before he becomes too enthusiastic in applying the simple methods given in Part 1.

Most of both parts are devoted to approximations based on the molecular orbital approach, although other approaches, particularly the valence bond method, are discussed in some detail. As the authors admit, many of the methods of calculating wave functions and their properties have been omitted, but the extent of the actual coverage is impressive.

All in all, this book certainly represents the most useful and easily assimilated discussion of quantum chemistry and its applications in this field which is available to date. The authors are to be congratulated.

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**Physics of the Atom**. M. Russell Wehr and James A. Richards, Jr. Addison-Wesley, Reading, Mass., 1960. xi + 420 pp. Illus. $8.50.

**Elementary Modern Physics**. Richard T. Weidner and Robert L. Sells. Allyn and Bacon, Boston, Mass., 1960. xi + 513 pp. Illus. $8.50.

Here are two good, new books on modern physics, a field comprising chiefly relativity, quantum physics, solid-state physics, and atomic and nuclear structure. These books are written at about the same level—namely, to follow a general physics course in which calculus is employed. Both require calculus as a prerequisite; both use the rationalized mks system of units; both are about the proper length for a one-semester course; one contains 11 chapters, and the other, 12.

Both the textbooks have a gratifyingly large number of problems at the end of each chapter, and answers to odd-numbered problems at the back. In layout and typography they leave nothing to be desired; the many line drawings are clear, and a few halftone illustrations are included where most appropriate. Interestingly enough, in both books important equations are boxed for emphasis. In both, references for collateral reading, at a comparable or somewhat higher level, are listed at the ends of the chapters; the Wehr and Richards volume lists journal articles as well as standard reference or textbooks.

Wehr and Richards follow essentially the chronological sequence of the great discoveries in modern physics. The first three chapters give the atomic view of matter, electricity, and radiation; the fourth chapter presents the atomic models of Rutherford and Bohr. Chemical evidence is often quoted; this a useful feature, since most students at this level have studied general college chemistry. Some good experiments, not often seen in textbooks, are mentioned—for example, the experiment of Zartman and Ko, which confirmed the Maxwellian velocity distribution. The chapter on relativity is well done, and so is the one on x-rays. Then follow a chapter on waves and corpuscles, one on solid-state physics, and finally, four chapters on phases of nuclear physics.

The illustrations reveal excellent ingenuity and laudable clarity; the diagram of the x-ray powder-diffraction process is novel and most revealing (page 157). An item that will be found useful by instructors as well as by students is the 20-page appendix, listing in chronological order from 550 B.C. to 1958 the various key experiments and theories bearing on the atomic view of nature (the nationalities of the many persons included are also indicated). Another appendix lists the Nobel prize winners in physics and chemistry, through 1958.

The text by Weidner and Sells covers essentially the same subject matter, but it is organized in a nonchronological manner that is said to be logically coherent and sequential. The first chapter is an excellent review of the appropriate areas of classical physics. Next comes a chapter on relativity, then two on quantum effects, then three on optical and x-ray spectra. In the three chapters on nuclear physics, the subject is introduced by describing accelerating machines and detection devices; this is a rather novel order. The final chapter is devoted to molecular and solid-state physics. An attractive feature of this textbook is the short summary given at the end of each chapter. In fact, the subject matter, content, and level of the book can readily be ascertained by reading the 11 summaries (there is none for the first chapter).

A useful feature is the listing in large type, on the inside front and back covers of the book, of the nine physical constants and the four rest masses and rest energies commonly used in computations. Students working on problem assignments will find this to be a great time saver.

The choice between these textbooks will probably be made on the basis of whether or not the prospective user feels strongly about the chronological order of presentation, and whether his pet topics are emphasized. For example, Weidner and Sells give a more thorough treatment of atomic spectra, whereas Wehr and Richards illustrate the band theory of solids by explaining the operation of a number of semiconductor devices. We feel that each book is an excellent treatment of modern physics on the elementary level and that these textbooks constitute a formidable challenge for subsequent authors and publishers in this field.

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**The Ongoing State University**. James L. Morrill. University of Minnesota Press, Minneapolis, 1960. 143 pp. $3.50.

Much has been said and written about the American state university, but never more wisely than in this book, *The Ongoing State University*, by James L. Morrill. Published just before the author retired after serving for 15 years as president of the University of Minnesota, it is a skillful adaptation from what must have been a considerable number of speeches made between 1945 and 1960.

The first three chapters—"The land-grant idea," "Knowledge for use," and "Servant of all the people"—highlight service aspects of the state university and set the tone for the volume. Developmental and administrative features of American higher education, which so frequently confuse and confound foreign observers, are dealt with in chapter 4. Five chapters are concerned with such prickly topics as academic freedom and responsibility, religion in the state university, athletics, public relations, and the alumni. Finally, to round out a dozen closely packed chapters, Morrill makes some pointed observations about the responsibility of a state to its university, the relations of higher education and the federal government, and education as an investment in the future.

In his preface, Morrill states: "Like politics, university administration is also the art of the possible, of helping to make possible the aims of both the philosophical and the practical as scholarship and science and society