

Physik der Sternatmosphären (2nd Edition). By A. Unsöld. 866 pp. Springer-Verlag, Berlin, Germany, 1955. DM 168.00. *Reviewed by A. Beiser, New York University.*

The new edition of Unsöld's well-known text reflects many of the advances in astrophysics since 1938, when the first edition appeared. The book is divided into seven sections, whose titles serve to outline the contents: The Stellar Atmosphere in Thermal Equilibrium; Continuous Spectrum and Structure of a Stellar Atmosphere; Measurement of the Intensity Distribution in Fraunhofer Lines; Physical Principles of the Theory of Fraunhofer Lines; The Origin of Fraunhofer Lines; Physics of the Sun; and Radiofrequency Radiation and Cosmic Rays. Unsöld assumes a minimum of preparation on the part of the reader, and is most complete in his development of the basic ideas. Such modern topics as hydromagnetics and cosmic-ray origin are included—so encyclopedic is the material, in fact, that one hesitates to mention the lack of discussion of low-energy solar corpuscular radiation and its origin. The list of references is a joy—not only is it over fifty pages long, but the titles of the papers cited are given, virtually making it worth the price of the book by itself.

Statistical Mechanics of Irreversible Change. By Richard T. Cox. 130 pp. The Johns Hopkins Press, Baltimore, Md., 1955. \$5.00. *Reviewed by R. B. Lindsay, Brown University.*

In this rather brief but well organized and clearly written volume the author describes irreversible changes in thermodynamic systems in terms of the statistical mechanical method of Gibbs. The book is thus a useful complement to the more usual macroscopic theory of irreversible processes as set forth in books like that of S. R. De Groot (1951). The whole subject has lately attracted considerable interest because of the importance of relaxational phenomena such as those encountered in dielectric and acoustical problems. This is all the more striking since the foundations of the modern theory were really laid by L. Onsager some twenty-five years ago in a paper deducing the important reciprocal relations connecting the phenomenological coefficients in the expansion of "fluxes" (e.g. heat flow) in terms of "forces" (e.g. temperature gradient). Examples of these coefficients are provided by the thermal conductivity, the thermal diffusion coefficient, etc.

It has been the aim of the author of the present work to show, in greater detail than is commonly found in the literature, how the reciprocal relations of Onsager and the earlier ones discovered by Lord Rayleigh can be derived by the use of the principle of microscopic reversibility.

The first part of the book gives a review of the statistical theory of thermodynamic equilibrium and stresses what the author believes to be the advantages of the Gibbsian method as contrasted to both the phenomenological scheme of classical thermodynamics and mo-

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