tion. In particular, some teachers of chemical engineering will feel that the evolution of separate cases obscures general principles and encourages memorization of distinct techniques. Other teachers who have used the original edition successfully will welcome the expanded coverage of the second.

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Induction and Dielectric Heating. J. Wesley Cable. Reinhold, New York, 1954. vii + 576 pp. Illus. $12.50.

The author may be justly proud of his lucid and comprehensive interpretation of the fundamentals and the engineering phases of induction and dielectric heating. This work conveys a historical and technical panorama of the art and practice with such clarity that it is an excellent reference for the student and practicing engineer, and a highly functional guide for the technical and nontechnical members of industry who are associated with these forms of heating.

In reality this work comprises two basic subjects, induction heating and dielectric heating. While the two subjects are treated separately, frequent cross references point out the similarities and dissimilarities between the two types of heating, and demonstrate the advantages and disadvantages of each form. The engineering principles are competently discussed, and the theory is conveyed to the reader over a bridge of analogies for rapid digestion. The book is sprinkled with a number of pertinent graphic relationships that enhance the understanding of the subject matter and provide useful design data. The author is to be commended for selecting and furnishing only those equations germane to the comprehension and application of the science. Writers often succumb to the temptation to encumber their work with numerous mathematical or physical relationships with an apparent effort toward erudition but with wanton disregard of the real function of the text, which is to convey information accurately and directly.

Following the summary of the technical aspects of the art, Cable reviews the sources of energies available. This survey provides valuable engineering information on the various means of generating the high-frequency power necessary. The author's skill is again revealed by his ability to draw the reader's attention to such technical or economic facets of the equipment that are pivotal in determining its practical qualifications. To illustrate, in the discussion of the effects of bus voltage variations upon electronic generators, he presents pertinent graphs demonstrating the effect of filament voltage variations on the emission and life characteristics of an oscillator tube. Although this information, per se, is not unusual, it is a valuable help in determining the economic feasibility of electronic power supplies in plants suffering a certain degree of voltage variation.

Coil and electrode designs in large part determine the effective application of induction and dielectric heating, respectively, and the two chapters devoted to this phase of the art provide a very adequate background and guide for solving the design problems encountered.

The major part of the book is devoted to the application of induction and dielectric heating in industry and laboratories. This coverage presents a very thorough and comprehensive treatment of various industrial and other specialized uses of high-frequency electric heating. Its completeness, in fact, is extended to include speculation on the future potentialities of dielectric heating. The number of illustrations is ample, and they add significantly to the understanding of heating problems and applications.

The completeness of this book is further attested by the inclusion of a discussion of radio interference produced by the operation of the high-frequency electric heating equipment. I feel that *Induction and Dielectric Heating* is a valuable adjunct to the libraries of the designer and of the application engineer.

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Nuclear Reactors for Industry and Universities. Ernest H. Wakefield, Ed. Instruments Publ., Pittsburgh, 1954. ix + 93 pp. Illus. $2.

This brief book has three very timely and worthwhile objectives: (i) to call attention to the fact that small research-type reactors are now at such a stage of development that any large university or industry should be able to afford one; (ii) to stimulate and encourage the widespread use and further development of research reactors by universities and industry; and (iii) to present in compact form information that will "aid universities and industries in making decisions about the installation of reactors."

The first objective is well supported by a summary of a cost estimate prepared by Henry J. Gomberg and colleagues at the University of Michigan. It indicates that $370,000 will cover the cost of reactor and tank for a modified "swimming pool" arrangement, including operating necessities and safety instrumentation but exclusive of fuel, which must be obtained by arrangement with the Atomic Energy Commission. To this must be added the cost of the building ($60,000 to $300,000) and of the laboratory research facilities for which some sketchy estimates are indicated.

The second objective is supported by a stimulating preface by K. S. Pitzer and by a very brief analysis of the value of a research reactor, which would well merit broader consideration and treatment than that allotted to it.

Four chapters of elementary, semipopular, technical information about reactor classifications, control, instrumentation, and radioactive measurements, one chapter on radiation protection, and one chapter on legal aspects, are intended to support the third ob-