and electron-phonon interactions precede a discussion of the formal theory of conduction. Detailed discussions of electrical conductivity, thermal conductivity, and thermoelectric and galvanomagnetic effects are presented, with specific substances used for illustration. This is a book of theory rather than materials.

Many recent advances and new techniques, previously available only in the literature, are incorporated—for example, variational methods for the solution of the Boltzmann equation are applied throughout; the Onsager relations receive constant attention; and the Bohm-Pines collective electron theory is included, probably for the first time in a textbook. Where full details could not be given, a clear statement of the essence is given, along with references for the interested reader. One unfortunate omission is the theory of hopping-type conductivity of localized electrons appropriate to certain oxide semiconductors. This book is limited to study based on band theory.

Although the text is written "from the ground up," it is my belief that it will be of greatest benefit to the reader with a working knowledge of quantum theory and some background in solid-state physics. For the theoretical and experimental research worker in the field, it will be a most valuable possession. No reviewer could fail to mention the quotations given just beneath the chapter headings. These gems and the author's vivid and sometimes humorous similitudes add to the enjoyable experience of reading this book.

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Education and Manpower. Henry David, Ed. Columbia University Press, New York, 1960. xvi + 326 pp. $5.

The National Manpower Council, which was established at Columbia University in 1951 during the presidency of Dwight D. Eisenhower, is bringing its program of research to a close. The book that has just appeared, *Education and Manpower,* is a by-product of the work that has been in progress during the past nine years. Basically it consists of a series of staff papers prepared as the program progressed, but it also contains papers by Clarence Faust, "Our secondary schools and national manpower needs," and by Charles E. Odell, "Vocational guidance and the skills of the work force." In essence, the book is a summary of conclusions reached by the National Manpower Council in the course of its investigations.

Henry David, the Council's executive director, has written the introductory and concluding selections, and Eli Ginzberg, director of staff studies, has contributed a chapter on "Education and national efficiency." Substantial sections of the volume are devoted to secondary and higher education, with a somewhat shorter section on vocational guidance.

With the book's general thesis, the reader will find himself in complete accord. This thesis is stated in the opening sentence of Henry David's introduction: "Formal education is the foundation upon which the development of the nation's manpower resources is built." On the other hand, those who have been equally active in the fields of manpower and education may question the claim made on the jacket: "The selections which comprise *Education and Manpower* reflect a distinctive approach to some of the critical issues in education today." The value of this contribution to the subject is less in its distinctive approach than in its effective synthesis of the solid and constructive thinking that has been done on this vital subject.

It is unfortunate that the volume has not been brought more nearly up to date. Most of the selections appeared between the years 1954 and 1958, and more has happened since than can be covered in eight pages of supplementary notes. I do not wish, however, to detract from the soundness of the Council's thesis. Readers certainly will say "Amen!" to Henry David's warning that "the big danger . . . lies . . . in the possibility that the supply of highly trained men and women will not be adequate to the nation's future requirements. And this danger is enhanced if we fail . . . to increase the supply of young people of ability reaching the colleges; to strengthen the institutions of higher education; and, finally, to reduce the present degree of wastage of potential ability in the population. It certainly does not lie within the power of higher education alone to realize these objectives. Unless there is early identification of ability, a drastic improvement in the quality of secondary education, a more effective program of educational and vocational guidance . . . the stream of young people reaching college will remain too small."

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The Physical Universe. Konrad Krauskopf and Arthur Beiser. McGraw-Hill, New York, 1960. 536 pp. Illus. $8.95.

The authors of this new elementary text covering the basic principles of physical science, but written for students who are not planning to specialize in science, undertook their task with a unique advantage: They set themselves the goal of condensing Krauskopf's *Fundamentals of Physical Science,* a text which has been employed on a large scale for well-nigh 20 years and which is still regarded by many as one of the best in the field. But simplification of an elementary text would, on the surface, seem to be either risky, impossible, or ruinous. Fortunately for the cause of education, the outcome proves successful beyond expectation, and the volume as it stands is a triumph of clarity, simplicity, and selectivity. It is the latter quality that often induces reviewers of textbooks to be petty and unfair because, do what you will from now until doomsday, the problem of choosing the items for inclusion in a text for a broad field must remain a personal one. All one can say in this instance is that the omissions made from the tested precursor are not fundamental. As for my own preference, I would have found it more useful had the authors left undisturbed the derivations of the equations for free fall and kinetic energy and omitted the page defining slugs and newtons, since the clarification of the distinction between mass and weight is well stated by them in prose anyway. It seems a little unfair to permit students to squeeze through a basic science course without sweating just a bit over the source, meaning, and practical value of an equation. But there is no reason why a conscientious teacher may not make an addition here and there, just as he often omits a section he finds expendable.

It would be redundant to go into details concerning the superior achievement of textbook authorship displayed