THE STRESS OF HOT ENVIRONMENTS. Monographs of the Physiological Society No. 29. By D. McK. Kerslake, Cambridge University Press, New York, 1972. x, 316 pp. $19.50.

The physiological behavior of humans under conditions of heat stress has assumed a vital importance in this era of space travel. Specifications for life-support systems depend in the most direct way on research in this extremely complex field. Dr. Kerslake of the RAF Institute of Aviation Medicine has, as a part of this work, undertaken the task of reviewing the physical principles which govern exchange of heat with the environment. A great deal of information has been packed into this relatively brief but authoritative section with the result that the reader, unless he is already well versed in the subject and the manipulation of physical formulae, may find it rather hard to assimilate. Much of the remainder of the book consists of a theoretical discussion of methods of reducing all the different factors involved in thermal exchange with the environment (air temperatures, humidity, sweat rate, body surface area, etc.) to one usable function which would embrace them all. In this endeavour he has built upon the pioneering work of Gagge and his colleagues at the Pierce Foundation laboratory in New Haven where the concept of the “operative temperature” was developed, which reduced the number of variables to be considered in calculations of thermal exchange. Despite the attractiveness of the idea of reducing all the factors to one function, and the theoretical demonstration of its feasibility, it turns out that in practice, such a single figure which combines both the physiological characteristics of the subject with the physical characteristics of the thermal environment is too cumbersome in its development for practical use. Other less complete simplifications such as the heat-stress index of Belding and Hatch are described and carefully evaluated.

This volume contains a wealth of important material and is the fruit of a dedicated familiarity with the subject. The well-selected appendices and list of symbols currently in use are not only of great help in comprehending the text, but provide a handy and complete reference which is useful for other forays into the literature of thermal physiology. This book is no bedtime reading but a scholarly work whose external dimensions, like a well-designed small car, belies its large internal capacity.

C. FRANCIS ROE
Department of Surgery
Yale University School of Medicine

MENTAL RETARDATION: AN ATLAS OF DISEASES WITH ASSOCIATED PHYSICAL ABNORMALITIES. By Lewis B. Holmes, M.D., Cornelia Mack, M.S., Hugo W. Moser, M.D., Sham S. Pat, M.D., Saear Halldorsson, M.C., and Benjamin Matzilevich, M.D. The Macmillan Company, New York, 1972. 430 pp. $28.00.

The famous, the infamous, acquaintances, and friends—all are recognized by us on sight because of our familiarity with their appearance. Even the most eloquent word description fails to convey the total information in a pictorial image. (The Chinese have a saying for this.) Medical diagnosis, particularly of conditions associated with consistent physical malformations, is similarly dependent upon familiarity with recognizable features. Many genetic disorders distort a patient’s appearance and some acquired disorders ravage and scar the visage. A proportion of these conditions may also impair the intellect. To be able to identify one of these