjunction with the Italian Society of Pharmaceutical Sciences.) Pp. v + 207-492. (London: Butterworth and Co. (Publishers), Ltd., 1963.) 60s.

RESEARCH workers in the field of medicinal chemistry should not be deterred by the title, which might reasonably be understood to relate to the art of tablet preparation. In fact it contains sixteen up-to-date (mid-1962) reviews, most of which will be found of value to those interested in the mode of action and discovery of drugs. Dr. Ing has made a most thoughtful contribution with his paper on the interaction of drugs and receptors. He stresses the need to avoid acceptance of facile single explanations of drug action. This cannot be over-emphasized. Dr. Ing nevertheless almost falls into the trap himself when he concludes that he is forced to think in terms of an exact fit between the drug and the receptor.

Near miracles in the synthesis of medium-sized polypeptides are becoming almost a commonplace when a sufficient number of analogues of a polypeptide hormone can be synthesized to allow a study of structure-activity relationships to point approximately to the active centre. Dr. Schwyzer's review of polypeptide hormones, for example, ACTH, oxytocin, angiotensin and kallidin, is masterly; but he, too, sounds a note of caution. He appears to reject any suggestion that secondary or tertiary conformations, stable in the solid-state or in solution, are relevant to the biological activity of a polypeptide. Dr. Hofmann deals in greater detail with two of these hormones, ACTH and the melanocyte-expanding hormone, α -MSH. He has established, from the studies of synthetic fragments and their analogues, that full activity resides in the first 20 of the 39 residues of the ACTH molecule and that the Lys.Lys.Arg.Arg. unit at positions 15-18, the free terminal α -amino group and all or some of the ϵ -amino groups of the lysine residues are important.

The cyclopeptides of the phalloidin group obtained from poisonous mushrooms are substances from the unreal world of D-amino-acids, γ -hydroxy- α -amino-acids and *allo*-hydroxyproline and in which alanine alone is respectably normal. Prof. Wieland writes a fascinating account of

these compounds. Not least interesting are his discussion of the additional element of asymmetry introduced by their bicyclic structure and his disclosure that of the two forms of phalloidin, which are thus capable of existence, only one is biologically active.

Prof. Bovet points to the difficulties in the classification of psychotropic drugs. Nevertheless, he provides a useful survey on the basis of the commonly accepted arrangement of the drugs into their various categories. With many of the drugs, both stimulant and depressant, their clinical effects, pharmacological properties and, to some extent, molecular structures are in good accord. An exception is imipramine, a drug of value in the treatment of endogenous depressions, but similar in structure and in several pharmacological properties to the phenothiazine tranquillizers.

From a careful review of the properties of noradrenaline and its *N*-alkyl derivatives, Prof. Pratesi asserts that the nature of the "cationic head" decides whether the biological effect be α - or β -adrenergic in character. One instinctively feels that this is an over-simplification.

Of the remaining contributions to this volume, some of which are purely chemical in nature and might therefore be felt to be rather out of place, specially worthy of mention is that by Prof. Prelog on the siderochromes, a remarkable series of iron-containing naturally occurring compounds comprising both antibiotics and growth factors.

Although the report of a widely based symposium must inevitably have something of a magazine flavour, this is nevertheless a valuable publication. The reproduction of chemical formulæ is of a high standard, and it is with diffidence that the omission of a chlorine atom from each of the structures and prochlorperazine and chlorprothixene is noted. The photographic reproductions are of poor quality.

A. F. CROWTHER

A PIONEER IN STATE MEDICINE

Sir John Simon 1816–1904 and English Social Administration.

By Dr. Royston Lambert. Pp. 669. (London: Macgibbon and Kee, Ltd., 1963.) 63s. net.

SIR JOHN SIMON, who well and truly laid the foundations of State Medicine in England and Wales and successfully combined this work with arduous duties as surgeon on the staff of St. Thomas's Hospital, London, forms the subject of this authoritative biography to which Dr. Royston Lambert, Fellow of King's College, Cambridge, has devoted several years of painstaking research and investigation.

