Book Reviews

Centennial symposia, December, 1946. (Contributions on Interstellar Matter, Electronic and Computational Devices, Eclipsing Binaries, The Gaseous Envelope of the Earth.) Cambridge: Harvard College Observatory, 1948. Pp. viii + 385. (Illustrated.) $5.00.

The four centennial symposia, in commemoration of the beginning of active telescopic research at Harvard University in 1846, comprise 24 invited papers. Made available now in this seventh of the series of Harvard Observatory monographs, these contributions together depict the current status of research over a widely representative part of contemporary astronomy.

Since 50% or more of the matter in the galaxy may be strewn in interstellar space as dust and gas, it is fitting that the first 8 papers should comprise a symposium on interstellar matter. The interstellar dust reveals itself principally by a reddening of distant stars in our own galaxy. Stebbins discusses photoelectric measures of a similar space-reddening within other galaxies. He also presents evidence of the first penetration, in the infrared, of the dust clouds concealing the center of our galaxy. Other contributions deal with the optical properties of the interstellar dust particles, the distribution of their sizes, their chemical composition, and their interaction with the interstellar gas. Greenstein discusses spectroscopic evidence for the direct interaction of condensations in the interstellar medium with stars embedded in them. Papers by Bok, Spitzer, and Whipple concern the evolution of discrete dust clouds; their development is shown to be capable of generating stars and, possibly, planetary systems.

In the symposium on electronic and computational devices of interest to astronomers, Kron contributes a paper on the optimum design of stellar photoelectric photometers. Whitford discusses the astronomical potentialities of the Cashman lead-sulfide cell, which has much higher sensitivity in the range 1.0–2.8 μ than other radiation detectors. Electronic and electromagnetic measuring, computing, and recording devices applicable in astronomy are described by Eckert. An account of some present theoretical problems capable of solution with the new high-speed computers would have been a stimulating addition to this symposium.

Almost all our knowledge of the dimensions of the stars derives from photometric observations of the eclipsing variables, which form the subject of the third symposium. In the first of the annual Henry Norris Russell lectures, Dr. Russell himself emphasizes the additional information obtainable from precise observations. The results of spectrographic studies of eclipsing binaries are summarized by Struve, particularly as these studies have led to information concerning the masses and axial rotations of the components. Shapley shows that dwarf stars like the sun show a very strong tendency to occur in close pairs. Petrie discusses the application of spectrophotometric observations to the improvement of the mass-luminosity relation. Kopal indicates the particular importance of two unsolved problems in the theory of close pairs.

The 8 papers in the symposium on the gaseous envelope of the earth will be of special interest to many scientists besides astronomers. Whipple summarizes the upper-atmospheric data obtainable from meteor observations. Goldberg and Menzel present an hypothesis to explain the high temperature (10^6 degrees) of the solar corona. The other papers are authoritative reviews of the evidence bearing on various solar-terrestrial relationships and of the hypotheses advanced to account for these relationships.

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Ophthalmology in the war years. (Vol. II, 1944–June 1946.) Meyer Wiener. (Ed.) Chicago: Year Book Publishers, 1948. Pp. x + 977. $16.00.

This volume is a review of the pertinent ophthalmic literature from January 1944 to June 1946. It is divided into 33 chapters, and each section is written by a different author. This feature is largely responsible for some repetition in the references by the various editors and also accounts for a lack of uniformity in presentation, but in spite of these minor defects this book is a valuable reference work. In it the busy practitioner can find the recent advances in ophthalmology clearly outlined. The chapter on biochemistry, pharmacology, and toxicology contains much of the recent investigative work and is portrayed in such a lucid fashion that it can be readily understood by the clinician. Color deficiency is similarly discussed in another chapter. Under the heading of general pathology and bacteriology a very complete review of these subjects is given. The latest thoughts on glaucoma are well presented. The chapter on injuries contains a very interesting discussion on the role of trauma in detachment of the retina which points out that its importance as the sole etiological factor has been overemphasized.

At the end of the discussion on surgery of the eye one finds a bibliography of 1,049 articles which shows the magnitude of the task the editors had in assimilating the data they presented in 35 pages. All chapters include long lists of references, a feature which adds greatly to the value of the volume. The discussion of the various articles is often too brief to be of much help other than to stimulate the reader to go to the original source for fuller information. Therefore, this book will be of great usefulness to one reviewing any ophthalmological subject and should be in every oculist's library.

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