

REVIEWS

Social Studies and World Citizenship. By L. J. F. Brimble and F. J. May. (Macmillan & Co., Ltd., London), 1943. Pp. 158. Price 6 sh.

Not only teachers, but those parents who take more than superficial interest in the spiritual welfare of their children may profit by this wholesome and stimulating book, which aims at social unity and internationality. Adopting Canon Leeson's definition of citizenship as an activity of the personality to secure certain benefits for the community to which the citizen belongs, the authors proceed from the foundation of their thesis to guiding teachers in the application of history, geography, literature and science to a realisation of world citizenship by their pupils. For instance, of history they say that the most important attitude of mind to be gained from its study is the concept of progress through co-operation, and of the retrograde steps which follow aggression and self-seeking.

Geography they recognise as an effective discipline for promoting sympathetic understanding between individuals, and between different groups of individuals. Literature and science, like the arts, are already international, but this aspect of them can be further developed in the direction of biography; and in the case of music by radio. The book is refreshingly free from political bias, and from slogans. Here is no holiday from planning, but in so far as the authors are themselves planners, they seem to know that without goodwill the most elaborate plans are predestined to failure, whilst with goodwill the most artless may succeed. They know also that civic duty begins in the life of the family; and while claiming that the whole of our youth education should have a religious, as opposed to an agnostic background, they would base it on rational observation, not on emotional feelings and mythical beliefs.

Controversy is invited only when dealing with world citizenship in relation to the language problem. Accepting the desirability of an international auxiliary language, they agree with the British Association Committee of 1921 in condemning adoption of any national modern language because it would confer undue advantages and excite jealousy. To some, that might have the air of pandering to the very vice they seek to destroy—supernationalism; because, whatever the attractions of a synthetic language like *esperanto* may be, the fact remains that English is mother-tongue to more people than any other one language, and is already the second language of many millions more. For those who find the British people distasteful there are always the Americans in counterpoise, and the conventional whine about English spelling derives from a widespread misapprehension, namely, that you spell by memory. Actually,

you spell mainly by observation: you know when a word "looks right" and correct it when it "looks wrong". For example, my reactions to the authors' "Leibniz" were (1) it looks wrong, and then (2) the common spelling is "Leibnitz": they did not begin with remembering the common spelling. Thus the habitually reviled English spelling is not so much a super-tax on memory as a vast gymnasium of observational exercise; and incidentally a mine of history. M. O. F.

The Cathode-Ray Oscillograph in Industry.—By W. Wilson, D.Sc., B.E., M.I.E.E. (Chapman and Hall, London), 1943. Pp. 160. 156 Figs. Price 12sh. 6d. net.

Of all the modern instruments which the experimental physicist created for his investigations none has found so extensive and increasing a use in almost all the branches of science and engineering as the Cathode-Ray Oscillograph either in its usual form or with some modifications. It has become an indispensable test instrument in electrical industries. Considering its importance, therefore, not many books have been published on it and the present volume written primarily for the industrial user forms a useful addition to their existing list.

The book consists of 12 chapters and one Appendix. Of these the first three are devoted to a general description of the assembly and a detailed description of its component parts and accessory circuits, their functions and alternative forms. The modern types of the Cathode-Ray equipments as available to the industry are then described at some length—particularly the Cossor and Du Mont sets in the glass tube variety and the Cambridge Oscillograph using a metal tube. Various kinds of tests and observations that can be carried out with these instruments are given with practical examples and records obtained from actual industrial applications in each case.

A chapter is devoted to a description of the electron microscope and the diffraction camera as they are cathode-ray tubes based on the same general principles but curiously one does not find any mention of the Iconoscope or allied tubes. The final chapter gives some constructional details with a view to help the worker carry out any minor repairs. General outlines of vacuum tubes, photoelectric cells and piezoelectric crystals are given in the Appendix.

The book is profusely illustrated with numerous photographic reproductions and neat circuit diagrams.

The treatment is rather concise for the standard of the average worker whom the author has kept in mind; and the worker may find it unclear at some places. Mathematics is avoided to make room for practical aspects.

This is not always an advantage for no amount of descriptive matter can have the unambiguous meaning of a mathematical statement.

On the whole the book will be found quite useful by workers in the electrical industries and by students who wish to be familiar with the practical uses to which the Cathode-Ray Oscillograph is put in industry.

