

The prodigious toil of editing 1,477 pages of text was mitigated for Dr. Boyd by his enthusiasm for his subject and the satisfaction of knowing he was making available in this book an encyclopedic coverage of malaria on a global basis, tintured by the richness of his own experience. As the reader passes from chapter to chapter the expected conflicts in views and contrasts in expression are not encountered because of meticulous attention to detail in editing and selection of the figures.

The great merit of this monograph is that it assembles in compact form all that is really known about malaria.

MALCOLM H. SOULE

University of Michigan

Physiology of Heat Regulation and the Science of Clothing.

Prepared at the request of the Division of Medical Sciences, National Research Council. L. H. Newburgh, Ed. Philadelphia-London: W. B. Saunders, 1949. 457 pp. \$7.50.

Much credit is due the editor who has assembled under a single cover this authoritative, definitive, thoroughly integrated, and instructive series of chapters, contributed with apparent enthusiasm by scientists, all eminent in their own fields. The book will well serve as comprehensive reference material in the fields of heat regulation and environmental physiology. It will present to the heating and ventilation engineer and to the architect the complete relationship between many factors, both physical and physiological, that reflect on man's health, comfort, and efficiency in any climatic environment. Finally, it will offer the clothing designer and materials engineer a rationale which can readily replace much of the empiricism so prevalent in their professions in the past.

The book is divided into two parts, the first a series of nine chapters on "Human Response to the Climatic Environment," the second three chapters on "Clothing, a Thermal Barrier."

The opening chapter by Wulsin immediately excites the reader's interest by outlining the many sociological and anthropological factors involved in adaptation to cold and hot climates among non-European peoples, such as the Eskimo, the Mongols, the Fuegians, and those tribes living in the Near East, the Sahara, southeastern Asia, and Central America. One leaves this chapter wondering *why*, in terms of physics and physiology, these peoples react to their climatic environment as described. The succeeding chapters provide a partial answer to this question. The biophysics of thermal exchange between man and his environment is described very clearly in chapters by Yaglou and Hardy. Then follows a long, analytical, original, and masterly chapter by Bazett on temperature regulation. Various aspects of physiological adjustment to heat and cold are covered in chapters by Robinson, Spealman, Day and Herrington. The first part ends with a chapter by Yaglou on indices of thermal comfort.

The second part of the book essentially attempts to reduce the problem of adequate clothing to a rational use of physical formulas, of insulating materials produced by man or animal, and of climatic data associated

with various geographical areas. Fourt and Harris adequately cover the physical properties of clothing fabrics. Then follows a long chapter comprising a series of essays introduced by Forbes and prepared by Adolph, Robinson, Belding, Spealman, Van Dilla, Day and Siple. Each essay describes, in terms of the particular interests of its authors, laboratory and field methods of evaluating physical and physiological properties of complete clothing assemblies on and off man. The second part concludes with a unique chapter by Siple relating the principles of clothing design to occupational specialty and climate.

At the end of the book is an appendix with definitions of new and old concepts such as *caloric content*, *Clo*, *effective temperature*, *mean skin temperature*, *net metabolic cost*, and *wind chill*. The appendix also includes miscellaneous information on the metabolic cost of various activities and concludes with a useful conversion table between thermal factors in the cgs system conventionally used by scientists and in the British system generally used by engineers and laymen.

Because of its varied authorship there is some duplication of fact and formulas, all of which may be necessary to make each chapter reasonably complete. The editor has quite wisely allowed each author free reign as to opinion and presentation. As the editor points out in the introduction, the book does not presume to give final answers. Since the manuscripts for this book were prepared, new studies have been reported in the literature, by both military and civilian groups, that can well supplement and clarify this information.

A. P. GAGGE

Aero Medical Laboratory,

Wright-Patterson Air Force Base

Physiology of the Eye: Optics, Vol. 1. Arthur Linksz. New York: Grune & Stratton, 1950. 334 pp. \$7.50.

Optics: The Technique of Definition. Arthur Cox. New York: Pitman Publ., 1949. 412 pp. \$5.75.

On first thought it seemed illogical to review these two books together, for they cover different material and their purposes and approach are not at all alike. There is, however, a certain similarity between them. Each book is written for a specialized purpose: the one for the student ophthalmologist who should be well acquainted with the properties of light and the laws of optics as they concern the human eye; the other for the thoughtful individual who wishes to understand all about the photographic lens, or "eye" of the camera. Either reader would profit by reading both books, and would thus become aware of the many properties shared by the human eye and the camera.

The first volume is the outcome of Dr. Linksz' long experience in teaching this subject to those of the medical profession who intend to specialize in ophthalmology. The book opens with an introductory section on physical optics, the wave and corpuscular natures of light, spectra, the photoelectric effect, and photometry. The large central portion of the book gives a detailed presentation of geometrical optics, and concludes with a discussion of the eye as an image-forming mechanism. The style is most