rial on the whole is well documented. The chapter by Kuska and Rogers on EPR of first-row transition metals gives extensive compilations of experimental data and over 1000 references.

The excellent choice of topics and the comprehensive treatments should make this book very valuable as a reference to experts in EPR and radiation chemistry as well as to nonspecialists. However, the price is unfortunately high for a book that can be useful for only the next few years.

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The Sun's Atmosphere

Solar Physics. Proceedings of a NATO Advanced Study Institute, Lagonissi, Athens, Greece, 1965. JOHN N. XANTHAKIS, Ed. Interscience (Wiley), New York, 1967. xvi + 536 pp., illus. $16.50.

The Structure of the Quiet Photosphere and the Low Chromosphere. Proceedings of the "Bilderberg" Conference held near Arnhem, Holland, 1967. C. DE JAGER, Ed. Springer-Verlag, New York; Reidel, Dordrecht, 1968. iv + 240 pp., illus. $9. Reprinted from *Solar Physics,* Vol. 3, No. 1, 1968.

Modern astrophysics was born with the first attempts to understand the physical nature of the sun's atmosphere, and solar physics continues to occupy a central place in modern astronomy. The reasons for this are clear. The sun is the only star near enough to be observed with high spatial and spectral resolution. The bewildering variety of phenomena that take place in its atmosphere hint at what must occur in the atmospheres of less stable stars, or in objects with stronger or more complex magnetic fields and with larger fluxes of mechanical and radiant energy. Theories of basic astrophysical processes, such as the acceleration of energetic particles, the production and dissipation of hydromagnetic or acoustic waves, and the variety of ways in which a hot plasma in a magnetic field can absorb or emit radiation —all these can be developed and tested in the sun's atmosphere. Further, most activity in the interplanetary medium and in the planetary magnetospheres is driven by solar activity.

The first of the two books under review attempts to give an overview of the physics of the sun's atmosphere. It is a collection of 19 lectures, by as many authors, presented to post-university students at a two-week NATO Advanced Study Institute. The intent of the organizing committee was that the lectures should present an up-to-date general outline of the field. Most of the lectures are thus reviews, but some are original research papers on specialized topics. As might be expected, the individual lectures vary greatly in breadth, depth, and completeness, but all are written by experts, and all are interesting. The lectures will be useful to graduate students, astronomers, and space scientists interested in solar activity, but they will be read with special interest by solar physicists because even the review articles contain much that is new.

The second set of proceedings under review reflects a very different kind of conference. The purpose of the Bilderberg Study Week was to construct a new and "internationally acceptable model of the solar photosphere and low chromosphere." About half of the 29 observational and theoretical papers presented at the meeting appear in this volume and make up the bulk of its 17 papers. It was found that a generally acceptable model, based primarily on the continuum data, could be outlined. The final version of the atmosphere—called the Bilderberg continuum atmosphere (BCA)—is presented in a paper by O. Gingerich and C. de Jager that opens this volume.

The model assumes a homogeneous atmosphere in hydrostatic equilibrium and neglects fluctuations of temperature and velocity with depth. It has a broad, flat temperature minimum at 4600°K inferred from the ultraviolet and infrared limb-darkening observations. The model—whose calculations are presented in detail in a very useful form—is a valuable one, in part because of the difficulties it exposes. Indeed, detailed criticism of it may be found within this volume. It is not consistent with present interpretations of the absorption-line data—particularly the H and K lines of Ca II—as several papers in the volume show. The book is an important one for students of the photosphere and chromosphere, and of value to anyone concerned with stellar atmospheres.

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Definitions and Explanations

A Glossary of Genetics and Cytogenetics. Classical and Molecular. RIGOMAR RIEGER, ARND MICHAELIS, and MELVIN M. GREEN. Third edition (first English edition). Springer-Verlag, New York, 1968. 508 pp., illus. $16.50.

This book was originally published in German in 1954 and 1958. This third edition is in English and, coming after ten of the most prolific years of molecular biology, is a new book. It is broad in scope, including not only genetics and cytogenetics but also the related fields of evolution, biosystematics, embryology, and nonchromosomal cytology. Terms such as "coenospecies," "deme," and "Golgi apparatus" are not strictly genetic terms, but their inclusion adds much to the usefulness of the book.

About 2500 terms are treated; the papers in which over 1200 of them were first used are listed in the bibliography. Cross references are abundant. Many entries are not merely defined but are explained and enlarged upon, sometimes with the aid of figures and tables. There are 90 figures and 6 tables, and some diagrams and tabular material that are not numbered.

Definitions and descriptions are thorough, and the choice of material to be illustrated is good. Molecular genetics is rightly emphasized, and terms such as "operon," "repressor," and "paramutation," to point out but a few, are excellently handled; the "operon concept" is illustrated by an elaborate diagram. The most modern usage is given; for example, the sense in which Fincham has used "cistron" is included. Many older and obsolete terms are explained, although a few, such as Bateson's "reduplication hypothesis," are omitted; for most terms that have been used with widely differing meanings, as have, for example, "accessory chromosome" and "conversion," all the meanings are given. Only a few terms have been neglected; "self-sterility" is scarcely mentioned, although once used exclusively for the later "self-incompatibility," and "coupling" and "repulsion" have a wider significance than just in relation to the *cis* and *trans* configurations.

Students with some background could learn a lot of genetics from this book. I highly recommend it.

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