N. B. BHATT.

Manometric Methods. By Malcolm Dixon. (Cambridge University Press, London), 1943. Second Edition. Pp. xiv + 155. Price 8/6.

It is a decade since the first edition of this book was written; during the period, this little book has inspired and guided successive batches of students of biochemistry in the adoption and experimentation of manometric technique which constitutes one of the most convenient, elegant, accurate, and widely practised methods of measurement in biochemical research.

Since the publication of the first edition, several refinements and improvements in the method have been effected; its applications have been extended. Micro and ultra-micro adaptations of the technique, capable of measuring volume changes of the order of one-millionth of a cubic centimetre, have been developed. The second edition, under review has been revised in the light of these developments.

Adequate recognition has not been given to Dr. Linderstrøm-Lang, who has been entirely responsible for developing the cartesian diver ultra-micrometer. From the volume one gains the impression that Dr. Linderstrøm-Lang was responsible only for the "suggestion"; it should, however, be added that the experimental technique and the applications of this ultra micro method were all thoroughly worked out at the Carlsberg laboratories in 1937 when the reviewer was working there.

The list of some further applications of manometric methods, the three appendices giving examples of standard experiments, and the table logarithms, add to the usefulness of the book.

The Application of Absorption Spectra in the Study of Vitamins, Hormones and Co-enzymes. By R. A. Morton. (Adam Hilger Ltd., London), 1942. Second Edition. Pp. 226. Price 28s.

In a series of ten illuminating chapters, the author covers the entire field of vitamins, hormones, proteins, enzymes and co-enzymes in a broad and interesting manner suggestive of their inter-relationships. The first chapter gives a short account of the experimental assembly and the notations used in absorption spectrophotometry. References to literature where the technique of spectrophotometry is described at greater length, are given at the end of the chapter.

The second chapter is devoted to a consideration of the steroids including the closely allied antirachitic vitamins and sex hormones. Those interested in gaining an insight into

absorption spectra in relation to chemical structure, will find this chapter exceedingly interesting and valuable. The subject of vitamins of the D group is treated against its historical background; reference is made to the difficulties encountered and to the precautions necessary in carrying out a spectrographic assay of vitamin D in natural products. The author has incorporated a substantial amount of his own experience in this field.

The third, the fourth and the fifth chapters respectively deal with (1) Provitamins and Vitamin A, (2) Vitamin E and Antioxidants, and (3) Vitamin K. They constitute a succinct and stimulating review of the vitamins of the fat-soluble group; the part played by spectroscopy in the discovery and development of these vitamins is indicated. The discovery of vitamin A, is directly the outcome of spectrographic methods of analysis. Those interested in the assay of the carotenoids and vitamin A should carefully study the relevant portions of the third chapter wherein attention has been drawn to the wide variability in the biological utilisation of β -carotene. The author adds: "When the chemist analyses a given product for vitamin A or provitamin A, he aims at a precise determination of the actual amounts present, whereas the biochemist's animal assay is concerned with available vitamin A or carotene. If a large proportion of the total is nutritionally useless, as often happens, it may be necessary to change the method of preparing or cooking the food, or to alter the bulk composition of the diet so as to improve utilisation. In short, the problem of vitamin A nutrition has emerged from a phase of spurious clarity, resulting from over-simplification, into a very complex phase in which the main task is the twofold one of refining both analytical methods and biological methods without confusing the many variables or failing to stress the distinction between vitamins and provitamins A."

Methods for the assay of butter with respect to its carotene and vitamin A contents, details for the assay of blood-serum for its content of vitamin A and carotenoids, and for the determination of carotene in dried grass and similar products, are described in the third chapter.

The water-soluble vitamins C and P and the B complex are treated in the sixth and the seventh chapters. The closely related and physiologically important group of purine and pyrimidine derivatives are dealt with in the eighth chapter. These compounds represent the products of degradation of some of the vitamins, nucleic acids, viruses and coenzymes. As the author remarks, "Spectrophotometric studies on purines are relevant to the study of coenzymes and the data on the pyrimidines to the problem of the structure of aneurin".

A discussion of the position of the absorption spectra of proteins in general, forms the subject of the ninth chapter; excepting for the fact that a spectrographic method for the detection and estimation of tyrosine and tryptophane has been developed, spectroscopy has contributed little to elucidation of the complexity of this class of compounds.