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MAN IN SPACE

Aerospace Medicine

Edited by Harry G. Armstrong. Pp. xiii + 633. (London: Baillière, Tindall and Cox, Ltd., 1961.) 144s.

Environmental Effects of Consciousness

Proceedings of the First International Symposium on Submarine and Space Medicine, United States Submarine Base, New London, Connecticut, September 8-12, 1958. Edited by Karl E. Schaefer. Pp. x + 146. (New York and London: The Macmillan Company, New York, 1962.) 5.50 dollars; 41s.

THE recent advances in aviation and space technology have stimulated great interest in the physiological problems associated with manned flight. Both of the books under review reflect this interest, one as a text-book and the other as a collection of papers presented at a symposium. Although the text-book is entitled *Aerospace Medicine* it deals primarily with the medical problems associated with manned flight within the Earth's atmosphere. The symposium, on the other hand, was an attempt to exchange information between various groups of investigators interested in the physiological aspects of sealed environments.

In *Aerospace Medicine* Armstrong has drawn together the contributions of some twenty-one American authors, each of whom is a recognized authority in his own field of interest. Following a brief historical review of the subject, six chapters are devoted to describing the clinical examination of aircrew with respect to their fitness to fly. These chapters contain unnecessarily detailed descriptions of standard techniques used in clinical medicine, and, in certain instances, the useful information contained in them could well be added to later sections in the book devoted to cardio-vascular and ophthalmological problems. The clinical chapters are succeeded by sections in which the environment of flight and the physiological effects induced by exposure to low barometric pressure, radial and linear accelerations, high and low temperatures and acoustic energy are described. Luft has contributed a lucid account of effects of acute hypoxia. The chapter on administration of oxygen in flight does not, however, treat this important subject adequately. There is no discussion of the basic functional requirements which must be met by aircraft breathing equipment and there are erroneous statements with regard to the occurrence of ozone in pressurized aircraft at high altitude and the mechanism of the cerebral disturbance produced by exposure to oxygen at 2-3 atmospheres. There are comprehensive chapters on decompression sickness and the physiological aspects of pressure cabins. The effects of radial and linear accelerations are adequately described, although the chapter on linear accelerations contains several lengthy descriptions of individual sledge track runs which, it is felt, are out of place in a text-book.

Probably one of the best sections of this book is that written by Nuttall, in which he deals in a clear and concise manner with the many physiological

problems associated with escape from aircraft and the subsequent survival on land and in the sea. The public health aspects of air travel, both with regard to crew and passengers, are dealt with in some detail. Finally, Strughold's contribution outlines the specific medical problems involved in manned space flight.

The appearance of this comprehensive text-book will be welcomed by both students and practitioners of aviation medicine. It stands as a real addition to the literature of this subject. It is hoped, however, that in the next edition the editor will attempt a further integration of the work of the various contributors.

Environmental Effects on Consciousness is a collection of the papers which were presented at one session of the first international symposium on submarine and space medicine which was held at New London, Connecticut, in September 1958. Several of the papers deal with the effects of changes of the partial pressure of oxygen, carbon dioxide and nitrogen on the functions of tissues at the cellular level, while others describe the effects on man of exposure to various gaseous environments. Pugh contributed a concise and lucid account of the effects of acute and chronic hypoxia on consciousness, and Behnke and Taylor discussed the mechanism of nitrogen narcosis. A third group of papers was devoted to the effects of sensory deprivation on consciousness, the part played by the vestibular apparatus in orientation in space and the effects of the gravity free state. The theory presented in the latter paper has now been supplemented by the results of the recent manned satellite experiments. This book also contains a verbatim report of the panel discussion which followed the formal papers. Although this discussion contains many points of interest, it suffers in the written form from the presence of many superfluous phrases. The impact of the arguments which occurred during the discussion could have been increased considerably in this book by judicious editing. Although the contents of this book will be of interest to physiologists concerned with the effects of the gaseous environment on man, its value is reduced by the period of four years which has elapsed between the presentation of the papers and the publication of the book.

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STUDIES IN ASTRONAUTICS

Vistas in Astronautics—1960

Vol. 3: Proceedings of the Third AFOSR Astronautic Symposium, jointly sponsored by the Air Force Office of Scientific Research and the Society of Automotive Engineers, Inc., October 1960. Edited by Dr. E. R. Van Driest, Emanuel Haynes, Lt.-Col. C. W. Craven, C. W. Guy, W. W. Withee and N. D. Sanders. Pp. vi + 266. (New York: Society of Automotive Engineers, Inc.; London: Pergamon Press, 1961.) 55s. net.

THIS book records the papers and discussion at the Symposium on Astronautics held in Los Angeles in October 1960. The contents are divided into six