

ADVANCES IN PHYSIOLOGY

Annual Review of Physiology

Victor E. Hall (Editor), Jefferson M. Crismon and Arthur C. Giese (Associate Editors). Vol. 9. Pp. vii+736. (Stanford University P.O., Calif.: Annual Reviews, Inc.; London: H. K. Lewis and Co., Ltd., 1947.) 6 dollars.

THE "Annual Review of Physiology", though published in the United States, was intended to be international in authorship. It started in 1939 and during the War it had to remain, as it had begun, entirely in American hands. The present volume marks the first appearance of European contributors, who are responsible for five of the twenty-seven articles. Next year we are promised two contributions from the U.S.S.R.

This volume maintains the standard of its predecessors and, as is usual if not inevitable, the articles are of very unequal merit, ranging from the hasty compilation of a catalogue of references, to the personal and critical writing of one who has taken the trouble to digest the data under review. In the latter category are three outstanding contributions of general physiological interest. F. Buchthal, in his article on muscle, summarizes the brilliant contributions which he and Szent-Györgyi have made in elucidating the role of actomyosin and adenosine triphosphate. He also deals fully with the vexed question of the status of acetyl choline in neuromuscular transmission, and covers the advances in electromyography which have resulted from war-time research on peripheral nerve injuries. H. Grundfest, dealing with bio-electric potentials in the nervous system and in muscle, presents a very intelligible review of a subject which to many physiologists has become increasingly obscure. The data are carefully sorted out and correlated; the conflicting theories are precisely defined and then critically analysed. C. J. Wiggers, reviewing the peripheral circulation, gives a characteristic and critical appraisal of some of the newer techniques, such as cardiac catheterization. The main feature of his article is a very thorough discussion of the peripheral resistance, which may well become a classic. Recent work on shock and hypertension is also covered.

In his article on exercise, P. V. Karpovich directs attention to the surprising lack of elementary data in this important and practical subject. Some new physical-fitness tests are discussed, recent work having shown the old tests, such as breath-holding and pulse return after exercise, to be of little value. Workers in several different fields have made the rather surprising discovery that many gross nutritional deficiencies have little or no effect on physical performance of short duration. It is also reassuring to read that rats live longer in an atmosphere of tobacco smoke.

Pathologists will find two articles of particular interest. Writing on defence mechanisms, W. C. Boyd and S. Malkiel review the important work of Menkin, who has isolated various factors—pyrexin, necrosin, leucotaxin—from inflammatory exudates. They also attempt to cover the wide field of antibody-antigen reactions and detoxification mechanisms. S. P. Reimann's article on growth deals chiefly with the pathology of growth and is a most interesting account of attempts which are being made to apply recently acquired biological knowledge to some of the classical problems of pathology. For example, the

concepts of induction, evocation and organisers derived from embryology are being applied to the study of mixed tumours. Aberrations of growth resulting from nutritional deficiencies open up a promising field, and the trial of various specific growth-inhibiting substances in the treatment of cancer and leukaemia is interesting, although the results so far have been disappointing.

F. K. Sanders, writing on cutaneous sensation, gives a useful summary of the important work of Woollard and Weddell, most of which was published during the War and is already well known in Great Britain. The physiological effects of heat and cold still require a separate article owing to the considerable amount of war-time research which is still appearing. In this article A. P. Gagge and L. P. Herrington attempt a scientific appraisal of some of the experiments carried out by the Germans at Dachau, and add some appropriate ethical comments. War research still accounts for much of the material reviewed under blood gas transport by D. B. Dill and W. H. Forbes, and also under the respiratory system by H. C. Nicholson. W. Dock, writing on the kidney, devotes less space than usual to consideration of the various 'clearances', which he prefers to call 'ratios', and gives a very welcome review of renal morphology and pathology, especially in its relation to shock and hypertension. Under pharmacology, C. C. Pfeiffer and E. R. Loew deal with the new anti-histamine drugs; but most of their article is devoted to chemotherapy and deals with newly discovered chemicals active against fungi, viruses, rickettsia, rodents, war gases and cancer. Two new subjects not previously reviewed are the physiology of supporting tissue by P. D. F. Murray, which deals chiefly with bones and teeth, and the experimental neurosis by H. S. Liddell. The articles on metabolic functions of the endocrine glands by F. D. W. Lukens and permeability by W. Wilbrandt present a vast amount of new information from which no very striking advances seem to emerge. O. A. TROWELL

BIOLOGICAL APPLICATIONS OF ULTRA-VIOLET AND INFRA-RED RADIATION

Applications of Germicidal, Erythematous and Infra-red Energy

By Dr. Matthew Luckiesh. Pp. ix+463. (New York: D. Van Nostrand Co., Inc.; London: Macmillan and Co., Ltd., 1946.) 30s. net.

THE author of this book is the director of the lighting research laboratory of a large electrical firm in the United States and is well known as a prolific contributor to the technical literature of his subject. Much of the material in the present volume has appeared in various technical publications; workers in the field of radiation and its applications will be glad to have the data collected together in a single volume. The scope of the book, the stated object of which is to deal with some major effects of radiant energy, is perhaps sufficiently indicated by the title.

The science of radiation therapy, with which the book is largely concerned, is still in its infancy. Few will dispute the health value of sunlight, although