important paper on the 21-cm line of interstellar hydrogen and the structure of our galaxy. This section of the book perhaps suffers the most from slowness of publication, for the subject is among the most active in astronomy, and much of the work described has already been superseded.

The section on Solar Physics is one of the longest. Some articles (Adams, Abetti) are historical notes. Conditions in the photosphere are discussed by Plaskett and by Pagel. Von Klüber examines the sun's magnetic field. Studies of the chromosphere are reported by Redman and by Blackwell, and of the corona by Righini and by Öhman. Sunspots are discussed in a number of papers, by Newton, Sweet, Bullard, and Tuominen, and prominences and flares by d'Ajambuza and Severny. Carroll contributes an important survey of eclipse observing, and the recent active eclipse work in Japan is described by Hagihara.

Vistas in Astronomy is not a work of reference in the ordinary sense. It is, nonetheless, indispensable in the astronomical library, for it contains much that is not to be found elsewhere. The size of the book makes its riches difficult of access, but the promised index in the second volume is designed to minimize the difficulty. Format and typography are excellent. The only feature to be regretted is the high price of the volume, but one cannot regret the enthusiasm with which the many contributors responded. The result is a unique work, international in authorship, and of truly astronomical scope.

The Atomic Nucleus. By Robley D. Evans. 972 pp. McGraw-Hill Book Company, Inc., New York, 1955, $14.50. *Reviewed by Arthur Beiser, New York University.*

This massive ($M = 8.91 \times 10^{26}$ amu) book represents "an experimentalist's approach to the understanding of nuclear phenomena", which is a pretty good description of the way in which Evans has attacked the exposition of his vast and convoluted subject. He begins with the static properties of nuclei, proceeds to systematics of stable nuclei, binding energies, nuclear forces, models, and reactions, various aspects of radioactive decay, and the interactions of charged particles and photons when travelling through matter, terminating in a discussion of relevant statistical topics and their applications.

In writing *The Atomic Nucleus* Evans found it impossible to avoid such traditional sins as citing methods and results prior to their formal introduction and the "varied reiteration" of material. In fact, he ended up by abandoning all moral scruples and gave each item as self-contained a treatment as seemed desirable; a procedure that resulted in one of the best introductions to nuclear physics (as distinct from nuclear theory) I have been able to find. The book assumes prior courses in calculus and atomic physics, and goes on from there. The stress is on the physics of what is happening, and Evans tries to communicate the elusive "feel" for the less obvious aspects of his subject, such as center-of-

mass coordinates, that is necessary for complete understanding.

The price of the book will probably discourage students from buying it unless compelled to, which is a pity since they are more likely to benefit from it than their more prosperous elders.

Solid State Physics: Advances in Research and Applications. Vol. 2. Edited by Frederick Seitz and David Turnbull. 468 pp. Academic Press Inc., New York, 1956. $10.00. *Reviewed by J. A. Cowen, Michigan State University.*

Solid state physics is growing at such a rate that even the specialist in the field can appreciate well written concise articles on those phases of the study of solids which lie outside of his own immediate interests. Having started quite late among the various annual review volumes which are so popular today, *Solid State Physics* as a unit will satisfy the most demanding reader.

The two articles by Pake and Knight—one a review of the general technique and theory of nuclear magnetic resonance, the other on the specific problem of magnetic resonance in metals—complement each other. Intentionally or otherwise, this juxtaposition makes both articles more valuable and might well represent an aim of the editors in future volumes.

Nearly half of Shull and Wollans' article on neutron diffraction is devoted to the application of neutron diffraction to the study of magnetic ordering and the superlattice. This is as it should be for much of what we know about antiferromagnetism and ferrimagnetism is due to these experiments and their explanation.

The remaining half of the volume contains two papers, "The Theory of Specific Heats and Lattice Vibrations" by J. de Launay and "Displacement of Atoms by Irradiation" by F. Seitz and J. S. Koehler. Speaking as a nonspecialist, both of these were readable and interesting.

This reviewer feels that the summary included by Knight which indicated the direction of current research and the place of the topics which he discussed in the general scheme of magnetic resonance in metals was a very useful addition and hopes that the editors of the series will encourage future authors to include such summaries.

Control of Nuclear Reactors and Power Plants. By M. A. Schultz. 313 pp. McGraw-Hill Book Co., Inc., New York, 1955. $7.50. *Reviewed by T. Teichmann, Lockheed Aircraft Corporation.*

Over the recent years the analysis and design of electronic feedback circuits and to a large extent of electronic control systems have become almost mechanical due to the wide-spread use of the Laplace Transform Methods and of Bode and Nyquist diagrams. The use of a transfer function to describe the behavior of systems has become almost second nature to electronics people but there is a great deal of work to be done yet