abilistic theory of utility, the minimax theorem, geometrical interpretation of two-person zero sum games, linear programming and solutions of two-person zero sum games, games with pure strategy sets and sequential compounding of two-person games. A good bibliography is also included.

Throughout the book the authors have emphasized the conceptual problems, but they have also striven to preserve the mathematical niceties in stating known results or problems. The book does not make easy reading, but will repay the careful study of all who wish to apply and understand game and decision theory.

Physics for Science and Engineering. By Robert L. Weber, Marsh W. White, Kenneth V. Manning. 618 pp. McGraw-Hill Book Co., Inc., New York, 1957. $8.00. *Reviewed by Sanborn C. Brown, Massachusetts Institute of Technology.*

Two distinct and significantly different points of view are appearing in this country among those who teach elementary college physics to science and engineering students. One of these pedagogical methods maintains that we must try to illustrate the principles of as many instruments and devices as possible which physicists and engineers are likely to meet in practice—along with the more fundamental concepts of physics. The opposing philosophy insists that the profusion of subjects and details presently used in engineering practice has little place in elementary education for scientific and engineering students, and that concentration on the few unifying principles of physics results in better and more durable preparation for later study.

Professors Weber, White, and Manning are among the most able proponents of the first of these points of view, and those teachers who operate from this perspective will find many details in this treatment of elementary physics to attract them. The major items which they will find interesting will include: (1) A large number of carefully graded questions. (2) Equations derived both with and without calculus. (3) Diagrams, cutaways, and photographs of a large variety of instruments and devices.

This first approach to teaching was accepted without question as standard practice for several generations. Ganot's *Elementary Treatise on Physics* was the classic text used by our fathers (or grandfathers, depending on our ages) in their study of elementary physics. The present book shows a remarkable similarity to Ganot, particularly in the mechanics section, both in the examples chosen and the manner of illustration. This similarity certainly suggests that when this method reaches its peak the examples available remain essentially constant.

Those teachers who adhere to the thesis that a few unifying principles studied in depth at the elementary level better prepare students for advanced work in science and engineering will find little use for this text. The number of separate topics touched is tremendous, and to fit them all into a single volume of 618 well-packed pages, has required the use of a type face so small that subscripts and superscripts become at times difficult to read. The variety of topics in the mechanics section is to this reviewer open to the most criticism. The mechanics section is the longest in the book, while modern physics occupies a mere nine pages. Many of the subjects treated in mechanics are less important than more modern physics would have been, even in an introductory course. On the other hand, the chapter on heat and thermodynamics and much of the chapter on electricity and magnetism are handled basically and with a minimum of gadgetry. In these sections the authors more nearly succeed in providing the education in fundamentals which they consider their goal.

Several innovations in illustrations are introduced in this volume. The frontispiece is an intriguing transparent overlay cutaway of a nuclear power plant and many illustrations are printed in color. Although these undoubtedly add to the casual attractiveness of the book, they do not appear well enough executed by the printer to add significantly to the pedagogical value of the text.

This reviewer does not personally favor a collection of equipment photographs which approaches catalogue proportions. (Furthermore, I am definitely opposed to pictorial diagrams of electrical circuits in place of standard circuit diagrams.) This text will surely be used with a lecture or classroom demonstration course where the actual instruments will be available, and the inclusion of so many pictures seems superfluous. On the other hand, those teachers who believe that fundamental principles are best illustrated by many examples and their application to many instruments and devices will find this text to be one of the best examples of this educational philosophy.

Structure of Atomic Nuclei. Vol. 39 of Handbuch der Physik. Edited by S. Flügge. 566 pp. Springer-Verlag, Berlin, Germany, 1957. DM 125.00 (subscription price DM 100.00). *Reviewed by B. T. Feld, Massachusetts Institute of Technology.*

The past decade has seen unprecedented advances in theory and experiment related to the problems of nuclear structure. The staggering amount of progress in practically all aspects of this problem is reflected in the almost explosive increase of papers in the journals of physics, the summary of which is the herculean task undertaken in this volume. The fact, then, that the major problems in the understanding of nuclear structure remain unsolved is a measure of the difficulty and complexity of the problem. Nevertheless, it is clear that, at least on a number of fronts, we stand on the threshold of understanding. The progress reports contained in this volume will serve, for students and research workers alike, as a most useful jumping-off point for current and future developments.

The subjects of this volume are:

(1) The Two-Nucleon Problem, by L. Hulthén and M. Sugawara. This contains a summary of experimental