that the book makes its best contribution. This information permits the fullest possible use of the technique during the present early stage of development. The discussion of the technique's limitations and the comparisons with other techniques are most appreciated.

It is obvious that no single method of instrumental analysis is capable of solving all of the analyst's problems; however, atomic absorption spectrophotometry has much to offer, and this small book serves as a good introduction.

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Nuclear Physics

Physics of the Nucleus. M. A. Preston. Addison-Wesley, Reading, Mass., 1962. x + 661 pp. Illus. $15.

The author of this book, M. A. Preston, has attempted to navigate between the Scylla of elaborate theoretical detail and the Charybdis of descriptive superficiality. On the whole, he has been successful.

Preston's point of view is completely modern. A surprisingly small number of the references are dated prior to 1950, and the median date appears to be 1956 or 1957. These dates, of course, reflect the enormous progress that has been made in the field since 1950. Of the 19 chapters, five are concerned with matters that have arisen since 1950. These chapters are entitled "Individual particle model," "Correlations in nuclear matter," "Collective nuclear motion," "The optical model," and "Direct reactions." Further, three chapters deal with very old questions that have recently been developed afresh: the two chapters on the internucleon force and the chapter on beta radioactivity.

This very timeliness also gives rise to the book's major faults. On occasion Preston draws an unwarranted conclusion, because he is unaware of all the facts. One such instance, for example, which is subjectively of interest to me, is in the experimental curve for the proton-proton depolarization at 150 Mev. Later experiments, available while the book was in preparation, have shown that the data displayed at large angles are incorrect, completely altering the conclusion Preston gives on page 112. An occasional error of this type is no doubt a small price to pay for such an up-to-the-minute treatment.

I find myself in more serious disagreement with the author on matters of emphasis. For example, it is difficult to understand why the polarization of elastically scattered nucleons was dismissed with a single sentence on page 548. Many of the topics treated do not lend themselves readily to exposition at the level of theoretical sophistication that the author has assumed to be typical of his readers. In this connection, the chapter on the Brueckner method comes immediately to mind. The student who here encounters this material for the first time may emerge more confused than enlightened. On the other hand, it is difficult to suggest how a better treatment could be made at this level in the space allotted.

This book must be strongly recommended as the only book devoted to this material; thus, no serious student of nuclear physics can afford to be without it. Further, the book's own merits entitle it to recommendation, and my criticisms do not alter my basic judgment that this treatment is, all things considered, very good indeed.

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A Hypothetical Model

Physics of the Solar Chromosphere. Richard N. Thomas and R. Grant Athay. Interscience (Wiley), New York, 1961. x + 422 pp. Illus. $15.50.

This monograph deals with a part of the solar atmosphere whose complexity has fascinated its investigators for almost a century. In the present era of widespread interest in radiative, magnetic, and mechanical phenomena at high temperatures, the title of this book will attract many students and nonastronomical scientists who seek a review discussion of physical processes in the chromosphere. These readers must be warned that writing such a review was not the intent of the authors.

The aim of this highly detailed research monograph is to infer, almost entirely from optical spectra, a structural model of the chromosphere (that is, a specification of the temperature and density at each height).

The authors, R. N. Thomas and R. Grant Athay, bring to this monograph the experience of years of collaborative study of the chromosphere. Most of the content has already appeared in the scientific literature. However, anyone who has tried to assemble, into a cohesive whole, the bits and pieces of journal articles whose publication dates extend over a decade, will appreciate the value of having all of the material assembled in one place, revised and corrected where necessary.

The authors have chosen to alternate in writing successive stages of the analysis, but this practice does not affect the continuity of their presentation. Thomas begins with an introductory discussion of the nature of stellar atmosphere, the particular problems of the solar chromosphere, and the validity of the concept of local thermodynamic equilibrium. Next, Athay reviews the spectroscopic data derived from eclipse measurements, and he describes mass motion and structural variation in the chromosphere. Thomas then sets down the equations that govern the level populations and radiative transport for the case of a statistically steady state. In this chapter (the fourth), he devotes considerable attention to terminology and the forms of the equations. These equations are the core of an "analytical methodology," which the authors employ throughout the remainder of the monograph.

Despite its emphasis on the development of a particular formalism, the treatment of deviations from thermodynamic equilibrium (in chapter 4) should interest anyone concerned with the spectroscopic properties of gases and plasmas. Few readers who are not specialists in the field of stellar atmospheres will wish to venture beyond this chapter.

The authors make little effort to interpret their conclusions in simple, readily understandable form. An occasional recapitulation, in relatively nontechnical language, would certainly have simplified the problem, even for the specialist.

The chromospheric model constructed seems a highly artificial one, based solely on chromospheric spectra obtained at total solar eclipses and mainly on a single eclipse—1952. Thus, the discussion is purely descriptive. The authors make no attempt to evaluate the physical processes that produce the solar chromosphere. A few references to "superthermic" processes (never clearly defined, but presumably shock