

REVIEWS

Advances in Enzymology, Vol. II. Edited by F. F. Nord and C. H. Werkman. (Interscience Publishers, Inc., New York), 1942. Pp. viii + 374. Price \$ 5.50.

This series has entered its second year and the contents of the present volume are as fundamentally important and interesting as the contributions published in the first volume. The scope of the series, as envisaged in the introduction to the series, has been extended to cover the fields of vitamins and hormones; an article on Vitamin K by its discoverer and an informative review on the adrenal cortical hormones have been included.

Twelve contributions comprise the volume and first of these on bacterial viruses concludes with a highly suggestive discussion of the host-virus relationships. The author has advanced several speculative hypotheses on this fascinating subject which includes the pregnant suggestion that the synthesis of new virus demands not only the utilisation of the storage products of the cell but also the short-lived intermediate products of metabolism. The author adds, "The virus makes use of the metabolic machinery of the cell for its own needs. The oxidation-reduction cycle and the phosphorylation cycle of some cell metabolite may directly be involved. Such a study will require the analysis of the growth of the host and of virus in the presence of a variety of substrates and inhibitors under aerobic and anaerobic conditions. In the opinion of the reviewer, the problem of the autocatalytic synthesis in the cell may be approached in this manner with promise of success".

The kinetics of hydrolytic enzymes and their bearing on methods of measuring enzyme activity, discussed by Van Slyke will prove useful to workers in the field of enzyme chemistry. Bergman has classified the specific interrelationships among the large number of proteolytic enzymes, in the light of his own work. Enzymatic properties of peptidases are reviewed by Johnson and Barger. Special mention should be made of the exceedingly valuable review on the heterotrophic assimilation of carbon dioxide contributed by the very same authors who were the first to describe this phenomenon as an experimentally accomplished concept. Those interested in this latest and spectacular advance of biochemistry can, with profit, turn to this stimulating and comprehensive review. Other reviews in the volume include articles on diamin-oxidase—an enzyme not extensively studied, respiratory and fermentative enzyme mechanisms associated with *Aspergilli*, cellulose decomposition by micro-organisms and a unified hypothesis of the reciprocal integration of carbohydrate and fat metabolism. A highly speculative and labour-ed review on the chemistry of tea fermentation is also to be found in the volume.

This volume represents an even greater improvement over the first of the series; the publishers deserve all praise not only for the

beautiful get-up of the volume but also for their venturesome and praiseworthy enterprise.

Temperature Control. By A. J. Ansley. (Chapman and Hall, Ltd., London), 1942. Pp. viii + 126. Price 13s. 6d.

The regulation and control of temperature in any system is an important and frequently needed laboratory technique, the fundamental principles and practice of which are to be found in many texts on experimental physical chemistry, in special monographs, and also scattered in several contributions on pure and applied sciences. Recently an impressive volume of contributions to a symposium on "Temperature—its Measurements and Control in Science and Industry" (covering 1375 pages) has been published by Messrs. Reinhold Publishing Corp., New York, and reviewed in *Current Science*, Vol. 10, p. 415. There is, however, still scope for a handy volume expounding the principles with complete practical details for a judiciously selected number of equipments for the control and regulation of temperatures as used in the laboratories and industries. The book under notice, though it purports to be one such volume, is however, a strange medley of useful but frequently extremely elementary informations, clothed in somewhat cumbersome and inadvertent wordings and of statements which are incorrect. Thus on page 5, regarding vapour pressure control, the author states that "it is superior to the direct expansion of a liquid method owing to the extensive range which can be obtained by increasing or decreasing the liquid charge contained in the sensitive phial or capsule". Again he states, "The disadvantage of this type is that since vaporisation of the liquid is a straight line function, the differential of the control over a wide temperature range will vary considerably". The book contains many other similar statements. On page 9, in an elementary description of the potentiometric method of measurement of e.m.f. of thermo-couples, it is said that in the null position when the galvanometer G shows no deflection, the e.m.f. of the couple is equal to that of the cell F! The following sentence from page 82 is hard to beat: "The liquid whose rotary power is desired is contained in a glass cylinder placed horizontally between the relevant optical parts of the refractometer" (italics ours).

There are besides quite a few printers' errors and the figure 20 on page 36 is printed upside down. Although the publishers have not been sparing in their usual high standards of printing and production, the book needs drastic revision and correction. RAU.

