school texts. In some instances important works otherwise qualified were left out because they were temporarily out of print due to wartime paper shortages. Despite these omissions, some of which were unavoidable, this bulky volume stands as an impressive record of American scholarship in the fields represented.

MORRIS C. LEIKIND

Library of Congress, Washington, D. C.

An introduction to the study of eclipsing variables. **Zdenek Kopal. Cambridge, Mass.: Harvard Univ. Press, 1946. Pp. x + 220. $4.00.**

The title of this book (No. 6 of the Harvard Observatory Monographs) reads like that of an elementary textbook, but it is neither a text nor elementary. It is a scholarly treatise and an introduction to the interpretation of the light variations of eclipsing stars, evidently written for the investigator who expects to devote an appreciable fraction of his career to research on eclipsing binaries.

The book opens appropriately with a brief foreword by Prof. Henry Norris Russell, of Princeton, who developed the first general method of computing orbital elements of these stars. The first chapter gives a brief history of the subject and delimits the field of the book. It is here that the reader finds that the book does not purport to tell "all about" eclipsing variables, for all aspects of the subject other than the light curve and its interpretation are outside its scope.

The second chapter, "Nature of the Eclipses," treats the geometrical relations that determine the light curve and includes a discussion of the theory of darkening at the limbs of stellar disks. The third chapter, "Determination of the Elements," considers the reverse problem: given the light curve, to find the geometrical elements of the system. In this earlier portion of the book the mainstay is the original Russell method and others of similar nature which are still the most practical way of beginning the computation. The fourth chapter, "Improvement of Preliminary Elements and Determination of Limb-Darkening," completes the discussion of the simpler problem of spherical stars moving in circular orbits.

The next chapter discusses the complications that arise from eccentricity of orbits. This is followed by a chapter on the theory of tidal distortion of stars and that of "gravity-darkening" or nonuniformity of surface brightness of distorted stars. The effects upon the light curve of ellipticity of the stars and of reflection or absorption and reradiation of the light of each body by the other form the subject of the seventh chapter. The eighth and ninth chapters embody all these complications and correspond, respectively, to the two aspects of the simpler case covered in the second and third chapters. In this latter part of the book the treatment leans heavily upon the important original contributions by the author himself.

The book is well organized and well written. The treatment throughout is strictly mathematical, but with adequate descriptive paragraphs. If it has a defect, it is in the lack of diagrams (only one is given). The practical computer may be disappointed at finding no illustrations of processes. On the other hand, there are numerous suggestions that the computer will find invaluable, for, in spite of recent progress, the solution of every individual orbit is a unique problem and in the last analysis must depend upon trial and error.

The reviewer was a little disappointed to find the scope of the book deliberately limited. A chapter or appendix of less than 20 pages could have covered in outline the contributions of spectroscopy in determining absolute dimensions and the extent of atmospheres. The special problem of stars with diffuse limbs is likewise omitted.

This is the only comprehensive treatment of the subject in any language. It will undoubtedly prove to be a stimulus to further research in the field, which is in a state of rapid flux. It should be in the library not only of every student of binary stars but of everyone interested in the astronomical applications of mathematics.

DEAN B. MCLAUGHLIN

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A future for preventive medicine. **Edward J. Stieglitz. New York: Commonwealth Fund, 1945. Pp. xviii + 77. $1.00.**

This monograph is one in a series issued under the auspices of the Committee on Medicine and the Changing Order of the New York Academy of Medicine and published by the Commonwealth Fund.

Dr. Stieglitz interprets preventive medicine as meaning more than the prevention of disease. It is rather the attainment of optimum health and well-being by the individual. With this viewpoint most of the teachers in the field of preventive medicine and many of the advanced men in medicine will agree. The author argues that the full achievement of preventive medicine requires the cooperation of the physician, the collective public, and the individual. On pages 16–18 we are given the change in the age structure of the population that has come about in the United States over the last eight decades. This change in grouping makes all the more important this emphasis on the individual preventive medicine rather than the preventive medicine of the past, which had largely to do with the prevention of communicable diseases. He rightly calls attention to the fact that, up to the present, individualized health guidance has been developed entirely in the fields of pediatrics and obstetrics. The health problems of middle and old age must come to the fore if the public is to have maximum health, usefulness, and happiness. It is not so much longer living as it is a better and fuller living.

Dr. Stieglitz holds out for a very detailed examination which will mount up considerably in cost and be beyond the reach of many that should have this type of health service. While the reviewer agrees with this idea, it must not be forgotten that there are a few essential laboratory tests, together with a rather complete but in-