John Simon, of French ancestry, was born in London on October 10, 1816. His father was a well-to-do stockbroker, and the son was brought up at Blackheath and educated at Dr. C. P. Burney's school at Greenwich. After a year's study of German and French in Rhenish Prussia he was apprenticed to J. H. Green, professor of surgery at the new King's College in London. He learned surgery also at St. Thomas's Hospital, then in the Borough. Simon became a Member of the Royal College of Surgeons in 1838 and a Fellow in 1844. In 1840 he was made senior assistant-surgeon to the new King's College Hospital. For a time he hesitated as to his vocation and studied Oriental languages, especially Persian, in the British Museum. In 1842 he began physiological and anatomical research work on the thymus and thyroid glands which gained for him the Fellowship of the Royal Society in 1845. In 1847 he became the first lecturer in pathology at St. Thomas's Hospital with surgical charge of forty beds. By 1853 he was full surgeon and lectured, taught and operated at the hospital until 1876. He was president of the Royal College of Surgeons from 1878 until 1879. His distinction

as a leading London surgeon is overshadowed by his achievements in public health.

In 1848 he was appointed the first Medical Officer of Health of the City of London. In that year he married Jane O'Meara, who was related to Barry E. O'Meara, Napoleon's doctor at St. Helena. In that year also the first Public Health Act was passed, mainly as a result of the work of the medical pioneers, Southwood Smith, Arnott and Kay-Shuttleworth, set forth in Edwin Chadwick's famous *Report on the Sanitary Condition of the Labouring Population, 1842*, and the General Board of Health was established. There was pressing need to deal with cholera and smallpox. This Board was a triumvirate comprising the First Commissioner of Works, Chadwick and Lord Ashley (afterwards the Earl of Shaftesbury). It did useful work, but in 1854 it was reconstituted with Sir Benjamin Hall, M.P., as president and a medical advisory committee, of which Simon was a member. The autocratic Chadwick retired on a pension. In 1855 Simon became the first medical officer of the Central Health Authority. In that year medical officers of health had been appointed for all London districts. They included Dr. John Burdon Sanderson, Dr. George Buchanan, Dr. Odling, Dr. Parry, Dr. Robert Barnes and Dr. T. Stevenson, all of whom advanced organized public health. Three years later the General Board of Health was abolished. Its medical duties, including vaccination, were transferred to the Privy Council and its Poor Law administration to the Home Office. In spite of the important work Simon had done for public health, it was proposed to abolish the post of medical officer, and only through the private intervention of the Prince Consort was this retrograde step altered. Thus the Privy Council obtained in its medical officer a man of great abilities and wisdom, burning with zeal beneath a calm demeanour to benefit mankind.

John Simon was medical officer to the Privy Council from 1858 until 1871, and held a similar appointment under the new Local Government Board from 1871 until 1876. He was Crown Nominee of the General Medical Council, 1876–95, created C.B. on his retirement and advanced to K.C.B. in 1887. He died from acute bronchitis in 1904.

Simon's *Reports on the Sanitary Condition of the City of London* and his annual reports to the Privy Council and the Local Government Board are vivid pictures of social and sanitary evils, and describe the results of important medical researches by the scientists, Burdon Sanderson, Klein, J. W. Thudichum and others, together with comprehensive investigations into disease and its prevention. He broadened the outlook on public health and the prevention of disease, demonstrated that they were an essential aspect of medicine, and was the director and disseminator of new and fundamental knowledge on these subjects.

Admirably and fully, Dr. Lambert describes Simon's conflicts with the poor law administrators, his frustrations, triumphs, honours and successes. He gives an account of the joys and sorrows of his private life.

Simon took an unduly pessimistic view of his great life-work, and one minor criticism of the biography is that Dr. Lambert might have appreciated more fully the progress made in public health and epidemiology by the medical staff of the Local Government Board after Simon's retirement. No less than four of Simon's successors in the post of medical officer had served under him as medical inspectors—Seaton, Buchanan, Thorne and Power. They maintained the high traditions set forth by Simon, and preached the hygienic gospel with the fervour of disciples. Simon himself stated, on p. 414 of his *English Sanitary Institutions* (a historical and philosophical exposition of the history of English hygiene (1890)), that "the very conspicuous ability of the Department under Dr. Buchanan . . . as shown in the works . . . and in the administrative advice which the Department supplies, is something of which English Medical Science has every reason to be proud". Afterwards, with the advice and