A First Course in Algebraic Geometry. By B. B. Bagl, Government Officers' Colony, Dharwar, 1941. Pp. vi + 264. Price Rs. 2-12-0. This book is written by Professor Bagl, a well-known author of several text-books in

mathematics. It has certain distinctive features of its own and is very useful to Intermediate students of our Universities and forms a good addition to college libraries.

K. V. I.

Fighting for What? By Sir John Orr, D.S.O., M.C., F.R.S. (Macmillan & Co., London), 1942. Pp. 89. 2sh. 6d. net.

Sir John Orr in this book faces the problem of post-war reconstruction with abundant hope and enthusiasm. He would not indeed accept the word "reconstruction", with its suggestion of a return to pre-war conditions. "The old order", he says, "is passing away. . . . The world is in the throes of a new birth." The political system has collapsed, witness the occurrence of two world wars within twenty-five years. So has the economic system or lack of system, which underlies the political catastrophe. The advance of science makes it possible to produce more and more wealth with less labour, but in pre-war days the results were less evident in increasing prosperity than in restriction of output and widespread unemployment.

"The primary material essentials of life are (1) food and (2) shelter which includes a house, furniture, clothing and warmth. To these must be added (3) a job, which is a psychological necessity. . . . If we are planning for human welfare we must put first things first and concentrate on food, houses and a job. Whatever obstacles prevent us from providing these necessities must be ruthlessly removed."

It is about first of these that Orr, as a distinguished worker in the field of nutrition, speaks with greatest assurance and authority. As a result of scientific research carried out during recent years, "optimum" dietary standards have been established, i.e., the type of diet which is needed to produce good physical development and health in human beings is known. Statements of food requirements have been issued by various authoritative bodies, including the Technical Commission on Nutrition of the League of Nations, and all are in general agreement. These standards provide us with "a yardstick by which we can measure the extent to which diets in common use are adequate for health and estimate the amounts of a given foodstuff needed to bring the diet of a given population up to the standard for health". When the diets which population groups actually consume are investigated, it is found that only a proportion of the world's population consumes a diet which conforms with the ideal standard. This is true even in the United States and England in peace-time. In such countries as India under-nutrition and malnutrition are widespread. Orr quotes a recent dietary survey in Ceylon which showed that a third of the population does not get *enough* to eat. The proportion in India is about the same.

So far, so good. We may accept Orr's analysis of the situation as substantially correct. What is to be done about it? Orr outlines a

post-war food policy for Great Britain, based on a National Food Board which in turn will control various Commodity Boards. "The National Board should be responsible for bringing up the national supplies of the main foodstuffs up to the level needed to provide sufficient for everybody and for arranging that sufficient would be available within the purchasing power of everybody. The Board should be voted the necessary funds to carry out these functions and the annual report of the Board would be discussed in Parliament at the time when the funds were voted." Increased demand for food will mean prosperity for the farmer. A world food policy must be drawn up by a supreme economic council, with an international financial organisation to control international trade in food. "Each nation will need to estimate the amount of each of the staple foodstuffs needed to feed its population, keeping in view the dietary habits of the people, and then decide which can be most profitably produced at home and which most profitably imported in exchange for exports which it can produce more easily than the food it needs to import."

Orr's statement of the need to face post-war problems boldly on an international scale and with the full resources of science is admirable, but in so short a book he has been able to sketch his constructive proposals only in outline. The science of nutrition deals with uncontroversial facts, drawn from scientific observation and experiment. It is far otherwise with economics. All suggestions for the reform of existing economic and political systems are of their very nature bitterly controversial. An author who enters this field has no body of ordered facts on which to draw. In any "History of Human Error" a prominent position would have to be given to ideas about political economy which have been accepted as axiomatic by intelligent and instructed men. "The marginal propensity to consume", "the principle of effective demand"—these and numerous other concepts of the economists doubtless mean something, but they do not seem of great help in constructing a better world. The ordinary man—and in this particular context Orr is an ordinary man—has reacted against the complicated arguments of the professors by getting hold of one simple idea. It is that the application of scientific methods in agriculture and industry now makes it possible for the world to produce an abundance of the necessities of life for all mankind. The necessary wealth can be produced, provided an efficient and equitable system of distribution can be evolved. While this idea is no doubt in many respects naive and—to use an overworked word—utopian, it has a great appeal to scientific workers who are impatient to close the gap between scientific knowledge and its application. But scores of thorny and tortuous obstacles—financial, social and psychological—lie between the goal and the grim realities of the existing world. How can the economics of abundance be reconciled with human nature, with national boundaries and tariffs, with legitimate profits with the vast differences in industrial and